

CONTRACT AND SPECIFICATIONS
FOR
TOWN OF SALEM, NEW HAMPSHIRE
HOWARD STREET WATER TANK REHABILITATION
BID NO. 2015-001

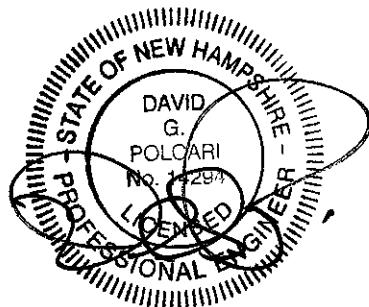
January 2015

TOWN MANAGER
Keith R. Hickey

DIRECTOR OF PUBLIC WORKS
Rick Russell

UTILITIES MANAGER
Frank Giordano

DISTRIBUTION/CONSTRUCTION FOREMAN
Glenn Burton



CDM SMITH INC.
Manchester, New Hampshire 03101

TOWN OF SALEM, NEW HAMPSHIRE
 HOWARD STREET WATER TANK REHABILITATION
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**TOWN OF SALEM, NEW HAMPSHIRE
HOWARD STREET WATER TANK REHABILITATION**

INVITATION TO BID

Sealed Bids for construction of the Howard Street Water Tank Rehabilitation must be received no later than 2:00 p.m., Friday, January 30, 2015, in order to be eligible for consideration by the Town. Each bid must be submitted in a sealed envelope that is clearly marked: **Sealed Bid #2015-001, Howard Street Water Tank Rehabilitation, Attention: Christine Wholley, Purchasing Agent**, and be delivered to Town Hall, 33 Geremony Drive, Salem, NH 03079 where all sealed bids and correspondence relating to this Invitation to Bid shall be date and time stamped.

The work shall include recoating of the tank exterior, coordination with cellular carriers for temporary relocation of antennae, and miscellaneous steel repairs. The work shall not include rehabilitation of the tank interior, except for minor repair of the 2011 coating system and for repairs necessitated by Contractor's work on the tank exterior.

A mandatory pre-bid conference will be held among prospective bidders, Engineer and Owner to review site conditions and scope of work. The pre-bid conference will be held at the tank site at 22 Howard Street, Salem NH, Thursday, January 22, 2015, at 10:30 am.

Contract Documents may be examined and/or obtained starting on January 12, 2015, at the office of CDM Smith, 670 North Commercial Street, Suite 201, Manchester, NH 03101; contact Julie Swant at 603-222-8300 or at swantja@cdmsmith.com. An electronic copy will be provided at no cost; paper copies will not be distributed. Addenda will be issued only to those parties registered by CDM Smith as having requested Contract Documents. It is the responsibility of each bidder to ensure that they have received all addenda. Contract Documents are also available for examination on the Purchasing Department's website at <http://www.townofsalemnh.org/purchasing/pages/current-bids-proposals-and-awards>.

The Contract Time limit is 90 calendar days after Contractor's mobilization to the site. All work must be completed by June 30, 2016.

Each Bid shall be submitted in accordance with the Instructions to Bidders and shall be accompanied by a Bid Security in the amount of five percent of the Total Bid Price.

Bidders may not withdraw their Bids for a period of sixty business days after the actual date of the opening of the Bids.

The Successful Bidder must furnish a 100 percent Performance Bond and a 100 percent Payment Bond with a surety company acceptable to the Owner, and shall be required to execute the Contract Agreement within 10 days following notification of the acceptance of the bid.

Complete instructions for filing Bids are included in the Instructions to Bidders.

The Owner reserves the right to waive any informality in or to reject any or all Bids if deemed to be in its best interest.

RICK RUSSELL
DIRECTOR OF PUBLIC WORKS
SALEM, NEW HAMPSHIRE

**TOWN OF SALEM, NEW HAMPSHIRE
HOWARD STREET WATER TANK REHABILITATION**

INSTRUCTIONS TO BIDDERS

ARTICLE 1. QUALIFICATIONS OF BIDDERS

1.1 Bidders may be investigated by OWNER to determine if they are qualified to perform the Work. All Bidders shall be prepared to submit written evidence of such information and data necessary to make this determination.

1.2 The investigation of a Bidder will seek to determine whether the organization is adequate in size, is authorized to do business in the jurisdiction where the project is located, has had previous experience and whether available equipment and financial resources are adequate to assure OWNER that the Work will be completed in accordance with the terms of the Agreement. The amount of other work to which the Bidder is committed may also be considered.

1.3 In evaluating Bids, OWNER will consider the qualifications of only those Bidders whose Bids are in compliance with the prescribed requirements.

1.4 OWNER reserves the right to reject any Bid if the evidence submitted by, or the investigation of, such Bidder fails to satisfy OWNER that such Bidder is properly qualified to carry out the obligations of the Contract Documents and to complete the Work contemplated therein.

ARTICLE 2. COPIES OF CONTRACT DOCUMENTS

2.1 Complete sets of Contract Documents shall be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents.

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

ARTICLE 3. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

3.1 Before submitting a Bid, each Bidder must (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may in any manner affect cost, progress or performance of the Work, (c) become familiar with Federal, State and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the Work; and (d) study and carefully correlate Bidder's observations with the requirements of the Contract Documents.

3.2 Before submitting a Bid, Bidders may, at their own expense, make such additional investigations and tests as they may deem necessary to determine their Bid for performance of the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

3.3 On written request, OWNER will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for the submission of a Bid.

3.4 The land upon which the Work is to be performed is the Howard Street Water Tank parcel located at 22 Howard Street, Salem NH.

3.5 The submission of a Bid will constitute an incontrovertible representation that the Bidder has complied with every requirement of this Article 3 and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

ARTICLE 4. INTERPRETATIONS

4.1 Inquiries regarding obtaining the bidding documents, or regarding the list of those who have requested such documents, shall be directed to Ms. Julie Swant of CDM Smith as stated in Section 00020. All questions about the meaning or intent of the Contract Documents shall be received in writing by CDM Smith, 670 North Commercial Street, Suite 201, Manchester, NH 03101 Attn: Jeffrey E. Diercks, phone and fax 603-222-8335, email diercksje@cdmsmith.com, at least seven calendar days before the date set herein for the opening of bids.

4.2 Written clarifications or interpretations will be issued by Addenda not later than four calendar days before the bid opening date. Only questions answered by formal written Addenda will be binding. Oral and other clarifications or interpretations will be without legal effect. Addenda will be mailed via certified mail with return receipt requested, to all parties recorded as having received the Contract Documents.

4.3 Bidders are responsible for determining that they have received all Addenda issued.

ARTICLE 5. MANDATORY PRE-BID CONFERENCE

5.1 A mandatory pre-bid conference will be held among prospective bidders, ENGINEER and OWNER to review the site conditions and the scope of work. The pre-bid conference will be held at the tank site at 22 Howard Street, Salem NH, on Thursday, January 22, 2015 at 10:30 am local time.

ARTICLE 6. BID SECURITY

6.1 Each bid must be accompanied by a Bid Security in the amount stated in the Invitation To Bid.

6.2 The Bid Security may be either in the form of a certified check drawn upon a bank within the State of New Hampshire, made payable to OWNER, or in the form of a bid bond executed by a surety company, duly authorized to do business in New Hampshire, made payable to OWNER.

6.3 Bid Securities will be returned to the unsuccessful Bidders within fifteen days after Award of Contract, or if no award is made, within sixty days after the opening of Bids, unless forfeited under the conditions herein stipulated.

6.4 In case a party to whom a Contract is awarded shall fail or neglect to execute the Agreement and furnish the satisfactory bonds within the time specified, OWNER may determine that the Bidder has abandoned the Contract, and thereupon the Bid Forms and acceptance shall be null and void and the Bid Security accompanying the Bid Form shall be forfeited to OWNER as liquidated damages for such failure or neglect and to indemnify said OWNER for any loss which may be sustained by failure of the Bidder to execute the Agreement and furnish the bonds as aforesaid, provided that the amount forfeited to OWNER shall not exceed the difference between the Bid Price of said Bidder and that of the next lowest responsible and eligible bidder and provided further that, in case of death, disability, or other unforeseen circumstances affecting the Bidder, such Bid Security may be returned to the Bidder. After execution of

the Agreement and acceptance of the bonds by OWNER, the Bid Security accompanying the Bid Form of the Successful Bidder will be returned.

ARTICLE 7. PERFORMANCE, PAYMENT AND OTHER BONDS

7.1 Performance, Payment and other Bonds shall be provided in accordance with Article 5 of the Conditions of the Contract.

7.2 All Bonds required as Contract Security shall be furnished with the executed Agreement.

ARTICLE 8. BID FORM

8.1 Each Bid shall be submitted on the Bid Form on the pages appended to the Project Manual. The Bid Form shall be removed and submitted separately. All blank spaces for Bid prices must be filled in with the unit price for the item or the lump sum for which the Bid is made.

8.2 Bid Forms shall be completed in ink or by typewriter. The Bid price of each item on the form shall be stated in words, and figures. If unit prices are required on the Bid Form, discrepancies between unit prices and their respective total amounts will be resolved in favor of the unit prices. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

8.3 Bids by corporations shall be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

8.4 Bids by Limited Liability Companies shall be executed in the Limited Liability name by the Manager (or other Limited Liability Company officer/representative accompanied by evidence of authority to sign.) The Limited Liability Company address and state where the Limited Liability Company was formed shall be shown below the signature.

8.5 Bids by partnerships shall be executed in the partnership name and signed by a partner, whose title shall appear under the signature. The official address of the partnership shall be shown below the signature.

8.6 All names shall be typed or printed below the signature.

8.7 The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).

8.8 The address to which communications regarding the Bid are to be directed shall be shown.

8.9 One copy of each Bid shall be submitted in a sealed opaque envelope bearing on the outside the Bidder's name, address, and the Project Title for which the Bid is submitted. (If forwarded by mail, Bid and sealed envelope marked as described above shall be enclosed in another envelope with the notation "BID ENCLOSED" on the face and addressed as indicated in the Invitation to Bid.)

ARTICLE 9. RECEIPT OF BIDS

9.1 Sealed Bids for the work of this Contract will be received at the time and place indicated in the Invitation to Bid.

9.2 OWNER may consider informal any Bid not prepared and submitted in accordance with the provisions hereof.

9.3 Bidders are cautioned that it is the responsibility of each individual bidder to assure that their bid is in the possession of the responsible official or the designated alternate prior to the stated time and at the place of the Bid Opening. Owner is not responsible for bids delayed by mail and/or delivery services, of any nature.

ARTICLE 10. MODIFICATION AND WITHDRAWAL OF BIDS

10.1 Bids may be modified only by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

10.2 Bids may be withdrawn prior to the scheduled time (or authorized postponement thereof) for the opening of Bids.

10.3 Any Bid received after the time and date specified shall not be considered. No Bid may be withdrawn for a period of sixty days after the actual date of the opening of the Bids.

ARTICLE 11. AWARD OF CONTRACT

11.1 The Contract will be awarded to the lowest responsible and eligible Bidder (Successful Bidder). Such a Bidder shall possess the skill, ability, and integrity necessary for the faithful performance of the work. The term "lowest responsible and eligible Bidder" as used herein shall mean the Bidder whose Bid is the lowest of those Bidders possessing the skill, ability and integrity necessary to the faithful performance of the Work.

11.2 OWNER reserves the right to reject any and all Bids, to waive any and all informalities if it is in Owner's best interest to do so, and the right to disregard all nonconforming, non-responsive or conditional Bids.

11.3 A Bid which includes for any item a Bid Price that is abnormally low or high may be rejected as unbalanced.

11.4 OWNER also reserves the right to reject the Bid of any Bidder that OWNER considers to be unqualified relative to Article 1 above.

11.5 If the Contract is to be awarded, OWNER will give the Successful Bidder a Notice of Award within sixty days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening of the Bids. All bids shall remain open for sixty days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening of the Bids but OWNER may, at OWNER's sole discretion, release any Bid and return the Bid Security prior to that date.

ARTICLE 12. EXECUTION OF AGREEMENT

12.1 When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by at least six unsigned copies of the Agreement and all other applicable Contract Documents. Within five days,

excluding Saturdays, Sundays and legal holidays, after the date of receipt of such notification
CONTRACTOR shall execute and return all copies of the Agreement and all other applicable Contract
Documents to OWNER.

ARTICLE 13. SAFETY AND HEALTH REGULATIONS

13.1 This project is subject to the Safety and Health Regulations (CFR 29, Part 1926 and all subsequent amendments) as promulgated by the U.S. Department of Labor on June 24, 1974 and CFR 29, Part 1910, General Industry Safety and Health Regulations Identified as Applicable to Construction.

13.2 The Successful Bidder shall comply with the Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 (PL-91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL-91-54).

13.3 The Successful Bidder shall have a competent person or persons, as required under the Occupational Safety and Health Act, on the Site to inspect the Work and to supervise the conformance of the Work with the regulations of the Act.

ARTICLE 14. NONDISCRIMINATION IN EMPLOYMENT

14.1 Contracts for work under this Project will obligate the Contractor and Subcontractors not to discriminate in employment practices.

14.2 Bidders must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the Award of the Contract.

ARTICLE 15. ACCESS TO SITE

15.1 Representatives of the Town and of the State of New Hampshire Department of Environmental Services shall have access to the Work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and inspection.

RICK RUSSELL
DIRECTOR OF PUBLIC WORKS
SALEM, NEW HAMPSHIRE

END OF SECTION

BID FORM
TO
TOWN OF SALEM, NEW HAMPSHIRE
HOWARD STREET WATER TANK REHABILITATION

The undersigned declares that the only persons or parties interested in this Bid as principals are as stated; that the Bid is made without any collusion with other persons, firms, or corporations; that all the Contract Documents as prepared by CDM Smith Inc. and dated January 2015 have been carefully examined; that the undersigned is fully informed in regard to all conditions pertaining to the Work and the place where it is to be done, and from them the undersigned makes this Bid. These prices shall cover all expenses incurred in performing the Work required under the Contract Documents, of which this Bid Form is a part.

If a Notice of Award accompanied by at least six unsigned copies of the Agreement and all other applicable Contract Documents is delivered to the undersigned within sixty days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening of the Bids, the undersigned will within five days, excluding Saturdays, Sundays, and legal holidays, after the date of receipt of such notification, execute and return all copies of the Agreement and all other applicable Contract Documents to OWNER. The premiums for all Bonds required shall be paid by CONTRACTOR and shall be included in the Contract Price. The undersigned Bidder further agrees that the Bid Security accompanying this Bid shall become the property of OWNER if the Bidder fails to execute the Agreement as stated above.

The undersigned hereby agrees that the Contract Time provisions are as follows:

1. The Contract Time shall commence ten days following the Effective Date of the Agreement.
2. All work shall be fully completed within 90 calendar days of Contractor's first day of mobilizing to the site.
3. All work shall be fully completed by June 30, 2016.
4. If Contractor desires to perform work requiring the tank to be offline at any time during the months of July or August, Contractor shall first obtain permission from the DPW and Fire Chief.

The undersigned further agrees to pay OWNER, as liquidated damages, \$1,000 per day for each calendar day beyond the Contract Time Limit or extension thereof that the Work remains incomplete, in accordance with the terms of the Agreement.

The undersigned acknowledges receipt of addenda numbered:

In accordance with the above understanding, the undersigned proposes to perform the Work, furnish all materials and complete the Work in its entirety in the manner and under the conditions required at the prices listed as follows:

Item No.	Estimated Quantity	Brief Description of Items <u>With Unit Bid Price in Words</u>	Amount in Figures
1	L.S.	<u>Interior Water Chamber Painting.</u> Including, but not limited to, spot abrasive blast (SSPC SP-10) and application of three spot coats of paint to 600 square feet of localized interior surfaces, application of 3 gallons of pit filler and disinfect interior surfaces, and First Anniversary Inspection. All work to be performed in accordance with Sections 09850, 09950 and 13900 as well as all related Sections of the Contract Documents.	\$ _____
		Lump sum	
2	L.S.	<u>Exterior Tank Painting.</u> Including but not limited to, full Class 1A containment, air quality monitoring, full abrasive blast (SSPC SP-6) and application of four coats of paint to all exterior surfaces including areas within the adjacent radio building, disposal of all waste, remove shell ladder notched rail safety climb device and re-install upon completion of painting, and repair cement grout at foundation to bottom lip junction, protection of all equipment within the radio building. Roll up the exterior fence and re-install fence upon completion of work including removal of old barbed wire and installation of new barbed wire atop the fence. Install bolting flanges, flapper and stainless steel screen assembly to base of overflow pipe. All work to be performed in accordance with Sections 09960 and 13800 as well as all related Sections of the Contract Documents.	\$ _____
		Lump sum	
3	L.S.	<u>Finial Vent Replacement.</u> Removal and replacement of existing finial vent assembly with new 24" diameter vent flange and aluminum vacuum/pressure vent assembly. All work to be performed in accordance with Sections 09960 and 13800 as well as all related Sections of the Contract Documents.	\$ _____
		Lump sum	

Item No.	Estimated Quantity	Brief Description of Items <u>With Unit Bid Price in Words</u>	Amount in Figures
4	L.S.	<u>Painter's Venting Hatch Replacement.</u> Removal and replacement of existing painters venting hatch assembly at the center of the roof with new 24" diameter hatch assembly complete with bolted cover and gasket. The new assembly is to conform to existing design and configuration. All work to be performed in accordance with Sections 09960 and 13800 as well as all related Sections of the Contract Documents.	\$ _____
		Lump sum	
5	L.S.	<u>Town-Owned Radio Equipment.</u> Remove the existing radio communications equipment (antennas, mounting poles, brackets, hardware and coax cables) from the tank exterior to facilitate tank painting. Temporary installation of all Town-owned equipment on the containment structure and then reinstall preexisting antennae with new mounting poles, brackets, hardware and coax cables on the tank upon completion of all painting. All work to be performed in accordance with Section 13800 as well as all related Sections of the Contract Documents.	\$ _____
		Lump sum	
TOTAL LUMP SUM CONTRACT BID PRICE (Sum of Items Nos. 1 through 5)			\$ _____

All specific cash allowances are included in the price(s) set forth above. The above lump sum prices are based on the use of coating materials supplied by _____.

Item No.	Estimated Quantity	Brief Description of Items With Unit Bid Price in Words	Amount in Figures
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SUPPLEMENTAL UNIT PRICES

When additional work is authorized, or the OWNER deletes work, the following prices, when applicable, shall be used to determine the contract price adjustment. The items of Work and method of measurement to determine quantities shall be as described in Specification Section 01075 - Basis of Payment.

S-1	Per Gallon	<u>Pit Filler Application</u> of 100% solids epoxy pit filler/surfacer on the interior surfaces (to be added or subtracted as necessary from the Lump Sum price for pit filler application in Item 1 above). The Contractor will only be paid for the exact number of gallons applied as determined by Owner's inspector.
	Per gallon	\$ _____

The undersigned agrees that extra work, if any, will be performed in accordance with Article 10 of the Conditions of the Contract and will be paid for in accordance with Article 11 of the Conditions of the Contract.

Amounts shall be shown in both words and figures, where indicated. In case of discrepancy, the amount shown in words will govern.

The undersigned hereby certifies that he/she has attached to the bid the following information which OWNER intends to utilize for reviewing the qualifications and experience of the bidder:

- 1. Five references of similar projects, including tank owner, tank type/size, year of work, and contact information including phone number.**
- 2. Financial statement demonstrating availability of financial resources to complete the project.**
- 3. Bonding agent contact information, including phone number.**

The undersigned has included with this bid all submittals required in Section 09860, paragraph 1.10A.

The above prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance and incidentals required to complete the Work.

The names and residences of all persons and parties interested in the foregoing Bid as principals are as follows:

(Give first and last names in full. In the case of a corporation, see Article 8.3 of the Instructions to Bidders, in the case of a limited liability company [LLC], see Article 8.4 of the Instructions to Bidders, in the case of a partnership, see Article 8.5 of the Instructions to Bidders.)

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

The undersigned hereby certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this section, the word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

Social Security Number
or Federal Identification
Number

Signature of Individual or
Corporate Name

By: _____
Corporate Officer
(if applicable)

Notice of acceptance should be mailed, faxed, or delivered to the following:

(Name)

By: _____
(Title)

(Business Address)

(City and State)

Date _____

Note: If the Bidder is a corporation, indicate State of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses, if different from business address.

TOWN OF SALEM, NEW HAMPSHIRE
HOWARD STREET WATER TANK REHABILITATION

AGREEMENT

THIS AGREEMENT made as of the _____ day of _____ in the year 2015 by and
between the Town of Salem, New Hampshire acting through its Town Manager hereinafter called
OWNER and _____ with legal address
and principal place of business at _____
hereinafter called CONTRACTOR.

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

ARTICLE 1. WORK.

1.1 CONTRACTOR shall perform the Work as specified or indicated in the Contract Documents. The Work is as described in SECTION 01010.

ARTICLE 2. ENGINEER.

2.1 The Project has been designed by CDM Smith, 670 North Commercial Street, Suite 201, Manchester, NH 03101, which will act as ENGINEER during the completion of the Work.

ARTICLE 3. CONTRACT TIME.

3.1 The Contract Time provisions are as follows:

3.1.1 The Contract Time shall commence ten days following the Effective Date of the Agreement.

3.1.2 All work shall be fully completed within 90 calendar days of Contractor's first day of mobilizing to the site.

3.1.3 All work shall be fully completed by June 30, 2016.

3.1.4 If CONTRACTOR desires to perform work requiring the tank to be offline at any time during the months of July or August, CONTRACTOR shall first obtain permission from the DPW and the Fire Chief.

3.2 CONTRACTOR agrees that the Work shall be prosecuted regularly, diligently and uninterruptedly and at such rate of progress as will insure full completion thereof within the Contract Time stated above. It is expressly understood and agreed, by and between CONTRACTOR and OWNER, that the Contract Time is reasonable for the completion of the Work, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

ARTICLE 4. CONTRACT PRICE.

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

ARTICLE 5. APPLICATIONS FOR PAYMENT

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

ARTICLE 6. PROGRESS AND FINAL PAYMENTS

6.1 OWNER will make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, monthly during construction as provided below. All progress payments will be on the basis of the progress of the Work measured by the schedule of values provided for in Paragraph 14.01 of the Conditions of the Contract.

ARTICLE 7. LIQUIDATED DAMAGES

7.1 OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the Contract Time specified in Article 3 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving, in a legal 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 \$1,000.00 per day for each calendar day of delay until the Work is complete.

7.2 Provided, that CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the Work is for reasons included in Paragraph 12.03 of the General Conditions.

7.3 Provided, further, that CONTRACTOR shall furnish OWNER the required notification of such delays in accordance with Paragraph 12.02 of the General Conditions.

ARTICLE 8. ASSURANCE

8.1 CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and Federal, State and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.

8.2 CONTRACTOR has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by ENGINEER in the preparation of the Drawings and Specifications and which have been identified in Article 4 of the Supplementary Conditions.

8.3 CONTRACTOR has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in the above paragraph as CONTRACTOR

deems necessary for the performance of the Work at the Contract Price within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required for such purposes.

8.4 CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

8.5 CONTRACTOR has given ENGINEER written notice of any conflict, error or discrepancy that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

8.6 CONTRACTOR agrees that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

ARTICLE 9. CONTRACT DOCUMENTS.

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

9.1.1 Invitation To Bid.

9.1.2 Instructions To Bidders.

9.1.3 Bid Form.

9.1.4 This Agreement.

9.1.5 Performance Bond, EJCDC Document C-610, 2010 edition, Payment Bond, EJCDC Document C-615, 2010 edition, and other required Bonds.

9.1.6 General Conditions, EJCDC Document No. C-700, 2007 edition.

9.1.7 Supplementary Conditions.

9.1.8 Specifications (as listed in Table of Contents).

9.1.9 Addenda numbers _____ to _____, inclusive.

9.1.10 Any modification, including Change Orders, duly delivered after execution of Agreement.

ARTICLE 10. MISCELLANEOUS

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

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

agreed that the right of the assignee in and to any monies due or to become due to CONTRACTOR shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the Work called for in this Contract.

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

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

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

This Agreement shall become effective on _____, 2015.

CONTRACTOR

OWNER

TOWN OF SALEM, NEW HAMPSHIRE

BY

BY

Keith R. Hickey, Town Manager

(CORPORATE SEAL)

(CORPORATE SEAL)

Attest

Attest

Address for giving notices

Address for giving notices

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

PERFORMANCE BOND

CONTRACTOR (*name and address*):

SURETY (*name and address of principal place of business*):

OWNER (*name and address*):

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description (*name and location*):

BOND

Bond Number:

Date (*not earlier than the Effective Date of the Agreement of the Construction Contract*):

Amount:

Modifications to this Bond Form: None See Paragraph 16

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

CONTRACTOR AS PRINCIPAL

Contractor's Name and Corporate Seal

By: _____
Signature

Print Name

Title

Attest: _____
Signature

Title

SURETY

Surety's Name and Corporate Seal

By: _____
Signature (*attach power of attorney*)

Print Name

Title

Attest: _____
Signature

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

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

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

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

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

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

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

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

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of

the Contract Price incurred by the Owner as a result of the Contractor Default; or

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

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

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

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

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

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

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

11. 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 a declaration of Contractor Default or within

two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

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

14. Definitions

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

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

PAYMENT BOND

CONTRACTOR (*name and address*):

SURETY (*name and address of principal place of business*):

OWNER (*name and address*):

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description (*name and location*):

BOND

Bond Number:

Date (*not earlier than the Effective Date of the Agreement of the Construction Contract*):

Amount:

Modifications to this Bond Form: None See Paragraph 18

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

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal

(*seal*)

By: _____
Signature

Print Name

Title

Attest: _____
Signature

Title

Surety's Name and Corporate Seal

(*seal*)

By: _____
Signature (*attach power of attorney*)

Print Name

Title

Attest: _____
Signature

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, 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.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

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

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. **Definitions**

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond

shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

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 Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

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Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 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 Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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**STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT**

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

38. *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.

39. *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.

40. *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.

41. *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.

42. *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.

43. *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.

44. *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.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.

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

47. *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 Subcontractor.

48. *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.

49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *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.

51. *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 words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated 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 information in the Contract Documents and with the design concept of the 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:

- does not conform to the Contract Documents; or
- 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 that 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

2.06

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.

Preconstruction Conference; Designation of Authorized Representatives

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.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

Initial Acceptance of Schedules

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

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

workable arrangement for reviewing and processing the required submittals.

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

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated 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

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 discovers, or has actual knowledge of, 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 (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then 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 had actual knowledge thereof.

B. *Resolving Discrepancies:*

employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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.

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, or code, or the instruction of any Supplier (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 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 its consultants, including electronic media editions; or
 2. reuse any 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 prohibitions 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.

Electronic Data

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to

use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

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

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

4.02 *Subsurface and Physical Conditions*

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

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the 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 officers, directors, members, partners, employees, agents, consultants, or subcontractors 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.

Differing Subsurface or Physical Conditions

A. *Notice:* If Contractor believes that any subsurface or physical condition 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: 4.04
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall 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.

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 provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

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

extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

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

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the 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 officers, directors, members, partners, employees, agents, consultants, or subcontractors 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. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- 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 written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, 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, members, 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 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 or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

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 and loss payee 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 and loss payee 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.

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

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

Contractor's Insurance

A. Contractor shall purchase and maintain such 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, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, 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; 5.05
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; 5.06
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. 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);
5. 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
6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. 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.

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.

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, members, 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 a loss payee;
2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that 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 loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown 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, members, 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 a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this 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 loss payee 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 this 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.

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 as loss payees (and the officers, directors, members, 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 loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, 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 as loss payees (and the officers, directors, members, 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, members, 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 5.09 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, members, 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 loss payees, 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.

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.

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.

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.

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.

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; and
 - 3) it has a proven record of performance and availability of responsive service.
 - 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 if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
 - c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by 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 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

6.06

- c) whether 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; and
- 4) 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 a Change Order in the case of a substitute and 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 so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable 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.

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 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 a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and

all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, 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.

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, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors 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 specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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 responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the

Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

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.

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, members, 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. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. 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. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. 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 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).

F. 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 accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

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

2. *Samples:*

- a. Submit number of Samples specified in the Specifications.
- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- C. *Submittal Procedures:*
 1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. 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;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to the

indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

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

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

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation. 6.18

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. 6.19

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.

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.

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 officers, directors, members, partners, employees, agents, consultants, and subcontractors 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, members, 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 officers, directors, members, partners, employees, agents, consultants, or subcontractors 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, members, 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.

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 through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

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

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and 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 such work; provided, however, that Contractor may cut or alter others' 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.

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 wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful 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 with respect to 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 relating to existing surface or subsurface structures at the Site.

8.06 Insurance

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

Change Orders

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

Inspections, Tests, and Approvals

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

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.

Undisclosed Hazardous Environmental Condition

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

Evidence of Financial Arrangements

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

Compliance with Safety Program

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

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.

9.02 Visits to Site

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor’s executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer’s efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer’s visits and observations are subject to all the limitations on Engineer’s authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer’s visits or observations of Contractor’s Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 Project Representative

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of

any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer’s consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 Authorized Variations in Work

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

9.05 Rejecting Defective Work

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

9.06 Shop Drawings, Change Orders and Payments

- A. In connection with Engineer’s authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer’s authority, and limitations thereof, as to design calculations and design drawings submitted in response to a

	delegation of professional design services, if any, see Paragraph 6.21.		partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.
C.	In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.	9.09	
D.	In connection with Engineer's authority as to Applications for Payment, see Article 14.		
9.07	<i>Determinations for Unit Price Work</i>		
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	<i>Decisions on Requirements of Contract Documents and Acceptability of Work</i>		
A.	Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.		
B.	Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.		
C.	Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.		
D.	When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show		
<i>Limitations on Engineer's Authority and Responsibilities</i>			
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.		

9.10 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

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 therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

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

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 the provisions of any bond require notice to be given to a surety 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), 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 Times 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 not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

- 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 on the Work. 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, as 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, express and courier services, 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, expediters, 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.

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

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

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 Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

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

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the

control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors 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. 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, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's 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 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, Contractor shall, if requested by Engineer, uncover such Work 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

13.04

Engineer has not acted with reasonable promptness in response to such notice.

Uncovering Work

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

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 written 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.

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 for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to

Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work;

and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

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

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

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 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, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
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. 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.

14.03

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 remedies the reasons for such action.
3. Upon a subsequent determination 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 and subject to interest as provided in the Agreement.

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.

14.04

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

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.

Substantial Completion

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to

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

- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.06

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, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

- 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
- 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
- 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

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.6;
 - 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 might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, 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.

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 therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established

under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

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

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 the intent to submit the Claim to a court of competent jurisdiction.

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.

Controlling Law

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

Headings

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

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

17.06

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.

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.

Controlling Law

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

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SECTION 00800
SUPPLEMENTARY CONDITIONS

PART I - AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC Document No. C-700, 2007 edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01A.42.

Delete paragraph 1.01A.42. in its entirety and replace with the following:

42. Specifications - Sections included under Division 1 through Division 13 of the Project Manual.

ARTICLE 2 - PRELIMINARY MATTERS

SC-2.01B.

Delete paragraph 2.01B of the General Conditions in its entirety and replace with the following:

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

SC-2.03A.

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

A. The Contract Time will commence to run on the tenth day following the Effective Date of the Agreement.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01C.

Add a new paragraph immediately after Paragraph 3.01C of the General Conditions which is to read as follows:

D. Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.

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

SC-4.01A.

Add the following new paragraph immediately after paragraph 4.01A of the General Conditions which is to read as follows:

1. If all lands and rights-of-way are not obtained as herein contemplated before construction begins, Contractor shall begin the Work upon such land and rights-of-way as Owner has previously acquired.

Delete 4.02 A.1 and 4.02 A.2 of the General Conditions in their entirety and replace them with the following:

1. those reports of explorations and tests of subsurface and other conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents: an analytical report of the lead content of the paint on the Howard Street Tank is included in the Appendix to the Project Manual.

ARTICLE 5 - BONDS AND INSURANCE

SC-5.03E

Add 2 new paragraphs immediately after paragraph 5.03E of the General Conditions which are to read as follows:

F. Contractor shall provide evidence of its insurance coverage on the ACORD certificate of insurance form and shall include the following statement in its entirety in the section of the form entitled "Description of Operations/Locations/Vehicles/Special Items".

The Town of Salem, New Hampshire and CDM Smith, and their officers, directors, partners, employees and other consultants and subcontractors are named as additional insureds with respect to the insured's Commercial General Liability and Automobile Liability Insurance Policies. All insurers waive all rights of subrogation against the Town of Salem, New Hampshire and CDM Smith, their officers, directors, partners, employees and other consultants and subcontractors. All insurance is primary for all claims covered thereby. Commercial General Liability Insurance includes contractual liability coverage.

SC-5.04A.

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 law:

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

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

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

(1) Bodily Injury:	\$1,000,000	Each Occurrence
	\$1,000,000	Annual Aggregate
(2) Property Damage:	\$1,000,000	Each Occurrence
	\$1,000,000	Annual Aggregate
(3) Personal Injury:	\$1,000,000	Annual Aggregate

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

(1) Bodily Injury	\$1,000,000	Each Person
	\$1,000,000	Each Accident
(2) Property Damage	\$1,000,000	Each Occurrence

SC 5.04B.1.

Delete paragraph 5.04B.1 of the General Conditions in its entirety and replace with the following:

1. The insurance required by paragraph 5.04A.3 through 5.04A.6 inclusive will provide primary coverage for all claims covered thereby. With respect to insurance required by Paragraph 5.04.A.6 include as additional insured 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, members, employees, agents, consultants and subcontractors of each and any of all such additional insureds.

SC-5.04B.6.

Add two following new paragraphs immediately after paragraph 5.04B.6. of the General Conditions which is to read as follows:

7. Contractor may purchase and maintain excess liability insurance in the umbrella form in order to satisfy the minimum amounts required for the insurance to be purchased and maintained in accordance with paragraph 5.04. Evidence of such excess liability insurance shall be delivered to Owner in accordance with paragraph 2.01 in the form of a certificate indicating the policy numbers and minimum coverage amounts of all underlying insurance. The umbrella liability insurance shall have a combined single limit of not less than \$5,000,000.

8. All policies required by this paragraph 5.04 shall contain provisions to the effect that the insurer(s) waive all right of subrogation against the Owner, Engineer and their officers, directors, partners, employees and other consultants and subcontractors of each and any of them.

SC-5.05A.

Delete paragraph 5.05A. of the General Conditions in its entirety and replace with the following:

A. Contractor shall purchase and maintain a separate Owner's Protective Liability policy, issued to Owner at the expense of Contractor, including Owner and Engineer as named insured. This insurance shall provide coverage for not less than the following amounts:

5.05A.1. Bodily Injury	\$1,000,000	Each Occurrence
5.05A.2. Property Damage	\$1,000,000	Each Occurrence
	\$1,000,000	Annual Aggregate

SC-5.05A

Add the following new paragraph immediately after paragraph 5.05.A.2 of the General Conditions which is to read as follows:

B. All policies required by this paragraph 5.05 shall contain provisions to the effect that the insurer(s) waive all rights of subrogation against the Owner, Engineer and their officers, directors, partners, employees and other consultants and subcontractors of each and any of them.

SC-5.06A.

Delete paragraphs 5.06A. and A1 thru A7 of the General Conditions in their entirety.

SC-5.06B.

Delete Paragraph 5.06B. of the General Conditions in its entirety.

SC-5.06C.

Delete Paragraph 5.06C. of the General Conditions in its entirety.

SC-5.06D.

Delete paragraph 5.06D. of the General Conditions in its entirety.

SC-5.06E.

Delete paragraph 5.06E. of the General Conditions in its entirety.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

SC-6.02B.

Add the following new paragraphs immediately after paragraph 6.02B of the General Conditions which are to read as follows:

C. Regular working hours are defined as 8 hours per day, Monday through Friday, excluding holidays, between the hours of 7:00 AM and 7:00 PM. Requests to work other than regular working hours shall be submitted to Engineer not less than 48 hours prior to any proposed weekend work or scheduled extended

work weeks. Occasional unscheduled overtime on weekdays may be permitted provided two hours notice is given to Engineer.

D. Contractor shall reimburse the Owner for additional engineering and/or inspection costs incurred as a result of overtime work in excess of the regular working hours stipulated in Article SC-6.02C. At Owner's option, overtime costs may either be deducted from the Contractor's monthly payment request or deducted from the Contractor's retention prior to release of final payment. Overtime costs for the Owner's personnel shall be based on the individual's current overtime wage rate. Overtime costs for personnel employed by the Engineer or Owner's independent testing laboratory shall be calculated in accordance with the terms of their respective contracts with the Owner.

SC-6.02B.

Add the following new paragraphs immediately after paragraph 6.02B. of the General Conditions which are to read as follows:

E. This Agreement is subject to the applicable provisions of the Contract Work Hours and Safety Standards Act, Public Law 87-581, 87th Congress. No Contractor or Subcontractor contracting for any part of the Work shall require or permit any laborer or mechanic to be employed on the Work in excess of forty hours in any work week unless such laborer or mechanic receives compensation at a rate not less than one and one-half times that person's basic rate of pay for all hours worked in excess of forty hours in such work week.

F. Contractor shall employ only competent persons to do the work and whenever Owner shall notify Contractor, in writing, that any person on the Work appears to be incompetent, disorderly, or otherwise unsatisfactory, such person shall be removed from the Project and shall not again be employed on it except with the consent of Owner.

G. Contractor and Subcontractors shall, insofar as practicable, give preference in the hiring of workers for the Project to qualified local residents with first preference being given to citizens of the United States who have served in the armed forces of the United States and have been honorably discharged therefrom or released from active duty therein.

SC-6.06A.

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

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

B. Not Used.

SC-6.06E.

Add the following new sentence at the end of paragraph 6.06E. of the General Conditions to read as follows:

Owner or Engineer may furnish to any such Subcontractor, Supplier or other person or organization, to the extent practicable, information about amounts paid on their behalf to Contractor in accordance with Contractor's Applications for Payment.

SC-6.07B

Delete paragraph 6.07B of the General Conditions in its entirety.

SC-6.16A.

Delete the last sentence in paragraph 6.16A. of the General Conditions in its entirety and replace with the following:

If Engineer determines that the incident giving rise to the emergency action was not the responsibility of the Contractor and that a change in the Contract Document is required because of the action taken by the Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

SC-6.19C

Add the following new paragraph immediately after paragraph 6.19 C which is to read as follows:

D. Manufacturer's Guaranty/Warranty

1. The Contractor shall obtain the following guaranty/warranty from the manufacturer of all major pieces of equipment furnished and installed on this Project. Such guaranty/warranty shall be for the benefit of Owner and be furnished in writing by the manufacturer. The Contractor's and manufacturer's obligations under this provision are in addition to other express or implied warranties under the Contract Documents and under the law and in no way diminish any other right that the Owner may have against the Contractor or manufacturer for faulty material, equipment or work. The warranty period shall not be interpreted as a limitation on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
2. The manufacturer warrants and guarantees for a period of one year from the date of Substantial Completion, or such longer period that may be specified in the Contract Documents, that all materials and equipment furnished and installed shall be free from flaws, defects in material and workmanship and shall be in conformance with the Contract Documents.

SC-6.20A.

Delete paragraph 6.20A. of the General Conditions in its entirety and replace with the following:

A. To the fullest extent permitted by Laws and Regulations, Contractor shall defend, indemnify and hold harmless Owner, Engineer and the officers, directors, members, 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 or loss or damage:

1. is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom; and
2. is caused in whole or in part by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such indemnified party unless caused by the sole negligence of a party indemnified hereunder.. If through the acts of neglect on the part of Contractor, any other contractor or any Subcontractor shall suffer loss or damage on the Work, Contractor shall settle with such other contractor or Subcontractor by agreement or arbitration if such other contractor or Subcontractor will so settle. If such other contractor or Subcontractor shall assert any claim against Owner and/or Engineer, or the officers, directors, members, partners, employees, agents, consultants and subcontractors of each on account of any damage alleged to have been sustained, Owner shall notify Contractor, who shall indemnify and save harmless Owner, Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each against any such claims.

SC-6.21E

Delete paragraph 6.21E of the General Conditions in its entirety and replace with the following:

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

ARTICLE 8 - OWNER'S RESPONSIBILITIES

SC-8.06

Delete paragraph 8.06 of the General Conditions in its entirety.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.03A.

Add the following new paragraph immediately after paragraph 9.03A. of the General Conditions which is to read as follows:

B. Engineer will conduct periodic visits to observe the performance of Work. Engineer will not furnish a fulltime Resident Project Representative.

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

SC-11.01A.1.

Delete the second sentence in paragraph 11.01A.1. of the General Conditions in its entirety and replace with the following:

Such employees shall include foremen at the site.

SC-11.02A.

Delete article 11.02 of the General Conditions in its entirety.

SC-11.03D.

Delete paragraph 11.03D. of the General Conditions in its entirety and replace with the following:

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

1. if the total cost of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 15 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 Unit Price for that quantity by which the actual quantity exceeds 115% of the estimated quantity in accordance with Article 10.05 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

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

SC-12.01C.2.b.

In the paragraph 12.01C.2.b., before the semicolon add the following words "based on subcontractor's Cost of the Work";

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

SC-13.05A.

Add the following new paragraph immediately after paragraph 13.05A. of the General Conditions to read as follows:

B. If Owner stops Work under Paragraph 13.05A., Contractor shall be entitled to no extension of Contract Time or increase in Contract Price.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02A.3

Add a new paragraph immediately after paragraph 14.02A.3 of the General Conditions which is to read as follows:

4. Contractor shall furnish evidence that payment received on the basis of materials and equipment not incorporated and suitably stored, has in fact been paid to the respective supplier(s) within sixty days of payment by Owner. Failure to provide such evidence of payment may result in the withdrawal of previous approval(s) and removal of the cost of related materials and equipment from the next submitted Application for Payment.

SC-14.02C.1.

Add the following new paragraphs immediately after paragraph 14.02C.1. of the General Conditions which are to read as follows:

2. Should Contractor neglect to pay any undisputed claims, made in writing to Owner within thirty days after completion of the Work, but continuing unsatisfied for a period of ninety days, Owner may pay such claim and deduct the amount thereof from the balance due Contractor. Owner may also, with the written consent of Contractor, use any monies retained, due, or to become due under this Contract for the purpose of paying for both labor and materials for the Work, for which claims have not been filed.

3. Security is provided both by the Payment Bond and the power of Owner to retain any monies for claims, but payment by one shall in no way impair or discharge the liability of the other.

4. Any and all liens for work and materials may be paid off by Owner within a reasonable time after filing for record in accordance with State and local laws, a notice of such liens except where the claim on which the lien is filed is being litigated by Contractor, and in such case Owner may pay the amount of any final judgment or decree or any such claim within a reasonable time after such final judgment or decree shall be rendered.

5. All monies paid by Owner in settlement of liens as aforesaid, with the costs and expenses incurred by Owner in connection therewith, shall be charged to Contractor, shall bear interest at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank, and shall be deducted from the next payment due Contractor under the terms of this Contract.

SC-14.03A.

Add the following new paragraphs immediately after paragraph 14.03A. of the General Conditions which are to read as follows:

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

C. Contractor shall defend, indemnify and save Owner and Engineer harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this Contract. Contractor shall at Owner's request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If Contractor fails to do so, then Owner may, after having served written notice on the said Contractor either pay unpaid bills, of which Owner has written notice, direct, or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged.

whereupon payment to Contractor shall be resumed, in accordance with the terms of this Contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon Owner to either Contractor or Contractor's Surety. In paying any unpaid bills of the Contractor, Owner shall be deemed the agent of Contractor and any payment so made by Owner shall be considered as payment made under the Contract by Owner to Contractor and Owner shall not be liable to Contractor for any such payment made in good faith.

SC-14.07B.1.

Delete paragraph 14.07B.1. of the General Conditions in its entirety and replace with the following:

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 - all as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will indicate in writing Engineer's recommendation of payment and present the Application to Owner for payment. Thereupon Engineer will give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, Engineer will return the Application to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application. If the Application and accompanying documentation are appropriate as to form and substance, Owner shall in accordance with the applicable State or local General Law, pay Contractor the amount recommended by Engineer.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

SC-15.02A.4.

Add the following new paragraph immediately after paragraph 15.02A.4. of the General Conditions which is to read as follows:

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

ARTICLE 16 - DISPUTE RESOLUTION

SC-16.01A

Delete the paragraph 16.01A of the General Conditions in its entirety and replace with the following:

Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 when 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 this Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract.

SC-16.01C.3.

Add a new paragraph immediately after paragraph 16.01C.3 of the General Conditions which is to read as follows:

D. Contractor shall carry on the Work and maintain the progress schedule during the dispute resolution proceedings, unless otherwise agreed by Contractor and Owner in writing.

ARTICLE 17 - MISCELLANEOUS

SC-17.06

Add the following new paragraphs immediately after paragraph 17.06 of the General Conditions:

17.07 Addresses

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

SECTION 01000

SUMMARY OF WORK

PART 1: GENERAL

1.01 WORK UNDER THIS CONTRACT

The CONTRACTOR shall furnish all labor, materials, equipment and means to construct the project entitled Howard Street Water Tank Rehabilitation, as described herein. The work includes, but is not limited to, the following:

Interior Water Chamber:

- The Owner will drain the tank to its lowest point by gravity method. The Contractor will remove all remaining water and/or silt from water chamber and place in sealed containers, remove sealed containers from site and properly dispose of all silt and water residues.
- Spot abrasive blast interior surfaces to an SSPC Sp10 Near White Metal blast grade wherever the coating has been damaged or is degraded, corroded, delaminated, or showing signs of failure, including disposal of all spent grit.
- Paint interior surfaces with two spot coats of paint.
- Apply up to 3 gallons of pit filler where instructed by the onsite inspector.
- Disinfect interior surfaces and install new gaskets on all shell manholes.

Exterior Surfaces:

- Prior to starting exterior work remove all barbed wire from the top of the perimeter fence and discard. Remove the fence fabric and store at an approved location. Re-install fence fabric complete with new barbed wire at the top of the fence upon completion of all exterior work.
- Install and maintain Class 1A containment with rigid framework around exterior of tank during abrasive blasting and painting operations.
- Protect the interior and exterior surfaces of the existing utility/radio buildings located at the base of the tank.
- Remove and relocate all town owned antennas from the roof and all associated coax cables onto the rigid pipe stage during the work and reinstall at the completion of the project. The Contractor is to coordinate with the individual antenna Owners (Fire, Police, DPW etc.) for their assistance and/or requirements for maintaining radio communication throughout the project. The contractor will employ the services of an approved radio communications company to relocate the antenna and associated coax cables to ensure they remain in operation throughout the project and reinstall all equipment upon completion of all work. The coax cables are to be attached to the new cable trays to be installed for the cellular communications equipment. The antennas are to be reinstalled in their original position.
- **NOTE:** The intent is to have all cellular equipment removed from the tank exterior to allow for proper access for cleaning and painting.

The following work is to be performed by the tank painting contractor only if allowed by the cellular equipment owner. Contractor is to contract and deal directly with the individual cellular carriers during this phase of the operations and, if necessary, employ qualified cellular contractors to perform the work required. All work associated with the removal and reinstallation of the cellular equipment including the installation of an approved mounting configuration is to be paid by the individual cellular carriers.

1. Remove all cellular equipment, including all mounting brackets and stud welded bolts from the tank.
2. Temporarily mount antennas and cables on the exterior of the containment scaffolding.
3. Install mounting brackets supplied by the cellular equipment owners and conforming to their specific design and configuration requirements. All brackets are to be welded to the tank with a full $\frac{1}{4}$ " continuous fillet weld around the entire bracket. No stud welding will be allowed.
4. Upon completion of all painting operations, reinstall all cellular equipment onto newly installed support brackets and cable trays.

- Install a bolting flange and removable flapper and stainless steel screen assembly to the base of the overflow pipe.
- Abrasive blast all exterior surfaces, including surfaces within the utility/radio building attached to the bottom shell ring, to an SSPC-Sp6 Commercial blast grade and disposal of spent grit. The radio equipment within the building is to either be completely removed or protected from damage during the specified abrasive blasting operations.
- Apply four full coats paint.
- Remove existing finial vent assembly and replace with new vacuum/pressure relief vent.
- Remove existing painters vent hatch assembly at the center of the roof and replace in kind. Modify existing stub assembly and/or opening into the tank as necessary to accommodate new painters venting hatch assembly.
- Abrasive blast clean the entire bottom lip and foundation junction and apply the specified four coat paint system to the steel surfaces of the bottom lip extension followed by the application of SikaFlex 2C over the entire perimeter of the foundation to floor plate extension.

The above general outline of principal features does not in any way limit the responsibility of the CONTRACTOR to perform all work and furnish the required materials, equipment, labor and means as shown or required by the Contract Documents.

Materials, equipment, labor, etc., obviously a part of the work and necessary for the proper operation and installation of same, although not specifically indicated in the Contract Documents, shall be provided as if called for in detail without additional cost to the OWNER.

1.02 LOCATION

All work is to be performed on OWNER'S property located on Howard Street in Salem, New Hampshire. The contractor is cautioned that the tank is located in a residential neighborhood therefore strict containment methodologies as outlined in Section 09860 will be enforced.

1.03 DESCRIPTION OF HOWARD STREET 1.50 MILLION GALLON STANDPIPE

A. Descriptive Data

Type Tank - Standpipe
 Tank Manufacturer - CBI

Year Constructed -	1979
Contract No. -	91818
Construction -	Welded
Capacity -	1,500,000 Gallons
Tank Diameter -	48' ±
Shell Height -	116' ±
Height to Overflow -	114.5' ±
Roof Support Rafters	–None.
Shell Manholes -	(2) 24" Ø with hinged cover and 28 nut and bolt assemblies.
Roof Type -	Self supporting dome
Roof Hatches -	(1) 24" Ø round with hinged cover and (1) 24" Ø round painters venting hatch with bolted cover.
Overflow -	(1) 10"Ø± pipe with weir box and air break.
Vent Description -	(1) 24"Ø± x 14" high stub with mushroom cap and mesh screen.
Anchor Bolts -	(40) 2.5"Ø
Shell Ladders -	Shell ladder and cage assembly with climb prevention shroud and gate at base of ladder.
Mixing System -	Tideflex
Roof Ladder -	Roof ladder spanning from the roof edge up to the roof center.
Roof Handrails -	Two 4' long wing rails attached to the top of the ladder cage and outer edge of the roof.
Rigging Attachments -	Removed during 2011 interior maintenance.
Cathodic Protection -	Removed during 2011 interior maintenance.
Signage -	None
Lights -	None
Miscellaneous -	Snow/Ice rail on roof perimeter

The Contractor is cautioned the tank is located in a fenced area and is adjacent to cellular communications equipment as well as two town owned utility buildings. The area surrounding the site is open with few trees to act as barriers. The area between the tank and the fence is asphalt covered. The Contractor is to provide protection to any and all equipment of the Town of Salem, as well as all cellular communications equipment/buildings that cannot be moved during the maintenance operations.

B. Existing Coating System

1. Interior water chamber

Year Applied -	2011
Coatings Manufacturer -	Tnemec
Type System -	Series FC22 100% Solids Epoxy

2. Exterior surfaces

Year Applied -	1979
Coatings Manufacturer -	Unknown
Type System -	Alkyd- Lead content 200 mg/Kg (ppm)

The information listed above is accurate to the best of our knowledge and is listed here for informational purposes only. The successful contractor is to verify all information in the field prior to start of work. Any discrepancies in the information provided here is to be brought to the attention of the Owner/Engineer as soon as it is known.

1.05 CONTRACTOR USE OF SITE (AND PREMISES)

- A. Access to site: Unlimited
- B. Operations: Limited to immediate tank site.
- C. Time restrictions for performing all work:
Monday though Saturday, 7 am to 5 pm. No work is to be performed on Sundays or legal Holidays without written permission of the Town of Salem.
- D. Utility outages and shutdown: The tank will be empty and out of service during the entire maintenance project.

1.06 DEFINED TERMS

Terms used in these Specifications which are defined in the General Conditions of the Contract Documents shall have the meanings assigned to them in the General Conditions.

PART 2: PRODUCTS

Not Used.

PART 3: EXECUTION

3.01 COORDINATION AND MEETINGS

- A. The CONTRACTOR will be required to coordinate his work and to phase the maintenance operations to prevent interference to operation of OWNER'S facilities. Any work-requiring shutdown of facilities must be scheduled and performed only at such times as shall be authorized by the OWNER. Such work must be completed during the specific periods authorized by the OWNER.

B. In addition to the above, the CONTRACTOR shall coordinate scheduling, submittals, and work of the various sections of specifications to assure efficient and orderly completion of work.

C. Job Progress Meetings

Progress meetings will generally be held **every two weeks**. CONTRACTOR'S attendance shall be required.

1. Schedule - The ENGINEER will establish the meeting place, time and date, notify participants and administer the meeting. CONTRACTOR shall notify major subcontractors and suppliers, as appropriate.

2. Attendance

- a. OWNER and/or Resident Project Representative
- b. CONTRACTOR'S project manager and project superintendent
- c. OWNER'S representative
- d. Suppliers, as appropriate to the agenda
- e. Other parties as determined by OWNER/ENGINEER

3. Agenda

- a. Review minutes of previous meeting.
- b. Review of work progress since previous meeting.
- c. Review field observations, problems, and conflicts.
- d. Review problems that impede schedules.
- e. Review corrective measures and procedures to regain projected schedule.
- f. Review revisions to schedules.
- g. Review plan progress, schedule, during succeeding work period.
- h. Review coordination of schedules.
- i. Review maintenance of quality standards.
- j. Review proposed changes for effect on schedule and on completion date.
- k. Other business.

4. Minutes - Owner will prepare and distribute copies to participants for review at the next meeting.

SECTION 01075

BASIS OF PAYMENT

PART 1: GENERAL

1.01 SCOPE

The lump sum Contract price constitutes full payment to the CONTRACTOR for Work to be performed under this Contract.

1.02 SUPPLEMENTAL UNIT PRICE ITEMS

When applicable, and authorized by OWNER, additional work will be paid for in accordance with the supplementary unit price schedule, of the Bid. The cost of labor, equipment, materials or work called for in the Specifications, shown on the Drawings, or necessary for a complete and satisfactory installation, but which are not specifically mentioned in this Section shall be included in the appropriate supplementary unit price by the CONTRACTOR at no additional expense to the OWNER.

PART 2: PRODUCTS

Not Used.

SECTION 01100 ALTERNATIVES

PART 1: GENERAL

1.01 RELATED WORK

The Contractor may request the use of Alternative equipment (i.e. recyclable blast system) and materials on this project however the contract award will be based on the use of the specified materials and methods outlined in the Contract. All requests must be in writing and be accompanied with documentation supporting the request. Failure to submit information on alternative equipment and materials as requested by the OWNER is cause for rejection of the proposed alternative and only the specified equipment and materials will be permitted to be incorporated in the finished project.

All alternative equipment and materials offered in the Bid must comply with the detailed requirements of the Drawings and Specifications and shall be covered by the specified guarantees and warranties. If it is determined that the alternative equipment and materials do not conform to the Specifications, such proposed alternative shall not be accepted and the CONTRACTOR will be required to furnish and install the specified equipment and materials.

No alternative materials and equipment will be incorporated in the finished project except an alternative accepted in writing by OWNER pursuant to the requirements of this Section 01100. Acceptance by OWNER of any such alternative shall not relieve CONTRACTOR of responsibility for assuring that any such alternative will, after installation or incorporation in the Work, conform to any performance requirements and other 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.

1.02 PAYMENT

The CONTRACTOR shall pay for all installation costs necessitated by the selection of alternative equipment and material. Such costs are included in the Contract price and any modifications as stated in the Bid.

PART 2: PRODUCTS

Not Used.

SECTION 01300

SUBMITTALS

PART 1: GENERAL

1.01 BEFORE STARTING Work

A. Progress Schedule

The CONTRACTOR shall prepare and submit to the OWNER for approval, a progress schedule. This submittal is to be made within ten (10) days from the effective date of Agreement. The method of schedule preparation required is a Gantt Chart or other type of graphic description showing the proposed sequence and dates for work activities.

Approval of the schedule by the OWNER is advisory only and shall not relieve the CONTRACTOR of his responsibility for accomplishing the work within the Contract Times. Omissions and errors in the approved schedule shall not excuse performance less than that required by the Contract. Approval by the OWNER in no way makes the OWNER an insurer of the success of those schedules or liable for time or cost overruns flowing from shortcomings in such schedules.

B. Schedule of Values

The CONTRACTOR shall submit to the OWNER a schedule of values representing a detailed subdivision of the lump sum Contract amount. This subdivision, when approved by the OWNER, will become the basis for computing the contractors' monthly progress payments. If practical, the schedule of values shall be developed by assigning a cost value to the appropriate activities contained in the preliminary progress schedule. If activities, or other line items, in the schedule of values contain costs associated with material, labor or subcontracts these costs are to be identified separately by listing the activity multiple times and identifying material, labor and subcontract with a suffix M, L and S respectively. Cost values for activities representing materials/equipment only shall be assigned to the activity representing delivery of such material/equipment to the job site.

In addition to the cost of material, labor and subcontracts, the following costs are to be identified separately in the schedule of values accompanied by such supporting documentation as required by the OWNER to substantiate the amounts listed.

1. Mobilization - To include CONTRACTOR'S actual cost to setup temporary facilities at the job site.

2. Bonds, Insurance - To reflect premiums paid, or to be paid, for Bonds and insurance required to be provided per the Contract Documents. Additional insurance coverage or bonds purposed by the CONTRACTOR at his option shall be considered general overhead and apportioned to construction activity costs.

3. Job Site Overhead - To reflect the cost of maintaining the temporary facilities at the job site including the cost of direct field supervision. This value, when approved, will be paid to the CONTRACTOR in equal monthly increments based on the number of months between mobilization and final completion.

4. Demobilization - To reflect the cost of removing the temporary facilities and final site cleanup.

5. Permits - To include fees required for any permits which CONTRACTOR is required to obtain including inspection fees associated with such permits.

6. Containment - To reflect the cost of erecting and maintaining an approved containment system in accordance with the contract documents.

The cost of home office overhead, profit, financing, contingencies, etc. are to be apportioned to the construction activities in the schedule of values based on the percentage that each construction activity cost represents when compared to the subtotal of all construction activity costs. This subtotal is excluding mobilization, demobilization, job site overhead, permits, home office overhead, profit, financing, contingencies, etc. The total of all items in the schedule of values shall equal the Contract Price.

C. Cash Flow Schedule

Accompanying the progress schedule required above, the CONTRACTOR shall submit to the OWNER, for approval, a Cash Flow Schedule. The Cash Flow Schedule shall show the amounts of money by months that will be required to reimburse the CONTRACTOR for Work performed during each month of the Contract Times. The sum of all the monthly cash requirements shall equal the Contract Price. The monthly cash requirements shall be proportioned based on the progress schedule. The approved cash flow schedule will be developed by the OWNER and will reflect the CONTRACTOR'S schedule performance as of the date of approval. This process of approving cash flow schedules will occur with each required schedule update.

The approved cash flow schedule will be used by the OWNER to program funds for progress payments to the CONTRACTOR. Monthly payments will be made to the CONTRACTOR in accordance with the Contract Agreement, but at no time will the aggregate amount of payments exceed the accumulated amount of payments for the same period of the approved cash flow schedule.

1.02 REQUIREMENTS FOR CONFORMING TO SCHEDULE

If, in the opinion of the OWNER, the CONTRACTOR falls behind the progress schedule, the CONTRACTOR shall take such steps as will be necessary to improve his progress, and OWNER may require CONTRACTOR to increase the number of shifts and/or overtime operations, days of work, and/or the amount of construction planned, and to submit for approval such supplementary schedule or schedules as may be deemed necessary to demonstrate the manner in which the agreed rate of progress will be regained, all without additional cost to the OWNER. An updated cash flow schedule will be required in this occurrence and will be provided with the supplementary schedules referenced above.

1.03 ADJUSTMENT OF PROGRESS SCHEDULE AND CONTRACT TIMES

1. If the CONTRACTOR desires to make changes in his method of operating which affect the approved progress schedule, he shall notify the OWNER in writing stating what changes are proposed and the reason for the change. If the OWNER approves these changes, the CONTRACTOR shall revise and submit for approval, without additional cost to the OWNER, all of the affected portions of the schedule.

2. The Contract Times will be adjusted only for causes specified in the General Conditions. In the event the CONTRACTOR requests an adjustment of the Contract times, he shall furnish such justification and supporting evidence as the OWNER may deem necessary for a determination as to whether the CONTRACTOR is entitled to an adjustment of Contract Times under the provisions of the General Conditions. The OWNER will, after receipt of such justification and supporting evidence, make findings of fact and will advise the CONTRACTOR in writing thereof. If the OWNER finds that the CONTRACTOR is entitled to any adjustment of the Contract Times the Owners determination as to the total number of days adjustment shall be based upon the currently approved progress schedule and on all data relevant to the adjustment. The CONTRACTOR acknowledges and agrees that actual delays in activities, which, according to the progress schedule, do not affect the Contract completion date, will not be the basis for an adjustment of Contract Times.

3. From time to time it may be necessary for the progress schedule and/or Contract Times to be adjusted by the OWNER to reflect the effects of job conditions, weather, technical difficulties, strikes, unavoidable delays on the part of the OWNER, and other unforeseeable conditions which may indicate schedule and/or Contract Times adjustments. Under such conditions, the OWNER shall direct the CONTRACTOR to reschedule the Work and/or Contract Time to reflect the changed conditions, and the CONTRACTOR shall revise his schedule accordingly. No additional compensation shall be made to the CONTRACTOR for such schedule changes except as provided in the General Conditions. Unless otherwise directed, the CONTRACTOR shall take all possible actions to minimize any extension to the Contract Times and any additional cost to the OWNER.

1.04 SHOP DRAWING SUBMITTALS

The CONTRACTOR shall promptly supply to the OWNER for approval, written description and catalog cuts with details for all materials supplied as part of this project.

A sufficient number of copies to allow the OWNER to retain four (4) reviewed copies of data shall be submitted for approval. Each submittal shall have the job name on it and the appropriate specification section reference.

Each copy of the submittals made to the OWNER for approval shall be prepared by the CONTRACTOR and shall have an identifying title stamp as follows:

Cleaning and Painting of the exterior surfaces of
the Howard Street 1.50 Million Gallon Standpipe.
Specification Section _____

As required by the General Conditions, each copy of the submittals shall also be stamped with the CONTRACTOR'S approval indicating that the submittal has been reviewed for conformance to the Contract Documents. The CONTRACTOR shall identify and bring to the attention of the OWNER any deviations to the Contract Documents contained in the submittal. For data being resubmitted the CONTRACTOR shall identify and bring to the attention of the OWNER any revisions other than those originally requested by the OWNER.

Submittals smaller than 8 1/2 x 11 inches shall be secured to paper 8 1/2 x 11 inches.

Submittals will be returned, stamped with the following classifications:

- a) "Approved" - There are no notations or comments on the submittal and the submittal meets the requirements of the Contract Documents.
- b) "Approved as Noted" - Notations have been made on the submittals to insure conformance with the Contract Documents.
- c) "Not Approved" - The submittal does not meet the requirements of the Contract Documents. The CONTRACTOR must submit the specified product.
- d) "Revise and Resubmit" - The material submitted is incorrect or insufficient to review properly and it is necessary to see the complete package again.
- e) "Resubmit Record Copy" - Used with the review action "Approved As Noted". The resubmittal shall incorporate notations.

Where a submittal indicates a departure from the Contract which the OWNER deems to be a minor adjustment in the interest of the OWNER not involving a change in Contract Price or extension of Contract Times, the OWNER may approve the submittal but the approval will contain, in substance, the following notation:

"The modification indicated on the attached submittal is approved in the interest of the OWNER to effect an improvement for the Project and is accepted with the understanding that it does not involve any change in the Contract Price or Times; that it is subject generally to all Contract stipulations and covenants; and that it is without prejudice to any and all rights of the OWNER under the Contract Bonds."

It is emphasized that the Owners approval of CONTRACTOR'S submitted data is for general conformance to the Contract Specifications, but subject to the detailed requirements of the Specifications. Although the OWNER may check submitted data in more or less detail, such checking is an effort to discover errors and omissions in CONTRACTOR'S submittal and to assist the CONTRACTOR in coordinating and expediting his work, and shall in no way relieve the CONTRACTOR of his responsibility that the purpose and intent of the Contract will be achieved.

1.05 SAMPLES

When required by the OWNER or where noted in other Sections of these Specifications, samples or materials shall be submitted for approval.

Submit samples of finishes from the full range of manufacturer's standard colors, for Owners selection.

Include identification on each sample, with full project information.

Submit the number or samples specified in individual specification sections; one of which will be retained by OWNER.

Reviewed samples that may be used in the Work are indicated in individual specification sections.

1.06 PROGRESS PAYMENTS

The detailed arrangement for submittal of progress payments shall be discussed at the initial job conference. In general, progress payments shall be submitted monthly in a format acceptable to the OWNER. The progress payment request shall be based on the approved schedule of values and should provide the percentage of completion, total dollar value completed, dollar value completed prior to the current payment, and the amount requested for this progress payment for each line item contained in the schedule of values. Progress payment requests for material and equipment suitably stored but not yet incorporated into the work shall be accompanied by a copy of the appropriate manufacturers invoice, shipping order, bill of lading, etc. and the progress payment amount

shall be the direct cost to the CONTRACTOR, for such material. Payment will not be made to the CONTRACTOR if, upon inspection by the OWNER, it is determined that the material or equipment does not conform to the requirements of the Contract Documents including proper storage, receipt of approved product submittals, receipt of any special guarantees, Bonds, insurance coverage, any evidence of damage or imperfections, etc.

1.07 CONTRACTOR'S DAILY REPORTS

If requested by the OWNER or the On-Site Inspector, the CONTRACTOR shall prepare and submit daily reports containing the following information:

- The number of craftsmen and hours worked,
- the number of hours worked by each trade,
- the number of hours worked of each type of equipment,
- a description of work activities performed,
- a description of any material or equipment deliveries,
- description of obstructions encountered,
- temperature, humidity and weather conditions.

The daily reports shall be submitted on a daily basis, by the end of the next business day.

Information provided on the daily report shall not constitute notice of delay or any other notice required by the Contract Documents. Notice shall be as required therein.

PART 2: PRODUCTS

Specific system submittals will be required for approval on all alternatives not outlined in the contract documents.

SECTION 01500

TEMPORARY FACILITIES

PART 1: GENERAL

1.01 WATER SUPPLY

If reasonably available, water for the purpose of this Contract will be supplied to the CONTRACTOR by the OWNER. The CONTRACTOR shall furnish and install all necessary meters, temporary piping and valves in connection with such water. If no water is available on site the Contractor will be responsible for making alternate arrangements to provide water for his needs during the scheduled work.

The OWNER reserves the right to impose limitations upon the CONTRACTOR'S use of water as the OWNER, in its sole discretion, determines may be necessary to assure it of its continued ability to meet the demands of its customers and the volumes and pressures required for fire protection. Any water required by the CONTRACTOR in excess of the quantities the OWNER provides to the CONTRACTOR must be furnished by the CONTRACTOR at his own cost.

1.02 TEMPORARY HEAT AND DEHUMIDIFICATION

The Contractor will supply and pay for all heat and dehumidification equipment required to aid in the successful completion of this project within the allotted time frames.

1.03 ELECTRICAL SUPPLY

The Contractor shall pay all fees, obtain necessary permits and have meter installed for power and light as may be required for the prosecution of his work.

1.04 TEMPORARY LIGHTING

The Contractor shall provide and maintain lighting for construction operations while work is being performed inside the tank.

1.05 PROGRESS CLEANING

Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition. Remove debris and rubbish from site weekly and dispose off-site.

1.06 SANITARY FACILITIES

The CONTRACTOR shall provide suitable temporary facilities and enclosures for the use of workmen and shall maintain same in a sanitary condition.

The CONTRACTOR is advised that the OWNER is in the business of providing potable water and the CONTRACTOR'S sanitary arrangements shall not endanger the OWNER'S facilities.

PART 2: PRODUCTS

Not Used.

PART 3: EXECUTION

Not Used.

End of Section

SECTION 01700

PROJECT CLOSEOUT

PART 1: GENERAL

1.01 CLOSEOUT PROCEDURES

The Contractor will submit written certification that the Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Owners inspection. Provide submittals to OWNER required by governing or other authorities. Submit Application for final payment identifying total adjusted Contract sum, previous payments, and sum remaining due.

1.02 RESTORATION

The CONTRACTOR shall restore and/or replace paving, curbing, sidewalks, gutters, shrubbery, fences, sod or other disturbed surfaces and structures to a condition equal to that before the work began and to the satisfaction of the OWNER and shall furnish all labor and materials incidental thereto.

PART 2: PRODUCTS

Not Used.

PART 3: EXECUTION

Not Used.

End of Section

SECTION 09850

STEEL TANK PAINTING

PART 1: GENERAL

1.01 RELATED WORK

- A. Section 09950 – Interior Water Chamber Painting
- Section 09960 – Exterior Tank Painting
- Section 13800 – Miscellaneous Work

1.02 QUALITY ASSURANCE

A. Workmanship

(1) All cleaning and painting work covered by these Specifications shall be performed by a firm having at least five (5) years successful experience in the tank painting field and shall have performed specified type cleaning and painting on at least fifteen (15) tanks of similar design.

(2) All work shall be in accordance with the requirements hereinafter specified and the applicable requirements of the latest edition of standards provided by Steel Structures Painting Council (SSPC), 4400 Fifth Avenue, Pittsburgh, Pennsylvania 15212, and American Water Works Association (AWWA), 6666 West Quincy Avenue, Denver, Colorado 80235 and NACE International, Houston, Texas.

Reference Standards

NACE Standards and Practices
AWWA D102 Painting Steel Water Storage Tanks
SSPC - SP12 Ultra High Pressure Water Jet Cleaning
SSPC – SP 11 Power Tool Cleaning to bare metal with profile
SSPC - SP10 Near White Blast Cleaning
SSPC - SP6 Commercial Blast Cleaning
SSPC - SP7 Brush-Off Blast Cleaning
SSPC - SP3 Power Tool Cleaning
SSPC - SP1 Solvent Cleaning
SSPC - Vis 1 Pictorial Surface Preparation Standards
SSPC - PA1 Shop, Field and Maintenance Painting
SSPC - PA2 Measurement of Dry Paint Thickness

B. Product Labeling

All labels shall include the following:

- (1) Manufacturer's name
- (2) Type of paint
- (3) Manufacturer's stock number and batch number
- (4) Color
- (5) Instructions for thinning, where applicable

C. Sampling of Materials

(1) When requested by the OWNER, obtain test samples from material stored at project site or source of supply.

(2) Select samples at random from sealed containers.

1.03 SUBMITTALS

Submit two (2) sets of the following to the OWNER prior to purchase:

A. Product Data

Provide written description and catalog cuts describing each coating in the system. Information shall include; product delivery, storage, handling, application and curing instructions and limitations.

Include technical sheets to substantiate compliance with specifications.

B. Certification

Provide certification signed by supplier of the coating attesting that coating system proposed meets the specifications.

1.04 PRODUCTS DELIVERY AND STORAGE

A. Delivery of Materials

- (1) Store only acceptable project materials on project sites.
- (2) Store in a suitable location.
- (3) Restrict storage to paint materials and related equipment.

(4) Comply with requirements listed on the manufacturer's Material Safety Data Sheets and all health, fire, EPA and OSHA regulations as regards storage materials.

(5) All paints and solvents shall be delivered to the site in factory sealed containers, labeled as stated in 1.02B. Only newly purchased paint bought specifically for this job shall be used. Leftover paints from CONTRACTOR'S previous jobs will not be allowed.

1.05 JOB CONDITIONS

A. Environmental Requirements

(1) Volatile Organic Compounds (VOC) - VOC ratings (pounds per gallon (PPG) grams per liter (GPL) for coatings specified herein are believed to be in compliance with limits set forth by the air pollution control agency having jurisdiction in the area the work is to be performed. The CONTRACTOR shall verify that each coating used is in compliance with the aforementioned air pollution limits. Thinning of coatings in excess of the coating manufacturer's recommendations is not permitted.

(2) Contact with Potable Water - Interior tank coatings specified herein are in compliance with the ANSI/NSF Standard 61 for Potable Water Contact.

(3) Safety Requirements - The CONTRACTOR shall comply with all health and safety regulations and requirements of OSHA, including but not limited to, 29 CFR Parts 1910 Confined Spaces for General Industry; Final Rule (or State Health and Safety Regulatory Agency), SSPC-PA Guide 3, and the paint and abrasive manufacturers. Should vents, holes, rigging attachments, or any other modification, cutting, or welding be required to meet safety standards, they may be accomplished at the expense of the CONTRACTOR upon submitting of details in writing to, and with subsequent approval by the OWNER.

(4) Emissions - Compliance with local, state, federal regulations concerning emissions of solid, particulate, or gaseous matter as a result of the cleaning, painting, or other operations under this Agreement shall be the responsibility of the CONTRACTOR.

(5) Waste Classification - CONTRACTOR shall immediately after Notice to Proceed satisfy all Laws and Regulations pertaining to the classification of waste generated on the project. Waste shall be understood to include abrasive blasting residuals, paint containers, unused paint and thinners, solvents or any other material whose disposal is subject to requirements contained in Laws and Regulations.

(6) Responsibility - The compliance with all regulations shall be accomplished without supervision from the OWNER, Inspector, or other direct or indirect agents of the OWNER.

B. No on-site work is to be done between sunset and sunrise. The times for work shall also comply with local, state and federal regulations and laws regarding days of week, noise and interference with activities of surrounding persons and as outlined in Section 01000 Part 1.05. Should tank interior temperatures be excessive for personnel welfare during daylight hours, permission may be granted by the OWNER to conduct work at night provided that the necessary surface temperature, air temperature, humidity and dew point requirements are met. This permission shall only be granted if the CONTRACTOR provides the proper lighting and safety equipment.

C. All rigging attachments present on the tank shall be carefully inspected by the CONTRACTOR prior to use. The CONTRACTOR assumes all responsibility for use of any existing or added attachments.

D. The job site shall be kept in a clean and safe condition at all times. The daily debris shall be collected in covered containers and disposed of in a manner that will place no liability for hazardous waste on the OWNER. Absolutely no paint, solvent material, gasoline, oil or other toxic or hazardous material is to be disposed of at or in the vicinity of the tank site.

E. All manholes and other tank openings shall remain open during interior cleaning, painting and curing. Forced ventilation may be required to ensure sufficient air exchanges during curing of the coatings.

F. Protection of Property

(1) Owners Property

All openings in the tank shall be covered by the CONTRACTOR with a cover or pneumatic plug to keep water, cleaning residues and paint material from entering the openings. Any OWNERS equipment in or around the vicinity of the tank shall be covered to protect it from damage.

The Contractor shall protect the existing concrete foundation from damage and paint dripping during completion of the work by utilization of covering materials such as plywood, tarps, etc.

If the concrete or asphalt paving at the tank site is damaged, soiled or paint stained, the Contractor shall prepare the surface and apply a coating specified for concrete and/or asphalt. This product must be approved by the Owner/Engineer.

(2) Adjacent Property

Special precautions shall be taken by the CONTRACTOR to restrict and control windborne fallout of residue and particulate matter from cleaning operations, and/or paint when the close proximity of adjacent property or vehicles warrants that special precautions are necessary. If needed the CONTRACTOR shall schedule and coordinate his work to avoid windborne fallout. All damage to existing facilities and adjacent property resulting from the CONTRACTOR'S operations shall be cleaned, repaired or replaced by the CONTRACTOR at no additional expense to the OWNER.

(3) Cellular and Antenna Equipment

The Contractor is cautioned that there is miscellaneous cellular and radio equipment on and around the immediate tank site and there is equipment located on the roof and shell of the subject tank. The coax cables and antennas are not to be painted as part of this contract however the supporting brackets as outlined elsewhere in these specifications are to be included in this contract. The Contractor is to make every effort to protect any equipment that is not removed prior to commencement of the work to be performed.

Prior to start of work on this project the Contractor, the On-Site Inspector and the cellular communications representative will, in the presence of the Owner, perform an inspection of the tank site. The inspection is required to determine pre-existing conditions of the adjacent cellular equipment specifically the levels of dust, dirt and/or other debris that may be present.

The inspection is to be documented on videotape by the Contractor with copies of the videotape to be submitted to the OWNER and the cellular communications companies. The Contractor will be responsible for coordination of the inspection with the all parties.

(4) Site Security

The contractor shall secure the site at the end of each work day to prevent any unauthorized access. All gates will be closed and locked whenever the Contractor is not on site. Site security is the complete responsibility of the Contractor including providing an after hours security watch if necessary.

- G. The tank must be drained for all tank painting, including exterior painting.
- H. All temperature requirements as identified on the Product Data Sheet of the paint manufacturer shall be met prior to application of the coatings. Do not apply the coatings unless the Manufacturer's minimum temperature requirements have been met and are rising. In addition, no painting is to be performed on the interior and/or exterior of the tank during snow, rain, fog, and/or mist or when the surfaces are wet

and/or damp or when the relative humidity is greater than 85%, or the temperature of the steel is, or is expected to be, less than 5°F above the dew point temperature during the application and the initial curing the coatings. Refer to the manufacturers Product Data Sheet for additional information regarding coating application requirements.

- I. The atmosphere in the tank and/or containment structure is to be free of airborne dust prior to application of any coating.
- J. The paint inspector provided by the Owner shall be the sole decision maker on the conditions at the site as to when coatings can and cannot be applied based on the parameters outlined in Paragraph H above. Discrepancies in monitoring equipment will be addressed in accordance with the provisions outlined by the National Association of Corrosion Engineers (NACE) and/or the Steel Structures Painting Council (SSPC).

1.06 FIRST ANNIVERSARY INSPECTION

- A. The First Anniversary Inspection as described in AWWA D102 latest revision thereof shall apply.
- B. The Owner's On-Site Inspector, with the aid of the CONTRACTOR shall conduct the First Anniversary Inspection. The Contractor shall furnish an experienced foreman, rigging and assistance for the inspection and shall be prepared to perform minor touch-up operations. The CONTRACTOR shall have at least one gallon of each of the primers, intermediate coatings, and finish coatings at the time of the inspection along with power cleaning tools and abrasive disks for spot cleaning.
- C. Spot repairs shall be made by the CONTRACTOR before returning the tank back into service. Repairs requiring extensive work and rigging may be delayed until a time mutually agreeable to the OWNER and CONTRACTOR.
- D. CONTRACTOR is responsible for all costs associated with the First Anniversary Inspection, including the services of the On-Site Inspector. The OWNER will pay for these services out of funds retained for the purpose of the inspection.

PART 2: PRODUCTS

2.01 MATERIALS

A. Paint Materials

All paint materials and thinners shall be supplied by the CONTRACTOR. The materials shall be as specified in Section 09960 for the exterior system and Section 09950 for the interior system. All materials shall be furnished by one paint manufacturer and all thinners and solvents shall be of the same manufacturer as the paint materials. There will be no exceptions to this requirement.

B. Abrasives

Abrasives used for blast cleaning shall be those mentioned in the specifications of the Steel Structures Painting Council Abrasive Specification No. 1 (SSPC-AB1). Particular attention shall be given to the maximum particle size requirements. Proprietary abrasive materials may be used only upon written approval of the OWNER.

Section 09860, if included in the Contract Documents contains additional requirements for abrasives.

C. Tinting

(1) Deliver paints ready-mixed to job site to color specified.

(2) Accomplish job tinting only when acceptable to the OWNER.

PART 3: EXECUTION

3.01 EQUIPMENT

All equipment, (compressor, blast pots and paint pumps, etc.) shall be in good operating condition and of sufficient capacity to provide satisfactory results for cleaning and painting.

Spray equipment and tip size shall be used as recommended in the paint manufacturer's instructions.

Compressed air for blasting and painting shall be free from detrimental amounts of water or oil. Adequate traps and/or dryers shall be provided.

Adequate lighting shall be provided inside the tank to properly allow for safety, workmanship and inspection.

Air hoods, respirators and proper and sufficient ventilation shall be provided during blasting, painting and curing.

CONTRACTOR must have sufficient explosion proof ventilation equipment to properly and efficiently expel dust and paint fumes out of unit to prevent injury to workmen or the accumulation of volatile gases.

CONTRACTOR shall have available at the site, all inspection and measuring equipment such as wet and dry film thickness gages, wet bulb-dry bulb measuring equipment, steel temperature measuring equipment, holiday detector equipment, etc., as required by these Specifications.

3.02 SURFACE PREPARATION

Sharp edges, weld protrusions and other protrusions shall be removed by grinding. Sharp edges and protrusions shall be ground to at least a 1/8-inch radius. Weld spatter (if any) shall be completely removed.

The surfaces to be painted shall be free from mud, oil, grease, dust, moisture, old paint, or other foreign material that would cause adhesion problems.

All surfaces shall be cleaned in accordance with the Surface Preparation Specifications, latest edition, of the Steel Structure Painting Council to the degree specified in the Tank Painting System sections in these Specifications.

Surfaces cleaned to bare metal shall be prime painted before any rusting takes place on the cleaned areas. Surfaces shall not be allowed to stand overnight without a prime coat applied. Primer shall be applied during the same daylight period that the cleaning was accomplished unless prior arrangements are made with the Owner or Owners representative.

Refer to Section 09860 (if included in the specification) for additional requirements for abrasive blasting.

Following blast cleaning operations, surfaces shall be cleaned of all dust by blowing down with dry compressed air (unless restricted per Section 09860) and sweeping with bristle broom or by vacuuming.

3.03 APPLICATION

All paint shall be mixed and applied in strict accordance with the applicable portions of these specifications, latest revisions of AWWA D102 and SSPC-PA1, and the paint manufacturer's recommendations. Particular care shall be taken in following manufacturer's instructions regarding the temperature and mixing requirements of two component materials.

Each coat of paint shall be in a proper state of cure or dryness before the application of the succeeding coat. CONTRACTOR shall adhere strictly to the minimum times between coats specified herein and/or recommended by the manufacturer.

All coatings may be applied as follows unless prohibited by the paint manufacturer:

- A. Interior – Brush or spray.
- B. Exterior - Brush and roller. Spray application will be allowed providing it is performed within an approved containment system.

Spray pole guns over 12 inches long will not be allowed. Rigging must afford proper close accessibility to the steel surfaces.

Where roller application is used for exterior paint systems, roller covers shall be synthetic nap with nap thickness per paint manufacturer's requirements.

All coats shall be smooth, free of brush marks, streaks, laps or pile-up of paints, and skipped or missed areas. The contractor is cautioned that no horizontal application of the coating will be allowed. Seam to seam vertical application of the finish coat is required.

If requested by the OWNER, the final cure and coating thickness shall be verified by the paint manufacturer in writing to the OWNER prior to the tank being filled. Arrangements for the manufacturer's inspector shall be made by the CONTRACTOR and the OWNER shall be notified at least seventy-two (72) hours prior to the paint manufacturer's inspection.

3.04 HEAT AND DEHUMIDIFICATION REQUIREMENTS

Due to the small amount of work expected to be performed on the tank interior the heat and dehumidification requirement may not be enforced. The contractor is to plan on the application of the interior coatings only when the ambient conditions are acceptable for painting as specified elsewhere in these specifications.

NOTE: The following requirements will be enforced only IF the proper ambient conditions cannot be maintained by natural methods.

The contractor is to provide sufficient heat and dehumidification within the tank to ensure proper cure of the coatings when ambient conditions are expected to fall outside of the requirements of the coatings manufacturer with special emphasis placed on proper cure between the applications of additional coats of paint. The contractor is to follow all recommendations of the coatings manufacturer to ensure proper procedures are followed.

3.05 CURING

The tank will not be placed back into active service until the interior coatings are sufficiently cured in compliance with the Coating Manufacturers recommendations.

Generally coatings are allowed to cure for a minimum of seven (7) days at 70° at the end of which time a solvent rub test will be performed to test the state of cure.

3.06 INSPECTION

All cleaning and painting shall be subject to inspection by a designated representative of the OWNER and/or the painting manufacturer.

The OWNER reserves the right to inspect all cleaned surfaces prior to primer application and also each coat of paint prior to subsequent paint applications. It is understood that such inspection shall be made available by the OWNER within one (1) hour after notification by the CONTRACTOR. The CONTRACTOR shall keep the Owner or his Inspector fully informed of the work schedule. Failure on the part of the CONTRACTOR to notify the Owner and/or the Inspector shall be sufficient cause for requiring the CONTRACTOR to do additional cleaning and/or painting of un-inspected areas.

In order to facilitate surface preparation inspection, at the beginning of the blast cleaning operation, sections of the structure to be painted shall be blast cleaned to the various degrees of cleaning specified. The CONTRACTOR shall have a current copy of the SSPC - Pictorial Standards VIS 1 to verify the degrees specified. After agreement is reached regarding the degrees of cleaning, the prepared areas shall be sealed in plastic or coated with a clear urethane coating and will serve as a visual reference for cleaning for the remainder of the project.

Ambient conditions will be monitored by both the paint contractor and the paint inspector in accordance with NACE and SSPC standards for compliance with the manufacturer's coating application requirements as outlined above in section 1.05 JOB CONDITIONS paragraph H.

The dry film thickness and uniformity of the paint coatings shall be measured using an Elcometer, Mikrotest or similar type approved dry film thickness gauge in accordance with SSPC-PA2. The OWNER reserves the right to use an industry approved holiday detector to check the interior paint film integrity after the completion of the finish coat of paint. A minimum of three days is to be allowed for the coatings to cure prior to performing the holiday testing.

All work shall be made accessible to the OWNER'S representative using the CONTRACTOR'S rigging and equipment. Any rigging removed, and thus preventing proper inspection as described herein, shall be replaced at the CONTRACTOR'S expense.

The CONTRACTOR shall correct such work as is found defective under the specification and shall supply such material required to make the repairs at his own expense. The inspector serving as the OWNER'S representative shall have full authority as to the determination of work declared defective.

SECTION 09860

ABRASIVE BLAST CLEANING CONTROLS HOWARD STREET 1.50 MILLION GALLON STANDPIPE

PART 1: GENERAL

1.01 SECTION INCLUDES

This section specifies requirements for paint removal via abrasive blast cleaning operations and includes requirements for worker protection, protection of the environment, abrasive requirements, procedures for containment, collection, storage, testing and disposal of the blast cleaning residuals, and other regulatory requirements pertaining to the abrasive blast cleaning operation.

LEAD PAINT TESTING All Contractors bidding on this project are hereby notified that the exterior coatings have been tested for total lead content in accordance with US EPA, SW-846, Method 6010B with the results indicating a total lead content below the threshold limit of 600 mg/Kg (ppm) typically associated with classifying a coating as lead bearing as listed here and as shown on the laboratory reports from Groundwater Analytical attached to the back of these specifications.

Exterior coatings -	200 mg/Kg (ppm)
Interior coatings -	Not Tested

The Contractor is cautioned that he is responsible for all tests outlined in the contract including additional testing of the coatings, if needed, to confirm the lead content. As outlined by current OSHA regulations, the Contractor is responsible for providing worker protection unless he can provide documentation showing his engineering practices eliminate the need for those controls based on the existing lead levels.

1.02 RELATED SECTIONS

- Section 01075 - BASIS OF PAYMENT
- Section 01100 - ALTERNATIVES
- Section 01300 - SUBMITTALS
- Section 09850 - STEEL TANK PAINTING
- Section 09950 - INTERIOR WATER CHAMBER PAINTING
- Section 09960 - EXTERIOR TANK PAINTING

Also, see the Supplementary Conditions for insurance requirements and for identification of any reports pertaining to the evaluation, testing, and analysis of existing coatings.

1.03 DEFINITIONS

Containment System - A containment system includes the cover panels, screens, tarps, scaffolds, framing, supports, and shrouds used to enclose an entire work area or a paint removal tool. The purpose is to minimize or prevent the debris generated during surface preparation from entering into the environment, and to facilitate the controlled collection of the debris for disposal. Containment systems shall employ the use of ground covers and exhaust air filtration (dust collection).

Containment Efficiency - The containment efficiency is a measure of the effectiveness of the measures taken to prevent dust and debris from escaping beyond the containment system.

Hazardous Waste - Paint debris is classified as hazardous due to the characteristic toxicity, if after testing by Toxicity Characteristic Leaching Procedures (TCLP), the leachate contains any of the elements in the concentrations listed below (or greater):

Barium	100 ppm
Cadmium	1 ppm
Chromium	5 ppm
Lead	5 ppm
Mercury	0.2 ppm

Note: Other elements can cause a material to be hazardous as defined in 40 CFR 261 and must be taken into consideration. The list above includes only those elements typically associated with paints.

Lead-Containing Paint - The Consumer Product Safety Commission classifies paint as lead containing if it contains 600 ppm lead or greater. This can be determined from prior knowledge of the coating or through laboratory testing in accordance with ASTM D-3335.

PM-10 - Particulate matter (dust) less than 10 microns in aerodynamic equivalent diameter. (Aerodynamic equivalent diameter is defined as the diameter of a unit density sphere having the same settling velocity as the particle in question of whatever shape and density.)

PEL - Permissible Exposure Limit - Maximum allowable employee average airborne exposure to hazardous elements. In the case of lead, limits are 0.05 mg/m³ (50 ug/m³) per OSHA Industry Standard 29 CFR 1910.1025.

Time Weighted Average (TWA) is the employee's average airborne exposure in any 8 hour work shift of a 40-hour workweek.

Ventilation System - Ventilation systems include both natural ventilation and artificial ventilation (mechanical fans, hoods, and duct work) to provide air movement across the work area, and dust collectors to clean the discharged air.

1.04 PAYMENT

All costs associated with the requirements of this section are to be included in the Contract Price. If required by the Bid, costs associated with this specification section shall be furnished to OWNER as a line item. If the Bid does not contain a line item for these costs, the CONTRACTOR shall make available the costs in his submittal document accompanying the Bid as described in paragraph 1.09 of this section. Payment will be made in accordance with the Agreement.

1.05 PERMITS

The CONTRACTOR shall obtain all permits that are required to perform the specified abrasive blast cleaning:

The Contractor is responsible for obtaining all Permits required by Law.

1.06 REQUIREMENTS OF REGULATORY AGENCIES

A. The following Federal regulations are applicable to the specified abrasive blast cleaning:

I. Occupational Safety and Health Standards

Code of Federal Regulations:

29CFR1926.62	Construction Industry Standards
29CFR1910	General Industry Standards
29CFR1910.134	Respiratory Protection
29CFR1910.20	Access to Employee Exposure and Medical Records
29CFR1910.141	Sanitation
29CFR1910.146	Permit required confined spaces
29CFR1910.1025	Lead

II. Protection of the Environment

Code of Federal Regulations:

40CFR50 National primary and secondary ambient air quality standards

40CFR50.6 National primary and secondary ambient air quality standards for particulate matter

40CFR50.12 National primary and secondary ambient air quality standards for lead

III. Solid Waste

Code of Federal Regulations:

40CFR261, Appendix II	Toxicity Characteristic Leaching Procedure
40CFR262	Packaging and labeling requirement
40CFR178	Shipping Container specifications
40CFR268.7	Waste analysis
40CFR300	National oil and hazardous substances pollution contingency plan
40CFR302	Designation, reportable quantities and notification

B. Compliance with Environmental Regulations:

Compliance with local, state and federal regulations concerning emissions or disposal of solid, particulate, liquid, or gaseous matter as a result of the cleaning, painting, or other operations under this Agreement shall be the responsibility of the CONTRACTOR. This compliance shall be accomplished without supervision from the On-Site Inspector, or other direct or indirect agents of the OWNER. No additional compensations for changes in the laws, Regulations, or the interpretation thereof shall be granted by the OWNER. No burning of trash (including abrasive bags or other paper or wood products) on the site shall be permitted. All shielding, abrasive retrieval or other methods of using precautions required by regulating agencies shall also be accomplished at no additional cost to the TOWN OF SALEM unless otherwise provided herein. **Any fines imposed on the OWNER or the On-Site Inspector by any regulatory agency as**

a result of the CONTRACTOR's noncompliance with environmental regulations shall be paid or reimbursed by the CONTRACTOR.

1.07 CONTAINMENT ENGINEERING REVIEW

Contractor shall furnish services of a licensed professional engineer in the State of New Hampshire to review the design of all containment systems that will impart a load, or loads, on the tank.

1.08 SOIL SAMPLING

The exterior coatings are known to contain small amounts of lead as determined by prior testing of the coating system as noted in Section 1.01 above. The lead in the coatings may have leached into the adjacent soil around the tank therefore in order to establish background levels of lead in the soil the Contractor, in the presence of the On-Site Inspector shall perform lead testing of the soil. The Contractor is to follow the sampling protocols as outlined in the Industrial Lead Paint Removal Handbook Volume II, KTA/SET Method S1 Ground (Soil) Sampling and Analysis, which is briefly as follows with one modification due to an asphalt paved area around the tank.

The Contractor shall collect a minimum of eight (8) sets of soil samples from the job vicinity prior to start of Work at the site, identify the soil samples, and perform atomic absorption testing (for total lead) on the soil samples. Two (2) samples are removed in each compass direction (north, south, east, west) in which bare ground is present. The first set of samples will be taken within 5 feet of the edge of the existing asphalt pavement. The second set will be taken from a distance equal to the height of the tank.

Each set of soil samples shall consist of five 3/4 in. diameter plugs by 1/2 in. deep taken from a 1 square foot area as outlined in the protocols referenced above. The locations where the soil samples were taken shall also be documented.

After Substantial Completion of the Work the Contractor shall remove eight (8) additional sets of soil samples from the same locations as before, identify the soil samples and have atomic absorption (for total lead) performed on the soil samples.

The cost of all testing shall be borne by the Contractor.

If the results of the total lead test reveal that the lead levels in the soil have increased by more than 100 mg/kg (or less if stipulated by Federal, State or Local laws or regulations), then the Contractor shall clean the site to reduce the amount of lead in the soil in accordance with Local, State and Federal guidelines. Please note that the results have no bearing on whether the soil is considered to be a hazardous waste requiring removal and disposal. The cost of the site clean-up and any further soil sampling and testing shall be paid for by the Contractor at no additional cost to the OWNER. The Contractor shall be responsible for seeing that a "Chain of Custody" Form is used on the initial and final sampling of the soil.

1.09 CONTAINMENT

During the specified exterior cleaning operations the CONTRACTOR shall furnish all materials, tools, labor, equipment, engineering or other professional services, necessary to design, construct and operate a **Class 1A** containment system in accordance with Table A – Abrasive Blast Cleaning outlined in the **SSPC-Guide 6 (CON)** latest revision. The required containment system is as described as follows:

A Class 1A system provides the highest level of emissions control.

For abrasive blast cleaning, Class 1A utilizes:

1. Rigid (A1) or flexible (A2) containment materials.
2. Air impenetrable walls (B1) with rigid (C1) support structure. **NOTE: For the purpose of these specifications the contractor is to base his price on the use of rigid staging (pipe staging or similar) to which the cellular equipment can be attached while work is being performed on this tank.**
3. Fully sealed joints (D1).
4. Airlock (E1) or resealable (E2) entryways.
5. Controlled air make-up (F1).
6. Input airflow shall be forced (G1), balanced with exhaust capacity to maintain an average negative pressure throughout the enclosure of 0.03-inch water column relative to ambient conditions. Instrument verification (H1) shall be required and provided by the Contractor. The Contractor shall provide a daily report on instrument readings.
7. Air filtration (J1) (dust collection) shall be required on all exhaust through utilization of wet or dry dust collectors sized for the application. The dust collector is to be used at all times abrasive blasting and/or power tool cleaning operations are being performed.
8. Ground cover shall be provided within the containment to collect all spent abrasives and removed coatings, extending from the structure to beyond the containment system.

The CONTRACTOR will be responsible for all materials that are used and for any apparatus* used to contain debris, overspray and coating droplets.

* CONTRACTOR should be aware of U.S. Patent No. 5,033,240.

The following additional requirements are applicable to CONTRACTOR'S containment system.

The Contractor shall be fully responsible for the design and support system associated with the containment system. The design shall be such that no excessive loads or forces are applied to the tank, which could cause damage during various weather conditions that could be experienced while the containment system is in place. The Contractor shall spread the

load of the roof containment system over a large area to eliminate any steel deflection greater than 1-inch.

The Contractor shall maintain the containment system and any damaged sheeting, tarps; plastic etc. shall be repaired or replaced upon discovery or notification. Upon completion of the work the Contractor shall carefully dismantle the containment, thus preventing damage to the coatings, and completely remove from the site. If necessary the Contractor shall provide a level, stable base for setting the bottom row of containment support structure through excavations, placement of compacted fill or other means at his/her discretion.

1.10 SUBMITTALS

A. Submitted with the Bid

A narrative description and sketch of the proposed containment system presenting the basic containment concept, materials of construction, and method of structural support.

The type, name and size of the exhaust air filtration (dust collection) system to be used.

A description of the proposed worker safety plan for the project.

A description of the proposed abrasive(s) for paint removal.

OWNER'S acceptance of CONTRACTOR'S Bid, and subsequent execution of an Agreement in no way guarantees CONTRACTOR'S proposed containment system, abrasives and worker safety plan will comply with Laws and Regulations and the requirements of this specification and does not relieve the CONTRACTOR from his responsibility to meet all requirements.

B. After Contract Award

Within 15 days of CONTRACTORS receipt of the Notice to Proceed, prepare and submit the following:

The detailed design and description of the proposed containment system. The submittal shall provide information relative to the materials of construction (manufacturer, product description, unit weights, translucent value and perviousness of screens, tarps, etc.), the method of structural support including calculations prepared by a structural engineer if the containment system is to impart a load on the structure.

The type, name and size of the exhaust air filtration (dust collection) system including the efficiency rating and filter maintenance records.

3. A written description of the safety plan proposed for the Work. The plan is to address compliance with regulations pertaining to worker safety including the specific requirements contained herein.
4. Waste collection and storage plan demonstrating compliance with the requirements of this specification.
5. Technical data for proposed abrasives.

1.11 ALTERNATIVES

Alternative containment and/or paint removal methods which will achieve the level of efficiency specified for the containment system or alternative abrasives meeting specification requirements shall be submitted with the bid in accordance with Section 01100-ALTERNATIVES. Recyclable steel grit blast systems will be considered.

PART 2: PRODUCTS

2.01: ABRASIVES

Abrasive shall be in conformance with Type 1 or Type 2, Class A, Grade 3 as outlined in SSPC-AB1. A Type 1 abrasive is a natural mineral, Type 2 is a slag abrasive, Class A contains Crystalline silica less than or equal to 1% and Grade 3 is an abrasive that produce surface profiles of 2.0 to 3.5 mils. The abrasive shall be properly stored, and it shall be free from contaminants, including but not limited to paint, earth, moisture, oil or chlorides, which can cause premature failure of the coating. Use of abrasive on the interior and exterior surfaces of the tank shall be based not only on its compliance with the technical application of the coatings, but also on its lack of nuisance to surrounding property. The CONTRACTOR shall submit to the OWNER for approval manufacturer's published product data sheets for the type of abrasive, grade, and the resulting profile of the abrasive to be used for the work prior to the start of any cleaning operations.

Recyclable steel grit, minimum of 60/40 mix of steel shot to steel grit ratio, will be accepted as an alternate abrasive media provided it is new and has not been used on any lead paint removal project.

Documentation stating the steel grit has not been used on previous lead paint removal projects is required.

PART 3: EXECUTION

3.01 FIELD QUALITY CONTROL

Compliance with State and Local Laws and Regulations, will be verified through the tests and inspections listed in Part I.

A. Abrasive Waste Certification

After CONTRACTOR'S submittal of proposed abrasive(s) for paint removal and prior to approval by the OWNER, the CONTRACTOR shall perform a field test to assist the OWNER in certifying that the residuals from the interior and/or exterior blasting operation will not be classified as a hazardous waste. The CONTRACTOR shall use the proposed abrasive(s) to clean individual test areas, each a minimum of three (3) square feet in surface area, to achieve the specified level of cleaning (i.e. SP6, SP10 etc.). The OWNER shall select the test area locations based on the lead concentrations (if any) of existing coatings and their locations on the tank and/or appurtenances. The CONTRACTOR shall include in his bid the cost of performing test blasts at four separate locations.

The paint removal tool and/or the test area shall be contained such that all test blast residuals are captured. The test blast residuals for each area shall be kept separately and stored in sealed containers from which the Contractor will collect samples for TCLP testing. Two (2) consecutive TCLP tests will be performed on each sample with the results of the first test used to determine the acceptability of the proposed abrasive(s) and the results of the second test used as a preliminary indication of disposal requirements (see abrasive blasting residuals handling, paragraph 3.03). The minimum amount of abrasive necessary to achieve the specified cleaning shall be used. Excessive abrasive use in any area will be cause for rejection by the OWNER for the test area affected and another test area will be selected. The OWNER shall be notified in advance by CONTRACTOR such that OWNER and/or his representative may be present during the test.

B. Monitoring the Environment.

The Contractor is responsible for all aspects of monitoring the environment in accordance with current Federal, State and local requirements and will employ a qualified air quality monitoring company to set up, maintain and perform the required testing outlined below.

The Contractor shall furnish PM-10 ambient air monitors and total suspended particulate (TSP) monitors at required locations. The requirements of 4CFR 50.6 for particulate matter (PM-10) and 40 CFR 50.12 for TSP shall apply unless local laws or regulations impose more stringent requirements. Also, see part I of this section for additional tests and/or inspections required by the State or local Laws and Regulations.

To establish the background level of respirable dust, prior to beginning the work, the Contractor shall conduct Ambient Air Quality Monitoring using high volume air samplers equipped for the collection of respirable dust (PM-10). The Contractor shall monitor for 8 hours per day for 2 days. Test results shall be communicated to the Owner/Owners representative.

Additional PM-10 air quality monitoring shall be conducted by the Contractor during paint removal operations. To determine the level of dust originating from the paint removal operations the Contractor shall monitor every day when exterior abrasive blasting operations are being performed. A minimum of two PM-10 monitors shall be placed at the perimeter of the tank, and/or at points of maximum environmental impact, i.e., homes, etc., as directed by the Owner/Owners representative. Monitors shall be moved to maintain this condition due to shifting wind patterns. Placement shall be at the discretion of the Owner/Owners representative. The PM-10 filters shall be analyzed by gravimetric analysis, pursuant to the EPA method G in 40 CFR Part 50. The National Ambient Air Quality Standard for respirable dust is 150 micrograms dust per cubic meter of air, as a 24 hour average, averaged over a 90 day period. Emissions in excess of 400 micrograms per cubic meter of PM-10 respirable dust over an 8-hour workday shall be cause for shutdown of the project until corrections to the containment, ventilation or paint removal equipment are made to comply with this level.

Monitoring of containment system efficiency shall be performed by the OWNER or Owners Consultant through the observation of visible emissions in accordance with 40 CFR 60, Appendix A, Method 22. Visible emissions are permitted from the containment system at the frequency and duration's specified below provided the emissions do not extend beyond the OWNER'S property line. Unacceptable emissions shall be cause for project shutdown until corrections to the containment, ventilation or paint removal equipment are made to comply with this level.

Level 1 Emissions - Random emissions of a cumulative duration of no more than 1% of the workday (e.g., 5 minutes in an eight-hour workday).

To establish the background level of lead dust, prior to beginning the work, the Contractor shall conduct Ambient Air Quality Monitoring using high volume air samplers equipped for the collection of total suspended particulate (TSP). The Contractor shall monitor for 8 hours per day for 2 days. Test results shall be communicated to the Owner/Owners representative prior to the start of the work.

The Contractor shall conduct additional TSP air quality monitoring during paint removal operations. To determine the level of lead emissions originating from the paint removal operations the Contractor shall monitor every day when exterior abrasive blasting operations are being performed. A minimum of three TSP monitors shall be placed at the perimeter of the tank, and/or at points of maximum environmental impact, i.e., homes, etc., as directed by the Owner/Owners representative. Monitors shall be moved to maintain this condition due to shifting wind patterns. Placement shall be at the discretion of the Owner/Owners representative.

The TSP filters shall be analyzed for lead in accordance with the EPA 40 CFR Part 50, Appendix G. The National Ambient Air Quality Standard for lead according to 40 CFR Part 50 is 1.5 micrograms per cubic meter as a 90-day average. Emission in excess of the value attained by the following formula shall be cause to shutdown the project until improvements are made to the containment, ventilation or paint removal equipment to comply with the allowable value.

Allowable 8-hour Emission in microgram per cubic meter (mcg/m³) = AE

AE = (90/PD x 1.5 mcg/m³ x 3) - (2 x Background) where PD is the Project Duration in Days.

The discharge of abrasive blasting residuals or any paint removal debris into a storm drain system, sanitary sewer, stream, river, brook, creek, etc. or other body of water is prohibited. The CONTRACTOR shall take this into consideration when alternative coating removal methods involving the use of water or other liquids are being proposed.

If tests and/or inspections reveal that the CONTRACTOR'S containment system is failing to meet requirements of Laws and Regulations or the efficiency levels specified, the CONTRACTOR shall immediately modify, augment or otherwise improve the containment system or alter his method of abrasive blasting operation, such that these requirements are met. All costs for modifications, adjustments, improvements, etc. shall be borne by the CONTRACTOR.

OWNER approval of CONTRACTOR'S proposed containment system in no way guarantees its compliance with the requirements of this section.

3.02 WORKER PROTECTION

The Contractor is required to follow all OSHA requirements for worker protection including but not limited to the following.

- Only Mine Safety and Health Administration (MSHA) and National Institute of Occupational Safety and Health (NIOSH) approved respirators shall be used and a respiratory protection program complying with 29CFR 1910.134 is required. NOTE: According to the National Institute for Occupational Safety and Health (NIOSH) Logic 87-108, standard abrasive blasting helmets provide respiratory protection for up to 25 times the PEL for lead. This shall be considered a worker protection requirement of this specification.
- A change room equipped with separate storage facilities for work clothing and personal clothing is required.

- No food, beverages, tobacco or other consumable type products are allowed in the work area.

- Protective work clothing and respiratory equipment must be removed from the work area during breaks.

3.03 ABRASIVE BLAST CLEANING RESIDUALS HANDLING

A. General

This section describes the requirements for collection, storage, sampling, testing, classification and disposal of paint abrasive blast cleaning residuals that have been removed from this tank. The Contractor is to follow the SSPC-Guide 7 (DIS) Guide for the disposal of lead-contaminated Surface preparation debris (**if any**). Collection, storage, sampling, testing and disposal of abrasive blasting residuals from portions of the tank which do not contain lead-based paints is the responsibility of the CONTRACTOR and these materials shall be physically segregated from lead paint residuals at all times.

This project is subject to the U.S. Environmental Protection Agency (EPA) Regulations, with particular attention to the following sections contained in 40CFR 260 thru 268.

40 CFR 260 Hazardous Waste Management System – General
40 CFR 261 Identification and Listing of Hazardous Wastes
40 CFR 262 Standards Applicable to Generators of Hazardous Wastes
40 CFR 263 Standards Applicable to Transporters of Hazardous Wastes
40 CFR 268 Land Disposal Restrictions

This project is also subject to the U.S. Department of Transportation (DOT) with particular attention to Subchapter C – Hazardous Materials Regulation (49 CFR Parts 171 – 177)

B. Collection

Upon completion of abrasive blasting work each day or at mutually agreeable intervals the CONTRACTOR shall collect all abrasive blast cleaning residuals. Bulk collection as outlined in SSPC-Guide 6 Section 5.2.2.1 will be allowed.

C. Storage

The CONTRACTOR shall store the material in containers, which comply with Department of Transportation Regulation No. 49 CFR 178 "Shipping Container Specifications". The containers shall be stored on pallets or dunnage in a dry, well drained, secure area beyond the limits of the 100-year floodplain. If the job site does not provide for secure storage the CONTRACTOR shall furnish temporary fencing or a box trailer for secure storage. If the job site is entirely within the 100-year flood plain the OWNER will designate the required storage location. Once material has been stored, the OWNER and/or his representative shall have control over access to the storage area.

D. Sampling, Testing and Disposal

The CONTRACTOR or his representative shall sample and test paint blasting residuals a minimum of once after the first day of abrasive blast cleaning and once prior to disposal of abrasive blast cleaning residuals. The On-Site Inspector shall assist the CONTRACTOR or his representative in obtaining the required samples. Two (2) consecutive TCLP tests will be performed on each sample. The results of this testing will be provided to the OWNER and will determine subsequent storage, treatment and disposal requirements. If the TCLP testing conducted on the samples collected on the first day of abrasive blasting determine the material to be hazardous, the CONTRACTOR shall immediately discontinue the abrasive blasting operation and assist the OWNER in an investigation (including additional sampling and TCLP testing) of the reason(s) for the failure of the previously tested and approved abrasive. The results of the investigation shall be used by the CONTRACTOR to adjust or revise his containment methods if necessary.

The results of the second consecutive TCLP test(s) conducted on the samples collected by the CONTRACTOR prior to disposal will determine the disposal requirements. If the test yields leachable lead values of less than 5 ppm the material shall be disposed of by the CONTRACTOR in accordance with applicable laws and regulations for non-hazardous solid waste. The OWNER shall furnish a written notification in accordance with 40 CFR 268.7 (a)(2)(ii) which is required for disposal. The CONTRACTOR shall furnish evidence satisfactory to the OWNER that the material has been properly disposed of. Upon approval by OWNER, the CONTRACTOR may, in lieu of disposal, reuse the material as a raw material for another process.

Should the results of the second TCLP test yield leachable lead values in excess of 5 ppm, all materials classified as hazardous, as determined by the aforementioned TCLP Testing or subsequent testing required by RCRA, shall be transported to an approved recycling facility; an approved treatment facility to reduce the leachable concentration levels to below the allowable regulatory limits and disposed in a Local and/or State approved waste landfill. All transporting, recycling, treatment and disposal shall be in strict accordance with Federal and State laws including but not limited to RCRA, TSCA, HMTA, the USEPA and the State of New Hampshire regulations. The name of the recycling, treatment and/or disposal facility shall be submitted to the Owner for approval prior to removing any material from the project site. The disposal or recycling facility shall have or shall obtain an identification number from the EPA. This identification number shall be submitted to the Owner for preparation of the "manifest" form.

The Contractor shall be responsible for obtaining the proper signatures of the hauler and designated receiving facility on the "manifest" form.

E. Final Cleanup

The Contractor will be responsible for removal of all dust and spent abrasive from the interior and/or exterior surfaces of the tank upon completion of the abrasive blasting operations. The use of brooms, vacuums and/or power washers may all be required to insure complete removal of all dust and debris generated by the Contractor. If the existing asphalt is marred with paint drippings, overspray, etc. and/or is stained in any way as a result of the Contractors activities at the site it will be the Contractors responsibility to seal the entire asphalt paved area around the tank with an asphalt sealer acceptable to the Owner.

F. Payment

All costs associated with the transporting and/or recycling of all spent blasting grit and/or paint debris material as well as treatment and disposal of hazardous and/or non-hazardous material in an approved waste facility is to be included in the lump sum price for the work as outlined in Sections 09950 and 09960.

SECTION 09950

INTERIOR WATER CHAMBER PAINTING

PART 1: GENERAL

1.01 SCOPE

The tank interior was painted in 2011 and the anniversary inspection performed in 2012 revealed the coatings are excellent condition with the exception of localized areas of pinhole corrosion on the shell plates as well as localized areas of more aggressive corrosion present along the bolted connections and flanges of the mixing system piping.

This Section covers coating repairs to the corroded surfaces identified in the anniversary inspection as well as any coatings damaged as a result of welding operations to be performed on the tank exterior to address the installation of cellular mounting brackets and the new roof vent and painters hatch on the roof.

Abrasive blast cleaning of all referenced localized interior surfaces of the water chamber is required wherever the interior coating is exhibiting currently existing corrosion and/or failure as well as all areas damaged by the exterior welding operations, followed by the application of three spot coats of a two component catalyzed epoxy paint system specifically designed for use on interior surfaces of steel potable water storage tanks. This work also includes up to 3 gallons of 100% solids epoxy pit filler on an as need basis if found to be necessary where the exterior welding has resulted in damage to the existing pit filler applied during the 2011 interior maintenance.

Section 13800 outlines requirements for additional work to be performed, including but not limited to, the installation of a new roof vent, and the installation of a new painters roof hatch. All welding is to be completed prior to cleaning and painting the interior or exterior surfaces. The Contractor is to coordinate the scheduling of this work so that it is performed in the proper sequence of events with respect to related work to be performed on the interior and/or exterior surfaces.

The Owner will drain the tank to the lowest level after which the Contractor will be responsible for removal, testing and proper disposal of all remaining water and/or silt accumulations. On site disposal will not be allowed therefore the Contractor is to pump the water and/or silt into leak proof containers, which are then to be removed off site for proper disposal. The Contractor is responsible for arranging disposal of the material at a proper disposal site. The Contractor is responsible for all testing required prior to disposal and will provide documentation to the Owner showing the results of the testing.

The Contractor is to seal and protect all pipe openings in the floor during all abrasive blast cleaning and painting operations. All openings are to be sealed with either mechanical or

pneumatic plugs to ensure no abrasive blast media and/or paint, rags, debris, dirt, etc. enters the openings. It will be the Contractor's responsibility to ensure no debris of any kind is allowed to enter the floor piping. Upon completion of the Contractor's work the On-Site Inspector, in conjunction with the Contractor, will inspect the visible interior surfaces of the inlet/outlet pipe to determine if any abrasive blast cleaning debris is in the bottom of the pipe. All debris remaining in the pipe is to be removed by the Contractor by whatever means necessary to ensure the pipe is free of debris.

All pipes will be purged by the Owner prior to disinfection and filling of the tank. Any and all debris that comes out of the piping as a result of the purging operation is to be removed by the Contractor and properly disposed of prior to disinfecting the interior surfaces of the tank.

1.02 RELATED WORK SPECIFIED ELSEWHERE

Section 09850 - STEEL TANK PAINTING.

Section 09860 - ABRASIVE BLASTING CONTROLS

Section 09960 - EXTERIOR TANK PAINTING

Section 13800 – MISCELLANEOUS WORK

PART 2: PRODUCTS

2.01 MATERIALS

CONTRACTOR shall furnish the Tnemec paint system specified herein. These specifications are based on the use of Tnemec paint products however products as supplied by other Manufacturers will be considered providing they meet the "Or Equal" requirements of these specifications.

Unless prior approval for an alternate system is received at the time of the bid opening, only the specified Tnemec system will be allowed. The coating system used on this project must be certified in accordance with NSF Standard 61.

A. Tnemec Company, Inc.
P. O. Box 1749
Kansas City, Missouri 64141

PART 3: EXECUTION

3.01 SURFACE PREPARATION

Defective, degraded and/or damaged coatings along the interior surfaces of the water chamber, including but not limited to the underside of the roof, the shell and floor and all interior appurtenances are to be spot abrasive blast cleaned to bare metal in accordance with the Steel Structures Painting Council SSPC-SP10 Near White metal blast grade, latest revision thereof.

The contractor is to install the new finial vent mounting flange and a new painters venting hatch assembly as outlined in the related sections of these specifications so that these surfaces can be cleaned and painted in accordance with the relative Painting Sections of these specifications.

The degree of abrasive blasting is to result in a sharp angular surface profile compatible with the coatings to be applied. The manufacturer's minimum and maximum profile requirements will be strictly adhered to, therefore the contractor is cautioned to use the appropriate size and type abrasive as well as the proper velocities to achieve the required profile. Rounded profiles such as that resulting from the use of steel shot alone will not be allowed.

The edges of all blast cleaned areas are to be feathered to ensure a smooth, tight transition for the newly applied coatings to adhere to. Edges will be considered tight if they cannot be lifted with a sharp putty knife or similar instrument.

The use of power sanders/grinders or similar type of surface preparation tools will be required to ensure a properly feathered surface condition is present before the specified coating system is applied. In addition, a 2" peripheral surrounding the spot blasted area is to be sanded with a 100 grit sandpaper to scarify the paint prior to the application of the coating system. The new coating system is to overlap onto the scarified area to ensure a good bond is achieved. The contractor is to base his price on cleaning and painting 600 square feet of interior surfaces.

All cleaned surfaces will be primed within 8 hours and before rusting occurs. In the event rusting of the steel does occur, prior to priming, these areas will have to be re-cleaned to the degree originally specified.

3.02 INTERIOR PAINT SYSTEM

All abrasive blast cleaned surfaces on the interior water chamber as referenced under Section 3.01 Surface Preparation are then to receive a minimum of (2) spot coats of paint comprised of the following paint system from the Tnemec Co. Inc. or approved equal. This work also includes up to 3 gallons of 100% solids epoxy pit filler on an as need basis if

found to be necessary where the exterior welding has resulted in damage to the existing pit filler applied during the 2011 interior maintenance.

TNEMEC SYSTEM:

First spot coat:	Series 22-Pota-Pox 100 1213 Light Blue	12.0 to 15.0 mils
Pit filler:	Series 215 Surfacing Epoxy	Fill pits
Third spot coat:	Series 22-Pota-Pox 100 WHO7 Off White	12.0 to 15.0 mils

3.03 SPECIAL INSTRUCTIONS

The new coating system is to overlap onto the scarified area around the peripheral of the spot blasted area to ensure a good bond is achieved as outlined in the surface preparation section above.

Total minimum D.F.T after two spot coats of epoxy outlined above on the interior of the water chamber will be 24.0 mils and the maximum will be 30.0 mils. Due to the small surface area to be painted all coats of paint are to be applied by brush method using high quality natural or synthetic bristle brushes.

The Contractor is cautioned to minimize the application of excess paint that could result in heavy runs and sags and/or a final dry film thickness over 30.0 mils.

The Owner and On-Site Inspector reserve the right to direct the Contractor to remove excess runs and sags by whatever means necessary followed by the reapplication of one or more of the specified coats of paint, if required, at no additional cost to the Owner.

Dry film thickness will be measured by the On-Site Inspector in accordance with SSPC PA2 standards.

No excessive dust or solvent entrapment will be allowed in the completed paint system.

The manufacturer's recommended drying time and application procedure will be strictly adhered to.

Manufacturer's Product Data Sheets are to be incorporated as part of this specification and the Material Safety Data Sheets (MSDS) on all applicable paint materials and solvents shall be available and posted prior to commencement of work

All painting practices shall be in complete accordance with the normal standards of good painting practice as outlined by the Steel Structures Painting Council in the SSPC Manuals Volume 1 and 2.

Any areas not finished to the complete satisfaction of the Owner, or Owner's representative shall either be removed and re-applied (all coats) or shall be given extra coats at his

direction, to bring the total film thickness up to the minimum dry film thickness as outlined above.

The contractor is to provide a void free continuous coating therefore the Owner reserves the right to use a high voltage holiday test after the finish coat is applied to check the paint film integrity. Any holidays found as a result of this test will be re-coated and the area re-tested after the coating has dried. This procedure will be repeated at no additional cost to the Owner until there are no holidays in the applied system. **The on site independent Inspection Company will perform the holiday test after the coatings have cured for a minimum of three (3) days.**

The tank will not be placed back into active service until the interior coatings are sufficiently cured in compliance with the Coating Manufacturers recommendations. Generally the coatings are to be cured for a minimum of seven (7) days at 70° at the end of which time a solvent rub test will be performed to test the state of cure. Cooler ambient temperatures will retard the curing process therefore additional cure times will be outlined if the temperatures are below 70°.

The contractor is required under these specifications to provide all necessary heat and dehumidification equipment if necessary.

PART 4.0: COST

The cost for all abrasive blasting and painting work as outlined in SECTION 09950 above, including all heat and dehumidification necessary to ensure proper application parameter are maintained, is to be included in Bid Item #1 for cleaning and painting the interior surfaces. The contractor is to base his cost on cleaning and painting an estimated 600 square feet of area throughout the tank interior.

SECTION 09960

EXTERIOR TANK PAINTING

PART 1: GENERAL

1.01 SCOPE

This Section covers the work to be performed on the exterior surfaces and includes total encapsulation of the exterior followed by complete abrasive blasting and the application of a four-coat zinc-epoxy-polyurethane paint system for use on the exterior surfaces of steel water storage tanks.

This work also includes the removal of all vegetation, trees, shrubs and/or miscellaneous growth from the foundation perimeter prior to setting up the containment system or performing any exterior abrasive blasting operations. Any damage to the asphalt or foundation resulting from this work is to be repaired by the contractor to return it to like new condition.

Section 13800 outlines requirements for miscellaneous welding, including but not limited to, the installation of a new finial vent flange and a new painters roof hatch assembly. All welding is to be completed prior to cleaning and painting the exterior surfaces. The Contractor is to coordinate the scheduling of this work so that it is performed in the proper sequence of events with respect to related work to be performed on the interior and/or exterior surfaces.

1.02 RELATED WORK SPECIFIED ELSEWHERE

Section 09850 - STEEL TANK PAINTING.

Section 09860 - ABRASIVE BLASTING CONTROLS

Section 09950 - INTERIOR WATER CHAMBER PAINTING

Section 13800 – MISCELLANEOUS WORK

PART 2: PRODUCTS

2.01 MATERIALS

CONTRACTOR shall furnish the Tnemec paint system specified herein. These specifications are based on the use of Tnemec paint products however products as supplied by other Manufacturers will be considered providing they meet the “Or Equal” requirements of these specification.

Unless prior approval for an alternate system is received at the time of the bid opening, only the specified Tnemec system will be allowed.

A. Tnemec Company, Inc.
P. O. Box 1749
Kansas City, Missouri 64141

PART 3: EXECUTION

3.01 SURFACE PREPARATION

The entire exterior of the tank and all appurtenances are to be completely enclosed in an approved Class 1A containment system as outlined in the SSPC Guide 6 (CON) prior to the start of blasting operations. The entire tank and all appurtenances including all cellular support brackets are to be abrasive blast cleaned to an SSPC Sp-6 Commercial blast grade latest revision thereof.

All cleaned surfaces will be primed within (8) hours and before rusting occurs. In the event rusting of the steel occurs prior to priming, these areas will have to be re-cleaned to the degree originally specified.

3.02 PAINT SYSTEM

The entire exterior of the tank as referenced under Section 3.01 Surface Preparation is then to receive (1) full coat of a zinc rich primer, (1) full coat of polyamide epoxy and (2) full coats of aliphatic urethane finish paint from the Tnemec Co. Inc. as outlined below or an approved equal. Unless prior approval for an alternate system is received at the time of the bid opening, only the specified system will be allowed.

TNEMEC SYSTEM:

Coating schedule	Coating system	Dry film thickness
First coat (full)	Series 90G-1K97	Zinc
Second coat (full)	Series 27- 32GR	F.C. Typoxy
Third coat (full)	Series 73- (Color)	Aliphatic Polyurethane
Fourth coat (full)	Series 73- (Color)	Aliphatic Polyurethane

Total minimum D.F.T after four full coats of paint will be 10.5 mils and the maximum will be 15.5 mils.

The Contractor is cautioned that any skips, voids, old coatings etc. remaining behind, or adjacent to, the containment support braces after the braces are removed are to be power tool cleaned (SSPC-SP3) followed by the application of two (2) spot coats of Series 27 Epoxy and two (2) spot coat of the finish paint. Any touch-up required on the coatings after removal of the containment support braces (if any) shall be performed so as to match the existing finish coat in color and finish. Touch-up of minor damage shall be acceptable where result is not visibly different from the surrounding surfaces. Where result is visibly different, either in color, sheen or texture, recoat between the weld seams or a complete re-coat may be required by the Owner.

Dry film thickness will be measured in accordance with SSPC PA2 standards.

The color of the finish coat will be selected by the OWNER from a color chart supplied by the contractor prior to the start of work. The color of the second coat is to be different than the color of the finish coat. Under no circumstances will the colors be the same.

The specified coatings are to be applied in accordance with manufacturer's recommendations. Special attention shall be given to all seams and the finish coat is to be uniform in appearance, with full gloss retention and a minimum of runs and sags.

The manufacturer's recommended drying time and application procedure will be strictly adhered to.

Manufacturer's Product Data Sheets are to be incorporated as part of this specification and the Material Safety Data Sheets (MSDS) on all applicable paint materials and solvents shall be available and posted prior to commencement of work

All painting practices shall be in complete accordance with the normal standards of good painting practice as outlined by the Steel Structures Painting Council in the SSPC Manuals Volume 1 and 2.

Any areas not finished to the complete satisfaction of the Owner, or Owner's representative shall either be removed and re-applied (all coats) or shall be given extra coats at his direction, to bring the total film thickness up to a minimum of dry mils. The Contractor is cautioned to minimize the application of excess paint, which could result in heavy runs and sags. The Owner/Owners representative reserves the right to direct the Contractor to remove excess runs and sags by whatever means necessary followed by the reapplication of one or more of the specified coats of paint, if required, at no additional cost to the Owner.

PART 4.0: COST

The cost for all work as outlined in SECTION 09960 above is to be included in Bid Item #2 for cleaning and painting the exterior surfaces.

SECTION 13800 MISCELLANEOUS WORK

FINIAL VENT REPLACEMENT

PART 1:

1.01 SCOPE OF WORK

The existing finial vent cap, cap supports and screen assembly is to be completely removed and discarded. The contractor is to modify the vent stub by installing a mounting flange plate properly sized to fit the dimensions of the mounting flange attached to the new vent as outlined. A new aluminum freeze resistant vacuum/pressure type vent assembly as manufactured by Atlantic Fabricators, Elkton, MD, Advanced Tank Construction Co., Fort Collins, CO, or CB&I Constructors, Inc. Clive, IA. or equal, is to be bolted in place to the mating flange upon completion of all abrasive cleaning and painting operations. The vent configuration is to comply with AWWA D100-11 or latest revision thereof.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

The contractor is to supply and install (1) new aluminum freeze resistant vacuum/pressure type vent assembly and mild steel mounting flange as follows.

- The vent opening is to be at least 24" in diameter with an appropriately sized steel mating flange welded directly to the top of the existing vent stub.
- All steel flanges are to be a minimum of $\frac{1}{4}$ " thick.
- The flange is to have a minimum inside diameter conforming to the size of the existing opening with an outside diameter sized according to the size of the aluminum flange attached to the vent assembly. The Contractor is cautioned to measure the existing opening to ensure proper sizing of the flange plate to be welded to the top of the existing vent opening, which is estimated to have an outside diameter of 23.5 inches.
- All flanges will have (8) 7/16" diameter bolt holes on a 30 $\frac{1}{4}$ " bolt circle as per the vent manufacturer's requirements.
- A 1/8th inch thick red rubber gasket with (8) $\frac{1}{2}$ " diameter bolt holes on a 30 $\frac{1}{4}$ " bolt circle is to be installed between the mating flanges.
- The vent is to be fastened with (8) 3/8" x 1 $\frac{1}{2}$ " 304 stainless steel bolts with HH nuts and 16 flat washers.
- The vent shall open downwards and be fitted with a 24 mesh non-corrodible screen in combination with an automatically resetting pressure/vacuum relief mechanism.

PART 3: EXECUTION

3.01 PREPARATION

The existing finial cap, brackets and screen assembly attached to the top of the vent stub are to be removed and discarded.

Cutting, fitting and placement of the new vent flange plate is to be performed so that the work is square, plumb and true, accurately fitted and with tight joints and intersections.

3.02 WELDING

The contractor shall submit the actual welding procedures to be used on this work to the Owner prior to beginning of construction. The welding procedure shall be specifically for the portion of the work to be modified under this contract. All welding is to be performed in accordance with AWWA D-100 Standards latest revision thereof and all work is to be performed by a certified welder. The Contractor is cautioned to schedule the installation of the vent assembly so as to not interfere with other work to be performed on the tank.

All joints shall have full $\frac{1}{4}$ " fillet weld on the inner and outer face for the entire length of the joint.

3.03 PAINTING

The interior and exterior surfaces of the new vent mounting plate are to be abrasive blast cleaned and painted as outlined in sections 09950 and 09960 above. No paint is to be applied to the aluminum vent assembly.

Prior to returning the tank to active service the contractor will secure the aluminum vent to the vent flange by means of (8) 3/8th inch x 1-1/2" Stainless Steel Type 304 bolts with HH nuts and 16 washers.

PART 4.0: COST

The cost for the all work associated with the finial vent replacement as outlined above is to be included in Bid Item #3 and is to be inclusive of all materials, labor, equipment and/or any miscellaneous items required to perform the repairs and subsequent cleaning and painting as outlined above.

PAINTERS VENTING HATCH REPLACEMENT

PART 1:

1.01 SCOPE OF WORK

The existing painters venting hatch assembly is severely distorted due to heavy corrosion and rust scale buildup therefore the requirements of these specifications includes removal and replacement of the hatch assembly. The contractor is to remove the existing venting hatch assembly and replace with a new assembly conforming to the existing design and configuration.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

The contractor is to supply and install (1) new venting hatch and cover assembly as follows. At a minimum the new assembly is to conform to the existing size and configuration.

- The opening is to be at least 24" in diameter with an appropriately sized steel mating flange welded directly to the top of a 10" tall neck.
- The cover is to be a minimum or $\frac{1}{4}$ " and be equipped with two handles.
- All steel flanges are to be a minimum of $\frac{1}{4}$ " thick.
- The flange is to have a minimum inside diameter conforming to the size of the existing opening with an outside diameter sized according to the size of the cover.
- All flanges will have (8) $\frac{7}{8}$ " diameter bolt holes on a $30\frac{1}{4}$ " bolt circle.
- A $\frac{1}{8}$ " inch thick red rubber gasket with (8) $\frac{3}{4}$ " diameter bolt holes on a $30\frac{1}{4}$ " bolt circle is to be installed between the mating flanges.
- The cover is to be fastened with (8) $\frac{3}{4}$ " x $1\frac{1}{2}$ " 304 stainless steel bolts and nuts.

PART 3: EXECUTION

3.01 PREPARATION

The existing painters venting hatch assembly at the center of the roof is to be removed and discarded.

Cutting, fitting and placement of the new venting hatch assembly is to be performed so that the work is square, plumb and true, accurately fitted and with tight joints and intersections.

3.02 WELDING

The contractor shall submit the actual welding procedures to be used on this work to the Owner prior to beginning of construction. The welding procedure shall be specifically for the portion of the work to be modified under this contract. All welding is to be performed in accordance with AWWA D-100 Standards latest revision thereof and all work is to be performed by a certified welder. The Contractor is cautioned to schedule the installation of the venting hatch assembly so as to not interfere with other work to be performed on the tank.

All joints shall have full $\frac{1}{4}$ " fillet weld on the inner and outer face for the entire length of the joint.

3.03 PAINTING

The interior and exterior surfaces of the new venting hatch are to be abrasive blast cleaned and painted as outlined in sections 09950 and 09960 above.

PART 4.0: COST

The cost for all work associated with the painters venting hatch replacement as outlined above is to be included in Bid Item #4 and is to be inclusive of all materials, labor, equipment and/or any miscellaneous items required to perform the repairs and subsequent cleaning and painting as outlined above.

FENCE REMOVAL AND REINSTALLATION

PART 1:

1.01 SCOPE OF WORK

The existing fence fabric and barbed wire atop the fence around the perimeter of the tank is to be removed to facilitate access during the work outlined in these specifications. The contractor is to remove the existing barbed wire and discard it. The fence fabric is to be removed from the support posts and stored at an approved location. Upon completion of all work the fence fabric and new barbed wire is to be re-installed to the existing fence posts. Any damaged fence posts resulting from the contractors work at the site will be repaired/replaced as necessary at no additional cost to the Owner.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

The contractor is to supply all fasteners required to re-install the fence fabric as well as all necessary barbed wire material.

Design submittals will be required for the Owner/Engineers review and acceptance prior to the installation of any materials not conforming to the original design and configuration.

PART 3: EXECUTION

3.01 PREPARATION

- The existing fence fabric around the tank perimeter is to be removed and stored at an approved location where it will be protected from damage at all times.
- The existing barbed wire atop the fence is to be removed and discarded.
- All fence posts are to be protected from damage during the prosecution of the work.
- Upon completion of all work the fence fabric is to be re-installed to a like new condition complete with new barbed wire and all necessary and appropriate fasteners and methods of attachment established for fence installation.

3.02 WELDING

THIS SECTION NOT USED

3.03 PAINTING

THIS SECTION NOT USED

PART 4.0: COST

The cost for all work as outlined above is to be included in Bid Item #2 and is to be inclusive of all materials, labor, equipment and/or any miscellaneous items required to perform the work required as outlined above.

OVERFLOW PIPE FLAPPER INSTALLATION

PART 1:

1.01 SCOPE OF WORK

The opening of the existing overflow pipe at ground level is not equipped with a screen or flapper assembly. The contractor is to supply and install a bolting flange and screened flapper assembly as part of this contract.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

The contractor is to supply and install a weldable bolting flange to the end of the 10"Ø overflow pipe at ground level. And install a hinged flapper equipped with a bolting flange and a 24 mesh stainless steel screen assembly sandwiched between the two bolting flanges.

Design submittals will be required for the Owner/Engineers review and acceptance prior to the installation of any materials.

PART 3: EXECUTION

3.01 PREPARATION

- The contractor is responsible for obtaining all measurements necessary to ensure the new flapper and flange assembly are properly sized.

3.02 WELDING

The contractor shall submit the actual welding procedures to be used on this work to the Owner prior to beginning of construction. The welding procedure shall be specifically for the portion of the work to be modified under this contract. All welding is to be performed in accordance with AWWA D-100 Standards latest revision thereof and all work is to be performed by a certified welder. The Contractor is cautioned to schedule the installation of the flapper assembly so as to not interfere with other work to be performed on the tank.

All joints shall have full $\frac{1}{4}$ " fillet weld on the outer face for the entire length of the joint where it meets the overflow pipe and flange.

3.03 PAINTING

The exterior surfaces of the flapper assembly are to be abrasive blast cleaned and painted as outlined in section 09960 above.

PART 4.0: COST

The cost for all work as outlined above is to be included in Bid Item #2 and is to be inclusive of all materials, labor, equipment and/or any miscellaneous items required to perform the work required as outlined above.

FALL PREVENTION RAIL

PART 1:

1.01 SCOPE OF WORK

The exterior shell ladder is equipped with a galvanized notched rail fall prevention assembly which is to be removed to facilitate access to the underlying surfaces during the work outlined in these specifications. The contractor is to remove the notched rail and all mounting hardware and store at an approved location. Upon completion of all painting work the notched rail assembly is to be re-installed. Any damaged notched rail parts or mounting hardware resulting from the contractors work at the site will be repaired/replaced as necessary at no additional cost to the Owner.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

The contractor is to supply all fasteners required to re-install the notched rail assembly.

PART 3: EXECUTION

3.01 PREPARATION

- The existing notched rail assembly is to be removed and stored at an approved location where it will be protected from damage at all times.
- Upon completion of all painting work, the notched rail assembly is to be re-installed to a like new condition complete with all necessary and appropriate fasteners and methods of attachment established by the manufacturer's installation procedures.

3.02 WELDING

THIS SECTION NOT USED

3.03 PAINTING

The galvanized notched rail is not to be painted however if the coating applied to the ladder surfaces is damaged in any way during the re-installation of the rail the contractor is to repair the coating to the degree specified in these specifications.

PART 4.0: COST

The cost for all work as outlined above is to be included in Bid Item #2 and is to be inclusive of all materials, labor, equipment and/or any miscellaneous items required to perform the work required as outlined above.

GROUT REPAIR

PART 1:

1.01 SCOPE OF WORK

The Contractor is to remove all damaged cement grout from the bottom lip to foundation junction followed by abrasive blast cleaning and painting of the steel portion of this junction as outlined in Section 09960. The entire bottom lip to foundation junction is to be sealed with Sika Flex 2c as outlined below.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

The contractor will supply all materials and equipment necessary for removing the existing damaged grout, cleaning and painting of the adjacent surfaces as well as for the installation of Sikaflex -2c NS (non sag) sealer as manufactured by Sika. Information regarding this product can be obtained from the following.

Sika USA Headquarters
210 Polito Avenue
Lyndhurst, NJ 07071
1-800-933-7452

PART 3: EXECUTION

3.01 PREPARATION

The Contractor is to remove all existing damaged grout from the bottom lip to foundation junction. The contractor is then to abrasive blast clean and paint the exposed bottom lip surfaces as outlined in Section 09960. Special attention is to be given to the underside of the lip area to ensure all accessible surfaces are properly cleaned and painted. The underside of the bottom lip is to receive four coats of the specified paint to the fullest extent possible.

Upon completion of all painting operations the contractor is to seal the entire bottom lip area with Sikaflex -2c NS in accordance with the Manufacturers printed application procedures including the use of a bond breaker or backer rod as necessary.

PART 4.0: COST

The cost for the removal of all damaged grout and the installation of the Sikaflex -2c NS is to be included in bid item #2 as outlined in the bid and is to be inclusive of all materials, labor, equipment and/or any miscellaneous items required to perform the work as outlined above.

MISCELLANEOUS ANTENNA WORK

TOWN OWNED RADIO EQUIPMENT

PART 1:

1.01 SCOPE OF WORK

The exterior shell and roof is equipped with six whip antenna and associated mounting poles, brackets, hardware, and coax cables which are to be removed to facilitate access to the underlying surfaces during the work outlined in these specifications. The contractor is to remove and relocate the antenna and coax cables to the rigid staging around the exterior of the tank and maintain all equipment in working condition throughout all maintenance operations.

The Contractor is to coordinate with the individual antenna Owners (Fire, Police, DPW etc.) for their assistance and/or requirements for maintaining radio communication throughout the project. The contractor is to employ the services of a radio communications company whose normal business is the installation of radio antenna equipment and associated materials and who is approved by the individual antennae Owners. For the purposes of this portion of the contract it is the intention to have only one approved installer work on the radio equipment. The approved installer is to follow all rules, regulations and requirements of the individual antennae Owners.

Upon completion of all painting work the antennas are to be re-installed in their original position on the tank complete with new galvanized mounting poles, brackets, and all required hardware. In addition new coax cables are to be installed on the new cellular cable trays adjacent to the shell access ladder that are to be installed by the cellular provider.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

The contractor is to supply all labor, materials and equipment necessary to move and relocate the whip antennas and all associated coax cables and mounting hardware. The coax cables, mounting poles, brackets and hardware are to be of like kind as existing except for the additional length required to relocate the cables onto the cellular cable tray adjacent to the shell ladder. All mounting poles, brackets and hardware are to be constructed of galvanized steel as existing.

Submittals of the materials to be used are required for review and approval prior to installation.

PART 3: EXECUTION

3.01 PREPARATION

- The existing whip antennae and associated mounting poles, brackets, hardware and coax cables are to be removed and relocated to the rigid pipe staging to be constructed around the exterior of the tank to facilitate exterior maintenance.
- All equipment will be protected from damage at all times and is to remain in operation throughout the duration of the specified maintenance project.
- Upon completion of all painting work, the existing whip antennae are to be re-installed to a like new condition to their original position on the roof handrails complete with all necessary and appropriate fasteners and methods of attachment established by the manufacturer's installation procedures. New mounting poles, brackets and hardware are required. All previously existing mounting poles, brackets, and hardware are to be disposed of off site upon completion of all work.
- The contractor shall supply new coax cables of an approved design and configuration from the radio communications buildings at the base of the tank up to the antennae to be attached to the roof handrails. Routing of the new coax cables shall be such that they will attach to the cellular cable tray adjacent to the shell ladder. No cables are to be attached to the shell ladder or cage assembly. All previously existing coax cables and mounting hardware associated with the whip antennae are to be disposed of off site upon completion of all work.

3.02 WELDING

THIS SECTION NOT USED

3.03 PAINTING

The galvanized mounting poles, brackets and hardware are not to be painted however if the coating applied to the points of attachments on the handrail surfaces is damaged in any way during the re-installation of the antennae equipment the contractor is to repair the coating to the degree specified in these specifications.

PART 4.0: COST

The cost for all work as outlined above is to be included in Bid Item #5 and is to be inclusive of all materials, labor, equipment and/or any miscellaneous items required to perform the work required as outlined above.

Any damaged antenna, cables or mounting hardware resulting from the contractors work at the site while the equipment is temporarily attached to the exterior staging will be repaired/replaced as necessary at no additional cost to the Owner.

SECTION 13900

CURING AND DISINFECTING

PART 1: GENERAL

1.01 SCOPE OF WORK

The CONTRACTOR shall disinfect the interior of the water tank after the interior painting operations are completed and after a solvent rub test has been performed to determine an acceptable state of cure. The tank is not to be disinfected until the interior coatings are cured as determined by the solvent rub test.

1.02 WORK BY OWNER

The OWNER will furnish water for flushing and disinfecting tank one time only. If the disinfection and/or VOC testing fails the Contractor will pay for all water required to fill the tank for additional testing. The OWNER will also perform all bacteriological and VOC (volatile organic compounds) testing as noted below, the cost of which will be deducted from the lump sum price (bid item #1).

1.03 PROTECTION

Due to the toxicity of chlorine fumes, personnel performing work under this Section should be equipped with gas masks and should be attended by other personnel who are in the vicinity where work is to be performed.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

Furnish calcium hypochlorite (HTH), or sodium hypochlorite as needed to complete the disinfection of the tank.

Furnish pumps, hose, nozzle and other equipment for spraying and washing the interiors of the tank.

PART 3: EXECUTION

3.01 PREPARATION

All interior and exterior painting shall be completed prior to final cleaning and disinfection of the tank. The interior coatings are also to be cured for a minimum of seven (7) days at 70° F after which a solvent rub test (ASTM D4752) will be performed by

the onsite Inspector. Additional cure time may be required depending on the time of year, the ambient conditions at the time of coating application as well as the thickness of the coating system.

Upon completion of the interior tank painting the water chamber is to remain empty and with all manholes, vents and hatches etc., open to allow for proper ventilation during the curing process. All drains, piping etc. are to remain sealed with either mechanical or pneumatic plugs during the curing process to prevent ingress of animals, birds, debris, dirt etc.

It will be the Contractors responsibility to ensure no debris of any kind is allowed to enter the floor piping. Upon completion of the Contractor's work the On-Site Inspector, in conjunction with the Contractor, will inspect the visible interior surfaces of the inlet/outlet pipe to determine if any abrasive blast cleaning debris is in the bottom of the pipe. All debris remaining in the pipe is to be removed by the Contractor by whatever means necessary to ensure the pipe is free of debris.

Once all visible debris is removed by the Contractor all inlet/outlet pipes will be purged by the Owner prior to disinfection and filling of the tank. Any and all debris that comes out of the piping as a result of the purging operation is to be removed by the Contractor and properly disposed of prior to disinfecting the interior surfaces of the tank.

The following equipment would be helpful for cleaning and/or disinfecting the tank and is listed here for informational purposes only:

- A. A pump of sufficient capacity to supply enough water for spray rinsing.
- B. A length of fire hose and a nozzle for spraying. On elevated tanks the hose should extend up through the riser to the tank.
- C. Sufficient water supply thoroughly rinse all interior surfaces. In some cases, tank trucks may be necessary to provide the water.
- D. Local fire department equipment is often helpful in the rinsing operation.

3.02 APPLICATION OF DISINFECTANT

Application of disinfectant shall be performed in accordance with Sec 4.3.2 Chlorination method 2 as set forth in the current AWWA C652-(Latest Revision Thereof) AWWA Standard for Disinfection of Water Storage Facilities.

3.03 TESTING

The Owner will put approximately 8' of water in the tank and allow it to stand for 24 hours after which the Owner will collect samples for bacteriological and VOC testing. No additional water will be put in the tank nor will the tank be accepted and placed into service until the results of the bacteriological and VOC tests are acceptable to the OWNER in accordance with their established regulations and regulatory limits.

Should the initial disinfection treatment prove to be ineffective, but passes the VOC test, the tank will be drained and the CONTRACTOR shall repeat the chlorination procedure until satisfactory results are obtained.

Under no circumstances is the water to be laid to waste on site unless treated/neutralized, as per Appendix C of AWWA C652 latest revision thereof, with an appropriate amount of one of the following compounds to reduce the chlorine residuals, if any, to acceptable levels as outlined by the Owner.

- Sodium Thiosulfate
- Sulfur Dioxide
- Sodium Bisulfite
- Sodium Sulfite

Should the bacteriological test pass, but fail the VOC test or is found to be in non-compliance in any way with existing regulations, the water in the tank is to be removed and the coatings allowed to cure for an appropriate length of time as determined by the actual VOC test results. Forced ventilation may be required at the Owner's request to ensure complete curing of the coating.

On site disposal of the VOC containing water will not be allowed therefore the Contractor is to pump the water into leak proof containers, which are then to be removed off site for proper treatment and disposal. The Contractor is responsible for arranging treatment and disposal of the water at a proper disposal site. The Contractor is responsible for all testing required prior to disposal and will provide documentation to the Owner showing the results of the testing.

The disinfection procedure is to be repeated prior to water being returned to the tank. All additional work required to obtain satisfactory bacteriological and VOC test results is to be performed at the Contractors expense with no additional cost to the Owner.

If the samples collected from the first 8' of water in the tank pass both the bacteriological and VOC testing the Owner will fill the tank to full capacity and allowed to stand for 24 hours after which time another round of bacteriological and VOC testing will be conducted. The water is not to be introduced into the system until after the Owner is satisfied the bacteriological and VOC test results comply with establish regulatory limits.

3.04 GASKETS

New manhole gaskets, conforming to the original thickness and design, will be supplied and installed by the Contractor at the completion of the painting operations.

PART 4.0: COST

The cost for all work as outlined in SECTION 13900 above is to be included in the lump sum price (bid item #1) for cleaning and painting the interior surfaces.

The Owner will deduct from the contractors lump sum price (bid item #1) the cost of all testing and additional water associated with ensuring the water supply is safe to drink.

APPENDICES

- A. Lead Paint Testing (11 pages)
- B. Photographs from 2011 Tank Interior Rehabilitation (3 pages)
- C. 2012 Anniversary Inspection Report on Tank Interior (8 pages)
- D. Bid Form (one extra copy, 6 pages)



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FAX (508) 759-4475
www.groundwateranalytical.com

September 25, 2008

Mr. David Merithew
R.L. Merithew Inc.
110 Elm St, #10
Bridgewater, MA 02324

LABORATORY REPORT

Project: **NH-Salem Howard St**
Lab ID: **120229**
Received: **09-18-08**

Dear David:

Enclosed are the analytical results for the above referenced project. The project was processed for Standard turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a sample receipt report detailing the samples received, a project narrative indicating project changes and non-conformances, a quality control report, and a statement of our state certifications.

The analytical results contained in this report meet all applicable NELAC or NVLAP standards, except as may be specifically noted, or described in the project narrative. The analytical results relate only to the samples received. This report may only be used or reproduced in its entirety.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Karyn E. Raymond".

Karyn E. Raymond
Project Manager

KER/ajh
Enclosures

Sample Receipt Report

Project: **NH-Salem Howard St**
Client: **R.L. Merithew Inc.**
Lab ID: **120229**

Delivery: **GWA Courier**
Airbill: **n/a**
Lab Receipt: **09-18-08**

Temperature: **n/a**
Chain of Custody: **Present**
Custody Seal(s): **n/a**

Lab ID	Field ID		Matrix	Sampled	Method				Notes
Con ID	Container	Vendor	QC Lot	Preserv	QC Lot	Prep	Ship		
120229-1	Exterior		Soil	9/11/08 11:00	EPA 6010B Pb				
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		

Trace Metals

Field ID: **Exterior**
 Project: **NH-Salem Howard St**
 Client: **R.L. Merithew Inc.**
 Laboratory ID: **120229-1**
 Sampled: **09-11-08 11:00**
 Received: **09-18-08 17:55**
 Matrix: **Solid**
 Container: **Plastic Bag**
 Preservation: **Cool**
 Percent Solids: **n/a**

<u>Analysis Method</u>	<u>QC Batch ID</u>	<u>Prep Method</u>	<u>Prepared</u>	<u>Sample Weight</u>	<u>Instrument ID</u>	<u>Analyst</u>
EPA 6010B ¹	MB-01522-S	EPA 3050B	09-22-08 08:02	0.037 g	ICP-1 PE 3000	MWR

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead, Total	200		mg/Kg	140	1	09-22-08 17:39	EPA 6010B ¹

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

Project Narrative

Project: **NH-Salem Howard St**
Client: **R.L. Merithew Inc.**

Lab ID: **120229**
Received: **09-18-08 17:55**

A. Documentation and Client Communication

The following documentation discrepancies, and client changes or amendments were noted for this project:

1. No documentation discrepancies, changes, or amendments were noted.

B. Method Modifications, Non-Conformances and Observations

The sample(s) in this project were analyzed by the references analytical method(s), and no method modifications, non-conformances or analytical issues were noted, except as indicated below:

1. No method modifications, non-conformances or analytical issues were noted.

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans*, US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste*, US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

**Quality Control Report
Laboratory Control Samples**

Category: **Metals**

Matrix: **Soil**

Units: **mg/Kg**

<u>Sample Type</u>	<u>Method</u>	<u>QC Batch ID</u>	<u>Prep Method</u>	<u>Prepared</u>		<u>Analyzed</u>		<u>Instrument ID</u>	<u>Analyst</u>
LCS	EPA 6010B	MB-1522-SL	EPA 3050B	09-22-08 08:02		09-22-08 15:53		ICP-1 PE 3000	MWR
LCSD	EPA 6010B	MB-1522-SL	EPA 3050B	09-22-08 08:02		09-22-08 15:58		ICP-1 PE 3000	MWR

CAS Number	Analyte	LCS			LCS Duplicate				QC Limits		Method
		Spiked	Measured	Recovery	Spiked	Measured	Recovery	RPD	LCS	RPD	
7439-92-1	Lead	140	120	87%	140	120	91%	2 %	81-120 %	30 %	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

**Quality Control Report
Method Blank**

Category: **Metals**
Matrix: **Soil**

<u>Analysis Method</u>	<u>QC Batch ID</u>	<u>Prep Method</u>	<u>Prepared</u>	<u>Sample Volume</u>	<u>Instrument ID</u>	<u>Analyst</u>
EPA 6010B	MB-1522-SB	EPA 3050B	09-22-08 08:02	0.5 g	ICP-1 PE 3000	MWR

CAS Number	Analyte	Concentration	Notes	Units	Reporting Limit	DF	Analyzed	Method
7439-92-1	Lead	BRL		mg/Kg	10	1	09-22-08 15:49	EPA 6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample size and dilution.

DF Dilution Factor.

Certifications and Approvals

Groundwater Analytical maintains environmental laboratory certification in a variety of states.
Copies of our current certificates may be obtained from our website:

<http://www.groundwateranalytical.com/qualifications.htm>

CONNECTICUT

Department of Health Services, PH-0586 Potable Water, Wastewater, Solid Waste and Soil
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/Out_State.pdf

MASSACHUSETTS

Department of Environmental Protection, M-MA-103 Potable Water and Non-Potable Water
<http://public.dep.state.ma.us/labcert/labcert.aspx>

**Department of Labor,
Division of Occupational Safety, AA000195** Asbestos Analytical Services, Class A
http://www.mass.gov/dos/forms/la-rpt_list_aa.pdf

NEW YORK

Department of Health, 11754 Potable Water, Non-Potable Water, Solid and Hazardous Waste
<http://www.wadsworth.org/labcert/elap/comm.html>

NIST NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP)

NVLAP Lab Code 200751-1 Bulk Asbestos Fiber Analysis (PLM)
<http://ts.nist.gov/Standards/scopes/plmtm.htm>

RHODE ISLAND

**Department of Health,
Division of Laboratories, LAO00054** Potable and Non-Potable Water Microbiology, Organic and Inorganic Chemistry
<http://www.health.ri.gov/labs/outofstatelabs.pdf>

U.S. DEPARTMENT OF AGRICULTURE

USDA, Soil Permit, S-53921 Foreign soil import permit

Certifications and Approvals

MASSACHUSETTS
Department of Environmental Protection, M-MA-103

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

Potable Water (Drinking Water)		Non-Potable Water (Wastewater)	
Analyte	Method	Analyte	Method
1,2-Dibromo-3-Chloropropane	EPA 504.1	Ammonia-N	Lachat 10-107-06-1-B
1,2-Dibromoethane	EPA 504.1	Antimony	EPA 200.7
Alkalinity, Total	SM 2320-B	Antimony	EPA 200.8
Antimony	EPA 200.8	Antimony	EPA 200.9
Antimony	EPA 200.9	Arsenic	EPA 200.7
Arsenic	EPA 200.8	Arsenic	EPA 200.8
Arsenic	EPA 200.9	Arsenic	EPA 200.9
Barium	EPA 200.7	Beryllium	EPA 200.7
Barium	EPA 200.8	Beryllium	EPA 200.8
Beryllium	EPA 200.7	Beta-BHC	EPA 608
Beryllium	EPA 200.8	Biochemical Oxygen Demand	SM 5210-B
Cadmium	EPA 200.7	Cadmium	EPA 200.7
Cadmium	EPA 200.8	Cadmium	EPA 200.8
Calcium	EPA 200.7	Calcium	EPA 200.7
Chlorine, Residual Free	SM 4500-CL-G	Chemical Oxygen Demand	SM 5220-D
Chromium	EPA 200.7	Chlordane	EPA 608
Copper	EPA 200.7	Chloride	EPA 300.0
Copper	EPA 200.8	Chlorine, Total Residual	SM 4500-CL-G
Cyanide, Total	Lachat 10-204-00-1-A	Chromium	EPA 200.7
E. Coli (Treatment and Distribution)	EC-MUG SM 9221-F	Chromium	EPA 200.8
E. Coli (Treatment and Distribution)	Enz. Sub. SM 9223	Cobalt	EPA 200.7
E. Coli (Treatment and Distribution)	NA-MUG SM 9222-G	Cobalt	EPA 200.8
Fecal Coliform (Source Water)	MF SM 9222-D	Copper	EPA 200.7
Fluoride	EPA 300.0	Copper	EPA 200.8
Fluoride	SM 4500-F-C	Copper	EPA 200.9
Heterotrophic Plate Count	SM 9215-B	Cyanide, Total	Lachat 10-204-00-1-A
Lead	EPA 200.8	DDD	EPA 608
Lead	EPA 200.9	DDE	EPA 608
Mercury	EPA 245.1	DDT	EPA 608
Nickel	EPA 200.7	Delta-BHC	EPA 608
Nickel	EPA 200.8	Dieldrin	EPA 608
Nitrate-N	EPA 300.0	Endosulfan I	EPA 608
Nitrate-N	Lachat 10-107-04-1-C	Endosulfan II	EPA 608
Nitrite-N	EPA 300.0	Endosulfan Sulfate	EPA 608
Nitrite-N	Lachat 10-107-04-1-C	Endrin	EPA 608
pH	SM 4500-H-B	Endrin Aldehyde	EPA 608
Selenium	EPA 200.8	Fluoride	EPA 300.0
Selenium	EPA 200.9	Gamma-BHC	EPA 608
Silver	EPA 200.7	Hardness (CaCO ₃), Total	EPA 200.7
Silver	EPA 200.8	Hardness (CaCO ₃), Total	SM 2340-B
Sodium	EPA 200.7	Heptachlor	EPA 608
Sulfate	EPA 300.0	Heptachlor Epoxide	EPA 608
Thallium	EPA 200.8	Iron	EPA 200.7
Thallium	EPA 200.9	Kjeldahl-N	Lachat 10-107-06-02-D
Total Coliform (Treatment and Distribution)	Enz. Sub. SM 9223	Lead	EPA 200.7
Total Coliform (Treatment and Distribution)	MF SM 9222-B	Lead	EPA 200.9
Total Dissolved Solids	SM 2540-C	Magnesium	EPA 200.7
Trihalomethanes	EPA 524.2	Manganese	EPA 200.7
Turbidity	SM 2130-B	Manganese	EPA 200.8
Volatile Organic Compounds	EPA 524.2	Mercury	EPA 245.1
Non-Potable Water (Wastewater)		Molybdenum	EPA 200.7
Analyte		Molybdenum	EPA 200.8
Aldrin	EPA 608	Nickel	EPA 200.7
Alkalinity, Total	Lachat 10-303-31-1-A	Nickel	EPA 200.8
Alpha-BHC	EPA 608	Nitrate-N	EPA 200.9
Aluminum	EPA 200.7	Nitrate-N	EPA 300.0
Aluminum	EPA 200.8	Non-Filterable Residue	Lachat 10-107-04-1-C
		Oil and Grease	SM 2540-D
			EPA 1664

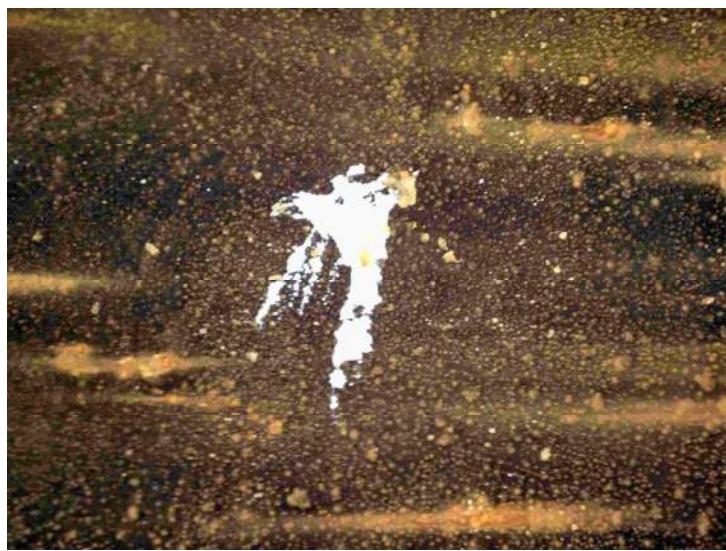
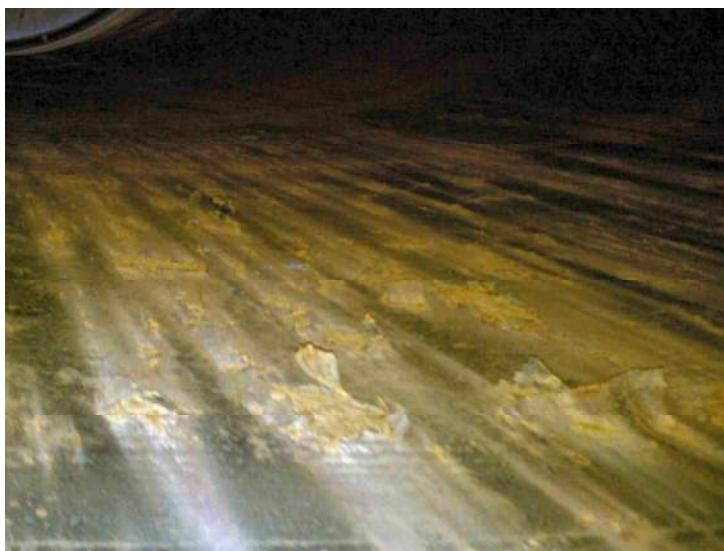
Certifications and Approvals**MASSACHUSETTS****Department of Environmental Protection, M-MA-103**

Groundwater Analytical maintains MassDEP environmental laboratory certification for only the methods and analytes listed below. Analyses for certified analytes are conducted in accordance with MassDEP certification standards, except as may be specifically noted in the project narrative.

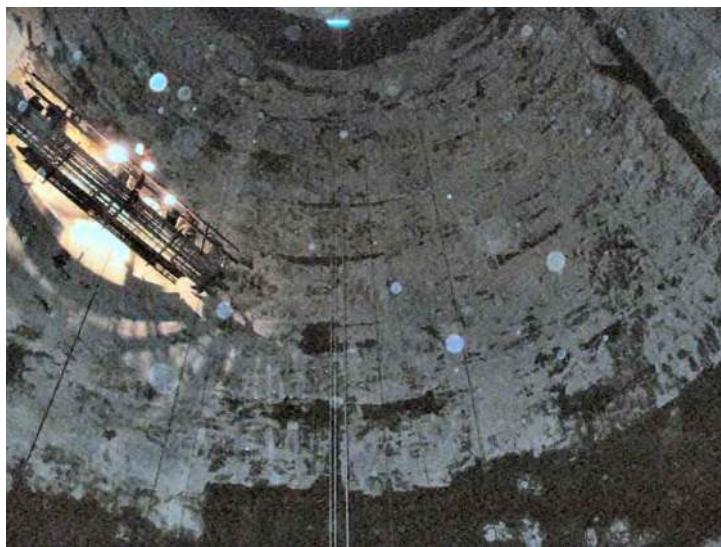
Non-Potable Water (Wastewater)

Analyte	Method
Orthophosphate	Lachat 10-115-01-1-A
pH	SM 4500-H-B
Phenolics, Total	EPA 420.4
Phenolics, Total	Lachat 10-210-00-1-B
Phosphorus, Total	Lachat 10-115-01-1-C
Phosphorus, Total	SM 4500-P-B,E
Polychlorinated Biphenyls (Oil)	EPA 600/4-81-045
Polychlorinated Biphenyls (Water)	EPA 608
Potassium	EPA 200.7
Selenium	EPA 200.7
Selenium	EPA 200.8
Selenium	EPA 200.9
Silver	EPA 200.7
Sodium	EPA 200.7
Specific Conductivity	SM 2510-B
Strontium	EPA 200.7
Sulfate	EPA 300.0
SVOC-Acid Extractables	EPA 625
SVOC-Base/Neutral Extractables	EPA 625
Thallium	EPA 200.7
Thallium	EPA 200.8
Thallium	EPA 200.9
Titanium	EPA 200.7
Total Dissolved Solids	SM 2540-C
Total Organic Carbon	SM 5310-B
Toxaphene	EPA 608
Vanadium	EPA 200.7
Vanadium	EPA 200.8
Volatile Aromatics	EPA 602
Volatile Aromatics	EPA 624
Volatile Halocarbons	EPA 624
Zinc	EPA 200.7
Zinc	EPA 200.8

Prior Existing Tank Interior Conditions:



During Construction:



Completed Tank Interior:



WARRANTY INSPECTION REPORT

Massachusetts Service Center
128 Elm St, Bridgewater, MA 02324
(508) 279-9965 Fax: (508) 279-9948

Utility Service Co.
INCORPORATED



Project #: 126846	Task #: 001.001	Date: 4/17/21	Inspector: Geoffrey Hall
Project: Howard Street Stdp			Location: Howard St. Salem, NH
Engineer: Wright-Pierce			Contractor: Marcel A. Payeur Inc.

EXTERIOR COATING CONDITIONS

Roof & Appurtenances

Overall Conditions: The coatings along the exterior surfaces of the roof were not part of the scope of work performed therefore are not subject to the conditions set forth under the warranty clause of the project specifications.

Required Corrections: No actions are required under the warranty clause of this contract

Shell & Balcony

Overall Conditions: The coatings along the exterior surfaces of the shell were not part of the scope of work performed therefore are not subject to the conditions set forth under the warranty clause of the project specifications.

Required Corrections: No actions are required under the warranty clause of this contract

Support Structure

Overall Conditions: NA

Required Corrections: NA

INTERIOR COATING CONDITIONS

Method of Interior Inspection: ROV **Comments:**

Interior Roof & Support Structure

Overall Conditions: The coatings along the underside of the self supporting dome roof were found to be in excellent condition with no visible degradation, failure or rusting currently taking place.

Required Corrections: No corrective measures are required.

Interior Shell

Overall Conditions: The coatings on the top shell ring surfaces as viewed from the roof hatch were found to be in excellent condition with no breakdown or holidays in the coating system, however light staining and soiling from the water supply was noted. This staining did not appear to be detrimental to the coatings nor did it impede the visual assessment of the referenced surfaces. The staining is typically associated with minerals within the water supply and is not considered a failure of the coating system.

The coatings on the shell plates below the water level as viewed from the ROV were found to be in excellent condition with only a few localized areas of pin point failure with light to medium grade rust formation noted on the shell plates numbering less than a dozen.

There is also scattered areas on medium to heavy grade rust on almost every one of the mixing system brackets primarily on the coated surfaces adjacent to the stainless steel bolts where it appears the coating was damaged during installation of the system.

Required Corrections: All areas of corrosion and/or failure on the interior shell and mixing system brackets should be repaired to ensure long term serviceability of the applied system.

Interior Floor / Bowl

Overall Conditions: The interior floor surfaces are mostly covered with a thin layer of silt. The visible portions of the floor were found to be in excellent condition, with no evidence of coating breakdown or corrosion occurring.

Required Corrections: No corrective measures are required.

OVERALL RECOMMENDATIONS

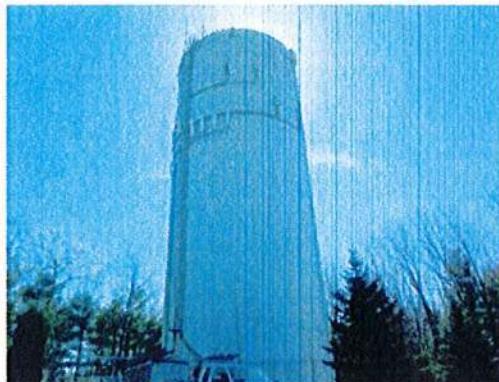
Overall, the vast majority of the applied coatings on the tank interior are performing as designed and are providing good protection to the underlining substrate. However, there are several minor deficiencies in the coating system as referenced above that should be addressed under the warranty clause of the contract to preserve the coating integrity and extend the longevity of the applied coating system.

The observed failure on the interior shell and appurtenances is relatively minor overall, but repairs fall under the warranty clause of the contract. Any areas along the shell and/or mixing system where corrosive activity is present will need to be spot power tool cleaned in accordance with SSPC-SP #11 Standards and recoated as outlined in the original contract documents. Please be advised that if the original paint system is utilized, the coatings will have to be allowed to cure before the tank can be returned to service. Alternatively, a water based coating such as the NSF approved Aquatapoxy A-6 could be utilized to perform the required repairs in the localized areas required with no significant impact to overall coating system performance.

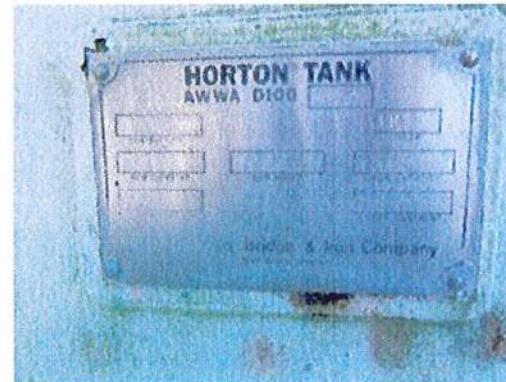
Any additional damage to the interior coating system occurring during the required touchup should also be repaired under the same criteria.

A copy of the ROV video as well as photographs of the deficiencies identified are included with this report as reference for the tank owner and contractor.

Howard St 1.0MG Stdp Salem, NH Aniversary Inspection Photographs
Inspection performed on April 17, 2012



Overall view of tank exterior on 4/17/12



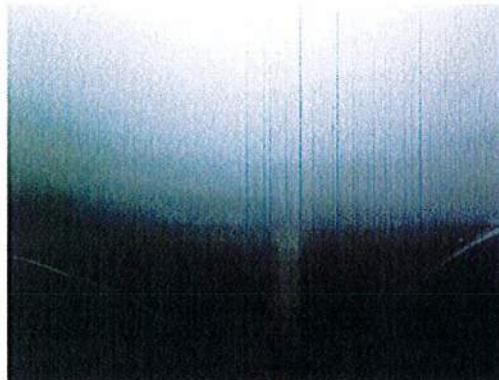
Shows tank ID plate



The interior roof coatings are in excellent condition with no evidence of degradation or deficiencies



All interior roof coatings are in excellent condition



No coating failure was observed on the roof plates



There is no evidence of coating failure or deficiencies along the underside of the roof

Howard St 1.0MG Stdp Salem, NH Aniversary Inspection Photographs
Inspection performed on April 17, 2012



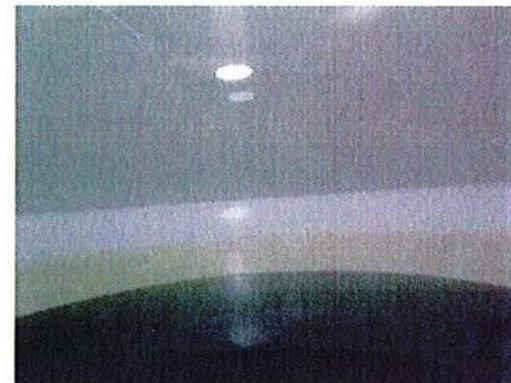
The coating applied to the rigging couplings is intact with no deficiencies observed from the roof hatch



The coating applied to the roof to shell junction is intact with no deficiencies observed from the roof hatch



All coatings above the high water level are in excellent condition



Shows a slight stain present on the top shell ring surfaces from the water supply

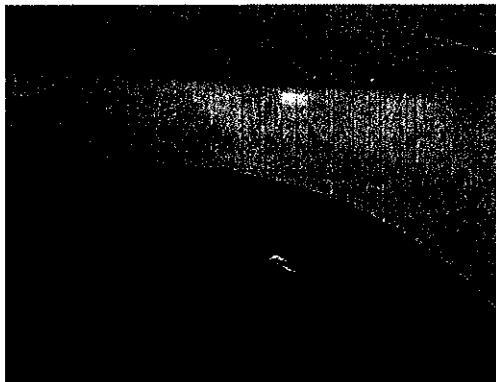


Interior roof and shell coatings above water level are in excellent condition

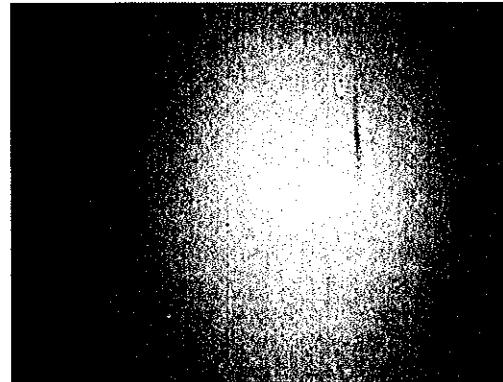


Close up view of staining present on the top shell ring above the current water level

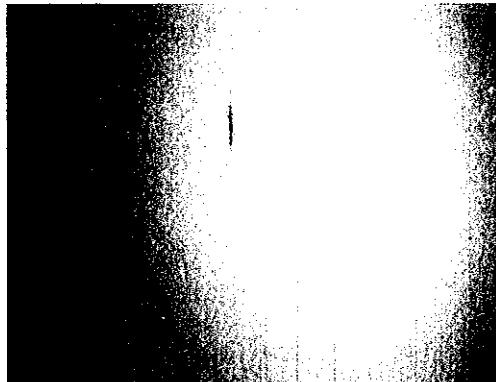
Howard St 1.0MG Stdp Salem, NH Aniversary Inspection Photographs
Inspection performed on April 17, 2012



There is no apparent coating degradation on the shell surfaces below the top shell ring



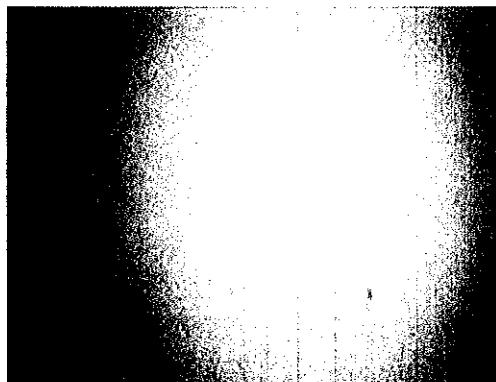
There is minor pinpoint corrosion on the surfaces below water level



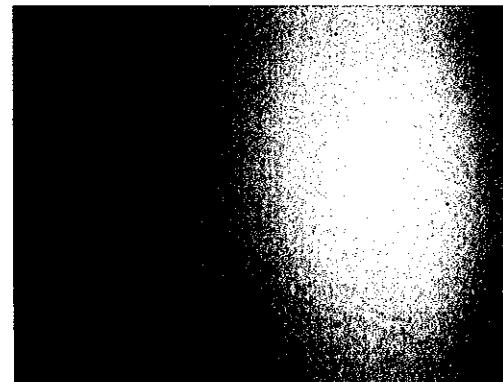
Staining associated with light rust is visible on several shell plates



Shows extent of degradation on shell surfaces below water level to be minor

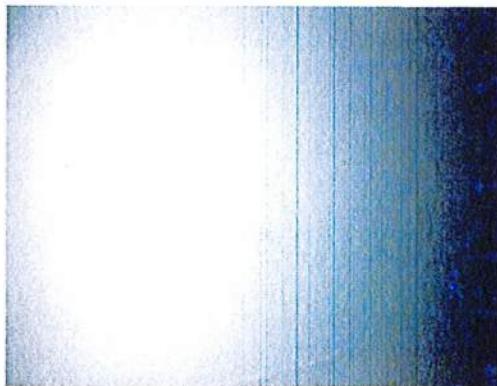


The majority of the shell coating below water level is in excellent condition with only minor pinpoint corrosion noted



The coating along the interior shell weld seams is in excellent condition

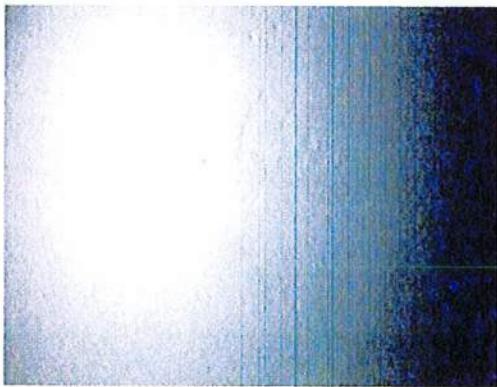
Howard St 1.0MG Stdp Salem, NH Aniversary Inspection Photographs
Inspection performed on April 17, 2012



Past metal loss on the shell plates below water level has been effectively sealed by the coating system



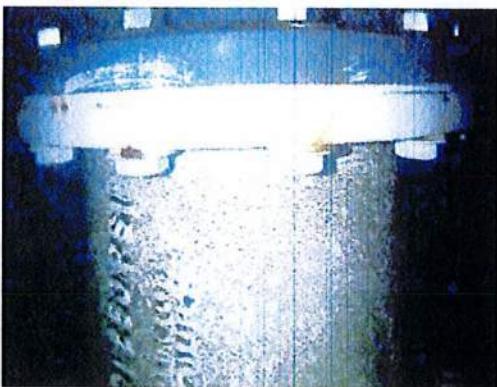
Past metal loss on the shell weld seams has been effectively sealed by the coating system



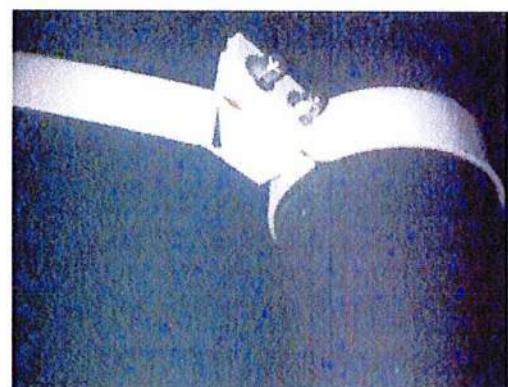
Past metal loss on the shell weld seams has been effectively sealed by the coating system



The coating on the interior face of the shell manhole is in excellent condition with only silt staining noted on the manhole neck

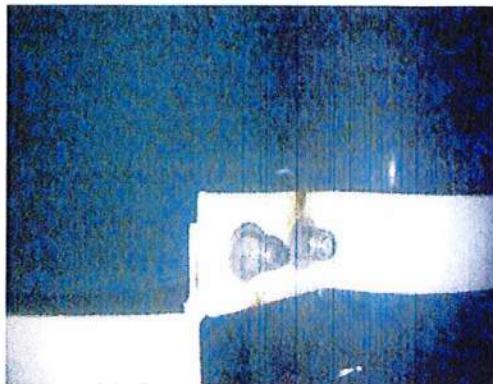


Scattered light to medium grade rust is present throughout the mixing system connections



Scattered light to medium grade rust is present on the mixing system brackets

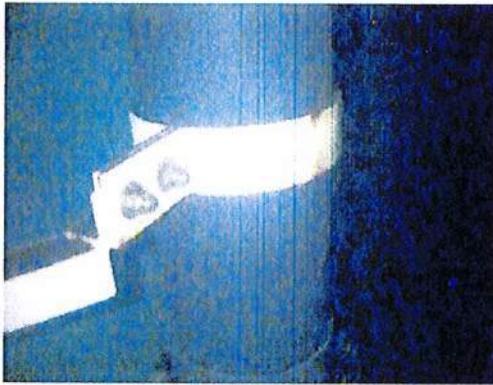
Howard St 1.0MG Stdp Salem, NH Aniversary Inspection Photographs
Inspection performed on April 17, 2012



Shows typical corrosion on the mixing system brackets



Shows typical corrosion on the mixing system brackets



Shows typical corrosion on the mixing system brackets



Shows typical corrosion on the mixing system flanges

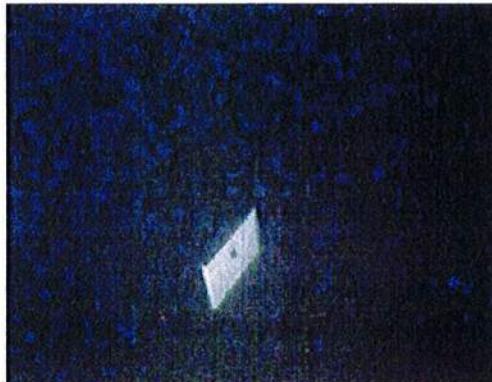


The floor is covered with a layer of silt which prevented a thorough inspection of the underlying surfaces

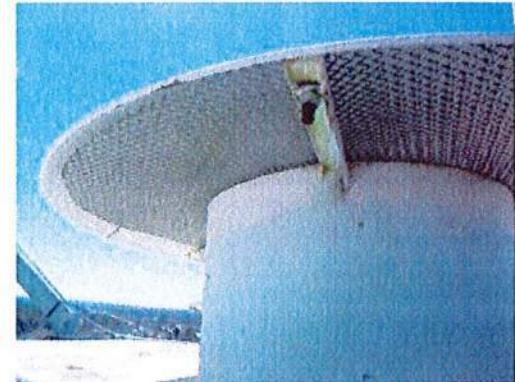


No coating degradation was observed where the silt layer was moved to expose the floor

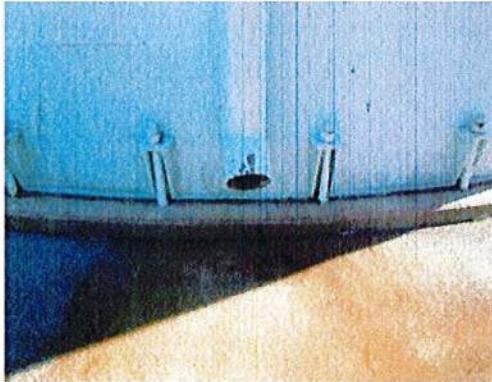
Howard St 1.0MG Stdp Salem, NH Aniversary Inspection Photographs
Inspection performed on April 17, 2012



The coatings on the floor lug is in excellent condition with no degradation observed



Shows a stainless steel screen covering the finial vent opening



There is no screen or flapper present on the overflow pipe opening at ground level

BID FORM
TO
TOWN OF SALEM, NEW HAMPSHIRE
HOWARD STREET WATER TANK REHABILITATION

The undersigned declares that the only persons or parties interested in this Bid as principals are as stated; that the Bid is made without any collusion with other persons, firms, or corporations; that all the Contract Documents as prepared by CDM Smith Inc. and dated January 2015 have been carefully examined; that the undersigned is fully informed in regard to all conditions pertaining to the Work and the place where it is to be done, and from them the undersigned makes this Bid. These prices shall cover all expenses incurred in performing the Work required under the Contract Documents, of which this Bid Form is a part.

If a Notice of Award accompanied by at least six unsigned copies of the Agreement and all other applicable Contract Documents is delivered to the undersigned within sixty days, excluding Saturdays, Sundays, and legal holidays, after the actual date of the opening of the Bids, the undersigned will within five days, excluding Saturdays, Sundays, and legal holidays, after the date of receipt of such notification, execute and return all copies of the Agreement and all other applicable Contract Documents to OWNER. The premiums for all Bonds required shall be paid by CONTRACTOR and shall be included in the Contract Price. The undersigned Bidder further agrees that the Bid Security accompanying this Bid shall become the property of OWNER if the Bidder fails to execute the Agreement as stated above.

The undersigned hereby agrees that the Contract Time provisions are as follows:

1. The Contract Time shall commence ten days following the Effective Date of the Agreement.
2. All work shall be fully completed within 90 calendar days of Contractor's first day of mobilizing to the site.
3. All work shall be fully completed by June 30, 2016.
4. If Contractor desires to perform work requiring the tank to be offline at any time during the months of July or August, Contractor shall first obtain permission from the DPW and Fire Chief.

The undersigned further agrees to pay OWNER, as liquidated damages, \$1,000 per day for each calendar day beyond the Contract Time Limit or extension thereof that the Work remains incomplete, in accordance with the terms of the Agreement.

The undersigned acknowledges receipt of addenda numbered:

In accordance with the above understanding, the undersigned proposes to perform the Work, furnish all materials and complete the Work in its entirety in the manner and under the conditions required at the prices listed as follows:

Item No.	Estimated Quantity	Brief Description of Items <u>With Unit Bid Price in Words</u>	Amount in Figures
1	L.S.	<u>Interior Water Chamber Painting.</u> Including, but not limited to, spot abrasive blast (SSPC SP-10) and application of three spot coats of paint to 600 square feet of localized interior surfaces, application of 3 gallons of pit filler and disinfect interior surfaces, and First Anniversary Inspection. All work to be performed in accordance with Sections 09850, 09950 and 13900 as well as all related Sections of the Contract Documents.	\$ _____
		Lump sum	
2	L.S.	<u>Exterior Tank Painting.</u> Including but not limited to, full Class 1A containment, air quality monitoring, full abrasive blast (SSPC SP-6) and application of four coats of paint to all exterior surfaces including areas within the adjacent radio building, disposal of all waste, remove shell ladder notched rail safety climb device and re-install upon completion of painting, and repair cement grout at foundation to bottom lip junction, protection of all equipment within the radio building. Roll up the exterior fence and re-install fence upon completion of work including removal of old barbed wire and installation of new barbed wire atop the fence. Install bolting flanges, flapper and stainless steel screen assembly to base of overflow pipe. All work to be performed in accordance with Sections 09960 and 13800 as well as all related Sections of the Contract Documents.	\$ _____
		Lump sum	
3	L.S.	<u>Finial Vent Replacement.</u> Removal and replacement of existing finial vent assembly with new 24" diameter vent flange and aluminum vacuum/pressure vent assembly. All work to be performed in accordance with Sections 09960 and 13800 as well as all related Sections of the Contract Documents.	\$ _____
		Lump sum	

Item No.	Estimated Quantity	Brief Description of Items <u>With Unit Bid Price in Words</u>	Amount in Figures
4	L.S.	<u>Painter's Venting Hatch Replacement.</u> Removal and replacement of existing painters venting hatch assembly at the center of the roof with new 24" diameter hatch assembly complete with bolted cover and gasket. The new assembly is to conform to existing design and configuration. All work to be performed in accordance with Sections 09960 and 13800 as well as all related Sections of the Contract Documents.	\$ _____
		Lump sum	
5	L.S.	<u>Town-Owned Radio Equipment.</u> Remove the existing radio communications equipment (antennas, mounting poles, brackets, hardware and coax cables) from the tank exterior to facilitate tank painting. Temporary installation of all Town-owned equipment on the containment structure and then reinstall preexisting antennae with new mounting poles, brackets, hardware and coax cables on the tank upon completion of all painting. All work to be performed in accordance with Section 13800 as well as all related Sections of the Contract Documents.	\$ _____
		Lump sum	
TOTAL LUMP SUM CONTRACT BID PRICE (Sum of Items Nos. 1 through 5)			\$ _____

All specific cash allowances are included in the price(s) set forth above. The above lump sum prices are based on the use of coating materials supplied by _____.

Item No.	Estimated Quantity	Brief Description of Items With Unit Bid Price in Words	Amount in Figures
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SUPPLEMENTAL UNIT PRICES

When additional work is authorized, or the OWNER deletes work, the following prices, when applicable, shall be used to determine the contract price adjustment. The items of Work and method of measurement to determine quantities shall be as described in Specification Section 01075 - Basis of Payment.

S-1	Per Gallon	<u>Pit Filler Application</u> of 100% solids epoxy pit filler/surfacer on the interior surfaces (to be added or subtracted as necessary from the Lump Sum price for pit filler application in Item 1 above). The Contractor will only be paid for the exact number of gallons applied as determined by Owner's inspector.
	Per gallon	\$ _____

The undersigned agrees that extra work, if any, will be performed in accordance with Article 10 of the Conditions of the Contract and will be paid for in accordance with Article 11 of the Conditions of the Contract.

Amounts shall be shown in both words and figures, where indicated. In case of discrepancy, the amount shown in words will govern.

The undersigned hereby certifies that he/she has attached to the bid the following information which OWNER intends to utilize for reviewing the qualifications and experience of the bidder:

- 1. Five references of similar projects, including tank owner, tank type/size, year of work, and contact information including phone number.**
- 2. Financial statement demonstrating availability of financial resources to complete the project.**
- 3. Bonding agent contact information, including phone number.**

The undersigned has included with this bid all submittals required in Section 09860, paragraph 1.10A.

The above prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance and incidentals required to complete the Work.

The names and residences of all persons and parties interested in the foregoing Bid as principals are as follows:

(Give first and last names in full. In the case of a corporation, see Article 8.3 of the Instructions to Bidders, in the case of a limited liability company [LLC], see Article 8.4 of the Instructions to Bidders, in the case of a partnership, see Article 8.5 of the Instructions to Bidders.)

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

The undersigned hereby certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this section, the word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

Social Security Number
or Federal Identification
Number

Signature of Individual or
Corporate Name

By: _____
Corporate Officer
(if applicable)

Notice of acceptance should be mailed, faxed, or delivered to the following:

(Name)

By: _____
(Title)

(Business Address)

(City and State)

Date _____

Note: If the Bidder is a corporation, indicate State of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses, if different from business address.