

COPY NO. _____

RETAINING WALL REPAIR AT ANTHOINE STREET

(BID# 14-17)

CITY OF SOUTH PORTLAND, MAINE

**BIDDING AND CONTRACT
REQUIREMENTS AND SPECIFICATIONS**

August 19, 2016

14372



CIVIL ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE

75 John Roberts Road
Suite 1A
South Portland, Maine 04106-6963
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CITY OF SOUTH PORTLAND, MAINE

**BIDDING AND CONTRACT REQUIREMENTS
AND SPECIFICATIONS**

FOR

RETAINING WALL REPAIR AT ANTHOINE STREET

(BID# 14-17)

August 24, 2016

Prepared By:

**Sebago Technics, Inc.
75 John Roberts Road, Suite 1A
South Portland, Maine 04106-6963**

Phone: 207-200-2100

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SECTION 000020INVITATION TO BID

City of South Portland, Maine

RETAINING WALL REPAIR AT ANTHOINE STREET

(Bid#14-17)

Sealed bids for the Retaining Wall Repair at Anthoine Street will be received by the City of South Portland Purchasing Agent at the South Portland City Hall until **2:00 P.M.**, local time, **September 8, 2016** and then at said office publicly opened and read aloud. Bids submitted after this time will not be accepted. Each bidder must submit a single sealed envelope, the outside of which must be clearly marked "Bid for Retaining Wall Repair at Anthoine Street (Bid# 14-17)".

The work includes disassembly of approximately 55 feet of the existing retaining wall at the southern end of the parking lot and disassembly of approximately 42 feet of existing retaining wall on the southern side of the southern entrance of the parking lot. The existing soil behind the walls (approximately five to six feet) shall be removed and replaced with free draining fill. The free draining fill may include crushed stone and underdrain pipe. The retaining wall will be reassembled with the addition of geotextile reinforcing grid. All disturbed areas will be revegetated.

Other Information

The project will be bid as a single project to include lump sum and unit price bid items. The basis of the award will be the lowest responsive bid for the base bid. The City intends to begin construction of the project in September 2016 with Substantial completion by October 28, 2016 and completion of the work in its entirety by November 15, 2016.

The Contract Documents may be examined at the following locations on August 26, 2016:

1. South Portland Purchasing Office, 25 Cottage Road, South Portland, ME 04116
2. South Portland Police Department, 30 Anthoine St., South Portland, ME 04106
3. Sebago Technics, Inc., 75 John Roberts Road, Suite 1A, South Portland, ME 04106

The Contract Documents are available for viewing at Construction Summary of Maine (www.constructionsummary.com)

The Issuing Office is Sebago Technics, 75 John Roberts Road, Suite 1A, South Portland, ME 04106. Copies of Contract Documents may be obtained at the issuing office on **August 26, 2016.**

To be considered a responsive Bidder, the Contractor shall have obtained at least one set of paper plans and specifications from the Engineer (Sebago Technics). The Bid will not be awarded to a Bidder unless a record for the receipt of at least one set of paper plans and specifications exists in the office of the Engineer. To meet this requirement and to establish the record of receipt, a prospective Bidder must obtain paper plans and specifications using the name that is to appear in the Bid Documents.

All questions are to be submitted to Engineer in writing. Questions may be transmitted by e-mail to rmeeck@sebagotechnics.com. Questions received less than 3 working days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding.

A completed **Bid Form, Verification of Bonding Capacity, and bid security in the amount of five percent (5%) of the Total Bid must be submitted with the Bid.** The Bid Security shall be a guaranty bond executed by a surety company authorized to do business in the State of Maine and listed on the most recent Federal Department of the Treasury listing of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies". Bid Security shall be made payable to the Owner. Bids submitted without Bid Security will not be considered. No Bid may be withdrawn for 60 days after receipt of Bids unless released by the Owner.

Within five days after the receipt of bids, the apparent low responsive bidder shall deliver to the Engineer and Owner for review and acceptance the listing of subcontractors, suppliers or entities for the work listed in Supplementary Condition SC-6.06.

The successful bidder must furnish within **10 calendar days** after the Notice of Award the required number of copies of the **signed Agreement, 100% Performance Bond, 100% Payment Bond, Insurance Policy** and begin execution of this contract within 10 calendar days following the Notice to Proceed. **The General Contractor shall be responsible for the full amount of the 100% Performance Bond and the 100% Payment Bonds. Combining bonds of subcontractors is not acceptable.**

The Successful Bidder must comply with the following:

Non-discrimination in Employment and Labor Standards: Bidders on this work and all subcontractors will be required to comply with the President's Executive Order No. 11246 (EEO) and the amendments and supplements to that Order regarding affirmative action and equal employment opportunity.

Department of Labor Regulations: The Contractor must comply with all the Safety and Health Regulations (CFR29 Part 1926 and all subsequent amendments) as promulgated by the US Department of Labor on June 24, 1974; the Department of Labor Regulations relating to Copeland "Anti-Kickback Act (18 U.S.C. 874) as supplemented by 29 CFR Part 3; Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by 29 CFR Part 5, and Occupational Safety and Health Standards (OSHA) (29 CFR Part 1910).

Environmental Regulations: The Contractor must comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 U.S.C. 1857(h)), Section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738 and Environmental Protection Agency regulations (40 CFR Part 15). Contractors are urged to become familiar with the requirements of these regulations.

The Owner reserves the right to reject any or all Bids, to waive any technical or legal deficiencies, and to accept any Bid that it may deem to be in the best interests of the Owner.

By Order of the City Council of South Portland

END OF SECTION

SECTION 000310

BID FORM

PROJECT IDENTIFICATION: Retaining Wall Repair at Anthoine Street
(Bid#14-17)

THIS BID IS SUBMITTED TO: City of South Portland
25 Cottage Road
South Portland, Maine 04106

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the day of Bid opening. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within fifteen days after the date of Owner's Notice of Award.
3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:
 - (a) Bidder has examined copies of all the Bidding Documents and the following Addenda (receipt of all which is hereby acknowledged):

<u>Date</u>	<u>Number</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

- (b) Bidder acknowledges that his Bid will be rejected unless the Issuing Office has a record that the Bidder has purchased at least one set of paper Bidding Documents from the Issuing Office.
 - (c) Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

- (d) The bidder understands that there are no reports and drawings of subsurface conditions and drawings of physical conditions provided for this project. If information is provided at a later date relative to the subsurface or physical conditions, the contractor accepts the determination set forth in Paragraph 4.02 of the General Conditions of the extent of the technical data contained in such reports and drawings upon which Bidder is entitled to rely.
- (e) Bidder acknowledges that their review of the project documents and site are sufficient to determine the cost, progress, performance or furnishing of the Work as Bidder considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.02 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by Bidder for such purposes.
- (f) Bidder has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by Bidder in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.03 of the General Conditions.
- (g) Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- (h) Bidder has given Engineer written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder.
- (i) The Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.
- (j) Bidder understands that the Owner reserves the right to reject any or all bids.
- (k) Bidder understands that, if the contract is to be awarded, it will be awarded to the lowest responsive, responsible bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.

- (1) The bid security attached in the amount of five percent of the Total Bid is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

4. Bidder will complete the Work described in the Contract Documents for the following price(s):

Base Bid

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1.1	Repair of northern wall segment	LS	1	\$	\$
1.2	Repair of southern wall segment	LS	1	\$	\$
1.3	Erosion and Sediment Control	LS	1	\$	\$
1.4	Restoration of disturbed areas	LS	1	\$	\$
1.5	Mobilization and General Conditions	LS	1	\$	\$
Total of All Bid Prices					\$

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

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

TOTAL: Total of Items 1.1 through 1.5 above

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

5. Bidder agrees that the Work will be substantially complete and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

6. The following documents are attached to and made a condition of this Bid:

- (a) This Bid Form in its Entirety.
- (b) Required Bid Security.
- (c) Verification of bonding capacity.

7. Communications concerning this Bid shall be addressed to:

Phone: _____ Fax: _____
Email: _____

8. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

RESPECTFULLY SUBMITTED on _____, 20__

If Bidder is

An Individual

By _____ (SEAL)
(Individual's Name)

doing business as _____

Business address: _____

Phone No.: _____

A Partnership

By _____ (SEAL)
(Firm Name)

_____ (General Partner)

Business address: _____

Phone No.: _____

A Corporation

By _____ (SEAL)
(Corporation Name)

_____ (State of Incorporation)

By _____ (SEAL)
(Name of Person Authorized to Sign)

By _____ (Title)

(Corporate Seal)

Attest _____
(Secretary)

Business address: _____

Phone No.: _____

A Joint Venture

By _____ (SEAL)
(Name)

(Address)

By _____ (SEAL)
(Name)

By _____
(Address)

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

END OF SECTION

**SECTION 000410
BID BOND**

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

BIDDER (Name and Address): _____

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

OWNER (Name and Address): _____

BID

Bid Due Date: _____

Project (Brief Description Including Location): _____

BOND

Bond Number: _____

Date (Not later than Bid due date): _____

Penal sum _____

(Words)

(Figures)

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

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature and Title

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

Attest: _____
Signature and Title

Attest: _____
Signature and Title

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

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

SECTION 000510

AGREEMENT

THIS AGREEMENT is by and between The City of South Portland

(Owner) and _____

(Contractor).

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

ARTICLE 1 - WORK

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

The work includes disassembly of approximately 55 feet of the existing retaining wall at the southern end of the parking lot and disassembly of approximately 42 feet of existing retaining wall on the southern side of the southern entrance of the parking lot. The existing soil behind the wall (approximately five to six feet) shall be removed and replaced with free draining fill. The free draining fill may include crushed stone and underdrain pipe. The retaining wall will be reassembled with the addition of geotextile reinforcing grid. All disturbed areas will be revegetated; and any other work as specified on the contract drawings and required to complete the project in its entirety and ready for owner's acceptance.

ARTICLE 2 - THE PROJECT

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

**City of South Portland, Maine
Retaining Wall Repair at Anthoine Street**

ARTICLE 3 - ENGINEER

3.01 The Project has been designed by Sebago Technics, Inc. (Engineer), 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

4.01 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.

4.02 Dates for Completion and Final Payment

A. The Work shall be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before November 15, 2016.

ARTICLE 5 - CONTRACT PRICE

5.01 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 5.01.A.

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

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. Applications for Payment will be processed by Engineer.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment at the end 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:

- 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:

- 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 have been satisfactory to Owner and Engineer, and if all submittals identified in the Contract Document have been submitted to the 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 on account of Work subsequently completed, in which case the remaining progress payments prior to Substantial Completion will be in an amount equal to 100 percent of the Work completed less the aggregate of payments previously made; and

- b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

- 2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 98 percent of the Work completed, less such amounts as Engineer shall determine.

6.03 Final Payment

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price as recommended by the Engineer.

ARTICLE 7 - INTEREST

- 7.01 All moneys not paid when due shall not bear interest.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 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) and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site.

- 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

9.01 Contents

A. The Contract Documents consist of the following:

1. This Agreement (inclusive).
2. Certificate of Liability Insurance (inclusive).
7. Drawings consisting of sheets bearing the following general title: “South Portland Police Station”.
8. Contractor’s Estimate (inclusive).
9. 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.
 - b. Work Change Directives.
 - c. Change Order(s).

C. There are no Contract Documents other than those listed above in this Article 9.

D. 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; or
3. Engineer’s written interpretation or clarification.

ARTICLE 10 - MISCELLANEOUS

10.01 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.

10.02 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.

10.03 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, Contractor and Engineer. All portions of the Contract Documents have been signed, initialed or identified by Owner and Contractor or identified by the Engineer on their behalf.

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

OWNER:

CONTRACTOR:

By: _____

By: _____

Title: _____

Title: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

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

License No.: _____
(Where applicable)

Agent for service or process: _____

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

**SECTION 000610
PERFORMANCE BOND**

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By: _____

Signature and Title

(Attach Power of Attorney)

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

Attest: _____

Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By: _____

Signature and Title

(Attach Power of Attorney)

Attest: _____

Signature and Title:

EJCDC No. C-610 (2002 Edition)

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

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

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

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

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

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

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

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

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

4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or

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

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or

4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
2. Deny liability in whole or in part and notify Owner citing reasons therefor.

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

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

6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;

6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

12.1. Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

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

12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

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

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

SECTION 000620

PAYMENT BOND

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

CONTRACTOR (*Name and Address*):

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

OWNER (*Name and Address*):

CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):

BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

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.

1. With respect to Owner, this obligation shall be null and void if Contractor:
 - 1.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 1.2 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.
2. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
3. Surety shall have no obligation to Claimants under this Bond until:
 - 3.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address 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.
 - 3.2 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 (at the address described in Paragraph 12) 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.
4. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
5. Reserved.
6. 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.
7. 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.
8. 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.

9. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

10. 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 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.

11. 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.

12. 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.

13. 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.

14. Definitions

14.1 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.

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

14.3 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 otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address, and Telephone)*

Surety Agency or Broker:

Owner’s Representative *(Engineer or other)*:

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



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

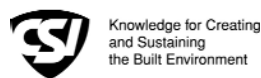
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Construction Specifications Institute

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

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

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

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

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

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

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

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

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

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

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

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

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

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

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

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

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

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

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

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

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

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

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

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

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

30. *PCBs*--Polychlorinated biphenyls.

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

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

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

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

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

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

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

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

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

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

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

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

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other

Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

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

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

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, material man, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

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

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

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

1.02 Terminology

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

B. *Intent of Certain Terms or Adjectives*

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

C. *Day*

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

D. *Defective*

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

- a. does not conform to the Contract Documents, or
- b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or
- c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment

to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

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

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

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

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

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

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

2.02 *Copies of Documents*

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

2.03 *Commencement of Contract Times; Notice to Proceed*

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

Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

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

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

2. a preliminary Schedule of Submittals; and

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

2.06 *Preconstruction Conference*

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

2.07 *Initial Acceptance of Schedules*

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

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the

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

3.01 *Intent*

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

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any

duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

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

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

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

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

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

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

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

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or 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.

3.06 *Electronic Data*

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

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or

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

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

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

4.01 *Availability of Lands*

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

4.02 *Subsurface and Physical Conditions*

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

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

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

B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

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

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

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

4.03 Differing Subsurface or Physical Conditions

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

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by

Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

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

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

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

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

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

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

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made 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.

4.04 *Underground Facilities*

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

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

- a. reviewing and checking all such information and data,
- b. locating all Underground Facilities shown or indicated in the Contract Documents,
- c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and
- d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

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

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change

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

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

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

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

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

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

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

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

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

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim 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

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties

on Federal Bonds and as Acceptable Reinsuring Companies” as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent’s authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

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

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

5.04 *Contractor’s Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor’s performance of the Work and Contractor’s other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers’ compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor’s employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor’s employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

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

b. by any other person for any other reason;

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

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

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

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

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

3. include completed operations insurance;

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

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior

written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

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

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

5.05 *Owner's Liability Insurance*

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

5.06 *Property Insurance*

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

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

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and

Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

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

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

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

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

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

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

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

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

pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

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

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

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

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

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

any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

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

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

6.02 *Labor; Working Hours*

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

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site

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

6.03 *Services, Materials, and Equipment*

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

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

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

6.04 *Progress Schedule*

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

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

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

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is

intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

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

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

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

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

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

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

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

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

2. Substitute Items

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

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute 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 requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

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

b) be similar in substance to that specified, and

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

2) will state:

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

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

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

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

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of

other contractors affected by any resulting change,

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. Special Guarantee: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

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

6.06 *Concerning Subcontractors, Suppliers, and Others*

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

perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

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

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

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

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

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

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcon-

tractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

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

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

6.08 *Permits*

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

6.09 *Laws and Regulations*

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

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the

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

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

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

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

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

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

6.12 *Record Documents*

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

Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

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

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

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

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

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

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

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

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

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

1. Shop Drawings

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

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

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

a. Submit number of Samples specified in the Specifications.

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

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

C. Submittal Procedures

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

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

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

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

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

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

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

D. Engineer's Review

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

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

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

E. Resubmittal Procedures

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

6.18 Continuing the Work

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

6.19 Contractor's General Warranty and Guarantee

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

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

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

2. normal wear and tear under normal usage.

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

1. observations by Engineer;

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

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

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

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

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

7. any correction of defective Work by Owner.

6.20 Indemnification

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

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

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

6.21 *Delegation of Professional Design Services*

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

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

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have

specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

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

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts 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.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

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

7.03 *Legal Relationships*

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

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

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

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

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

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

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

failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

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

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

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

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

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

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

9.07 *Determinations for Unit Price Work*

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

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

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

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

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

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

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or

performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

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

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

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

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

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

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

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

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

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

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

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

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

10.04 *Notification to Surety*

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

10.05 *Claims*

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

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

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

1. deny the Claim in whole or in part,

2. approve the Claim, or

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

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

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

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

11.01 *Cost of the Work*

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

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work

and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the

written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

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

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

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

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

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

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

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

C. Contractor's Fee: When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

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

B. Cash Allowances

1. Contractor agrees that:

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

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

C. Contingency Allowance

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

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

11.03 Unit Price Work

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

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities

and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

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

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

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

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

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

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

12.01 *Change of Contract Price*

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

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

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

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

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph

12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

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

1. a mutually acceptable fixed fee; or

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

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

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

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

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

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an

adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

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

13.01 *Notice of Defects*

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

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and
3. as otherwise specifically provided in the Contract Documents.

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

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

Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

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

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

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

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

13.07 *Correction Period*

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

1. repair such defective land or areas; or
2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

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

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

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

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

13.08 *Acceptance of Defective Work*

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

after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

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

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

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

14.01 *Schedule of Values*

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

14.02 *Progress Payments*

A. Applications for Payments

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

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

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

B. *Review of Applications*

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

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an

experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

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

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

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

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

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

D. Reduction in Payment

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

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

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

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 Contractor's Warranty of Title

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

14.04 Substantial Completion

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

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

14.05 *Partial Utilization*

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

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

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

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons 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.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. Application for Payment

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

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

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

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

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral

satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance

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

C. Payment Becomes Due

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

14.08 Final Completion Delayed

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

14.09 Waiver of Claims

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

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

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

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 Owner May Suspend Work

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

15.02 Owner May Terminate for Cause

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

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

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

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

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

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

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

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

3. complete the Work as Owner may deem expedient.

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

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

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

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

15.03 *Owner May Terminate For Convenience*

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

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

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

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

4. reasonable expenses directly attributable to termination.

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

15.04 *Contractor May Stop Work or Terminate*

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

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

16.01 *Methods and Procedures*

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

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

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

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or
2. agrees with the other party to submit the Claim to another dispute resolution process, or
3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

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

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

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

SECTION 000839

WAIVER OF LIEN - MATERIALS AND LABOR

STATE OF _____

COUNTY OF _____

TO WHOM IT MAY CONCERN:

WHEREAS, _____ the undersigned
_____ have been employed by _____
_____ to furnish labor and materials for the project known as
_____.

NOW THEREFORE, KNOW YE, THAT WE, the undersigned, for good and valuable considerations do hereby waive and release any and all lien or right of lien on said above project and premises under the Law, in relation to Mechanics' Liens Law, on account of labor and materials, or both, furnished by the undersigned to or on account of the said contract for the said project and premises only so far as that portion of work which has been included in our requisition dated _____ and all prior requisitions.

THIS WAIVER AND RELEASE is being made to the undersigned in the amount of \$_____ which sum the undersigned certifies to be the balance due the undersigned for all labor, materials or both, furnished by the undersigned to or on account of the said contract as included on his requisition dated _____.

GIVEN UNDER _____ hand and seal, the _____ day
of _____, 20 __.

By: _____

END OF SECTION

SECTION 01000 - SPECIAL PROVISIONS

PART 1 - GENERAL

1.1 STANDARD SPECIFICATIONS

The City of South Portland, Maine has adopted for this project the "State of Maine, Department of Transportation (MaineDOT), Standard Specifications, Revision of November, 2014", including all current additions or modifications thereof, including the most recent version of the MaineDOT "Repair Specifications", Supplemental Specification (corrections, additions, and revisions to standard specifications), (herein referred to as "Standard Specifications").

A copy of the Standard Specifications can be found online at:

<http://maine.gov/mdot/contractors/publications/standardspec/index2014.shtml>

1.2 GENERAL CONDITIONS

The City of South Portland has adopted the Standard General Conditions of the Construction Contract as prepared by the Engineers Joint Contract Documents Committee (EJCDC C-700 with the supplemental conditions found in the Bidding and Contract Requirements and Specifications. It is the intent of the EJCDC C-700 guideline and Supplemental Conditions to replace the following Divisions of the MaineDOT Standard Specifications:

1. Division 100 – General Conditions; except those provisions contained in the Special Provisions and Supplemental Specifications.
2. Division 100 – Appendix A of the MaineDOT Standard Specifications.

1.3 SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS

A. The City of South Portland has also made specific changes to the MaineDOT Standard Specifications to incorporate the requirements of the City of South Portland's Ordinance and Standards. As such, the Contract Agreement, Special Provisions and Supplemental Specifications contained herein shall take precedence and shall govern in any case of conflict with the MaineDOT Standard Specification.

1. Supplemental Specifications are modifications, additions and deletions to the Standard Specifications.
2. Special Provisions are specifications in the contract that are for additional items not covered in the Standard Specifications.

B. If the Contractor discovers any ambiguity, error, omission, conflict, or discrepancy ("ambiguity", etc.) related to the Contract Documents that may significantly affect the cost, quality, conformity, or timeliness of the Work, the Contractor must comply with Section 3.03 Reporting and Resolving Discrepancies of the EJCDC Standard General Conditions (which is similar to Section 104.3.3 – Duty to Notify Department If Ambiguities Discovered of the MaineDOT Standard

Specifications). In the case of ambiguity, etc., the following components of the Contract Documents shall control in the following descending order of priority:

1. City of South Portland Bid Amendments (most recent to least recent)
2. Project Specific Permit Requirements
3. City of South Portland Special Provisions
4. City of South Portland Notes on Plans
5. City of South Portland Plans
6. City of South Portland Supplemental Specifications
7. EJCDC C-700 Standard General Conditions with the Supplemental Conditions
8. MaineDOT Repair Specifications
9. MaineDOT Standard Specifications

C. NO SEPARATE PAYMENT

Unless specifically stated otherwise, the cost for providing work defined in the Special Provisions is incidental to the contract and no separate payment will be made.

1.4 WORKING HOURS

- A. Regular Working Hours shall be 7:00 A.M. to 7:00 P.M., Monday through Friday. If the Contractor or Subcontractors wish to work outside of these hours, written authorization must be obtained in advance from the City of South Portland. Authorization for work from 7:00 P.M. to 9:00 P.M. can be authorized by the Owner's representative with 48 hours advance notice.
- B. The Contractor shall not work during holiday weekends without written authorization obtained in advance from the City of South Portland. All trenches shall be backfilled or covered and all equipment and materials shall be moved out of the public streets during holiday weekends. The Contractor shall not occupy public street, other than in designated and secured staging areas, with equipment or materials during holiday weekends or legal holidays.
- C. The Contractor will be allowed to complete paving operations outside of the Regular Working Hours (night paving) with written authorization obtained in advance from the City of South Portland City Council. The Contractor will be allowed to close streets to vehicular traffic during night paving operations with written authorization obtained in advance from the City of South Portland City Council.

Night paving from 9:00 P.M. until 7:00 A.M. requires approval by the South Portland City Council. A written request for night paving must be submitted by the contractor a minimum of 7 days in advance of the regularly scheduled City Council meeting at which the request is to be considered.

No additional payment will be made for night paving.

1.5 NOTIFICATION OF RESIDENTS

- A. Residents shall be notified by the Contractor sufficiently in advance of any construction affecting the resident's driveway and sidewalk to allow adequate time for his removal of personal vehicles. Locations of curb cuts for drive access affecting individual residents shall be brought to their attention. The Contractor shall restore access to all driveways at the end of each work day. The Contractor shall also make every effort to maintain access to the driveways at all times.

1.6 PROTECTION OF TREES

- A. The Contractor shall be responsible for the preservation of all trees on the project which are not called to be removed. Any trees damaged by the Contractor's operations shall be repaired using approved tree dressing or paint in accordance with the appropriate provisions of Section 201 of the Standard Specifications.

1.7 TRAFFIC SIGNS

- A. All existing traffic signs which are to be removed during construction shall be carefully dismantled and the posts removed and shall be stacked in an area approved by the Engineer.
 1. The Contractor shall protect the signs from damage while in his possession and shall repair, at no additional cost to the City, any damages cause by his operations.
 2. Stop signs are to be maintained at their original locations at all times during the progress of the work.
 3. Prior to the start of any construction work, the Contractor and Engineer shall prepare a mutually acceptable inventory of all signs within the project limits which shall be used as a guide for replacement should signs be removed for construction purposes. The signs shall be inventoried by station location and approximate offset, legend of sign and post.
 4. This work shall be considered as subsidiary obligation of the contract for which no specific payment will be made.
 5. All remounted signs are to be installed on new U-Channel Posts with breakaway connections as indicated in the Standard Specifications and Supplemental Specifications.

1.8 CONTRACTOR STAGING AREAS

- A. The City of South Portland will not provide staging areas for the Contractors use. Contractor is responsible for obtaining all staging areas required for the work. All costs associated with the use, maintenance and restoration of the staging areas are incidental to the Contractor's mobilization and no separate payment will be made.

1.9 MAINTENANCE OF TRAFFIC

- A. The Contractor shall prepare and submit a detailed Traffic Control and Phasing Plan that is coordinated with the construction schedule and addresses traffic control for all aspects of the project. This work shall be considered a subsidiary obligation of the contract for which no specific payment will be made.
1. The Contractor shall be responsible for the maintenance and protection of all vehicular and pedestrian traffic at all times during construction and shall erect suitable warning signs, flashers, barriers or temporary lighting devices of sufficient size and number to afford protection to the traveling public. The Contractor shall be held responsible for all damage to the work due to any failure of the warning devices to properly protect the work from the traffic, pedestrians or other causes.
 2. Traffic control shall comply with the requirements of the City of South Portland Ordinance Chapter 23 Streets and Sidewalks, Article IV, Section 23-41, Excavations in Public Places
 3. Responsibility for preparation of a Traffic Control Plan shall be the Contractor's. The Contractor must submit their Traffic Control Plan to the City for review and approval, five (5) working days prior to the Pre-Construction Meeting. The City reserves the right to require modifications or additional traffic control measures as determined necessary by the City to insure the safe movement of pedestrian and vehicular traffic and that parking/access/deliveries to local residences and businesses are maintained throughout construction.
 4. Preparation of Traffic Control Plans, construction signage, barrels, cones, temporary fencing, jersey barriers, maintenance of traffic control devices, and other necessary incidentals to maintain traffic shall be in accordance with these specifications and the Manual of Uniform Traffic Control Devices (MUTCD) latest edition.
 5. The Contractor's Traffic Control Plan shall include maintenance of sidewalk, building entrances and driveways to all businesses, residential or other entities located within the construction area. It shall be the Contractor's responsibility to adapt and modify all aspects of the Traffic Control Plan as needed to insure minimal disruption building, driveway and parking access within the construction area.

1.10 MATERIALS

- A. Materials shall meet the requirements specified in the specifications. Equals shall be considered so long as the Contractor can supply sufficient product material and testing data to show that the equal meets or exceeds the performance data of the product identified on the contract documents. The Engineer will determine if a product is equal.

1.11 SURVEY

- A. The City of South Portland will provide coordinate locations for the Engineer's network of survey control points project area and the baselines shown on the plans. Control points will be paint marked in the field. The Contractor shall be responsible for maintaining these controls during construction and providing all additional survey required for construction layout.

1.12 ELECTRONIC FILES AND RELEASE FORM

- A. Electronic copies of the plans will be made available to the selected Contractor. The Engineer's Electronic File Release and Waiver Form identifying limitations on the Contractor's use of the data and limitations on the Engineer's liability related to the Contractor's use of electronic data will need to be filled out and signed by the Contractor before the files will be delivered.
- B. Electronic files will be provided in AutoCAD Civil3D 2014 .dwg and/or LandXML file format. Translation of the files to other electronic formats is the responsibility of the Contractor.

1.13 SHEETING AND BRACING

- A. Any sheeting, shoring and/or bracing required for the protection of structures and utilities and for the installation of drainage and/or sanitary sewerage structures will not be paid for separately but shall be considered as incidental to the appropriate bid item. The Contractor is responsible for the design and implementation of any excavation support required. This work shall be considered a subsidiary obligation of the contract for which no specific payment will be made.

1.14 DEWATERING:

- A. Dewatering may be required for surface and below grade construction, especially in areas where the water table is just below the ground surface. Excavation, trenches and all other parts of the construction site shall be dewatered and kept free of standing water and muddy conditions as necessary for the proper execution of the work. The Contractor shall furnish, install, operate, and maintain all drains, sumps, pumps, casings, well points, and all other equipment required to properly dewater the site as specified.
- B. If groundwater must be discharged onto surface areas, waters or into the municipal storm sewer system or, the water must be pre-treated prior to disposal to removed sedimentation to meet applicable regulatory discharge requirements. The Contractor will be responsible for any testing, treatment and/or off-site disposal of the water. This work shall be undertaken by the Contractor in accordance with applicable Federal, State and local regulatory requirements. The Contractor shall inform the Engineer before any dewatering commences.
- C. All cost associated of the design and implementation of construction dewatering is incidental to excavation. No separate payment will be made.

1.15 WASTE AREAS

- A. Waste and surplus material shall not be stockpiled. The disposal of waste and surplus material shall be as outlined in Section 203.06 – Waste Areas of the Supplemental Specifications.

1.16 OCCUPATIONAL SAFETY AND HEALTH

- A. The Contractor is hereby advised that all work to be furnished to the City shall be performed with equipment, methods, and use of personnel in conformance with the pertinent Occupational Safety and Health Act requirements of the State of Maine and with the regulations for construction as specified by the Department of Labor and Occupational Safety and Health Administration (OSHA) as currently amended.

1.17 SETTING OF PIPES TO LINE AND GRADE

- A. Laser beam equipment shall be used for laying storm drain and/or sanitary sewer pipe. Frequent checks shall be made to assure close adherence to line and grade. Setting pipes to grade by use of “pop” levels or carpenter levels will not be permitted.

1.18 EXTENT OF OPEN EXCAVATION

- A. The extent of excavation open at any one time shall be controlled by OSHA regulations and by existing conditions and location of work area.

1.19 LIMITATION OF OPERATIONS

- A. The Contractor shall conduct the work at all times in such a manner and in such sequence as will assure the least interference with traffic. He shall not open up work to the prejudice or detriment of work already started.

1.20 DUST CONTROL FOR STREET

- A. The Contractor shall apply water as the primary means of dust control. Water shall be applied as needed such that dust is prevented.

1.21 TRENCH PAVEMENT REPLACEMENT

- A. The Contractor shall be responsible for repairing any pavement that has experienced excess settlement, cracking or opening of pavement joints. Repair may include overlay, removal of unacceptable material and complete replacement, joint sealing or recutting pavement as required. This work may be necessary after final acceptance of the work and prior to expiration of the maintenance bond. This work shall be done at no additional cost to the City.

1.22 CITY OF SOUTH PORTLAND’S STREET EXCAVATION ORDINANCE

- A. The Contractor is hereby advised that all work shall conform to the regulations of Chapter 23 of the South Portland Code of Ordinances, "Excavations in Public Places", as currently amended. The Contractor shall be responsible for obtaining and completing the Street Opening Permit Application but will not be charged a fee for the Street Opening Permit for the Excavation.

1.23 WASTE AND SALVAGE MATERIAL

- A. All waste material shall be removed from the site and the area left clean upon completion of work. Any equipment or structures damaged by the Contractor shall be repaired or replaced at no additional cost to the City. The Contractor shall notify the City of the final waste disposal location and if so located in the City shall be responsible to provide evidence of all necessary local fill permits and State permits at no extra cost to the City.
- B. All cobble stones, paving stones and granite curbing that are removed and not designated for reuse in the work shall remain the property of the City of South Portland and shall be transported and stockpiled by the Contractor at a designated location within the City of South Portland's public works facility on O'Neil Street. The cost of loading, transporting unloading and stockpiling cobbles and stacking curbing is incidental to the contract and no separate payment will be made.

1.24 SANITARY FACILITIES

- A. The Contractor shall provide self-contained toilet units in sufficient numbers for use of all persons involved in the work.

1.25 UNAUTHORIZED USE OF FIRE HYDRANTS

- A. In conformance with the Maine State Department of Human Services, the Portland Water District requires the use of an approved air gap or reduced pressure zone back flow-device to assure the protection of the public water supply when filling tank trucks, street sweepers, jet machines or any other related equipment, or any other needs that require a connection to a public or private hydrant.
- B. Private Contractors providing services to the City for, street sweepers, jet machines, and lining services, are required to apply to the Portland Water District (District) for a hydrant meter and back flow device installations. The approved applicants will pay for the installation and removal of the hydrant meter and back flow device and all water recorded by the meter.
- C. The District considers any other connection or usage from a public or private hydrant as an unauthorized use of a hydrant and a theft of services. All Contractors must apply to The District for the installation of a back flow device and meter for each usage.

- D. The District will operate the hydrant and install and remove and relocate the back flow device and meter as needed. A valve is provided at the connection so the applicant can control the water without operating the hydrant. Please note size of meter requested (2" or 1"). The District can be contacted at 774-5961. All cost associated with these requirements is incidental to the contract.

1.26 WORKING DRAWINGS

- A. Submittals and shop drawings, defined as Working Drawings in the Standard Specifications Section 101.2 Definitions, shall be provided to the Engineer for review and approval. Requirements and timelines for working drawing review shall be in accordance with Section 01340 of the Specifications.

1.27 UTILITY COORDINATION

- A. The Contractor will be responsible for notifying utility representatives of the anticipated construction schedule. The Contractor will be responsible for all utility coordination, protection of existing infrastructure and any damages to existing utilities as a result of the work at no additional cost to the City.
- B. The Contractor must exercise every reasonable precaution to prevent damage to Utility Facilities or interruption to utility services known to or discovered by the Contractor, whether or not shown on the Plans. Such precautions must include notice to Utility Companies before undertaking Work that could damage Utility Facilities. The Contractor must provide each Utility Company with notice at least three Business Days before the date a Utility Company will have to support any pole.
- C. The Contractor must take all reasonable precautions to determine the presence of underground Utility Facilities before commencing any excavation Work and must provide all affected Utility Companies with at least 72-hour prior notice of the proposed excavation. The Contractor must comply with 23 M.R.S.A. § 3360-A, entitled "Protection of Underground Facilities," Maine's "Dig Safe" statute.
- D. The Contractor must maintain initial markings (spray paint, stakes, etc.) made by the authorized representative of a Utility Company to indicate the location of underground Utility Facilities and otherwise comply with 23 M.R.S.A. § 3360-A(4).
- E. The Contractor must cooperate with Utility Companies in their relocation or operations so that these operations proceed in a logical sequence, minimize duplication of Work, and avoid unnecessary interruptions to utility service.
- F. If utility services are interrupted as a result of the Contractor's Work, the Contractor must promptly notify the appropriate Utility Company and must cooperate fully in the restoration of service. If service is interrupted, repair Work will be continuous until the service is restored.
- G. The cost of all Work related to utility coordination is Incidental to the Contract and no separate payment will be made.

1.28 SPECIAL PROVISION MAINEDOT DIVISION 400 PAVEMENTS

- A. The MaineDOT Special Provision Division 400 Pavements is attached in the appendices and is adopted for this project with the modifications and additions reference in the Supplemental Specifications.

1.29 ANTI-IDLING POLICY

- A. This Special Provision is a copy of the City's Anti-Idling Policy. Although this Policy is directed to City Employees regarding the use of City vehicles, we as a

City, along with its citizenry, request your compliance as well. It is our goal to protect and preserve the natural environment and improve air quality in the City of South Portland. As a business partner of our City and responsible organization we will expect and greatly appreciate your assistance in this effort.

City of South Portland Anti-Idle Policy

This policy is designed to eliminate unnecessary idling of municipal vehicles in order to reduce the cost of City operations and to reduce emissions created by City vehicles. A vehicle idling gets zero miles per gallon; unnecessary idling wastes fuels and pollutes the air. Our goal is to reduce use of petroleum products, reduce cost, protect and preserve the natural environment, and improve air quality in the City of South Portland.

It is the policy of the City of South Portland to continually improve the efficient use of vehicle fuels in an effort to reduce operating costs and emissions. City vehicles will not be permitted to idle unnecessarily. Operators of City equipment will adhere to the following standards:

- A. Idling is prohibited when the ambient temperature is above 35 degrees F;
- B. Five minute idle time limit when ambient temperature is 32 degrees F to 35 degrees F;
- C. Ten minute idle time when ambient temperature is below 32 degrees F for diesel vehicles and any vehicle in the field to provide heat for safety of the operator. Any vehicle left running for these purposes must be within sight of the operator at all times; and
- D. Five minute idle time when ambient temperature is above 80 degrees F and the operator is in the vehicle for air conditioning.

Exceptions: Due to the emergency nature of some City operations, the following exceptions will apply to this policy:

- A. Emergency response vehicles when responding to an emergency;
- B. Ambulances which must maintain onboard medication at a specific temperature;
- C. Vehicles whose batteries may be discharged because of onboard electrical equipment (i.e. emergency lights, radar, computers etc.);
- D. K-9 or Animal Control vehicles when animals are on-board;
- E. Equipment being used during snow plow operations;
- F. City buses when patrons are on-board; and
- G. Vehicles that require the engine to run at a certain RPM when using a piece of equipment associated with the vehicle.

END OF SECTION

SECTION 011000 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The work includes, but is not limited to:
1. The work includes disassembly of approximately 55 feet of the existing retaining wall at the southern end of the parking lot and disassembly of approximately 42 feet of existing retaining wall on the southern side of the southern entrance of the parking lot. The existing soil behind the wall (approximately five to six feet) shall be removed and replaced with free draining fill. The free draining fill may include crushed stone and underdrain pipe. The retaining wall will be reassembled with the addition of geotextile reinforcing grid. All disturbed areas will be revegetated.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

3.1 MAINTAIN EXISTING WORKS

- A. Utilities:
1. The Contractor will be responsible for all work necessary to maintain existing services for utilities including but not limited to temporary water, natural gas, electrical and telecommunications.
 2. The Contractor will be responsible for ensuring surface drainage collection is maintained and sewer services are provided to all properties without interruption unless approved by the Engineer.
- B. Minimize Interference with Traffic and Properties:
1. The Contractor shall, at all times, conduct project operations to interfere as little as possible with existing properties and vehicle and pedestrian movement. The Contractor shall develop a program, in cooperation with the City and Engineer, which shall provide for the orderly and efficient progression of construction.
 2. Access for local traffic and driveways will be maintained during construction.

3. If any driveways or building entrances must be temporally impacted or closed, the Contractor notify the abutting property owners as required in the contract.
4. Contractor shall construct temporary ramps and facilities as required to maintain access handicap accessibility to building entrances impacted by the work.
5. Work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the operation of the existing adjacent properties for the shortest possible time and when the demands on the facilities best permit such interference. It may be necessary to work outside of normal working hours to minimize interference. Before starting work which will interfere with adjacent property activities, the Contractor shall do all possible preparatory work prior to the actual interference.
6. Refer to the Special Provisions for additional requirements.

3.2 CONSTRUCTION SEQUENCE

- A. Refer to the Plans and Special Provisions for sequence requirements.

END OF SECTION

SECTION 012200 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL1.1 METHOD OF MEASUREMENT AND PAYMENT:

- A. All measurements and 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 engineer 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.

PART 2 – PAYMENT ITEMS2.1 Item No. 1.1: Repair of northern wall segment

- A. Method of Measurement: Lump Sum.
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for the reconstruction of the failing wall segment (approximately 55 linear feet) located on the northern side of the entrance drive. The costs of dismantling wall, storing of blocks, excavation, backfill, and installation of the geotextile fabric, 4" underdrain, geogrid and block wall required to bring disturbed areas to finish grade elevation in accordance with the plans and specifications shall be incidental to the cost of repairing the wall.

2.2 Item No. 1.2: Repair of southern wall segment

- C. Method of Measurement: Lump Sum.
- D. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for the reconstruction of the failing wall segment (approximately 42 linear feet) located on the southern side of the entrance drive. The costs of dismantling wall, storing of blocks, excavation, backfill, and installation of the geotextile fabric, geogrid and block wall required to bring disturbed areas to finish grade elevation in accordance with the plans and specifications shall be incidental to the cost of repairing the wall.

2.3 Item No. 1.3: Erosion and Sediment Control

- A. Method of Measurement: Lump sum.

- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for all erosion and sedimentation control measures employed during the project including but not be limited to installation of silt fence and a construction entrance pad, performing measures to control dust and performing periodic street sweeping.

2.4 Item No. 1.4: Restoration of Disturbed Areas

- A. Method of Measurement: Lump sum.
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for furnishing and placing 6" loam, seed and mulch for all areas of existing grass disturbed by the contractors operations. Digging, delivering, rodent protection, preparing plant beds; planting, watering, fertilizing, mulching, pruning, and the cleanup of planting areas; all labor, equipment, tools, Maintenance Period work and replacement are all incidental to the work.

2.5 Item No. 1.5 Mobilization and General Conditions

- A. Method of Measurement: Lump sum. The maximum amount that the City will pay for Mobilization is 10% of the Bid less the amount bid for Mobilization.
- B. Basis of Payment: Payment of the unit price established in the Bid shall consist of preparatory work and operations including, but not limited to those necessary to the movement of personnel, equipment, supplies and incidentals to the project site; payment of bonds and insurance; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various items on the project.

Upon approval of all pre-construction submittals required for approval by this Contract, the Contractor may receive payment of 50% of the Lump Sum price for Mobilization, not to exceed 5% of the Bid less the amount bid for Mobilization. After the City determines that the work is 50% complete, the Contractor may receive the other 50% of the Lump Sum price for Mobilization, not to exceed 5% of the Bid less the amount bid for Mobilization.

The total sum of payments under this item shall not exceed the original Contract amount bid regardless of the fact that the Contractor may shut down their work on the project or move equipment away from the Project and then back again.

END OF SECTION

SECTION 013100PROJECT MANAGEMENT AND COORDINATIONPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: To enable orderly review during progress of the work, and to provide for systematic discussion of problems, the Engineer will conduct project meetings throughout the construction period.
- B. Related work described elsewhere: The Contractor's relations with his subcontractors and materials suppliers and discussions relative thereto, are the Contractor's responsibility and are not part of project meetings content.

1.2 QUALITY ASSURANCE

- A. Persons designated by the Contractor to attend and participate in the project meetings shall have all required authority to commit the Contractor to solutions agreed upon in the project meetings.

1.3 SUBMITTALS

- A. Agenda items: To the maximum extent practicable, advise the Engineer at least 24 hours in advance of project meetings regarding all items to be added to the agenda.
- B. Minutes: The Engineer will compile minutes of each project meeting and will furnish a copy to the Contractor. The Contractor may make and distribute such other copies as he wishes.

PART 2 - PRODUCTS

(No products are required in this Section.)

PART 3 - EXECUTION3.1 MEETING SCHEDULE

- A. Except as noted below for Preconstruction Meeting, project meetings will be held as needed. Coordinate as necessary to establish mutually acceptable schedule for meetings.

3.2 MEETING LOCATION

- A. Meetings will be held at the project site, if possible. If an alternate location is required, the contractor and engineer will coordinate the location.

3.3 PRECONSTRUCTION MEETING

- A. Preconstruction meeting will be scheduled within five (5) days after the Effective Date of the Agreement, but before the Contractor starts work at the site. Provide attendance by authorized representatives of the Contractor and all major subcontractors. The Engineer will advise other interested parties and request their attendance.
- B. Minimum agenda:
 - 1. Identification of key project personnel for Owner, Engineer, Contractor.
 - 2. Responsibilities of Owner, Engineer, Contractor.
 - 3. Channels and procedures for communications.
 - 4. Construction schedule, including sequence of critical work.
 - 5. Permits.
 - 6. Contract Documents, including distribution of required copies of original documents and revisions.
 - 7. Processing of Shop Drawings and other data submitted to the Engineer for review.
 - 8. Procedures for safety and first aid, security, quality control, housekeeping, and other related matters.

3.4 PROJECT MEETINGS

- A. Attendance: To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspects of the Work are involved.
- B. Minimum agenda:
 - 1. Review progress of the Work since last meeting.
 - 2. Review schedule of work to be accomplished prior to next meeting.
 - 3. Field Observations.
 - 4. Anticipated traffic delays or related issues.
 - 5. Review Status of submittals for approval.
 - 6. Review status of change order requests and RFIs.
 - 7. Identify problems which impede planned progress.
 - 8. Develop corrective measures and procedures to regain planned schedule.

3.5 NO SEPARATE PAYMENT

- A. Unless specifically stated otherwise, all of the Contractor's costs for meetings are incidental to the contract and no separate payment will be made.

END OF SECTION

SECTION 013233PHOTOGRAPHIC DOCUMENTATIONPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included:
1. Pre-Construction Record: Contractor shall utilize digital photographs and video to obtain a visual record of the project area; copies of same shall be given to the Engineer and Owner.
 2. Notify Engineer at least three (3) working days prior to photographing or videoing the project area so Engineer may, at his option, observe.

1.2 QUALITY

- A. Pre-Construction Record: Quality shall be such that the condition of existing pavement, curbing, driveway entrances, sidewalks, etc. can be readily determined.

1.3 SUBMITTAL OF PRINTS

- A. Pre-Construction Record: Electronic files on CD ROM, and video electronic files on DVD to the Engineer and Owner prior to any construction work.
- B. The quality of the photos and video are subject to approval by the Engineer prior to the start of construction work in the areas shown by the photos.

END OF SECTION

SECTION 013300SUBMITTAL PROCEDURESPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included:
1. Submit to the Engineer, Shop Drawings, Manufacturers' Certificates, Project Data, and Samples required by this section.

1.2 SHOP DRAWINGS

- A. Shop Drawings are required for identified elements of the work. Each shop drawing shall be assigned a sequential number for purposes of easy identification, and shall retain its assigned number, with appropriate subscript, on required resubmissions.
- B. Shop Drawings are generally defined as all fabrication drawings, diagrams, brochures, schedules, bills of material, manufacturers data, spare parts lists, and other data prepared by the Contractor, his subcontractors, suppliers, or manufacturers which illustrate the manufacturer, fabrication, construction, and installation of the work, or a portion thereof.
- C. The Contractor shall submit to the Engineer a minimum of six (6) copies of Shop Drawings and approved data. The Engineer will retain three (3) copies (for Owner's, Engineer's and Field Representative's files) and return three (3) copies to the Contractor for distribution to subcontractors, suppliers and manufacturers. If the Contractor requires more than three (3) then the number of copies submitted shall be adjusted accordingly. The only exception to the above is that all shop drawings which incorporate blue line type drawings shall be submitted with only one good quality reproducible. The Engineer will return the one marked up reproducible to the Contractor.
- D. The Contractor shall provide a copy of the completed Submittal Certification Form (copy provided for Contractor's use at the end of this Specification Section) which shall be attached to every copy of each shop drawing. Shop Drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for the work.
- E. Shop Drawings shall be submitted as a complete package by specification section, unless otherwise reviewed and approved by the Engineer. It is the intent that all

information, materials and samples associated with each specification section be included as a single submittal for the Engineer's review. Any deviation from this requirement shall be requested in writing prior to any associated submittal.

- F. The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the work due to the absence of such drawings.
- G. No material shall be purchased or fabricated especially for the Contract until the required shop and working drawings have been submitted as hereinabove provided and reviewed for conformance to the Contract requirements.
- H. Until the necessary review has been made, the Contractor shall not proceed with any portion of the work, the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which review is required.
- I. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. Shop drawings shall be of standardized sizes to enable the Owner to maintain a permanent record of the submissions. Approved standard sizes shall be: (a) 22 inches by 34 inches; (b) 11 inches by 17 inches, and (c) 11 inches by 8-1/2 inches. Provision shall be made in preparing the shop drawings to provide a binding margin on the left hand side of the sheet. Shop drawings submitted other than as specified herein may be returned for resubmittal without being reviewed.
- J. Only drawings which have been checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. All drawings which are correct shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Engineer.
- K. If a shop drawing shows any deviation from the Contract requirements, the Contractor shall make specific mention of the deviations in his letter of transmittal.
- L. Should the Contractor submit equipment that requires modifications to the structures, piping, layout, etc., detailed on the Drawings, he shall also submit details of the proposed modifications. If such modifications are accepted, the Contractor, at no additional cost to the Owner, shall do all work necessary to make such modifications.
- M. A maximum of two submissions of each Shop Drawing will be reviewed, checked, and commented upon without charge to the Contractor. Any additional

submissions which are ordered by the Engineer to fulfill the stipulations of the Drawings and Specifications, and which are required by virtue of the Contractor's neglect or failure to comply with the requirements of the Drawings and Specifications, or to make those modifications and/or corrections ordered by the Engineer in the review of the first two submissions of each Shop Drawing, will be reviewed and checked as deemed necessary by the Engineer, and the cost of such review and checking, as determined by the Owner, and based upon Engineer's documentation of time and rates established for additional services in the Owner-Engineer Agreement for this Project, may be deducted from the Contractor to make all modifications and/or corrections as may be required by the Engineer in an accurate, complete, and timely fashion.

1.3 SAMPLES

- A. The Contractor shall submit samples when requested by the Engineer to establish conformance with the specifications, and as necessary to define color selections available.

1.4 SUBMISSION REQUIREMENTS

- A. Accompany submittals with transmittal letter, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. The number of each Shop Drawing, Project Data and Sample submitted.
 - 5. Notification of deviations from Contract Documents.
 - 6. Other pertinent data.
- B. A completed Submittal Certification Form shall be attached to each copy of each shop drawing and must include:
 - 1. Identification of deviations from Contract Documents.
 - 2. Contractor's stamp, initialed or signed, certifying review of the submittal, verification of field measurements and compliance with Contract Documents.
 - 3. Where specified or when requested by the Engineer, manufacturer's certification that equipment, accessories and shop painting meet or exceed the Specification requirements.
 - 4. Where specified, manufacturer's guarantee.

1.5 RESUBMISSION REQUIREMENTS

- A. Revise initial drawings as required and resubmit as specified for initial submittal.
- B. Indicate on drawings any changes which have been made other than those required by Engineer.

1.6 ENGINEER'S REVIEW

- A. The review of shop and working drawings hereunder will be general only, and nothing contained in this specification shall relieve, diminish or alter in any respect the responsibilities of the Contractor under the Contract Documents and in particular, the specific responsibility of the Contractor for details of design and dimensions necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance specified thereunder.

1.7 SCHEDULE OF SUBMITTAL ITEMS

Provide submittals for the following items:

- A. Aggregates:
1. Submit test results (including gradation analysis) and source location for all borrow material to be used at least 5 working days prior to its use on the site. Contractor shall identify and provide access to borrow sites.
 2. Submit moisture density curve for each type of soil (on site or borrow material) to be used for embankment construction or fill beneath structures or pavement.
- B. Pipe:
1. Provide manufacturers' product data for all pipes and fittings and accessories confirming products meet specifications.
- C. Loam Seed and Mulch:
1. Submit seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity, germination, and weed seed for each grass seed species.
- D. Geotextile Fabric:
1. Provide submittals of Geotextile fabric.
- E. Geogrid:
1. Provide submittals of Geogrid.
- F. Replacement Block:
2. Provide submittals of any replacement blocks to confirm they will match, size, shape and color of existing blocks.

END OF SECTION

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing site utilities.
7. Temporary erosion- and sedimentation-control measures.

1.2 MATERIAL OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises in construction staging area.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- D. Do not commence site clearing operations until temporary erosion & sedimentation control and tree protection measures are in place.
- E. The following practices are prohibited within protection zones:
1. Storage of construction materials, debris, or excavated material.
 2. Parking vehicles or equipment.

3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."
 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.
- C. Protect existing site improvements to remain from damage during construction.
 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

- A. General: Protect trees and plants remaining on-site according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.4 EXISTING UTILITIES

- A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
 - 1. Arrange with utility companies to shut off indicated utilities.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Architect not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Architect's written permission.
- C. Removal of underground utilities is included in earthwork sections and with applicable fire suppression, plumbing, HVAC, electrical, communications, electronic safety and security and utilities sections and Section 024116 "Structure Demolition" and Section 024119 "Selective Structure Demolition."

3.5 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Grind down stumps and remove roots, obstructions, and debris to a depth of **18 inches (450 mm)** below exposed subgrade.
 - 2. Use only hand methods for grubbing within protection zones.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of **8 inches (200 mm)**, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.

- B. Strip topsoil to depth of 6 inches (150 mm) in a manner to prevent intermingling with underlying subsoil or other waste materials.
- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.7 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The general provisions of the Contract, including General and Supplementary Conditions and all Division 1 Specifications apply to the work specified in this Section.

1.2 SUMMARY OF WORK:

- A. This section includes the following:
 - 1. All excavating, preparing subgrades, filling, backfilling and removal of materials.
- B. Related Sections include the following:
 - 1. Section 311000 "Site Clearing"
 - 2. Section 329300 "Landscaping"

1.3 PROTECTION:

- A. Paved surfaces: Do not operate equipment on paved surfaces which will damage these surfaces.
- B. Maintain excavations with approved barricades, lights and signs to protect life and property until excavation is filled and graded to a condition acceptable to the Owner.
- C. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
- D. Locate and clearly flag trees and vegetation to remain or to be relocated. Obtain approval from Engineer before clearing operations begin.
- E. Tree Protection:
 - 1. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.

2. Do not store construction materials, debris, or excavated material within protection area.
3. Do not permit vehicles, equipment, or foot traffic within protection area.
4. Maintain protection area free of weeds and trash.
5. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
 - a. Cover exposed roots with burlap and water regularly.
 - b. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 - c. Coat cut faces of roots more than 1-1/2 inches (38 mm) in diameter with emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
 - d. Backfill with soil as soon as possible.

1.4 PROJECT CONDITIONS:

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer or owner and then only after arranging to provide temporary utility services according to requirements indicated.
 1. Notify Engineer and Owner not less than five days in advance of proposed utility interruptions.
 2. Do not proceed with utility interruptions without Engineer's or Owner's written permission.
 3. Contact utility-locator service for area where Project is located before excavating. Contact Dig Safe not less than 3 business days before starting the work. Dig Safe requirements are in addition to Town street opening permit requirements.
- B. Site Information: Data for subsurface soil conditions is not available. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn there from by Contractor.
 1. Test borings and other exploratory operations may be made by Contractor at no cost to Owner. If the contractor desires to make his own investigation of subsurface conditions at the site he may do so after the permission of the Owner is granted.
 2. Any services excavations or existing conditions disrupted by the contractor shall be immediately restored to conditions existing prior to the investigation at the expense of the Contractor.

3. Exploration logs and related information depict subsurface conditions at specific locations and dates indicated. Conditions at other locations at the site may differ from the conditions encountered in the explorations. The Contractor shall be assumed to have familiarized himself with the nature of the subsurface and groundwater conditions to his own satisfaction.
- C. Use of Explosives: Not permitted.
- D. Prior to excavation, verify the underground utilities, pipes, structures, and facilities. Maine Dig-Safe law requires at least the following minimum measures:
1. Pre-mark the boundaries of the planned excavation with white paint, flags or stakes, so utility crews know where to mark their lines.
 2. Call Dig Safe, at 1-888-DIGSAFE, at least three business days - but no more than 30 calendar days - before starting work. Do not assume someone else will make the call.
 3. Wait three business days for lines to be located and marked with color-coded paint, flags or stakes. Note the color of the marks and the type of utilities they indicate. Transfer these marks to the construction drawings.
 4. Contact the landowner and other non-member utilities (water, sewer, gas, etc.), for them to mark the locations of their underground facilities. Transfer these marks to the construction drawings.
 5. Re-notify Dig Safe and the non-member utilities if the digging does not occur within 30 calendar days, or if the marks are lost due to weather conditions, site work activity or any other reason.
 6. Hand dig within 18 inches in any direction of any underground line until the line is exposed.
 7. Dig Safe requirements are in addition to Town street opening permit requirements.
 8. For complete Dig Safe requirements, call the PUC or visit their website.
 9. If you damage, dislocate or disturb any underground utility line, immediately notify the affected utility. If damage creates safety concerns, call the fire department and take immediate steps to safeguard health and property.
 10. Any time an underground line is damaged or disturbed, or if lines are improperly marked, you must file an Incident Report with the PUC. For an Incident Report form visit www.state.me.us/mpuc or call the PUC at 800-452-4699.

1.5 QUALITY ASSURANCE:

A. Standards:

1. "Standard Specification for Highways and Bridges" revision of April 1995, Maine Department of Transportation and "Standard Specifications", revision of 2002, Maine Department of Transportation (abbreviated as MDOT "Standard Specification").
2. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329.

1.6 SUBMITTALS:

A. Test Reports: Submit the following:

1. Reports on material gradations and compaction testing.
- B. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.

1.7 UNIT PRICES:

- A. Provide Unit Prices as indicated in Section 01 2000, item 1.9 Unit Prices

PART 2 - MATERIALS

2.1 GENERAL:

- A. Suitable materials: As shown on the Drawings or as specified.
- B. Unsuitable materials: Material containing excessive plastic clay, vegetation, organic matter, debris, pavement, stones or boulders over 6 inches in greatest dimension, and frozen material. Material which, in the opinion of the Geotechnical Engineer or Engineer, will not provide a suitable foundation or subgrade.
- C. On-Site Material: Any suitable material from on-site excavation.
- D. Testing: The owner may inspect off-site sources of materials and order tests of these materials to verify compliance with these specifications. Provide a gradation analysis on any imported material or material processed on site.

2.2 BASE AND SUBBASE:

- A. Aggregate Base Materials: Screened or crushed gravel meeting the requirements of MDOT Standard Specifications Section 703.06(a), Type A.

<u>Sieve Size</u>	<u>Max % Passing by Weight</u>
2"	100
½"	45-70
¼"	30-55
No. 40	0-20
No. 200	0-5

- B. Sand: Sieve analysis by weight:

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

- C. ¾" Crushed Stone: Durable, clean angular rock fragments obtained by breaking and crushing rock material. ¾" Crushed stone for underdrain shall be durable, washed angular rock fragments. Sieve analysis by weight.

<u>Sieve Size</u>	<u>Max % Passing by Weight</u>
1"	100
¾"	95-100
½"	35-70
3/8"	0-25

- D. Common Borrow: Inorganic mineral soil suitable for embankment construction free from frozen material, perishable rubble, peat and other unsuitable material.
- E. Granular Fill: Material meeting requirements of MDOT 703.06(b) Type D with a maximum stone size of 6".
- F. Free Draining Backfill: Material meeting requirements of MDOT 703.22 Underdrain Backfill Material, Type B.

2.3 GEOTEXTILE FABRIC:

- A. MIRAFI 140N fabric or approved equal.

PART 3 - EXECUTION

3.1 EXCAVATION:

- A. General: Remove all materials encountered to the limits shown on the drawings, or designated in the Specifications. Contaminated soils, if encountered, shall be excavated and disposed of per Section 312100, Contaminated Soil Management.

Excavation shall be performed in two stages as follows:

1. Remove existing unconsolidated fill within the area where the former building was removed and backfilled.
2. Continue excavation for building and pavements as depicted on Drawings.

Care must be taken to minimize disturbance of soil subgrades. A smooth –edged bucket shall be used to excavate soil subgrade areas.

- B. Earth Excavation: Removal and disposal of pavements and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, and other materials encountered that are not classified as unauthorized excavation.

- C. Excavation for Paved Areas:

1. Saw cut pavement prior to excavation to provide a clean, uniform edge. Minimize disturbance of remaining pavement. Cut and remove the minimum amount of pavement required to do the work.
2. Use shoring and bracing where sides of excavation will not stand without undermining pavement.
3. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

- E. Excavation for Trenches:

1. Excavate trenches to indicated gradients, lines, depths, and elevations shown on the Drawings.
2. Produce an evenly graded flat trench bottom at the subgrade elevation required for installation of pipe and bedding material.

3. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
 4. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.
 - a. Clearance: 12 inches (300 mm) each side of pipe or conduit.
 5. Trench Bottoms: Excavate trenches 4 inches (100 mm) deeper than bottom of pipe elevation to allow for bedding course.
 - a. Hand excavate for bell of pipe.
 - b. Excavate trenches 6 inches (150 mm) deeper than elevation required in unyielding bearing material to allow for bedding course.
 - c. In roadways, load excavated material directly into trucks unless otherwise permitted by the Engineer.
 - d. In roadways, place backfill material directly into trench or excavation. Do not stockpile material to be used as backfill in roadways unless otherwise permitted by the Engineer.
 6. Unauthorized Excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by Engineer including refilling, is at Contractor's expense.
- F. Excavation of Unsuitable Materials:
1. When excavation has reached required subgrade elevations, notify Engineer or Geotechnical Engineer who will make an inspection of conditions. If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper as directed by Engineer or Geotechnical Engineer. Excavated material shall be replaced with Granular Fill underlain by non woven geotextile and compacted to 95% of the maximum dry density (Modified Proctor) or crushed stone underlain by a non-woven geotextile.
 2. Removal of unsuitable material and its replacement as directed will be paid for as detailed in the Contract.
- G. Material Storage:
1. Stockpile and maintain suitable surplus excavated materials for re-use as backfill within the project limits as directed by the Engineer. Place, grade and shape stockpiles for proper drainage.
 2. Locate and retain soil materials away from edge of excavations.

3.2 SUBGRADE INSPECTION:

- A. Notify Engineer or Geotechnical Engineer when excavations have reached required subgrade.
- B. If Engineer or Geotechnical Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
 - 1. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Engineer, and replace with specified materials as directed.
- C. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Engineer or Geotechnical Engineer, without additional compensation.

3.3 STABILITY OF EXCAVATIONS:

A. General:

- 1. Slope sides of excavations to comply with OSHA regulations and local codes. Shore and brace where sloping is not possible because of space restrictions or stability to material excavated.
- 2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

3.4 DEWATERING:

- A. Perform all work in the dry. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.
- B. Do not allow water to accumulate in excavations. Control water levels to at least one foot below subgrade elevation. Provide and maintain pumps, dewatering system components necessary to convey water away from excavations.
- C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

- D. Control water levels to at least one foot below subgrade elevation. Provide and maintain pumps, dewatering system components necessary to convey water away from excavations.
- E. Convey water removed from excavations and rainwater to collecting or runoff areas.

3.5 BACKFILL AND FILL:

A. General:

- 1. Place acceptable soil material in layers to required subgrade elevations as shown on the Drawings and as listed below such that required density is achieved throughout each lift.
- 2. Place and compact fill material in layers to required subgrade elevations as follows:
 - a. Under grass and planted areas, use common borrow or on – site materials.
 - b. Where existing buildings have been removed and subgrade is below the specified subgrade elevations, use Granular Fill to bring the elevation up to required subgrades.
 - c. Under pavements, use aggregate subbase and base material.
 - d. Under building slabs and footings, excluding the basement, use Structural Fill or Crushed Stone.
 - e. Under basement slabs and footings use Crushed Stone.
 - f. Adjacent to foundations, use Granular Fill.
 - g. Adjacent to retaining walls, use Free Draining Backfill.
 - h. Prior to placing any soil or concrete inside building lines, obtain approval of subgrade from the Engineer or Geotechnical Engineer.
- 3. Fill, backfill, and compact to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment or structure to be placed on the material. Place material in approximately horizontal layers of beginning at lowest area to be filled. Do not impair drainage.
- 4. Re-Use of On-Site Soils:
 - a. Existing soils may be used only under landscape areas.

B. Backfill, General: Backfill excavations as promptly as work permits, but not until completion of the following:

- 1. Acceptance of construction below finish grade including, dampproofing, waterproofing, and perimeter insulation.

2. Installation, inspection and recording locations of underground utilities.
 3. Removal of concrete formwork.
 4. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.
 5. Removal of trash and debris.
 6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.
 7. Backfill cast-in-place concrete structures when the concrete has developed adequate strength as determined by the Engineer.
 8. Use care in backfilling to avoid damage or displacement of underground structures and pipe.
 9. Backfill under all existing utility pipes crossed during construction operations with 3/4" crushed stone. The crushed stone backfill will extend continuously from the bedding of new utility pipes to the utility pipe crossed, including a 6" thick envelope of crushed stone all around the existing utility pipes.
 - a. The 3/4" crushed stone backfill shall stand at its own angle of repose. No "haunching" or "forming" with common fill will be allowed.
- C. Ground Surface Preparation:
1. Remove vegetation, debris, unsatisfactory soil materials, obstructions and deleterious materials from ground surface prior to placement of fills. Scarify surfaces so that fill material will bond with existing surface.

D. Placement:

1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice. Place backfill and fill materials evenly adjacent to structures to required elevations.
2. Take care to prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift.
3. Do not allow heavy machinery within 5 feet of structure during backfilling and compacting.

E. Backfilling Trenches:

1. Place backfill on subgrades free of mud, frost, snow, or ice.
2. Place and compact specified bedding course on trench bottoms and where indicated. Limits of bedding and requirements for remaining trench backfill are shown on the Drawings. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
3. Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings.
4. Backfill under all existing utility pipes crossed during construction operations with 3/4" crushed stone. The crushed stone backfill shall extend continuously from the bedding of new utility pipes to the utility pipe crossed, including a 6" thick envelope of crushed stone all around the existing utility pipes. The 3/4" crushed stone backfill shall stand at its own angle of repose. No "haunching" or "forming" with common fill will be allowed.
5. Place and compact initial backfill of crushed stone, free of particles larger than 3/4 inch (25 mm) in any dimension, to a height of 12 inches (300 mm) over the utility pipe or conduit.
 - a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
6. Backfill voids with satisfactory soil while installing and removing shoring and bracing.
7. Place and compact final backfill of satisfactory soil to final subgrade elevation.

8. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

F. Exterior Pavement Areas:

1. The existing topsoil is not considered suitable for support of pavements. All topsoil material shall be removed from within the pavement limits.
2. Prepare subgrade to proper grade. Any subgrade areas deemed unacceptable shall be excavated and replaced with Aggregate Subbase. Place fill in 12 inch layers compacted to 95% maximum dry density (Modified Proctor). Densify subgrades with several passes of a vibratory roller compactor and then proof-rolled with a loaded tri-axle dump truck. Areas that become soft or yield during proof-rolling shall be overexcavated and backfilled with Aggregate Subbase prior to installing the specified paving section.
3. Do no work when subgrade is muddy or frozen.
4. Aggregate Subbase course material shall be placed in maximum 12-inch thick loose lifts and compacted at approximately the optimum moisture content to 95 percent of maximum dry density, as determined in accordance with ASTM Test Designation D1557 (Modified Proctor), using with a minimum of two passes of self-propelled vibratory compaction equipment.
5. Aggregate Base course material should be placed in one lift and compacted at approximately the optimum moisture content to 95 percent of maximum dry density, as determined in accordance with ASTM Test Designation D1557 (Modified Proctor), using with a minimum of two passes of self-propelled vibratory compaction equipment.
6. Finish surface tolerance shall be 1/4" above or below the required grade. Puddling in paved areas will not be acceptable.

H. Electrical and Telecommunications Conduit:

1. Electrical Conduits: Bury beneath finish grade a minimum of 30 inches to top of conduit, or as required by the National Electrical Code or local utility company, whichever is deeper. Surround conduits by a minimum of 6 inches of sand or bedding material. Place plastic warning tape above conduit.
2. Telephone and Communication Conduits: Bury beneath finish grade a minimum of 30 inches to top of conduit, or as required by the local utility company, whichever is deeper. Surround conduits by a minimum of 6 inches of sand or bedding material.

3.6 COMPACTION:

A. Methods:

1. Use methods which produce the required degree of compaction throughout the entire depth of material placed without damage to new or existing facilities and which are approved by the Engineer.

B. Moisture Control: Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight. Adjust moisture content of soil as required to achieve specified compaction. Remove and replace material which is too wet to compact to required density.

C. Degree of Compaction:

1. Compact each layer of fill and slopes as work progresses. Compact to the following minimum densities as determined in accordance with ASTM Test Designation D1557 (Modified Proctor):

<u>FILL AND BACKFILL LOCATION</u>	<u>DENSITY</u>
Under structure foundations	95% of max.
Crushed stone fill	100%
Select fill below slab areas and sidewalks	95%
Top 2 feet under pavement	95%
Below top 2 feet under pavement	92%
Trenches through unpaved areas	92%
Embankments	92%
Pipe Bedding	92%
Beside structure foundation walls, and retaining walls	95%
Sand bedding for conduit	95%

3.7 GRADING:

A. General:

1. Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
2. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Grading Outside Structure Lines: Grade areas adjacent to structure lines to drain away from structures and to prevent ponding.

C. Finish surfaces free from irregular surface changes, and as follows:

1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 1 inch above or below the required subgrade elevations.
2. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than one-half (1/2) inch above or below the required subgrade elevation.
3. Fill Under Slabs: Grade smooth and even, free of voids, compacted as specified and to required elevation. Provide final grades within a tolerance of 1/2 inch when tested with a 10' straightedge.

3.8 SUBSURFACE DRAINAGE:

1. Subsurface Drainage Pipe: Specified in Section 334100 "Sewers Drains and Site Piping".
2. Foundation Perimeter Drain: Place non-woven drainage geotextile around perimeter of sub drainage trench. Place a 6-inch course of 3/4" crushed stone on subsurface drainage geotextile to support sub drainage pipe. Encase sub drainage pipe in a minimum of 6 inches of 3/4" crushed stone and wrap in subsurface drainage geotextile, overlapping sides and ends at least 6 inches.

3.9 PROTECTION:

- #### A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
- C. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.
- D. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
- E. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.10 DISPOSAL OF EXCESS MATERIALS:

- A. Removal from Owner's Property:
 - 1. Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.
 - 2. Keep roads free of rocks, soil, trash, and debris. Use suitable watertight vehicles for hauling wet materials over roads and streets. Clean up materials dropped from or spread by vehicles promptly or when directed by the Engineer.

END OF SECTION 312000

SECTION 312500 - EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The Work of this Section is integral with the whole of the Contract Documents and is not intended to be interpreted outside that context.
- C. Erosion control narrative and details shown on the project plans.
- D. Maine Department of Transportation Standard Specifications November 2014 Edition.

1.2 SUMMARY

- A. Provide all labor, materials, equipment, services and accessories necessary to furnish and install the Work of this Section, complete and functional, as indicated in the Contract Documents and as specified herein.
- B. This Section includes but may not be limited to the following:
 - 1. Temporary and permanent erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
 - 2. Inspection, repair, and maintenance of erosion and sedimentation control measures during construction until permanent vegetation has been established.
 - 3. Removal of erosion and sedimentation controls and restoration and stabilization of areas disturbed during removal.
- C. Related Sections include the following:
 - 1. Division 31 Section "Site Clearing" for site stripping, grubbing, stripping and stockpiling topsoil.
 - 2. Division 31 Section "Earthwork" for soil materials, excavating, backfilling, and site grading.
 - 3. Division 32 Section "Landscape Work" for finish grading, including preparing and placing topsoil and planting soil for lawns.
 - 4. Division 31 Section "Riprap."

1.3 DEFINITIONS

- A. MDOT: Maine Department of Transportation.
- B. MDEP: Maine Department of Environmental Protection

1.4 PERFORMANCE REQUIREMENTS

- A. Environmental Licensing Requirements: All construction is subject to review and/or inspection by local, State, and Federal agencies for adequacy of erosion and sedimentation control measures. Take necessary steps to prevent soil erosion. Refer to publications of the Maine DEP (MDEP) and the Maine Soil and Water Conservation Commission for additional prevention measures to stop soil erosion and follow MDEP "Best Management Practices."
- B. Erosion and Sedimentation Control Guidelines: "Maine Erosion and Sediment Control BMPS," published by the Bureau of Land and Water Quality Maine Department of Environmental Protection, latest revision March 2015.

1.5 SUBMITTALS

- A. Product Data: For each manufactured product indicated. Include manufacturer's instructions for installation.
- B. Provide to the Engineer, in writing, a time schedule outlining the sequence of construction for site Work.

1.6 SEQUENCING AND SCHEDULING

- A. Conduct operations in conformity with all Federal and State permit requirements. Plan the sequence of construction so that the smallest practical area of land is exposed at any one time during construction. Schedule the Work such that sedimentation barriers are installed early in the construction sequence, to prevent sediments from uphill areas reaching streams, wetlands, or property lines.
- B. Provide to the Engineer, in writing, a time schedule outlining the sequence of construction for site Work.
- C. See Plans for erosion and sedimentation control requirements.
- D. See plans for fall and winter (September 15 or Later) stabilization requirements.

Stabilize exposed soils throughout the project site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Seed, Fertilizer and Lime: Shall be as specified under Erosion Control Notes on Drawings.
- B. Mulch: Comply with the requirements of MDOT Standard Specification, Section 619.
- C. Erosion Control Mesh: North American Green DS150 blanket conforming to MDOT Standard Specification, Section 613 or as approved by the Engineer
- D. Siltation Fence:
 - 1. Support Fence: 30 inch high livestock fence, or high strength plastic mesh.
 - 2. Post: Rolled steel manufactured line post or 2 inch diameter hardwood post, 4.5 feet in length.
 - 3. Fabric: Pervious sheet of synthetic polymer meeting the following minimum requirements.
 - a. Mirafi Silt Fence or approved equal.
 - 4. Pre-manufactured Silt Fencing systems: Separate support fence may be eliminated if fabric is manufactured with reinforcement, including top cord,
 - a. ProPex Silt Stop; Amoco Fabrics and Fibers Co.
- E. Crushed Stone: Durable, clean, angular rock fragments obtained by breaking and crushing rock material; 2 to 3-inch stone.
- F. Filter Fabric: Woven fabric composed of high-tenacity polypropylene yarns for sediment riser pipes and block and stone catch basin inlet traps.
 - 1. Product: Mirafi 100X; Mirafi Construction Products or equal
- G. Erosion Control Mix: Mix may be manufactured on or off project site.
 - 1. Mix shall consist primarily of organic material, separated at the point of generation, and may include shredded bark, stump grindings, composted bark, or flume grit and fragmented wood generated from water-flume log handling systems.
 - a. Wood chips, ground construction debris, reprocessed wood products, or bark chips shall not be acceptable as the organic component of the mix.

2. Mix shall contain well-graded mixture of particle sizes and may contain rocks less than 4 inches in diameter. Mix shall be free of refuse, physical contaminants, and material toxic to plant growth.
3. Mix composition shall meet the following standards:
 - a. Organic matter content shall be between 20 and 100 percent, dry weight basis.
 - b. Particle size by weight shall be 100 percent passing a 6-inch screen, and a minimum of 70 percent and a maximum of 85 percent passing a 0.75-inch screen.
 - c. Organic portion shall be fibrous and elongated.
 - d. Large portions of silts, clays or fine sands are not acceptable in the mix.
 - e. Soluble salts content shall be less than 4.0 mmhos/cm.
 - f. Mix pH shall fall between 5.0 and 8.0.
- H. Hay Bales: Bales shall be at least 14" x 18" x 30" in size, staked twice per bale. Stakes shall be 1" x 1" x 36" wooden. Place bales with twine on sides of bale, not top and bottom.
- I. Water, calcium chloride, or crushed stone for prevention of airborne dust.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Prior to grubbing, stripping, excavation, placement of fill, temporary or permanent placement of excavated materials, or other earthwork, the Contactor shall implement erosion and sedimentation control measures as specified herein and indicated on the plans.
- B. A silt fence, filter berm, or stone sediment dam shall be installed along the down-slope side of the construction site, as necessary, to prevent soil sediment migration away from the site. Install silt fence or filter berm along the down-slope side of all top-soil and subsoil stockpiles.
- C. Temporary measures for controlling erosion and sedimentation may include, but are not limited to, the following:
 1. Siltation fencing around the downslope periphery of areas to be disturbed by construction.
 2. Filter Berm around the downslope periphery of areas to be disturbed by construction.
 3. Temporary seeding and mulching of soil stockpiles or disturbed areas.

4. Temporary sedimentation basins, siltation traps, stone check dams and other temporary practices as approved by the Engineer.
- D. Permanent measures for controlling erosion and sedimentation shall be provided as shown on the drawings or required by these Specifications.
- E. Where disturbed areas cannot be permanently stabilized within 14 days of exposure of the soil, the areas shall be temporarily seeded and mulched, or otherwise stabilized as approved by the Engineer.
- F. Permanent soil stabilization measures for all slopes, channels, ditches, or any disturbed land area shall be completed within 7 calendar days after final grading has been completed. Where such permanent erosion control measures are not possible or practical to implement, and upon approval by the Engineer, temporary stabilization practices shall be applied as in 3.1.C above.
- G. All temporary and permanent control measures shall be periodically inspected and maintained by the Contractor for the duration of the construction and warranty period of this Contract. Sediment collection devices shall be cleaned periodically as required, and the removed material reused or disposed of at an approved disposal area.

3.2 SURFACE WATER DIVERSION

- A. Build, maintain, and operate all cofferdams, channels, flumes, sumps, and other temporary diversion and protection Works needed to divert streamflow and other surface water through or around the construction site and away from the construction Work while construction is in progress.
- B. Outlet diverted stormwater and water from excavations to sedimentation trap or basin or other approved sedimentation control measure.

3.3 SILTATION FENCE

- A. Construct siltation fences at the locations and to the dimensions indicated, and as required to meet specified criteria.
- B. Set fence post 6 feet O.C. to a depth of 2 feet. Attach support fence to post with fencing staples or appropriate wire ties.
- C. Overlap joints in support fence 12 inches. Apply fabric to full height of support fence and secure to prevent sagging, blow off, and loss. A 12-inch overlap of fabric for vertical piecing shall be maintained, folded to a 3 inch width and securely attached to supports.
- D. No horizontal joints will be allowed.

- E. The bottom of the fabric shall be trenched into the existing ground a minimum of 6 inches. In addition, hay bales or ditch checks shall be installed along the silt fence to create sedimentation pools in low areas where run-off concentrates.
- F. Prior to removal of the silt fence, all retained soil or other material shall be removed and disposed of at an approved disposal area.

3.4 FILTER BERM

- A. Place un-compacted erosion control mix in a windrow at locations shown on the plan or as directed by the Engineer.
 - 1. At a minimum the berm shall be 3 feet wide at the base and 2 feet high at the center of all points along its length.
 - 2. Berm material, where the berm is still required, which has decomposed, clogged with sediment, eroded, or becomes ineffective, shall be replaced.
 - 3. The berm shall be removed from the site when no longer required, as determined by the Engineer.

3.5 TEMPORARY SEEDING AND MULCHING

- A. Topsoil stripped and stockpiled on site shall be immediately seeded with erosion control seed mix and mulched with hay.
- B. Exposed earthwork areas, which will not be worked on for one week, shall be mulched with straw. Unfinished areas which are not to be worked on for one month, or will be wintered, shall be seeded with erosion control mix at a rate of 3 pounds of seed per 1000 sq. ft. and mulched with straw. Apply straw mulch at the rate of 75 pounds per 1000 sq. ft. Anchor mulch to prevent windblown movement.
- C. In sensitive areas (within 25 ft. of stream or wetland edge) temporary mulch must be applied within 7 days of initial disturbance and prior to any storm event.
- D. No fill shall be placed on hay mulch. Dispose of used hay mulch off site.

3.6 FALL AND WINTER STABILIZATION

- A. Stabilize exposed soils throughout the project site with permanent seed and mulch by September 15, with the exception of areas undergoing active earthmoving operations. These construction areas are primarily in the immediate vicinity of the building. For proposed grass areas not stabilized by permanent seed and mulch by this date, provide the following stabilization measures at no additional cost to the Owner. Select the appropriate methods from the options listed and obtain approval from the Engineer prior to installation

1. Stabilize the soil with temporary vegetation, except for ditches, by October 1. Place winter rye seed at the rate of 3 pounds per 1000 sq. ft. and lightly mulch with hay or straw at 75 pounds per 1000 sq. ft. Place erosion control mesh over mulch and anchor.
 2. For slopes flatter than 3H:1V, place sod over the exposed soil by October 1. Roll the sod, anchor it with wire pins, and water it to promote growth.
 3. For grassed areas flatter than 10H:1V, stabilize the disturbed soil by November 1 with temporary winter mulching by applying hay or straw at a rate of at least 150 pounds per 1000 sq. ft., such that no soil is visible through the mulch. Anchor mulch with erosion control mesh.
 4. For slopes steeper than 10H:1V and flatter than 2H:1V, place a 6" layer of erosion control soil/bark mix on the disturbed soil by November 1. Remove snow accumulated on the slope prior to installation. If groundwater seeps are present, place stone rip rap to thickness shown on drawing details over non-woven geotextile.
 5. For drainage ditches or channels, place a sod lining by October 1 or place a rip rap lining by November 1. Sod shall be rolled, fastened with wire pins, anchored with erosion control mesh, and watered. Rip rap shall be placed at the thickness shown on the drawing details over a layer of non-woven geotextile.
- B. If the catch of permanent or temporary grass is less than 3" tall or covers less than 75% of the disturbed soil by November 1, apply additional hay mulch at a rate of 150 pounds per 1000 sq. ft. Anchor mulch with erosion control mesh.

3.7 DRAINAGE DITCHES AND EMBANKMENTS

- A. Drainage ditches shall be provided with filter berm silt dams or rock check dams spaced no greater than 100 feet apart.
1. Temporary ditch dams shall be constructed where indicated, using composted bark soil mix or rocks in the configurations shown. Additional temporary ditch dams shall be installed from time to time during the construction where necessary to prevent soil particle migration from the Work area. Where necessary due to terrain configuration, earth berms shall be constructed at one or both ends of the ditch check so as to contain runoff. The tops of earth berms shall be higher than the tops of the dams so that runoff will occur only over the dams. Sand bags may be used instead of earth berms at the Contractor's option but shall be faced with earth placed against the upstream face.
- B. Grassed drainage ditches and swales shall be lined with a continuous matt of erosion control mesh for full bottom width and side slopes to 12" above bottom, to stabilize the loam, seed, and mulch.
- C. Where erosive velocities in ditches or embankments are anticipated or experienced, and soil cannot be stabilized with mulch and mesh alone, substitute erosion control

soil/bark mix in place of loam. For this use, screen the erosion control soil/bark mix to remove wood, bark, and stones one-inch in size and greater. If erosion control soil/bark mix is used in ditches, and erosive velocities are excessive, provide a 12" thick stone rip rap lining along ditch bottom and up side slopes to one foot above the bottom elevation. Place non-woven geotextile beneath stone.

- D. Stabilize pond embankments (interior and exterior), slopes steeper than 3 horizontal to one vertical, and drainage ditches by September 15. Stabilization shall consist of permanent seeding and mulch. If this date cannot be met, provide alternative permanent or temporary stabilization described as Fall and Winter Stabilization.
- E. Install erosion control mesh over mulch on slopes steeper than 6 horizontal to one vertical (16%) and in conformance to DOT Standard Specifications, latest Edition, paragraphs 613.03 through 613.05. Anchor mesh as recommended by manufacturer.
- F. Permanently rip-rap inlets and outlets of culverts and pipe outfalls as specified in Division 2 Section "Earthwork", and as shown on the Drawings.
- G. Install permanent erosion control blanket around culvert inlets and outlets as shown on the Drawings, and according to manufacturer's recommendations.
 - 1. Prepare soil with loam, fertilizer, and seed as specified in Division 2 Section "Landscape Work" prior to installing erosion control blanket.
 - 2. Install permanent erosion control blanket 5 feet minimum in all directions around culvert inlets.
 - 3. Install permanent erosion control blanket 5 feet minimum in all directions around culvert outlets, and a 6 feet width centered along the outlet channel for 10 feet.
 - 4. Install staples as shown on the erosion control blanket detail on the Drawings, and throughout the blanket in an 18 by 18 inch grid.

3.8 INSTALLATION OF RIPRAP APRON

- A. Construct riprap aprons (riprap outlet protection) at the locations and to the dimensions indicated.
- B. Clear and grub the surface of all areas where riprap aprons will be constructed. Dispose of unsatisfactory material at designated disposal areas.
- C. There shall be no overfall from the end of the apron to the surface of the receiving channel. The area to be riprapped shall be at the same grade (flush) with the surface of the receiving channel.
- D. Apron dimensions and riprap thickness shall be as indicated.

- E. Placing of fill in the receiving channel shall not be allowed.
- F. Riprap construction shall conform to the specified requirements for riprap in Division 31 Section "Riprap."

3.9 EROSION CONTROL MIX-MULCH

- A. Apply mix of the following thicknesses based on length and steepness of slope:
 - 1. On Slopes of 3:1 or Less: 2 inches plus an additional 1/2-inch per 20 feet of slope up to 100 feet.
 - 2. On Slopes Between 3:1 and 2:1: 4 inches plus an additional 1/2-inch per 20 feet of slope up to 100 feet.
 - 3. The thickness of the mulch at the bottom of the slope shall be as follows:

	<u>Less Than 3:1 Slope</u>	<u>Slopes Between 3:1 and 2:1</u>
Less than 20 Feet of Slope:	2.0 inches	4.0 inches
Less than 60 Feet of Slope:	2.5 inches	5.0 inches
Less than 100 Feet of Slope:	3.0 inches	6.0 inches

3.10 DUST CONTROL

- A. Provide dust control measures to prevent off-site damage, health hazard to humans, wildlife and plant life, or become a traffic safety hazard.
- B. To the maximum extent as is practicable
 - 1. Use traffic control to restrict traffic to predetermined routes.
 - 2. Maintain as much natural vegetation as possible.
 - 3. Use phasing of construction to reduce the area of land disturbed at any one time.
 - 4. Use temporary mulching, permanent mulching, temporary vegetative cover, permanent vegetative cover, or seeding to reduce the need for dust control.
 - 5. Use mechanical sweepers on paved surfaces where necessary to prevent dust buildup.
 - 6. Stationary sources of dust, such as rock crushers, shall utilize fine water sprays to control dust.
- C. Moisten exposed soil surface periodically with adequate water to control dust.
- D. Where other methods are not practical, use of calcium chloride will be permitted. Spreader at a rate that will keep surface moist but not cause pollution or plant damage. To reduce potential for environmental degradation, use only when other methods are not practical. In areas adjacent to waterways and sensitive environmental areas, verify materials and procedures with governing authority.

- E. Cover surface with crushed stone or coarse gravel. In areas adjacent to waterways, use chemically stable aggregate.
- F. When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

3.11 CONSTRUCTION DEWATERING

- A. Water from construction dewatering operations shall be cleaned of sediment before reaching wetlands, water bodies, streams, or site boundaries. Utilize temporary sediment basins, erosion control soil filter berms, silt fencing, block and gravel catch basin inlet protection, or other approved Best Management Practices (BMPS).
- B. In sensitive areas, near streams or ponds, discharge the water from the de-watering operation into a temporary sediment basin created by a surrounding filter berm of uncompacted erosion control soil mix. Locate the temporary sediment basin at least 100 feet from the nearest water body, such that the filtered water will flow through undisturbed vegetated soil areas prior to reaching the water body or property line.

3.12 ADDITIONAL MEASURES

- A. Areas outside the Contract Work limits shall be protected from lubricants, fuel, sediment and other pollutants.
- B. Catch basin inlets in gravel or paved areas shall be surrounded by a sediment barrier of hollow concrete blocks 12" to 24" high covered with wire mesh of 1/4" opening. Pile well graded crushed stone of 1/2" to 2" stone size around the mesh to the top of the blocks.
- C. Catch basin inlets in grassed areas shall be protected by hay bales or block and gravel sediment filter until permanent soil stabilization has been achieved.
- D. Inspect erosion and sedimentation control weekly and after every storm and maintain in good working condition for project duration.

3.13 REMOVAL AND DISPOSAL

- A. After permanent soil stabilization has been achieved, temporary materials and devices that are not readily degradable shall be removed and disposed of offsite. Silt fences, filter berms, and catch basin sediment filters shall be fully removed.
- B. Repair areas disturbed by temporary materials and removal operations to match surrounding finished surfaces. At natural vegetation areas to remain, restore to match existing.

END OF SECTION 312500

SECTION 323223 - SEGMENTAL RETAINING WALLS

PART 1 - GENERAL

- A. If the existing blocks are insufficient to complete the project, new blocks shall match the existing size, shape, color and interlocking characteristics as closely as possible. Additionally new blocks shall meet the criteria of this section.

1.2 SUMMARY

- A. This Section includes single-depth segmental retaining walls with soil reinforcement.
- B. Related Sections:
 - 1. Section 312000 Earth Moving for excavation.

1.3 PERFORMANCE REQUIREMENTS

- A. Basis of Design: Design of segmental retaining walls is based on products indicated. If comparable products of other manufacturers are proposed, provide engineering design for proposed products, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Delegated Design: Design segmental retaining walls, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Structural Performance: Engineering design shall be based on loads due to soil pressures resulting from grades indicated and be according to NCMA's "Design Manual for Segmental Retaining Walls.", or local building codes.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For each color and texture of concrete unit required.
- C. Delegated-Design Submittal: For segmental block retaining walls indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Compliance Review: Qualified professional engineer responsible for segmental block retaining wall design shall review and approve submittals and field quality-control reports for compliance of materials and construction with design.

PART 2 - PRODUCTS

2.1 SEGMENTAL RETAINING WALL UNITS

- A. Concrete Units: ASTM C 1372, Normal Weight, except that maximum water absorption shall not exceed 7 percent by weight and units shall not differ in height more than plus or minus 1/16 inch from specified dimension.
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, licensees of one of the following:
 - a. Approved equal.
 2. Provide units that comply with requirements for freeze-thaw durability.
 3. Provide units that interlock with courses above and below by means of integral lugs or lips.
- B. Color: Match existing.
- C. Shape and Texture: Match existing.

2.2 INSTALLATION MATERIALS

- A. Geogrid: per block manufacturers design and recommendations.
- B. Wall drainage: designed by manufacturer.
- C. Pins and Clips: Product supplied by segmental retaining wall unit manufacturer for use with units provided, made from non-degrading polymer reinforced with glass fibers.
- D. Cap Adhesive: Product supplied or recommended by segmental retaining wall unit manufacturer for adhering cap units to units below.
- E. Leveling Base: Comply with requirements in approved shop drawings and.
- F. Drainage Fill: Comply with requirements in approved shop drawings.
- G. Soil Fill: Comply with requirements in Section 312000 "Earth Moving" for satisfactory soils.

- H. Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent.
 - 1. Apparent Opening Size: No. 70 to 100 sieve, maximum; ASTM D 4751.
 - 2. Minimum Grab Tensile Strength: 110 lb. ASTM D 4632.
- I. Subdrainage Pipe and Filter Fabric: perforated or slotted PVC pipe manufactured in accordance with ASTM D 3034 or corrugated HDPE pipe manufactured in accordance with AASHTO M252. Or as required in the Contract Documents."
- J. Soil Reinforcement: Product specifically manufactured for use as soil reinforcement and as specified in the approved shop drawings.

PART 3 - EXECUTION

3.1 RETAINING WALL INSTALLATION

- A. General: Place units according to NCMA's "Segmental Retaining Wall Installation Guide" and segmental retaining wall unit manufacturer's written instructions.
 - 1. Lay units in running bond.
 - 2. Form corners and ends by using special units or cutting units with motor-driven saw.
- B. Leveling Base: Place and compact base material to thickness indicated and with not less than 95 percent maximum dry unit weight according to ASTM D 698.
- C. First Course: Place first course of segmental retaining wall units for full length of wall. Place units in firm contact with each other, properly aligned and level.
 - 1. Tamp units into leveling base as necessary to bring tops of units into a level plane.
- D. Subsequent Courses: Remove excess fill and debris from tops of units in course below. Place units in firm contact, properly aligned, and directly on course below.
- E. Cap Units: Place cap units and secure with cap adhesive.

3.2 FILL PLACEMENT

- A. General: Comply with requirements in Section 312000 "Earth Moving," NCMA's "Segmental Retaining Wall Installation Guide," and segmental retaining wall unit manufacturer's written instructions.
- B. Fill voids between and within units with drainage fill. Place fill as each course of units is laid.
- C. Place, spread, and compact drainage fill and soil fill in uniform lifts for full width and length of embankment as wall is laid. Place and compact fills without disturbing alignment of units. Where both sides of wall are indicated to be filled, place fills on both sides at same time. Begin at wall and place and spread fills toward embankment.
 - Use only hand-operated compaction equipment within 48 inches of wall, or one-half of height above bottom of wall, whichever is greater.
 - 1. Compact reinforced-soil fill to not less than 95 percent maximum dry unit weight according to ASTM D 698.
 - a. In areas where only hand-operated compaction equipment is allowed, compact fills to not less than 90 percent maximum dry unit weight according to ASTM D 698.
 - 2. Compact non-reinforced soil fill to comply with Section 312000 "Earth Moving."
- D. Place a layer of drainage fill at least 12 inches wide behind wall to within 12 inches of finished grade. Place a layer of drainage geotextile between drainage fill and soil fill.
- E. Wrap sub drainage pipe with filter fabric and place in drainage fill as indicated.
- F. Place impervious fill over top edge of drainage fill layer.
- G. Place soil reinforcement in horizontal joints of retaining wall where indicated and according to soil-reinforcement manufacturer's written instructions. Embed reinforcement a minimum of 8 inches into retaining wall and stretch tight over compacted backfill. Anchor soil reinforcement before placing fill.
 - 1. Place additional soil reinforcement at corners and curved walls to provide continuous reinforcement.
 - 2. Place geosynthetics with seams, if any, oriented perpendicular to segmental retaining walls.
 - 3. Do not dump fill material directly from trucks onto geosynthetics.
 - 4. Place at least 6 inches of fill over reinforcement before compacting with tracked vehicles or 4 inches before compacting with rubber-tired vehicles.

5. Do not turn vehicles on fill until first layer of fill is compacted and second layer is placed over each soil-reinforcement layer.

3.3 FIELD QUALITY CONTROL

- A. On-site testing shall not be required for this project. However, this does not release the Contractor (or Sub-Contractors) from their responsibility to perform the work in accordance the manufacturer's recommended installation procedures and/or common installation practices.

END OF SECTION 323223

SECTION 334100 - DRAINAGE PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings.

1.2 SUMMARY

- A. This Section includes Underdrain pipes.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Under drain pipes.
- B. Shop Drawings: None required
- C. Manufacturer's Certificate: Certify that products meet or exceed specified local requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Do not store plastic manholes, pipe, and fittings in direct sunlight.
- B. Protect pipe, pipe fittings, and seals from dirt and damage.
- C. Handle manholes according to manufacturer's written rigging instructions.
- D. Handle catch basins and stormwater inlets according to manufacturer's written rigging instructions.

PART 2 - PRODUCTS

2.1 UNDER DRAINS

- A. Perforated Underdrain Pipe: PVC (Polyvinylchloride) SDR-35 perforated pipe, conforming to ASTM D3034.

2.2 MASONRY MATERIALS

- A. Concrete Masonry Units: ASTM C139.
- B. Mortar: Type M, ASTM C270. Use Type II portland cement, Type S lime. Proportions for Mortar: 1 part portland cement, 1/4 part hydrated lime. 3 to 3 3/4 parts sand.

2.3 MISCELLANEOUS

- A. Flexible Couplings:
 - 1. Non-pressure: Neoprene sleeve with stainless steel bands Engineer approved equal to those manufactured by Fernco.
- B. Pipe to Structure Connections:
 - 1. Flexible joint as approved by Engineer. Acceptable Manufacturers:
 - a. Kor-N-Seal
 - b. A-Lock
 - c. Press Wedge II
- C. Insulation: Styrofoam SM as manufactured by Dow Chemical.
- D. Joint Sealants
 - 1. Butyl Rubber Sealant: One inch diameter strips as manufactured by Kent Seal, or Engineer approved equal.
 - 2. Butyl Rubber Caulking: Conform to AASHTO M-198, Type B.
- E. Damp proofing: Bituminous coating to be Dehydrate No. 4 Damp-proof by W. R. Grace of Bitumastic Super Service Black by Koppers Co. for field application, or Engineer approved equal.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

- A. Methods: Install in accordance with manufacturer's recommendations. Use a laser beam for line and grade unless otherwise permitted by the Engineer. Secure each length of pipe with bedding before placing next length. Plug open ends when Work is suspended. Bed pipe as shown on drawings. A 30-inch minimum cover over the top of PVC pipe should be provided before the trench is wheel-loaded.
- B. Grade and Line: Lay pipe to line and grade shown on the drawings. If grade is not shown, determine elevations of start and finish points for each run of pipe. Lay pipe to a uniform grade between these points.
- C. Line and grade may be adjusted by the Engineer as required by field conditions.
- D. Conditions: Lay pipe in the dry. Do not use installed pipe to remove water from Work area.
- E. Flush all pipes and remove debris. Flushing method approved by Engineer. Gravity flushing is not acceptable.
- F. Connections to manholes and catch basins: Connections shall be flexible couplings. Mortared connections will not be allowed.
- G. Steps: Replace steps out of plumb and out of proper horizontal placement.

3.2 STORMWATER INLET INSTALLATION

- A. Placement: The backfill material shall be crushed stone or other granular material meeting the requirement of class II material as defined in ASTM D2321. Bedding and backfill for surface drainage inlets shall be placed and compacted uniformly in accordance with ASTM D2321.

3.3 CLOSING ABANDONED STORM DRAINAGE SYSTEMS

- A. Closing Abandoned Utilities: Close open ends of abandoned underground utilities which are not indicated to be removed. Provide sufficiently strong closures acceptable to Engineer to withstand hydrostatic or earth pressure which may result after ends of abandoned utilities have been closed.

3.4 IDENTIFICATION

- A. Materials and their installation are specified in Division 31 Section "Earth Moving." Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.

3.5 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
 - 1. Submit separate reports for each system inspection.
 - 2. Defects requiring correction include, but not limited to, the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from or around piping.
 - 3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
 - 4. Re-inspect and repeat procedure until results are satisfactory.

3.6 CLEANING

- A. Clean interior of piping of dirt and superfluous materials. Flush with potable water.

END OF SECTION 334100



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