

Contract Documents for

**Mill Station Park
Former Brookfield Mill Site
59 – 67 Mill Street
Brookfield, MA**

Town of Brookfield

Brookfield, MA

January 31, 2012



FUSS & O'NEILL

Fuss & O'Neill
317 Iron Horse Way, Suite 204
Providence, RI 02908

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List of Drawings

GI-001	Cover Sheet
CS-101	Site Plan
CG-101	Grading Plan
CD-501 – CD-502	Details
1 of 1	Existing Conditions Site Plan prepared by B&R Survey Inc, and provided by Graves Engineering, Inc.

BIDDING DOCUMENTS

Town of Brookfield
6 Central Street
Brookfield, MA 01506

INVITATION TO BID

Sealed bids for the Mill Station Park will be received at the Town Selectmen's Office at the Brookfield Town Hall at 6 Central Street, Brookfield, MA 01506 until 1:00 P.M., March 8, 2012 at which time the sealed bids will be publicly opened and read. Bids received after the time set for the opening will be rejected and remain unopened.

Digital copies of the Contract Documents for bidders may be obtained at no cost from the Town website at www.brookfieldma.us. A link titled "Mill Station Park Bid Documents" will be placed in the upper right corner of this page for download. Hard copies of the Contract Documents for bidders may be obtained from Fuss & O'Neill at 317 Iron Horse Way, Suite 204, Providence, Rhode Island at a cost of twenty five dollars (\$25) per set, payable by cash or check to Fuss & O'Neill. Contact Leslie Burton in advance at (401)-861-3070 ext. 4597 between the hours of 8:00 AM and 5:00 PM to coordinate obtaining hard copies. This payment will not be refundable.

A mandatory Pre-Bid Conference will be held at 10:30 A.M. on February 21, 2012 at the Brookfield Highway Garage located at 56 Mill Street, Brookfield, MA 01506. A site walkover will be conducted immediately following the conference to review the Work and address questions. In the event of snow, the mandatory Pre-Bid Conference will be held on February 23, 2012 at the same time and location. Contact Leslie Burton (401)-861-3070 ext. 4597 if there are any questions regarding the mandatory Pre-Bid Conference. In the event the meeting is rescheduled due to snow, this information will be displayed on the Town website at www.brookfieldma.us.

Bidder is to submit bid on the required forms and in the manner requested. Bids transmitted by facsimile will not be accepted.

BID SECURITY IN THE FORM OF A CERTIFIED CHECK OR BOND IN THE AMOUNT OF 10% OF SUCH BID IS REQUIRED.

The successful bidder will be required to furnish a Performance Bond and Labor and Materials Payment Bond (EJCDC Document C-610), each in the amount of 100% of the contract price.

The right is reserved to reject any or all, or any part of any or all, bids when such action is deemed in the best interest of the Town. The Town reserves the right to waive any informalities or to reject any or all bids. All bids shall remain open for sixty (60) days after the date of bid opening.

All bids received must be in a sealed envelope. Each envelope is to be marked on the front with the project name, bid number and bidder's name.

INFORMATION TO BIDDERS

1. PROJECT/BID STRUCTURE AND COORDINATION

Work to construct improvements at the Mill Station Park (the "site") is being completed as a project administered by the Town of Brookfield ("Town"). The Project Manual includes the following primary bid items:

- A. Lump Sum Bid 1 – Site Construction: Work under this item consists of completing all work within the limits shown on the drawings with the exception of work required to complete Alternate Unit Bid Items 1 through 3. In general, this work consists of clearing, grading, paving, capping, and installing amenities including, but not limited to, picnic tables (excluding shelters), chain link fence (excluding along the northern limit of work), benches, trees, and shrubs at the site.
- B. Alternate Unit Bid 1 – Northern Chain Link Fence: This work generally includes finishing and installing chain link fence along the northern property line.
- C. Alternate Unit Bid 2 – Picnic Table Shelter: This work generally includes furnishing and installing covers over the picnic tables.

Alternate Unit Bid 3 - Contaminated Soil Off-Site Disposal: This work generally includes transporting and disposing of contaminated soil from the site to an approved treatment disposal facility.

Qualified bidders will submit bids on Lump Sum Bid 1, and Alternate Unit Bids 1 through 3 in their entirety.

2. ENVIRONMENTAL AND REGULATORY APPROVALS

The Town has obtained the required environmental and regulatory approvals, permits, and assents (referred to as approvals) from the regulating agencies for the Project. The approvals and documents used to obtain approval include:

- Release Abatement Measure (RAM) Plan prepared by Fuss & O'Neill and dated September 2011
- Targeted Brownfield Assessment, prepared by Metcalf & Eddy, Inc, and dated November 2002
- Phase I Initial Site Investigation prepared by Metcalf & Eddy, Inc, and dated January 2004
- Phase II Comprehensive Site Assessment Report prepared by Metcalf & Eddy, Inc, and dated November 2007
- Phase III Remedial Action Plan, Former Brookfield Mill Site, 59-67 Mill Street, Brookfield, MA, RTN 2-10354, prepared by Advanced Environmental Solutions, Inc. and AECOM Environment and dated March 2009.

A Copy of the Release Abatement Measure Plan is provided as Exhibit A to this Project Manual. The remaining documents listed above may be found at <http://www.brookfieldma.us/> under the Brownfield Project tab.

3. MANDATORY PRE-BID CONFERENCE

A mandatory Pre-Bid Conference will be held at the Town of Brookfield Highway Garage as indicated on the Invitation to Bid. A site walkover will be conducted after an initial period to review the Work and address questions.

4. EVALUATION OF BIDS:

Basis of bid award will be to the qualified bidder submitting the lowest total contract base bid price, as selected solely by the Town of Brookfield

5. RECEIPT AND OPENING OF BIDS:

Sealed bids/proposals will be accepted and time stamped upon receipt in the Town Selectman's Office, Brookfield Town Hall, 6 Central Street, Brookfield, Massachusetts 01506; until 1:00 PM, March 8, 2012 for the commodities, equipment or services listed in the specifications. Bid/Proposals will be publicly read at this time.

6. SUBMISSION OF BIDS:

- Envelopes containing bids must be sealed and addressed to the Town Selectman, Brookfield Town Hall, 6 Central Street, Brookfield, Massachusetts 01506, and must be marked "Sealed Bids for Mill Station Park" with the name and address of the bidder.
- The Town Selectmen will decide when the specified time has arrived to open bids and no bid thereafter will be considered.
- Any bidder may withdraw his bid by written request at any time prior to the advertised time for opening. Telephone bids, faxed bids, amendments or withdrawals will not be accepted.
- Unless otherwise specified, no bid may be withdrawn for a period of sixty (60) days from the time of bid opening.
- Negligence on the part of the bidder in preparing the bid confers no rights for the withdrawal of the bid after it has been opened.
- Proposals received prior to the time of opening will be securely kept, unopened. No responsibility will be attached to an officer or person for the premature opening of a proposal not properly addressed and identified.

7. FORM OF BID:

Five copies of the proposals shall be submitted.

8. MASSACHUSETTS SALES TAX:

The Town of Brookfield is exempt from the payment of the Massachusetts Sales Tax under Chapter 64H, §6 of the General Laws of the State of Massachusetts.

9. FEDERAL EXCISE TAXES:

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

10. QUALIFICATION OF BIDDERS:

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

11. ADDENDA AND INTERPRETATIONS:

No interpretation on the meaning of the Plans, Specifications or other Contract Document will be made to any bidder orally. Every request for such interpretations should be in writing, faxed or emailed to Leslie Burton, Fuss & O'Neill at (401) 861-3076 or lburton@fando.com. To be given consideration, these must be received by 5:00 PM on February 28, 2012.

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

12. DELIVERY OF BIDS:

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

13. ADDITIONAL BID REQUIREMENTS:

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

- Bidders must comply with all State Labor Laws for Public Works projects.
- The successful bidder must have all current taxes paid which are owed to the Town of Brookfield.
- In accordance with M.G.L. Chapter 149, §27-27D, Bidder shall base compensation on prevailing wage rates as determined by The Massachusetts Executive Office of Labor and Workforce Development, Department of Labor Standards (DLS).
- In accordance with Massachusetts General Laws Chapter 149, § 29, bidders for public works/public building contracts in excess of \$25,000 shall furnish a payment bond (Labor and Materials) upon conditional award of the contract, at 50% of the contract price and conditioned upon faithful performance of the contract. In addition, a performance bond shall be furnished at 100% of the contract price and conditioned upon faithful performance of the contract. All surety companies issuing such bonds must be currently listed with The Department of the Treasury, Fiscal Services, Circular 570, (Latest Revision published by the Federal Register) and comply with Massachusetts General Law Chapter 149 §29D.
- In accordance with Massachusetts General Laws Chapter 30, § 39S, contractor work-site employees for public construction contracts costing more than \$10,000 shall comply with training certification requirements including an 10-hour OSHA approved course in construction safety and health

SECTION 00411 - BID FORM

CONTRACT IDENTIFICATION:

Mill Station Park
Brookfield, Massachusetts

ARTICLE 1 – BID RECIPIENT

1.1 This Bid is submitted to:

Town of Brookfield
6 Central Street
Brookfield, MA 02506

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

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

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

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.1 In submitting this Bid, Bidder represents that:

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

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

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

ARTICLE 4 – FURTHER REPRESENTATIONS

4.1 Bidder further represents that:

- A. this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.
- E. Bidder certifies compliance with Massachusetts General Law Chapter 30, § 39S pertaining to OSHA training requirements for its work site employees.

ARTICLE 5 – BASIS OF BID

5.1 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

ITEM NO.	LUMP SUM BID PRICE IN WORDS	LUMP SUM BID PRICE IN FIGURES
1.	SITE CONSTRUCTION (Lump Sum)	\$ _____

ALTERNATE UNIT BID ITEMS

ALTERNATE ITEM NO.	ALTERNATE ITEM QUANTITY	ALTERNATE ITEM PRICE IN WORDS	ALTERNATE UNIT PRICE IN FIGURES
ALT -1	260	NORTHERN CHAIN LINK FENCE (Linear Feet)	\$ _____

ALT - 2	2	PICNIC TABLE SHELTERS	
		_____	\$ _____
		(Linear Feet)	
ALT - 3	10	CONTAMINATED SOIL OFF-SITE DISPOSAL	
		_____	\$ _____
		(TON)	

- A. All specified cash allowances are included in the price (\$) set forth above and have been computed in accordance with Paragraph 11.02 of the General Conditions.
- B. The above prices include all labor, materials, tools, equipment, overhead, profit, insurances, etc. to cover the finished work of the several kinds called for.

ARTICLE 6 – TIME OF COMPLETION

- 6.1 Bidder agrees that the Work will be substantially completed within 45 calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 15 days after substantial completion
- 6.2 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

ARTICLE 7 – ATTACHMENTS TO THIS BID

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

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

- 9.1 This Bid submitted by:

If Bidder is:

AN INDIVIDUAL

Name (typed or printed): _____

By: _____
(SEAL)

(Individual's signature)

Doing business as: _____

Business address: _____

Phone No.: _____ FAX No.: _____

A PARTNERSHIP

Partnership Name: _____
(SEAL)

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

Phone No.: _____ FAX No.: _____

A CORPORATION

Corporation Name: _____
(SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

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

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____
(Signature of Corporate Secretary)

Business address: _____

Phone No.: _____ FAX No.: _____

Date of Qualification to do business is _____.

A JOINT VENTURE

Joint Venturer Name: _____
(SEAL)

By: _____
(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Joint Venturer Name: _____
(SEAL)

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

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

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

FUSS & O'NEILL, INC.
20110847.A10

MILL STATION PARK
BROOKFIELD, MASSACHUSETTS

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

SUBMITTED on _____, 20____.
State Contractor License No. _____

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
Corporate Seal

(Seal)

Surety's Name and

(Seal)

By: _____
Signature and Title

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

Attest: _____
Signature and Title

Attest: _____
Signature and Title

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

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Surety's liability.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 150 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

NON-COLLUSION AFFIDAVIT OF BIDDER

State of: _____

County of: _____, SS)

_____; being first duly sworn, deposes and says that:

1) He/She is (owner, partner, officer, representative or agent) of

(the Bidder that has submitted the attached Bid)

2) He/She is fully informed regarding the preparation and contents of the attached Bid and of all pertinent circumstances regarding such Bid

3) Such Bid is genuine and is not a collusive or sham Bid.

4) Neither the said Bidder nor any of its officers, partners, owner, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any Bidder, or to fix any overhead, profit or cost element of the bid price or the bid price of any other Bidder or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage with the Owner or any person interested in the proposed Contract.

5) The price quoted in the attached Bid is fair and proper and is not tainted by collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest.

Signed: _____

Title: _____

Subscribed and sworn before me this _____ day of _____, 20____.

Notary Public: _____

My Commission expires _____, 20____.

QUALIFICATIONS of BIDDER FORM

Bidder's Name: _____

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

Previous Experience Similar to this Bid

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

1. Project Name: _____
Project Location: _____
Brief Scope of Work: _____

Date Completed: _____
Approximate Dollar Value: _____
Owner's Representative: _____
Owner's Telephone: _____

2. Project Name: _____
Project Location: _____
Brief Scope of Work: _____

Date Completed: _____
Approximate Dollar Value: _____
Owner's Representative: _____
Owner's Telephone: _____

3. Project Name: _____
Project Location: _____
Brief Scope of Work: _____

Date Completed: _____
Approximate Dollar Value: _____
Owner's Representative: _____
Owner's Telephone: _____

4. Project Name: _____
Project Location: _____
Brief Scope of Work: _____

Date Completed: _____
Approximate Dollar Value: _____
Owner's Representative: _____
Owner's Telephone: _____

5. Project Name: _____
Project Location: _____
Brief Scope of Work: _____

Date Completed: _____
Approximate Dollar Value: _____
Owner's Representative: _____
Owner's Telephone: _____

List of Subcontractors

1. Name: _____
Address: _____
Contact Person: _____ Phone: _____
Work Efforts by Subcontractor for this Bid: _____

2. Name: _____
Address: _____
Contact Person: _____ Phone: _____
Work Efforts by Subcontractor for this Bid: _____

Bank Reference:

Name: _____
Address: _____

Contact: _____
Phone: _____

CONTRACTING REQUIREMENTS

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

THIS AGREEMENT is by and between

the Town of Brookfield, Massachusetts

(Owner) and

(Contractor).

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

ARTICLE 1 – WORK

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

Compete construction of bituminous parking lot and walkway, installation of soil cap system, and installation of site improvements included in the Contract Documents.

ARTICLE 2 - ENGINEER

- 2.1 The Project has been designed by Fuss & O'Neill, 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 3 - CONTRACT TIMES

3.1 Time of the Essence

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

3.2 Days to Achieve Substantial Completion and Final Payment

- A. The Work will be substantially completed within 45 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 15 days after substantial completion.

3.3 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 3.2 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay

(but not as a penalty), Contractor shall pay Owner \$250 for each day that expires after the time specified in Paragraph 3.2 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$500 for each day that expires after the time specified in Paragraph 3.2 above for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 4 - CONTRACT PRICE

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

A. For all Work, at the prices stated below:

ITEM NO.	LUMP SUM BID PRICE IN WORDS	LUMP SUM BID PRICE IN FIGURES
1.	SITE CONSTRUCTION	
	(Lump Sum)	\$ _____

ALTERNATE UNIT BID ITEMS

ALTERNATE ITEM NO.	ALTERNATE ITEM QUANTITY	ALTERNATE ITEM PRICE IN WORDS	ALTERNATE UNIT PRICE IN FIGURES
ALT -1	260	NORTHERN CHAIN LINK FENCE	
		(Linear Feet)	\$ _____
ALT - 2	2	PICNIC TABLE SHELTERS	
		(Linear Feet)	\$ _____
ALT - 3	10	CONTAMINATED SOIL OFF-SITE DISPOSAL	
		(TON)	\$ _____

ARTICLE 5 - PAYMENT PROCEDURES

5.1 Submittal and Processing of Payments

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

5.2 Progress Payments; Retainage

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

5.3 Final Payment

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

ARTICLE 6 – CONTRACTOR'S REPRESENTATIONS

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

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

ARTICLE 7 - CONTRACT DOCUMENTS

7.1 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 7, inclusive).
 - 2. Performance bond (pages 1 to 3, inclusive).

3. Payment bond (pages 1 to 2, inclusive).
4. General Conditions (pages 1 to 36, inclusive).
5. Supplementary Conditions (pages 1 to 13 inclusive).
6. Specifications as listed in the Table of Contents of the Project Manual.
7. Drawings consisting of the sheets listed in the List of Drawings of this Project Manual.
8. Addenda (numbers _____ to _____, inclusive).
9. Exhibits to this Agreement (enumerated as follows):
 - a. Exhibits listed in the Table of Contents of the Project Manual
 - b. Contractor's Bid (pages _____ to _____, inclusive).
 - c. Documentation submitted by Contractor prior to Notice of Award (pages _____ to _____, inclusive).
 - d. Certificate of Insurance (pages _____ to _____, inclusive).
10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed (pages _____ to _____, inclusive).
 - b. Work Change Directives.
 - c. Change Order(s).
- B. The documents listed in Paragraph 7.1.A above are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in Article 7.1.A.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 8 - MISCELLANEOUS

8.1 Terms

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

8.2 Assignment of Contract

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on

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

8.3 Successors and Assigns

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

8.4 Severability

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

8.5 Other Provisions

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

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

OWNER:

CONTRACTOR:

Town of Brookfield

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.)

PERFORMANCE BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address): Town of Brookfield, 6 Central Street, Brookfield, Massachusetts 01506

CONTRACT

Date:

Amount:

Description: Mill Station Park

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 therefore to Owner; or
 2. Deny liability in whole or in part and notify Owner citing reasons therefore.
5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
 - 6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;
 - 6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and
 - 6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by

delayed performance or non-performance of Contractor.

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

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

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

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

11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom

and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

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

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

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

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

FOR INFORMATION ONLY – Fuss & O’Neill, Inc.
Owner’s Representative (engineer or other party)

PAYMENT BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address): Town of Brookfield, 6 Central Street, Brookfield, Massachusetts 01506

CONTRACT

Date:

Amount:

Description: Mill Station Park

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

Company:

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-615 (2002 Edition)

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

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
 2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
 3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
 4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
 5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
 6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
 - 6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2. Pay or arrange for payment of any undisputed amounts.
 7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
 8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
 9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
 10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
 11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
 12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
 13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
 14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
- ## 15. DEFINITIONS
- 15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
 - 15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



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

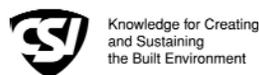
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The Associated General Contractors of America



Construction Specifications Institute

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

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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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, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

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

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

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

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

1.02 Terminology

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

B. Intent of Certain Terms or Adjectives

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

to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. Day

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

D. Defective

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

a. does not conform to the Contract Documents, or

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

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

E. Furnish, Install, Perform, Provide

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

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

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

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

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

ARTICLE 2 - PRELIMINARY MATTERS

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.

3.01 *Intent*

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

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

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

3.02 *Reference Standards*

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

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

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

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

Engineer before proceeding with any Work affected thereby.

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

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

B. Resolving Discrepancies

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

- a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

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

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

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

3.05 *Reuse of Documents*

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

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

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

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

3.06 *Electronic Data*

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

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

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

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

4.01 *Availability of Lands*

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

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer,, and all other individuals

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

6.07 *Patent Fees and Royalties*

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

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

6.08 *Permits*

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

6.09 *Laws and Regulations*

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

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

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made 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 believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

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

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

9.09 *Limitations on Engineer's Authority and Responsibilities*

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

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

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

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

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

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.

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

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall 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.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

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

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

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

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

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

3. gives written notice to the other party of 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 00800 - SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-700, 2002 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

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

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01 *Defined Terms*

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

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

ARTICLE 2 - PRELIMINARY MATTERS

SC-2.02 *Copies of Documents*

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

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

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.03 *Reporting and Resolving Discrepancies*

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

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

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

SC-4.02 *Subsurface and Physical Conditions*

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

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

1. Base mapping that is incorporated as part of the Contract Drawings, prepared by B&R Survey, Inc. and provided by Graves Engineering, Inc.
2. Release Abatement Measure (RAM) Plan prepared by Fuss & O’Neill and dated September 2011
3. Targeted Brownfield Assessment, prepared by Metcalf & Eddy, Inc, and dated November 2002
4. Phase I Initial Site Investigation prepared by Metcalf & Eddy, Inc, and dated January 2004
5. Phase II Comprehensive Site Assessment Report prepared by Metcalf & Eddy, Inc, and dated November 2007
6. Phase III Remedial Action Plan, Former Brookfield Mill Site, 59-67 Mill Street, Brookfield, MA, RTN 2-10354, prepared by Advanced Environmental Solutions, Inc. and AECOM Environment and dated March 2009.

D. Copies of reports and drawings itemized in SC-4.02.C that are not included with Bidding Documents may be found at <http://www.brookfieldma.us/> under the Brownfield Project tab. These reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Contractor may rely as identified and established above are incorporated therein by reference. Contractor is not entitled to rely upon other information and data utilized by Engineer and Engineer’s Consultants in the preparation of Drawings and Specifications.”

SC-4.06 *Hazardous Environmental Conditions at Site*

A. Add the following new Paragraph immediately after Paragraph 4.06.C, and renumber following paragraphs:

“D. Based on information and data collected during previous site investigations, soil at the site is considered a MassDEP regulated material. A primary objective of the Project is to create a barrier between the regulated soil beneath the cap and non-regulated

materials above the cap. No hazardous environmental conditions are known to exist at the site. If during the performance of the Work such conditions are or are believed to be encountered, precautions and procedures shall be employed by the Contractor.”

ARTICLE 5 - BONDS AND INSURANCE

SC-5.03 *Certificates of Insurance*

- A. Add the following new Paragraphs immediately after Paragraph 5.03.B:
 - “C. Failure of Owner to demand such certificates or other evidence of full compliance with these insurance requirements or failure of Owner to identify a deficiency from evidence provided shall not be construed as a waiver of Contractor’s obligation to maintain such insurance.
 - D. By requiring such insurance and insurance limits herein, Owner does not represent that coverage and limits will necessarily be adequate to protect Contractor, and such coverage and limits shall not be deemed as a limitation on Contractor’s liability under the indemnities granted to Owner in the Contract Documents.”

SC-5.04 *Contractor’s Liability Insurance*

- A. Add the following new Paragraphs immediately after Paragraph 5.04.B.7.a:
 - “C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:
 - 1. Worker’s Compensation, and related coverage under Paragraphs 5.04.A.1 and A.2 of the General Conditions:
 - a. State: Statutory
 - b. Applicable Federal (e.g., Longshoreman’s): Statutory
 - c. Employer’s Liability: \$100,000 Each Accident
\$500,000 Disease-Policy Limit
\$100,000 Disease-Each Employee
 - 2. Contractor’s General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include Contractors Protective, Products, and Completed Operations and Contractual Liability (c.u., collapse and underground coverage to be included. Blasting and explosion coverage required if there will be blasting under the contract):
 - a. General Aggregate: \$2,000,000
 - b. Products and Completed Operations Aggregate \$2,000,000

- c. Personal and Advertising Injury \$1,000,000
 - d. Each Occurrence Limit: \$1,000,000
 - e. Fire Damage Limit: \$50,000
 - f. Medical Payments: \$5,000
3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:
- a. Combined Single Limit for Bodily Injury and Property Damage: \$1,000,000
4. Owner's Protective Liability coverage required by Paragraph 5.05.A of the General Conditions shall provide coverage for not less than the following amounts:
- a. Each occurrence: \$1,000,000
 - b. Aggregate: \$2,000,000
5. Builder's Risk and Installation Floater Coverage: Limit equal to the total insurable value of all materials and equipment to be built and/or installed.
6. Insurance Carrier Requirements: Financial Performance Rating "A" by A.M. Best Company.
7. Additional Insured: "Town of Brookfield."

SC-5.06 *Property Insurance*

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

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

- 1. The insurance shall:
 - a. include the interests of Owner, Contractor, Subcontractors, Engineer and any other individuals or entities identified herein, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
 - b. in addition to the individuals and entities specified, include as additional insureds, the following:

Town of Brookfield
 - c. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and

damage to the Work, temporary buildings, 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;

- d. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 - e. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 - f. allow for partial utilization of the Work by Owner;
 - g. include testing and startup; and
 - h. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.
2. Contractor shall be responsible for any deductible or self-insured retention.”

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

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

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

“Unless the Specification or description contains or is followed by words reading “like”, “equivalent”, or “or equal” are allowed, Contractor shall provide the proprietary item or the item from the list of the named supplier(s). Where the Specification or description contains or is followed by words reading “like”, “equivalent” or “or-equal” items are permitted, other items of material or equipment or material or equipment of other suppliers may be submitted to Engineer for review under the circumstances described below.”

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

“1. “Or-Equal” Evaluation. Engineer will record time required by Engineer in evaluating “or-equal” proposed or submitted by Contractor pursuant to

paragraph 6.05.A.1. Whether or not Engineer approves an "or-equal" item so proposed or submitted by Contractor, Contractor shall reimburse Owner for charges of Engineer and Engineer's Consultants for evaluating each such proposed "or-equal." Submittal of "or-equal" request shall be construed as evidence of Contractor's agreement to pay such charges, with no added cost to Owner."

2. Substitution Evaluation. Engineer will record time required by Engineer and Engineer's Consultants in evaluating substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contact with Owner for work on the Project) occasioned thereby. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for charges of Engineer and Engineer's Consultants for evaluating each such proposed substitute.

3. Charges shall be \$100.00 for each staff-hour spent by Engineer and Engineer's Consultants for evaluating each "or equal" or substitute."

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

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

"shall create any obligation on the part of Owner or Engineer. Owner or Engineer may furnish to any such Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about amounts paid to Contractor on account of work performed for Contractor by a particular Subcontractor, Supplier, or other individual or entity."

SC-6.10 *Taxes*

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

"B. The Owner is exempt from State Sales Tax."

SC-6.12 *Record Documents*

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

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

ARTICLE 7 – OTHER WORK AT THE SITE

SC-7.03 *Legal Relationships*

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

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

B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, Engineer’s Consultants, the construction coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against Owner, Contractor, Engineer, Engineer’s Consultants, or the construction coordinator to the extent said claim is based on or arises out of the Contractor’s performance of the Work. Should a separate contractor cause damage to the Work or property of Contractor or should the performance of work by any separate contractor at the Site give rise to any other Claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, Engineer’s Consultants, or the construction coordinator or permit any action against any of them to be maintained or continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, Engineer’s Consultants or the construction coordinator on account of any such damage or Claim.

C. If Contractor is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 12. An extension of the Contract Time shall be Contractor’s exclusive remedy with respect to Owner, Engineer, Engineer’s Consultants, and construction coordinator for any delay, disruption, interference, or hindrance caused by any separate contractor. This paragraph does not prevent recovery from Owner, Engineer, Engineer’s Consultant, or construction coordinator for activities that are their respective responsibilities.”

ARTICLE 8 – OWNER'S RESPONSIBILITIES

SC-8.11 *Evidence of Financial Arrangements*

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

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

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

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

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

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

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

SC-11.01 *Cost of the Work*

A. Add the words “project managers” after the words “general managers,” in Paragraph 11.01.B.1.

SC-11.03 *Unit Price Work*

- A. Delete Paragraph 11.03.D and subparagraphs in their entirety and insert the following in its place:

“D. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. if the total cost of a particular item of Unit Price Work amounts to **10** percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than **25** percent from the estimated quantity of such item indicated in the Agreement; and
2. if there is no corresponding adjustment with respect to any other item of Work; and
3. if Contractor believes that Contractor has incurred additional expense as a result thereof; or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a claim for an adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

E. Items that are noted on the Bid Form as “Indeterminate Quantity; Engineer's Estimate is solely for comparison of Bids” will not be considered in any claim.”

SC-11.04 *Rental Rates*

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

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

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

1. Should the proper completion of the Work require equipment of a type not covered by the above-mentioned schedule, the Engineer will allow the Contractor a reasonable rental rate based on that prevailing in the area of the

Work and shall be incorporated in the Contract before the Work is begun. However, the Contractor must disclose to the Engineer the specific sources of any rates it proposes in this connection.

2. For machinery, trucks or equipment, which the Contractor must obtain by rental, the Contractor shall inform the Engineer of its need to rent the equipment and of the rental rate for that equipment prior to using it on the Work. If that use and rate are acceptable to the Engineer, the Contractor shall be paid the actual rental for the equipment, provided that rate does not exceed the rental rate set forth in the Rental Rate Blue Book, including all Rate Adjustment Tables and amendments. The Contractor shall provide the Engineer with a copy of the paid receipt for the rental expense incurred.
3. The estimated operating cost per hour will apply only to the actual time the equipment is operating. Operators will be paid as stated hereinbefore for labor except for certain trucks listed in the Rental Rate Blue Book as to which trucks said Rental Rate Blue Book indicates that the cost of the operators is included in the pertinent rates.
4. For equipment which is already on the Project, OWNER will pay the applicable hourly rate for the actual time the equipment is assigned to the Cost-Plus Work. The period of assignment for each piece of equipment shall start when the equipment commences to be used for the Work ordered by the Engineer, and shall continue until the time which the Engineer designates for termination of that work.
5. For equipment which has to be brought to the Project exclusively for use on Cost-Plus Work, Owner will pay all loading and unloading costs and all transportation costs to and from the Project Site; provided, however, the cost of return transportation from the Project Site shall not exceed that of moving the equipment to that Site. If such a piece of equipment is self-propelled, and is driven to the Project Site under its own power, then the Owner will pay only operating costs and labor costs for the transportation to and from the Project Site. The Owner will not pay for loading, unloading, and transportation costs, however, if the equipment is used for other than cost-plus work while on the Project Site, with the exceptions stated herein.
6. The Owner will pay the applicable rental rate for a minimum of 8 hours in each 24 hour day, excluding Saturdays, Sundays, and legal holidays during which the Contractor does no work. The daily usage period shall start at the time the Contractor begins to use the equipment for cost-plus work and when the equipment is released by the Engineer from use for such work.. The Owner will make payment to the Contractor at the applicable hourly rate for the actual time the equipment is being used for cost-plus work in excess of the minimum 8

hours per day. If, however, certain pieces of equipment remain idle during any day or portion of a day within such a rental period, the Owner will pay for those periods at 50 percent of the applicable rate (exclusive of operating costs) set forth in the Rental Rate Blue Book.

7. For rented equipment not owned by the Contractor or a subsidiary, affiliate or parent company (no matter how far up the chain of ownership) of the Contractor, the following maximum rates shall apply:

- a. The daily rate per hour shall apply when the equipment is specifically assigned to the Work by the Engineer for a period of 7 consecutive calendar days or less.
- b. The weekly rate per hour shall apply when the assigned time exceeds 7 consecutive calendar days but does not exceed 21 consecutive calendar days.
- c. The monthly rate per hour shall apply when the assigned time exceeds 21 consecutive calendar days.

8. The applicable daily, weekly, or monthly rate will be determined at the expiration of 21 calendar days or upon release of the equipment, whichever occurs first. Interruptions of the rental period, when equipment is used on other than assigned cost-plus work, will not constitute a warrant for a rental rate applicable to shorter periods occasioned by such interruptions.

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

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

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

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

SC-13.03 *Tests and Inspections*

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

“B. Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except as otherwise provided in the Contract Documents.”

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02 *Progress Payments*

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

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

SC-14.07 *Final Payment*

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

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

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

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS

SECTION 01100 – SUMMARY OF WORK

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.

1.2 SUMMARY

- A. This Section includes a general summary of the Work and is not intended to be all-inclusive.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project consists of remediating soils at the former Brookfield Mill site and constructing improvements including, but not limited to, a bituminous parking lot and walkway, landscaping, fencing, and signage.
 - 1. Project Location: 59-67 Mill Street, Brookfield Massachusetts.
 - 2. Owner: Town of Brookfield, Massachusetts.
- B. Engineer Identification: The Contract Documents, dated January 2012 were prepared for the Project by Fuss & O'Neill, Inc., 317 Iron Horse Way, Suite 204, Providence, Rhode Island, 02908.

1.4 CONTRACT

- A. Project will be conducted under a general construction contract.

1.5 SUBMITTALS

- A. Submit the following schedules in accordance with Paragraph 3.2 of this Section:
 - 1. Construction schedule and scaled phasing drawing
 - 2. Schedule of submittals/shop drawings

1.6 USE OF PREMISES

- A. Contractor shall have use of premises within contract limit as shown on Drawings for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1. Schedule construction operations to produce an expedient, orderly method and sequence of construction, and to disrupt as few streets as possible at any time.
 - a. Minimize the period an area is under construction.
2. Driveways and Entrances: Keep driveways and entrances serving adjacent property clear and available to property owner. Notify property owners at least 48 hours in advance of adjacent work and provide accommodations for access as needed.
3. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.7 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
 1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.8 DIG SAFE

- A. The Contractor shall be responsible for complying with all applicable Dig Safe Rules and Regulations.
- B. Contact Dig Safe at 811 at least 72 hours prior to the start of construction (excluding weekends and holidays), to mark out the utility locations.

1.9 ACCESS TO SITE

- A. Minimize damage to access routes, and restore damaged areas to their original condition or better.
- B. Acquire necessary permits, authorizations and approvals for working in, on or from property, rights-of-way or easements owned by the Town of Brookfield. The Contractor shall secure access rights of his own for such work.
- C. Remove and restore to original condition walls, fences, structures, utility lines, poles, guy wires, anchors, and other improvements required to be relocated for construction of the Work. Costs for such activity shall be borne by the Contractor. Notify the Engineer, the Owner, and utilities of intended modification or disruption to their property prior to the start of construction and cooperate with them in the scheduling and performance of his operations.
- D. If the Contractor, by direct negotiation and bargain with any land owner, lessee or tenant, has secured any right to use more space or greater privileges in the space provided by the Owner for purposes incidental to the performance of the Contract, he shall, upon request of the Engineer, furnish to the Engineer proper evidence that such additional rights have been properly secured and assurance that no damage to or claim upon the Owner or Engineer will arise therefrom. Neither the Owner nor the Engineer shall be liable in any way for any expense incurred by the Contractor in securing any such right to use additional property.
- E. The Contractor shall be responsible for and reimburse the Owner and others for any and all losses, damage or expense which the Owner or those others may suffer, either directly or indirectly or through any claims of any person or party, for any trespass outside the spaces and rights of way provided by the Owner to the Contractor or any violation or disregard of the terms and conditions established for the use or occupancy of those rights or for negligence in the exercise of those rights. The Owner may retain or deduct from any sum or sums due or to become due to the Contractor such amount or amounts as may be proper to insure the Owner against loss or expense by reason of the failure of the Contractor to observe the limits and conditions of the rights-of-way, rights-of-access, easements, etc., provided by the Owner.

1.10 WORK HOURS

- A. Schedule activities on Monday through Friday, 7:30 AM to 4:30 PM. Should access to the Site at other times be necessary, make arrangements with Owner.

1.11 SITE CONDITIONS

- A. The underground utilities and structures at the site have been located primarily from information furnished by others and the locations as depicted on the Drawings are

considered approximate as to size and location. There may be additional underground utilities and structures that are not shown on the Drawings, and it shall be the responsibility of the Contractor to locate all existing utilities and structures and to protect same from damage or harm. Restore utilities interfered with or damaged, at the expense of the Contractor, and to the satisfaction of its Owner.

- B. Ensure construction activities do not impact the activities or properties of the Owner without prior coordination and consent of these entities.
- C. Immediately notify the Engineer upon encountering archaeological material, including "charcoal," "bone," "shell," "cultural objects" (e.g., fire cracked stones/stone flaking material), "middens," or any other artifacts or related items of historical significance.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ADMINISTRATIVE SUBMITTALS

- A. Do not commence portion of the Work requiring a submission until submission has been accepted by the Engineer.
- B. In addition to the submittals required by the various Technical Specifications, provide the following submittals within ten (10) days after the effective date of the Agreement:
 - 1. Schedule of Construction. Submit a proposed schedule of construction (schedule of operations) to the Engineer.
 - a. Provide a bar-chart-type or Gantt-chart-type schedule that clearly indicates the start date and duration of specific construction activities. The Contractor shall not work on Saturday, Sunday, or Holidays without approval of the Owner. Portions of the Work to be performed by subcontractors or utilities shall be clearly indicated as such.
 - b. Incorporate erosion controls into the construction schedule.
 - c. No work shall be started until the schedule of construction is reviewed and approved by the Owner.
 - d. Contract completion date shall not be changed by submission of a schedule, unless specifically authorized by Change Order approved by the Owner.
 - 2. Schedule of Submittals/Shop Drawings. The Contractor shall submit his proposed schedule of submittals to the Engineer.

3.2 PROJECT MEETINGS

- A. Pre-construction Conference: Prior to the start of construction, a pre-construction conference will be held with the representatives of the Contractor, Engineer, Owner and other interested parties.
- B. Progress Meetings: During progress of the Work, meetings will be conducted in order that scheduling and overall job coordination can be maintained. The Contractor shall be required to attend these meetings throughout the Project duration.

3.3 REGULATORY COMPLIANCE

- A. All equipment operators and workers performing work at the proposed location shall hold the appropriate State of Massachusetts licenses for their responsibilities.
- B. Contractor shall provide a 'Competent Person', as defined by the US Department of Labor Occupational Safety & Health Administration (OSHA), for the location of the proposed work.
- C. Work shall be in accordance with all applicable OSHA regulations..
- D. All required licenses and/or certificates for work being performed shall be copied and supplied to the Town and the Engineer prior to beginning work by each contractor, subcontractor or vendor employee conducting work at the site. All required licenses and/or certificates for work being performed shall be in the possession of the person(s) while performing the work.
- E. The Contractor shall be solely responsible to conduct their operations in a manner that meets all local, state and federal regulations including MADEP, USEPA, OSHA and labor and equipment licensing requirements.

END OF SECTION

SECTION 01210 – PAYMENT ITEMS

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.

1.2 SUMMARY

- A. This Section describes the measurement and payment for the Work to be completed under each item in the Bid Form. The descriptions may not reference all of the associated Work. Work specified but not designated as a separate Bid item is considered incidental to all Bid items. The Contractor shall review all work associated with each work item and shall have no claim for being unfamiliar with the requirements of these specifications.

1.3 DEFINITIONS

- A. Payment Items: The Owner's distribution of the Contract Sum through listed work items, as outlined in this Section, reviewed, and accepted by the Engineer.
 - 1. Each item is specified to include a defined scope of services. The payment items have been established for the Owner's convenience only and, not all materials, labor, equipment, or services of a payment item are guaranteed to be listed or specified herein.
 - 2. Include costs associated with items of work required to complete the defined scope of services within the appropriately specified payment item.
 - 3. Payment items include all necessary products, materials, equipment, plus costs for delivery, handling, storage, installation, all applicable fees and taxes (where applicable), administrative over-site, tools, labor, incidentals, research and testing, overhead, and profit.
 - 4. Unit bid price items shall be paid only as accepted and where approved prior to the completion of the respective work.
 - 5. All work and associated costs described in the Contract Documents shall be included in the payment items described herein.
- B. Lump Sum Bid Price: When used as an item of payment, means complete payment for the work prescribed for that portion of the Work under the item, or all work prescribed in the Contract, as the case may be.
 - 1. Lump sum payment items are groupings of the Work as determined by the Owner only for the Owner's convenience. Such listings of payment items shall establish the minimum level of detail for the Schedule of Values.

- C. Unit Bid Price: An amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials and/or services identified in the Contract Documents.
- D. Complete In Place: When used in the measurement and payment provisions, means the completion of the contract item, including the furnishing of all materials, equipment, tools, labor and work incidental thereto.

1.4 PROCEDURES

- A. Unit bid price, lump sum prices and alternate bid prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit. The price so stated includes all products, materials, equipment, tools, labor, overhead and profit, and incidentals required to finish the work, complete and accepted by the Engineer.
- B. Measurement and Payment: Refer to the Schedule of Payment Items at the end of this Section for the scope of the Work associated with individual payment items, and the method of measurement and payment

1.5 DESCRIPTION OF BASE BID PRICE PAYMENT ITEMS

- A. The payment items listed below include references to Specification Sections of work to be completed under the payment item, however not all Sections of related work are guaranteed to be listed.
- B. Bid Price Item No. 1 – Site Construction.
 - 1. Work associated with this item will be paid for at the stated Lump Sum Bid Price, complete in place, including all incidental materials, labor, equipment and services required for completion of the Work. Associated work includes, but is not limited to work indicated on the Drawings and specified in the following sections:
 - a. All or portions of Division 1 specifications, as applicable
 - b. Section 02230 Site Clearing
 - c. Section 02300 Earthwork
 - d. Section 02740 Pavement Markings
 - e. Section 02741 Bituminous Concrete Pavement
 - f. Section 02771 Curbing
 - g. Section 02821 Chain Link Fence
 - h. Section 02891 Signage
 - i. Section 02920 Lawns and Grasses
 - j. Section 02930 Exterior Plantings
 - k. Includes, but is not limited to all labor, equipment, tools, and materials necessary to complete the following work:

- 1) Furnishing, installing, maintaining, and removing erosion and sedimentation control.
 - 2) Site clearing and grubbing.
 - 3) Excavating, filling, and grading existing and imported material, as necessary, to meet subgrades.
 - 4) Furnishing and installing geotextile, clean fill, loam, and seed to construct landscaped cap to achieve required cap thickness and to match and blend at limits of cap construction and grading.
 - 5) Furnishing and installing gravel borrow and bituminous asphalt to construct parking lot and walkway.
 - 6) Installing pavement markings
 - 7) Furnishing and installing signage, straight faced granite curb, fencing, benches, picnic tables (excluding picnic table shelter), shrubs, and trees.
 - 8) Furnishing and installing chain link fence along the southern, eastern, and western limits of work.
 - 9) Selecting and installing slope faced granite curb. The Contractor shall select the slope faced granite curb from a stockpile located west of the limit of work.
 - 10) Installing brick pavers. The Owner shall provide the Contractor with the brick pavers to install. The Contractor is required to provide all materials required to install the brick pavers.
2. Measurement
 - a. This work will not be measured for payment.
 3. Payment
 - a. Accepted work shall be paid for as part of the lump sum price for "Site Construction." The price so-stated constitutes full and complete compensation for all products, materials, equipment, tools labor, overhead and profit, and incidentals required to finish the work and accepted by the Engineer.

1.6 DESCRIPTION OF ALTERNATE BID PRICE PAY ITEMS

A. Alternate Bid Price Item No 1 –Northern Chain Link Fence.

1. If selected by the Owner under its executed contract with the Contractor, work associated with this item will be paid for at the stated price including, but not limited to, work under the following:
 - a. All or portions of Division 1 specifications, as applicable.
 - b. Section 02821 – Chain Link Fence
 - c. Includes, but is not limited to all labor, equipment, tools, and materials necessary to complete the following work:

- 1) Furnishing and installing chain link fence along the northern limit of work.
 2. Measurement
 - a. As measured by the Engineer, where such chain link fence has been successfully installed at the site and accepted by the Engineer, per each linear foot of chain link fence length.
 3. Payment
 - a. Unit price per linear foot installed as stated on the Bid Form.
- B. Alternate Bid Price Item No. 2 – Picnic Table Shelter.
1. If selected by the Owner under its executed contract with the Contractor, work associated with this item will be paid for at the stated price including, but not limited to, work under the following:
 - a. All or portions of Division 1 specifications, as applicable.
 - b. Includes, but is not limited to all labor, equipment, tools, and materials necessary to complete the following work:
 - 1) Furnish and install picnic table shelters and footings.
 2. Measurement
 - a. As measured by the Engineer, where such picnic tables have been successfully installed at the site and accepted by the Engineer, per each picnic table shelter.
 3. Payment
 - a. Unit price per each installed as stated on the Bid Form.
- C. Alternate Bid Price Item No 3 – Contaminated Soil Off-Site Disposal.
1. If selected by the Owner under its executed contract with the Contractor, work associated with this item will be paid for at the stated price including, but not limited to, work under the following:
 - a. All or portions of Division 1 specifications, as applicable.
 - b. Section 02111 – Contaminated Material Management
 - c. Section 02300 – Earthwork
 - d. Includes, but is not limited to: Excavation, staging, handling, loading, transporting and disposing of contaminated material from the site to approved treatment/disposal facilities, backfilling of the area, preparation of manifests or bills of lading, fees paid, and incidental materials, tools, equipment, and services. Also includes all testing required for disposal
 2. Measurement
 - a. Actual net weight in tons of material delivered to treatment/disposal facilities, as measured by the permanent scales at the respective facilities. Total weight will be the summation of weight bills issued by such facilities.

3. Payment
 - a. Unit price per TON as stated on the Bid Form.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 GENERAL

- A. Measurement: Notify Engineer at least 48-hours prior to the time at which necessary measurements must be taken. Notification must be in advance of obscuring pay item; do not proceed until such measurements have been taken in the presence of the Engineer.

END OF SECTION

SECTION 01250 - CONTRACT MODIFICATION PROCEDURES

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.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.3 FIELD ORDER

- A. Engineer will issue written supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Price or the Contract Time, on EJCDC Form C-942. A sample copy of a Field Order is included at the end of the Section.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Price or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Price and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Price and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
5. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Engineer will issue a Change Order for signatures of Owner and Contractor on EJCDC Document C-941.

1.6 WORK CHANGE DIRECTIVES

- A. Work Change Directive: Engineer may issue a Work Change Directive on EJCDC Document C-940. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Price or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ATTACHED FORMS

1. Proposal Request.
2. Field Order (EJCDC Form C-942).

3. Work Change Directive (EJCDC Form C-940).
4. Change Order (EJCDC Form C-941).

END OF SECTION

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PROPOSAL REQUEST

Proposal Request No. _____

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

Please submit an itemized quotation for changes in the Contract Price or Contract Time incidental to the proposed modifications to the Contract Documents described herein.

Description:

Attachments: (List documents supporting description)

By:

ENGINEER

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Attachments:

Engineer:

Receipt Acknowledged by (Contractor):
--

Date:

Copy to Owner

Work Change Directive

No. _____

Date of Issuance: _____ Effective Date: _____

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

You are directed to proceed promptly with the following change(s):

Item No.	Description

Attachments (list documents supporting change):

Purpose for Work Change Directive:

- Authorization for Work described herein to proceed on the basis of Cost of the Work due to:
- Nonagreement on pricing of proposed change.
- Necessity to expedite Work described herein prior to agreeing to changes on

Estimated change in Contract Price and Contract Times:

Contract Price (increase/ decrease) Contract Time (increase/ decrease)
 \$ _____ days

If the change involves an increase, the estimated amounts are not to be exceeded without further authorization.

Recommended for Approval by Engineer:	Date
Authorized for Owner by:	Date
Accepted for Contractor by:	Date
Approved by Funding Agency (if applicable):	Date:

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Change Order

No. _____

Date of Issuance: _____ Effective Date: _____

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

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

Description:

Attachments: (List documents supporting change):

CHANGE IN CONTRACT PRICE:

Original Contract Price:

\$ _____

[Increase] [Decrease] from previously approved Change Orders
No. _____ to No. _____:

\$ _____

Contract Price prior to this Change Order:

\$ _____

[Increase] [Decrease] of this Change

\$ _____

Contract Price incorporating this Change

\$ _____

CHANGE IN CONTRACT TIMES:

Original Contract Times: Working days Calendar days
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

[Increase] [Decrease] from previously approved Change Orders
No. _____ to No. _____:
Substantial completion (days): _____
Ready for final payment (days): _____

Contract Times prior to this Change Order:
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

[Increase] [Decrease] of this Change Order:
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

Contract Times with all approved Change Orders:
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____
Approved by Funding Agency _____		Date: _____

Change Order Instructions

A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

SECTION 01290 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - 2. Submit three copies of the Schedule of Values to Engineer ten (10) days after effective date of Agreement. No payment will be made to Contractor before Schedule of Values has been submitted and accepted by Engineer.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Engineer.
 - c. Engineer's project number: 20110847.A10
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Change Orders (numbers) that affect value.
 - d. Dollar value.
 - 1) Percentage of the Contract Price to nearest one-hundredth percent, adjusted to total 100 percent.
 - 2) Contractor's estimated quantity and unit prices.

3. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Price.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 - a. Break items and payments down to provide convenient and readily determined amounts of work performed during the stages of progress.
7. Where items are not broken down sufficiently to accurately determine the value of Work completed, Engineer will estimate the value of the Work completed and deduct a conservative value that will the Owner to easily complete the Work with the unpaid balance.
 - a. When the required detail in the Schedule of Values is not provided by the Contractor, the Contractor agrees to accept the Engineer's determination.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Application for Payment when Change Orders or Work Change Directives result in a change in the Contract Sum.
 - a. Provide separate breakout for each Change Order. When directed by the Engineer, provide further breakout if Change Order consists of several work items.

1.3 SCHEDULE OF PAYMENTS

- A. Coordination: Coordinate preparation of the Schedule of Payments with preparation of Contractor's Construction Schedule and Schedule of Values.
 1. Such schedule shall be broken down by monthly pay period through Project completion and reflect items listed in the Schedule of Values.

2. Submit three copies of the Schedule of Payments to Engineer 10 days after effective date of the Agreement.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is the 15th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days before the date for each progress payment.
- C. Payment Application Forms: AIA Form G702 or an approved equal.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Work Change Directives issued before last day of construction period covered by application.
 3. Itemized data and format provided on continuation sheets shall include schedules, line items, values as stipulated in the Schedule of Values as accepted by Owner.
 - a. Continuation sheets shall include a total list of all scheduled component items of work with item number and scheduled dollar value for each item. Dollar values to be included in each column for each scheduled line item when Work has been performed or products stored. Round off values to nearest dollar or as may be specified for Schedule of Values.
 - b. List each Change Order executed prior to date of submission at end of continuation sheets. List by Change Order number and description as to original component item of Work.
- E. Transmittal: Submit three (3) signed and notarized original copies of each Application for Payment to Engineer
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
 2. Submit Applications to Engineer by means ensuring receipt within 24 hours.
- F. Ownership: All Work covered by Progress Payments shall, at the time of payment, become the property of Owner.

- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Products list.
 5. Schedule of unit prices.
 6. Submittals Schedule (preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 10. Initial progress report.
 11. Report of preconstruction conference.
 12. Certificates of insurance and insurance policies.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof fees and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final, liquidated damages settlement statement.

FUSS & O'NEILL, INC.
20110847.A10

MILL STATION PARK
BROOKFIELD, MASSACHUSETTS

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01330 - SUBMITTAL PROCEDURES

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.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Engineer's responsive action.
- B. Informational Submittals: Written information that does not require Engineer's approval. Submittals may be rejected for not complying with requirements.
- C. Addresses: Include mailing address, telephone number, facsimile number, and e-mail address.

1.4 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Engineer for Contractor's use in preparing submittals, unless requested by the contractor.
- B. Method of Transmitting Submittals: Submit hard copy of submittals via mail or courier. Electronic transmission of submittals, including a facsimile and e-mail process, will not be allowed.
- C. Clarity: Provide neat, clean and legible printed materials that can be easily reproduced by normal photocopying or blueprinting process. Illegible submittals will be returned with no action taken.
- D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- E. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal.
 1. Initial Review: Allow 21 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Concurrent Review: Where concurrent review of submittals by Engineer's consultants, Owner, or other parties is required, allow 30 days for initial review of each submittal.
 3. If intermediate submittal is necessary, process it in same manner as initial submittal.
 4. Allow three 21 business days for processing each resubmittal.
 5. No extension of the Contract Time or claims for delay will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- F. Identification: Place a permanent label or title block on each submittal for identification.
 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Engineer.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier including name and telephone number of contact.
 - g. Name of manufacturer including name and telephone number of contact.
 - h. Unique identifier, including revision number.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.

- k. Other necessary identification.
- G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals. Provide list or narrative of deviations on Submittal Transmittal form.
- H. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
- I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals, without review, received from sources other than Contractor.
 - 1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
 - 2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
 - 3. Transmittal Form: Use sample form at end of Section.
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
 - 1. Number of Copies: Submit 5 copies of each submittal, unless otherwise indicated. Engineer will return 2 copies. Mark up and retain one returned copy as a Project Record Document.
 - a. Submit a preliminary single copy of each submittal where selection of options, color, pattern, texture, or similar characteristics is required. Engineer will return submittal with options selected.

- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operating and maintenance manuals.
 - k. Compliance with recognized trade association standards.
 - l. Compliance with recognized testing agency standards.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.

- h. Schedules.
 - i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
- D. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location.
 - E. Delegated-Design Submittal: Comply with requirements in Division 1 Section "Quality Requirements."
 - F. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Engineer will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."
- B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.

- C. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- D. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- E. Material or Product Certificates: Prepare written statements on manufacturer's letterhead certifying that material or product complies with requirements. Use attached sample Material Certificate, or provide certificate that includes the following information.
 - 1. Project to which material is consigned.
 - 2. Name of contractor receiving material.
 - 3. Item number and description of material.
 - 4. Quantity of material represented by the certificate.
 - 5. Means of identifying consignment including label, marking, or lot number.
 - 6. Date and method of shipment.
 - 7. Signature of Supplier's authorized agent.
 - 8. Notarization of certificate.
- F. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- G. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- H. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- I. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
 - 1. Preparation of substrates.
 - 2. Required substrate tolerances.
 - 3. Sequence of installation or erection.

4. Required installation tolerances.
 5. Required adjustments.
 6. Recommendations for cleaning and protection.
- J. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- K. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark each copy of each submittal with approval stamp before submitting to Engineer.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp.
- C. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents. See attached Submittal Transmittal for sample of statement.

3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

1. Engineer may elect not to review partial or incomplete submittals and will return such submittals with no action taken.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. Furnish as Submitted: Submittal appears to conform to Contract Documents and Contractor may proceed with ordering and installation.
 2. Furnish as Noted: Same as "Furnish as Submitted" except that the Contractor must comply with modifications or notes added to the submittal by the Engineer.
 3. Rejected: Submittal must be revised and resubmitted.
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and will be discarded.

END OF SECTION

To: Fuss & O'Neill, Inc.
317 Iron Horse Way, #204
Providence, RI 02908
ATTN: Leslie C. Burton, P.E.

From:

PROJECT: _____ SUBMITTAL NO.: _____

(List Section No., Article No., Paragraph)
(Revision: 1st, 2nd, 3rd, etc.)

Transmitted herewith for review and comment are the following:

Copies	Dwg.	No.	Description
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

MANUFACTURER / SUPPLIER

Name: _____
Address: _____
Telephone No.: _____ Facsimile No.: _____
For Additional Information, Contact _____
E-mail Address: _____
SUBMITTAL Spec. Page No. _____ Paragraph No. _____
Equipment Designation _____

I hereby certify that I have carefully examined the enclosed submittal and have determined and verified all field measurements, construction criteria, materials, catalog numbers and similar data, coordinated the submittal with other submissions and the work of other trades and contractors, and that to the best of my knowledge and belief, the enclosed submittal is in full compliance with the Contract Documents, except for the following deviations:

BY:
Signature: _____
Title: _____

-- SAMPLE --

MATERIALS CERTIFICATE

-- SAMPLE --

(Submit on Manufacturer's letterhead)

Date: _____

WE HEREBY CERTIFY THAT _____

(Description, Kind of Material, Product Name, Model No.)

FURNISHED TO _____

(Name of Contractor)

(Prime or Subcontractor)

FOR USE ON _____

(Project Name)

OWNER _____

(Project Owner)

IDENTIFIED BY: _____

(Label, Marking, Seal No., Consignment, or Waybill No.)

SHIPPED VIA: _____

(Method of Shipment, Car No., Truck No.)

SHIPPED ON: _____

DELIVERED ON: _____

MEETS THE REQUIREMENTS OF THE CONTRACT DOCUMENTS FOR THE SUBJECT PROJECT IN ALL RESPECTS. PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH APPLICABLE SPECIFICATIONS, DRAWINGS AND STANDARDS OF ARTICLES FURNISHED. ARTICLES FURNISHED COMPLY WITH THE FOLLOWING STANDARD SPECIFICATIONS:

All records and documents pertinent to this certificate and not submitted herewith will be maintained available by the undersigned for a period of not less than 3 years from the date of this certificate.

(Name of Manufacturer)

(Authorized Representative's Signature)

(Title)

SECTION 01400 - QUALITY REQUIREMENTS

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.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Engineer.
- C. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.4 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract

Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.

1.5 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.
- C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 1. Specification Section number and title.
 2. Description of test and inspection.
 3. Identification of applicable standards.
 4. Identification of test and inspection methods.
 5. Number of tests and inspections required.
 6. Time schedule or time span for tests and inspections.
 7. Entity responsible for performing tests and inspections.
 8. Requirements for obtaining samples.
 9. Unique characteristics of each quality-control service.
- D. Reports: Prepare and submit certified written reports that include the following:
 1. Date of issue.
 2. Project title and number.
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.

10. Ambient conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- E. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.
- F. Testing Agency Qualifications: An agency as defined in Division 1 Section "Testing Laboratory Services"

1.7 QUALITY CONTROL

- A. Contractor Responsibilities: Unless otherwise indicated, provide all quality-control services specified and required by authorities having jurisdiction.
1. Engage a qualified testing agency to perform these quality-control services.

- a. Contractor shall not employ the same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies and Engineer at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- C. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.
- D. **Testing Agency Responsibilities:** Adhere to Division 1 Section "Testing Laboratory Services.
- E. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections, at site or at source of products, including storage and curing of test samples.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field-curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- F. **Coordination:** Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01410 - TESTING LABORATORY SERVICES

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.

1.2 SUMMARY

- A. This Section consists of requirements for the services of Independent Testing Laboratories to perform specified testing of work and materials at the Project site or at point of manufacture.

1.3 REQUIREMENTS

- A. The Contractor shall pay all charges of the Testing Laboratory. Employment of Testing Laboratory shall in no way relieve Contractor of his obligation to perform work in accordance with Contract.
- B. The Contractor will select and employ an Independent Testing Laboratory, approved by the Engineer and holding current certification with the State of Massachusetts, prior to the commencement of the Work, to perform soil testing services as well as other field testing services required by the Contract Documents. Laboratories shall also meet qualifications listed in Division 2 Sections for the types of testing to be conducted.
- C. The Contractor shall also retain the University of Massachusetts Soil Testing Lab service to analyze proposed topsoil sources for lime and fertilizer application rates.

1.4 SUBMITTALS

- A. Contractor shall submit for Engineer's approval the name and qualifications of the Independent Testing Laboratory prior to the commencement of work.

PART 2 - PRODUCTS

- A. Not used.

PART 3 - EXECUTION

3.1 LABORATORY DUTIES

- A. Demonstrate expertise in providing services as specified in the Contract Documents.

- B. Test the samples submitted by Contractor.
- C. Cooperate with Owner and Contractors; provide qualified personnel promptly on notice. Perform specified inspections, sampling and testing of materials and methods of construction; ascertain compliance with requirements of Contract Documents.
- D. The Testing Laboratory shall perform specified inspections, sampling, testing of materials and methods of construction as described in the Contract Documents.
- E. The Testing Laboratory shall promptly notify the Engineer of observed irregularities or deficiencies of work or products and shall perform additional testing as required. The Testing Laboratory shall promptly submit two (2) copies of written reports for each test and inspection to the Engineer and one copy to the Contractor. Each report shall include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing laboratory name, address, and telephone number.
 - 4. Name and signature of field and/or laboratory inspector.
 - 5. Date, time, and location of sampling or inspection.
 - 6. Record of temperature and weather conditions.
 - 7. Date of test.
 - 8. Identification of products and Specification Section.
 - 9. Location of sample or test in the Project. Sample locations shall be shown on site plan sketch.
 - 10. Type of inspection or test.
 - 11. Results of test and compliance with Contract Documents.
 - 12. Interpretation of test results.
- F. The Testing Laboratory shall not be authorized to release, revoke, alter or enlarge upon any requirements of the Contract Documents and Laboratory shall not approve or accept any portion of the Work that does not conform to these Specifications.
- G. Laboratory may not assume any duties of the Contractor; and the Laboratory has no authority to stop work.

3.2 CONTRACTOR'S RESPONSIBILITY

- A. Cooperate with Laboratory personnel and provide access to work and facilitate the execution of the Laboratory's required services.
- B. Provide to Laboratory representative samples of materials to be tested in required quantities.
- C. Furnish labor and facilities to provide access to work to be tested, to obtain and handle samples at the site, and to facilitate inspections and tests.

- D. Notify Laboratory sufficiently in advance of operations to allow for its assignment of personnel and schedule of tests.
- E. Arrange with Laboratory, and pay for, any additional samples and testing required for Contractor's convenience.
- F. Arrange with Laboratory, and pay for, any additional inspections, sampling and testing required when initial tests indicate that work does not comply with Contract Documents.
- G. Arrange for and conduct any inspections required by State and/or local building, fire protection, safety, health or environmental officials.
- H. Testing shall be provided by the Contractor; the Contractor will supply any laborers and equipment necessary for performing the testing at no additional cost. This work may include, but is not limited to providing materials and samples and revising or repairing work to meet the intent of the plans and specifications. The Contractor is also responsible for any costs associated with conformance testing performed by an Independent Laboratory.

END OF SECTION

SECTION 01420 - REFERENCES

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.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Engineer. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Installer": Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- G. "Experienced": When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- H. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. **Applicability of Standards:** Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. **Publication Dates:** Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. **Conflicting Requirements:** If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Engineer for a decision before proceeding.
 - 1. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding.
- D. **Copies of Standards:** Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
- E. **Abbreviations and Acronyms for Standards and Regulations:** Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-5434
ANSI Z260.1	Nursery Stock, latest edition, published by the American Association of Nurserymen, Inc. (AAN).	
CFR	Code of Federal Regulations Available from Government Printing Office www.access.gpo.gov/nara/cfr	(888) 293-6498 (202) 512-1530
CRD	Handbook for Concrete and Cement Available from Army Corps of Engineers Waterways Experiment Station www.wes.army.mil	(601) 634-2355

REFERENCES

DOD	Department of Defense Specifications and Standards Available from Defense Automated Printing Service www.astimage.daps.dla.mil/online	(215) 697-6257
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Defense Automated Printing Service www.astimage.daps.dla.mil/online	(215) 697-6257
	Available from General Services Administration www.fss.gsa.gov/pub/fed-specs.cfm	(202) 619-8925
	Available from National Institute of Building Sciences www.nibs.org	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MILSPEC	Military Specification and Standards Available from Defense Automated Printing Service www.astimage.daps.dla.mil/online	(215) 697-6257
RCRA	Resource Conservation Recovery Act	
MCP	Massachusetts Contingency Plan; MCP; 310 CMR 40.0000	
SPN	"Standardized Plant Names," latest edition, by the American Joint Committee on Horticultural Nomenclature.	
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-5434

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to

REFERENCES

change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(202) 862-5100
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AAN	American Association of Nurserymen (See ANLA)	
AASHTO	American Association of State Highway and Transportation Officials www.aashto.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	American Concrete Institute/ACI International www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AFPA	American Forest & Paper Association (See AF&PA)	
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118

REFERENCES

AHA	American Hardboard Association www.hardboard.org	(847) 934-8800
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America www.alca.org	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANLA	American Nursery & Landscape Association (Formerly: AAN - American Association of Nurserymen) www.anla.org	(202) 789-2900
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOAC	Association of Official Agricultural Chemists	(800) 379-2622
AOSA	Association of Official Seed Analysts www.aosaseed.com	(505) 522-1437
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(941) 454-6989
API	American Petroleum Institute	(202) 682-8000

REFERENCES

www.api.org

ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ASCA	Architectural Spray Coaters Association www.ascassoc.com	(609) 848-6120
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (212) 591-7722
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9585
AWCI	AWCI International (Association of the Wall and Ceiling Industries International) www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (See WCMA)	
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(817) 326-6300
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122

REFERENCES

BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
FM	Factory Mutual System (See FMG)	
FMG	FM Global (Formerly: FM - Factory Mutual System) www.fmglobal.com	(401) 275-3000
GRI	Geosynthetic Research Institute www.drexel.edu/gri	(215) 895-2343
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NFPA	National Fire Protection Association www.nfpa.org	(800) 344-3555 (617) 770-3000
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
RFCI	Resilient Floor Covering Institute www.rfci.com	Contact by mail only
RIS	Redwood Inspection Service www.calredwood.org	(888) 225-7339 (415) 382-0662
SAE	SAE International www.sae.org	(724) 776-4841

REFERENCES

SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TPI	Truss Plate Institute	(608) 833-5900
TPI	Turfgrass Producers International www.turfgrassod.org	(800) 405-8873 (847) 705-9898
UL	Underwriters Laboratories Inc. www.ul.com	(800) 704-4050 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

BOCA	BOCA International, Inc. www.bocai.org	(708) 799-2300
CABO	Council of American Building Officials (See ICC)	
IAPMO	International Association of Plumbing and Mechanical Officials (The) www.iapmo.org	(909) 595-8449
ICBO	International Conference of Building Officials www.icbo.org	(800) 284-4406 (562) 699-0541
ICC	International Code Council, Inc.	(703) 931-4533

REFERENCES

(Formerly: CABO - Council of American Building Officials)
www.intlcode.org

SBCCI Southern Building Code Congress International, Inc. (205) 591-1853
www.sbcci.org

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

EPA Environmental Protection Agency (202) 260-2090
www.epa.gov

GSA General Services Administration (202) 708-5082
www.gsa.gov

HUD Department of Housing and Urban Development (202) 708-1112
www.hud.gov

NCHRP National Cooperative Highway Research Program
(See TRB)

OSHA Occupational Safety & Health Administration (800) 321-6742
www.osha.gov (202) 693-1999

RUS Rural Utilities Service (202) 720-9540
(See USDA)

TRB Transportation Research Board (202) 334-2934
www.nas.edu/trb

USDA Department of Agriculture (202) 720-2791
www.usda.gov

USPS Postal Service (202) 268-2000
www.usps.com

E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

MADEP Massachusetts Department of Environmental Protection (617) 292-5500

REFERENCES

<http://www.mass.gov/dep/>

MASSDOT Massachusetts Department of Transportation (617) 973-7000
<http://www.massdot.state.ma.us/>

UMASS University of Massachusetts (413) 545-2311
UMASS Extension (Amherst)
www.umass.edu/

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01500 - MOBILIZATION

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.

1.2 SUMMARY

- B. This Section includes work necessary for the movement of personnel and equipment to and from the Project site.

1.3 SUBMITTALS

- A. Submit site-specific Health and Safety Plan for informational purposes.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 SAFETY

- A. The Contractor shall prepare a site-specific Health and Safety Plan (HASP) in accordance with 29 CFR Part 1910.120: Hazardous Waste Operations and Emergency Response of the Occupational Safety and Health Administration.
- B. The Contractor shall comply with all requirements of the most recent version of the Occupational Safety and Health Act (OSHA).
- C. When any support system is used that requires design by an engineer, copies of the design stamped by a Professional Engineer registered in the State of Massachusetts shall be submitted to the Engineer.
- D. The Contractor has full responsibility to comply with all provisions of the State of Massachusetts Public General Statutes concerning Occupational Safety and Health. Any fines levied against the Contractor for violations shall be the Contractor's responsibility.

3.2 PROTECTION

- A. The Contractor shall assume full responsibility for the protection of all public or private buildings, structures and utilities in the streets, gas pipes, water pipes, hydrants, sewers, drains and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from damage of every description and any such damage thereto shall be repaired or otherwise made good by the Contractor, at his expense, in a manner acceptable to the Engineer.

- B. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons and damage to property. The Contractor shall, at the Contractor's own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer.

END OF SECTION

SECTION 01572 – TEMPORARY 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.

1.2 SUMMARY

- A. This Section includes furnishing, placing, and maintaining sedimentation control measures as shown on the Drawings, as directed by the Engineer, and where necessary to reduce sediment content of runoff. Control measures are to remain in place until after completion of construction. Measures include the following:
 - 1. Construction Entrance
 - 2. Silt Fence
 - 3. Catch Basin Inlet Protection
 - 4. Temporary Seeding
 - 5. Dust control
 - a. Conduct construction operations and activities to minimize the creation and dispersion of dust. If the Engineer determines that water is required for more effective dust control, provide such measures at no additional cost. Use of calcium chloride is prohibited due to the presence of adjacent freshwater wetlands.
- B. All erosion and sedimentation control work shall comply with the regulatory and permitting requirements.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Silt Fence
 - 2. Catch Basin Inlet Protection. Include manufacturer's installation instructions.
- B. Contractor shall submit 24-hour contact name and number for response to situations that may require immediate response.

1.4 QUALITY ASSURANCE

- A. Standard Specifications: "The Commonwealth of Massachusetts, Department of Public Works, Standard Specifications for Highways and Bridges" and supplements.

- B. Sedimentation and erosion control measures shall be installed and maintained in accordance with the "Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas" (2003 or as amended) by the Massachusetts Department of Environmental Protection.

PART 2 - PRODUCTS

2.1 CONSTRUCTION ENTRANCE

- A. Crushed Gravel: Shall be in accordance with Article 2.01.7 of the Standard Specifications for dense-graded crushed stone.
- B. Filter/Geotextile Fabric: Shall be non-woven and in accordance with Type-1 Geotextile Fabric per Section M9.50.0 of the Standard Specifications

2.2 SILT FENCE

- A. Fabric: Woven geotextile in accordance with Subsection 206.02.2 of the Standard Specifications.
- B. Posts
 - 1. Hardwood Studs: 2-inch by 2-inch by 54-inch minimum.
 - 2. Steel: 0.5 pounds per linear foot by 48 inches long minimum, with projections for fastening.
- C. Wire Backing: 14 gage minimum, mesh 4-inches by 4-inches maximum.
- D. Fasteners: Staples, tie wires or hog rings, as recommended by manufacturer.
 - 1. Staples: Heavy-duty wire, 1-inch long minimum.
- E. Prefabricated silt fence in lieu of field-fabricated fence may be used, when approved by the Engineer.
- F. Filtering Efficiency: 75% (min).
- G. Tensile strength: 50 lbs/linear inch.
- H. Flow Rate: 0.3 gal/ft/min.

2.3 CATCH BASIN INLET PROTECTION

- A. Woven polypropylene that meets the following:

<u>Properties</u>	<u>Requirement</u>	<u>Unit</u>
Grab Tensile Strength (ASTM D4632):	300 (1334)	Lbs (N)
Grab Tensile Elongation (ASTM D4632):	20	Percent

<u>Properties</u>	<u>Requirement</u>	<u>Unit</u>
Puncture Strength (ASTM D4833):	120 (534)	Lbs (N)
Mullen Burst (ASTM D3786):	800 (56)	PSI(kg/sq.cm.)
Trapezoid Tear (ASTM D4533):	120 (534)	Lbs (N)
Flow Rate (ASTM D4491):	40 (45.3)	Gal/Min/Sq. Ft. (l/Min/sq.m)
Permittivity (ASTM D4491)	0.55	Sec-1
UV Resistance(at 500 hours) (Retained strength) (ASTM D4355):	80	Percent
Apparent Opening Size (ASTM D4751):	#40	US Sieve

2.4 DUST CONTROL

- A. Water: Potable.

PART 3 - EXECUTION

3.1 GENERAL

- A. Minimize environmental damage during construction. Prevent discharge of fuel, oil, lubricants, and other fluids. Mitigate effects of discharge.
- B. Construct vehicle decontamination prior to departure of any vehicles from the site.
- C. Construct erosion and sediment control measures in accordance with standards and specifications of the "Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas" by the Massachusetts Department of Environmental Protection.
- D. Attend a preconstruction meeting with the Engineer and Conservation Agent, to review permit conditions and construction methods.
- E. Install additional control measures, if deemed necessary by the State, Town, or Engineer.
- F. Do not discharge turbid water to wetlands or watercourses.
- G. Inspect site daily and prior to any anticipated rain event. Ensure that erosion controls are properly maintained and functioning.
- H. Supply a 24-hour contact name and number as part of the erosion control plan.
- I. Implement and maintain the erosion and sediment controls as noted on the Contract Drawings. Inform parties engaged on the construction site of the requirements and objectives of the plan.

- J. Control dust and wind erosion. Control dust to prevent a hazard to traffic on adjacent roadways. Dust control includes sprinkling of water on exposed soils and haul roads.
 - K. Cut Areas
 - 1. Establish an erosion control line (silt fence) at toe of slope in cut areas.
 - L. Fill Areas
 - 1. Establish an erosion control line (silt fence) at toe of slope of proposed fill areas prior to beginning fill installation.
 - M. Stockpiles
 - 1. Side Slopes: 2:1 maximum.
 - 2. Surround stockpiles by a sediment barrier.
 - 3. Stabilize stockpiles left bare for more than fourteen (14) days with temporary vegetation or mulch.
 - N. Final Grading
 - 1. If final grading is delayed for more than 30 days after land disturbances cease, stabilize soils with temporary vegetation or erosion control blanket.
 - O. Areas to Be Left Bare Prior to Finished Grading and Seeding
 - 1. Within Planting Seasons
 - a. Temporarily seed according to Drawings and Section 02925 – Lawns and Grasses.
 - b. Where grass predominates, fertilize according to a soil test at a minimum application rate of one pound per acre.
 - 2. Outside of Planting Seasons
 - a. Apply air-dried wood chip mulch, free of coarse matter.
 - b. Apply at a rate of 185 to 275 pounds per 1000 sq. ft.
- 3.2 CONSTRUCTION ENTRANCE
- 1. Install at indicated site entrance locations adjacent to off-site paved areas.
- 3.3 SILT FENCE
- A. Install fencing in accordance with Drawings.
- 3.4 CATCH BASIN INLET PROTECTION
- A. Remove catch basin grate, insert silt sack, and secure in place by replacing grate in accordance with Manufacturer's instructions.

3.5 DUST CONTROL

- A. Apply water, uniformly over the surface when dust becomes a nuisance or when directed by the Engineer. Provide shut-off valve in convenient location on water truck, to allow for regulating water flow such that discharged water does not cause excessive ponding or erosive runoff.

3.6 MAINTENANCE

- A. Erosion Controls
 1. Inspect according to the requirements in the Drawings and/or manufacturer.
 2. Remove and dispose of accumulated sediments when sediment reaches approximately one-half the height of the control system, or when directed by the Engineer.
 3. Replace erosion control measures promptly if material decomposes or system becomes ineffective prior to the expected usable life.
 4. Maintain or replace system until no longer necessary for the intended purpose.
 5. Contractor shall be responsible to fix and/or replace all damaged erosion control systems damaged by storm events promptly as needed or to the satisfaction of the Engineer or Owner.

3.7 REMOVAL

- A. Remove and dispose of control systems after respective up gradient areas stabilize with stable growth or as directed by the Engineer.

END OF SECTION

SECTION 01590 - TEMPORARY FACILITIES AND CONTROLS

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.

1.2 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
 - 2. Electric power service
- C. Support facilities include, but are not limited to, the following:
 - 1. Temporary roads and paving.
 - 2. Dewatering facilities and drains.
 - 3. Temporary signs.
 - 4. Waste disposal facilities.
- D. Security and protection facilities include, but are not limited to, the following:
 - 1. Environmental protection.
 - 2. Equipment Decontamination
 - 3. Tree and plant protection.
 - 4. Barricades, warning signs, and lights.

1.3 SUBMITTALS

- A. Product Data for equipment decontamination area materials

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Engineer and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
 - 1. Owner.

2. Engineer.
 3. Testing agencies.
 4. Personnel of authorities having jurisdiction.
- B. Sewage Disposal Service: Pay sewage disposal service use charges for sewage disposal from Project site.
- C. Potable Water Service: Pay potable water service use charges, whether metered or otherwise, for water used in construction activities at Project site.
- D. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site.

1.5 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Engineer. Provide materials suitable for use intended.
- B. Pavement: Comply with Division 2 Section "Bituminous Concrete Paving."
- C. Water: Potable.

2.2 EQUIPMENT

- A. General: Provide equipment suitable for use intended.
- B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

- C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, showers, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
 - 3. Showers: Showers shall be available on-site for the duration of work involving demolition and removal of asbestos-containing materials (ACM). Showers shall be equipped with hot water, shall be shielded to ensure privacy and protection from elements.

- A. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.
 - 1. Install power distribution wiring overhead and rise vertically where least exposed to damage.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Locate sanitary facilities, and other temporary construction and support facilities for easy access. Obtain Town Planning and Zoning Commission approval for location.
 - 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion.
- B. Provide sedimentation control measures in accordance with Division 1 Section "Erosion and Sedimentation Control"
- C. Dewatering Facilities and Drains: Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
 - 1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
 - 2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.
- E. Janitorial Services: Provide janitorial services on a weekly basis for field office, toilets, wash facilities, and similar areas.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that

minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

- B. Ensure equipment decontamination prior to departure of any vehicles from the site.
 - 1. Decontamination of equipment shall consist of sweeping soil off equipment.
- C. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.
- D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
 - 1. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch-thick exterior plywood.
- E. Temporary Fire Protection: Maintain access and temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
- B. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are the property of the Contractor.
 - 2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION

SECTION 01600 - PRODUCT REQUIREMENTS

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.

1.2 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

- D. **Manufacturer's Warranty:** Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
- E. **Special Warranty:** Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

1.4 SUBMITTALS

- A. **Product List:** Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
 - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
 - 2. **Form:** Tabulate information for each product under the following column headings:
 - a. Specification Section number and title.
 - b. Generic name used in the Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 - h. Identification of items that require early submittal approval for scheduled delivery date.
 - 3. **Initial Submittal:** Within 10 days after date of commencement of the Work, submit 3 copies of initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 - a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.
 - 4. **Completed List:** Within 30 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 - 5. **Engineer's Action:** Engineer will respond in writing to Contractor within 15 days of receipt of completed product list. Engineer's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Engineer's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.

- B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - d. Samples, where applicable or requested.
 - e. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - f. Summary of impacts to Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - g. Cost information, including a proposal of change, if any, in the Contract Sum.
 - h. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - i. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 2. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within 7 working days of receipt of a request for substitution. Engineer will notify Contractor of acceptance or rejection of proposed substitution within 15 working days of receipt of request, or 7 working days of receipt of additional information or documentation, whichever is later.
 - a. Form of Acceptance: Change Order.
 - b. Use product specified if Engineer cannot make a decision on use of a proposed substitution within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 5. Store products to allow for inspection and measurement of quantity or counting of units.
 - 6. Store materials in a manner that will not endanger Project structure.
 - 7. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
 - 8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 9. Protect stored products from damage.
- B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
 3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Engineer will make selection.
 5. Where products are accompanied by the term "match sample," sample to be matched is Engineer's.
 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures: Procedures for product selection include the following:
1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.
 - a. Substitutions may be considered, unless otherwise indicated.
 2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a

product by the manufacturer or from the source named that complies with requirements.

- a. Substitutions may be considered, unless otherwise indicated.
3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
 4. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
 5. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Substitutions may be considered, unless otherwise indicated.
 6. Allowances: Refer to individual Specification Sections for allowances that control product selection and for procedures required for processing such selections.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Engineer will consider requests for substitution if received within 30 calendar days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Engineer.
- B. Conditions: Engineer will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Engineer will return requests without action, except to record noncompliance with these requirements:
 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 2. Requested substitution does not require extensive revisions to the Contract Documents.
 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 4. Substitution request is fully documented and properly submitted.

5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.
10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:
 1. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 2. Evidence that proposed product provides specified warranty.
 3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 4. Samples or other documentation proving equal substitution or compliance with Drawings and Technical Specifications, if requested.

PART 3 - EXECUTION (Not used)

END OF SECTION

SECTION 01700 - EXECUTION REQUIREMENTS

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.

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Progress cleaning.
 - 5. Starting and adjusting.
 - 6. Protection of installed construction.
 - 7. Correction of the Work.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of improvements and other structures.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site Work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

- a. Description of the work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 3. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer prior to proceeding with the Work.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 1. Establish benchmarks and control points to set lines, grades, and elsewhere as needed to locate each element of Project.
 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 3. Check the location, level and plumb, of every major element as the Work progresses.
 4. Notify Engineer when deviations from required grades, lines, and levels exceed allowable tolerances.
 5. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement.
- D. Structure Lines and Levels: Locate and lay out control lines and levels for structures. Transfer survey markings and elevations for use with control lines and levels.

- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Owner. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- C. Record Documents: On completion of major site improvements and other work requiring field-engineering services, submit Record Documents in accordance with Division 1 Section "Record Documents."

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
- B. Comply with manufacturers' written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
- F. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- G. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

- A. Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
- B. Maintain Project site free of waste materials and debris.
- C. Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work and use of the existing properties.
- D. Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- F. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
 - 1. Thoroughly clean surfaces before applying paint or other finishing materials.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.8 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

END OF SECTION

SECTION 01770 - CLOSEOUT PROCEDURES

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.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 1. Inspection procedures.
 2. Project Record Documents.
 3. Final cleaning.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 2. Complete final cleaning requirements.
- B. Inspection: When the Work is ready for its intended use, submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.
 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 LIST OF INCOMPLETE ITEMS

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items (punch list) and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1.5 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
 - 2. Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will notify Contractor of construction that must be completed or corrected before final payment will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.6 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings. Submit one set of record drawings to Owner and Engineer in electronic format on compact disc, as AutoCAD® 2005 or 2008 drawing (.dwg) format.
 - 1. Mark Record Prints to show the actual installation where installation varies from that shown originally.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.
 - 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 - 3. Mark important additional information that was either shown schematically or omitted from original Drawings.

4. Note Work Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning:
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean areas disturbed by construction activities of rubbish, surplus soil, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove debris from limited access spaces, including trenches, equipment vaults, manholes, and similar spaces.
 - f. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury stumps, debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.
- D. If the Contractor fails to clean up, the Owner may do so and the cost thereof will be charged to the Contractor.

END OF SECTION

DIVISION 2 - SITE CONSTRUCTION

SECTION 02111 – CONTAMINATED MATERIAL MANAGEMENT

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.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Protective measures required during management of contaminated material.
 - 2. Staging of contaminated soil.
 - 3. Loading, transporting, and disposing off-site of contaminated soil, solid waste, and hazardous waste.

1.3 REFERENCES

- A. Code of Massachusetts Regulations (CMR)
 - 1. 310 CMR 19.00: Solid Waste (MassDEP)
 - 2. 310 CMR 30.00: Hazardous Waste (MassDEP)
 - 3. 310 CMR 40.0000: Massachusetts Contingency Plan (MCP; MassDEP)
- B. MassDEP Guidance
 - 1. Policy Comm. #97-001: Reuse and Disposal of Contaminated Soil at Massachusetts Landfills
- C. Code of Federal Regulations (CFR)
 - 1. 29 CFR 1926.65: Hazardous Waste Operations and Emergency Response (OSHA)
 - 2. 40 CFR 260-266: Resource Conservation and Recovery Act (USEPA)
 - 3. 40 CFR 761: Toxic Substances Control Act (USEPA)
 - 4. 49 CFR 171-180: Hazardous Material Transport Regulations (USDOT)
- D. MCP Submittals
 - 1. Metcalf & Eddy, Inc. Targeted Brownfield Assessment; November 2002
 - 2. Metcalf & Eddy, Inc. Phase I Initial Site Investigation; January 2004
 - 3. Metcalf & Eddy, Inc. Phase II Comprehensive Site Assessment Report; November 2007

4. Advanced Environmental Solutions, Inc. and AECOM Environment, Phase III Remedial Action Plan, Former Brookfield Mill Site, 59-67 Mill Street, Brookfield, MA, RTN 2-10354, March 2009.
5. Fuss & O'Neill, Inc. Release Abatement Measure Plan, Former Brookfield Mill Site, September 2011.

1.4 SUBMITTALS

A. Certification Letters

1. Training: Certify that personnel engaged in site activities have appropriate training per OSHA 29 CFR 1926.65.
2. Demonstration that the Contractor possesses the appropriate licenses, endorsements and insurance to handle, transport and dispose of hazardous waste.

B. Submit proposed State-approved disposal or recycling facility for disposal of contaminated soil, if required by the project.

C. For Information.

1. Site Specific Health and Safety Plan (HASP)
 - a. Written by a Certified Industrial Hygienist or a Certified Industrial Planner, in compliance with OSHA 29 CFR 1926.65.
 - b. Include a hazard evaluation of materials which are anticipated to be encountered at the site based upon an on-site investigation.
 - c. Maintain a copy of HASP on-site for review by Owner or other authorities having jurisdiction. Note that Contractor is solely responsible for implementation of the HASP.
2. Material shipment records required by applicable Federal, State and local regulations.
3. Scale tickets for confirmation of payment.

1.5 QUALITY ASSURANCE

A. Contaminated Material Removal Firm Qualifications:

1. The Contractor shall demonstrate project experience and qualification for the Project by providing examples of each of the following project experiences within the last five (5) years:
 - a. Remediation of an MCP-regulated site for a municipal (City/Town) client in the Commonwealth of Massachusetts.
 - b. Excavation and off-site disposal of MCP-regulated soil at a Massachusetts-licensed landfill facility.

B. Testing Agency Qualifications: An independent testing agency, accredited in the National Environmental Laboratory Accreditation Program (NELAP), certified by the United States

Environmental Protection Agency (USEPA) to conduct the testing indicated, and certified by the State.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Provide equipment free of contamination. Equipment that has not been thoroughly decontaminated prior to site delivery, as determined by the Engineer, will be prohibited from entering the site.
 - 1. On-site cleaning of equipment that is not thoroughly decontaminated upon delivery to the site is prohibited.
 - 2. Equipment used on-site for contaminated material management will be decontaminated prior to work involving the materials above subgrade elevation or prior to departure from the site.
 - a. Decontamination of equipment shall include sweeping dirt and sediment from equipment

1.7 PROJECT CONDITIONS

- A. Keep contaminated equipment within designated contaminated work area. Decontaminate equipment each time it is removed from contaminated work area to another area on site or used for earthwork or other activities involving final cap cover material.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. The following products shall be provided by the Contractor for the on-site storage and handling of the Regulated Waste, and, if necessary, wastes that are generated by the Contractor:
 - 1. Plastic Sheet: Plastic sheet shall be polyethylene with minimum thickness of 10-mils, 20 feet minimum width.
 - 2. Absorbent Boom: Absorbent booms shall be 8-inch diameter hydrophilic sorbent booms.
 - 3. Granular Absorbent: Granular absorbent shall be "Speedi-Dri" or approved equal.
 - 4. Shipping Drums: Shipping drums or over pack drums shall be new USDOT approved shipping drums compatible with liquid and semi-liquid contaminated materials present at the site. Drums shall comply with requirements of 49 CFR Part 173 and shall be stamped/labeled in accordance with 49 CFR Part 172.
- B. EXECUTION

2.2 GENERAL

- A. Maintain separate stockpiles for regulated and non-regulated soil. Provide lined roll-off containers for disposal of MCP-regulated soil.
- B. Utilize erosion controls as required by the Contract Documents
- C. Sweep paved areas daily.
- D. Prevent surface waters from entering excavated areas in accordance with Division 2 Section "Earthwork".

2.3 DECONTAMINATION PROCEDURES

- A. Follow the requirements of 29 CFR 1926.65 and the site-specific HASP.
- B. Provide for decontamination of personnel, equipment and supplies that enter the contaminated work area or are exposed to contaminated material.

2.4 LOCATION OF CONTAMINATED MATERIALS

- A. Existing soil within the limit of disturbance consists of fill material contaminated with metals and ash at concentrations exceeding the MassDEP reportable concentrations listed in the MCP.
- B. Existing soil within the limit of disturbance will be managed in accordance with this Section. All soil within the limit of disturbance shall be considered "contaminated soil" subject to this section unless demonstrated otherwise by analytical testing conducted by the Contractor.

2.5 EXCAVATION AND STAGING OF CONTAMINATED SOIL

- A. Perform excavation in accordance with Division 2 Section "Earthwork".
 - 1. Stop excavation and immediately inform Engineer when material not previously identified displays characteristics of contamination, or when materials encountered display previously unidentified characteristics of contamination (i.e. petroleum sheens or odors, buried containers, etc.)
 - 2. If previously unidentified contaminated soil is encountered, the Engineer and Owner will notify MassDEP and direct an appropriate course of action.
 - 3. Contaminated soil shall be staged on and underneath 10-mil polyethylene sheeting and secured with weights, rocks or other items to prevent loss of cover at the end of each work day. Dust control measures (wetting, etc.) shall be utilized as needed when the stockpile is not covered. Contaminated soil shall not be staged on capped areas of the site.

2.6 FILL MATERIAL

- A. Backfill any excavated areas in accordance with Division 2 Section "Earthwork".
- B. Use clean stockpiled material for backfill of excavations or obtain clean fill or gravel borrow material off-site.

2.7 LOADING, TRANSPORTATION, AND DISPOSAL

- A. Characterize materials for disposal in accordance with MassDEP Policy Comm. #97-001 or the requirements of the designated disposal facility. Provide the Owner and Engineer with appropriate characterization data prior to disposal.
- B. Preparation of shipping documentation, including Uniform Hazardous Waste Manifests or Bills of Lading as appropriate, shall be the responsibility of the Contractor.
- C. Load contaminated soils from stockpiles into approved containers for shipment and transport to an appropriately licensed receiving and disposal facility.
- D. Maintain records of disposal and provide records to Engineer.

2.8 FIELD QUALITY CONTROL

- A. At the direction of the Engineer, the Contractor will obtain soil samples from excavated, stockpiled, and/or in-place material to characterize the degree of soil contamination prior to off-site disposal, and Contractor will submit samples for testing, as required, to a certified laboratory.
- B. Engineer may collect random samples of decontamination soils and fluids, or wipe surfaces to ensure that proper decontamination procedures are being followed. If decontamination is determined by the Engineer to be ineffective or insufficient, Contractor shall undertake additional decontamination measures necessary to provide an adequate level of decontamination.

END OF SECTION

SECTION 02230 - SITE CLEARING

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. Release Abatement Measure Plan, prepared by Fuss & O'Neill, Inc. and attached as Exhibit A.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Protecting vegetation to remain.
 - 2. Removing vegetation.
 - 3. Photographing pre-construction conditions.
 - 4. Clearing and grubbing.
 - 5. Removing above-grade site improvements.
 - 6. Protecting above-grade site improvements.
- B. Limits of Work: Minimize disturbance within clearing limits. Limits of disturbance shown on Drawings indicate furthest extent allowed. Perform only as much clearing as required to complete the Work.

1.3 DEFINITIONS

- A. Site Improvements: Miscellaneous structures and site elements including pavement, concrete, boulders, property line markers, and other miscellaneous items.
- B. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than one (1) inch in diameter; and free of weeds, roots, and other deleterious materials.

1.4 QUALITY ASSURANCE

- A. Where "Standard Specifications" is used, it shall mean "Commonwealth of Massachusetts, Massachusetts Highway Department Standard Specification for Highways and Bridges, dated 1998" and latest issued supplements.

1.5 MATERIALS OWNERSHIP

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

1.6 SUBMITTALS

- A. Photographs, sufficiently detailed, of existing conditions, of adjoining properties, and site improvements, prior to starting construction.
- B. Surveyor's Notes
 - 1. Identify and accurately locate survey monuments disturbed due to Contractor's operations.

1.7 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 authorities having jurisdiction.
- B. Restore damaged items to existing condition or better.
 - 1. Restore existing property or structures as promptly as practicable. Do not leave restoration until end of construction period.
- C. Contact "DigSafe" at 811 a minimum of 72 hours exclusive of weekends and holidays before beginning site clearing. Contractor shall provide Engineer with the DigSafe ticket number for Engineer's records.
- D. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.
- E. Equipment Operations
 - 1. On paved surfaces, do not operate equipment with tracks, treads, or wheels that cut or otherwise damage paved surfaces.
 - 2. Operate equipment with care to prevent injury to trees and overhanging branches and limbs.
- F. Restore surfaces that have been damaged by Contractor's operations to a condition at least equal to condition before work began.

1.8 PROTECTING EXISTING STRUCTURES

- A. Support and protect in place existing site improvements not designated to be removed. Existing site improvements include pavement, walls, monitoring wells, property line markers, and other structures.
 - 1. Restore items damaged by the Contractor, at a minimum, to the condition in which the item was found immediately before beginning the Work. Restore items promptly; do not leave until end of construction.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL

- A. Clearing shall be limited to the area within the Limit of Disturbance.

3.2 PREPARATION

- A. Photograph the following:
 - 1. Existing surface conditions of entire project site and immediate surroundings to address at a minimum roadways, drainage structures, adjacent buildings, and other site conditions.
 - 2. Existing features of entire project site and immediate surroundings to address at minimum trees, shrubs, fences, hydrants, signs, walls, driveways, poles, drainage structures, and walks.
 - 3. Limits:
 - a. Fifty feet beyond all property lines.
- B. Protect and maintain benchmarks and survey control points from disturbance during construction.
- C. Locate and clearly flag trees and vegetation to be removed or to be maintained.
- D. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.3 VEGETATION PROTECTION

- A. Protect tree trunks adjacent to the Work from damage from equipment and construction operations.
- B. Do not cut branches, limbs or roots except when directed by the Engineer.

- C. Repair or replace trees and vegetation to remain that are damaged by construction operations, in a manner approved by Engineer and Owner.

3.4 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit project work. Removal includes digging out stumps and obstructions and grubbing roots. Promptly dispose of unused material off-site.
- 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 8-inch loose depth, and compact each layer to a density equal to adjacent original ground.

3.5 SITE IMPROVEMENTS

- A. Remove only as much existing pavement as necessary to perform the Work.
 - 1. Saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically. Exposed pavement edges that are damaged before adjacent pavement is installed shall be re-cut to provide a clean, vertical face to accept tack and a flush pavement joint.
 - 2. Do not mix excavated pavement with other excavated materials.
- B. Remove and reset existing site improvements that interfere with the Contractor's operations.
 - 1. Restore items damaged by the Contractor, at a minimum, to the condition in which the item was found immediately before beginning the Work.
 - 2. Restore items promptly; do not leave until end of construction.

3.6 DISPOSAL

- A. Right of First Refusal
 - 1. Cleared materials including but not limited to trees, curbing, walls, and plantings shall be offered to the Owner.
 - a. If the Owner does not wish to maintain ownership of the item, cleared materials shall become Contractor's property and shall be removed from the site at no additional cost.
 - b. Obtain the Owner's preferences a minimum of two business days before commencing respective clearing operations.
- B. Remove trees, unsuitable material, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them from the Site.

- C. Surplus excavated soil shall be disposed of in accordance with Section 02111 Contaminated Material Management and with the Release Abatement Measure Plan, prepared by Fuss & O'Neill, Inc. attached as Exhibit A.

END OF SECTION

SECTION 02300 - EARTHWORK

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. Release Abatement Measure Plan, prepared by Fuss & O'Neill, Inc. and attached as Exhibit A.
- C. SUMMARY
- D. This Section includes the following:
 - 1. Excavating and backfilling.
 - 2. Preparing subgrades for slabs-on-grade, pavements, lawns, and plantings.
 - 3. Placing compacted cover material.
 - 4. Placing geotextile fabric.
 - 5. Disposal of unsuitable material.
 - 6. Disposal of surplus suitable material, if required.
 - 7. Restoration of disturbed areas.

1.2 DEFINITIONS

- A. Backfill: Soil materials used to backfill excavations to subgrade elevations.
- B. Excavation: Removal of material encountered above subgrade elevations.
 - 1. Additional Excavation: Excavation below subgrade elevations as directed by Engineer. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Bulk Excavation: Excavations more than 10 feet in width and pits more than 30 feet in either length or width.
 - 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work, shall be without additional compensation.
- C. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material exceeding 1 cubic yard for bulk excavation or 0.75 cubic yard for footing, trench, and pit excavation, that cannot be removed by rock excavating equipment, without systematic drilling, ram hammering, ripping, or blasting, when permitted; and that

when tested by an independent geotechnical testing agency, according to ASTM D 1586, exceeds a standard penetration resistance of 100 blows/2 inches. The building to be demolished is located directly on rock and the depth to rock outside of the building is approximately ten (10) feet. Rock excavation and removal is not proposed under this contract.

- D. Gravel Borrow: Inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings, and deleterious materials.
- E. Fill: An earthen material imported to the site placed below top soil and gravel borrow within the brick walkway. Material shall be approved by Engineer.
- F. Top Soil: Refer to Section 02925.
- G. Bedding Sand: Layer placed below bricks within brick walkway.
- H. Mortar: Material used to bind bricks together.
- I. Structures: Foundations, retaining walls, slabs, or other man-made stationary features constructed above or below the ground surface.
- J. Subgrade: Surface or elevation remaining after completing excavation.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Geotextile fabric
- B. Material Test Reports shall be submitted by the Contractor at a rate of once every 500 CY of each material delivered to the project site. No material shall be delivered to the site without prior acceptance by the Engineer. If material is proposed from more than one source, a test report/certification shall be provided for each source
- C. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated. Prepare separate reports for each application of gravel borrow, fill, and bedding sand..
 - 1. Classification according to ASTM D 2487.
 - 2. Sieve analysis according to ASTM 6913.
 - 3. Laboratory compaction curve according to ASTM D 1557 and ASTM D 698.
 - 4. Origin of material.
- D. Analytical Test Reports for fill to be imported to the site. An independent testing agency, accredited in the National Environmental Laboratory Accreditation Program (NELAP), certified by the United States Environmental Protection Agency (USEPA) to conduct the testing indicated, and certified by the State. Submit analytical testing prior to delivery.

1. For soil: Every 500 cu. yd. and at least once for each source and type for the following test:
 - a. Arsenic (according to EPA Method 6010B)
 2. For soil: Every 2,000 cu. yd. and at least once for each source and type for the following tests:
 - a. Priority Pollutant 13 metals (according to EPA Method 6010B/7471A)
 - b. Polynuclear aromatic hydrocarbons (according to EPA Method 8270C)
 - c. Volatile organic compounds (according to EPA Method 8260B)
- E. Clean Material Certification: For gravel borrow as follows:
1. Signed and dated letter on letter head of company providing material stating the following:
 - a. The company name providing the material.
 - b. Type of material being provided.
 - c. That the material provided is from a non-regulated site.
 - d. Name of person authorized to make certification on behalf of the company.
- F. Field Test Data Reports: For the following:
1. Compaction Testing
- G. Material Weight Slips: Submit weight slips verifying the quantities of the following materials imported the site:
1. Gravel borrow
 2. Fill

1.4 QUALITY ASSURANCE

- A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.
- B. Standard Specifications: Commonwealth of Massachusetts, Massachusetts Highway Department, Standard Specifications for Highways and Bridges, and latest issued supplements.
- C. Excavation work shall be performed in compliance with applicable requirements of governing authorities having jurisdiction

1.5 PROJECT CONDITIONS

- A. All such information and drawings of existing conditions are furnished only for the information and convenience of the Contractor. It shall be understood and agreed that the

Owner does not warrant or guarantee that materials encountered during construction will be the same as those indicated by information given on the drawings. The Contractor must satisfy itself regarding character, quantities and conditions of the various materials and work to be done.

- B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Engineer not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Engineer's written permission.
 - 3. Contact Dig Safe before excavating. Proceed with excavation only after utility locator service completes marking of utility locations.
- C. Place excavated material, backfill and equipment a minimum of 2 feet from edge of excavation. Cast excavated material so as not to interfere with ordinary use of the traveled way.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide soil materials for backfill of excavation areas. Reuse of on-site materials shall not be conducted without prior approval from the Owner.
- B. Satisfactory Soils: Free of debris, waste, frozen materials, vegetation, clay and other deleterious matter; adequately graded for satisfactory compaction. Existing material shall not be used as satisfactory soils except for as backfill beneath subgrade elevation.
 - 1. Shall be gravelly in nature, free of rock or gravel larger than 3 inches in any dimension; and shall not contain more than 17 percent by weight passing the No. 200 sieve.
- C. Backfill: Satisfactory soil materials free of organic matter, roots, and stones larger than 3 inches in any dimension, placed below subgrade. Subject to approval by the Engineer.
- D. Fill: Satisfactory soil imported from off-site and placed above subgrade. Shall be certified as clean virgin material in accordance with Part 1.3.C.
- E. Gravel Borrow: Free of rock or gravel larger than three (3) inches in any dimension; MassDOT Standard Spec, Section M1.03.0. Shall be certified that material is from a non-regulated site in accordance with Part 1.3.D.
- F. Bedding Sand: Shall meet the requirements of ASTM C 33; fine aggregate
- G. Mortar: Shall meet the requirements of Standard Specification Section M4.02.15.

2.2 Geotextile Fabric:

- A. Shall be non-woven and in accordance with Type-1 Geotextile Fabric per Section M9.50.0 of the Standard Specifications
 - 1. Shall have a minimum puncture strength of 120 pounds and burst strength of 400 pounds per square inch.
 - 2. Continuously overlap seams a minimum of 12 inches at all longitudinal and transverse joints.

PART 3 - EXECUTION

3.1 GENERAL

- A. Manage all soil in accordance with Section 02111 Contaminated Material Management and with the Release Abatement Measure Plan, prepared by Fuss & O'Neill, Inc. attached as Exhibit A.

3.2 PREPARATION

- A. Protect structures, utilities, pavements, walls, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and pavements.

3.3 DEWATERING

- A. Prevent surface water from entering excavations, from ponding on prepared subgrades, and from flooding or damaging Project site and surrounding area.

3.4 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.
 - 1. If excavated materials intended for backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
 - 2. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as unauthorized excavation.

3.5 APPROVAL OF SUBGRADE

- A. Notify Engineer when excavations have reached required subgrade.
- B. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with satisfactory soil.
 - 1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer.

3.6 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation as required and directed by Engineer.

3.7 STORAGE OF SOIL MATERIALS

- A. Stockpile soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.
 - 2. The Contractor shall ensure that all clean fill material to be used at the site is properly segregated from all other material on the site and not co-mingled, which could result in the contamination of material. Contaminated material will be unsuitable for use in soil cap construction.
 - 3. The Contractor shall place all clean material to be used at the site on plastic sheeting if the material is staged in an area with exposed existing soil materials.

3.8 GEOTEXTILE FILTER FABRIC

- A. Install geotextile fabric to the indicated limits.
- B. Install geotextile fabric in accordance with manufacturer's requirements. Do not drag materials, equipment or other items over geotextile fabric before installation of clean fill.
 - 1. Minimize handling of geotextile fabric during installation.
- C. Unpackage only the material which can be placed into position and covered in the same day.

- D. In areas where wind is prevalent, start installation at the upwind side of the project and proceed downwind. Secure the leading edge at all times with sandbags or other means sufficient to hold it down during high winds.
- E. Overlap Seams
 - 1. Continuously overlap panels a minimum of 12 inches at all longitudinal and transverse joints.
 - 2. Install the overlap in a direction, such that the cover material does not push the fabric apart.
- F. Where seams must be oriented across the slope, install so upper panel overlaps lower panel.
- G. Where necessary, holes may be cut in the geotextile fabric to allow for the installation of fencing or landscaping. The cut in the fabric should only be as large as necessary to complete the installation, and, where possible, the cut fabric should be replaced upon completion of the installation.
- H. Repairs
 - 1. Place a patch of same type of geotextile fabric over damaged area. Extend fabric a minimum of 12 inches beyond edge of damaged area. Align machine direction of patch with machine direction of geotextile fabric to be repaired.
 - 2. Remove and replace geotextile fabric which cannot be repaired.
 - 3. Repair geotextile fabric at no additional cost.

3.9 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade.
 - 2. Surveying locations of underground utilities for record documents.
 - 3. Removing concrete formwork.
 - 4. Removing trash and debris.
 - 5. Removing temporary shoring and bracing, and sheeting.

3.10 FILL

- A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 3 horizontal so fill material will bond with existing material.

- C. Place and compact fill material in lifts to required elevations.

3.11 MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within two (2) percent of optimum moisture content.
 - 1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by two (2) percent and is too wet to compact to specified dry unit weight.

3.12 GRADING

- A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Construct subgrades at the required elevations to direct water downhill, and prevent ponding. Finished surfaces shall be installed to the required elevations within the following tolerances:
 - 1. Unpaved Areas: Plus or minus 1-1/2 inches.
 - 2. Walks: Plus or minus 1 inch.
 - 3. Pavements: Plus or minus 1 inch.
- C. Finish Grading: Construct finished grades at the required elevations, slope grades to direct water downhill, and prevent ponding. Finished surfaces shall be installed to the required elevations within the following tolerances:
 - 1. Unpaved Areas: Plus or minus 1 inch.
 - 2. Walks: Plus or minus 1/2 inch.
 - 3. Pavements: Plus or minus 1/2 inch.

3.13 GRAVEL BORROW UNDER PAVEMENTS AND WALKS

- A. Prepared subgrade shall be free of mud, frost, snow, or ice.
- B. On prepared subgrade, place gravel borrow course as follows:
 - 1. Place gravel borrow course under hot-mix asphalt and concrete pavement.
 - 2. Shape gravel borrow course to required crown elevations and cross-slope grades.

3. Place gravel borrow course 6 inches in compacted thickness in a single layer.
 4. Place gravel borrow course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
- C. Compact gravel borrow at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.14 COMPACTION OF BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
1. Under pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
 3. Under unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.

3.15 FIELD QUALITY CONTROL

- A. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
- B. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.16 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion and sedimentation. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.17 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

Surplus excavated soil shall be disposed of in accordance with Section 02111 Contaminated Material Management and with the Release Abatement Measure Plan, prepared by Fuss & O'Neill, Inc. attached as Exhibit A.

END OF SECTION

SECTION 02740 – PAVEMENT MARKINGS

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.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Pavement-marking paint.

1.3 DEFINITIONS

- A. Standard Specifications: Commonwealth of Massachusetts, Massachusetts Highway Department, Standard Specifications for Highways and Bridges, and latest issued supplements.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply pavement markings if pavement surface is wet or excessively damp.
- B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 50 deg F and not exceeding 95 deg F.
- C. Restrictions: Material shall not be applied over a longitudinal joint.
- D. New Pavement: Pavement markings shall not be applied to new pavement until at least 14, but no more than 28, days have elapsed from pavement placement.
- E. Project Limits: At project limits, new pavement markings shall match the location of existing pavement markings.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.
- B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

PART 2 - PRODUCTS

2.1 PAVEMENT MARKINGS

- A. Materials: Shall conform to Section and M7.01.23; Fast Drying White Water-Borne Traffic Paint of the Standard Specifications.

PART 3 - EXECUTION

3.1 GENERAL

- A. Construction methods for the application of pavement markings shall be in accordance with Section 860; Reflectorized Pavement Markings of the Standard Specifications or as directed by the Engineer.

3.2 INSTALLATION TOLERANCES

- A. Width: A tolerance of 1/4-inch under or over the specified width will be allowed for striping provided the variation is gradual and does not detract from the general appearance. Alignment deviations for the control guide shall not exceed 2 inches provided the variation is gradual and does not detract from the general appearance.
 - 1. Establishment of these tolerances shall not relieve the Contractor of his responsibility to comply as closely as practicable with the planned dimensions.

3.3 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated deleterious materials from Project site and legally dispose of them in an approved landfill.

END OF SECTION

SECTION 02741 – BITUMINOUS CONCRETE PAVING

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.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Bituminous concrete paving.

1.3 DEFINITIONS

- A. Bituminous Concrete Surface Course (MassDOT Hot Mix Asphalt Modified Surface Course): The asphalt-aggregate top course of a bituminous concrete pavement, sometimes called a wearing course.
- B. Bituminous Base Course (MassDOT Hot Mix Asphalt Base Course): Asphalt-aggregate layer placed over gravel borrow and beneath bituminous concrete surface course.
- C. Standard Specifications: Massachusetts Department of Transportation (formerly known as Massachusetts highway Department) Standard Specifications for Highways and Bridges, English Edition, 1988, with all approved supplements.

1.4 SUBMITTALS

- A. Job-Mix Design Certification: For each job mix proposed for the Work, signed by the supplier.
- B. Qualification Data: For bituminous concrete supplier.
- C. Material Certificates: For each paving material, signed by manufacturers.

1.5 QUALITY ASSURANCE

- A. Standard Specifications: Commonwealth of Massachusetts, Massachusetts Department of Transportation, Standard Specifications for Highways and Bridges, English Edition, and latest issued supplements.
- B. Asphalt-Paving Publication: Comply with AI MS-22, "Construction of Hot Mix Asphalt Pavements".

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Transport bituminous concrete mixture in tight body trucks that have been previously cleaned of foreign material.
 - 1. Tightly cover trucks with waterproof canvas or other suitable covers.
- B. Deliver mixture within 25 deg. F of approved job mix formula temperature.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:
 - 1. Bituminous Concrete Surface Course: Minimum surface temperature of 60 deg. F at time of placement.
 - 2. Bituminous Concrete Base Course: Minimum surface temperature of 40 deg. F and rising at time of placement.
 - 3. Prime and Tack Coats: Minimum surface temperature of 60 deg. F.

PART 2 - PRODUCTS

2.1 BITUMINOUS CONCRETE

- A. Performance-Graded Asphalt Cement: Shall be in conformance with Subsection M3.11.00 of the Standard Specifications.
- B. Aggregate: Shall be in conformance with Subsection M3.11.04 of the Standard Specifications.
- C. Filler: Shall be in conformance with Subsection M3.11.05 of the Standard Specifications.
- D. Bituminous Concrete Mixes: Shall conform to Sections 460; Hot Mix Asphalt and M3.11; Hot Mix Asphalt of the Standard Specifications. The following mixes are anticipated to be used:
 - 1. Base Course
 - 2. Modified Surface Course

PART 3 - EXECUTION

3.1 GENERAL

- A. Installation of bituminous concrete pavements shall be completed in accordance with Section 460; Hot Mix Asphalt of the Standard Specifications except as stated in this specification or as directed by the Engineer.

3.2 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
1. Base Course: Plus or minus 1/4 inch.
 2. Modified Surface Course: Plus 1/4 inch, no minus.
- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
1. Base Course:
 - a. Parking Lots: 3/8-inch.
 - b. Sidewalks and Driveways: 1/4-inch.
 2. Surface Course: 1/4 inch.
 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.
- C. Variation from Design Elevation: 1/4 inch.

3.3 FIELD QUALITY CONTROL

- A. Testing Agency: The Contractor will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.
1. Testing agency shall conduct and interpret tests and state in each report whether tested Work complies with or deviates from specified requirements.
 2. Laboratory must be accredited by the AASHTO Accreditation Program or a comparable laboratory accreditation program approved by the FHWA.
 3. Personnel: All sampling and testing must be performed by qualified personnel. This qualification consists of:
 - a. NETTCP (New England Transportation Technician Certification Program),
or
 - b. Education and experience approved by the Department of Transportation.
- B. Additional testing and inspecting, at Contractor's expense, shall be performed to determine compliance of repaired, replaced or additional work with specified requirements.
- C. Thickness: In-place compacted thickness of bituminous concrete courses shall be determined according to ASTM D 3549.

- D. Surface Smoothness: Finished surface of each bituminous concrete course shall be tested for compliance with smoothness tolerances.
- E. In-Place Density: Shall be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
 - 1. One test for every 1,000 sq. yd. or less of installed pavement, with no fewer than three (3) tests.

3.4 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an approved landfill.
 - 1. Do not allow excavated materials to accumulate on-site.

END OF SECTION

SECTION 02771 - CURBING

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.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Granite curbing.

1.3 SUBMITTALS

- A. Material Certification:
 - 1. For granite curb, certifying material meets the Specification requirements.

1.4 QUALITY ASSURANCE

- A. Where "Standard Specifications" is used, it shall mean "Commonwealth of Massachusetts, Massachusetts Highway Department Standard Specification for Highways and Bridges, dated 1998" and latest issued supplements.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Vertical Granite Curb:
 - 1. Shall be Type VA3 in accordance with Section M9.04.1 of the Standard Specifications.
- B. Sloped Faced Granite Curb:
 - 1. Curb stone material shall be supplied by the Owner
 - a. Contractor is responsible for selecting acceptable segments of sloped faced granite curb from stockpile (located on the paved area immediately west of the project area) and transporting them to the site for installation. Contractor shall obtain owner approval of selected segments of curb.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Excavate, prepare foundation, set curb, and point joints in accordance with Section 501 of the Standard Specifications.
 - 1. Curbing shall be set level with finish grade.

3.2 INSTALLATION TOLERANCES

- A. Curb Alignment:
 - 1. 1/4-inch maximum, as determined by using a 10-foot straight edge along front face of curb.

END OF SECTION

SECTION 02821 - CHAIN-LINK FENCE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the furnishing and installing:
 - 1. Chain-link fences.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for chain-link fences and gates.
 - 1. Fence and gate posts, rails, and fittings.
 - 2. Chain-link fabric, reinforcements, and attachments.
 - 3. 4,000 PSI, 1.5 IN., 565 Cement Concrete for post bases.
- B. Product Certificates: For each type of chain-link fence from manufacturer.
- C. Product Test Reports: For framing strength according to ASTM F 1043.
- D. Field quality-control reports.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed chain-link fences similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
 - 1. Engineering Responsibility: Preparation of data for chain-link fence, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Where "Standard Specifications" is used, it shall mean "Commonwealth of Massachusetts, Massachusetts Highway Department, Standard Specifications for Highways and Bridges, and latest issued supplements.

1.5 PERFORMANCE REQUIREMENTS

- A. Performance: Provide chain-link fence in accordance with these specifications and in close conformity with the lines and grades shown on the plan or established by the Engineer.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fence shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Polyvinyl Chloride (PVC) plastic coating: All fence components shall be galvanized and coated with a PVC coating.
 - 1. Color: Black

2.2 FENCE FABRIC

- A. Fabric Height: As indicated in Drawings
- B. Steel Wire Fabric: Bonded vinyl-coated chain link fence fabric shall comply with Standard Specifications M8.09.0 and ASTM F668, Class 2b.
- C. Selvage: Twisted and barbed bottom and knuckled top.

2.3 FENCE FRAMING

- A. General: Fence framing components shall be galvanized and PVC Coated.
- B. Posts and Rails: Provide the following in accordance with the Standard Specifications:
 - 1. Fence Height: As indicated in Drawings.
 - 2. Braces and Truss Rods: Comply with Standard Specification M8.09.0
 - 3. Metallic Coating for Steel Framing: Comply with Standard Specification M8.09.0
- C. PVC coating shall comply with ASTM F1043 PVC thermally fused color coating, minimum thickness 10 mils.

2.4 TENSION WIRE

- 1. Polymer-Coated Steel Wire: Comply with Standard Specification ASTM F 1664, 7 gauge steel core wire, 0.177"
- 2. Coating class and color to match fence fabric.

2.5 FITTINGS

- A. General: All fittings shall be PVC coated. Coating class and color to match Fence Framing and Fence Fabric as applicable.
 - 1. Wire fasteners, Clips, and Fasteners: Comply with Standard Specification M8.09.0

2. Fabric bands and brace bands shall be pressed steel.
3. Post Caps: Provide for each post.
 - a. Provide line post caps with loop to receive tension wire or top rail.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with fence layout and location as indicated on Contract Drawings, and with requirements for site clearing, earthwork, and other conditions affecting performance.
 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 CHAIN-LINK FENCE INSTALLATION

- A. General: Comply with Standard Specification 644.60
 1. Posts shall be set true to the line and grade of the proposed fence.
 2. Grade of fence to be parallel with the grade of the ground.
 3. End and Corner posts shall be set in concrete bases.
 4. Line posts shall be driven except as indicated.
- B. Post Base Excavation: Drill or hand-excavate holes for post bases to diameters and spacing indicated, in firm, undisturbed soil.
- C. Post Setting: Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
- D. End/Corner Posts: Locate terminal end and corner posts at changes in horizontal or vertical alignment as indicated on Drawings and in accordance with ASTM F 567.
- E. Line Posts: Space line posts uniformly at 10 feet on center.
- F. Spring Tension Wire: Comply with Standard Specification 644.64
- G. Chain-Link Fabric: Comply with Standard Specification 644.65
- H. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands.
- I. Wire Fasteners: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire fasteners at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626. Bend ends of wire fasteners to minimize hazard to individuals and clothing.

- J. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side.

END OF SECTION

SECTION 02891 - SIGNAGE

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.

1.2 SUMMARY

- A. This Section includes the furnishing and installing:
 - 1. Regulatory signage.
 - 2. Interpretative signage.
 - 3. Posts or other required supports with attaching hardware.
 - 4. Project Signage and posts or other required supports with attaching hardware.

1.3 QUALITY ASSURANCE

- A. Standard Specifications: Commonwealth of Massachusetts, Massachusetts Highway Department, Standard Specifications for Highways and Bridges, and latest issued supplements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings:
 - 1. Location and dimension of signs including details of copy (letters, colors, graphics), border and mounting holes.
 - 2. Sign post and mounting bolts.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Engineer. Provide materials suitable for use intended.

2.2 REGULATORY SIGNAGE

- A. Sign posts, reflective sheeting, hardware, aluminum sheets,; Shall conform to the applicable requirements of Section 828 of the Standard Specifications.

2.3 INTERPRETIVE SIGNAGE.

- A. Double Pedestal Interpretive Sign

- 1. Shall be Double Pedestal Exhibit Base by Panner Graphics, Model F-DP, or Approved Equal
 - a. Color shall be Benjamin Moore Essex Green with eggshell finish.
- 2. Graphics for sign face manufacturing shall be provided the Owner.
 - a. Contractor is required to supply with manufacturer with Owner provided graphics.

- B. Concrete Footing

- a. 4,000 psi concrete in accordance with Section M4.00 of the Standard Specifications.

PART 3 - EXECUTION

3.1 FABRICATION

- A. Panels: Fabricate regulatory signs in accordance with Section 828 of the Standard Specifications. Sign blanks shall be free of buckles, warps, dents, cockles, burrs and defects. Cut to size and shape and punch mounting holes prior to metal degreasing and application of reflective sheeting.

3.2 REGULATORY SIGN INSTALLATION

- A. Installation of the regulatory signs and posts shall comply with Section 828 of the Standard Specifications.
- B. Maintain signs throughout construction.

3.3 INTERPRETIVE SIGN INSTALLATION

- A. Construct sign footing in accordance with the Contract Documents.
 - 1. Concrete shall be 4,000 psi concrete.
- B. Install posts vertically to a minimum depth of 2 feet.

- C. Install such that bottom of sign is 32 inches above finish grade.
- D. Maintain signs throughout construction.
- E. Remove and dispose of sign at completion of construction, or when otherwise directed by the Engineer.

END OF SECTION

SECTION 02925 - LAWNS AND GRASSES

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.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Loaming.
 - 2. Seeding.
 - 3. Lawn Maintenance.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Planting Soil: Imported topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- C. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.
- D. Topsoil: Imported topsoil from off-site sources.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Clean Material Certification: For Topsoil as follows:
 - 1. Signed and dated letter on letter head of company providing material stating the following:
 - a. The company name providing the material.
 - b. Type of material being provided.
 - c. That the material provided is virgin material from a site that has not been impacted by a release of oil or hazardous materials.
 - d. Name of person authorized to make certification on behalf of the company.

- C. Material Weight Slips: Submit weight slips verifying the quantity of topsoil imported the site:
- D. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
- E. Product Certificates: For soil amendments, fertilizers, and mulch, signed by product manufacturer.
- F. Qualification Data: For landscape Installer.
- G. Planting Schedule: Indicating anticipated planting dates.
- H. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of lawns during a calendar year. Submit before expiration of required maintenance periods.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn establishment.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.
- B. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content of topsoil.
 - 1. Report suitability of topsoil for lawn growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce a satisfactory topsoil.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed, Lime, and Fertilizer: Deliver in original sealed, labeled, and undamaged containers.

1.7 SCHEDULING

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
 - 1. Spring Planting: April 1 to June 1.
 - 2. Fall Planting: August 15 to October 15.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species: Seed of grass species as follows:

	Proportion by Weight (Percent)	Minimum Purity (Percent)	Minimum Germination (Percent)
Hard Fescue	25	95	85
Creeping Red Fescue	20	98	85
K.31 Tall Fescue	50	98	85
Perennial Ryegrass	5	98	90

2.2 TOPSOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 6 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.
 - 1. Topsoil Source: Provide imported or manufactured topsoil from off-site sources since on site topsoil will not be available. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

2.3 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:
 - 1. Provide lime in form of dolomitic limestone, with a minimum of 95 percent passing a No. 100 sieve.

2.4 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 3/4-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings.
 - 1. Organic Matter Content: 50 to 60 percent of dry weight.
 - a. State of Connecticut, Department of Environmental Protection approved when derived from food and agricultural residues, animal manures, and sewage sludge.
 - 2. Approved Products: AllGro, 4 Liberty Lane West, Hampron, NH 03842 (1-800-662-2440), or equal.
- B. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.5 FERTILIZER

- A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 1 percent nitrogen and 18 percent phosphoric acid.
- B. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.6 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, threshed straw of wheat, rye, oats, or barley.

- B. Cellulose Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; free of plant-growth or germination inhibitors; with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- C. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.
- D. Asphalt Emulsion: ASTM D 977, Grade SS-1; nontoxic and free of plant-growth or germination inhibitors.

2.7 PLANTING SOIL MIX

- A. Mix topsoil with soil amendments and fertilizers in quantities required by the topsoil test report.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect adjacent and adjoining areas from hydroseeding overspray.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 LAWN PREPARATION

- A. Limit lawn subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
 - 1. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.

- a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
 - b. Mix lime with dry soil before mixing fertilizer.
 2. Spread planting soil mix to a depth of 6 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
- C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus one (1) inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.
- D. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- E. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

3.4 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
1. Do not use wet seed or seed that is moldy or otherwise damaged.
- B. Sow seed at the rate of 2 lb/1,000 sq. ft.
- C. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes not exceeding 1:3 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
1. Bond straw mulch by spraying with asphalt emulsion at the rate of 10 to 13 gal./1,000 sq. ft.. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.

3.5 HYDROSEEDING

- A. Sow seed at the rate of 2 lb./1,000 sq. ft.
- B. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
1. Mix slurry with nonasphaltic tackifier.

2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply mulch at a minimum rate of 1,500-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate.

3.6 LAWN MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
 1. Seeded Lawns: 60 days from date of Substantial Completion.
 - a. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established, continue maintenance during next planting season.
- B. Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn.
 1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.
- C. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawn uniformly moist to a depth of 4 inches.
 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 2. Water lawn at a minimum rate of 1 inch per week.
- D. Mow lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 40 percent of grass height. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain grass height of 2 to 3 inches.
- E. Lawn Postfertilization: Apply fertilizer after initial mowing and when grass is dry.
 1. Use fertilizer that will provide actual nitrogen of at least 1 lb./1000 sq. ft. to lawn area.

3.7 SATISFACTORY LAWNS

- A. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 3 by 3 inches.
- B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

3.8 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.
- C. Remove erosion-control measures after grass establishment period.

END OF SECTION

SECTION 02930 - EXTERIOR PLANTINGS

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.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Trees.
 - 2. Shrubs.
- B. Related Sections include the following:
 - 1. Division 2 Section "Site Clearing" for protection of existing trees and planting, topsoil stripping and stockpiling, and site clearing.
 - 2. Division 2 Section "Earthwork" for excavation, filling, and rough grading and for subsurface aggregate drainage and drainage backfill materials.

1.3 DEFINITIONS

- A. Balled and Burlapped Stock: Exterior plants dug with firm, natural balls of earth in which they are grown, with ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of tree or shrub required; wrapped, tied, rigidly supported, and drum-laced as recommended by ANSI Z60.1.
- B. Container-Grown Stock: Healthy, vigorous, well-rooted exterior plants grown in a container with well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for kind, type, and size of exterior plant required.
- C. Finish Grade: Elevation of finished surface of planting topsoil.
- D. Planting Soil: Native or imported topsoil, mixed with soil amendments.
- E. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. Product Certificates: For each type of manufactured product, signed by product manufacturer, and complying with the following:
 - 1. Manufacturer's certified analysis for standard products.
 - 2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- C. Qualification Data: For Landscape Installer.
- D. Material Test Reports: For existing surface soil and imported topsoil.
- E. Planting Schedule: Indicating anticipated planting dates for exterior plants.
- F. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before expiration of required maintenance periods.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of exterior plants.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.
- B. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content of topsoil.
 - 1. Report suitability of topsoil for plant growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce a satisfactory topsoil.
- D. Provide quality, size, genus, species, and variety of exterior plants indicated, complying with applicable requirements in ANSI Z60.1, "American Standard for Nursery Stock."
- E. Tree and Shrub Measurements: Measure according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size, and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.
- F. Observation: Engineer may observe trees and shrubs either at place of growth or at site upon delivery for compliance with requirements for genus, species, variety, size, and

quality. Engineer retains right to observe trees and shrubs further for size and condition of balls and root systems, insects, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.

1. Notify Engineer of sources of planting materials seven days in advance of delivery to site.
2. Notify Engineer three days in advance of proposed delivery to site.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. All areas to be planted shall be inspected by the Contractor before starting work and any defects shall be reported to the Engineer prior to beginning this work. The commencement of work by the Contractor shall indicate acceptance of the areas to be planted.
- B. The Contractor shall be solely responsible for judging the full extent of work requirements involved, including, but not limited to the potential need for storing and maintaining temporarily and/or re-handling plants prior to final installation.
- C. Deliver plants freshly dug.
- D. Do not prune trees and shrubs before delivery, except as approved by Engineer. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during delivery. Do not drop plants during delivery. Handle planting stock by root ball.
- E. Deliver plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set plants trees in shade, protect from weather and mechanical damage, and keep roots moist.
 1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
 2. Do not remove container-grown stock from containers before time of planting.
 3. Water root systems of plants stored on-site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.

1.7 COORDINATION

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
 1. Planting periods:
 - a. Spring Planting: March 15 to May 15.
 - b. Fall Planting: September 15 to November 15.

- B. All trees shall be planted within the same season that they are dug. No heeling in of trees over the winter or planting out of season will be permitted.
- C. Those species known to be fall digging hazards shall be dug during the spring season only. Fall planting of these species shall be permitted only with certification from the nursery at the time of digging, and at the discretion of the Engineer.
- D. Correlate planting schedule with specified maintenance periods to provide maintenance to date of acceptance.
- E. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.
- F. Coordination with Lawns: Plant trees and shrubs after finish grades are established and before planting lawns, unless otherwise acceptable to Engineer.
 - 1. When planting trees and shrubs after lawns, protect lawn areas and promptly repair damage caused by planting operations.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

- A. General: Furnish nursery-grown trees and shrubs complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- B. Grade: Provide trees and shrubs of sizes and grades complying with ANSI Z60.1 for type of trees and shrubs required. Trees and shrubs of a larger size may be used if acceptable to Engineer, with a proportionate increase in size of roots or balls.
- C. Only plants grown within Hardiness Zones 5, as established by the Arnold Arboretum, Jamaica Plain, Massachusetts, or USDA zones 5 or 6 will be accepted. The Contractor shall certify in writing that the stock has actually been grown under Zone 5 or hardier conditions. Plants will not be accepted without such certification.
- D. Label at least one tree and one shrub of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.
- E. If formal arrangements or consecutive order of trees or shrubs is shown, select stock for uniform height and spread to assure symmetry in planting.

2.2 SHADE AND FLOWERING TREES

- A. Shade Trees: Single-stem trees with straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, complying with ANSI Z60.1 for type of trees required.

1. Provide balled and burlapped or container-grown trees.

B. Small Flowering Trees: Branched or pruned naturally according to species and type, with relationship of caliper, height, and branching according to ANSI Z60.1; stem form as indicated.

1. Provide balled and burlapped or container-grown trees.

2.3 CONIFEROUS EVERGREENS

A. Form and Size: Normal-quality, well-balanced, coniferous evergreens, of type, height, spread, and shape required, complying with ANSI Z60.1.

1. Provide balled and burlapped or container-grown trees.

2.4 TOPSOIL

A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 6 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.

1. Topsoil Source: Provide imported topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

2.5 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:

1. Provide lime in form of dolomitic limestone, with a minimum of 95 percent passing a No.100 sieve.

2.6 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 50 to 60 percent of dry weight.

B. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

1. Product: "Bovung" or equal.

2.7 FERTILIZER

- A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 1 percent nitrogen and 18 percent phosphoric acid.
- B. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 18 percent available phosphoric acid.
- C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.8 WATER

- A. Water: Potable.

2.9 MULCHES

- A. Pine Bark Mulch shall be derived from softwood evergreen tree bark aged to a minimum of six months and no more than eighteen months. The bark shall be shredded so that the resulting pieces are no more than one half inch (1/2") thick and no longer than three inches (3"). The mulch shall be free of stringy material and shall not contain an excess of fine particles. The mulch shall be brown in color, free of leaves, twigs, sod, weeds, shavings, and other foreign materials which are injurious to healthy plant growth.
 - 1. Mulch shall be ninety-eight (98) percent organic matter with a pH range of 3.5 to 4.5. Moisture content of packaged material is not to exceed thirty-five (35) percent.

2.10 MISCELLANEOUS PRODUCTS

- A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.
 - 1. Product: "Wilt-Pruf" or equal.
- B. Trunk-Wrap Tape: Two layers of crinkled paper cemented together with bituminous material, 4-inch- wide minimum, with stretch factor of 33 percent.

2.11 PLANTING SOIL MIX

- A. Planting Soil Mix: Mix topsoil with the following soil amendments and fertilizers in the following quantities:
 - 1. Ratio of Compost to Topsoil by Volume: 1:4.
 - 2. Ratio of Manure to Topsoil by Volume: 1:4.

3. Weight of Lime, Bonemeal, Superphosphate, and Commercial Fertilizer per 1000 Sq. Ft.: As determined by topsoil test report.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive plantings for compliance with requirements and conditions affecting installation and performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, and lawns and existing plants from damage caused by planting operations.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
 1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

3.3 TREE AND SHRUB EXCAVATION

- A. Pits and Trenches: Excavate circular pits with sides sloped inward. Trim base leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation.
 1. Excavate approximately three times as wide as ball diameter.
- B. Plant Hole Excavation: Planting beds shall conform to the approved staked locations and outlines. Holes dug for plantings shall, in all cases, be large enough to accommodate the complete root system of the plant to be received, as well as sufficient amounts of approved backfill (plantable soil) around the periphery of the rootball as shown on the Contract Drawings. All sod, weeds, roots, cobbles, and stones and other objectionable materials excavated from the plant holes which is unsuitable for use as backfill, shall be removed from the site.
 1. Any rocks or underground obstructions shall be removed to a depth necessary for planting as specified, unless alternate locations for the planting are approved by the Owner. If removal of obstructions results in a deeper hole than specified for

planting, plantable soil backfill shall be added and compacted to eighty-five percent (85%) of maximum density to the correct depth.

- C. Where necessary to complete the planting, holes may be cut in the geotextile fabric that is part of the landscape soil cap. The cut in the fabric should only be as large as necessary to complete the installation, and, where possible, the cut fabric should be replaced upon completion of the installation. Excavated native soil from beneath the landscape soil cap should be considered contaminated and should be managed in accordance with the remediation plan.
- D. Obstructions: Notify Engineer if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
- E. Drainage: Notify Engineer if subsoil conditions evidence unexpected water seepage or retention in tree or shrub pits.

3.4 TREE AND SHRUB PLANTING

- A. Set planting stock plumb and in center of pit or trench with top of root ball flush with adjacent finish grades. Insure that the root flare of the tree is exposed – do not plant too deep.
 - 1. Remove burlap and wire baskets from tops of root balls and partially from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
 - 2. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.
 - 3. Remove root ball from container without plant. Loosen roots at edge of root ball. Do not plant root bound material.
- B. Organic Mulching: Apply 3-inch average thickness of organic mulch extending beyond edge of planting pit or trench. Do not place mulch within 3 inches of trunks or stems.
- C. Wrap trees of 2-inch caliper and larger with trunk-wrap tape. Start at base of trunk and spiral cover trunk to height of first branches. Overlap wrap, exposing half the width, and securely attach with a coarse sisal twine without causing girdling. Do not nail or staple to tree. Inspect tree trunks for injury, improper pruning, and insect infestation; take corrective measures required before wrapping.

3.5 TREE AND SHRUB PRUNING

- A. Prune, thin, and shape trees and shrubs according to standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise indicated by Engineer, do not

cut tree leaders; remove only injured or dead branches from flowering trees. Prune shrubs to retain natural character. Tree and shrub sizes indicated are sizes after pruning.

3.6 PLANTING BED MULCHING

- A. Application of mulch should only occur after planting operations have been completed and initial watering has taken place. Mulch shall be applied no later than forty-eight (48) hours after planting.
- B. Prior to the placement of mulch, the Contractor shall apply a pre-emergent weed control within the entire area to be mulched. Pre-emergent weed control shall be applied by a commercial applicator, licensed in the state in which the Work is being performed, at a rate in accordance with the manufacturer's installation.
- C. Mulch shall be applied a minimum of three (3) inches in depth for all individual trees and planting beds, or as indicated graphically or verbally on the Contract Drawings. Do not place mulch in contact with bark of trees and shrubs.
- D. Where mulch abuts seeded lawn areas or other finish grade materials, edge of planting bed shall be cut smooth and cleanly. Mulch shall be placed carefully so as not to spill into adjacent areas. Any excess or spilled mulch shall be promptly removed from the Project area.

3.7 CLEANUP AND PROTECTION

- A. During exterior planting, keep adjacent pavings and construction clean and work area in an orderly condition.
- B. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged exterior planting.

3.8 DISPOSAL

- A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.
 - 1. Surplus excavated soil shall be disposed of in accordance with Section 02111 Contaminated Material Management and with the Release Abatement Plan, prepared by Fuss & O'Neill, Inc. attached as Appendix A.

3.9 TAGS AND LABELS

- A. Leave all tag and label seals unbroken and visible on plant material until final inspection. Remove all seals immediately after final inspection.

3.10 PRELIMINARY ACCEPTANCE

- A. If plant materials and workmanship are acceptable at substantial completion inspection, written notice will be given to the Contractor stating that the Work has received Preliminary Acceptance and that the Establishment Period has commenced from the date of the notice.

3.11 ESTABLISHMENT PERIOD

- A. Contractor is responsible for protection and maintenance of all work prior to final acceptance. No plants will be accepted unless they show a healthy growth and satisfactory condition.
- B. Maintenance work for all plantings shall be as follows:
 - 1. Plantings shall be cared for, for one year after final completion.
 - 2. Shrub and plant care shall begin immediately after each plant is planted to ensure the viability of the tree throughout the Establishment Period.
 - 3. Plants shall be straightened, watered, mulched, weeded, pruned, sprayed and treated for insect pests and diseases, fertilized cultivated and otherwise cared for, and shall be protected until final acceptance of the Project at the end of the establishment period.
 - 4. The Contractor shall meet with the Owner monthly during the establishment period to inspect the plantings and shall take immediate action to identify potential problems and undertake corrective measures. If required, the Contractor shall engage professional specialists such as arborists and horticulturists to inspect plant materials, identify problems, recommend and carry out remedial procedures.
 - 5. Defective work shall be corrected as soon as possible after becoming apparent, weather and season permitting. Plants that die during the establishment period shall be removed at once. Replacement of dead shrubs will be done immediately if during the specified installation season. If the dead shrub has been removed out of planting season, the Contractor shall wait until the beginning of the subsequent planting season, at which time the replacement shrub will be planted. If the shrub to be replaced is a fall hazard species the contractor shall wait until the beginning of the spring planting season, at which time the replacement shrub will be planted.
 - 6. When dead or unhealthy plants are removed and replaced, any damaged or broken fertilizer packets shall be replaced with new packets, at the same rate of application as specified herein for new installations.

3.12 PLANT REPLACEMENT GUARANTEE

- A. Following completion of the Establishment Period the plants shall be guaranteed for a period of one year. At the end of the guarantee period, a Final Inspection with the Contractor and Owner will be held to determine whether any plant material replacements are required.
- B. During the guarantee period the Contractor shall provide care as required to produce an acceptable planting at the Final Inspection. To be found acceptable at that time each plant shall have been established in place for at least one year, shall show at least 75% healthy growth and shall have the natural character of its species as determined by the Owner.
- C. Plants found unacceptable or dead shall be removed promptly from the site and replaced during the specified planting season. Replacements shall be of the same species and size and shall conform in all respects to the specifications for furnishing and installing new plants. Replacements shall be maintained and guaranteed as specified for the original plantings. If, at the end of the guarantee period for the replacement planting, the replacement is not in acceptable condition, the Owner may elect to accept a credit in lieu of a second replacement.
- D. Cost of replacements shall be borne by the Contractor, except when such replacement is required due to vandalism or neglect by others. "Vandalism" is intended to mean: any acts, whether intentional or accidental, by other persons occurring following final acceptance which clearly result in breakage or other damage to individual plants or plant beds, and which may reasonably be considered to be beyond Contractor's reasonable control, as determined by the Engineer.

END OF SECTION

EXHIBIT A

Release Abatement Measure Plan Former Brookfield Mill Site

59-67 Mill Street
Brookfield, MA
RTN 2-10354

Town of Brookfield

September 2011



FUSS & O'NEILL
Disciplines to Deliver

317 Iron Horse Way
Suite 204
Providence, RI, 02908

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1 Introduction

This document is intended to provide a *Release Abatement Measure (RAM) Plan* in accordance with the requirements of the Massachusetts Contingency Plan (MCP), Title 310 of the Code of Massachusetts Regulations (CMR) Section 40.0440. The purpose of the *RAM Plan* documented herein is to detail the procedures, technical specifications, and practices to be employed during remediation at the former Brookfield Mill, located at 59-67 Mill Street, in Brookfield, Massachusetts (the subject property) to bring the site into compliance with the provisions of the MCP.

The Town of Brookfield (the Town) has retained Fuss & O'Neill Inc. (Fuss & O'Neill) to complete remedial planning, oversee the implementation of the remedial measures, and conduct post-remediation response actions as part of proposed redevelopment activities at the subject property.

2 Background

2.1 Site Identification

The subject property, the former Brookfield Mill, is located at 59-67 Mill Street and consists of one rectangular-shaped, 0.667-acre parcel identified as Town Tax Assessor's Map 6C, Block 2, Lot 105. A portion of a United States Geological Survey (USGS) topographic map depicting the location of the subject property is provided as *Figure 1*.

The subject property is bordered to the north by the Town Highway Department Garage, to the south by a railroad operated by CSX and undeveloped wetlands, the intersection of Mill Street, River Street, and Fiskdale Road to the west, and another mill complex to the east. The subject property is currently undeveloped. At surface grade, there is visible evidence of the building foundation of the former Brookfield Mill.

The "disposal site" is depicted on *Figure 2* and encompasses the majority of the subject property, excluding the western approximate one-third of the property. The disposal site includes the areas of the subject property where oil and/or hazardous materials (OHM) and physical hazards have come to be located as a result of releases at the subject site. The disposal site includes soil that contains OHM as the result of the release documented by Release Tracking Number (RTN) 2-10354. A site plan, depicting pertinent property features and the boundary of the subject property and disposal site is provided as *Figure 2*.

2.2 Site History and Environmental Conditions

The Town acquired the subject property in 2003 and is the current property owner. The former Brookfield Mill occupied the site from the late 1890s until August 2000, when it was destroyed by fire. Businesses that operated in the former mill building included a paper-coating company, a shoe manufacturer, a plastic molding business, and a charcoal filter manufacturer, among other small businesses. Following the August 2000 fire, the building

remnants were either razed or collapsed and were used to fill the building basement (Town of Brookfield, 2011).

The following environmental investigations are known to have been conducted at the subject property:

- *Phase I Limited Site Investigation* completed by Lycott Environmental Research, Inc. in August 1991
- *Targeted Brownfield Assessment* completed by Metcalf & Eddy, Inc. (M&E) in November 2002
- *Phase I Initial Site Investigation* completed by M&E in January 2004
- *Phase II Comprehensive Site Assessment Report* completed by M&E in November 2007
- *Targeted Brownfield Assessment and Phase III Remedial Action Plan* completed by Advanced Environmental Solutions, Inc. and AECOM Environment in March 2009

Collectively, the above-referenced investigations documented the presence of solid waste and OHM in soil at the subject property which warrant remediation under the MCP to achieve a condition of No Significant Risk posed to future users of the property, which the Town intends to redevelop as a public park featuring recreational access to the nearby Quaboag River.

The OHM identified in soil at the property generally consisted of metals, polycyclic aromatic hydrocarbons (PAH), and polychlorinated biphenyls (PCBs), which were reportedly present at concentrations that exceeded background values and/or posed a health risk to future property users, based on the results of a *Method 3 Risk Characterization* and *Method 3 Stage I Environmental Screening* performed by M&E as part of the *Phase II Comprehensive Site Assessment*. The presence of metals, PAH, and PCBs in soil was generally attributed to the building debris and ash associated with the August 2000 fire. The extent of the disposal site associated with elevated concentrations (i.e. exceeding background levels and/or posing risk to future users) of metals, PAH, and PCBs in soil was generally limited to the area within the former building foundation, as depicted on *Figure 2*. The property boundary defined the northern and eastern limits of the disposal site while the southern limit of the disposal site coincided with a drainage trench which paralleled the railroad track. The western limit of the disposal site was defined by two previous sampling locations where corresponding soil samples reported did not contain concentrations of OHM which exceeded background levels or posed risk to future property users. The vertical extent of the disposal site was estimated to coincide with the depth of fill and disturbed soil located within the former building foundation hole, which reportedly extended to between 5 and 10 feet below grade (Advanced Environmental Solutions, Inc. and AECOM Environment, 2009).

In addition to soil containing OHM, other hazards which posed risk to human safety and were attributed to the 2000 mill fire were identified at the disposal site during the previous investigations. These hazardous consisted of solid waste, including glass, rusted metal, wood, and wire, and unstable ground slopes (Advanced Environmental Solutions, Inc. and AECOM Environment, 2009).

2.3 Regulatory Status and Remedial Approach

The subject property has been regulated by the Massachusetts Department of Environmental (MassDEP) Bureau of Waste Site Cleanup (BWSC) since March 1995, when RTN 2-10354 was assigned based on conditions identified during the August 1991 *Phase I Limited Site Investigation*. A second RTN (2-14601) was assigned following identification of 120-day Reportable Condition at the subject property during the 2002 *Targeted Brownfield Assessment*. However, the second RTN was later linked to the original and is thus currently classified by MassDEP as closed (Advanced Environmental Solutions, Inc. and AECOM Environment, 2009).

Based on the results of the previous environmental investigations, remedial actions are warranted at the subject property to achieve a permanent solution and bring the site into compliance with the MCP. The primary remedial objectives documented in the March 2009 *Targeted Brownfield Assessment* and *Phase III Remedial Action Plan* were to:

- mitigate the potential for direct exposure to soil and solid waste by property users at the disposal site
- remove unstable slopes at the disposal site

To achieve these remedial objectives, construction of an engineered barrier, a remediation cap, coupled with implementation of an *Activity and Usage Limitation (AUL)* to ensure proper maintenance of the cap, was selected as the most feasible remedial alternative for the disposal site. Though this alternative will not result in establishment of background conditions for the disposal site, it is anticipated to achieve a condition of No Significant Risk posed to future property users.

Fuss & O'Neill, on behalf of the Town, will coordinate, design, and oversee implementation of the selected remedial alternative. The remedial response action will be implemented using funding awarded to the Town by the United States Environmental Protection Agency (USEPA) Brownfield Program. In accordance with the MCP, the *RAM Plan* documented herein details the technical specifications of the selected remedial action.

As required, Box H-2 of BWSC106 form was checked in the affirmative, because "Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA." Details of the MassDEP Administrative Consent Order (ACO) follow.

Issuing Authority: MassDEP

Type of Action: Administrative Consent Order

Identification Number: ACO-CE-08-3T006 (AMEND 3)

Date Issued: November 3, 2008

Amendment 3 Issued: August 15, 2011

Description: The Town submitted a Phase III Remedial Action Plan on March 30, 2009, but found it necessary to contact MassDEP to request further extensions of the deadlines for the remaining response actions and submittals. The requested extension was incorporated into

the ACO. Amendment 3 to the ACO required the submittal of a Phase IV Remedy Implementation Plan prior to August 31, 2011, completion of the recommended remedial response action (detailed herein) prior to June 30, 2012, and submittal of a Phase IV completion statement or Response Action Outcome prior to June 30, 2012.

Current Status: The Town conducted a public request for qualifications process and contracted a new LSP Firm. Based on a vote of the Board of Selectmen on August 30, 2011, Fuss & O'Neill was retained to oversee and implement the remedial response actions funded by an EPA Brownfields cleanup grant. Based on telecommunications with Mr. Mark Baldi, MassDEP BWSC; the town requested and was granted an extension until October 3, 2011 for submittal of a remedial design plan for the site. Subsequent telecommunications between Mr. David Foss, LSP, and Mr. Mark Baldi, it was confirmed that with this submittal the Town has fulfilled the requirement of the ACO for a Remedial Design Plan – RAM Plan rather than a Phase IV RIP. The Town has received an EPA grant. Fuss & O'Neill is working with the Town to bid out the project work and complete the site remediation and RAO requirements as specified in the ACO.

3 Release Abatement Measure Plan

Fuss & O'Neill has prepared this *RAM Plan* in accordance with the requirements of 310 CMR 40.0444(1). Each of the following sections discusses specific aspects of the overall remedial approach, noting the relevant section of the MCP in parentheses, where applicable.

3.1 Contact Person Responsible for RAM Implementation - 40.0444(1)(a)

The Town is the property owner and is undertaking MCP response actions as an “eligible person (as defined by Massachusetts General Laws (MGL), Chapter 21E, Section 2).” The contact person and contact information for the remedial measure is:

Ms. Donna Neylon
Chief Procurement Officer
Town of Brookfield
6 Central Street
Brookfield, MA 01506
508-867-2930
dneylon@brookfieldma.us

Consultants and contractors supporting the performing party include:

Environmental Consultant
Mr. David Foss, LSP
Fuss & O'Neill, Inc.
50 Redfield Street, Suite 100
Boston, MA 02122
800-286-2469 ext. 4579

dfoss@fando.com

Remediation Contractor
To Be Determined

3.2 Description of Release and Potential Receptors - 40.0444 (1)(b)

The condition of the disposal site is described in *Section 2.0*. The disposal site was identified and delineated based on the results of the previous environmental investigations listed in *Section 2.2*. Current potential receptors include Town workers that have access to the subject property and trespassers. Potential receptors also include workers associated with future redevelopment and future property users. The Town intends to redevelop the property for public recreational use.

3.3 Objectives, Project Plan, and Proposed Implementation Schedule - 40.0444 (1)(c)

3.3.1 Objectives

The objectives of this remedial response action are to mitigate the potential risk posed to future site users by the presence of soil containing OHM and solid waste and to achieve a Permanent Solution and a condition of No Significant Risk in accordance with the MCP. The specific goal of the remedial action documented herein is to bring the disposal site into compliance with MCP Method 1 S-1/GW-3 standards for OHM by capping the entire disposal site with a combination of pavement, landscaping, and concrete. An AUL will also be implemented and recorded for the subject property to ensure that the remediation cap is maintained in a manner which achieves the remedial objective in perpetuity.

3.3.2 Project Plan

This remediation project will be conducted concurrently with site redevelopment. The general phases of remediation will include property setup, grading, capping, and AUL implementation. Each of these phases is described in detail in the subsections below.

3.3.2.1 Property Setup Plan

Prior to commencement of grading and capping activities, erosion and sedimentation controls, including haybales and/or silt fence, will be placed around the downgradient perimeter of the work zone, as depicted on *Figure 3*. Following initial setup and prior to disturbance of soil, excavation equipment and soil transportation equipment will be transported to the property for management of soil. Remedial activities will be conducted in accordance with the *RAM Plan* documented herein.

3.3.2.2 Property Grading Plan

Following preparation of the property as described above, the ground surface of the property will be graded using typical earthwork equipment, including excavators, backhoes, and dump trucks. The objective of this phase of redevelopment will be to achieve an intermediate, post-capping grade appropriate for the future property use and regrade the currently unstable slopes to achieve a gentler slope (i.e. approximately 3:1). The grading phase may include relocation of existing soil at certain areas of the disposal site to other areas of the property within the disposal site.

During grading, dust suppression techniques (i.e. watering) will be implemented as necessary to limit the generation of fugitive dust which could migrate to adjacent properties. Appropriate personal protective equipment will also be utilized by workers to mitigate direct exposure to soil and solid waste.

3.3.2.3 Site-Wide Soil Capping Plan

Following the completion of soil grading activities, the disposal site will be capped in order to mitigate future exposure potential. A site plan depicting the conceptual park and cap layout is included as *Figure 4* and cross-sectional depictions of the various cap alternatives which may be implemented during redevelopment are included on *Figure 3*. In general, the soil capping specifications will include the following:

- Pavement areas: Sub-base material overlain by four inches of asphalt.
- Sidewalks: Sub-base gravel overlain by four inches of concrete.
- Landscaped areas: Geotextile material overlain by one foot of clean soil.

The clean fill to be utilized at the site to construct the soil cap will be in general conformance with the “Anti-Degradation” provision of the MCP (i.e. 310 CMR 40.0032).

3.3.3 Implementation Schedule

The Town and Fuss & O'Neill will coordinate a formal bidding process to identify the construction and remediation contractor for the project. The anticipated schedule for remediation and redevelopment of the property is as follows:

- Late 2011 to Early 2012 – Contractor bidding and selection
- March to April 2012 – Mobilization, property setup, and regrading
- April to May 2012 – Capping, including landscaping and paving
- June 2012 – Implementation of AUL
- June to July 2012 – Development and submission of *RAM Completion Report* and *Response Action Outcome (RAO) Statement* to MassDEP

The schedule presented above may be modified as needed based on the outcome of the bidding process and weather factors.

3.4 Chemical and Waste Management

40.0444 (1)(d)

Although not anticipated, any soil which originated from the disposal site which is not secured beneath the remediation cap at the conclusion of remediation activities will be disposed off-site in accordance with applicable local, state, and federal regulations. The earthwork equipment used to manage soil at the disposal site will be decontaminated prior to leaving the property. It is anticipated that the decontamination procedure may include power-washing the contaminated equipment. Care will be taken to minimize the amount of rinsate generated during decontamination of equipment. Erosion controls will be utilized to prevent the migration of decontamination rinsate and suspended soil from the disposal site, allowing the rinsate to infiltrate the ground surface within the limits of the disposal site.

3.5 Environmental Monitoring Plan

40.0444 (1)(e)

Fuss & O'Neill personnel will work with the Town to oversee the remediation contractor during remediation and redevelopment activities. The objective of this oversight will be to ensure that the remediation capping phase is implemented in accordance with the procedures documented herein. Additionally, use of dust-monitoring equipment may be implemented to ensure that significant dust is not migrating from the property during remediation and redevelopment.

3.6 Additional Permitting Requirements

40.0444 (1)(f)

The remediation work will be required to be conducted in accordance with applicable local, state and federal requirements. It is anticipated that a Notice of Intent will be submitted to the local Conservation Commission and that the work will be conducted in accordance with an Order of Conditions issued as per the MassDEP Wetlands Protection Act. Soil capping activities will be conducted in accordance with the conceptual layout and design details depicted on *Figures 3 and 4*.

This submittal has been prepared on behalf of the Town in response to the ACO issued by the MassDEP, the third amendment to which is dated August 15, 2011. Details of the ACO and communications with MassDEP related to the ACO are presented in Section 2.3, above.

3.7 Licensed Site Professional Certification

40.0444 (1)(g)

This item is included in the eDEP submission on-line form.

3.8 Large Volume Waste Certification

40.0444 (1)(h)

The volume of any remediation waste that may be generated during this remedial activity is anticipated to be less than 1,500 cubic yards. Therefore, no additional certification for large-volume waste management is required.

3.9 Public Involvement

In accordance with 310 CMR 40.1403(3)(d), the Chief Municipal Officer and Local Board of Health of the Town of Brookfield have been notified of this submittal. A copy of this notification is included in *Appendix A*.

4 References

Advanced Environmental Solutions, Inc. and AECOM Environment, Targeted Brownfields Assessment Report-Phase III Remedial Action Plan, Former Brookfield Mill Site, 59-67 Mill Street, Brookfield, MA, RTN 2-10354, March 2009.

Commonwealth of Massachusetts Executive Office of Environmental Affairs, Department of Environmental Protection, Massachusetts Contingency Plan (MCP), 2007.

The Town of Brookfield, Request for Proposals-Brownfields Site Cleanup Consultant Services, Former Mill Site, 59-67 Mill Street, Brookfield, MA, July 2011.

United States Geological Survey, 1982-1985, East Brookfield Quadrangle, Massachusetts, 7.5-Minute Series Topographic Map; United States Department of the Interior, U.S. Geological Survey.

5 Limitations of Work Product

This document was prepared for the sole use of the Town of Brookfield, the only intended beneficiaries of our work. Those who may use or rely upon the report and the services (hereafter “work product”) performed by Fuss & O'Neill, Inc. and/or its subsidiaries or independent professional associates, subconsultants and subcontractors (collectively the “Consultant”) expressly accept the work product upon the following specific conditions.

1. Consultant represents that it prepared the work product in accordance with the professional and industry standards prevailing at the time such services were rendered.
2. The work product may contain information that is time sensitive. The work product was prepared by Consultant subject to the particular scope limitations, budgetary and time constraints and business objectives of the Client which are detailed therein or in the contract between Consultant and Client. Changes in use, tenants, work practices, storage, Federal, state or local laws, rules or regulations may affect the work product.
3. The observations described and upon which the work product was based were made under the conditions stated therein. Any conclusions presented in the work product were based solely upon the services described therein, and not on scientific or engineering tasks or procedures beyond the scope of described services.
4. In preparing its work product, Consultant may have relied on certain information provided by state and local officials and information and representations made by other parties referenced therein, and on information contained in the files of state and/or local agencies made available at the time of the project. To the extent that such files which may affect the conclusions of the work product are missing, incomplete, inaccurate or not provided, Consultant is not responsible. Although there may have been some degree of overlap in the information provided by these various sources, Consultant did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this project. Consultant assumes no responsibility or liability to discover or determine any defects in such information which could result in failure to identify contamination or other defect in, at or near the site. Unless specifically stated in the work product, Consultant assumes no responsibility or liability for the accuracy of drawings and reports obtained, received or reviewed.
5. If the purpose of this project was to assess the physical characteristics of the subject property with respect to the presence in the environment of hazardous substances, waste or petroleum and chemical products and wastes as defined in the work product, unless otherwise noted, no specific attempt was made to check the compliance of present or past owners or operators of the subject property with Federal, state, or local laws and regulations, environmental or otherwise.
6. If water level readings have been made, these observations were made at the times and under the conditions stated in the report. However, it must be noted that fluctuations

in water levels may occur due to variations in rainfall, passage of time and other factors and such fluctuations may effect the conclusions and recommendations presented herein.

7. Except as noted in the work product, no quantitative laboratory testing was performed as part of the project. Where such analyses have been conducted by an outside laboratory, Consultant has relied upon the data provided and, unless otherwise described in the work product, has not conducted an independent evaluation of the reliability of these tests.
8. If the conclusions and recommendations contained in the work product are based, in part, upon various types of chemical data, then the conclusions and recommendations are contingent upon the validity of such data. These data (if obtained) have been reviewed and interpretations made by Consultant. If indicated in the work product, some of these data may be preliminary or screening-level data and should be confirmed with quantitative analyses if more specific information is necessary. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time and other factors.
9. Chemical analyses may have been performed for specific parameters during the course of this project, as described in the work product. However, it should be noted that additional chemical constituents not included in the analyses conducted for the project may be present in soil, groundwater, surface water, sediments or building materials at the subject site.
10. Ownership and property interests of all documents, including reports, electronic media, drawings and specifications, prepared or furnished by Consultant pursuant to this project are subject to the terms and conditions specified in the contract between the Consultant and Client, whether or not the project is completed.
11. Unless otherwise specifically noted in the work product or a requirement of the contract between the Consultant and Client, any reuse, modification or disbursement of documents to third parties will be at the sole risk of the third party and without liability or legal exposure to Consultant.
12. In the event that any questions arise with respect to the scope or meaning of Consultant's work product, immediately contact Consultant for clarification, explanation or to update the work product. In addition, Consultant has the right to verify, at the party's expense, the accuracy of the information contained in the work product, as deemed necessary by Consultant, based upon the passage of time or other material change in conditions since conducting the work.
13. Any use of or reliance on the work product shall constitute acceptance of the terms hereof.

Figures

File Path: J:\DWG\2011\0847A10\Environmental\Plan\20110847A10_LOC01-USGS.dwg, Layout: FIGURE 1, Plotted: Wed, Sep 07, 2011, 10:40 AM User: stions
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 LAYER STATE:



MAP REFERENCE

THIS MAP WAS PREPARED FROM USGS TOPOGRAPHIC QUADRANGLE IMAGE © 1995 MASSGIS. ORIGINAL MAP PUBLICATION DATE: 1982-1985

SOURCE: OFFICE OF GEOGRAPHIC AND ENVIRONMENTAL INFORMATION (MASSGIS), COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS



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GRAPHIC SCALE	

FUSS & O'NEILL
 317 IRON HORSE WAY, SUITE 204
 PROVIDENCE, RI 02908
 401.861.3070
 www.fando.com

TOWN OF BROOKFIELD
 SITE LOCATION MAP
 59-67 MILL STREET
 BROOKFIELD MASSACHUSETTS

PROJ. No.: 20110847A10
 DATE: SEPTEMBER 2011
FIGURE 1



File Path: J:\DWG\20110847A10\EnvironmentalPlan\20110847A10_LOC02-AERIAL.dwg, Layout: FIGURE 2, Plotted: Fri, Sep 09, 2011 - 2:28 PM, User: tclinton
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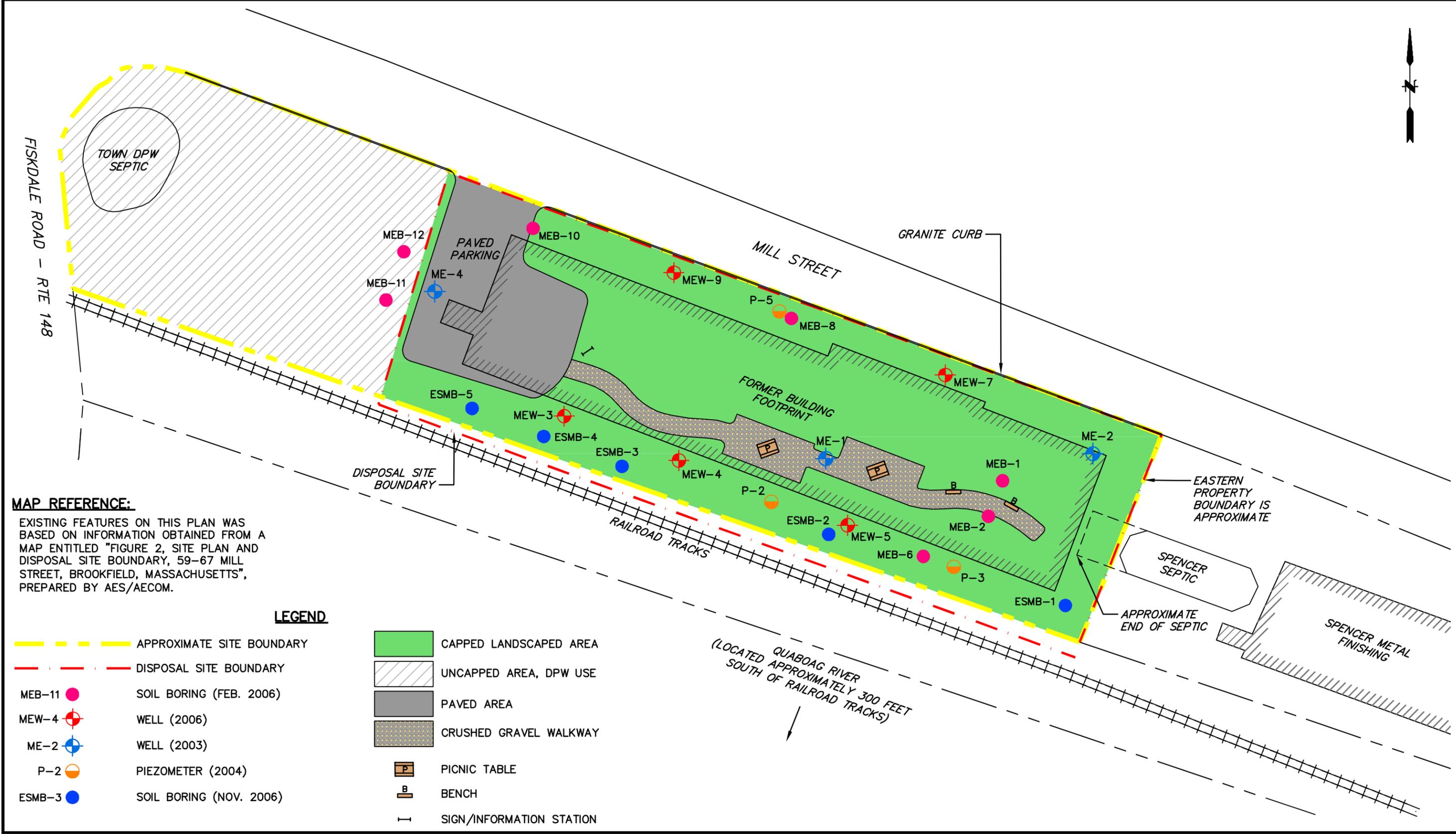
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f **FUSS & O'NEILL**
 317 IRON HORSE WAY, SUITE 204
 PROVIDENCE, RI 02908
 401.861.3070
 www.fando.com

TOWN OF BROOKFIELD
 AERIAL SITE PLAN
 59-67 MILL STREE
 MASSACHUSETTS

PROJ. No.: 20110847.A10
 DATE: SEPTEMBER 2011
FIGURE 2



MAP REFERENCE:

EXISTING FEATURES ON THIS PLAN WAS BASED ON INFORMATION OBTAINED FROM A MAP ENTITLED "FIGURE 2, SITE PLAN AND DISPOSAL SITE BOUNDARY, 59-67 MILL STREET, BROOKFIELD, MASSACHUSETTS", PREPARED BY AES/AECOM.

LEGEND

- APPROXIMATE SITE BOUNDARY
- DISPOSAL SITE BOUNDARY
- MEB-11 SOIL BORING (FEB. 2006)
- ⊕ MEW-4 WELL (2006)
- ⊕ ME-2 WELL (2003)
- P-2 PIEZOMETER (2004)
- ESMB-3 SOIL BORING (NOV. 2006)
- CAPPED LANDSCAPED AREA
- UNCAPPED AREA, DPW USE
- PAVED AREA
- CRUSHED GRAVEL WALKWAY
- P PICNIC TABLE
- B BENCH
- SIGN/INFORMATION STATION

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.			xx/xx	xx

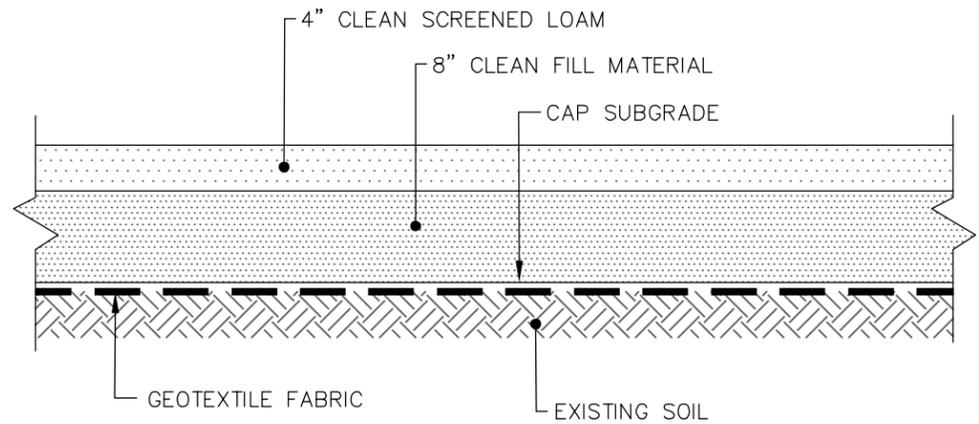
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 0 20 40
 GRAPHIC SCALE

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 PROVIDENCE, RI 02908
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TOWN OF BROOKFIELD
 CONCEPTUAL SOIL CAP & PARK LAYOUT
 59-67 MILL STREET
 BROOKFIELD MASSACHUSETTS

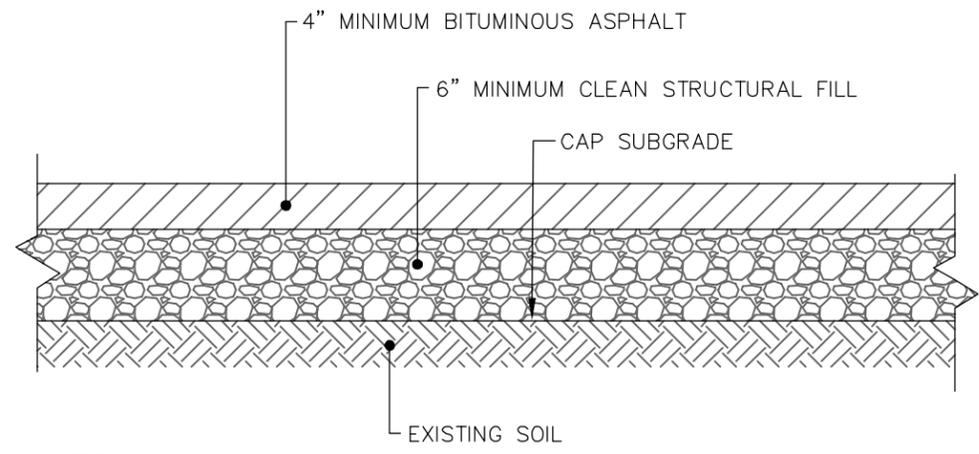
PROJ. No.: 20110847.A10
 DATE: SEPTEMBER
FIGURE 3

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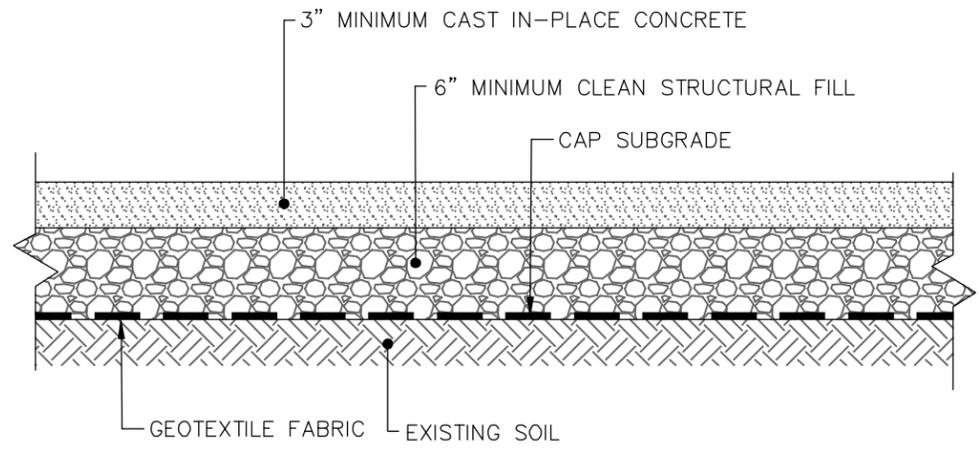
NOTES:
 CROSS SECTION AS SHOWN IS THE MINIMUM REMEDIATION CAP ALLOWED. CIVIL ENGINEERING PLANS TO SPECIFY MATERIAL REQUIREMENTS AND ADDITIONAL OR MODIFIED SECTION THICKNESS AS REQUIRED.

TYPICAL CAP SECTION AT LANDSCAPED AREAS WITH GRASS SURFACE COVER OR PLANTINGS
 NOT TO SCALE



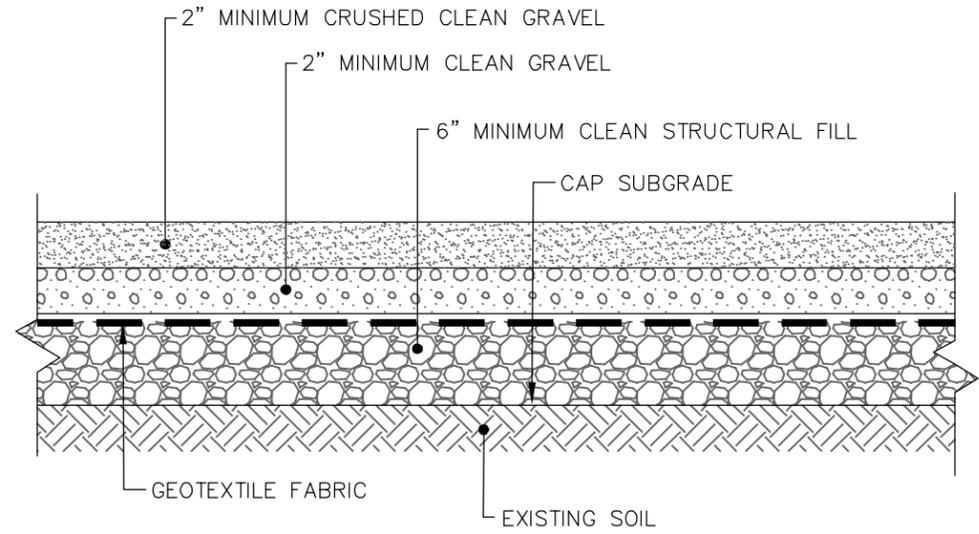
NOTES:
 CROSS SECTION AS SHOWN IS THE MINIMUM REMEDIATION CAP ALLOWED. CIVIL ENGINEERING PLANS TO SPECIFY MATERIAL REQUIREMENTS AND ADDITIONAL OR MODIFIED SECTION THICKNESS AS REQUIRED.

TYPICAL CAP SECTION AT ASPHALT PAVED AREAS
 NOT TO SCALE



NOTES:
 CROSS SECTION AS SHOWN IS THE MINIMUM REMEDIATION CAP ALLOWED. CIVIL ENGINEERING PLANS TO SPECIFY MATERIAL REQUIREMENTS AND ADDITIONAL OR MODIFIED SECTION THICKNESS AS REQUIRED.

TYPICAL CAP SECTION AT CONCRETE WALKWAY AREAS
 NOT TO SCALE



NOTES:
 CROSS SECTION AS SHOWN IS THE MINIMUM REMEDIATION CAP ALLOWED. CIVIL ENGINEERING PLANS TO SPECIFY MATERIAL REQUIREMENTS AND ADDITIONAL OR MODIFIED SECTION THICKNESS AS REQUIRED.

TYPICAL CAP SECTION AT WALKWAY AND PICNIC AREAS
 NOT TO SCALE

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 MS VIEW: LAYER STATE:

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1.	7/21/11	CAP DETAIL REVISIONS	SAI	TJC

SCALE:	
HORIZ.: NTS	
VERT.:	
DATUM:	
HORIZ.:	
VERT.:	


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 317 IRON HORSE WAY, SUITE 204
 PROVIDENCE, RI 02908
 401.861.3070
 www.fando.com

TOWN OF BROOKFIELD
 REMEDIATION CAPPING DETAILS
 59-67 MILL STREET
 BROOKFIELD MASSACHUSETTS

PROJ. No.: 20110847A10
 DATE: SEPTEMBER 2011
FIGURE 4

Appendix A

Public Notice to Municipal Officials



FUSS & O'NEILL
Disciplines to Deliver

September 27, 2011

Mr. Peter O'Connell, Chair
Board of Selectmen
Town of Brookfield
6 Central Street
Brookfield, MA 01506

Re: RTNs: 2-10354 & 2-14601
Notice of Impending Release Abatement Measure
Former Brookfield Mill
59-67 Mill Street, Brookfield, Massachusetts

Dear Mr. O'Connell:

Fuss & O'Neill, Inc. has prepared this letter, on behalf of the Town of Brookfield, to provide notice in accordance with the Massachusetts Contingency Plan [MCP; 310 CMR 40. 1403(3)(d)], that a Release Abatement Measure (RAM) Plan has been submitted to the Massachusetts Department of Environmental Protection (MassDEP) for the release identified with Release Tracking Number (RTN) 2-10354. Hazardous materials, including soil containing lead, have been identified at the above-referenced property. The RAM will address these conditions through the construction of a permanent barrier over the material. The RAM construction work is scheduled to bid out to contractors during the late fall and winter, with field work to commence at the start of the construction season in Spring 2012.

The RAM Plan is available for review by searching for the property address or RTN 2-10354 at the following DEP website:

<http://db.state.ma.us/dep/cleanup/sites/search.asp>

317 Iron Horse Way
Suite 204
Providence, RI
02908

t (401) 861-3070
(800) 286-2469
f (401) 861-3076

www.FandO.com

Sincerely,

David JP Foss, CPG, LSP
Senior Project Manager

c: MassDEP

*Connecticut
Massachusetts
New York
Rhode Island
South Carolina*



FUSS & O'NEILL
Disciplines to Deliver

September 27, 2011

Mr. Daniel Leahy, Chair
Board of Health
Town of Brookfield
6 Central Street
Brookfield, MA 01506

Re: RTNs: 2-10354 & 2-14601
Notice of Impending Release Abatement Measure
Former Brookfield Mill
59-67 Mill Street, Brookfield, Massachusetts

Dear Mr. Leahy:

Fuss & O'Neill, Inc. has prepared this letter, on behalf of the Town of Brookfield, to provide notice in accordance with the Massachusetts Contingency Plan [MCP; 310 CMR 40. 1403(3)(d)], that a Release Abatement Measure (RAM) Plan has been submitted to the Massachusetts Department of Environmental Protection (MassDEP) for the release identified with Release Tracking Number (RTN) 2-10354. Hazardous materials, including soil containing lead, have been identified at the above-referenced property. The RAM will address these conditions through the construction of a permanent barrier over the material. The RAM construction work is scheduled to bid out to contractors during the late fall and winter, with field work to commence at the start of the construction season in Spring 2012.

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Providence, RI
02908

t (401) 861-3070
(800) 286-2469
f (401) 861-3076

www.FandO.com

Connecticut
Massachusetts
New York
Rhode Island
South Carolina

Sincerely,

David JP Foss, CPG, LSP
Senior Project Manager

c: MassDEP