



**BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND**

REQUEST FOR PROPOSALS

**Item Description: REMOVAL AND DISPOSAL OF RESIDUALS FROM THE
SOUTH SEDIMENTATION BASIN (EXP. 12/31/25)**

Date to be opened: MONDAY, MAY 8, 2023

Issuing Department: PROVIDENCE WATER

QUESTIONS

- Please direct questions relative to the bidding process, how to fill out forms, and how to submit a bid (Pages 1-8) to Purchasing Department.
 - Email: Purchasing@providenceri.gov
 - Please use the subject line “**RFP Question**”
- Please direct questions relative to the Minority and Women’s Business Enterprise Program and the corresponding forms (Pages 9-13) to the MBE/WBE Outreach Director for the City of Providence, Grace Diaz
 - Phone: (401) 680-5766
 - Email: gdiaz@providenceri.gov
 - Please use subject line “**MBE WBE Forms**”
- Please direct questions relative to the specifications outlined (beginning on page 14) to the issuing department’s subject matter expert:
 - Peter DiLorenzo – Division Manager, 401-521-6300 ex. 7230 or peterd@provwater.com

Pre-bid Conference

A Non-Mandatory Pre-bid has been scheduled for April 19, 2023 at 10:00 am at the Philip J. Holton Purification Plant Located at 61 North Road Scituate, RI.



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INSTRUCTIONS FOR SUBMISSION

Bids may be submitted up to **2:15 P.M.** on the above meeting date at the **Department of the City Clerk, Room 311, City Hall, 25 Dorrance Street, Providence.** At 2:15 P.M. all bids will be publicly opened and read at the Board of Contract Meeting in Room 305, on the 3rd floor of City Hall.

- Bidders must submit **2 copies** of their bid in sealed envelopes or packages labeled with the captioned **Item Description** and the **City Department to which the RFP and bid are related and must include the company name and address on the envelope as well.** (On page 1).
- If required by the Department, please keep the original bid bond and check in only one of the envelopes.
- Communications to the Board of Contract and Supply that are not competitive sealed bids (i.e. product information/samples) should have **"NOT A BID"** written on the envelope or wrapper.
- Only use form versions and templates included in this RFP. If you have an old version of a form do not recycle it for use in this bid.
- The bid envelope and information relative to the bid must be addressed to:

**Board of Contract and Supply
Department of the City Clerk – City Hall, Room 311
25 Dorrance Street
Providence, RI 02903**

****PLEASE NOTE:** This bid may include details regarding information that you will need to provide (such as proof of licenses) to the issuing department before the formalization of an award.

*This information is **NOT** requested to be provided in your initial bid by design.*

All bids submitted to the City Clerk become public record. Failure to follow instructions could result in information considered private being posted to the city's Open Meetings Portal and made available as a public record. The City has made a conscious effort to avoid the posting of sensitive information on the City's Open Meetings Portal, by requesting that such sensitive information be submitted to the issuing department only at their request.



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BID PACKAGE CHECKLIST

Digital forms are available in the City of Providence Purchasing Department Office or online at

<http://www.providenceri.gov/purchasing/how-to-submit-a-bid/>

The bid package **MUST** include the following, in this order:

- Bid Form 1: Bidder's Blank as the cover page/ 1st page (*see page 6 of this document*)
- Bid Form 2: Certification of Bidder as 2nd page (*see page 7 of this document*)
- Bid Form 3: Certificate Regarding Public Records (*see page 8 of this document*)
- Forms from the Minority and Women Business Enterprise Program: Based on Bidder Category. *See forms and instructions enclosed (pages 9-13) or on: <https://www.providenceri.gov/purchasing/minority-women-owned-business-mbewbe-procurement-program/>*

***Please note: MBE/WBE forms must be completed for EVERY bid submitted and must be inclusive of ALL required signatures. Forms without all required signatures will be considered incomplete.**

- Bidder's Proposal/Packet: Formal response to the specifications outlined in this RFP, including pricing information and details related to the good(s) or service(s) being provided. Please be mindful of formatting responses as requested to ensure clarity.
- Financial Assurance, *if requested* (as indicated on page 5 of this document under "Bid Terms")

All of the above listed documents are REQUIRED. (With the exception of financial assurances, which are only required if specified on page 5.)

******Failure to meet specified deadlines, follow specific submission instructions, or enclose all required documents with all applicable signatures will result in disqualification, or in an inability to appropriately evaluate bids.***



BOARD OF CONTRACT AND SUPPLY
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NOTICE TO VENDORS

1. The Board of Contract and Supply will make the award to the lowest qualified and responsible bidder.
2. In determining the lowest responsible bidder, cash discounts based on preferable payment terms will not be considered.
3. Where prices are the same, the Board of Contract and Supply reserves the right to award to one bidder, or to split the award.
4. No proposal will be accepted if the bid is made in collusion with any other bidder.
5. Bids may be submitted on an "equal in quality" basis. The City reserves the right to decide equality. Bidders must indicate brand or the make being offered and submit detailed specifications if other than brand requested.
6. A bidder who is an out-of-state corporation shall qualify or register to transact business in this State, in accordance with the Rhode Island Business Corporation Act, RIGL Sec. 7-1.2-1401, et seq.
7. The Board of Contract and Supply reserves the right to reject any and all bids.
8. Competing bids may be viewed in person at the Department of the City Clerk, City Hall, Providence, immediately upon the conclusion of the formal Board of Contract and Supply meeting during which the bids were unsealed/opened. Bids may also be accessed electronically on the internet via the City's [Open Meetings Portal](#).
9. As the City of Providence is exempt from the payment of Federal Excise Taxes and Rhode Island Sales Tax, prices quoted are not to include these taxes.
10. In case of error in the extension of prices quoted, the unit price will govern.
11. The contractor will **NOT** be permitted to: a) assign or underlet the contract, or b) assign either legally or equitably any monies or any claim thereto without the previous written consent of the City Purchasing Director.
12. Delivery dates must be shown in the bid. If no delivery date is specified, it will be assumed that an immediate delivery from stock will be made.
13. A certificate of insurance will normally be required of a successful vendor.
14. For many contracts involving construction, alteration and/or repair work, State law provisions concerning payment of prevailing wage rates apply ([RIGL Sec. 37-13-1 et seq.](#))
15. No goods should be delivered, or work started without a Purchase Order.
16. **Submit 2 copies of the bid to the City Clerk, unless the specification section of this document indicates otherwise.**
17. Bidder must certify that it does not unlawfully discriminate on the basis of race, color, national origin, gender, gender identity or expression, sexual orientation and/or religion in its business and hiring practices and that all of its employees are lawfully employed under all applicable federal, state and local laws, rules and regulations. (See Bid Form 2.)



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BID TERMS

1. Financial assurances may be required in order to be a successful bidder for Commodity or Construction and Service contracts. If either of the first two checkboxes below is checked, the specified assurance must accompany a bid, or the bid will not be considered by the Board of Contract and Supply. The third checkbox indicates the lowest responsible bidder will be contacted and required to post a bond to be awarded the contract.
 - a) ☒ A certified check for \$25,000 must be deposited with the City Clerk as a guarantee that the Contract will be signed and delivered by the bidder, or
 - b) ☒ A bid bond in the amount of 5 per centum (%) of the proposed total price, must be deposited with the City Clerk as a guarantee that the contract will be signed and delivered by the bidder; and the amount of such bid bond shall be retained for the use of the City as liquidated damages in case of default.
 - c) ☒ A performance and payment bond with a satisfactory surety company will be posted by the bidder in a sum equal to one hundred per centum (100%) of the awarded contract.
 - d) ☐ No financial assurance is necessary for this item.
2. Awards will be made within **sixty (60) days of bid opening**. All bid prices will be considered firm, unless qualified otherwise. Requests for price increases will not be honored.
3. Failure to deliver within the time quoted or failure to meet specifications may result in default in accordance with the general specifications. It is agreed that deliveries and/or completion are subject to strikes, lockouts, accidents and Acts of God.

The following entry applies only for COMMODITY BID TERMS:

4. Payment for partial delivery will not be allowed except when provided for in blanket or term contracts.

The following entries apply only for CONSTRUCTION AND SERVICE BID TERMS:

5. Only one shipping charge will be applied in the event of partial deliveries for blanket or term contracts.
6. Prior to commencing performance under the contract, the successful bidder shall attest to compliance with the provisions of the Rhode Island Worker's Compensation Act, RIGL 28-29-1, et seq. If exempt from compliance, the successful bidder shall submit a sworn Affidavit by a corporate officer to that effect, which shall accompany the signed contract.
7. Prior to commencing performance under the contract, the successful bidder shall, submit a certificate of insurance, in a form and in an amount satisfactory to the City.



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BID FORM 1: Bidders Blank

1. Bids must meet the attached specifications. Any exceptions or modifications must be noted and fully explained.
2. Bidder's responses must be in ink or typewritten, and all blanks on the bid form should be completed.
3. The price or prices proposed should be stated both in **WRITING** and in **FIGURES**, and any proposal not so stated may be rejected. **Contracts exceeding twelve months must specify annual costs for each year.**
4. Bids **SHOULD BE TOTALED** so that the final cost is clearly stated (unless submitting a unit price bid), however **each item should be priced individually**. Do not group items. Awards may be made on the basis of *total* bid or by *individual items*.
5. All bids **MUST BE SIGNED IN INK.**

Name of Bidder (Firm or Individual): _____

Contact Name: _____

Business Address: _____

Business Phone #: _____

Contact Email Address: _____

Agrees to bid on (Write the "Item Description" here): _____

If the bidder's company is based in a state other than Rhode Island, list name and contact information for a local agent for service of process that **is located within Rhode Island** _____

Delivery Date (if applicable): _____

Name of Surety Company (if applicable): _____

Total Amount in Writing*: _____

Total Amount in Figures*: _____

**** If you are submitting a unit price bid, please insert "Unit Price Bid"***

Use additional pages if necessary for additional bidding details.

Signature of Representation

Title



BOARD OF CONTRACT AND SUPPLY
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BID FORM 2: Certification of Bidder
(Non-Discrimination/Hiring)

Upon behalf of _____ (Firm or Individual Bidding),

I, _____ (Name of Person Making Certification),

being its _____ (Title or "Self"), hereby certify that:

1. Bidder does not unlawfully discriminate on the basis of race, color, national origin, gender, sexual orientation and/or religion in its business and hiring practices.
2. All of Bidder's employees have been hired in compliance with all applicable federal, state and local laws, rules and regulations.

I affirm by signing below that I am duly authorized on behalf of Bidder, on
this _____ day of _____ 20_____.

Signature of Representation

Printed Name



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BID FORM 3: Certificate Regarding Public Records

Upon behalf of _____ (Firm or Individual Bidding),

I, _____ (Name of Person Making Certification),

being its _____ (Title or "Self"), hereby certify an

understanding that:

1. All bids submitted in response to Requests for Proposals (RFP's) and Requests for Qualification (RFQ's), documents contained within, and the details outlined on those documents become public record upon receipt by the City Clerk's office and opening at the corresponding Board of Contract and Supply (BOCS) meeting.
2. The Purchasing Department and the issuing department for this RFP/RFQ have made a conscious effort to request that sensitive/personal information be submitted directly to the issuing department and only at request if verification of specific details is critical the evaluation of a vendor's bid.
3. The requested supplemental information may be crucial to evaluating bids. Failure to provide such details may result in disqualification, or an inability to appropriately evaluate bids.
4. If sensitive information that has not been requested is enclosed or if a bidder opts to enclose the defined supplemental information prior to the issuing department's request in the bidding packet submitted to the City Clerk, the City of Providence has no obligation to redact those details and bears no liability associated with the information becoming public record.
5. The City of Providence observes a public and transparent bidding process. Information required in the bidding packet may not be submitted directly to the issuing department at the discretion of the bidder in order to protect other information, such as pricing terms, from becoming public. Bidders who make such an attempt will be disqualified.

I affirm by signing below that I am duly authorized on behalf of Bidder, on

this _____ day of _____ 20____.

Signature of Representation

Printed Name



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WBE/MBE Form Instructions

The City of Providence actively seeks Minority and Women business enterprises to participate in bids to meet the City's procurement needs. Pursuant to the City of Providence Code of Ordinances, Chapter 21, Article II, Sec. 21-52 (Minority and Women's Business Enterprise) and Rhode Island General Laws (as amended), Chapter 31-14, et seq. (Minority Business Enterprise), Minority Business Enterprise (MBE) and Women's Business Enterprise (WBE) participation goals apply to contracts.

The goal for Minority Business Enterprise (MBE) participation is **10%** of the total bid value.

The goal for Women's Business Enterprise (WBE) participation is **10%** of the total bid value.

The goal for combined MBE/WBE participation is **20%** of the total bid value.

Only businesses certified with the State of Rhode Island as minority and/or women business enterprises are counted towards the City's goals. Eligible minority or women-owned businesses are encouraged to seek certification from the State of Rhode Island Minority Business Enterprise Compliance Office at: <http://odeo.ri.gov/offices/mbeco/>

Note: MBE certification with the State of Rhode Island on the basis of Portuguese heritage is not currently recognized by the City of Providence's MBE program.

Bid Requirements:

All Bidders: All bidders **must complete and submit the *MBE/WBE Participation Affidavit*** indicating whether or not they are a state-certified MBE/WBE and acknowledging the City's participation goals. Submission of this form is **required with every bid**. **Your bid will not be accepted without an affidavit.**

Bidders who will be subcontracting: *In addition to the MBE/WBE Participation Affidavit*, Bidders who will be subcontracting must submit the *Subcontractor Disclosure Form* as part of their bid submission. All subcontractors, regardless of MBE/WBE status, must be listed on this form. Business NAICS codes can be found at <https://www.naics.com/search/>. Awarded bidders are required to submit

Subcontractor Utilization and Payment Reports with each invoice.

Waiver Requests:

- a) If the percentage of the total amount of the bid being awarded to MBE or WBE vendors is less than 20% (Box F on the Subcontractor Disclosure Form) and the prime contractor is not a Rhode Island State-certified MBE or WBE, the Bidder must complete the *MBE/WBE Waiver Request Form* for review.
- b) If the prime contractor company has the capacity to perform the whole project, the City of Providence requires the contractor to meet the city's goal of a combined 20% of MBE and WBE participation.
- c) If the contractor is a nonprofit organization, the City of Providence requires the nonprofit organization to provide the *MBE/WBE Participation Affidavit Form* and proof of its nonprofit status.
- d) If the contractor has researched the RI Certified minority list (<http://odeo.ri.gov/offices/mbeco/mbe-wbe.php>) and the state does not have any companies in the desired trade, the City of Providence requires the contractor to provide the *MBE/WBE Participation Affidavit Form*.
- e) Waivers will be considered for approval on a case-by-case basis.



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Verifying MBE/WBE Certification

It is the responsibility of the bidder to confirm that every MBE or WBE named in a proposal and included on a contract is certified by the Rhode Island Minority Business Enterprise Compliance Office. The current MBE/WBE directory is available at the State of RI MBE Office, One Capitol Hill, 2nd Floor, Providence, RI, or online at <http://odeo.ri.gov/offices/mbeco/mbe-wbe.php>. You can also call (401) 574-8670 to verify certification, expiration dates, and services that the MBE/WBE is certified to provide. Note: MBE certification with the State of Rhode Island on the basis of Portuguese heritage is not currently recognized by the City of Providence's MBE program.

Form Instructions:

Access all bid forms from <http://www.providenceri.gov/oeo/> or <http://www.providenceri.gov/purchasing/minority-women-owned-business-mbewbe-procurement-program/>. Download the forms as blank PDFs. Once saved on your computer, fill them out using the Adobe program. The fillable PDFs must be completed in Adobe in order to be saved properly. Google Chrome and similar platforms do not allow for the forms to be saved as filled PDFs. Therefore, please download the blank forms to your computer, then fill them out and save.

Assistance with Form Requirements

Examples of completed forms can be found on the City of Providence website at <http://www.providenceri.gov/oeo/> or <http://www.providenceri.gov/purchasing/minority-women-owned-business-mbewbe-procurement-program/>.

Contract Requirements:

Prime contractors engaging subcontractors must submit the ***Subcontractor Utilization and Payment Report*** to the City Department's Fiscal Agent with every invoice and request for final payment. A copy of all forms should be sent to the MBE/WBE Outreach Director Office, Grace Diaz at gdiaz@providenceri.gov. This form is not submitted as a part of the initial bid package.

For contracts with durations of less than 3 months, this form must be submitted along with the contractor's request for final payment. The form must include all subcontractors utilized on the contract, both MBE/WBE and non- MBE/WBE, the total amount paid to each subcontractor for the given period and to date, A copy of all forms should be sent to the MBE/WBE Outreach Director Office, Grace Diaz at gdiaz@providenceri.gov. During the term of the contract, any unjustified failure to comply with the MBE/WBE participation requirements is a material breach of contract.

Questions?

For more information or for assistance with MBE/WBE Forms, contact the City of Providence MBE/WBE Outreach Director, Grace Diaz, at gdiaz@providenceri.gov or (401) 680-5766.



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MBE/WBE PARTICIPATION AFFIDAVIT

Project /Item Description (as seen on RFP):

Prime Bidder: _____ Contact Email and Phone _____
Company Name, Address and Trade: _____

Which one of the following describes your business' status in terms of Minority and/or Woman-Owned Business Enterprise certification with the State of Rhode Island? _____ MBE _____ WBE _____ Neither MBE nor WBE

By initialing the following sections and signing the bottom of this document in my capacity as the contractor or an authorized representative of contractor, I make this Affidavit:

It is the policy of the City of Providence that minority business enterprises (MBEs) and women business enterprises (WBEs) should have the maximum opportunity to participate in procurements and projects as prime contractors and vendors. Pursuant to Sec. 21-52 of the Providence Code of Ordinances and Chapter 31-14 *et seq.* of the Rhode Island General Laws (as amended), MBE and WBE participation goals apply to contracts.

The goal for Minority Business Enterprise (MBE) participation is 10% of the total bid value.

The goal for Women's Business Enterprise (WBE) participation is 10% of the total bid value.

The goal for combined MBE/WBE participation is 20% of the total bid value.

I acknowledge the City of Providence's goals of supporting MBE/WBE certified businesses. Initial _____

If awarded the contract, I understand that my company must submit to the Minority and Women's Business Coordinator at the City of Providence (MBE/WBE Office), copies of all executed agreements with the subcontractor(s) being utilized to achieve the participation goals and other requirements of the RI General Laws. **I understand that these documents must be submitted prior to the issuance of a notice to proceed.** Initial _____

I understand that, if awarded the contract, my firm must submit to the MBE/WBE Office canceled checks and reports required by the MBE/WBE Office on a quarterly basis verifying payments to the subcontractors(s) utilized on the contract. Initial _____

If I am awarded this contract and find that I am unable to utilize the subcontractor(s) identified in my Statement of Intent, I understand that I must substitute another certified MBE and WBE firm(s) to meet the participation goals. **I understand that I may not make a substitution until I have obtained the written approval of the MBE/WBE Office.**

Initial _____

If awarded this contract, I understand that authorized representatives of the City of Providence may examine the books, records and files of my firm from time to time, to the extent that such material is relevant to a determination of whether my firm is complying with the City's MBE/WBE participation requirements.

Initial _____

I do solemnly declare and affirm under the penalty of perjury that the contents of the foregoing Affidavit are true and correct to the best of my knowledge, information, and belief.

Signature of Bidder

Printed Name

Company Name

Date



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SUBCONTRACTOR DISCLOSURE FORM

Fill out this form only if you WILL SUBCONTRACT with other parties. If you will not subcontract any portion of the proposed bid, do not fill out this form.

Prime Bidder: _____ Primary NAICS _____

Code: _____

Item Description (as seen on RFP): _____

Please list all Subcontractors below. Include the total dollar value that you propose to share with each subcontractor and the dollar amount to be subcontracted. Please check off MBE and WBE where applicable. The directory of all state-certified MBE/WBE firms is located at www.mbe.ri.gov. Business NAICS codes can be found at

<https://www.naics.com/search/>

Proposed Subcontractor	MBE	WBE	Primary NAICS Code	Date of Mobilization	\$ Value of Subcontract
					\$
					\$
					\$
					\$
					\$
					\$
A. MBE SUBCONTRACTED AMOUNT:					\$
B. WBE SUBCONTRACTED AMOUNT:					\$
C. NON-MBE WBE SUBCONTRACTED AMOUNT:					\$
D. DOLLAR AMOUNT OF WORK DONE BY THE PRIME CONTRACTOR:					\$
E. TOTAL AMOUNT OF BID (SUM OF A, B, C, & D):					\$
F. PERCENTAGE OF BID SUBCONTRACTED TO MBEs AND WBEs. (Divide the sum of A and B by E and multiply result by 100).					%

Please read and initial the following statement acknowledging you understand. If the percentage of the total amount of the bid being awarded to MBE or WBE vendors is less than 20% (Box (F)) and the prime contractor is NOT a Rhode Island State-certified MBE or WBE, you must fill out the MBE/WBE WAIVER REQUEST FORM for consideration by City of Providence MBE/WBE Outreach Director. Initial _____ Required

Signature of Bidder

Printed Name



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MBE/WBE Waiver Request Form

**Fill out this form only if you did not meet the 20% MBE/WBE participation goal.
State-certified MBE or WBE Prime Bidders are NOT REQUIRED to fill out this form.**

Submit this form to the City of Providence MBE/WBE Outreach Director, Grace Diaz, at mbe-wbe@providenceri.gov, for review **prior to bid submission**. This waiver applies only to the current bid which you are submitting to the City of Providence and does not apply to other bids your company may submit in the future. **In case a waiver is need it City Department Directors should not** recommend a bidder for award if this form is not included, absent or is not signed by the city of Providence MBE/WBE director.

Prime Bidder: _____ Contact Email and Phone _____
Company Name, Address: _____ Trade _____
Project /Item Description (as seen on RFP): _____

To receive a waiver, you must list the certified MBE and/or WBE companies you contacted, the name of the primary individual with whom you interacted, and the reason the MBE/WBE company could not participate on this project.

MBE/WBE Company Name	Individual's Name	Company Name	Why did you choose not to work with this company?

I acknowledge the City of Providence's goal of a combined MBE/WBE participation is 20% of the total bid value. I am requesting a waiver of _____ % MBE/WBE (20% minus the value of **Box F** on the Subcontractor Disclosure Form). If an opportunity is identified to subcontract any task associated with the fulfillment of this contract, a good faith effort will be made to select MBE/WBE certified businesses as partners.

Signature of Prime Contractor / or Duly Authorized Representative
Date Signed

Printed Name

Signature of City of Providence (or Designee (Only))
MBE/WBE Outreach Director

Printed Name of City of Providence
MBE/WBE Outreach Director

Date Signed



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BID PACKAGE SPECIFICATIONS



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SUPPLEMENTAL INFORMATION

If the issuing department for this RFP determines that your firm's bid is best suited to accommodate their need, you will be asked to provide proof of the following prior to formalizing an award.

An inability to provide the outlined items at the request of the department may lead to the disqualification of your bid.

*This information is **NOT** requested to be provided in your initial bid that you will submit to the City Clerk's office by the "date to be opened" noted on page 1. This list only serves as a list of items that your firm should be ready to provide on request.*

All bids submitted to the City Clerk become public record. Failure to follow instructions could result in information considered private being posted to the city's Open Meetings Portal and made available as a public record.

You must be able to provide:

- Business Tax ID will be requested after an award is approved by the Board of Contract and Supply.
- PROOF OF INSURANCE



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CITY OF PROVIDENCE STANDARD TERMS & CONDITIONS

1. The terms “you” and “your” contained herein refer to the person or entity that is a party to the agreement with the City of Providence (“the City”) and to such person’s or entity’s employees, officers, and agents.
2. The Request For Proposals (“RFP”) and these Standard Terms and Conditions together constitute the entire agreement of the parties (“the Agreement”) with regard to any and all matters. By your submission of a bid proposal or response to the City’s RFP, you accept these Standard Terms & Conditions and agree that they supersede any conflicting provisions provided by bid or in any terms and conditions contained or linked within a bid and/or response. Changes in the terms and conditions of the Agreement, or the scope of work thereunder, may only be made by a writing signed by the parties.
3. You are an independent contractor and in no way does this Agreement render you an employee or agent of the City or entitle you to fringe benefits, workers’ compensation, pension obligations, retirement or any other employment benefits. The City shall not deduct federal or state income taxes, social security or Medicare withholdings, or any other taxes required to be deducted by an employer, and this is your responsibility to yourself and your employees and agents.
4. You shall not assign your rights and obligations under this Agreement without the prior written consent of the City. Any assignment without prior written consent of the City shall be voidable at the election of the City. The City retains the right to refuse any and all assignments in the City’s sole and absolute discretion.
5. Invoices submitted to the City shall be payable sixty (60) days from the time of receipt by the City. Invoices shall include support documentation necessary to evidence completion of the work being invoiced. The City may request any other reasonable documentation in support of an invoice. The time for payment shall not commence, and invoices shall not be processed for payment, until you provide reasonably sufficient support documentation. In no circumstances shall the City be obligated to pay or shall you be entitled to receive interest on any overdue invoice or payment. In no circumstances shall the City be obligated to pay any costs associated with your collection of an outstanding invoice.
6. For contracts involving construction, alteration, and/or repair work, the provisions of applicable state labor law concerning payment of prevailing wage rates (R.I. Gen. Laws §§ 37-13-1 et seq., as amended) and the City’s First Source Ordinance (Providence Code of Ordinances §§ 21-91 et seq., as amended) apply.
7. With regard to any issues, claims, or controversies that may arise under this Agreement, the City shall not be required to submit to dispute resolution or mandatory/binding arbitration. Nothing prevents the parties from mutually agreeing to settle any disputes using mediation or non-binding arbitration.
8. To the fullest extent permitted by law, you shall indemnify, defend, and hold harmless the City, its employees, officers, agents, and assigns from and against any and all claims, damages, losses, allegations, demands, actions, causes of action, suits, obligations, fines, penalties, judgments, liabilities, costs and expenses, including but not limited to attorneys’ fees, of any nature whatsoever arising out of, in connection with, or resulting from the performance of the work provided in the Agreement.
9. You shall maintain throughout the term of this Agreement the insurance coverage that is required by the RFP or, if none is required in the RFP, insurance coverage that is considered in your industry to be commercially reasonable, and you agree to name the City as an additional insured on your general liability policy and on any umbrella policy you carry.
10. The City shall not subject itself to any contractual limitations on liability. The City shall have the time permitted within the applicable statute of limitations, and no less, to bring or assert any and all causes of action, suits, claims or demands the City may have arising out of, in connection with, or resulting from the performance of the work provided in the Agreement, and in no event does the City agree to limit your liability to the price of the Agreement or any other monetary limit.
11. The City may terminate this Agreement upon five (5) days’ written notice to you if you fail to observe any of the terms and conditions of this Agreement, or if the City believes your ability to perform the



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terms and conditions of this Agreement has been materially impaired in any way, including but in no way limited to loss of insurance coverage, lapsing of a surety bond, if required, declaration of bankruptcy, or appointment of a receiver. In the event of termination by the City, you shall be entitled to just and equitable compensation for any satisfactory work completed and expenses incurred up to the date of termination.

12. Written notice hereunder shall be deemed to have been duly served if delivered in person to the individual or member of the firm or entity or to an officer of the entity for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known by the party providing notice.
13. In no event shall the Agreement automatically renew or be extended without a writing signed by the parties.
14. You agree that products produced or resulting from the performance of the Agreement are the sole property of the City and may not be used by you without the express written permission of the City.
15. For any Agreement involving the sharing or exchange of data involving potentially confidential and/or personal information, you shall comply with any and all state and/or federal laws or regulations applicable to confidential and/or personal information you receive from the City, including but not limited to the Rhode Island Identity Theft Protection Act, R.I. Gen. Laws § 11-49.3-1, during the term of the Agreement. You shall implement and maintain appropriate physical, technical, and administrative security measures for the protection of, and to prevent access to, use, or disclosure of, confidential and/or personal information. In the event of a breach of such information, you shall notify the City of such breach immediately, but in no event later than twenty-four (24) hours after discovery of such breach.
16. The Agreement is governed by the laws of the State of Rhode Island. You expressly submit yourself to and agree that any and all actions arising out of, in connection with, or resulting from the performance of the Agreement or relationship between the parties shall occur solely in the venue and jurisdiction of the State of Rhode Island or the federal court located in Rhode Island.
17. The failure of the City to require performance of any provision shall not affect the City's right to

require performance at any time thereafter, nor shall a waiver of any breach or default of this Agreement constitute a waiver of any subsequent breach or default or a waiver of the provision itself.

18. If any term or provision of this Agreement, or the application thereof to any person or circumstance shall, in any extent, be invalid or unenforceable, the remainder of this Agreement shall not be affected thereby, and each term and provision shall be valid and enforceable to the fullest extent permitted by law.

Certificate of Insurance

1. The Original Certificate of Insurance must be mailed to:

Providence Water

125 Dupont Drive

Providence, RI 02907

Attention: Elizabeth Paquin

2. Certificate must be completely filled out listing all Insurance Companies, Coverage's. and Limits. Providence Water (PW) require the following Certificate must be completely filled out listing all Insurance Companies, Coverage's. and Limits. Providence Water (PW) require the following insurances requirements.

Required	Coverage
x	Worker's Compensation and Occupational Insurance: In statutory amounts, Covering all employees of the contractor. Employer's liability coverage with limits of not less than \$500,000.00/ each accident or illness shall be included.
x	Commercial General Liability Insurance: Commercial Liability Insurance with limits of not less than \$1,000,000.000 per occurrence, for bodily injury and/or property damage liability \$2,000,000.000 in the aggregate. Products/completed operation, independent contractors, and contractual liability coverages are to be included. No exclusions for rigging, hoisting, explosions, collapse and/or underground. Completed operations coverage must remain in effect for a period of not less than 2 years after the completion of all work. "The City of Providence, Providence Water, its officers and agents are to name as an additional insured."
x	Automobile Liability Insurance: When any motor vehicles are used in connection with the work to be performed the Contractor shall maintain Automobile Liability Insurance with limits of not less \$1,000,000.00 per occurrence, combined single limit, for bodily injury and property damage. "The City of Providence, Providence Water are to be named as additionally insured."
	Builder's Risk Policy: When a free standing unit is to be constructed or any addition to our facilities made in connection with the work specified, the Contractor must provide Builder's Risk Insurance or an Installation Floater covering all risks with limits equal to the award of the contract.
	Professional Liability Insurance: When any architects, engineers, or consulting firms perform work in connection with any contract, the contractor shall maintain Professional Liability Insurance with limits not less than \$2,000,000.00 per occurrence and aggregate.

3. The insured name must be the same name as the name on the bid submitted.
4. Insurance Certificates should state the Title of Project to be performed.

5. Certificate must read “The City of Providence, Providence Water, its Officers and Agents are named as additional insured.”
6. Certificate Holder provision of the certificate must list “The City of Providence and Providence Water.”
7. Cancellation and/or reduction in coverage must provide 30 days' notice.
8. The successful bidder must produce a satisfactory Certificate of Insurance within 10 days after award. No work will begin or contract signed unless all these requirements are met. Failure to do so may result in the cancellation of the award and award to another bidder.
9. The insurances specified shall be carried until all work required to be performed under the terms of the CONTRACTOR's services are satisfactorily completed and for a period of at least two years after the date when final payment becomes due. Failure to carry or keep such insurance in force shall constitute a violation of the contract, and the Providence Water \ maintains the right to stop work and/or withhold payment until proper evidence is provided.
10. The insurance shall provide for 30 days' prior written notice to be given to the Providence Water in the event coverage is substantially changed, canceled, or not renewed.
11. In no case shall the coverage limits stated for Commercial General Liability, Automobile Liability, or Professional Liability insurance stated above be less than the total contract amount. If the total contract amount exceeds any stated limit, the limit shall be adjusted to the satisfaction of the OWNER to the next highest \$1,000,000.00 exceeding the total contract amount.
12. Providence Water maintains the right to modify, delete, alter or change these requirements.
13. The successful bidder understands and agrees that any insurance protection furnished by the CONTRACTOR hereunder shall in no way limit its responsibility to indemnify and save harmless Providence Water.
14. For additional Information contact Elizabeth Paquin at (401)521-6300 ext. 7227

(SAMPLE ATTACHED)



CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)
03/11/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER A	CONTACT NAME:	
	PHONE (A/C. No. Ext): ()	FAX (A/C. No.):
E-MAIL ADDRESS:		
INSURER(S) AFFORDING COVERAGE		
NAIC #		
INSURED	INSURER A:	
	INSURER B: N	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

Holder Identifier :

COVERAGES**CERTIFICATE NUMBER:** 570061419077**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

Limits shown are as requested

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY			GL			EACH OCCURRENCE	\$1,000,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	\$
							MED EXP (Any one person)	\$10,000
							PERSONAL & ADV INJURY	\$1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	\$2,000,000
	<input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input checked="" type="checkbox"/> LOC						PRODUCTS - COMP/OP AGG	\$2,000,000
	OTHER:							
A	AUTOMOBILE LIABILITY			B			COMBINED SINGLE LIMIT (Ea accident)	\$1,000,000
	<input checked="" type="checkbox"/> ANY AUTO						BODILY INJURY (Per person)	
	<input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS						BODILY INJURY (Per accident)	
	<input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	
B	UMBRELLA LIAB	<input checked="" type="checkbox"/>	OCCUR				EACH OCCURRENCE	\$25,000,000
	<input checked="" type="checkbox"/> EXCESS LIAB		CLAIMS-MADE				AGGREGATE	\$25,000,000
	DED		RETENTION					
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER	
	ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	N / A				E.L. EACH ACCIDENT	\$1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE-EA EMPLOYEE	\$1,000,000
							E.L. DISEASE-POLICY LIMIT	\$1,000,000

Certificate No : 570061419077

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
RE:

CERTIFICATE HOLDER**CANCELLATION**

Providence Water 125 Dupont Drive Providence, RI 02907	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE

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BOARD OF CONTRACT AND SUPPLY

CITY OF PROVIDENCE, RHODE ISLAND

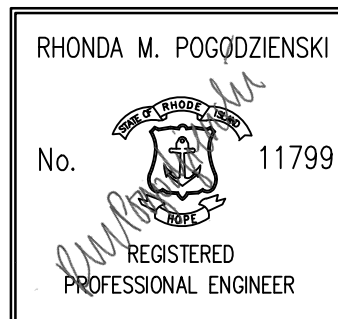
CONTRACT FOR

**REMOVAL AND DISPOSAL OF RESIDUALS FROM
THE SOUTH SEDIMENTATION BASIN**

PHILIP J. HOLTON WATER PURIFICATION PLANT

61 NORTH ROAD, SCITUATE, RHODE ISLAND

March 2023



AECOM

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END OF SECTION

SECTION 00200

INSTRUCTIONS TO BIDDERS

ARTICLE 1 – DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office* – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
 - B. *Bidder* - The individual or entity who submits a Bid directly to Owner.
 - C. *Successful Bidder* - The lowest, responsible Bidder submitting a responsive Bid to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the advertisement or invitation to bid may be obtained from the Issuing Office. The deposit, if any, will be refunded to each document holder of record who returns a complete set of Bidding Documents in good condition within 30 days after opening of Bids.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.
- 2.04 Deposit on Drawings and Documents:
- A. A \$250.00 deposit is required.
 - B. Upon award of the contract, the Contractor will be provided with a reasonable number of copies of reduced drawings and one full size set of reproducibles from which he can make, at his own expense, full size prints necessary for execution of the Work.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit, up front as part of Contractor's Bid, written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.

- A. The address and description of the Bidder's place of business.
- B. The number of years engaged in the contracting business under the present firm name, and the name of the state where incorporated.
- C. A list of the property and equipment available to the Bidder to evaluate if the Bidder can complete the Work in accordance with the Bidding Documents.
- D. A financial statement of the Bidder showing that the Bidder has the financial resources to meet all obligations incidental to the Work.
- E. The Bidder's performance record giving the description, location, and telephone numbers of similar projects constructed in a satisfactory manner by the Bidder.
- F. Documentation demonstrating that the Bidder has a MOD rate less than 1.0.
- G. A list of projects presently under contract, the approximate contract amount, and percent of completion of each.
- H. A list of contracts which resulted in law suits.
- I. A list of contracts defaulted.
- J. A statement of the Bidder indicating whether or not the Bidder has ever filed bankruptcy while performing Work of like nature or magnitude.
- K. A list of officers of the firm who, while in the employ of the firm or the employ of previous firms, were associated with contracts which resulted in lawsuits, contracts defaulted or filed for bankruptcy.
- L. The technical experience of personnel guaranteed to be employed in the responsible charge of the Work stating whether the personnel have or have not performed satisfactorily on other contracts of like nature and magnitude or comparable difficulty at similar rate of progress.
- M. Provide a narrative of the Contractor's understanding of the project and scope of work. Include the Contractor's proposed project management plan which, at a minimum, must address the following topics:
 - 1. Contractor's understanding of project scope and Providence Water's goals.

2. Contractor's proposed means and methods for removing liquid and solids from the South Sedimentation Basin.
 3. Contractor's proposed means and methods for dewatering residuals to 25 percent solids or greater.
 4. Contractor's proposed disposal site for dewatered residuals.
- N. Such additional information as will assist Owner in determining whether the Bidder is adequately prepared to fulfill the contract.
- 3.02 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.
- 3.03 Owner's decision as to qualification of the Bidders shall be final.
- 3.04 Ability and Experience of Bidder:
- A. No award will be made to any bidder who cannot satisfy the Owner that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the Work successfully within the time named. The Owner's decision or judgment on these matters shall be final, conclusive, and binding.
 - B. The Owner may make such investigations as it deems necessary, and the Bidder shall furnish to the Owner, under oath if so required, all such information and data for this purpose as the Owner may request.

ARTICLE 4 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 *Subsurface and Physical Conditions:*

- A. All information given on the Drawings or in the other Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of bidders and is not guaranteed.
- B. It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes or other structures encountered during construction will be the same as those indicated on the Drawings or in the other Contract Documents.
- C. It is agreed further and understood that no bidder or contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner or the Engineer, arising from or by reason of any variance which may exist

between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

D. The Supplementary Conditions identify:

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

E. Copies of reports and drawings referenced in Paragraph 4.01.D will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.02 *Underground Facilities*

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.03 *Hazardous Environmental Condition*

A. The Supplementary Conditions identify any reports and drawings known to Owner relating to a Hazardous Environmental Condition identified at the Site.

B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions has been identified and established in Paragraph 4.06 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 4.02, 4.03, and 4.04

of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 4.06 of the General Conditions.

- 4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.
- 4.06 Reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.
- 4.07 It is the responsibility of each Bidder before submitting a Bid to:
- A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;
 - B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
 - C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;
 - D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Paragraph 4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Paragraph 4.06 of the Supplementary Conditions as containing reliable "technical data";
 - E. consider the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques,

sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs;

- F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
- I. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
- J. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 – PRE-BID CONFERENCE

5.01 A Pre-Bid conference will be held at 10 a.m. local time on April 19, 2023 at the Philip J. Holton Water Purification Plant located at 61 North Road, Scituate, Rhode Island. Representatives of Owner and Engineer will be present to discuss the Project. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 – SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents.

- 6.02 All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.
- 6.03 The Contractor shall not work on property requiring obtaining of an easement until the Owner has obtained the necessary easement.
- 6.04 The Contractor shall have no claim for additional compensation or damage on account of any delay in obtaining the necessary easements.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received later than end of business on April 26, 2023 will not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 To receive consideration, such questions shall be submitted in writing to the Owner at least seven days before the established date for receipt of Bids. If the question involves the equality or use of products or methods, it must be accompanied by drawings, specifications or other data in sufficient detail to enable the Engineer to determine the equality or suitability of the product or method. In general, the Engineer will neither approve nor disapprove particular products prior to the opening of Bids; such products will be considered when offered by the Contractor for incorporation into the Work.
- 7.03 The Engineer will set forth as Addenda, which shall become a part of the Contract Documents, such questions received as above provided as in his sole judgment are appropriate or necessary and his decision regarding each. At least five days prior to the receipt of Bids, he will send a copy of these Addenda to those prospective bidders known to have taken out sets of the Drawings and other Contract Documents.
- 7.04 The Contractor agrees to use the products and methods designated or described in the Specifications as amended by the Addenda.
- 7.05 *Items and Indeterminate Items:*
 - A. The work to be done under this contract has been divided into parts or items to enable each bidder to bid on different portions of the work in accordance with his estimate of their cost and so that the actual quantity of work executed under each item may be paid for at the price bid for that particular item, even though such quantity is greater or less than the estimated quantity stated in the Bid.

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in amount of not less than 5 percent of the Bidder's maximum Bid price and in the form of a certified check or a Bid Bond (on the form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider the Bidder to be in default and annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.
- 8.03 Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Agreement or 61 days after the Bid opening, where upon the Bid security furnished by such Bidders will be returned.
- 8.04 Bid security of the other Bidders whom Owner believes do not have a reasonable chance of receiving the award and who furnished certified checks will have checks returned within 7 days after the Bid opening. Bond forms will be returned upon request.

ARTICLE 9 – CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or “or-equal” items. Whenever it is specified or described in the Bidding Documents that a substitute or “or-equal” item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.

ARTICLE 12 – BASIS OF DESIGN AND MAJOR EQUIPMENT ITEMS

12.01 *Basis of Design*

- A. Unless otherwise indicated, design of this Project is based upon the material or Supplier's equipment named first in the list of manufacturers in the Specifications. Engineer has performed an evaluation of other listed manufacturers for compliance with the requirements of the Contract Documents. When other manufacturers are listed, Contractor may be required to make modifications or adjustments, at Contractor's expense, to coordinate the installation of the furnished equipment with associated elements of Work, such as piping and electrical connections, or support and mounting provisions.

ARTICLE 13 – SUBCONTRACTORS, SUPPLIERS AND OTHERS

- 13.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.
- 13.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.
- 13.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.
- 13.04 Contractor shall perform with its own work forces the percentage of the Work identified in Paragraph SC 6.06.A.1 of the Supplementary Conditions.

ARTICLE 14 – PREPARATION OF BID

- 14.01 The Bid Form is included with the Bidding Documents.

- A. All blanks on the Bid Form shall be completed in ink and Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form.
- B. A Bid price shall be indicated for each unit price item listed therein.
- C. The Bid shall contain an acknowledgement of the receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- D. Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- E. All names shall be printed in ink below the signatures.
- F. It is the responsibility of the Bidder to submit a neat, accurate, and complete Bid.

14.02 The Bidder, when signing the Bid(s) shall meet the following requirements:

- A. A Bid by an individual shall show Bidder's name and Bidder's official address.
- B. A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature) accompanied by evidence of authority to sign. The official address of the partnership shall be shown.
- C. A Bid by a corporation 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. 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.
- D. A Bid by a joint venture shall be executed by each joint venture in the manner indicated on the Bid form. The official address of joint venture shall be shown.
- E. A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.

14.03 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state Contractor license number, if any, shall also be shown on the Bid form.

14.04 Bidders may submit a Bid for a combination of bids as provided on the Bid Form.

ARTICLE 15 – BASIS OF BID; COMPARISON OF BIDS

15.01 *Unit Price*

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

ARTICLE 16 – SUBMITTAL OF BID

16.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the following documents:

- A. A Bid shall be submitted no later than the date and the time prescribed and at the place indicated in the Invitation to Bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of the Bidder, and shall be accompanied by the Bid security and other required documents. If the Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." No oral, facsimile, or telephonic bids will be accepted. A mailed Bid shall be addressed to the address indicated on the Bid Form.
- B. OWNER may consider informal any Bid not prepared and submitted in accordance with the provisions hereof.
- C. Bidders are cautioned that it is the responsibility of each individual bidder to assure that his bid is in the possession of the responsible official or his 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.

16.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or

other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED."

- 16.03 Bids received after the official Bid closure time will be returned to the Bidder unopened.

ARTICLE 17 – MODIFICATION AND WITHDRAWAL OF BID

- 17.01 Bids may be withdrawn prior to opening of the Bids upon written request of the Bidder, or the personal appearance of the Bidder or Bidder's designated representative. Bids may not be modified and resubmitted prior to the Bid opening time if a Bidder claims a mistake, omission, or error in the preparation of the Bid. Withdrawn Bids may not be resubmitted unless the Work is re-advertised and rebid upon such advertisement.

ARTICLE 18 – OPENING OF BIDS

- 18.01 Bids will be opened at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 19 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 19.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 20 – EVALUATION OF BIDS AND AWARD OF CONTRACT

- 20.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.
- 20.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 20.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 20.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or

entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

- 20.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.
- 20.06 In the event that there is a discrepancy in the Bid between the lump sum or unit prices written in words and figures, the prices written in words shall govern.
- 20.07 The Owner reserves the right to decrease the scope of the work to be done under this contract and to omit any work in order to bring the cost within available funds. To this end, the Owner reserves the right to reduce the quantity of any items or omit all of any items as set forth in the Bid, either prior to executing the contract or at any time during the progress of the work. The Owner further reserves the right, at any time during the progress of the work, to restore all or part of any items previously omitted or reduced. Exercise by the Owner of the above rights shall not constitute any ground or basis of claim for damages or for anticipated profits on the work omitted.
- 20.08 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.
- 20.09 The Owner reserves the right to omit certain items in their entirety and other items in part as set forth in the Bid.
- 20.10 A conditional or qualified Bid will not be accepted. The cost-plus-percentage-of-cost (e.g., a multiplier which includes profit) and the percentage-of-construction-cost types of sub-agreements shall not be used.
- 20.11 Award will not be made to Contractors who have been suspended, debarred or voluntarily excluded under 40 CFR Part 32, nor shall any portion of the Work required by sub-agreements to be performed at any facility listed on the EPA List of Violating Facilities (40 CFR Part 15).

ARTICLE 21 – CONTRACT SECURITY AND INSURANCE

- 21.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 22 – SIGNING OF AGREEMENT

- 22.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other

Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

22.02 The Notice of Award will be issued within 60 days after the Bids are received.

ARTICLE 23 – WAGE RATES

23.01 Each Contractor or Subcontractor performing Work on this Project shall comply in all respects with all laws governing the employment of labor, Social Security, and Unemployment Insurance of both the state and federal government. There shall be paid each employee engaged in Work under this Contract at the Site of the Project, the minimum wage for the classifications of labor employed. Bidders shall make their own investigation locally and satisfy themselves as to availability of labor.

ARTICLE 24 – SALES AND USE TAXES

24.01 Provisions for the Bidder's responsibilities for sales and other taxes appear in Paragraph 6.10 of the General Conditions and as supplemented in the Supplementary Conditions. Bidder shall investigate the statutory requirements for payment of sales taxes and if required shall include the tax in the Bid.

24.02 If investigation indicates tax exempt status, Contractor(s) shall forward this information to its Suppliers in order that the sale of such materials and equipment be properly recorded as a tax-exempt sale.

24.03 Materials and equipment purchased for installation under this contract are exempt from the Rhode Island Sales Tax. The Contractor shall file for exemption in behalf of the City of Providence with the State of Rhode Island Department of Taxation as required by law. The exemption from the Sales Tax shall be taken into account by the Contractor during bidding.

ARTICLE 25 – MBE/WBE FORMS

25.01 *Minority/Women's/Small Business Enterprises Participation*

A. The City of Providence actively seeks Minority and Women business enterprises to participate in bids to meet the City's procurement needs. Pursuant to the City of Providence Code of Ordinances, Chapter 21, Article II, Sec. 21-52 (Minority and Women's Business Enterprise) and Rhode Island General Laws (as amended), Chapter 31-14, et seq. (Minority Business Enterprise), Minority Business Enterprise (MBE) and Women's Business Enterprise (WBE) participation goals apply to contracts.

1. The goal for Minority Business Enterprise (MBE) participation is 10% of the total bid value.

2. The goal for Women's Business Enterprise (WBE) participation is 10% of the total bid value.
- B. The goal for combined MBE/WBE participation is 20% of the total bid value.
- C. Only businesses certified with the State of Rhode Island as minority and/or women business enterprises are counted towards the City's goals. Eligible minority or women-owned businesses are encouraged to seek certification from the State of Rhode Island Minority Business Enterprise Compliance Office at: <http://odeo.ri.gov/offices/mbeco/>
- D. Note: MBE certification with the State of Rhode Island on the basis of Portuguese heritage is not currently recognized by the City of Providence's MBE program.

ARTICLE 26 – RETAINAGE

- 26.01 Provisions concerning Contractor's rights to deposit securities in lieu of retainage are set forth in the Agreement.

ARTICLE 27 – OTHER CONTRACTS

- 27.01 The attention of bidders is directed to the fact that the work to be done under this contract is only part of a program of improvements, that contracts have been let for additional facilities, and that the successful operation of the improvements is dependent upon the completion of the work under this contract and of the work to be done by others.
- 27.02 It is essential that all parties interested in the project cooperate to the end that the entire project will be brought to a successful conclusion as rapidly as possible, but the Owner cannot guarantee that no interference or delay will be caused thereby. Interference and delay resulting from such cooperation shall not be the basis of claims against the Owner.

END OF SECTION

SECTION 00301

BID

**Removal and Disposal of
Residuals for the South Sedimentation Basin at the
Philip J. Holton Water Purification Plant**

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Board of Contract and Supply
Department of the City Clerk – City Hall Room 311
25 Dorrance Street
Providence, RI 02903

(Hereinafter called Owner)

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

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for the Bid withdrawal time period specified in the Official Notice to Bidders or Notice of Public Hearing and Letting after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

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

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."
- E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- J. Bidder agrees to comply with the Minority/Women's/Small Business Enterprise participation.
- K. In connection with the performance of Work under this Contract, Bidder agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition, development disability.

ARTICLE 4 – BIDDER’S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

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

- A. Unit Prices shall be computed in accordance with Paragraph 11.03.B of the General Conditions.

BID ITEMS

Bidder agrees to perform all Work, including all incidental labor, materials, and equipment necessary for the satisfactory completion of the Work and in full compliance with the contents and intent of the Contract Documents of the Work, for the following prices listed below.

All prices, except item totals, shall be stated in both words and figures. In the event of a discrepancy between the price in words and the price in figures, the words shall govern. In the event of a discrepancy between the total of the Items and the total stated, the total of the Items shall govern.

Interlineations, alteration, or erasure may void the Bid. All prices shall be typewritten or written by hand in ink.

Item		Quantity	Extended Total
1.	For Mobilization/Demobilization, (not to exceed five percent of the Total Bid Amount exclusive of Item 1) as specified, the sum of		
	<hr/> Dollars (\$)) Lump Sum	<hr/> 1	<hr/>
2.	For Office for Owner and Engineer, as specified, the sum of		
	<hr/> Dollars (\$)) Lump Sum	<hr/> 1	<hr/>
3.	For Decant of Coagulated Water from the South Sedimentation Basin, as specified, the sum of		
	<hr/> Dollars (\$)) per 10,000 gallons	<hr/> 6,700	<hr/>
4.	For the Removal, Dewatering and Disposal of Residuals from the South Sedimentation Basin as specified, the sum of		
	<hr/> Dollars (\$)) per Dry Ton	<hr/> 6,000	<hr/>
5.	For the Removal and Disposal of Residuals from the Existing East Drying Bed (DB1) as specified, the sum of		
	<hr/> Dollars (\$)) per Dry Ton	<hr/> 1,850	<hr/>
6.	For the Removal, Dewatering and Disposal of Residuals from the Existing West Drying Bed (DB2) as specified, the sum of		
	<hr/> Dollars (\$)) per Dry Ton	<hr/> 1,850	<hr/>

Item		Quantity	Extended Total
7.	For excavation of unsuitable material <u>below</u> finished grade and/or subgrade of structures and pipelines including replacement with suitable fill material, as specified, the sum of		
	<u>Dollars (\$) per cubic yard</u>	<u>1000*</u>	<u></u>
8.	For experimental excavation as approved by the Engineer and as specified, the sum of		
	<u>Dollars (\$) per cubic yard</u>	<u>1000*</u>	<u></u>
9.	For installation of five (5) slide gates provided by the Owner and as specified, the sum of		
	<u>Dollars (\$) lump sum</u>	<u>1</u>	<u></u>
10.	Allowance #1 Unknown Conditions, the sum of		
	<u>Two Hundred Thousand Dollars and Zero Cents</u>	<u>1</u>	<u>\$200,000.00</u>
11.	Allowance #2 Miscellaneous Landscaping Improvements, the sum of		
	<u>Two Hundred Thousand Dollars and Zero Cents</u>	<u>1</u>	<u>\$200,000.00</u>

*Indeterminate; quantity is assumed for comparison of bids

**Bidder must insert minimum price or greater and insert extended item prices.

TOTAL AMOUNT OF BID BASED ON ENGINEER'S ESTIMATE OF QUANTITIES:
(Items 1 through 11, inclusive) - BASIS OF AWARD.

Dollars (\$)

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.

The undersigned agrees that, if he is selected as general contractor, he will within 10 days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding

Residuals Removal
South Sedimentation Basin

Bid
Section No. 00301-5

authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price; provided, however, that if there is more than one surety company, the surety companies shall be jointly and severally liable.

Bid security is attached in the sum of five percent (5%) of the total bid in accordance with the conditions of Section 00100 INSTRUCTIONS TO BIDDERS. The bid security may become the property of the Owner in the event the contract and bond are not executed within the time set forth above.

The selected Contractor shall furnish a performance bond and a payment bond in an amount at least equal to one hundred percent (100%) of the contract price in accordance with Section 00610 CONSTRUCTION PERFORMANCE BOND, Section 00620 CONSTRUCTION PAYMENT BOND, and as stipulated in the contract. The Performance Bond shall list the City of Providence and shall remain in force for a period of three (3) years from final acceptance of the Work.

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder agrees that the Work to remove decant water and residuals from the south sedimentation basin will be completed within 105 days from when the Contract Times commence and will be ready for payment in accordance with Paragraph 14.07 of the General Conditions within 105 days from when the Contract Time commence.
- 6.03 Bidder agrees that the Work will be substantially complete within 280 calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 280 calendar days after the date when the Contract Times commence to run.
- 6.04 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are to be submitted with and made a condition of this Bid:
 - A. Required Bid security in the form of a Bid Bond;
 - B. Detailed Proposal describing proposed means and methods to be employed to remove liquid and residuals from the South Sedimentation Basin and dewater to 25 percent solids or greater prior to removal from the site. Provide a narrative of the firm's understanding of the project and scope of work. Include the proposed means and methods to achieve the project goals and examples of where and when these methods have been used successfully by the bidder.
 - C. List of Proposed Subcontractors. Use the form included as Appendix A.

- D. List of Proposed Suppliers. Use the form included as Appendix B.
- E. List of Project References. Use the form included as Appendix C.
- F. Evidence of authority to do business in the state of Rhode Island; or a written covenant to obtain such license within the time for acceptance of Bids;
- G. Documentation demonstrating that the Bidder has a MOD rate less than 1.0.
- H. Required Bidder Qualification Statement with Supporting Data; and
- I. Ownership statement. Use the form included as Appendix D.

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

- 9.01 This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____

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

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

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

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

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest _____

Date of Qualification to do business in *[State where Project is located]* is
____/____/____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

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

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

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

Name (typed or printed): _____

Title: _____

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

Bidder's Business Address _____

Phone No. _____ Fax No. _____

E-mail _____

SUBMITTED on _____, 20____.

State Contractor License No. _____. *[If applicable]*

Sworn and subscribed to before me this

_____ day of _____, 20____.

Notary or other officer authorized to administer oaths

My commission expires: _____, 20____.

(Bidders shall not add any conditions or qualifying statements to this Bid as otherwise the Bid may be declared irregular as being not responsive to the advertisement. **BIDDERS SHALL USE THIS BID FORM IN SUBMITTING THEIR BIDS.**)

APPENDIX A

Herewith is the list of Subcontractors referenced in the Bid submitted by:

(Bidder)

(Owner)

dated _____

The following work will be performed (or provided) by the following Subcontractors, and coordinated by us:

[illegible]

APPENDIX B

Herewith is the list of Suppliers referenced in the Bid submitted by:

(Bidder)

(Owner)

dated _____

The following work will be performed (or provided) by the following Suppliers, and coordinated by us:

SECTION OF WORK	EQUIPMENT NAME	SUPPLIER'S NAME

APPENDIX C

Herewith is the list of Project References referenced in the Bid submitted by:

(Bidder)

(Owner)

dated _____

The following work will be performed (or provided) by the following Project References, and coordinated by us:

PROJECT	
Owner's Name	
Owner's Contact Person	
Owner's Contact Phone Number	
Owner's Contact Address	
Owner's Contact Email Address	
Owner's Name	
Owner's Contact Person	
Owner's Contact Phone Number	
Owner's Contact Address	
Owner's Contact Email Address	
Owner's Name	
Owner's Contact Person	
Owner's Contact Phone Number	
Owner's Contact Address	
Owner's Contact Email Address	

Owner's Name	
Owner's Contact Person	
Owner's Contact Phone Number	
Owner's Contact Address	
Owner's Contact Email Address	

Owner's Name

Owner's Contact Person

Owner's Contact Phone Number

Owner's Contact Address

Owner's Contact Email Address

APPENDIX D
OWNERSHIP STATEMENT

OWNER	-	City of Providence, Board of Contract and Supply
ENGINEER	-	AECOM
PROJECT	-	Removal and Disposal of Residuals from the South Sedimentation Basin
CONTRACT NO.	-	[]

ARTICLE 1

- 1.1 If the Bidder is a corporation, partnership, limited partnership, limited liability corporation, limited liability partnership or a subchapter S corporation, the Bidder, in compliance with P.L. 1977, Chapter 33, shall submit, with the Bid, the following statement setting forth the names and addresses of all stockholders or individual partners who own ten percent (10%) or more of its stock or interest. If one or more such stockholder or partner is itself a corporation, partnership, limited partnership, limited liability corporation, limited liability partnership or a subchapter S corporation, the stockholders holding ten percent (10%) or more of that corporation's stock, or the individual partners owning ten percent (10%) or greater interest in that partnership, as the case may be, shall also be listed.

IF NONE, SO STATE

INDIVIDUAL

ADDRESS

NOTE: ADDITIONAL SHEETS CONSISTING OF __ PAGES ARE ATTACHED.

END OF SECTION

SECTION 00410

BID BOND

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

BIDDER *(Name and Address)*:

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

OWNER *(Name and Address)*:

BID

Bid Due Date: May 8, 2023

Description *(Project Name and Include Location)*:

Removal and disposal of Residuals from the South Sedimentation Basin at the Philip J. Holton Water Purification Plant.

BOND

Bond Number:

Date *(Not earlier than Bid due date)*:

Penal sum _____ \$ _____
(Words) (Figures)

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

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal) Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

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

SECTION 00520

AGREEMENT

THIS AGREEMENT is by and between the City of Providence (“Owner”) and
_____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described in **Section 01010– Summary of Work**:

ARTICLE 2 – THE PROJECT

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

Removal and disposal of Residuals from the South Sedimentation Basin at the Philip J. Holton Water Purification Plant.

ARTICLE 3 – ENGINEER

- 3.01 The Project has been designed by AECOM (Engineer), which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.
- 3.01 The Project has been designed by AECOM (Engineer) who will issue clarifications and interpretations in accordance with Paragraph 9.08 of the General Conditions.
- 3.02 Owner will provide a site representative who is to act as Owner’s representative, assume duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents except as described in Paragraph 3.01.

ARTICLE 4 – CONTRACT TIMES

- 4.01 *Time of the Essence*

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

4.02 *Days to Achieve Substantial Completion and Final Payment*

- A. The Work for draining, cleaning and returning the South Sedimentation Basin to service will be substantially completed within 105 calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions. Final drying of the residuals and removal from the site will be completed within 280 calendar days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$2,500 for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$2,500 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

- 4.04 Permitting Contractor or Surety to continue and finish the Work or any part of the Work after the times specified for completion, or after the date to which the times for completion may have been extended, shall in no way operate as a waiver on the part of Owner of its rights under the Contract.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A below:

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

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 30th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.
1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
 - a. 95 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and
 - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.
- B. Retainage. The Owner may retain out of the moneys otherwise payable to the Contractor hereunder a percentage of 2 percent and may expend the same, in the manner hereinafter provided, in making such repairs, corrections or replacements in the Work as the Owner, in its sole judgment, may deem necessary.

If at any time within the said period of guarantee any part of the Work requires repairing, correction or replacement, the Owner may notify the Contractor in writing to make the required repairs, correction or replacements. If the Contractor neglects to commence making such repairs, correction, or replacements to the satisfaction of the Owner within three (3) days from the date of receipt of such notice, or having commenced fails to prosecute such work with diligence, the Owner may employ other persons to make the same. The Owner shall pay the cost and expense of the same out of

the amounts retained for that purpose. Upon the expiration of the said period of guarantee, provided that the Work at that time is in good order, the Contractor will be entitled to receive the whole or such part of the sum last aforesaid, if any, as may remain after the cost and expense of making said repairs, correction or replacements, in the manner aforesaid, have been paid therefrom.

ARTICLE 7 – NOT USED

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

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

- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."
- E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor’s safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. In connection with the performance of Work under this Contract, Contractor agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition or developmental disability. This provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. Contractor further agrees to take affirmative action to ensure equal employment opportunities for persons with disabilities. Contractor agrees to post in conspicuous places, available for employees and applicants for employment, notices setting forth the provisions of the nondiscrimination clause. Form of notice is included in the Project Forms.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 00520-1 to 00520-[____], inclusive).
 - 2. Performance bond (pages 00610-1 to 00610-3, inclusive).
 - 3. Payment bond (pages 00620-1 to 00620-3, inclusive).
 - 4. General Conditions (pages 00700-1 to 00700-41, inclusive).
 - 5. Supplementary Conditions (pages 00800-1 to 00800-[____], inclusive).
 - 6. Specifications as listed in the table of contents of the Project Manual.
 - 7. Drawings consisting of [____] sheets with each sheet bearing the following general title: [____] [or] the Drawings listed on attached sheet index.
 - 8. Addenda (numbers ____ to ____, inclusive).
 - 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages ____ to ____, inclusive).
 - b. Documentation submitted by Contractor prior to Notice of Award (pages ____ to ____, inclusive).
 - 10. Wage Rates.

11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

- a. Notice to Proceed (pages _____ to _____, inclusive).
 - b. Work Change Directives.
 - c. Change Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

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

10.02 *Assignment of Contract*

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

10.03 *Successors and Assigns*

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

10.04 *Severability*

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

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

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

OWNER:

CONTRACTOR

By: _____

Title: _____

By: _____

Title: _____

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

[CORPORATE SEAL]

Attest

.

Title: _____

Address for giving notices:

Attest: _____

Title: _____

Address for giving notices:

License No.: _____

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

(Where applicable)

Agent for service of process:

Countersigned By:

Comptroller
(Or other designated official)

END OF SECTION

PERFORMANCE BOND (EJCDC C-610)

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

SURETY

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

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

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

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 (EJCDC C-615)

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

Surety's Name and Corporate Seal

By: _____
Signature

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

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

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



Issued and Published Jointly by



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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 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. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *Notice to Proceed*—A written notice 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.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *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.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.
35. *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.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *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, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *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.
40. *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.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *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 a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *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 but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs 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 Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- 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. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- 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. *Bonds*: 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 Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), 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;
 2. a preliminary Schedule of Submittals; and

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

2.04 *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 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, 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 and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *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 2.03.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 the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, 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.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, 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, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract 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, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. 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 part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or 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) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) 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 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
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:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); 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 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers 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 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; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- 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.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *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 Contract 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 Contract. 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 Contract, whichever date is earlier.

4.02 *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 such date.

4.03 *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.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 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 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. 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, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, 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 Times and Contract Price. 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.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. 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. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *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.
- 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 permanent improvements are to be made 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.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

- 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
- 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, 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 any such claim, and against all 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 directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent 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 and adjacent areas 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 of 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 structures or land to stresses or pressures that will endanger them.

5.03 *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 adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on 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.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site 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 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; 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 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - 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 Paragraph 13.03; and,

- c. 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.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a 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 otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent 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 do not warrant or guarantee 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 information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then 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 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - 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 Paragraph 13.03;
 - c. 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; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on 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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) 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 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. 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, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. 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, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. 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 (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. 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 failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, 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. 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 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond 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 the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then 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 bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, 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.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. 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.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against 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. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; 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 (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
 - 1. include at least the specific coverages provided in this Article.
 - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 - 5. be appropriate for the Work being performed and provide protection from claims that 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.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, 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.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable 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 Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 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; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; 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. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, 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 insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the 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 Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, 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 or Contractor as trustee or fiduciary, 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 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 occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.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, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, 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 builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *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.
- 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.

7.02 *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, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *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, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work 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.

7.04 "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 Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item 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 is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that 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, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - 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.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. 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:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) 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
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
- d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. 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.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. 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 the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. 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.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. 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.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. 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 money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

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

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 *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.

7.10 *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 or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and 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 such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

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

7.12 *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, other work in progress, 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 Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - 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 7.12.A.2 or 7.12.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 at its expense (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 protection 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 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *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.

7.14 *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.

7.15 *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.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the 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 and equipment 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 of that submittal, and that Contractor approves the 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 set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- 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 7.16.D.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall 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 7.16.D.

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

C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample 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 7.16.A.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 will document any such approved variation from the requirements of the Contract Documents in a Field Order.
5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

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.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *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 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;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, 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 7.18.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 7.18.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.

7.19 *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 Laws and Regulations.
- 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, 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, 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 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. 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.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, 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.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. 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.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) 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 any such claims, and against all 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 damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

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

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *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 (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- 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.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *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.

10.02 *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 10.08. 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.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. 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.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. 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, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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 15.06.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 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-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. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *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, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. 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, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, 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 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.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 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - 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 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. 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;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *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.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work 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 13.01.C, 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, and 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 13.01.
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 6.05), 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 communication 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 that Contractor is required by the Contract Documents to purchase and maintain.

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

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here 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 Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole 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, Change Proposal, Claim, set-off, or other 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 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, 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.

13.02 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*: Contractor agrees that:
 - 1. 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
 - 2. 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*: 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.

13.03 *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. Payments to Contractor for Unit Price Work will be based on actual quantities.
- 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. 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 the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price 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;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it 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 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction 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.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- 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, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. 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. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages 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. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then 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, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *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, then 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.

14.07 *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, 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, then 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 14.07, 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, 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 incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 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 during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *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, a warehouse bond, 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.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, 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 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; 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 money 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 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

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

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. 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;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, 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, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

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 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *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 and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- 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 preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. 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 punch list.

15.04 *Partial Use or Occupancy*

- 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. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be 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 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work 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 15.03 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 6.05 regarding builder's risk or other property insurance.

15.05 *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, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *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, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) 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, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

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 have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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 15.07. 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. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *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 Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 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 to 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. 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 repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- 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, 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 are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *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 written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and 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);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.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 the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds 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.

- F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *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; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) 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 16.03.
- 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 are not intended to preclude Contractor from submitting a Change Proposal 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 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract 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.

18.03 *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. 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.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Headings*

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

SECTION 00800

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC No. C-700, 2013 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not specifically amended or supplemented hereby remain in full force and effect.

ARTICLE 1. DEFINITIONS AND TERMINOLOGY

SC-1.01.A.13

Add the following language at the beginning of the definition entitled "Contract Documents" in the General Conditions:

The Invitation to Bid, Instructions to Bidders

SC-1.01.A.28

Add the following language to the definition entitled "Owner" in the General Conditions:

The "Owner" shall mean the City of Providence, Rhode Island.

SC-1.01.A.40

Delete the definition of Substantial Completion in the General Conditions in its entirety and add the following in its place:

The Work required by the Contract has been completed except for work having a Contract Price of less than one percent of the then adjusted total contract price, or substantially all of the Work has been completed and opened to Owner's use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work required by the Contract.

SC-1.01.A.49

Add the following definition to the General Conditions:

"State" shall mean the State of Rhode Island.

ARTICLE 2. PRELIMINARY MATTERS

SC-2.01.C

Delete this paragraph

SC-2.01.D

Add a new paragraph immediately after paragraph 2.01.C of the General Conditions, which is to read as follows:

D. Non-Resident Contractor: The CONTRACTOR, if a corporation established under laws other than the State in which the proposed construction is located, shall file with the OWNER, notice of the name of its resident attorney-in-fact, appointed as required by the laws of the State in which the proposed construction is located. The CONTRACTOR, if a resident of a State other than that in which the proposed construction is located and not a corporation, shall file, at the time of execution of the Agreement, with the OWNER a written appointment of a resident of the State in which the construction is located, having an office or place of business therein, to be his true and lawful attorney upon whom all lawful processes in any actions or proceedings against him may be served; and in such writing, which shall set forth said attorney's place of residence, shall agree that any lawful process against him which is served on said attorney shall be of the same legal force and validity as if served on him and that the authority shall continue in force so long as any liability remains outstanding against him in said State. The power of attorney shall be filed in the office of the Secretary of the State if required, and copies certified by the Secretary shall be sufficient evidence thereof. Such appointment shall continue in force until revoked by an instrument in writing, designating in a like manner some other person upon whom such processes may be served, which instrument shall be filed in the manner provided herein for the original appointment.

SC-2.05

Add the following paragraphs immediately after paragraph 2.05.A.3 of the General Conditions which is to read as follows:

2.05.A.4 Before any work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy to ENGINEER, certificates of insurance (and other evidence of insurance requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with the requirements of Article 6.

2.05.A.5 Contractor shall include and identify on the certificate of insurance, indemnification as required by Article 7.18.

ARTICLE 3. DOCUMENTS: INTENT, REQUIREMENTS, REUSE

SC-3.01

Add the following paragraphs immediately after paragraph 3.01.A of the General Conditions which is to read as follows:

3.01.A.1 Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though they were included herein. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then

upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

3.01.A.2 Sections of Division 1 - General Requirements govern the execution of the work of all sections of the specifications.

SC-3.02.A.1

Delete the portion of the paragraph starting at “shall mean” through the end of this sentence and insert the following:

“shall mean the standard, specification, manual, code, or Laws or Regulations in effect and applicable at the time in question, except as may be otherwise specifically stated in the Contract Documents.”

SC-3.03.A.3

Delete Paragraph 3.03.A.3 in its entirety and insert the following:

“CONTRACTOR shall be liable to OWNER and/or ENGINEER for failure to report any such conflict, error, ambiguity or discrepancy if Contractor knew or reasonably should have known thereof.”

ARTICLE 4. COMMENCEMENT AND PROGRESS OF THE WORK

SC 4.01

Delete paragraph 4.01 in its entirety and insert the following in its place:

4.01 The Contract Time will commence to run on the day indicated in the Notice to Proceed.

SC-4.03.A

Add a new paragraph at the end of paragraph 4.03.A of the General Conditions which is to read as follows:

“4.03.B ENGINEER may check the lines, elevations, reference marks, batter boards, etc., set by CONTRACTOR, and CONTRACTOR shall correct any errors disclosed by such check. Such a check shall not be considered as approval of CONTRACTOR's work and shall not relieve CONTRACTOR of the responsibility for accurate and satisfactory construction and completion of the entire Work. CONTRACTOR shall furnish personnel to assist ENGINEER in checking lines and grades.”

SC-4.04

Add the following paragraph after paragraph 4.04.A.2 of the General Conditions:

"3. The CONTRACTOR's resident superintendent shall attend monthly progress meetings at the site of the work with the ENGINEER and others as appropriate to review schedule status and such other pertinent subjects as may be listed on the agenda by the ENGINEER."

SC- 4.05.A

Delete Paragraph 4.05.A in its entirety.

SC-4.05.G

Delete Paragraph 4.05.G and insert the following in its place:

“Delays caused by or within the control of the OWNER: In such event, the CONTRACTOR’S sole remedy shall be an extension of the Contract Time. Notwithstanding anything to the contrary in the Contract Documents, CONTRACTOR shall not be eligible for any increase in the Contract Price on account of any delay in the Work, no matter by whom such delay is caused, and CONTRACTOR shall make no claim for such an increase, whether such claim is styled as a claim for delay damages, acceleration of work, loss of production, or otherwise.”

ARTICLE 5. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.01

Add a new paragraph immediately after paragraph 5.01.A of the General Conditions which is to read as follows:

“5.01.A.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 and no claim for damages whatsoever will be allowed by reason of the delay in obtaining the remaining lands and rights-of-way. Should OWNER be prevented or enjoined from proceeding with the Work, or from authorizing its prosecution, either before or after the commencement, by reason of any litigation, or by reason of its inability to procure any lands or rights-of-way for the Work, CONTRACTOR shall not be entitled to make or assert claim for damage by reason of said delay, or to withdraw from the Agreement except by consent of OWNER. Time for completion of the Work will be extended as provided in Article 11, to such time as OWNER determines will compensate for the time lost by such delay.”

SC-5.01.B

Delete Paragraph 5.01.B in its entirety.

SC-5.03

In paragraph 5.03.B insert the word “reasonably” before the word “rely” in the first line and insert the following at the end of the first sentence:

“; the OWNER does not warrant or guarantee the accuracy or completeness of the information therein, and the CONTRACTOR may not so rely to the extent that the CONTRACTOR knows, or reasonably should have known, of any inaccuracy or omission therein.

SC-5.04

Insert the following paragraph before Paragraph 5.04.A

“5.04 Differing Subsurface or Physical Conditions

If, during the progress of the Work, the CONTRACTOR or the OWNER discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the Contract Documents either the CONTRACTOR or the OWNER may request an equitable adjustment in the Contract Price applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such request to the other party as soon as possible after such conditions are discovered. Upon receipt of such a request from the CONTRACTOR, or upon its own initiative, the OWNER will make an investigation of such physical conditions, and if they differ substantially or materially from those shown on the plans or indicated in the Contract Documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and Contract Documents and are of such a nature as to cause an increase or decrease in the cost of performance of the Work or a change in the construction methods required for the performance of the Work which results in an increase or decrease in the cost of the Work, the OWNER will make an equitable adjustment in the Contract Price and the Contract shall be modified in writing accordingly.”

SC-5.04.D.1

Delete Paragraph 5.04.D.1 in its entirety.

Add a new paragraph immediately after paragraph 5.04.D of the General Conditions which is to read as follows:

“5.04.E Adjustments resulting from actual subsurface or latent physical conditions from those indicated will be in accordance with the applicable provisions of the Contract Documents.”

SC-5.05.B

Delete the phrase “or was not shown or indicated with reasonable accuracy” following the words “Contract Documents” in the first sentence of Paragraph 5.05.B.

SC-5.06.B

Delete Paragraph 5.06.B in its entirety.

SC-5.06.C

Add the following at the end of Paragraph 5.06.C: “,or unless CONTRACTOR caused or contributed to such Hazardous Environmental Condition.”

SC-5.06.E

Delete the second and third sentences of Paragraph 5.06.E.

SC-5.06.I

Delete Paragraph 5.06.I in its entirety.

SC-5.06.J

Delete the last sentence of Paragraph 5.06.J.

ARTICLE 6. BONDS AND INSURANCE

SC-6.02

Delete Paragraph 6.02.D in its entirety.

Add a new paragraph immediately after paragraph 6.02.J of the General Conditions which is to read as follows:

"K. If OWNER has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by CONTRACTOR in accordance with this Article 6 on the basis of its not complying with the Contract Documents, OWNER will notify CONTRACTOR in writing thereof within thirty days of the date of delivery of such certificates to OWNER in accordance with paragraph 2.01.B. CONTRACTOR will provide such additional information in respect of insurance provided by him as OWNER may reasonably request."

SC-6.03

The limits of liability for the insurance required by paragraph 6.03 of the General Conditions shall provide the following coverages for not less than the following amounts or greater where required by Laws and Regulations:

6.03.A Workers' Compensation.

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

6.03.B and 6.03.C Comprehensive General Liability including Operations/Premises, Contractor's Protective, Products/Completed Operations, and Personal Injury liabilities:

(1)	Bodily injury:	\$1,000,000	Each occurrence
		\$3,000,000	Annual aggregate
(2)	Property damage, including explosion, collapse and underground coverage:	\$1,000,000	Each occurrence
		\$3,000,000	Annual aggregate
Property damage liability insurance shall provide coverage for property in the care, custody and control of the insured.			
(3)	Personal injury, with employment exclusion deleted:	\$3,000,000	Annual aggregate

The Contractual Liability required by paragraph 6.03.C of the General Conditions shall provide coverage for not less than the following amounts:

(1)	Bodily injury:	\$2,000,000	Each occurrence
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		\$3,000,000	Annual aggregate
(2)	Property damage, including explosion, collapse and underground coverage:	\$1,000,000 \$3,000,000	Each occurrence Annual aggregate
(3)	General Aggregate	\$2,000,000	

6.03.D Comprehensive Automobile Liability including owned, hired and non-owned vehicles:

(1)	Bodily injury:	\$1,000,000 \$1,000,000	Each person Each accident
(2)	Property damage	\$1,000,000	Each occurrence

SC-6.04

Delete paragraph 6.04 of the General Conditions in its entirety and insert the following in its place:

6.04.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:

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

SC-6.05

Delete Paragraph 6.05.A of the General Conditions in its entirety and insert the following in its place:

"A. CONTRACTOR shall purchase and maintain, until final payment, property insurance upon the Work at the site in an amount equal to the total bid price for the completed construction. This insurance shall include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER and ENGINEER's consultants in the Work, shall insure against the perils of fire and extended coverage, shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and shall include damages, losses and expenses rising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). This insurance shall be provided on the completed value form. If not covered under the "all risk" insurance or otherwise provided in these Supplementary Conditions, CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment."

Delete Paragraph 6.05.B of the General Conditions in its entirety and insert the following in its place:

"B. All the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least thirty days' prior written notice has been given to OWNER by certified mail and will contain waiver provisions in accordance with paragraph 6.06.B."

SC-6.05.D

Delete Paragraph 6.05.D in its entirety and insert the following:

"OWNER may occupy or use a portion of the Work prior to Substantial Completion."

SC-6.06A

Delete Paragraph 6.06A in its entirety and insert the following:

"OWNER and CONTRACTOR intend that all policies of insurance purchased in accordance with the provisions of Article 6 will protect OWNER, CONTRACTOR, Subcontractors, and ENGINEER, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and officers, director, members, partners, employees, agents, consultants, and subcontractors or each and any of them) in such policies and will, where required to provided such insurance, provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby."

SC-6.06.C

Delete Paragraph 6.06.C in its entirety and replace with the following:

"The CONTRACTOR shall pay for all costs not covered because of the application of a policy deductible due under any of its insurance policies required hereunder."

SC-6.07

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

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

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

ARTICLE 7. CONTRACTOR'S RESPONSIBILITIES

SC-7.01

Add the following new paragraph as follows:

"7.01.C The site superintendent may be a direct employee of the subcontractor provided that this individual has the full authority and responsibility of the general contractor's specified superintendent. The General Contractor shall submit a letter to the Town and the Engineer stating who the supervisor is and defining his/her authority during all construction related activities."

SC-7.02.C – 7.02.G

Insert the following new paragraphs immediately after Paragraph 7.02.B:

“C. Regular working hours are defined as Monday through Friday, excluding holidays, between the hours of 7:00 AM and 5:00 PM. Requests to work other than regular working hours shall be submitted to ENGINEER not less than 48 hours prior to any proposed change. Occasional unscheduled overtime on weekdays may be permitted provided it is approved by 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 Paragraph SC-7.02.C. At OWNER’s option, overtime costs may either be deducted from the CONTRACTOR’s monthly payment or deducted from the retainage held by OWNER until 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.”

“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 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.

“G. 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.”

SC-7.04.A

Insert the following at the end of the third sentence of Paragraph 7.04.A: “, and in accordance with G.L. c.30, §39M.”

Add a new paragraph SC-7.04.A.1.c immediately after paragraph 7.04.A.1.b, which is to read as follows:

“c. It shall be CONTRACTOR’s responsibility to coordinate all submittals to ENGINEER for approval to eliminate any conflicts which might arise due to the use of “or equal” items. Any additional costs incidental to the use of “or equal” items shall be paid by CONTRACTOR.”

SC-7.06

Add the following to Paragraph 7.06.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 makes 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.”

7.06.H.1

Add the following paragraph immediately after paragraph 7.06.H:

1.CONTRACTOR shall make payments to Subcontractors in accordance with Rhode Island General Laws.”

Add the following new paragraph as follows:

“7.06.J.1 OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other person or organization, to the extent practicable, information about amounts paid to CONTRACTOR in accordance with CONTRACTOR’s Applications for Payment on account of the particular Subcontractor’s, Suppliers, other person’s, or other organization’s Work.”

SC-7.07.A Delete the second sentence of Paragraph 7.07.A.

SC-7.07.B Delete this subparagraph.

SC-7.09

Add the following language at the end of paragraph 7.09.A of the General Conditions:

“7.09.A.1 The materials and supplies to be used in the Work under this Contract are exempt from the Sales and Use Tax of the State of Rhode Island. Contractor shall obtain the proper certificates, maintain the necessary records, and otherwise comply with all applicable requirements governing the exemption from sales tax.”

SC-7.10C

Delete the last sentence of Paragraph 7.10C.

SC-7.11.B – C

Insert the following new paragraphs immediately after Paragraph 7.11.A:

“B. The CONTRACTOR shall return to the ENGINEER one set of the Contract Drawings marked in colored pencil, showing all changes made during construction and including the location, by dimensions and elevations, of installed equipment, and underground facilities that will become concealed or buried by the construction. This shall include ties to all concealed work, etc. measured from permanent structures. Additionally, the CONTRACTOR shall be required to keep marked-up drawings current and on site and to provide mark-ups to the OWNER on a monthly basis.

SC-7.12.E Delete the text in parentheses in Paragraph 7.12.E.

SC-7.16

Add the following new paragraph immediately after paragraph 7.16.E of the General Conditions, which is to read as follows:

“7.16.F The accuracy of all such information submitted by the Contractor is the responsibility of the Contractor. In reviewing Shop Drawings, Samples, and similar submittals, the Engineer shall be entitled to rely upon the Contractor’s representation that such information is correct and accurate.”

SC-7.17.E

Add the following new paragraph 7.17.E, immediately after paragraph 7.17.D of the General Conditions:

“E. CONTRACTOR shall guarantee all materials and equipment furnished and Work performed for a period of one (1) year from the date of Substantial Completion. CONTRACTOR warrants and guarantees for a period of one (1) year from the date of Substantial Completion that the completed Work is free from all defects due to faulty materials or workmanship and CONTRACTOR shall promptly make such corrections as may be necessary by reason of any such defects including the repairs of any damage to other parts of the Work resulting from such defects. In the event that CONTRACTOR should fail to make such repairs, adjustments, or other work that may be made necessary by such defects, OWNER may do so and charge CONTRACTOR the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.”

SC-7.18.A

Delete the phrase in parentheses: “(other than the Work itself)” in Paragraph 7.18.A.

Change the phrase “negligent act or omission” to “negligent or willful or wrongful act or omission.”

SC-7.18.B

Insert the following at the end of Paragraph 7.18.B:

“If, through the acts or neglect 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 if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against OWNER on account of any damage alleged to have been sustained, OWNER shall notify CONTRACTOR, who shall indemnify and hold harmless OWNER against any such claims.”

ARTICLE 8. OTHER WORK AT THE SITE

SC-8.02

Delete Paragraph 8.02 in its entirety.

SC-8.03

Delete paragraph 8.03.D of the General Conditions in its entirety, and insert the following in its place:

“8.03.D Should CONTRACTOR cause damage to the work or property of any separate contractor at the site, or should any claim arising out of CONTRACTOR'S performance of the Work at the site be made by any separate contractor against CONTRACTOR, OWNER, ENGINEER, ENGINEER'S Consultants, or any other person, CONTRACTOR shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER, ENGINEER, and ENGINEER'S Consultants, harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers, architects, attorneys, and other professionals, and court and arbitration costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any separate contractor against OWNER, ENGINEER, or ENGINEER'S Consultants, to the extent based on a claim arising out of the CONTRACTOR'S performance of the Work. Should a separate contractor cause damage to the Work or property of CONTRACTOR or should the performance of Work by any separate contractor at the site give rise to any other claim, CONTRACTOR shall not institute any action, legal or equitable, against OWNER, ENGINEER, or ENGINEER'S Consultants or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from OWNER, ENGINEER, or ENGINEER'S Consultants, on such action or claim. If CONTRACTOR is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and OWNER and CONTRACTOR are unable to agree to the extent of any adjustment in Contract Times attributable thereto, CONTRACTOR may make a claim for an extension of times in accordance with Article 12.02. An extension of the Contract Times shall be CONTRACTOR'S exclusive remedy with respect to OWNER, ENGINEER, and ENGINEER'S Consultants, for any delay, disruption, interference or hindrance caused by any separate contractor. This paragraph does not prevent recovery from OWNER, ENGINEER, or ENGINEER'S Consultant, for activities that are their respective responsibilities.”

ARTICLE 9. OWNER'S RESPONSIBILITIES

SC-9.02.A

Delete the phrase “provided Contractor makes no reasonable objection to the replacement engineer” in Paragraph 9.02.A.

SC-9.06

Delete paragraph 9.06 of the General Conditions in its entirety.

SC-9.09

Insert the following after the first sentence of Paragraph 9.09.A:

“However, the OWNER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.”

ARTICLE 10. ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.01

Add a new paragraph 10.01.B after paragraph 10.01.A of the General Conditions, which is to read as follows:

"B. Nothing contained in the Contract Documents shall be construed to create a contractual relationship of any kind (1) between the ENGINEER and CONTRACTOR, (2) between the OWNER and a Subcontractor or Subcontractors, or (3) between any person or entities other than the OWNER and CONTRACTOR. The ENGINEER shall, however, be entitled to performance and enforcement of obligations under the CONTRACT DOCUMENTS intended to facilitate performance of the ENGINEER'S duties."

SC-10.02B

Insert the following at the end of Paragraph 10.02.B:

"However, the ENGINEER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto."

SC-10.03

Delete the last sentence of Paragraph 10.03.A

Add a new paragraph immediately after paragraph 10.03.A of the General Conditions as follows:

"10.03.B ENGINEER will furnish a Resident Project Representative and assistants to assist ENGINEER in observing the performance of the Work. The duties and responsibilities of the Resident Project Representative will be as enumerated in a document entitled "Duties, Responsibilities, and Limitations of the Authority of Resident Project Representative" and will be made available to CONTRACTOR at the start of his work."

SC-10.08.B

Insert the following after the first sentence in Paragraph 10.08.B:

"However, the ENGINEER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto."

ARTICLE 11. AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC-11.02

Add the following new paragraph immediately after paragraph 11.02.A of the General Conditions, which is to read as follows:

"11.02.B Upon request of the Owner or Engineer, the Contractor shall without cost to the Owner submit to the Engineer, in such form as the Engineer may require, an accurate written estimate of the cost of any such proposed extra Work or change. The estimate shall indicate the quantity and unit cost of each item of materials, and the number of hours of work and hourly rate for each class of labor, as well as the description and amounts of all other costs chargeable under the terms of this Article. Unit labor costs for the installation

of each item of materials shall be shown if required by the Engineer. The Contractor shall promptly revise and resubmit such estimate if the Engineer determines that it is not in compliance with the requirements of this Article, or that it contains errors of facts or mathematical errors. If required by the Engineer, in order to establish the exact cost of new Work added or previously required Work omitted, the Contractor shall obtain and furnish to the Engineer bona fide proposals from recognized suppliers for furnishing any material included in such Work, and shall be furnished at Contractor's expense. The Contractor shall state in the estimate any extension of time required for the completion of the Work if the change or extra work is ordered."

SC-11.04

In paragraph 11.04.C.2.a change "15 percent" to "10 percent".

Delete paragraph 11.04.C.2.c

ARTICLE 12. CLAIMS

SC-12.01

Add a new paragraph immediately after paragraph 12.01.D.1 of the General Conditions to read as follows:

"12.01.D.1.a CONTRACTOR shall carry on the Work and maintain the progress schedule during the dispute resolution proceedings unless otherwise agreed in writing by OWNER and CONTRACTOR."

ARTICLE 13. COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01

Add the following to the end of paragraph 13.01.B of the General Conditions to read as follows:

"Following the Notice of Award and prior to the execution of the AGREEMENT the OWNER, prospective contractor and, if any, each prospective filed subbid contractor shall agree on what percentage markup shall be used as direct labor costs in determination of extra work costs."

In the second sentence of paragraph 13.01.B.1 delete the word "superintendents".

SC-13.01.B.5

Delete subparagraphs a, d, e, f, g, and h of Paragraph 13.01.B.5.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-14.02.F

Delete the remainder of Paragraph 14.02.F after the words "Contractor's expense."

SC-14.05.C.2

Delete Paragraph 14.05.C.2 in its entirety.

SC-14.06.B

Insert the following new paragraph immediately after Paragraph 14.06.A:

“B. If Owner stops Work under paragraph 14.06.A, CONTRACTOR shall not be entitled to any extension of Contract Time or increase in Contract Price.”

ARTICLE 15. PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.01

Delete the first phrase prior to the words “Contractor shall” in the first sentence of Paragraph 15.01.B.1 and insert the following:

“On a monthly basis and in accordance with G.L. c.30, §39G,”.

Add new paragraphs immediately after paragraph 15.01.B.1 of the General Conditions to read as follows:

“15.01.B.1.a Only the following items of material and equipment will be accepted for delivery at the site or at a local bonded warehouse and included in progress estimates in advance of actual requirement, subject to all conditions stated below.

15.01.B.1.b Materials and equipment listed above will not be included in progress estimates until the requirements stated herein have been fulfilled.

15.01.B.1.c The Contractor must present an invoice to the Engineer for each item of material or equipment he is requesting payment for. The invoice must be broken down to show the costs for the actual equipment, and reasonable costs for O&M Manuals, spare parts, start-up certification, training, testing, final acceptance testing, and any other services required by Contract.

15.01.B.1.d Sufficient monies have been allocated in the payment requisition line items to cover all of the costs listed in "a" above, plus the costs of physically installing the equipment.

15.01.B.1.e The equipment has been submitted and approved for use in this Project.

15.01.B.1.f The Contractor has, at the time of delivery, given the Engineer written notice of the delivery using the form provided by the Engineer.

15.01.B.1.g The equipment is acceptably stored and protected. Storage in a bonded warehouse will require proof of bonding, and insurance coverage specifically for the item being stored.

15.01.B.1.h The manufacturer's short and/or long term storage requirements have been received by the Engineer, prior to payment.

15.01.B.1.i The Contractor has established a program to implement the manufacturer's required storage procedures. Said program to consist of at the very least a written schedule of daily, weekly, monthly, routine maintenance requirements for each piece of equipment. A copy of this schedule to be presented to the Engineer prior to each requisition submittal, signed by the Contractor, stating that the required maintenance has been performed.

15.01.B.1.j Signed, notarized Title Transfers, format to be furnished by the Engineer, must be furnished for each item of equipment.

15.01.B.1.k When the above have been complied with to the satisfaction of the Engineer, payment will be authorized for the full invoice values of the item of equipment, less normal retainage and less all costs for O&M Manuals, spare parts, start-up certification, training, testing, final acceptance testing, and installation.”

Delete paragraph 15.01.B.3 and insert the following in its place:

"15.01.B.3. Retainage with respect to progress payments will be five percent or, if stipulated, the maximum allowed by law."

SC-15.01.B.4

Insert the following new paragraph immediately after Paragraph 15.01.B.3:

“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 ten (10) 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-15.01.D.1

Delete Paragraph 15.01.D.1 and insert the following:

“1. Payment shall be made in accordance with G.L. c.30, §39G.”

SC-15.01.E.2

Delete the words “immediate” and “promptly” in the first sentence of Paragraph 15.01.E.2.

SC-15.01.E.3

Delete this Paragraph in its entirety.

SC-15.02

Insert the following new paragraphs immediately after Paragraph 15.02.A:

“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 indemnify and save OWNER 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 OWNERS 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 CONTRACTOR, either pay unpaid bills, of which OWNER has written notice, 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 obligation upon OWNER to either CONTRACTOR, or CONTRACTOR’s Surety. In paying any unpaid bills of the CONTRACTOR, OWNER’s payment 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-15.03.C

Delete the third sentence of Paragraph 15.03.C and insert the following:

“OWNER may review the preliminary certificate and make written objection to ENGINEER as to any provisions of the certificate or attached list.”

Delete the phrase “, within 14 days after submission of the preliminary certificate to OWNER,” in the fourth sentence of paragraph 15.03.C.

Delete the phrase “, within said 14 days,” in the fifth sentence of Paragraph 15.03.C.

SC-15.04.A

Delete the phrase “subject to the following conditions” at the end of the first sentence of Paragraph 15.04.A.

Delete Paragraph 15.04.A.2 in its entirety.

SC-15.06

Delete Paragraph 15.06.B.1 and insert the following:

“1. If, on the basis of ENGINEER’s observations 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 for Payment 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 15.07. 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. If the Application and accompanying documentation are appropriate as to form and substance, OWNER will, pay CONTRACTOR the amount recommended by the ENGINEER.”

ARTICLE16 - SUSPENSION OF WORK AND TERMINATION

SC-16.01.A

Delete Paragraph 16.01.A in its entirety and insert the following:

“A. OWNER may suspend the work or any portion thereof.

SC-16.02.A.5

Insert new paragraph immediately after Paragraph 16.02.A.4:

“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.”

SC-16.03.A.1

Delete the phrase “including fair and reasonable sums for overhead and profit on such Work” in Paragraph 16.03.A.1.

SC-16.03.A.2

Delete the phrase “plus fair and reasonable sums for overhead and profit on such expenses” in Paragraph 16.03.A.2.

SC-16.03.A.3

Delete Paragraph 16.03.A.3 in its entirety.

SC-16.04.B

Delete the last sentence of Paragraph 16.04.B.

ARTICLE17 – FINAL RESOLUTION OF DISPUTES

SC-17.01.C

Insert a new sub-paragraph after Paragraph 17.01.B:

“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.”

SC-17.02

Add a new paragraph immediately after Paragraph 17.01 of the General Conditions which is to read as follows:

“17.02 Venue

Any legal action relating to this Contract shall be filed in the Superior Court for the County in the State of Rhode Island in which the Project is located, unless otherwise agreed by CONTRACTOR and OWNER in writing.”

ARTICLE 18. MISCELLANEOUS

SC-18.08

18.08 Headings:

Delete paragraph 18.08.A and replace with the following paragraph:

“18.08.A The headings or titles of any article, paragraph, subparagraph, section, subsection, or part of the Contract Documents shall not be deemed to limit or restrict the article, paragraph, section, or part.”

18.09 Legal Address of Contractor

Add the following paragraph immediately after section 18.08:

“18.09.A CONTRACTOR'S business address and his office at or near the site of the Work are both hereby designated as places to which communications shall be delivered. The depositing of any letter, notice, or other communication in a postpaid wrapper directed to the CONTRACTOR'S business address in a post office box regularly maintained by the Post Office Department or the delivery at either designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon CONTRACTOR, and the date of such service shall be the date of receipt. The first-named address may be changed at any time by an instrument in writing, executed and acknowledged by CONTRACTOR and delivered to ENGINEER. Service of any notice, letter, or other communication upon the CONTRACTOR personally shall likewise be deemed sufficient service.”

SC-18.10

Insert the following new paragraph:

“SC-18.10 Wage Rates

“A. The requirements and provisions of all applicable laws and any amendments thereof or additions thereto as to employment of labor, and to the schedule of minimum wage rates established in compliance with laws shall be a part of the Contract Documents. If after the Notice of Award, it becomes necessary to employ any person in a trade or occupation not classified in the wage determinations, such person shall be paid at not less than such rates as shall be determined by the officials administering the laws mentioned above.

“B. The schedule of wages referred to above is minimum rates only, and OWNER will not consider any claims for additional compensation made by CONTRACTOR because of payment by CONTRACTOR of any wage in excess of the applicable, required rates.”

STATE GOVERNMENT PROVISIONS

Each and every other provision of law or clause required by law to be inserted in this Contract shall be deemed to be also inserted herein.

1.0 STATE OF RHODE ISLAND PROVISIONS

1.1. The OWNER and CONTRACTOR agree that all applicable State of Rhode Island Provisions which apply to the work to be performed under this Contract will be followed. The CONTRACTOR must inform him/herself of all pertinent State of Rhode Island Provisions with performing this work. The most recent revisions of any State Provisions will apply in this Contract. The most recent provisions supersede any conflicting provisions of this Contract.

1.2. State Wage Rates, As Applicable.

END OF SECTION

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes:

1. Work included in the Contract Documents.
2. Access to Project site.
3. Full Owner Occupancy.
4. Work Restrictions.
5. Constraints on Construction Operations

B. Related Requirements:

1. Refer to Section 01500, Temporary Facilities for requirements, limitations and procedures governing temporary facilities for this Project.

1.02 WORK INCLUDED IN THE CONTRACT DOCUMENTS:

A. The Work to be completed under this Contract is defined by the Contract Documents and all Work shall be performed in accordance with the Contract Documents as specified and/or as indicated on the Drawings. The Work of this Project consists of but is not limited to the following:

1. Project Overview

- a. The purpose of this project is to remove the solids accumulated currently within the South Sedimentation Basin and return the basin to service as quickly as possible. The Owner's required timeline for draining, cleaning, and returning the basin to service is 105 days from issuance of a Notice To Proceed and the Contract Times commence. Final drying of the sludge that is removed from basin, dewatered and eventually removed from site at 25 percent solids by weight or greater can be up to 280 days from when Contract Times commence.
- b. It is estimated that approximately 50 percent of the volume of liquid in the upper zone of the basin is clear enough to be decanted and recycled to the head of the plant. Decanting at a rate of 5 percent of the raw water inflow rate will be allowed until the measured 30-minute average turbidity reaches 5 NTU, or a maximum of 10 NTU for any sample taken during the decanting operation. Continuous monitoring of turbidity by the Contractor will be required.

- c. The remaining residuals below the decant layer are to be removed from the basin with pumps or dredges, transported via the existing 12-inch HDPE pipeline to the area of the existing drying beds, and dewatered in the area of the drying beds. The existing 12-inch HDPE pipeline will have to be extended to the area of the dewatering operations. All solids removed from the basin shall be routed to the area of the dewatering equipment for processing.
 - d. Means of dredging and dewatering the solids that are removed are left to the contractor's discretion. Contractors shall propose the equipment and methods for dredging and dewatering for approval by the Engineer. The area of the existing drying beds is to be used to arrange geotubes or to locate belt filter presses or centrifuges.
- 2. The Contractor shall decant the clearer liquid from the surface of the South Sedimentation Basin prior to pumping residuals from the basin for dewatering and disposal. Contractor shall supply decanting equipment (decanter, pumps, hoses, piping, flow meters, turbidimeter, generators, and other ancillary equipment as required) and complete the decanting. Final elevation and volume of decanted liquid will be determined by drone survey following completion of decanting.
- 3. Decanted flow shall be pumped from the South Sedimentation Basin outlet area in the northwest corner of the Basin, into the Raw Water Aerator at a rate up to 5% of the raw water flow into the facility until the Owner or Engineer directs the contractor to stop. The Contractor shall consult with the Owner daily to determine the acceptable maximum rate of pumping. Decanting and pumping can be performed for 24 hrs per day. Contractor shall consult with the WTP operators during each day to determine the pumping rate allowed, up to the maximum of 5 percent of the plant influent flowrate.
- 4. Contractor shall determine the means and methods for removing residuals from the South Sedimentation Basin, dewatering residuals, hauling sludge, and final disposal methods and location. All sludge disposal off site must comply with all local, state and national environmental standards and regulations in Rhode Island as well as other impacted local and state jurisdictions. Contractor shall supply equipment (sludge dredge, pumps, hoses, piping, flow meters, generators, polymer feed system, polymer, dewatering materials and equipment, and other ancillary equipment) necessary to complete the sludge removal and dewatering. A thin layer of residuals remaining on the surface of the basin bottom and troughs is acceptable.
- 5. The Contractor shall measure and record the pumping rate and duration of discharge of all flows from the South Sedimentation Basin and make the information available to the Owner within 24 hours, upon request.
- 6. Residuals that are removed from the South Basin shall be transported through an existing 12" HDPE pipeline that presently terminates in the vicinity of the existing

drying beds. Residuals processing operations shall be located in the area defined by the existing drying beds. Additional HDPE pipe shall be furnished and installed by the Contractor as required.

7. Residuals that are removed shall be processed in the area defined by the existing drying beds and as shown on the drawing. Means and methods of dewatering, hauling sludge, and final disposal shall be the responsibility of the contractor. No liquid or dried sludge is allowed to be discharged into the existing Lagoons 1A, 1B or 2. Berms and culverts to contain and route dewatering filtrate shall be constructed by the Contractor. Filtrate shall be directed to Lagoon 2.
8. The Contractor shall install and operate a portable, automated weigh scale suitable for weighing sludge hauling trucks loaded for removal of any sludge from the site. Weigh scales shall be certified by Rhode Island scale inspectors. The system shall be capable of producing weigh tickets for all sludge trucks arriving and departing with sludge, as approved by the Engineer.
9. Contractors are encouraged to conduct their own treatability tests prior to mobilizing equipment to the site, to determine proposed pretreatment methods, chemicals required, and use of process equipment.

1.03 SUMMARY OF THE SEQUENCE OF BASIN DRAINING AND DEWATERING

- A. The recommended sequence of operations for contractors to follow for the removal and dewatering of liquid and residuals from the basin is as follows:
 1. Contractor mobilization.
 2. Coordinate isolation of the South Sedimentation Basin with the Owner.
 3. Decant top layer of low solids liquid using floating decanter, simultaneously with site preparation of existing drying beds.
 4. Dewater as necessary and remove existing solids remaining in existing drying beds, simultaneously with the decanting operation. Existing solids shall be dewatered to a minimum of 25 percent solids prior to removal from the site.
 5. Install new slide gates provided by Owner.
 6. Prepare site for dewatering equipment in the area of the existing drying beds.
 7. Setup dewatering equipment and temporary piping.
 8. After decanting is complete, remove remaining solids from South Sedimentation Basin.
 9. Dewater residuals to a minimum 25 percent solids before removal from site.

10. Flush and clean South Sedimentation Basin. A thin layer of residuals remaining on the surface of the basin bottom and troughs is acceptable.
11. Dried sludge shall be removed from the site to a location selected by the Contractor. Documentation of all permitting shall be provided to the Owner by the Contractor prior to hauling sludge from the site. Chain-of-custody documentation from the project site to the final disposal site shall be provided by the Contractor weekly to the Owner.
12. Site restoration and demobilization. Restore the site to existing conditions within the 280 calendar day contract limit.

1.04 DECANTING LIQUID AT TOP OF BASIN

A. The following decanting and discharge methods are recommended:

1. Contractor shall install a temporary floating decanter to allow top layer of basin liquid to be pumped and removed. Decanter shall be installed at north end of the South Sedimentation Basin. Liquid shall be removed only from the surface of the basin.
2. Decanted flow shall be discharged to the existing Aerator, or other location approved by the Owner and Engineer, at a recycle rate not to exceed 5 percent of the raw water inflow to the plant. A calibrated flow meter shall be installed on the decanting pump discharge line. Decanting and pumping can be performed for 24 hrs per day. Contractor shall consult with the WTP operators during each day to determine the pumping rate allowed, up to the 5 percent of the plant influent flowrate.
3. Contractor shall stop pumping the decant water when the average turbidity as measured over 30 minutes reaches 5 NTU, with a maximum sample measurement of 10 NTU. Sampling shall be continuous from a sample stream taken to a calibrated, in-line turbidimeter set up at the decanting pump prior to starting the work. Grab samples shall also be taken and analyzed by the Providence Water laboratory to confirm accuracy of the in-line turbidimeter.
4. Contractor shall remove decanting and pumping equipment upon completion of decanting operation and restore operating area to original condition.

1.05 SOLIDS REMOVAL FROM SOUTH SEDIMENTATION BASIN

A. The following outlines possible methods of basin draining and transport of sludge.

1. Once the basin liquid is decanted, the Contractor will be required to immediately begin residuals removal from the basin.
2. Contractor is to select the means and methods for removing the remaining residuals from the basin. Most probable methods include dredges or portable

pumps. With either method, the contractor must connect the discharge to the existing hose connection on the west wall of the South Sedimentation Basin and discharge to the existing 12-inch HDPE pipeline which will carry the flow to the area of the existing drying beds.

3. Contractor is required to connect temporary piping from the end of the 12-inch HDPE to the area of the drying beds to connect to the selected dewatering equipment. Contractor will likely require a break/mixing tank to receive the flow to be used for chemical conditioning prior to dewatering.

1.06 REMOVAL OF EXISTING SLUDGE FROM EXISTING DRYING BEDS

- A. The Contractor shall remove existing residuals from the existing drying beds and grade the site as necessary in preparation for dewatering of residuals from the South Sedimentation Basin. The Contractor shall determine if additional dewatering of the existing sludge is required prior to disposal. Residuals that are 25 percent solids by weight or greater are to be removed from the site and legally disposed of.
- B. Existing residuals that are currently less than 25 percent solids shall be dewatered to 25 percent solids or greater prior to being removed from the site, weighed, and legally disposed of.

1.07 DEWATERING OF SOLIDS FROM SOUTH SEDIMENTATION BASIN

- A. Hydraulically, a minimum of 2000 gpm of solids shall be discharged from the South Sedimentation Basin to the area of the drying beds for dewatering via the existing 12 inch HDPE pipeline.
- B. Operating time for dewatering is assumed to be up to 10 hours per day.
- C. Chemical conditioning for all methods is expected to be required to achieve optimum dewatering.
- D. Dewatering to occur in the area of the existing drying beds.
- E. Filtrate from dewatering operations shall be contained within the existing drying beds area, and routed to the adjacent Lagoon 2. A silt curtain shall be installed in the area of filtrate discharge into the Lagoon.

1.08 SCHEDULE FOR BASIN DRAINING AND DEWATERING PHASES

- A. The following is the proposed schedule for each phase of the project:
 1. Mobilization, contractor treatability studies, all site preparation, decanting, sludge pumping, and basin draining and cleaning to be completed within 105 calendar days from when Contract Times commence.

2. Solids from the sedimentation basin shall be dewatered to a minimum of 25 percent solids that can safely be removed from site, solids from the area of the existing drying beds, dewatered basin solids and all equipment removed from site, site restoration and demobilization to be completed within 280 calendar days from when the Contract Times commence.

1.09 ACCESS TO PROJECT SITE:

- A. General: Contractor will have limited use of the Project site for construction operations.
- B. Use of Site: Limit use of Project site to areas within the Water Treatment Plant property lines as indicated on the Site Drawing. Do not disturb portions of Project site beyond areas in which Work is to be performed by Contractor.
 1. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.10 FULL OWNER OCCUPANCY:

- A. Full Owner Occupancy: Owner will occupy Project site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated, specified or approved by Owner.
 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner.
 2. Notify Owner not less than 72 hours in advance, unless otherwise indicated in the Contract Documents, of activities that will affect Owner's operations.

1.11 WORK RESTRICTIONS:

- A. General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public right-of-ways and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit Work to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.
 1. Weekend Hours: Upon Owner Approval.
 2. Early Morning Hours: Upon Owner Approval.
 3. Hours for Utility Shutdowns: Upon Owner Approval.

- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated or specified:
 - 1. Notify Engineer and Owner not less than fourteen (14) days in advance of proposed utility interruptions.
 - 2. Obtain Engineer's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify Engineer and Owner not less than three (3) days in advance of proposed disruptive operations.
 - 2. Obtain Engineer's written permission before proceeding with disruptive operations.
- E. Controlled Substances: Use of tobacco products and other controlled substances within existing building(s) or within 25 feet of entrances, operable windows, or outdoor-air intakes is not permitted.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SCOPE

- A. The purpose of this section is to define the basis of measurement and payment for each of the unit price or lump sum items listed in Document 00301 Bid. If no quantity or Bid item appears in Document 00301, Bid for any of the following described items, no Work of that description is anticipated on the Project.
- B. Contractor shall acquaint himself with all Work associated with each payment item and shall have no claim for additional compensation due to its unfamiliarity with the requirements of various items.
- C. No payment will be made for any item until Contractor has submitted all required documentation as required by the Contract Documents and such documentation has been reviewed and approved by Engineer.
- D. No payment will be made for additional materials that are not installed on the Project.
- E. The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment under the following conditions:
 - 1. If there is no corresponding adjustment with respect to any other item of Work; and
 - 2. If CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof; or if OWNER believes that the quantity variation entitles OWNER to an adjustment in the unit price, either OWNER or CONTRACTOR may make a claim for an adjustment in the Contract Price in accordance with Article 11 of the General Conditions if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

1.02 BID ITEMS (Basis of Award)

<u>Item</u>	<u>Description</u>
1.	Mobilization/Demobilization
2.	Office for Owner and Engineer
3.	Decant of Coagulated Water from the South Sedimentation Basin
4.	Removal, Dewatering and Disposal of Residuals from the South Sedimentation Basin
5.	Removal and Disposal of Residuals from the Existing East Drying Bed
6.	Removal, Dewatering and Disposal of Residuals from the Existing West Drying Bed
7.	Replacement of Unsuitable Material
8.	Experimental Excavation

Residuals Removal
South Sedimentation Basin

Measurement and Payment
Section No. 01025-1

9. Installation of Slide Gates Provided by the Owner
10. Allowance #1 – Unknown Conditions
11. Allowance #2 – Miscellaneous Landscape Improvements

1.03 BASIS OF MEASUREMENT AND PAYMENT

ITEM 1 MOBILIZATION/DEMOBILIZATION

- A. General. The price bid under this Bid Item for mobilization/demobilization shall be full compensation for all labor, equipment, tools, and materials necessary to complete the Work as specified, which shall include transporting, mobilization, demobilization, temporary utility connection fees, permits, licenses, bonds, and insurance, as specified and all other incidental Work relative thereto.
- B. Method of Measurement. Measurement for mobilization/demobilization shall be lump sum as approved by Engineer.
- C. Method of Payment. Payment for mobilization/demobilization shall be the lump sum price bid under this Bid Item, listed in Document 00301, Bid. **The lump sum amount bid under this Bid Item shall not exceed 5% of the total bid amount, excluding Bid Item 1, and no payment will be made in excess of this amount.** An amount of 80% of the amount bid under this Bid Item (exclusive of normal Contract retainage) will be made when Contractor has completed mobilization to the Project Site and is ready to start construction. The remaining 20% (exclusive of normal Contract retainage) will be made following demobilization from the Project Site.

ITEM 2 OFFICE FOR OWNER AND ENGINEER

- A. General. The price bid under this Bid Item for the office for the Owner and Engineer shall be full compensation for all labor, equipment, tools, and materials necessary to provide and equip suitable office space as specified, which shall include transporting, utility connection fees, permits, sewer service, water service, electric power service, internet service, furniture, equipment and supplies, insurance coverage, enclosed offices, cubicles, printer area, conference room, interior bathroom, and parking area, as specified and all other incidental Work relative thereto, which is not included under another Bid Item.
- B. Method of Measurement. Measurement of the office for the Owner and Engineer shall be lump sum as approved by the Owner and Engineer.
- C. Method of Payment. Payment for the office for the Owner and Engineer shall be the lump sum price bid under this Bid Item, listed in Document 00301, Bid, based on the work completed as specified and approved by the Owner and Engineer.

ITEM 3 DECANT OF COAGULATED WATER FROM THE SOUTH SEDIMENTATION BASIN

- A. General. Contractor to decant the clearer liquid at the surface of the South Sedimentation Basin. Contractor to supply decanting equipment (decanter, pumps, hoses, piping, generators, and other ancillary equipment) and complete the decanting as specified and/or shown on the Drawings and all other incidental Work relative thereto, which is not included under another Bid Item listed in Document 00301, Bid.

Decanted flow is to be pumped from the basin outlet area in the Northwest corner of the South Sedimentation Basin, into the adjacent WTP Aerator until the Owner or Engineer directs contractor to stop.

It is estimated that approximately 50 percent of the volume of liquid in the upper zone of the basin is clear enough to be decanted and recycled to the head of the plant. Decanting at a rate of 5 percent of the raw water inflow rate will be allowed until the measured 30-minute average turbidity reaches 5 NTU, or a maximum of 10 NTU for any sample taken during the decanting operation. Continuous monitoring of turbidity by the Contractor will be required. When the turbidity standards become unachievable, the decanting period shall be terminated regardless of the volume of decant water removed. However, Contractor may re-establish decanting after termination, providing the turbidity standards can be maintained and provided that the decanting can be completed.

- B. Final volume of liquid to be determined by certified flow meter with totalizer, furnished by the Contractor, following completion of the pumping.
- C. Method of Measurement. Measure volume of liquid decanted from top layer of basin using certified flow meter/totalizer after decanting is complete.
- D. Method of Payment. Payment for decanting of coagulated water shall be made at the unit price bid per 10,000 gallons under this Bid Item, listed in Document 00301, Bid as approved by Engineer.

ITEM 4 REMOVAL, DEWATERING AND DISPOSAL OF RESIDUALS FROM THE SOUTH SEDIMENTATION BASIN

- A. General. Contractor shall pump the residuals remaining in the South Sedimentation Basin to the existing drying beds or Contractors dewatering equipment after decanting is completed. Contractor to supply pumping equipment including, but not limited to, pumps, hoses, piping, generators, and other ancillary equipment necessary to complete the pumping as specified and/or shown on the Drawings and all other incidental Work relative thereto, which is not included under another Bid Item listed in Document 00301, Bid.

The price bid under this Bid Item for removal, dewatering and disposal of residuals shall be full compensation for all labor, equipment, tools, and materials necessary to complete the dewatering of residuals to a minimum 25 percent solids, removal from the site and disposal of the residuals as specified and all other incidental Work relative thereto, which is not included under another Bid Item listed in Document 00301, Bid.

- B. Method of Measurement. Measure weight and number of trucks leaving site with dried sludge. Sludge must meet a minimum 25 percent solids or load will be rejected for

payment. Contractor to install portable, automated weigh scale at site and provide personnel to continuously monitor truck scale traffic and issue weight tickets for each sludge truck entering and leaving site as approved by Engineer.

- C. Method of Payment. Payment will be per dry ton of 25 percent (or greater) dried sludge removed from dewatering operations leaving the site at the unit price bid under this Bid Item, listed in Document 00301, Bid, as approved by Engineer.

ITEM 5 REMOVAL AND DISPOSAL OF RESIDUALS FROM THE EXISTING DRYING BEDS (East)

- A. General. The price bid under this Bid Item for removal and disposal of the portion of residuals from the existing drying beds that have already dried to a minimum of 25 percent solids shall be full compensation for all labor, equipment, tools and materials necessary to complete the, removal from the site and disposal of the residuals as specified and all other incidental Work relative thereto, which is not included under another Bid Item listed in Document 00301, Bid.
- B. The Contractor is required to remove existing residuals from the existing drying beds and grade the site in preparation for dewatering of residuals from the South Sedimentation Basin. The Contractor shall determine if additional dewatering is required prior to disposal. Residuals that are already at 25 percent solids or greater are to be removed from the site and legally disposed of. Residuals that are less than 25% solids and require additional dewatering will be paid for under Item 6.
- C. Method of Measurement. Measure weight and number of trucks leaving site with dried sludge. Sludge must meet a minimum 25 percent solids or load will be rejected for payment. Contractor to install portable, automated weigh scale at site and provide personnel to continuously monitor truck scale traffic and issue weight tickets for each sludge truck entering and leaving site as approved by Engineer.
- D. Method of Payment. Payment will be per dry ton of 25 percent (or greater) dried sludge removed from the existing drying beds leaving the site at the unit price bid under this Bid Item, listed in Document 00301, Bid, as approved by Engineer.

ITEM 6 REMOVAL, DEWATERING AND DISPOSAL OF RESIDUALS FROM THE EXISITING DRYING BEDS (WEST)

- A. General. The price bid under this Bid Item for removal, dewatering and disposal of residuals from the existing drying beds that must be dewatered to a minimum of 25 percent solids shall be full compensation for all labor, equipment, tools and materials necessary to complete the, removal from the site, dewatering to 25 percent solids or greater, and disposal of the residuals as specified and all other incidental Work relative thereto, which is not included under another Bid Item listed in Document 00301, Bid.
- B. The Contractor is required to remove existing residuals from the existing drying beds and grade the site in preparation for dewatering of residuals from the South Sedimentation Basin. The Contract shall dewater the residuals to a minimum of 25 percent solids or greater prior to being removed from the site and legally disposed of.

- C. Method of Measurement. Measure weight and number of trucks leaving site with dried sludge. Sludge must meet a minimum 25 percent solids or load will be rejected for payment. Contractor to install portable, automated weigh scale at site and provide personnel to continuously monitor truck scale traffic and issue weight tickets for each sludge truck entering and leaving site as approved by Engineer.
- D. Method of Payment. Payment will be per dry ton of 25 percent (or greater) dried sludge removed from the existing drying beds leaving the site at the unit price bid under this Bid Item, listed in Document 00301, Bid, as approved by Engineer.

ITEM 7 REPLACEMENT OF UNSUITABLE MATERIAL

- A. General. The prices bid under of this Bid Item shall be full compensation for all labor, tools, materials, and equipment necessary to complete the Work as specified which shall include excavation, sheeting or shoring not ordered left in place, dewatering, removal and legal disposal of unsuitable materials, filter cloth, furnishing and placing replacement materials, transportation, backfilling, and compaction, as specified and any other incidental Work relative thereto.
- B. Method of Measurement. Measurement for replacement of unsuitable material above and below finished grade and/or subgrade shall be per cubic yard based on the volume removed and replaced as required and approved by Engineer.
- C. Method of Payment. Payment for replacement of unsuitable material above and below finished grade and/or subgrade shall be made at the unit price bid per cubic yard this Bid Item, listed in Document 00301, Bid.
- D. Exceptions
 - 1. No payment will be made for replacement of unsuitable material above and below finished grade when suitable excess excavated material is available from other excavations made under this Project.
 - 2. No payment will be made for unsuitable material replaced beyond the limits approved by Engineer.

ITEM 8 EXPERIMENTAL EXCAVATION

- A. General. The price bid under this Bid Item shall be full compensation for all labor, tools, materials and equipment necessary to complete the Work as specified, which shall include notification of utility owners, machine and/or hand excavation to locate utilities, backfill, compaction, maintaining utility marking locations, repair to utilities damaged while performing experimental excavations at no cost to the Owner, furnishing assistance to Engineer, as specified, and all other incidental Work relative thereto.
- B. Method of Measurement. Measurement of experimental excavation shall be per cubic yard based on the volume of materials excavated and backfilled, as approved by Engineer.
- C. Method of Payment. Payment for experimental excavation shall be made at the unit price bid per cubic yard under this Bid Item, listed in Document 00301, Bid.

ITEM 9 INSTALLATION OF SLIDE GATES PROVIDED BY THE OWNER

- A. General. The price bid under this Bid Item shall be full compensation for all labor, tools, materials, and equipment necessary to complete the Work as specified, which shall include installation of five (5) slide gates, provided by the Owner, for the settled water conduit and for the discharge of the tangential mixer, in accordance with manufacturer's instructions and as specified, and all other incidental Work relative thereto.
- B. Method of Measurement. Measurement shall be lump sum as approved by Engineer.
- C. Method of Payment. Payment for installation of slide gates shall be made at the lump sum unit price under this Bid Item, listed in Document 00301, Bid.

ITEM 10 ALLOWANCE #1 – UNKNOWN CONDITIONS

- A. General. The purpose of this allowance is to pay for all labor, tools, materials, and equipment necessary to complete the Work associated with unknown conditions as required by the Owner and Engineer. This allowance shall be used at the discretion of PW for the benefit of PW.
- B. Method of Measurement. Measurement shall be based on the actual cost of labor and materials furnished as approved by the Owner and Engineer.
- C. Method of Payment. Payment for work associated with unknown conditions shall be reimbursed at the actual cost of labor and materials to complete the work as approved by the Owner and Engineer.

ITEM 11 ALLOWANCE #2 – MISCELLANEOUS LANDSCAPING IMPROVEMENTS

- A. General. This allowance is to pay full compensation for all labor, tools, materials, and equipment necessary to complete miscellaneous landscape improvements as required by the Owner. This allowance shall be used at the discretion of PW for the benefit of PW.
- B. Method of Measurement. Measurement shall be the actual cost of the work on a labor and materials basis as approved by the Owner and Engineer.
- C. Method of Payment. Payment for work associated with miscellaneous landscaping improvements shall be reimbursed at the actual cost of labor and materials to complete the work as approved by the Owner and Engineer.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01045

CUTTING, CORING AND PATCHING

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. This Section covers the cutting, coring, rough and finish patching of holes and openings in existing and new construction.
- B. All cutting, coring, and rough patching shall be performed by the Contractor. Finish patching shall be the responsibility of the Contractor and shall be performed by the trade associated with the application of the particular finish.

1.02 ALTERATIONS, CUTTING, AND PROTECTION:

- A. Survey and record condition of existing facilities to remain in-place that may be affected by alteration operations. After alteration work is complete, survey conditions again and restore existing facilities to pre-alteration condition.
- B. Perform Work of moving, removal, cutting, and patching with trades qualified to perform Work in manner causing least damage to each type of Work.
- C. Cut finish surfaces such as masonry, tile, plaster or metals, by methods to terminate surfaces in a straight line at a natural point of division.
- D. Protect existing finishes, equipment, and adjacent Work which is to remain, from damage.
- E. Provide shoring, needling, and bracing to keep structures structurally secure and free of damaging deflection during cutting or coring operations.

1.03 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01400.
- B. Adhere strictly to the manufacturer's current printed recommendations regarding temperature at time of application for all work involving epoxy, cement base coating and protective coating.
- C. Use only products of the specified Repair Mortar System Manufacturer(s) or approved equal.
- D. Any changes in the specified repair mortar work methods shall be allowed only with the written acceptance of the Engineer.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Concrete repair mortar shall be a non-shrink, commercial formulation requiring only the addition of water with minimum 28-day compressive strength of 5,000 psi.
- B. Provide a non-shrink cementitious repair mortar material as manufactured by:
 - 1. Sika Repair 224 manufactured by Sika Corporation,
 - 2. MasterEmaco S 488CI manufactured by BASF Corporation,
 - 3. Restokrete Underlayment No. F-120 by Sauereisen, Inc.,
 - 4. Or acceptable equivalent product.
- C. Materials for finish patching shall be equal to those of adjacent construction.

PART 3 - EXECUTION

3.01 GENERAL:

- A. All cutting and coring shall be performed in such a manner as to limit the extent of patching.
- B. All holes cut through concrete and masonry walls, slabs or arches shall be core drilled unless otherwise accepted. No structural members shall be cut without acceptance of the Structural Engineer of Record and all such cutting shall be done in a manner directed by the SER. No holes may be drilled in beams or other structural members. All work shall be performed by mechanics skilled in this type of work.
- C. Rough patching shall be such as to bring the cut or cored area flush with existing construction unless otherwise shown. Finish patching shall match existing surfaces.
- D. Reinforcing steel cut by cutting and coring operations shall be coated with a three-component, solvent free, moisture tolerant, epoxy-modified cementitious product specifically formulated as an anti-corrosion coating; installed in accordance with the manufacturer's printed instructions.

3.02 CUTTING:

- A. Inspect existing conditions of Work, including components subject to damage or movement during cutting or patching.
- B. Do not cut or notch structural members without specific written acceptance of the Engineer.

- C. Cutting shall be performed with a concrete saw and diamond saw blades of proper size.
- D. Corners of square or rectangular openings shall be cored. Do not overcut corners of openings. Corners shall be chipped out square, if required, so as not to cause cracking at the corners.
- E. Provide for control of slurry generated by sawing operation on both sides of element.
- F. When cutting reinforced concrete, the cutting shall be done so as not damage bond between the concrete and reinforcing steel left in structure. Cut shall be made so that steel neither protrudes nor is recessed from face of the cut.
- G. Adequate bracing and/or shoring of area to be cut shall be installed prior to start of cutting. Check area during sawing operations for cracking and provide additional bracing as required to prevent a partial release of cut area during sawing operations.
- H. Provide equipment of adequate size to remove cut panel.

3.03 CORING:

- A. Coring shall be performed with an accepted non-impact rotary tool with diamond core drills. Size of holes shall be suitable for pipe, conduit, sleeve, equipment or mechanical seals to be installed.
- B. Provide protection for existing equipment, utilities and critical areas against water or other damage caused by drilling operation.
- C. Slurry or tailings resulting from coring operations shall be removed from the area following drilling.

3.04 PATCHING:

- A. Prepare surfaces to receive cementitious repair mortar in accordance with manufacturer's instructions.
- B. Mix the cementitious repair mortar material components in accordance with the manufacturer's instructions. Concrete surfaces should be surface saturated dry (SSD) with no standing water prior to mortar application.
- C. Work a wet scrub coat of the mortar per the manufacturer's recommendations into the pores and voids in the substrate and over the substrate prior to mortar application by trowel.
- D. Apply the cementitious repair mortar using a steel trowel to work the material into the surface. Fill voids from deepest to shallowest areas as the application work proceeds. Strictly follow the manufacturer's application requirements.

- E. Once the repair areas are filled with repair mortar, strike off the mortar level with the surrounding concrete substrate. Do not leave a broom finish. Finish with a steel trowel until closed up at the surface and flat.
- F. Cure the repair mortar in strict accordance with the manufacturer's instructions.

3.05 CLEANING:

- A. Perform periodic and final cleaning as specified in Section 01740, and:
 - 1. Clean Owner-occupied areas daily.
 - 2. Clean spillage, overspray, and heavy collection of dust in Owner-occupied areas immediately.
- B. At completion of alterations work in each area, provide final cleaning and return space to condition suitable for use by Owner.
- C. Remove debris from site each day. Removed material, except that listed or marked by Engineer for retention, becomes property of Contractor.

3.06 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Section 01700.

END OF SECTION

SECTION 01046
CONTROL OF WORK

PART 1 - GENERAL

1.01 PLANT AND HOURS OF CONSTRUCTION:

- A. Furnish plant and equipment which will be efficient, appropriate, and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the Contract Time. If at any time such plant appears to the Engineer to be inefficient, inappropriate, or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character, or increase the plant equipment, and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.
- B. Normal construction activity shall take place only between the hours of 7 a.m. to 5 p.m., excluding Saturdays, Sundays, and legal holidays. Work outside the above time periods will be permitted only on an emergency basis and only with the approval of the Owner.

1.02 OCCUPYING PRIVATE LAND:

- A. The Contractor shall not (except after written consent from the proper parties) enter or occupy with men, tools, materials, or equipment any land outside the rights of way or property of the Owner. A copy of the written consent shall be given to the Engineer.

1.03 PIPE LOCATIONS:

- A. Exterior pipelines will be located substantially as indicated on the Drawings, but the right is reserved to the Owner, acting through the Engineer, to make such modifications in location as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings, etc., are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.
- B. Small interior piping is indicated diagrammatically on the Drawings, and the exact location is to be determined in the field. Piping shall be arranged in a neat, compact, and workmanlike manner, with a minimum of crossing and interlacing, so as not to interfere with equipment or access ways, and, in general, without diagonal runs.

1.04 DIMENSION OF EXISTING STRUCTURES:

- A. Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the Work, the Contractor shall verify such

dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

1.05 OPEN EXCAVATIONS:

- A. All open excavations shall be adequately safeguarded by providing temporary barricades, fencing, caution signs, lights, and other means to prevent accidents to persons and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access during construction shall be removed when no longer required. The length or size of excavation will be controlled by the particular surrounding conditions, but shall always be confined to the limits prescribed by the Engineer. If the excavation becomes a hazard, or if it excessively restricts traffic at any point, the Engineer may require special construction procedures such as limiting the length of the open trench, prohibiting stacking excavated material in the street, and requiring that the trench shall not remain open overnight.
- B. The Contractor shall take precautions to prevent injury to the public due to open trenches. All trenches, excavated material, equipment, or other obstacles which could be dangerous to the public shall be well lighted at night.

1.06 TEST PITS:

- A. Test pits for the purpose of locating underground pipeline or structures in advance of the construction shall be excavated and backfilled by the Contractor as approved by the Engineer. Test pits shall be backfilled immediately after their purpose has been satisfied and the surface restored and maintained in a manner satisfactory to the Engineer.

1.07 CARE AND PROTECTION OF PROPERTY:

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

1.08 INTERFERENCE WITH EXISTING WORKS:

- A. The Contractor shall at all times conduct his operations so as to interfere as little as possible with existing works. The Contractor shall develop a program, in cooperation with the Engineer and interested officials, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations therefrom are expressly permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the operation of the existing facilities for the shortest possible time when the demands on the facilities best permit such interference, even though it

may be necessary to work outside of normal working hours to meet these requirements. Before starting work which will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all tools, materials, and equipment are made ready and at hand.

- B. The Contractor shall make such minor modifications in the work relating to existing structures as may be necessary, without additional compensation.
 - C. The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting his operations to meet the above requirements.
 - D. The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting his operations to the need for continuous treatment of water at the existing plant.
- 1.09 PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES:
- A. The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by him at his expense.
 - B. Assistance will be given to the Contractor in determining the location of existing services. The Contractor, however, shall bear full responsibility for obtaining all locations of underground structures and utilities (including existing water services, drain lines, and sewers). Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.
 - C. Protection and temporary removal and replacement of existing utilities and structures as described in this Section shall be a part of the work under the Contract and all costs in connection therewith shall be included in the Total Price Bid in the Bid Form.
 - D. If, in the opinion of the Engineer, permanent relocation of a utility owned by the Owner is required, he may direct the Contractor, in writing, to perform the work. Work so ordered will be paid at the Contract unit prices, if applicable, or as extra work under Article 11 of the Supplementary Conditions. If relocation of a privately owned utility is required, the Engineer will notify the Utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the Owner and Utility, and shall have no claim for delay due to such relocation. The Contractor shall notify all utility companies in writing at least 72 hours (excluding Saturdays, Sundays, and Legal holidays) before excavating in any public way. Contractor shall also notify Dig Safe, at least 72 hours prior to start of work.

1.10 COOPERATION WITHIN THIS CONTRACT:

- A. All firms or persons authorized to perform any work under this Contract shall cooperate with General Contractor and his Subcontractors or trades, and shall assist in incorporating the work of other trades where necessary or required.
- B. Cutting and patching, drilling and fitting shall be carried out where required by the trade or subcontractor having jurisdiction, unless otherwise indicated herein or recommended by the Engineer.

1.11 CLEANUP AND DISPOSAL OF EXCESS MATERIAL:

- A. During the course of the work, the Contractor shall keep the site of his operations in as clean and as neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.
- B. In order to prevent environmental pollution arising from the construction activities related to the performance of this Contract, the Contractor and his subcontractors shall comply with all applicable Federal, State, and local laws, and regulations concerning waste material disposal, as well as the specific requirements stated in this Section and elsewhere in the Specifications.
- C. The Contractor is advised that the disposal of excess excavated material in wetlands, stream corridors, and plains is strictly prohibited even if the permission of the property owner is obtained. Any violation of this restriction by the Contractor or any person employed by him, will be brought to the immediate attention of the responsible regulatory agencies, with a request that appropriate action be taken against the offending parties. Therefore, the Contractor will be required to remove the fill at his own expense and restore the area impacted.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01080

ABBREVIATIONS AND DEFINITIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 ABBREVIATIONS

- A. Where any of the following abbreviations are used in the Contract Documents, they shall have the meaning set forth opposite each. Abbreviations for trade associations and standards organizations are listed in Section 01090.

AASHTO American Association of State Highway and Transportation Officials

ACI American Concrete Institute

AFBMA Anti-Friction Bearing Manufacturers Association

AGA American Gas Association

AGMA American Gear Manufacturers Association

AISC American Institute of Steel Construction

AMCA Air Moving and Conditioning Association

ANS American National Standard

ANSI American National Standards Institute

API American Petroleum Institute

ASCE American Society of Civil Engineers

ASHRAE American Society of Heating, Refrigerating and Air Conditioning Engineers

ASME American Society of Mechanical Engineers

ASTM American Society for Testing and Materials

AWG American or Brown and Sharpe Wire Gage

AWPA	American Wood-Preservers' Association
AWWA	American Water Works Association
CS	Commercial Standard
IBR	Institute of Boiler and Radiator Manufacturers
IEEE	Institute of Electrical and Electronics Engineers, Inc.
Fed. Spec.	Federal Specifications issued by the Federal Supply Service of the General Services Administration, Washington, D.C.
IPS	Iron Pipe Size
JIC	Joint Industry Conference Standards
NBS	National Bureau of Standards
NEC	National Electrical Code; latest edition
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NPT	National Pipe Thread
OS&Y	Outside screw and yoke
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc.
Stl. WG	U. S. Steel Wire, Washburn and Moen, American Steel and Wire or Roebbling Gage
UL	Underwriters' Laboratories
USS Gage	United States Standard Gage
WOG	Water, Oil, Gas
WSP	Working steam pressure
125-lb. ANS	American National Standard for Cast-Iron
or	Pipe Flanges and Flanged Fittings,
250-lb. ANS	Designation B16.1-1975, for the appropriate class

1.03 DEFINITIONS:

- A. General: Basic Contract definitions are included in the General Conditions.
- B. "Approved": When used to convey Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Engineer. Other terms including "requested," "ordered," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.
- J. "Elevation": The figures given on the Drawings or in the other Contract Documents after the word "elevation" or abbreviation of it shall mean the distance in feet above the datum adopted by the Engineer.
- K. "Rock": The word "rock," wherever used as the name of an excavated material or material to be excavated, shall mean only boulders and pieces of concrete or masonry exceeding 1 cubic yard in volume, or solid ledge rock which, in the opinion of the Engineer, requires, for its removal, drilling and blasting, wedging, sledging, barring, or breaking up with a power-operated tool. No soft or disintegrated rock which can be removed with a hand pick or power-operated excavator or shovel, no loose, shaken, or previously blasted rock or broken stone in rock fillings or elsewhere, and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation, will be measured or allowed as "rock."

- L. "Earth": The word "earth", wherever used as the name of an excavated material or material to be excavated, shall mean all kinds of material other than rock as above defined.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01090
REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Quality assurance.
- B. Schedule of references.

1.02 QUALITY ASSURANCE

- A. For products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date for receiving bids unless otherwise specified in Product Sections.
- C. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.

1.03 SCHEDULE OF REFERENCES

AA	Aluminum Association 818 Connecticut Avenue, N.W. Washington, DC 20006
AABC	Associated Air Balance Council 1000 Vermont Avenue, N.W. Washington, DC 20005
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, N.W. Washington, DC 20001
ACI	American Concrete Institute Box 19150 Reford Station Detroit, MI 48219
ADC	Air Diffusion Council 230 North Michigan Avenue Chicago, IL 60601
AI	Asphalt Institute Asphalt Institute Building College Park, MD 20740
AISC	American Institute of Steel Construction 400 North Michigan Avenue Eighth Floor Chicago, IL 60611

AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, DC 20036
AITC	American Institute of Timber Construction 333 W. Hampden Avenue Englewood, CO 80110
AMCA	Air Movement and Control Association 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
APA	American Plywood Association Box 11700 Tacoma, WA 98411
ARI	Air-Conditioning and Refrigeration Institute 1501 Wilson Boulevard Arlington, VA 22209
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle, N.E. Atlanta, GA 30329
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASPA	American Sod Producers Association 4415 West Harrison Street Hillside, IL 60162
ASTM	American Society for Testing and Materials 1916 Race Street Phildelphia, PA 19103
AWI	Architectural Woodwork Institute 2310 South Walter Reed Drive Arlington, VA 22206
AWPA	American Wood-Preservers' Association 7735 Old Georgetown Road Bethesda, MD 20014
AWS	American Welding Society 550 LeJeune Road, N.W. Miami, FL 33135
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
BIA	Brick Institute of America

	11490 Commerce Park Drive Reston, VA 22091
CDA	Copper Development Association 57th Floor, Chrysler Building 405 Lexington Avenue New York, NY 10174
CLFMI	Chain Link Fence Manufacturers Institute 1101 Connecticut Avenue, N.W. Washington, DC 20036
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60195
DHI	Door and Hardware Institute 7711 Old Springhouse Road McLean, VA 22102
EJCDC	Engineers' Joint Contract Documents Committee American Consulting Engineers Council 1015 15th Street, N.W. Washington, DC 20005
EJMA	Expansion Joint Manufacturers Association 25 North Broadway Tarrytown, NY 10591
FGMA	Flat Glass Marketing Association 3310 Harrison White Lakes Professional Building Topeka, KS 66611
FM	Factory Mutual System 1151 Boston-Providence Turnpike P.O. Box 688 Norwood, MA 02062
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, DC 20407
GA	Gypsum Association 1603 Orrington Avenue Evanston, IL 60201
ICBO	International Conference of Building Officials 5360 S. Workman Mill Road Whittier, CA 90601
IEEE	Institute of Electrical and Electronics Engineers 345 East 47th Street New York, NY 10017

IMIAC	International Masonry Industry All-Weather Council International Masonry Institute 815 15th Street, N.W. Washington, DC 20005
MBMA	Metal Building Manufacturer's Association 1230 Keith Building Cleveland, OH 44115
MFMA	Maple Flooring Manufacturers Association 60 Rivere Drive Northbrook, IL 60062
MIL	Military Specification Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
ML/SFA	Metal Lath/Steel Framing Association 221 North LaSalle Street Chicago, IL 60601
NAAMM	National Association of Architectural Metal Manufacturers 221 North LaSalle Street Chicago, IL 60601
NCMA	National Concrete Masonry Association P.O. Box 781 Herndon, VA 22070
NEBB	National Environmental Balancing Bureau 8224 Old Courthouse Road Vienna, VA 22180
NEMA	National Electrical Manufacturers' Association 2101 'L' Street, N.W. Washington, DC 20037
NFPA	National Fire Protection Association Battery March Park Quincy, MA 02269
NFPA	National Forest Products Association 1619 Massachusetts Avenue, N.W. Washington, DC 20036
NSWMA	National Solid Wastes Management Association 1730 Rhode Island Ave., N.W. Washington, DC 20036
NTMA	National Terrazzo and Mosaic Association 3166 Des Plaines Avenue Des Plaines, IL 60018
NWMA	National Woodwork Manufacturers Association 205 W. Touhy Avenue Park Ridge, IL 60068
OSHA	Occupational Safety and Health Administration

PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077
PCI	Prestressed Concrete Institute 201 North Wells Street Chicago, IL 60606
PS	Product Standard U. S. Department of Commerce Washington, DC 20203
SDI	Steel Deck Institute P.O. Box 9506 Canton, OH 44711
SDI	Steel Door Institute 712 Lakewood Center North 14600 Detroit Avenue Cleveland, OH 44107
SIGMA	Sealed Insulating Glass Manufacturers Association 111 East Wacker Drive Chicago, IL 60601
SJI	Steel Joist Institute 1205 48th Avenue North Suite A Myrtle Beach, SC 29577
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association 8224 Old Court House Road Vienna, VA 22180
SSPC	Steel Structures Painting Council 4400 Fifth Avenue Pittsburgh, PA 15213
TCA	Tile Council of America, Inc. Box 326 Princeton, NJ 08540
UL	Underwriters' Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062
WWPA	Western Wood Products Association 1500 Yeon Building Portland, OR 97204

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01110

PROTECTION OF ENVIRONMENT

PART 1 - GENERAL

1.01 SUMMARY:

- A. Contractor, in executing Work, shall maintain Work areas on- and off-site free from environmental pollution that would be in violation of federal, state or local regulations.
- B. The control of environmental pollution requires consideration of air, water, and land, and involves management of noise and solid waste, as well as other pollutants.
- C. Schedule and conduct all work in a manner that will minimize the erosion of soils in the area of the work. Provide erosion control measures such as diversion channels, sedimentation or filtration systems, berms, staked hay bales, seeding, mulching, or other special surface treatments as are required to prevent silting and muddying of streams, rivers, impoundments, lakes, etc. All erosion control measures shall be in place in an area prior to any construction activity in that area.
- D. Ensure that construction is achieved with a minimum of disturbance to the existing ecological balance between a water resource and its surroundings. It is the Contractor's responsibility to determine the specific construction techniques to meet these guidelines.
- E. Schedule and conduct all work in a manner that will minimize the level of noise escaping the site, especially at night and on weekends.
- F. Submit Storm Water Discharge Plan in accordance with Section 01300.
- G. Payment:
 - 1. Consider Work specified in this section incidental and include payment as part of appropriate lump sum or unit prices specified in Bid Form.

1.02 REFERENCES:

- A. United States Environmental Protection Agency (USEPA):
 - 1. EPA-72-015: Guidelines for Erosion and Sedimentation Control Planning and Implementation
 - 2. EPA 43019-73-007: Processes, Procedures, and Methods to Control Pollution Resulting from All Construction Activity

1.03 PROTECTION OF STORM SEWERS:

- A. Prevent construction material, pavement, concrete, earth or other debris from entering existing storm sewer or sewer structure.

1.04 PROTECTION OF WATERWAYS:

- A. Observe rules and regulations of State of Rhode Island and agencies of U.S. government prohibiting pollution of lakes, streams, rivers or wetlands by dumping of refuse, rubbish, dredge material or debris.
- B. Disposal of materials into waters of state must conform with requirements of the State of Rhode Island. Permits will be obtained by Contractor(s) for posting on job site.
 - 1. Other permits shall be obtained by Contractor at Contractor's cost.
- C. Provide holding ponds or accepted method which will divert flows, including storm flows and flows created by construction activity, to prevent excessive silting of waterways or flooding damage to property.
- D. Comply with procedures outlined in U.S. EPA manuals entitled, "Guidelines for Erosion and Sedimentation Control Planning and Implementation", Manual EPA-72-015 and "Processes, Procedures, and Methods to Control Pollution Resulting from All Construction Activity", Manual EPA 43019-73-007.

1.05 EROSION AND SEDIMENT CONTROL:

- A. General guidelines for implementing erosion control measures are included in Project Forms.
- B. Apply appropriate soil conservation measures to protect project area and adjacent lands. These measures may include, but not be limited to, mulching, rapid growth vegetation, fabric mat, hay bales, filter barriers, sediment traps, and basins.
- C. Select methods of erosion and sediment control for specific job site.
 - 1. Adjust sediment control measures in field to meet conditions encountered.
- D. Prepare and submit erosion control plan to **Engineer**. Plan shall include:
 - 1. Limits of disturbance.
 - 2. Type(s) of stabilization to be used.
 - 3. Existing and proposed culverts, storm drains, and outfalls.
 - 4. Location of stabilized construction entrance.
 - 5. Location of proposed sediment control measures.

6. Details of sediment traps and basins and other sediment control measures.
 7. Sequence of construction as it relates to installation, phasing, and removal of sediment control measures.
- E. Provide erosion control measures, in place, before commencing work on project site.
1. Maintain erosion control measure during course of construction.
 2. Remove erosion control measures upon establishment of permanent, surface stabilization.
- F. Complete temporary or permanent stabilization of surface of perimeter controls, dikes, swales, ditches, perimeter slopes, and slopes greater than 3:1 within 7 calendar days following initial soil disturbance. Stabilize other disturbed or graded areas within 14 calendar days.
- 1.06 DISPOSAL OF EXCESS EXCAVATED AND OTHER WASTE MATERIALS:
- A. Excess excavated material not required or not suitable for backfill and other waste material shall be disposed of in accordance with local regulatory requirements.
 - B. Provide watertight conveyance for liquid, semi-liquid or saturated solids which tend to bleed during transport. Liquid loss from transported materials is not permitted, whether being delivered to construction site or hauled away for disposal. Fluid materials hauled for disposal must be specifically acceptable at selected disposal site.
- 1.07 PROTECTION OF AIR QUALITY:
- A. Minimize air pollution by requiring use of properly operating combustion emission control devices on construction vehicles and equipment and encourage shutdown of motorized equipment not in use.
 - B. Do not burn trash on construction site.
 - C. If temporary heating devices are necessary for protection of Work, they shall not cause air pollution.
- 1.08 THAWING OF FROZEN GROUND:
- A. Obtain permit from appropriate local authority before building fire to thaw frozen ground, and comply with conditions of permit.
 - B. Use fuel which does not create air pollution or inconvenience public.
 - C. **Engineer** reserves right to prohibit fires for thawing whenever deemed undesirable.

1.09 USE OF CHEMICALS:

- A. Chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall be approved by U.S. EPA or U.S. Department of Agriculture or any other applicable regulatory agency.
- B. Use and disposal of chemicals and residues shall comply with manufacturer's instructions.

1.10 NOISE CONTROL:

- A. Conduct operations to cause least annoyance to residents in vicinity of Work, and comply with applicable local ordinances.
- B. Equip compressors, hoists, and other apparatus with mechanical devices necessary to minimize noise and dust. Equip compressors with silencers on intake lines.
- C. Equip gasoline or oil-operated equipment with silencers or mufflers on intake and exhaust lines.
- D. Line storage bins and hoppers with material that will deaden sounds.
- E. Conduct operation of dumping rock and of carrying rock away in trucks so as to cause minimum of noise and dust.
- F. Route vehicles carrying rock, concrete or other material over such streets as will cause least annoyance to public and do not operate on public streets between hours of 6:00 p.m. and 7:00 a.m., or on Saturdays, Sundays or legal holidays unless accepted by **Owner**.

1.11 DUST CONTROL:

- A. Due to close geographic location of Project to other off-site facilities take special care in providing and maintaining temporary site roadways, Owner's existing roads, and public roads used during construction operations in clean, dust free condition.
- B. Comply with local environmental regulations for dust control. If Contractor's dust control measures are considered inadequate by **Engineer**, **Engineer** may require Contractor to take additional dust control measures.

1.12 FUELS AND LUBRICANTS:

- A. Comply with local, state and federal regulations concerning transportation and storage of fuels and lubricants.
- B. Fuel storage area and fuel equipment shall be approved by Owner prior to installation. Submit containment provisions to Owner for approval.

- C. Report spills or leaks from fueling equipment or construction equipment to Owner and cleanup as required by local, state or federal regulations.
- D. Owner may require Contractor to remove damaged or leaking equipment from Project site.

1.11 FUEL AND LUBRICANTS:

- E. Project site is within water supply area.
- F. Minimize use of potentially hazardous materials including fuels and lubricants.
- G. Keep motorized equipment in good working order with no fuel or lubricant leakage. Protect ground surface from leakage using tarps or other methods.
- H. If grease, oil, solvent, or other residue from Contractor operations occurs, Contractor shall conduct remedial investigation and remediate as required by Owner.
- I. Do not change oil on equipment or store or dispose of fuels, solvents, lubricants, or other potentially hazardous materials on site.

1.13 PILE AND SHEATHING DRIVING NOISE:

- A. If piles are required, use only pile driver hammers with mufflers capable of significantly reducing noise and use barriers or shielding techniques to comply with applicable federal, state, and local ordinances.

1.14 NOTIFICATIONS:

- A. The **Engineer** will notify the Contractor in writing of any non-compliance with the foregoing provisions or of any environmentally objectionable acts and corrective action to be taken. State or local agencies responsible for verification of certain aspects of the environmental protection requirements shall notify the Contractor in writing, through the **Engineer**, of any non-compliance with State or local requirements. The Contractor shall, after receipt of such notice from the **Engineer** or from the regulatory agency through the **Engineer**, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Contractor unless it is later determined that the Contractor was in compliance.

1.15 IMPLEMENTATION:

- A. Prior to commencement of the work, meet with the **Engineer** to develop mutual understandings relative to compliance with this provision and administration of the environmental pollution control program.

- B. Remove temporary environmental control features, when accepted by the **Engineer**, and incorporate permanent control features into the project at the earliest practicable time.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.01 SUMMARY:

- A. Contractor shall schedule and administer progress meetings with their own staff and/or other contractors, construction foremen's meetings, and specially called meetings with these parties throughout progress of Work. Contractor shall:
 - 1. Prepare agenda for meetings.
 - 2. Distribute written notice of specially called meetings minimum of one working day(s) in advance of meeting date.
 - 3. Make physical arrangements for meetings.
 - 4. Preside at meetings.
 - 5. Record minutes; include significant proceedings and decisions.
 - 6. Prepare formal minutes and distribute within two working days after each meeting to the following:
 - a. Meeting participants.
 - b. Parties affected by decisions made at meeting.
 - c. Engineer and Owner - furnish both with three copies of minutes.
- B. Representatives of Contractor, Subcontractors, and Suppliers attending meetings shall be qualified and authorized to act on behalf of entity each represents.
- C. Owner and Engineer may attend meetings.

1.02 PRECONSTRUCTION CONFERENCE:

- A. Engineer will schedule and conduct preconstruction conference in accordance with General Conditions and this Section.
- B. Location: At location to be selected by Engineer.
- C. Attendance.
 - 1. Contractor's Project Manager.

2. Contractor's Resident Superintendent.
 3. Contractor's "hands-on" person[s] designated by Contractor to submit Shop Drawings to Engineer.
 4. Subcontractors' or suppliers' representatives Contractor may desire to invite or Engineer may request.
 5. Engineer's representatives.
 6. Owner's representatives.
 7. Local utility representatives, if applicable.
- D. Suggested format includes, but not be limited to following:
1. Project Safety.
 2. Presentation of preliminary progress schedule in accordance with Section 01310, Construction Progress Schedule and preliminary schedule of Shop Drawing and sample submissions in accordance with Section 01300, Submittals.
 3. Check of required bonds and insurance policies prior to Notice to Proceed.
 4. Liquidated damages.
 5. Procedures for handling submittals such as substitutions and Shop Drawings.
 6. Direction of correspondence and coordinating responsibility.
 7. Weekly and monthly progress meetings.
 8. Equal opportunity requirements.
 9. Laboratory and field testing requirements.
 10. Schedule of values, application for progress payment, and progress payment procedures.
 11. Change Order procedures.
 12. Contractor's proposed Environmental Management and Erosion Control Plan.
 13. Contractor's proposed Health and Safety Plan.
 14. Contractor's proposed Quality Control Plan.
 15. Coordination requirements with plant staff and ongoing operations.

16. Construction sequencing and stipulated construction and plant operational constraints.

1.03 PROGRESS MEETINGS WITH ENGINEER:

- A. In addition to other regular project meetings for other purposes (as indicated elsewhere in the Contract Documents), hold general progress meetings once a month or more frequently if required by Engineer with times coordinated with preparation of payment requests. Meeting dates shall be established by Engineer. Require every entity then involved in the planning, coordination or performance of Work to be properly represented at each meeting. Include (when applicable):
 1. Consultants
 2. Separate contractors (if any)
 3. Principal subcontractors
 4. Suppliers/manufacturers/fabricators
 5. Governing authorities
 6. Owners Representatives
 7. Special supervisory personnel and others with an interest or expertise in the progress of the Work.
- B. Engineer shall:
 1. Prepare agenda for meetings.
 2. Distribute written notice of specially called meetings a minimum of one (1) working day in advance of meeting date.
 3. Preside at meetings.
 4. Record meeting-minutes; include significant proceedings and decisions.
 5. Prepare formal meeting-minutes and distribute within two working days after each meeting and will forward copies of the minutes-of-the-meeting to the Contractor.
- C. Suggested format includes, but not limited to following:
 1. Review each entity's present and future needs including interface requirements
 2. Construction sequence, coordination and shutdown requirements
 3. Construction schedule and progress reporting

4. Deliveries
5. Access
6. Site utilization
7. Temporary facilities and services
8. Hours of work
9. Construction Sequence
10. Safety, hazards and risks
11. Housekeeping
12. Submittals
13. Change managements (request for quotation, change directives, change orders)
14. Contract administration logs (request for information, etc.)
15. Documentation of information for payment requests

D. Contractor shall make physical arrangements for meetings.

E. Discuss whether each element of current Work is ahead of schedule. Determine how behind-schedule Work will be expedited and secure commitments from the entities involved in doing so. Discuss whether schedule revisions are required to ensure that current work and subsequent work will be completed within the Contract Time. Review everything of significance which could affect the progress of the Work.

F. Immediately following each progress meeting where revisions to the Progress Schedule/Critical Path Schedule have been made or recognized (regardless of whether agreed to by each entity represented), Contractor shall revise the Schedule and re-issue the revised Schedule within 10 working days after the meeting.

G. At intervals matching the preparation of payment requests, revise and re-issue the Schedule to show actual progress of the Work in relation to the latest revision of the Schedule.

H. Contractor shall provide a schedule to show the projected work over the next 30 days on the Project following the meeting. This 30-day schedule shall be updated monthly.

1.04 CONTRACTOR'S CONSTRUCTION MEETINGS:

A. Schedule weekly.

B. Location: Contractor's field office.

C. Attendance.

1. Resident superintendent.
2. Subcontractor's foremen.
3. Engineer's Resident Project Representative

D. Suggested Agenda.

1. Health and safety.
2. Review agenda of Work progress since previous meeting.
3. Proposed progress and schedule for succeeding Work period.
4. Field observations, problems, and conflicts.
5. Problems which affect construction schedule.
6. Coordination and shutdown requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. This Section specifies the general methods and requirements of submissions applicable to the following work-related submittals.
 - 1. Shop Drawings, Product Data and Samples.
 - 2. Mock Ups.
 - 3. Construction Photographs.
 - 4. Contractor's Responsibilities.
 - 5. Submission Requirements.
 - 6. Review of Shop Drawings, Product Data, Working Drawings and Samples.
 - 7. Distribution.
 - 8. General Procedures for Submittals.
 - 9. Certificate of Design.
 - 10. Certificates of Compliance.
 - 11. Schedules.
- B. Additional general submission requirements are contained in Paragraph 6.17 of the General Conditions.
- C. Detailed submittal requirements will be specified in the technical specifications section.
- D. PROJECT MANAGEMENT SOFTWARE
 - A. The Contractor shall utilize Providence Water's Project Management Software for all submittals. All submittals and approvals shall be performed via that software. Email and/or paper submissions will not be allowed.

1.02 DEFINITIONS:

- A. Written and graphic information and physical samples that require Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.
- D. Shop drawings, as defined in the General Conditions, and as specified in individual work Sections include, but are not necessarily limited to: custom-prepared data such as fabrication and erection/installation (working) drawings of concrete reinforcement, structural details and piping layout, scheduled information, setting diagrams, actual shopwork manufacturing instructions, custom templates, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certifications as applicable to the work.

1.03 SUBMITTALS:

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
 - 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.

- b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Engineer's final release or acceptance.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
- B. All submittals and responses shall be done in Providence Water's project management software, E-Builder. The Contractor shall be issued a license to by Providence Water to utilize the software.

1.04 SUBMITTAL ADMINISTRATIVE REQUIREMENTS:

- A. Engineer's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Engineer for Contractor's use in preparing submittals.
- 1. Engineer will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
 - a. Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Digital Drawing Software Program: The Contract Drawings are available in software as agreed upon by Engineer and Contractor.
 - c. Contractor shall execute a data licensing agreement in the form of Agreement form acceptable to Owner and Engineer.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
- 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on accepted submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. All shop drawings shall be submitted using e-Builder construction management software. Providence Water will hold e-Builder license and will provide licenses to Contractor and Engineer.
- D. All shop drawings submitted by subcontractors for approval shall be sent directly to the Contractor for checking. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.
- E. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Engineer's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
- F. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
 3. Number of submittals required:
 - a. Shop Drawings: Unless otherwise stated in the respective Specifications Sections, submit six (6) copies.

- b. Product Data: Unless otherwise stated in the respective Specifications submit six (6) copies.
 - c. Samples: Submit the number stated in the respective Specification Sections.
 - 4. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Name of subcontractor.
 - f. Name of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - (1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 01300.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 01300.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
 - 5. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Engineer.
 - b.
- G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous submittals, and deviations from

requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with acceptance notation from Engineer's action stamp.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with acceptance notation from Engineer's action stamp.

1.05 CONSTRUCTION PHOTOGRAPHS:

A. The Contractor shall provide construction photographs in accordance with requirements specified in Section 01380.

PART 2 - PRODUCTS

2.01 SUBMITTAL PROCEDURES:

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections following Providence Water's prescribed submittal protocol that is currently being developed. Submittals shall be completed in Providence Water's project management software, E-Builder. The Contractor shall be issued a license to utilize the software.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

- a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
4. For equipment, include the following in addition to the above, as applicable:
- a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:
- a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Engineer's digital data drawing files is otherwise permitted.
1. Certified shop and erection drawings. Contractor shall submit electronic files of the proposed equipment in the capacity, size, and arrangement as indicated and specified.
- a. Drawings shall include plan views, sectional views, title block, Tag Numbers, serial numbers, Parts List (identifying each component), dimensions, connection sizes and types and all details of all related items. In cases where certain information is proprietary and is omitted, provided a statement indicating that the information is proprietary and is being omitted.

- b. Drawings shall be in conformance with all other requirements as specified in this specification.
 - 2. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 - 3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
- 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 - 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.

4. Disposition: Maintain sets of accepted Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Engineer will return submittal with options selected.
6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit two sets of Samples. Engineer will retain one Sample set; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
 - (1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - (2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.

2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
- F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Engineers and owners, and other information specified.
- G. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- H. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- I. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- J. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- K. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- L. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- M. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- N. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
1. Name of evaluation organization.
 2. Date of evaluation.
 3. Time period when report is in effect.

4. Product and manufacturers' names.
 5. Description of product.
 6. Test procedures and results.
 7. Limitations of use.
- O. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- P. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- Q. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- R. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- 2.02 DELEGATED-DESIGN SERVICES:
- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Engineer.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW:

- A. Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Mark with approval stamp before submitting to Engineer.
- B. Contractor review shall verify the following:
 - 1. Field measurements
 - 2. Field construction criteria
 - 3. Catalog numbers and similar data
 - 4. Conformance with the Specifications
- C. If a shop drawing shows any deviation from the requirements of the Contract Documents, the Contractor shall make specific mention of the deviations in the Transmittal Form furnished by the Engineer and provide a description of the deviations in a letter attached to the submittal.
- D. The review and approval of shop drawings, samples or product data by the Engineer shall not relieve the Contractor from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Engineer will not have responsibility therefor.
- E. No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to accepted shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
- F. Project Closeout and Maintenance Material Submittals: See requirements in Division 01 Section 01700.
- G. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 ENGINEER'S ACTION:

- A. The Engineer's review is for general conformance with the design concept and contract documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the contract plans and specifications or from departures

therefrom. The Contractor remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.

- B. The review of shop drawings, data, and samples will be general. They shall not be construed:
 - 1. as permitting any departure from the Contract requirements;
 - 2. as relieving the Contractor of responsibility for any errors, including details, dimensions, and materials;
 - 3. as approving departures from details furnished by the Engineer, except as otherwise provided herein.
- C. If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting an exception.
- D. Two (maximum) copies of shop drawings or product data will be returned to the Contractor via First Class United States Postal Service. Samples will not be returned.
- E. Submittals will be returned to the Contractor under one of the action codes indicated below and defined on the transmittal form furnished by the Engineer.
 - 1. Marking: No Exception Taken.
 - a. When submittals are marked as “No Exception Taken,” Work covered by submittal may proceed provided it complies with Contract Documents. Acceptance of Work depends on that compliance.
 - 2. Marking: Make Corrections Noted.
 - a. When submittals are marked as “Make Corrections Noted,” Work covered by submittal may proceed provided it complies with Engineer’s notations or corrections on submittal and with Contract Documents. Acceptance of Work depends on that compliance. Resubmittal not required.
 - 3. Marking: Amend and Resubmit.
 - a. When submittals are marked as “Amend and Resubmit,” do not proceed with Work covered by submittal. Do not permit Work covered by submittals to be used at Project site or elsewhere where Work is in progress.
 - b. Revise submittal or prepare new submittal in accordance with Engineer's notations in accordance with resubmittal requirements of this section.

Resubmit without delay. Repeat if required to obtain different action marking.

4. Marking: Rejected; See Remarks.

- a. When submittals are marked as "Rejected; See Remarks," do not proceed with Work covered by submittal. Work covered by submittal does not comply with Contract Documents.
- b. Prepare new submittal for different material or equipment supplier or different product line or material of same supplier complying with Contract Documents.

5. Marking: For Information Only.

- a. When submittals are marked as "For Information Only," the Engineer will review the submittal but take no action.
- b. It will be recorded as "For Information Only". Work covered by this submittal may proceed provided it complies with the Contract Documents.

6. Marking: Not Required for Review.

- a. When submittals are marked as "Not Required for Review," the Engineer has not reviewed the submittal and it is being returned.
- b. Work covered by this submittal may proceed provided it complies with the Contract Documents.

- F. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing, on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the Engineer, on previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the Contractor. The Contractor shall make corrections to any work done because of this type revision that is not in accordance to the Contract Documents as may be required by the Engineer.
- G. Partial submittals may not be reviewed. The Engineer will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the Contractor, and will be considered "Rejected" until resubmitted. The Engineer may at his option provide a list or mark the submittal directing the Contractor to the areas that are incomplete.
- H. If the Contractor considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the Contractor shall give written notice thereof to the Engineer at least seven working days prior to release for manufacture.

- I. When the shop drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.
- 3.03 DISTRIBUTION:
 - A. Distribute reproductions of accepted shop drawings and copies of accepted product data and samples, where required, to the job site file and elsewhere as directed by the Engineer. Number of copies shall be as directed by the Engineer but shall not exceed 6.
- 3.04 CERTIFICATE OF DESIGN:
 - A. If specifically specified in other Sections of these Specifications, the Contractor shall submit the applicable Certificate of Design for each item required, Form 01300-1, completely filled in and signed and sealed by a registered professional engineer.
- 3.05 CERTIFICATES OF COMPLIANCE:
 - A. Certificates of Compliance as specified in the specifications shall include and mean certificates, manufacturer's certificates, certifications, certified copies, letters of certification and certificate of materials.
 - B. The Contractor shall be responsible for providing Certificates of Compliance as specified in the technical specifications. Certificates are required for demonstrating proof of compliance with specification requirements and shall be executed in six (6) copies unless otherwise specified. Each certificate shall be signed by an official authorized to certify on behalf of the manufacturing company and shall contain the name and address of the Supplier, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Supplier from furnishing satisfactory material, if after tests are performed on selected samples, the material is found not to meet the specific requirements.

END OF SECTION

Form 01300-1
CERTIFICATE OF DELEGATED DESIGN SERVICES

The undersigned hereby certifies that he/she is a Professional Engineer registered in the state of Rhode Island and that he/she has been employed by (Name of Contractor) _____ to design _____ in accordance with Specifications Section _____ for the Removal and Disposal of Residuals from the South Sedimentation Basin. The undersigned further certifies that he/she has performed similar designs previously and has performed the design of the _____; that said design is in conformance with all applicable local, state, and federal codes, rules, and regulations and professional practice standards; that his/her signature and Professional Engineer (P.E.) Stamp have been affixed to all calculations and drawings used in, and resulting from, the design; and that the use of that stamp signifies the responsibility of the undersigned for that design.

The undersigned hereby certifies that he/she has Professional Liability Insurance with limits of \$5,000,000.00 for treatment related work and \$2,000,000.00 for other Engineering work and a Certificate of Insurance is attached.

The undersigned hereby agrees to make all original design drawings and calculations available to the Town/City of _____ or Owner's representative within seven (7) days following written request therefore by the Owner.

P.E. Name

Contractor's Name

Signature

Signature

Title

Title

Address

Address

Form 01300-2
CERTIFICATE OF UNIT RESPONSIBILITY
For Specification Section _____

(Section title)

In accordance with Section 01 33 00, paragraph 3.05 of the contract documents, the undersigned manufacturer accepts unit responsibility for all components of equipment furnished under specification Section [_____] and the requirements specified in Section 01 41 20. We hereby certify that these components are compatible and comprise a functional unit suitable for the specified and indicated performance and design requirements.

Notary Public

Name of Corporation

Commission expiration date

Address

Seal: By: _____
Duly Authorized Official

Legal Title of Official

Date: _____

SECTION 01310

CONSTRUCTION PROGRESS SCHEDULES

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Contractor shall prepare and submit to Engineer for review within 30 days after Notice to Proceed, a construction progress schedule.
- B. No work shall be done between 5 p.m. and 7 a.m. nor on Sundays or legal holidays without written permission of Owner. However, emergency work may be done without prior permission.
- C. Night work may be established by Contractor as regular procedure with written permission of Owner. Such permission, however, may be revoked at any time by Owner if Contractor fails to maintain adequate equipment and supervision for proper prosecution and control of work at night.

1.02 FORM OF SCHEDULES:

- A. Prepare schedules in form of a horizontal bar chart.
 - 1. Provide separate horizontal bar for each trade or operation.
 - 2. Horizontal Time Scale: Identify first work day of each week.
 - 3. Scale and spacing to allow space for notations and future revisions.
- B. Format of Listings: Chronological order of start of each item of work.
- C. Identification of Listings: By major specification section numbers.

1.03 CONTENT OF SCHEDULES:

- A. Construction Progress Schedule:
 - 1. Show complete sequence of construction by activity.
 - 2. Show dates for beginning and completion of each major element of construction and installation dates for major items of equipment. Elements shall include, but not be limited to, the following:
 - a. Shop drawing receipt from supplier/manufacturer submitted to Engineer, review and return to supplier/manufacturer.

- b. Material and equipment order, manufacturer, delivery, installation, and checkout.
 - c. Decanting and recycling of upper zone of sedimentation basin.
 - d. Piping installation.
 - e. Draining, cleaning and returning the sedimentation basin to service.
 - f. Drying residuals removed from South Sedimentation Basin.
 - g. Drying and disposal of existing residuals in drying beds.
 - h. Final cleanup.
 - i. Allowance for inclement weather.
 - j. Demolition.
3. Show projected percentage of completion for each item as of first day of each month.

1.04 SCHEDULE REVISIONS:

- A. Every 30 days Contractor shall revise construction schedule to reflect changes in progress of work.
- B. Indicate progress of each activity at date of submittal.
- C. Show changes occurring since previous submittal of schedule.
 - 1. Major changes in scope.
 - 2. Activities modified since previous submittal.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- D. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays, and impact on schedule.
 - 2. Corrective action recommended and its effect.
 - 3. Effect of changes on schedules of other Contractors.

1.05 SUBMITTAL REQUIREMENTS:

- A. For initial submittal of construction schedule and subsequent revisions thereof, furnish electronic file of schedule to Engineer.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01380
CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Provide construction photographs pertinent to the Contract work during the Contract period as specified.
 - 1. Section includes administrative and procedural requirements for the following:
 - a. Preconstruction photographs.
 - b. Periodic construction photographs.
 - c. Final completion construction photographs.
 - d. Preconstruction video recordings.
 - e. Periodic construction video recordings.
 - f. Web-based construction photographic documentation.

1.02 ALLOWANCES:

- A. Costs: Photographic documentation services are included under the cash allowance for construction photographic services established in Division 01 Section "Allowances."

1.03 UNIT PRICES:

- A. Basis for Bids: Base number of construction photographs on average of 10 photographs per week over the duration of Project.

1.04 SUBMITTALS:

- A. Submit the following shop drawings in accordance with Section 01300.
- B. Qualification Data: For photographer.
- C. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- D. Digital Photographs: Submit image files within three days of taking photographs.

1. Digital Camera: Minimum sensor resolution of 8 megapixels.
 2. Format: Minimum 3200 by 2400 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
 3. Identification: Provide the following information with each image description in file metadata tag:
 - a. Name of Project and Owner's project number.
 - b. Name and contact information for photographer.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
 - g. Unique sequential identifier keyed to accompanying key plan.
- E. Construction Photographs: Submit two prints of each photographic view within seven days of taking photographs.
1. Format: 8-by-10-inch smooth-surface matte prints on single-weight, commercial-grade photographic paper; enclosed back to back in clear plastic sleeves that are punched for standard three-ring binder.
 2. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:
 - a. Name of Project and Engineer's and Owner's project number.
 - b. Name and contact information for photographer.
 - c. Name of Engineer.
 - d. Name of Contractor.
 - e. Date photograph was taken if not date stamped by camera.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
 - g. Unique sequential identifier keyed to accompanying key plan.

1.05 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01400.
- B. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.
- C. Web-Based Photographic Documentation Service Provider: A firm specializing in providing photographic equipment, Web-based software, and related services for construction projects, with record of providing satisfactory services similar to those required for Project.
- D. Photographer to use techniques, material and equipment capable of producing photographs of high quality and resolution.
- E. Photographer to be available on call on one day notice when requested by Engineer and be prepared to respond on shorter notice in unusual or unexpected conditions.
- F. Dates for photography at site to be coordinated with Engineer and Engineer to be present during photographic periods at site unless approved otherwise by Engineer.
- G. Photographer to make and retain detailed records of all photographs by photographer under this Contract:
 - 1. The records to be in sufficient detail to support any attestation that may be required of photographer.
 - 2. Photographer to retain such records for a period not less than two years from the final acceptance of entire work under this Contract.

1.06 USAGE RIGHTS:

- A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

1.07 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Section 01610.

PART 2 - PRODUCTS

2.01 PHOTOGRAPHIC MEDIA:

- A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of **8** megapixels, and at an image resolution of not less than **3200 by 2400** pixels.

PART 3 - EXECUTION

3.01 CONSTRUCTION PHOTOGRAPHS:

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 - 1. Date and Time: Include date and time in file name for each image.
 - 2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Engineer.
- D. Preconstruction Photographs: Before commencement of work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Engineer.
 - 1. Take **20** photographs to show existing conditions adjacent to property before starting the Work.
 - 2. Take **20** photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
 - 3. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- E. Periodic Construction Photographs: Take **10** photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- F. **Engineer**-Directed Construction Photographs: From time to time, **Engineer** will instruct photographer about number and frequency of photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.
- G. Time-Lapse Sequence Construction Photographs: Take **10** photographs as indicated, to show status of construction and progress since last photographs were taken.

1. Frequency: Take photographs **weekly**, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment.
 2. Vantage Points: Following suggestions by **Engineer** and Contractor, photographer to select vantage points. During each of the following construction phases, take not less than **two** of the required shots from same vantage point each time to create a time-lapse sequence.
 - a. At 1-month intervals, progress photography during construction of facilities. Photos of any month need show only new work performed during month.
 - b. Such special photographs required by Engineer.
 - c. Interior Work, through date of Substantial Completion.
 3. Views:
 - a. Coordinate with Engineer on views to be taken. In general views from locations to adequately illustrate state of project and condition of construction.
 - b. At least 3 different views of photographic subject except over-all site photography to have at least 4 different views unless otherwise approved by Engineer.
 - c. Succeeding photography of same photographic subject to be taken, insofar as practical, from the same view points as preceding photographic sessions. Variations in this procedure to be approved by Engineer.
- H. Final Completion Construction Photographs: Take **10** color photographs after date of Substantial Completion for submission as project record documents. **Engineer** will inform photographer of desired vantage points.
1. Do not include date stamp.
- I. Additional Photographs: Engineer may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum.
1. Three days' notice will be given, where feasible.
 2. In emergency situations, take additional photographs within 24 hours of request.
 3. Circumstances that could require additional photographs include, but are not limited to, the following:
 - a. Special events planned at Project site.

- b. Immediate follow-up when on-site events result in construction damage or losses.
- c. Photographs to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
- d. Substantial Completion of a major phase or component of the Work.
- e. Extra record photographs at time of final acceptance.
- f. Owner's request for special publicity photographs.

END OF SECTION

SECTION 01400

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. This section covers Quality Assurance and Control requirements for this contract.
- B. The Contractor is responsible for controlling the quality of work, including work of its subcontractors, and suppliers and for assuring the quality specified in the Technical Specifications is achieved.
- C. Refer to the General Conditions Article 6 - Contractor's Responsibilities, paragraphs 6.01, 6.02, and 6.03.

1.02 SUMMARY:

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

1.03 REFERENCES:

- A. American Society for Testing and Materials (ASTM):
 - 1. [E329](#): Standard Specification for Agencies Engaged in Construction Inspection and/or Testing

1.04 DEFINITIONS:

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.
- C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- D. Product Testing: Tests and inspections that are performed by a Nationally Recognized Testing Laboratory (NRTL), an (National Voluntary Laboratory Accreditation Program (NVLAP), or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of **five** previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.05 CONFLICTING REQUIREMENTS:

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to **Engineer** for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to **Engineer** for a decision before proceeding.

1.06 SUBMITTALS:

- A. Shop Drawings: For residuals removal and dewatering equipment, provide plans, sections, and elevations, indicating materials and size of equipment.
 - 1. Indicate manufacturer and model number of individual components.
 - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.
- B. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- C. Qualification Data: For Contractor's quality-control personnel.
- D. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Engineer.
 - 2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Engineer.
- E. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- F. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.

2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.07 CONTRACTOR'S QUALITY-CONTROL PLAN:

- A. Quality-Control Plan, General: Submit quality-control plan within **10** days of **Notice to Proceed**], and not less than **five** days prior to preconstruction conference. Submit in format acceptable to **Engineer**. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
 1. Project quality-control manager **may also serve as Project Superintendent**.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
 1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
 2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and accepted mockups.

- F. Monitoring and Documentation: Maintain testing and inspection reports including log of accepted and rejected results. Include work **Engineer** has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.08 REPORTS AND DOCUMENTS:

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, and telephone number of technical representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.

4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- C. **Factory-Authorized Service Representative's Reports:** Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.
- D. **Permits, Licenses, and Certificates:** For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.09 QUALITY ASSURANCE:

- A. **General:** Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. **Fabricator Qualifications:** A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project,

whose work has resulted in construction with a record of successful in-service performance.

- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to **ASTM E329**; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
- K. Codes and Standards: Refer to General Conditions Article 3 - Contract Documents: Intent, Amending, Reuse, paragraph 3.03 of the General Conditions.
- L. Copies of applicable referenced standards are not included in the Contract Documents. Where copies of standards are needed by the Contractor for superintendence and quality control of the work, the Contractor shall obtain a copy or copies directly from the

publication source and maintain at the jobsite, available to the Contractor's personnel, subcontractors, and **Engineer**.

- M. Quality of Materials: Unless otherwise specified, all materials and equipment furnished for permanent installation in the Work shall conform to applicable standards and specifications and shall be new, unused, and free from defects and imperfections, when installed or otherwise incorporated in the Work. The Contractor shall not use material and equipment for any purpose other than that intended or specified unless the **Engineer** authorizes such use.
- N. Where so specified, products or workmanship shall also conform to the additional performance requirements included within the Contract Documents to establish a higher or more stringent standard or quality than that required by the referenced standard.

1.10 OFFSITE INSPECTION:

- A. When the specifications require inspection of materials or equipment during the production, manufacturing, or fabricating process, or before shipment, such services shall be performed by the Owner's independent testing laboratory, or inspection organization acceptable to **Engineer** in conjunction with or by the **Engineer**.
- B. The Contractor shall give appropriate written notice to the **Engineer** not less than 30 days before offsite inspection services are required, and shall provide for the producer, manufacturer, or fabricator to furnish safe access and proper facilities and to cooperate with inspecting personnel in the performance of their duties.

1.11 MATERIALS AND EQUIPMENT:

- A. The Contractor shall maintain control over procurement sources to ensure that materials and equipment conform to specified requirements in the Contract Documents.
- B. The Contractor shall comply with manufacturer's printed instructions regarding all facets of materials and/or equipment movement, storage, installation, testing, startup, and operation. Should circumstances occur where the contract documents are more stringent than the manufacturer's printed instructions, the Contractor shall comply with the specifications. In cases where the manufacturer's printed instructions are more stringent than the contract documents, the Contractor shall advise the **Engineer** of the disparity and conform to the manufacturer's printed instructions. In either case, the Contractor is to apply the more stringent specification or recommendation, unless accepted otherwise by the **Engineer**.

1.12 QUALITY CONTROL:

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. The Contractor shall furnish a construction schedule and a minimum of 48 hour notice of readiness for testing and inspection of the work. The **Engineer** shall determine the exact time and location of field sampling and testing, and may require such additional sampling and testing to determine that materials and equipment conform with data previously furnished by Contractor and with the Contract Documents.
 3. The Contractor shall schedule the work to permit adequate time for testing and re-testing should test results not conform to the contract documents. Lack of testing or inspection which is attributable to insufficient notice by the Contractor or failure of the Contractor to cooperate, will be cause for rejection of the work.
 4. The Contractor shall deliver materials in sufficient quantities to the Owner's testing agency as may be required. Laboratory testing shall be performed within a reasonable time, consistent with the specified standards.
 5. The Contractor shall furnish material samples and cooperate in the field sampling and testing activities, interrupting the work when necessary. The Contractor shall furnish personnel, facilities and access to assist in the sampling and testing activities.
 6. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
 7. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
 3. Comply with manufacturers' instructions, including each step in sequence.
 4. When manufacturers' instructions conflict with Contract Documents, request clarification from **Engineer** before proceeding.

5. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
6. Perform Work by persons qualified to produce required and specified quality.
7. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.
8. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
9. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
10. Notify testing agencies at least **24** hours in advance of time when Work that requires testing or inspecting will be performed.
11. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
12. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
13. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Tolerances:

1. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
2. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from **Engineer** before proceeding.
3. Adjust products to appropriate dimensions; position before securing products in place.

D. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

E. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical

representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

- F. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- G. Testing Agency Responsibilities: Cooperate with Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Engineer and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6. Do not perform any duties of Contractor.
- H. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.

I. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

J. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner and Engineer, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.13 SPECIAL TESTS AND INSPECTIONS:

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 EXAMINATION:

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify utility services are available, of correct characteristics, and in correct locations.

3.02 QUALITY CONTROL:

A. Quality control is the responsibility of the Contractor, and the Contractor shall maintain control over construction and installation processes to assure compliance with specified requirements.

- B. Certifications for personnel, procedures, and equipment associated with special processes (e.g., welding, cable splicing, instrument calibration, surveying) shall be maintained in the Contractor's field office, available for inspection by the **Engineer**. Copies shall be made available to the **Engineer** upon request.
- C. Means and methods of construction and installation processes are the responsibility of the Contractor, and at no time is it the intent of the **Engineer** to supersede or void that responsibility.

3.03 TEST AND INSPECTION LOG:

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to **Engineer**.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Engineer's reference during normal working hours.

3.04 REPAIR AND PROTECTION:

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 01500
TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 SCOPE OF WORK:

- A. The Contractor shall provide all temporary facilities for the proper completion of the work, as required and as specified.

1. Section Includes:

- a. User Charges:
 - (1) Sewer.
 - (2) Water.
 - (3) Electric.
 - (4) Temporary heat.
- b. Temporary Facilities:
 - (1) Field offices and sheds.
- c. Equipment.
- d. Support facility installation.
- e. Security and Protection:
- f. Operation, termination, and removal.

1.2 REFERENCES:

- A. American National Standards Institute (ANSI):
- 1. [A 117.1](#): Accessible and Usable Buildings and Facilities.
- B. American Society for Testing and Materials (ASTM):
- 1. [E84](#): Standard Test Method for Surface Burning Characteristics of Building Materials
 - 2. [E136](#): Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 deg. C.

C. National Fire Protection Association (NFPA):

1. [70](#): National Electrical Code
2. [241](#): Standard of Safeguarding Construction, Alteration, and Demolition Operations
3. [701](#): Standard Methods of Fire Tests for Flame Propagation of Textiles and Films

1.3 USE CHARGES:

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Engineer testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
 1. The Contractor shall provide adequate sanitary facilities for the use of those employed on the Work. Such facilities shall be made available when the first employees arrive on the site of the Work, shall be properly secluded from public observation, and shall be constructed and maintained during the progress of the Work in suitable numbers and at such points and in such manner as may be required.
 2. The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the Work, on the lands of the Owner, or on adjacent property.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
 1. For all necessary operations at the site of the work (except as noted in the next paragraph below) the Owner, without charge therefor, shall provide reasonable quantities of water at the then existing pressure from a mutually convenient hydrant of the water distribution system. The Contractor shall furnish all necessary pipe or hose extensions to conduct the water to the points of use and shall exercise due care not to waste water. The Contractor shall not contaminate the water supply and shall comply with all applicable regulations and code requirements.
 2. The Owner reserves the right to limit, suspend, or terminate the supplying of water as set forth above should it consider such action to be necessary on account of damage to the distribution system, the necessity of conserving water, or other emergency. In this event, the Contractor shall obtain water from some other approved source, at his own expense.
- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.

1. The Contractor shall make all necessary applications and arrangements and pay all fees and charges for electrical energy for power and light necessary for the proper completion of the Work and during its entire progress. The Contractor shall provide and pay for all temporary wiring, switches, connections, and meters.
2. The Contractor shall provide sufficient electric lighting so that all work may be done in a workmanlike manner when there is not sufficient daylight.

E. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use with metering and payment of use charges. Provide connections and extensions of services as required for construction operations.

F. Temporary Heat:

1. If temporary heat is required for the protection of the Work, the Contractor shall provide and install suitable heating apparatus, shall provide adequate and proper fuel, and shall maintain heat as required.
2. Temporary heating apparatus shall be installed and operated in such manner that finished work will not be damaged thereby. After the permanent heating system has been installed, tested, and made ready for operation, the Contractor may, at his own risk and expense, use it for providing heat for protection of the Work. He shall provide and pay for all fuel and care necessary, and, when the Work is ready for acceptance, he shall, at his own expense, put the system into first-class condition, even to the extent of replacing worn or damaged parts.

1.4 SUBMITTALS:

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.

3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

E. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste handling procedures.
5. Other dust-control measures.

1.5 QUALITY ASSURANCE:

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS:

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- B. During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the Work may be properly done and satisfactory in all respects. When required, protection shall be provided by use of tarpaulins, wood and building-paper shelters, or other suitable means.
- C. During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging, or drying will result. Protected spaces shall be artificially heated by suitable means which will result in a moist or a dry atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated so that the mixture will be warm throughout when used.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES:

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. The Contractor shall maintain a temporary field office near the work for his own use during the period of construction at which readily accessible copies of all contract documents shall be kept. The office shall be located where it will not interfere with the progress of the work. In charge of this office there shall be a competent superintendent of the Contractor as specified under "Supervision of Work" in the AGREEMENT.

2.2 OFFICE FOR OWNER AND ENGINEER:

- A. Promptly after starting work at the site, the Contractor shall provide and equip a suitable office for the exclusive use of the Owner and Engineer, and the Contractor shall maintain this office thereafter until the completion of the work to be done under this contract. Upon completion of this Contract the office shall become the property of the Owner. This office shall be a separate building located where it will not interfere with the progress of the work.
 - 1. If a trailer is furnished, it shall be a four wide trailer with a minimum width of 48 feet, and a length as required to obtain the square footage specified below and an insulated floor.
 - 2. The office and furniture shall be new and in good condition.
 - 3. The equipment, supplies, and services furnished shall be acceptable to the Owner and Engineer.
- B. The Contractor shall furnish insurance coverage of adequate amount to replace not only the Contractor's equipment, but all property belonging to the Owner and Engineer and the Owner and Engineer's staff, at replacement cost.
- C. The Office shall be of suitable height and of ample size to accommodate the furniture and equipment listed below, without crowding (at least **3,050** sq. ft. of floor area). It shall be weathertight and acceptably insulated and suitably ventilated; the floor shall be tight and of sufficient construction to withstand the loads imposed upon it.
 - 1. The office shall be partitioned so as to provide the following:
 - A minimum of 6 enclosed offices 12'x12' in size
 - One enclosed office at least 14'x16' in size.
 - A minimum of 8 cubicles at least 6'x8' in size
 - One uni-sex interior bathroom
 - A coffee and break area (microwave, coffee maker, water cooler, and large refrigerator shall be provided).
 - A plotter and printer area
 - A Large enclosed conference room with space for up to 10 persons.
 - 2. Each room will have a door, with lock and key, and a minimum of one screened window

which can be both opened and locked shut.

3. The office shall have two exterior doors, with cylinder locks and keys.
 4. The exterior doors shall also be provided with a hasp, for which the Owner will furnish his own locks.
 5. The office shall contain acceptable toilet facilities, to include a toilet, sink with hot and cold water, exhaust fan, and mirror. Toilet facilities shall be located inside the office.
 6. The Contractor shall make arrangements and pay all costs associated with tying the office sanitary system into an approved disposal system.
- D. The Contractor shall furnish a parking area large enough to accommodate a minimum of **Ten** cars adjacent to the office, for the exclusive use of the **Owner and Engineer**.
- E. The Contractor shall furnish the following furniture, equipment, supplies, and services:
1. One plan table or sloping plan shelf, about 3 feet by 6 feet, with a reasonably smooth top, and one suitable swivel stool.
 2. Shelves, tables, and bookcases as recommended by the Engineer.
 3. Electric lights, desk lamps and outlets. The Contractor shall pay for installation and all charges for the energy used.
 4. Broom and dustpan.
 5. Seven (7) desks for general office use (one for each office). Each about 3 feet by 5 feet, all with a desk chair of the armchair swivel type. Each office shall be supplied with a filing cabinet.
 6. Eight (8) cubicles with desks and desk armchair swivel type. Each cubicle shall be supplied with a filing cabinet.
 7. Large Conference room table for seating up to 10 people.
 8. 70" Flat Screen TV with at least 2 HDMI inputs to be in the conference room.
 9. Cell Services Booster for entire building, antenna to be located to maximize signal.
 10. Two (2) plan racks, accepted by the Engineer.
 11. Two (2) Plan storage cabinets as accepted by the Engineer.
 12. Two, four-drawer, legal size, metal filing cabinets each with locks. The Contractor shall furnish up to two additional filing cabinets if so requested by the Engineer.
 13. Class ABC type fire extinguisher of at least 4 pound capacity.
 14. Supply of drinking water in a suitable dispenser, with hot and cold supply

15. Paper cups, paper towels, liquid soap, and toilet paper; each with suitable dispenser or holder.
 16. A waste basket for each desk, and a supply of appropriately sized plastic trash bags.
 17. Thermostatically controlled heating unit or system of adequate capacity to maintain a minimum temperature of not less than 72 degrees F. under all cold weather conditions. The Contractor shall provide all fuel used and service necessary. Thermostatically controlled, refrigerant type, air conditioner of adequate capacity to maintain a maximum temperature of not more than 66 degrees F. under all hot weather conditions. The Contractor shall provide all service necessary and provide all power used.
 18. Metal clothing locker, or closet, 36-inches wide by 18-inches deep by 72-inches high, minimum dimensions.
 19. Metal storage cabinet 36-inches wide, by 18-inches deep by 72-inches high, with a minimum of five adjustable shelves, and a door lock.
 20. The Contractor shall arrange for complete janitor service to be provided on a weekly basis.
 21. One Printer/copier machine with supplies and service. "All-in-one" unit equipped with printer server, combining color printing, photocopying, and scanning, or separate units for each of these functions. Machine shall be capable of copying 8.5x11, 8.5x14 and 11x17 paper sizes. Copy rate shall be at least 20 copies per minute for 8.5x11 paper size.
 22. Outdoor minimum-maximum thermometer with range of -40 degrees F to +120 degrees F and reset provisions.
 23. Internet Service: Broadband modem, router and ISP, equipped with hardware firewall, providing minimum **880 Mbps** upload and **940 Mbps** download speeds at each computer.
 24. Internet Security: Integrated software, providing software firewall, virus, spyware, phishing, and spam protection in a combined application.
- F. The Contractor shall provide and equip the specified Owner and Engineer's office as promptly as possible.
- G. Unless otherwise directed by the Owner or Engineer, after the date of completion of the Work as stated in the final estimate, the Contractor the office shall become the property of the Owner. The office shall be in satisfactory condition to the Owner at the completion of the project and prior to acceptance as the Owner's property. Equipment not in satisfactory condition shall be replaced with new similar equipment by the Contractor at no additional cost to the Owner.
- H. Provide janitorial service with two cleanings per week.
- I. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.3 EQUIPMENT:

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
- C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL:

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 1. Locate facilities to limit site disturbance.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION:

- A. General: Install temporary service or connect to existing service.
 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

- D. Heating: Provide temporary heating required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- E. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
 - 1. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.
 - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
 - b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
 - 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
 - 3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
 - 1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- G. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service underground unless otherwise indicated.
 - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Install lighting for Project identification sign.

3.3 SUPPORT FACILITIES INSTALLATION:

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E136. Comply with NFPA 241.
2. Maintain support facilities until Engineer schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as needed and approved by the Engineer.

1. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.

C. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Division 31 Section "Earth Moving."
3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Division 32 Section "Asphalt Paving."

D. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.

2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 2. Remove snow and ice as required to minimize accumulations.
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Division 01.
- G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION:
- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
1. Comply with work restrictions specified in Division 01 Section "Summary."
- C. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- D. Tree and Plant Protection: Comply with requirements specified in Division 01.
- E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- F. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- 3.5 OPERATION, TERMINATION, AND REMOVAL:
- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.
- D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period in preparation of takeover by Owner. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION

SECTION 01568

EROSION CONTROL, SEDIMENTATION AND CONTAINMENT OF CONSTRUCTION MATERIALS

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Provide all work and take all measures necessary to control soil erosion resulting from construction operations, prevent flow of sediment from construction site, and contain construction materials (including excavation and backfill) within protected working area as to prevent damage to any stream or wetlands.

1.02 REFERENCES:

- A. United States Environmental Protection Agency (USEPA):
 - 1. Guidelines for Erosion and Sediment Control, Planning and Implementation.
 - 2. Processes, Procedures and Methods to Control Pollution Resulting from all Construction Activity.

1.03 SUBMITTALS:

- A. Submit the following shop drawings in accordance with Section 01300.
- B. Two weeks prior to the start of the work, submit to Engineer, for review, a plan with detailed sketches showing the proposed methods to be used for controlling erosion during construction.

1.04 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01400.
- B. Use acceptable procedures, including use of water diversion structures, diversion ditches, settling basins, and sediment traps.
- C. Operations restricted to areas of work indicated on drawings and area which must be entered for construction of temporary or permanent facilities.
- D. If construction materials are washed away during construction, remove materials from fouled areas.
- E. Stabilize diversion outlets by means acceptable to Engineer.

- F. Engineer has authority to limit surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations and to direct immediate permanent or temporary pollution control measures to prevent contamination of any stream or wetlands, including construction of temporary berms, dikes, dams, sediment basins, sediment traps, slope drains, and use of temporary mulches, mats, or other control devices or methods to control erosion.

PART 2 - PRODUCTS

2.01 BALES:

- A. Hay or straw or other suitable material acceptable to Engineer.

2.02 WOOD STAKES:

- A. 2 inches by 2 inches by 3 feet.

PART 3 - EXECUTION

3.01 GENERAL:

- A. Do not discharge chemicals, fuels, lubricants, bitumen, raw sewage and other harmful waste into or alongside any body of water or into natural or man-made channels.

3.02 INSTALLATION:

- A. Install baled hay or straw erosion checks in all locations as directed, surrounding base of all deposits of stored excavated material outside of disturbed area, and where directed by the Engineer.
- B. Install checks immediately after site is cleared and before trench excavation. Locate checks, surrounding stored material, approximately 6 feet from material.
- C. Hold bales in place with two 2 inches by 2 inches by 3 feet stakes so that each bale is butted tightly against adjoining bale thereby precluding shortcircuiting of erosion check.
- D. Construct earth berms or diversions to intercept and divert runoff water from critical areas.
- E. Discharge silt-laden water from excavations onto filter fabric mat and/or baled hay or straw sediment traps to ensure that only sediment-free water is returned to watercourses.
- F. Do not place excavated soil material adjacent to water-course in manner that will cause it to wash away by high water or runoff.
- G. Prevent damage to vegetation by excessive watering or silt accumulation in the discharge area.

- H. Do not dump spoiled material into any streams, wetlands, surface waters, or unspecified locations.
- I. Prevent indiscriminate, arbitrary, or capricious operation of equipment in streams, wetlands or surface waters.
- J. Do not pump silt-laden water from trenches or excavations into surface waters, streams, wetlands, or natural or man-made channels leading thereto.
- K. Prevent damage to vegetation adjacent to or outside of construction area limits.
- L. Do not dispose of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in streams, wet-lands, surface waters, or natural or man-made channels leading thereto, or unspecified locations.
- M. Do not alter flow line of any stream unless indicated or specified.

END OF SECTION

SECTION 01600
CONTROL OF MATERIALS

PART 1 - GENERAL

1.01 DESCRIPTION:

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

1. Section Includes:

- a. Definitions.
- b. Submittals.
- c. Spare parts.
- d. Quality assurance.
- e. Delivery, storage and handling.
- f. Warranty.
- g. Products.
- h. Substitution and "Or Equal" items.
- i. Reuse of existing material.
- j. Manufacturer's instructions.
- k. Special tools.
- l. Lubrication.
- m. Nameplates.
- n. Loads and seismic forces.
- o. General material and equipment requirements.
- p. Materials and Equipment.
- q. Field Quality Control; Installation, Instructional, and Post Startup Services.

1.02 REFERENCES:

A. American Society of Mechanical Engineers (ASME):

1. [B1.1](#): Unified Inch Screw Threads (UN and UNR Thread Form)

B. American Society for Testing and Materials (ASTM):

1. [A123/A123M](#): Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
2. [A325/A325M](#): Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

1.03 DEFINITIONS:

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and accepted through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

1.04 SUBMITTALS:

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Engineer will notify Contractor of acceptance or rejection of proposed comparable product request within **15** days of receipt of request, or **seven** days of receipt of additional information or documentation, whichever is later.

- a. Form of Acceptance: As specified in Section 01300.
- b. Use product specified if Engineer does not issue a decision on use of a comparable product request within time allocated.

1.05 QUALITY ASSURANCE:

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Engineer will determine which products shall be used.

1.06 DELIVERY STORAGE AND HANDLING:

- A. Contractor shall arrange deliveries of materials and equipment in accordance with construction Progress Schedule, coordinate to avoid conflict with Work and conditions at site.
- B. Provide equipment and personnel to handle materials and equipment by methods recommended by manufacturer to prevent soiling or damage to materials or equipment, or their packaging.
- C. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- D. Owner assumes no responsibility for damage or loss due to storage of materials and equipment.
- E. Interior Storage:
 1. Store with seals and labels intact and legible.
 2. Store materials and equipment subject to damage by elements in weathertight enclosures.
 3. Maintain temperature and humidity within ranges required by manufacturer's instructions.
- F. Exterior Storage:
 1. Store fabricated materials and equipment above ground, on blocking or skids, to prevent soiling or staining. Cover materials and equipment subject to deterioration with impervious sheet coverings. Provide ventilation to avoid condensation.

2. Store loose granular materials in well-drained area on solid surfaces to prevent mixing with foreign matter.
3. Store materials such as pipe, reinforcing steel, structural steel, and equipment on pallets or racks, off ground.

1.07 PRODUCTS:

- A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.
- C. Furnish interchangeable components from same manufacturer for components being replaced.

1.08 ACCEPTANCE OF MATERIALS:

- A. Unless otherwise specified, only new materials and equipment shall be incorporated in the work. All materials and equipment furnished by the Contractor shall be subject to the inspection and acceptance of the Engineer. No material shall be delivered to the work without prior acceptance of the Engineer.
- B. As specified in Section 01300, the Contractor shall submit to the Engineer, data relating to materials and equipment he proposes to furnish for the work. Such data shall be in sufficient detail to enable the Engineer to identify the particular product and to form an opinion as to its conformity to the specifications.
- C. Facilities and labor for handling and inspection of all materials and equipment shall be furnished by the Contractor. If the Engineer requires, either prior to beginning or during the progress of the work, the Contractor shall submit additional samples or materials for such special tests as may be necessary to demonstrate that they conform to the specifications. Such samples shall be furnished, stored, packed, and shipped at the Contractor's expense. Except as otherwise noted, the Owner will make arrangements for and pay for the tests.
- D. Any delay of acceptance resulting from the Contractor's failure to submit samples or data promptly shall not be used as a basis of a claim against the Owner or the Engineer.
- E. In order to demonstrate the proficiency of workmen or to facilitate the choice among several textures, types, finishes, and surfaces, the Contractor shall provide such samples of workmanship or finish as may be required.
- F. The materials and equipment used on the work shall correspond to the accepted samples or other data.

1.09 REUSE OF EXISTING MATERIAL:

- A. Except as specifically indicated or specified, do not use materials and equipment removed from existing structure(s) in new Work.
- B. For material and equipment specifically indicated or specified to be reused in Work:
 - 1. Use special care in removal, handling, storage, and reinstallation to ensure proper function in completed Work.
 - 2. Contractor shall arrange and pay for transportation, storage, and handling of products which require off-site storage, restoration or renovation.
 - 3. Off-site storage areas and buildings shall conform to requirements of this section.

1.10 MANUFACTURER'S INSTRUCTIONS:

- A. Installation of equipment and materials shall comply with manufacturer's instructions. Obtain and distribute printed copies of such instructions to parties involved in installation, including 2 copies to Engineer.
 - 1. Maintain one set of complete instructions at Site during installation and until completion of Work.
- B. Handle, store, install, connect, clean, condition, and adjust materials and equipment in accordance with manufacturer's written instructions and in conformance with Specifications.
 - 1. If Site conditions or specified requirements conflict with manufacturer's instructions, consult Engineer for further instructions. Do not proceed with Work without written instructions.

1.11 LUBRICATION:

- A. Where lubrication is required for proper operation of equipment, incorporate necessary and proper provisions in equipment in accordance with manufacturer's requirements. Where possible, lubrication shall be automated and positive.
- B. Where oil is used, reservoir shall be of sufficient capacity to supply unit for 24 hr period.

1.12 GENERAL MATERIAL AND EQUIPMENT REQUIREMENTS:

- A. The requirements of this Paragraph shall constitute the standards for the material and equipment required for this project. Should these requirements conflict with the Supplier's recommendations or in any way be less stringent than the Supplier's requirements, they shall be superseded by the Supplier's requirements.
- B. Bolts, Anchor Rods and Nuts:

1. All necessary bolts, anchor rods, nuts, washers, plates and bolt sleeves shall be furnished by the contractor in accordance herewith. Anchor rods shall have suitable washers and hexagonal nuts.
2. All anchor rods, nuts, washers, plates, and bolt sleeves shall be galvanized unless otherwise indicated or specified.
3. Unless otherwise specified, stud, tap, and machine bolts, and nuts shall conform to the requirements of ASTM Standard Specification for Carbon Steel Externally and Internally Threaded Standard Fasteners, Designation A325. Hexagonal nuts of the same quality of metal as the bolts shall be used. All threads shall be clean cut and shall conform to ANSI Standard B1.1 for Unified Inch Screw Threads (UN and UNR Thread Form).
4. Bolts, anchor rods, nuts, and washers, specified to be galvanized, shall be zinc coated, after being threaded, by the hot-dip process in conformity with the ASTM Standard Specification for Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip, Designation A123, or the ASTM Standard Specifications for Zinc Coating (Hot Dip) on Iron and Steel Hardware, Designation A153, as is appropriate.
5. Bolts, anchor rods, nuts, and washers specified to be stainless steel shall be Type 304 or Type 316 stainless steel, as indicated.
6. Anchor rods shall be set accurately. They shall be carefully held in suitable templates of acceptable design. Where indicated on the Drawings, specified, or required, anchor bolts shall be provided with square plates at least 4 in. by 4 in. by 3/8 in. or shall have square heads and washers and set in the concrete forms with suitable pipe sleeves, or both. If anchor are set after the concrete has been placed, all necessary drilling and grouting or caulking shall be done by the Contractor and care shall be taken not to damage the structure or finish by cracking, chipping, spalling, or otherwise during the drilling and caulking.

C. Grease Fittings:

1. Provide extension fittings and tubing on all grease fittings that are installed in an inaccessible location. The extension is to be located so that equipment can be lubricated from the operating level without the use of ladders, staging or shutting down the equipment. Tubing: 316 stainless steel.

D. Concrete Inserts For Hangers:

1. Concrete inserts for hangers shall be designed to support safely, in the concrete that is used, the maximum load that can be imposed by the hangers used in the inserts. Inserts for hangers shall be of a type which will permit adjustment of the hangers both horizontally (in one plane) and vertically and locking of the hanger head or nut. All inserts shall be galvanized by the hot-dip process in conformity with the ASTM Standard Specification for Zinc (Hot-Galvanized) Coatings on

Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip, Designation A123, or the ASTM Standard Specifications for Zinc Coating (Hot Dip) on Iron and Steel Hardware, Designation A153, as is appropriate.

E. Equipment Foundations, Installation and Grouting:

1. The Contractor shall furnish the necessary materials and construct suitable concrete foundations for all equipment installed by him, even though such foundations may not be indicated on the Drawings. The tops of foundations shall be at such elevations as will permit grouting as specified below.
2. All such equipment shall be installed by skilled mechanics and in accordance with the instructions of the manufacturer.
3. In setting pumps, motors, and other items of equipment customarily grouted, the Contractor shall make an allowance of at least 1 in. for grout under the equipment bases. Shims used to level and adjust the bases shall be steel. Shims may be left embedded in the grout, in which case they shall be installed neatly and so as to be as inconspicuous as possible in the completed work. Unless otherwise permitted, all grout shall be a suitable non-metallic, non-shrink grout.
4. Grout shall be mixed and placed in accordance with the recommendations of the manufacturer. Where practicable, the grout shall be placed through the grout holes in the base and worked outward and under the edges of the base and across the rough top of the concrete foundation to a peripheral form so constructed as to provide a suitable chamfer around the top edge of the finished foundation.
5. Where such procedure is impracticable, the method of placing grout shall be as accepted by the Engineer. After the grout has hardened sufficiently, all forms, hoppers, and excess grout shall be removed, and all exposed grout surfaces shall be patched in an accepted manner and given a burlap-rubbed finish.

F. Equipment Drive Guards:

1. All equipment driven by open shafts, belts, chains, or gears shall be provided with acceptable all-metal guards enclosing the drive mechanism. Guards shall be constructed of galvanized sheet steel or galvanized woven wire or expanded metal set in a frame of galvanized steel members. Guards shall be secured in position by steel braces or straps which will permit easy removal for servicing the equipment. The guards shall conform in all respects to all applicable safety codes and regulations.

G. Sleeves:

1. Unless otherwise indicated on the drawings, or specified, form openings for the passage of pipes, conduits, and circular ducts through floors and walls using sleeves of standard weight, galvanized-steel pipe. Provide sleeves of ample

diameter to pass the pipe and its insulation, if any, and to permit expansion as may occur. Provide sleeves that are flush at the walls and at the bottom of slabs and project 4 inches above the finished floor surface. Threaded nipples shall not be used as sleeves.

2. Sleeves in exterior walls below ground or in walls that have liquids on one or both sides, shall have a 2-inch annular fin of 1/8 in. plated welded with a continuous weld completely around the sleeve at mid-length. Galvanize sleeves after the fins are attached.
3. Sleeves shall be set accurately before the concrete is placed or shall be built in accurately as the masonry is being built.

H. Protection Against Electrolysis:

1. Where dissimilar metals are used in conjunction with each other, provide insulation between adjoining surfaces to eliminate direct contact and any resultant electrolysis. Provide bituminous insulation, heavy bituminous coatings, nonmettalic separators or washers, impregnated felt, or other means to provide insulation.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT:

A. Material and Equipment Incorporated into Work:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type, and quality specified or as accepted by Submittal.

B. Manufactured and Fabricated Materials and Equipment:

1. Design, fabricate, and assemble in accordance with engineering and shop practices standard with industry.
2. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
3. Two or more items of same kind shall be identical, by same manufacturer.
4. Material and equipment shall be suitable for service conditions.
5. Equipment capabilities, sizes, and dimensions shown or specified shall be adhered to, unless variations are specifically accepted, in writing.
6. Equipment shall be adapted to best economy in power consumption and maintenance. Parts and components shall be proportioned for stresses occurring

during continuous or intermittent operation, and for additional stresses occurring during fabrication or installation.

7. Design so working parts are readily accessible for inspection and repair, easily duplicated, and replaced.
- C. Do not use material or equipment for purpose other than for which it is designed or specified.

PART 3 - EXECUTION

3.01 FIELD QUALITY CONTROL; INSTALLATION, INSTRUCTIONAL, AND POST STARTUP SERVICES:

A. General:

1. Provide on-site services of Supplier's representatives for equipment provided by Contractor during construction, installation, equipment startup, and training of Owner's personnel for equipment or plant operation as specifically required in Specification section for equipment or system.
2. Include and pay costs for Supplier's services.
3. Work day is defined as 8 hr period during Owner's or Contractor's typical calendar day. Work day for purposes of this section does not include travel to or from Site.
4. Specifications include minimum mandays to provide basis for bidding. If additional time is required to perform services Contractor shall include that time in Contract Price.

B. Installation Services:

1. Where installation services are called for in Specifications, provide competent and experienced technical representatives of manufacturers of material or equipment and systems to resolve assembly or installation procedures attributable to, or associated with, equipment furnished.
2. After equipment is installed, representatives shall perform initial equipment and system adjustment and calibration to conform to Specifications and manufacturer's requirements and instructions.

3.02 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Section 01700.

END OF SECTION

SECTION 01610

DELIVERY, STORAGE AND HANDLING

PART 1 - GENERAL

1.01 GENERAL:

- A. This Section specifies the general requirements for the delivery handling, storage and protection for all items required in the construction of the work. Specific requirements, if any, are specified with the related item.

1.02 TRANSPORTATION AND DELIVERY:

- A. Transport and handle items in accordance with manufacturer's printed instructions.
- B. Schedule delivery to reduce long term on-site storage prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the Engineer or the Owner.
- C. Ship equipment, material and spare parts complete except where partial disassembly is required by transportation regulations or for protection of components.
- D. Pack spare parts in containers bearing labels clearly designating contents and pieces of equipment for which intended.
- E. Deliver spare parts at same time as pertaining equipment. Deliver spare parts to owner after completion of work.
- F. Coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged or sensitive to deterioration.
- G. Deliver products to the site in manufacturer's original sealed containers or other packing systems, complete with instructions for handling, storing, unpacking, protecting and installing.
- H. Assume responsibility for equipment material and spare parts just before unloading from carrier at site.
- I. All items delivered to the site shall be unloaded and placed in a manner which will not hamper the Contractor's normal construction operation or those of subcontractors and other contractors and will not interfere with the flow of necessary traffic.
- J. Provide equipment and personnel to unload all items delivered to the site..

- K. Promptly inspect shipment to assure that products comply with requirements, quantities are correct, and items are undamaged. For items furnished by others (i.e. Owner, other Contractors), perform inspection in the presence of the Engineer. Notify Engineer verbally, and in writing, of any problems.
- L. Pay all demurrage charges if failed to promptly unload items.

1.03 STORAGE AND PROTECTION:

- A. Store and protect products and equipment in accordance with the manufacturer's instructions, with seals and labels intact and legible. Storage instruction shall be studied by the Contractor and reviewed by the Engineer. Instructions shall be carefully followed and a written record of this kept by the Contractor for each product and pieces of equipment.
- B. Arrange storage of products and equipment to permit access for inspection. Periodically inspect to make sure products and equipment are undamaged and are maintained under specified conditions.
- C. Provide protective maintenance during storage consisting of manually exercising equipment, inspecting mechanical surfaces for signs or corrosion or other damage, lubricating, applying any coatings as recommended by the equipment manufacturer necessary for its protection and all other precautions to assure proper protection of all equipment stored and for compliance with manufacturers' requirements related to warranties. Log all protective maintenance for each piece of equipment in the written record noted above.
- D. Store loose granular materials on solid flat surface in a well-drained area. Prevent mixing with foreign matter.
- E. Cement and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural, miscellaneous and reinforcing steel shall be stored off the ground or otherwise to prevent accumulation of dirt or grease, and in a position to prevent accumulations of standing water and to minimize rusting. Beams shall be stored with the webs vertical. Precast concrete shall be handled and stored in a manner to prevent accumulations of dirt, standing water, staining, chipping or cracking. Brick, block and similar masonry products shall be handled and stored in manner to reduce breakage, cracking and spalling to a minimum.
- F. All mechanical and electrical equipment and instruments shall be covered with canvas and stored in a weathertight building to prevent injury. The building may be a temporary structure on the site or elsewhere, but it shall be satisfactory to the Engineer. Building shall be provided with adequate ventilation to prevent condensation. Maintain temperature and humidity within range required by manufacturer and to prevent condensation on the equipment being stored.
 - 1. All equipment shall be stored fully lubricated with oil, grease and other lubricants unless otherwise instructed by the manufacturer.

2. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Log all rotation maintenance for each piece of equipment in the written record noted above.
3. Upon installation of the equipment, the Contractor shall start the equipment, at least half load, once weekly for an adequate period of time to ensure that the equipment does not deteriorate from lack of use. Log all startup for each piece of equipment in the written record noted above.
4. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment at the time of acceptance.
5. Prior to acceptance of the equipment, the Contractor shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guaranty the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the Contractor's expense.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01700
CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY:

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Final cleaning.
 - 4. Repair of the Work.

1.03 REFERENCES:

- A. Green Seal:
 - 1. GS-37.
- B. National Air Duct Cleaners Association (NADCA):
 - 1. Standard 1992-01.

1.04 SUBMITTALS:

- A. Submit the following shop drawings in accordance with Section 01300.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.
- D. Certificates of Release: From authorities having jurisdiction.
- E. Certificate of Insurance: For continuing coverage.

1.05 SUBSTANTIAL COMPLETION PROCEDURES:

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Submit closeout submittals specified in other Division 01 Sections, including project record documents, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 2. Submit closeout submittals specified in individual Divisions 02 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of **10** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 3. Complete final cleaning.
 - 4. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 - 5. Return site to preconstruction condition.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of **10** days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for final completion.

1.06 FINAL COMPLETION PROCEDURES:

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
 - 1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
 - 2. Certified List of Incomplete Items: Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.07 LIST OF INCOMPLETE ITEMS (PUNCH LIST):

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.01 FINAL CLEANING:

- A. General: Perform final cleaning in accordance with Section 01710.
- B. Construction Waste Disposal: Comply with waste disposal requirements in Division 01.

3.02 REPAIR OF THE WORK:

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

- B. Repair or remove and replace defective construction. Repairing includes restoring damaged surfaces and returning the site to preconstruction conditions. Where damaged or worn items cannot be repaired or restored, provide replacements. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION

SECTION 01710
CLEANING UP

PART 1 - GENERAL

1.01 SUMMARY:

- A. Execute cleaning during progress of Work and at completion of Work.

1.02 DISPOSAL REQUIREMENTS:

- A. Conduct cleaning and disposal operations to comply with local codes, ordinances, regulations, and anti-pollution laws. Do not burn or bury rubbish or waste materials on Project site. Do not dispose of volatile wastes, such as mineral spirits, oil, or paint thinner, in storm or sanitary drains. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Use only those cleaning materials which will not create hazards to property and persons or damage surfaces of material to be cleaned.
- B. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

PART 3 - EXECUTION

3.01 CLEANING DURING CONSTRUCTION:

- A. Comply with General Conditions.
- A. At all times maintain areas covered by the Contract and adjacent properties and public access roads free from accumulations of waste, debris, and rubbish caused by construction operations.
- B. During execution of Work, clean site, adjacent properties, and public access roads and legally dispose of waste materials, debris, and rubbish to assure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish. Unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.
- C. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- D. Cover or wet excavated material leaving and arriving at the Project site to prevent blowing dust. Clean the public access roads to the site of any material falling from the haul trucks.
- E. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes structures, Work done under this Contract, or elsewhere during the course of Contractor's operations, such material or debris shall be entirely removed and legally disposed of during the progress of the Work, and the ditches, channels, drains, pipes, structures, and Work, etc., shall, upon completion of the Work, be left in a clean and neat condition.

- F. On or before the completion of the Work, Contractor shall, unless otherwise especially directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools, and machinery or other construction equipment furnished by him; shall remove, acceptably disinfect, and cover all organic matter and material containing organic matter in, under, and around privies, houses, and other buildings used by him; shall remove all rubbish from any grounds which he has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.
- G. Provide on-site containers for collection and legal removal of waste materials, debris, and rubbish in accordance with applicable regulations.

3.02 FINAL CLEANING:

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Return Project Areas to pre-construction conditions.

- C. Prior to substantial completion or Owner occupancy, Contractor with Engineer and Owner, shall conduct inspection of sight and Work areas to verify Work and Project site is clean and returned to acceptable condition.

END OF SECTION

SECTION 02100
SITE PREPARATION

PART 1 GENERAL

1.01 SCOPE

- A. The work of this section includes all labor, equipment, tools, and materials necessary for the performance of all operations in connection with site preparation and all incidental and appurtenant work pertaining thereto, as specified herein, and as shown on the drawings.

1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment for the work described in this section will be made in accordance with the provisions of SECTION 01025, MEASUREMENT AND PAYMENT.

1.03 SUBMITTALS - Not Used

1.04 PRODUCT HANDLING - Not Used

1.05 SPECIAL REQUIREMENTS

- A. Contractor to install a temporary floating decanter to allow top layer of basin liquid to be pumped and discharged to the existing Aerator at a recycle rate of 5% of the raw water flow rate.. Decanter to be installed at north end of the South Sedimentation Basin. Contractor to remove decanting and pumping equipment upon completion of decanting operation.
- B. Once the basin liquid is decanted, the contractor will be required to begin residuals removal from the basin. Contractors will be allowed to select the means and methods for removing the remaining residuals from the basin. Most probable methods include dredges or portable pumps. With either method, the contractor must connect to the existing hose connection on the west wall of the basin and discharge to the existing 12-inch HDPE pipeline.

Contractor will be required to connect temporary piping from the end of the 12-inch HDPE to the area of the drying beds to connect to the Contractor's dewatering equipment. If required provide a break/mixing tank to receive the flow to provide for chemical conditioning prior to dewatering.

- C. Contractor will be required to remove existing sludge from the existing drying beds, and grade the site, prior to setting up dewatering operations. Contractor to determine if additional dewatering is required and the location for disposal.
- D. Contractors are encouraged to conduct their own treatability tests prior to mobilizing equipment to the site, to determine proposed pretreatment methods, chemicals required, and use of process equipment.
- E. Filtrate from the Contractors dewatering equipment will be directed to Lagoon 1B.

- F. Contractor to install portable, automated weigh scale at site and provide employees to continuously monitor truck scale traffic and issue weight tickets for each sludge truck entering and leaving site.
- G. Contractor to supply equipment (sludge dredge, pumps, hoses, piping, generators, polymer feed system, dewatering materials and equipment, and other ancillary equipment) and complete the sludge removal.
- H. Residuals that are removed from the South Sedimentation Basin are to be transported through an existing 12" HDPE pipeline that presently terminates in the vicinity of the existing drying beds. Residuals processing operations shall be located in the area defined by the existing drying beds. Additional HDPE pipe shall be furnished and installed by the Contractor as required.
- I. Residuals that are removed are to be processed in the area defined by the existing drying beds. Means and methods of dewatering, hauling sludge, and final disposal shall be the responsibility of the contractor. No liquid or dried sludge shall be allowed into the existing Lagoons 1A, 1B or 2. Berms and culverts to contain and route dewatering filtrate shall be constructed. Filtrate shall be directed to Lagoon 1B.
- J. At all times throughout the duration of this contract, the Contractor shall be responsible for the appearance and condition of the area within and surrounding the project site. The Contractor shall repair or replace, at no additional expense to the Owner, any structures, either natural or man-made such, as but not limited to, utilities, trees, plants, water bodies, and pavements that are damaged or destroyed by any actions or sequences of events related to the Contractor's operations.
- K. Any existing plant materials designated to be saved, protected and/or undisturbed, that are cut or damaged without prior approval of the Engineer, shall be replaced in kind and size by the Contractor, at no expense to the Owner. If the Engineer agrees that tree replacement is impossible or impractical, the Contractor shall pay the Owner damages of Five Hundred Dollars (\$500.00) per inch of diameter measured four (4) feet from the ground surface.
- L. Disposal of waste/surplus materials may involve securing permits, licenses, or approvals, which may vary according to the type of material to be disposed of prior to the start of construction. The Contractor shall apply for these, as they may be required by the various governing agencies and pay all required fees. The Contractor shall have sole responsibility for the legal disposal of all waste surplus material of this project. The Contractor shall be responsible for any and all fines due to any illegal activity with regards to the disposal of waste/surplus materials.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. All graded areas, and all areas within the Limits of Work on which proposed work is to be performed, shall be grades as may be needed and as indicated on the drawings.

3.02 DISPOSAL OF WASTE MATERIALS

A. Disposal of Cleared and Grubbed Materials

1. If disposal of cleared and grubbed materials by burning is not permitted, they shall be legally disposed of off site by the Contractor.
2. All cleared and grubbed materials may be disposed of by burning, if permitted by federal, state, and local laws and regulations and at the Contractor's option. Burning shall be in compliance with all federal, state, and local laws and regulations relative to the building of fires. Burning shall be done under constant attendance until the fires have fully burned out or have been extinguished. All ashes, debris and unburned matter remaining from the burning operations shall be legally disposed of off site by the Contractor.

B. All waste materials shall be satisfactorily legally disposed of off site by the Contractor.

3.04 SEDIMENT AND EROSION CONTROL

- A. The Contractor shall take such actions as may be required to ensure that his construction activities do not interfere with or adversely impact the hydraulic characteristics or aesthetic qualities of any natural or manmade watercourse or drain.
- B. The Contractor shall provide acceptable siltation control devices such as haybale sediment control devices or permanent or portable control basins for the settling or filtering of fine sands, silts and clay resulting from rainfall runoff or dewatering operations. Any natural areas or manmade structures which have been affected by siltation or erosion due to construction activities shall be restored to their pre-construction condition by the Contractor at no additional cost to the Owner.

END OF SECTION

SECTION 02140

DEWATERING

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Design, furnish, operate, maintain, and remove temporary dewatering systems to control groundwater and surface water to maintain stable, undisturbed subgrades, and permit work to be performed under dry and stable conditions. Work to be done as part of dewatering includes, but is not limited to:
 - 1. Lower the groundwater level.
 - 2. Lower hydrostatic pressure.
 - 3. Prevent surface water from entering the excavation during construction.
 - 4. Implement erosion control measures for disposing of discharge water.
 - 5. Provide groundwater recharging systems as specified and as indicated.
 - 6. Provide and monitor observation wells and geotechnical instrumentation as specified and indicated.
- B. Groundwater within the excavation area shall be lowered to at least 2 feet below the lowest excavation levels as specified and as indicated.
- C. Common dewatering methods include, but are not limited to, sump pumping, deep wells, well points, vacuum well points or any combinations thereof.
- D. Common groundwater recharge methods include, but are not limited to, deep wells, large sumps or any combination thereof.
- E. The Contractor shall obtain the required permits for discharge from the Contractor's dewatering systems in accordance with 40 CFR Part 122 and 61 FR 19284. The discharge location shall be in accordance with permit requirements.

1.02 RELATED WORK:

- A. Section 01140: Environment Protection.

- B. Section 02160: Temporary Excavation Support Systems
- C. Section 02220: Earthwork

1.03 SUBMITTALS:

- A. Submit the following in accordance with Section 01300:
 - 1. Qualification of the Contractor's dewatering specialist's or firm's qualifications a minimum of four (4) weeks prior to execution of any dewatering. The submittal shall include, but not be limited to:
 - a. Qualifications of specialist's or firm's Registered Professional Engineer as specified in Paragraph 1.04 B.
 - b. Qualifications of specialist's or firm's field representative, as specified in paragraph 1.04 B, who shall oversee the installation, operation and maintenance of the dewatering system.
 - 2. Submit a dewatering plan, and, if applicable, a groundwater recharge plan at least two weeks prior to start of any dewatering operation. Do not submit design calculations. The review will be only for the information of the Owner and third parties for an overall understanding of the project relating to access, maintenance of existing facilities and proper utilization of the site. The Contractor shall remain responsible for the adequacy and safety of the means, methods and sequencing of construction. The plan shall include the following items as a minimum:
 - a. Dewatering plan and details stamped and signed by a Registered Professional Engineer.
 - b. Certificate of Design: Refer to Section 01300.
 - c. A list of equipment including, but not limited to, pumps, prime movers, and standby equipment.
 - d. Detailed description of dewatering, maintenance, and system removal procedures.
 - e. Monitoring plan and details, including, but not limited to, number and locations of observation wells (minimum of XX), and geotechnical instruments such as settlement markers (reference

points on structures; minimum of YY per structure) and piezometers (minimum of ZZ), and frequency of reading the monitoring devices.

- f. Erosion/sedimentation control measures, and methods of disposal of pumped water.
 - g. List of all applicable laws, regulations, rules, and codes to which dewatering design conforms.
 - h. List of assumptions made for design of dewatering and for groundwater recharge systems, including but not limited to groundwater levels, soil profile, permeabilities, and duration of pumping and or recharge.
- 3. Measurement records consisting of observation well groundwater records and the geotechnical instrumentation readings within one day of monitoring.
 - 4. A modified dewatering plan within 24 hours, if open pumping from sumps and ditches results in boils, loss of fines or softening of the ground.

1.04 QUALITY ASSURANCE:

- A. Provide in accordance with Section 01400 and as specified.
- B. Employ the services of a dewatering specialist or firm having the following qualifications:
 - 1. Have completed at least five (5) successful dewatering projects of equal size and complexity and with equal systems within the last five (5) years.
 - 2. Retain the services of a Registered Professional Engineer (in the state where the project is located) having a minimum of five (5) years experience in the design of well points, deep wells, recharge systems, or equal systems.
 - 3. Retain the services of a field representative having a minimum of 5 years experience in installation of well points, deep wells, recharge systems, or equal systems.
- C. If subgrade soils are disturbed or become unstable due to dewatering operation or an inadequate dewatering system, notify the Engineer, stabilize the subgrade, and modify system to perform as specified at no additional cost to the Owner.

- D. Notify the Engineer immediately if any settlement or movement is detected on structures. If the settlement or movement is deemed by the Engineer to be related to the dewatering, take actions to protect the adjacent structures and submit a modified dewatering plan to the Engineer within 24 hours. Implement the modified plan and repair any damage incurred to the adjacent structures at no additional cost to the Owner.
- E. If oil and/or other hazardous materials are encountered after dewatering begins, immediately notify the Engineer.

1.05 DELIVERY, STORAGE AND HANDLING:

- A. Provide in accordance with Section 01610 and as specified.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Provide settlement markers, piezometers and/or any other geotechnical instruments in accordance with the submitted dewatering plan or as specified.
- B. Provide casings, well screens, piping, fittings, pumps, power and other items required for dewatering system.
- C. Provide sand and gravel filter around the well screen. Wrapping geotextile fabric directly around the well screen shall not be allowed.
- D. When deep wells, well points, or vacuum well points are used, provide pumping units capable of maintaining high vacuum and handling large volumes of air and water at the same time.
- E. Provide and store auxiliary dewatering equipment, consisting of pumps and hoses on the site in the event of breakdown, at least one (1) pump for every five (5) used.
- F. Provide and maintain erosion/sedimentation control devices as indicated or specified and in accordance with the dewatering plan.
- G. Provide temporary pipes, hoses, flumes, or channels for the transport of discharge water to the discharge location.
- H. Provide cement grout having a water cement ratio of 1 to 1 by volume.

PART 3 - EXECUTION

3.01 EXECUTION:

- A. Execution of any earth excavation, installing earth retention systems, and dewatering shall not commence until the related submittals have been reviewed by the Engineer with all Engineer's comments satisfactorily addressed and the geotechnical instrumentation has been installed.
- B. Furnish, install and maintain dewatering system in accordance with the dewatering plan.
- C. Carry out dewatering program in such a manner as to prevent undermining or disturbing foundations of existing structures or of work ongoing or previously completed.
- D. Do not excavate until the dewatering system is operational.
- E. Unless otherwise specified, continue dewatering uninterrupted until all structures, pipes, and appurtenances below groundwater level have been completed such that they will not be floated or otherwise damaged by an increase in groundwater elevation.
- F. Discontinue open pumping from sumps and ditches, if such pumping is resulting in boils, loss of fines, softening of the ground, or instability of the slopes. Modify dewatering plan and submit to the Engineer at no additional cost to the Owner.
- G. Where subgrade materials are disturbed or become unstable due to dewatering operations, remove and replace the materials in accordance with Section 02210 at no additional cost to the Owner.
- H. Dewatering Discharge:
 - 1. Install and monitor recharge systems when specified and/or indicated and in accordance with the submitted dewatering plan.
 - 2. Install sand and gravel filters in conjunction with well points and deep wells to prevent the migration of fines from the existing soil during the dewatering operation.
 - 3. Transport pumped or drained water to discharge location without interference to other work, damage to pavement, other surfaces, or property.
 - 4. Provide separately controllable pumping lines.

5. The Engineer reserves the right to sample discharge water at any time.
6. Immediately notify the Engineer if suspected contaminated groundwater is encountered. Do not pump water found to be contaminated with oil or other hazardous material to the discharge locations.

I. Monitoring Devices and Records:

1. Install, maintain, monitor and take readings from the observation wells and geotechnical instruments in accordance with the dewatering plan.
2. Install settlement markers on structures within the zone of influence for dewatering a distance equal to twice the depth of the excavation, from the closest edge of the excavation. Conduct and report settlement surveys to 0.01 ft.
3. For large rectangular, square or circular mass excavations the zone of influence shall be defined by the actual cone of watering influence corresponding to a 10% increase in effective vertical stress.

J. Install and maintain erosion/sedimentation control devices at the point of discharge as indicated or specified and in accordance with the dewatering plan.

K. Removal:

1. Do not remove dewatering system without written approval from the Engineer.
2. Backfill and compact sumps or ditches with screened gravel or crushed stone wrapped with geotextile fabric in accordance with Section 02210.
3. All dewatering wells shall be abandoned upon completion of the work, and completely backfilled with cement grout.

3.02 CONTRACT CLOSEOUT:

- A. Provide in accordance with section 01700.

END OF SECTION

SECTION 02160

TEMPORARY EXCAVATION SUPPORT SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Design, furnish and install temporary excavation support systems as required to maintain lateral support, prevent loss of ground, limit soil movements to acceptable limits and protect from damage existing and proposed improvements including, but not limited to, pipelines, utilities, structures, roadways, and other facilities.
- B. Common types of excavation support system include, but are not limited to, singular or multiple stages comprised of cantilevered or internally braced soldier piles and lagging, steel sheetpile wall, timber sheetpile wall, trench box, or combinations thereof. Trench box temporary excavation support system is only acceptable for pipe or utility trench excavations. Temporary unsupported open cut excavation with stable sloping sides is allowed where applicable.
- C. Wherever the word "sheeting" is used in this section or on the contract drawings, it shall be in reference to any type of excavation support system specified except trench box.
- D. Construction of the temporary excavation support systems shall not disturb the existing structures or the completed proposed structures. Damage to such structures shall be repaired by the Contractor at no additional cost to the Owner.
- E. Adjacent structures are those that are bear upon soils above the proposed excavation depth and within a distance equal to twice the total depth of the excavation away from the closest edge of the excavation. Monitor and protect adjacent structures as specified and indicated.
- F. Vibration monitoring for excavation support systems will be performed by Contractor's vibration consultant and monitoring firm. Vibration due to Contractor's operations shall not exceed specified limits 1.05 E.
- G. Construction operations not to exceed specified noise limits in accordance with Section 01100.
- H. The Contractor shall bear the entire cost and responsibility of correcting any failure, damages, subsidence, upheaval or cave-ins as a result of improper installation, maintenance or design of the temporary excavation support systems. The Contractor shall pay for all claims, costs and damages that arise as a result of the work performed at no additional cost to the Owner.

1.02 RELATED WORK:

- A. Section 02140: Dewatering
- B. Section 02220: Earthwork

1.03 REFERENCES:

- A. American Society for Testing and Materials (ASTM):
 - 1. A36: Standard Specification for Structural Steel
 - 2. A328: Standard Specification for Steel Sheet Piling
 - 3. A416: Standard Specification for Strand Steel, Uncoated Seven-Wire for Prestressed Concrete
 - 4. A722: Specification for Uncoated High-Strength Steel Bar for Prestressing Concrete
 - 5. A615: Standard Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
- B. American Wood-Preserves Association (AWPA) Standards.
- C. American Welding Society (AWS) Code: D1.1.
- D. Federal Standard, FS TT-W-571: Wood Preservation and Treating Practices.
- E. Occupational Safety and Health Administration (OSHA) Standards and Regulations contained in Title 29: Subpart P - Excavations, Trenching and Shoring.
- F. American Concrete Institute (ACI)
 - 1. ACI 304: Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

1.04 SUBMITTALS:

- A. Submit the following in accordance with Section 01300:
 - 1. Submit the following qualifications four (4) weeks prior to the construction:
 - a. Qualifications of independent vibration consulting and monitoring firm as specified in Paragraph 1.05 D.

- b. Qualifications of Contractor's temporary excavation support system designer as specified in Paragraph 1.05 G.
 - c. Qualifications of Contractor's temporary excavation support system installer as specified in Paragraph 1.05 H.
 - d. Qualifications of Contractor's independent tieback testing laboratory as specified in Paragraph 1.05 I, if a tieback system is utilized.
 - e. Qualifications of Contractor's temporary excavation support system installation supervisor as specified in Paragraph 1.05 J.
 - f. Qualifications of vacuum excavation subcontractor as specified in Paragraph 1.05 F, if DMPs for utilities are utilized.
2. Submit a temporary excavation support plan stamped and signed by a Registered Professional Engineer at least two weeks prior to start of the construction. Do not submit design calculations. The review will be only for the information of the Owner and third parties for an overall understanding of the project relating to access, maintenance of existing facilities and proper utilization of the site. The Contractor shall remain responsible for the adequacy and safety of the means, methods and sequencing of construction. The plan shall include the following items as a minimum:
- a. Proposed temporary excavation support system(s), details, location, layout, depths, extent of different types of support relative to existing features and the permanent structures to be constructed, and methods and sequence of installation and removal.
 - b. Certificate of Design: Refer to Section 01300.
 - c. A list of all design assumptions, including safety factors used for the temporary excavation support system(s) and all lateral pressures used for each system.
 - d. If utilizing a tieback system, include tieback installation procedures and criteria for acceptance of tiebacks for performance and proof tests. Submit the tieback testing results to the Engineer for information only.
 - e. Requirements of dewatering during the construction.
 - f. Minimum lateral distance from the edge of the excavation support system for use for vehicles, construction equipment, and stockpiled construction and excavated materials.

- g. List of equipment used for installing the excavation support systems.
 - h. Monitoring schedule, installation procedures and location plans for vibration/noise monitoring, geotechnical instrumentation (deformation monitoring points, inclinometers, etc.) and observation wells/piezometers to monitor ground, excavation support system, adjacent structures and groundwater fluctuation during the entire construction period.
- 3. Submit a Construction Contingency Plan specifying the methods and procedures to maintain temporary excavation support system stability if the allowable movement of the adjacent ground and adjacent structures is exceeded.
- 4. Monitoring data within one (1) day of data collection from vibration and noise recording equipment, observation wells, deformation monitoring points and offset lines. Data shall include:
 - a. Horizontal and vertical movements of geotechnical instruments and groundwater readings.
 - b. New movements since the initial readings of the geotechnical instruments.
 - c. Weekly summary in tabular and graphic form at the end of each week.
 - d. A schematic plan of excavation and/or relevant construction activities at the time of monitoring.
- 5. For excavation support systems left in place, submit the following as-built information prior to backfilling and covering the excavation support systems:
 - a. Survey locations of the temporary excavation support systems, including coordinates of the ends and points of change in direction.
 - b. Type of the temporary excavation support system.
 - c. Elevations of top and bottom of the excavation support systems left in place.

1.05 QUALITY ASSURANCE:

- A. Provide in accordance with Section 01400 and as specified.

- B. Conform to the requirements of the OSHA Standards and Interpretations: "Part 1926 Subpart P - Excavation, Trenching, and Shoring", and all other applicable laws, regulations, rules, and codes.
- C. Construction operations to conform to noise regulations provided in the Noise Control Plan and this Section.
- D. Retain the services of an independent vibration consulting firm with the following in-house personnel to conduct the following vibration monitoring requirements:
 - 1. Preparing, reviewing and signing of monitoring plans and daily reports, and overseeing of the monitoring and interpretation of the vibration data shall be performed by personnel with the following qualifications:
 - a. Be a Rhode Island Registered Professional Engineer.
 - b. Have a minimum of five (5) years experience in the vibration consulting field.
 - c. Have successfully completed at least five (5) projects with vibration-inducing construction operations, pile driving, and noise levels equal to or more severe than those to be encountered.
 - 2. Assist Contractor in selecting pile driving equipment which will generate the lowest vibration and noise levels.
 - 3. Installation, monitoring and interpretation of monitoring equipment shall be performed by personnel with the following qualifications:
 - a. Have at least three (3) years of experience in the operation of monitoring equipment proposed for use and interpretation of records produced by such equipment.
 - b. Have installed, operated, monitored and interpreted equipment and records on at least three (3) projects with vibration-inducing construction operations, pile driving, and noise levels equal to or more severe than those to be encountered.
- E. The peak particle velocity for pile driving, or other vibration-inducing operations, shall not exceed the following:

Type of Concrete	Age of Concrete, hrs	Peak Particle Velocity in/sec
Mass Concrete (footings, mats, Slab-on-grade, fill concrete, etc.)	0-11 11 and over	1.0 2.0
Concrete Structures (walls, columns, elevated slabs, etc.)	0-11 11-24 24 and over	0.5 1.0 2.0
Existing Structures, residences or utilities	-	0.5

- F. If utilizing deformation monitoring points (DMPs) for utilities, vacuum excavation shall be performed by subcontractor having five (5) years of experience in non-destructive vacuum excavation methods for utilities.
- G. Prepare design, including calculations and drawings, under the direction of a Professional Engineer registered in the state where the project is located and having the following qualifications:
1. Not less than ten (10) years experience in the design of specific temporary excavation support systems to be used.
 2. Completed not less than five (5) successful temporary excavation support system projects of equal type, size, and complexity within the last five (5) years.
- H. Temporary Excavation Support System Installer's Qualifications:
1. Not less than three (3) year experience in the installation of similar types and equal complexity as the proposed system.
 2. Completed not less than three (3) successful excavation support systems of similar type and equal complexity as the proposed system.
- I. If utilizing a tieback system, employ an independent testing laboratory to test the tieback system with the following qualifications:
1. Be accredited by the American Association of State Highway and Transportation Officials (AASHTO) Accreditation Program.

2. Employ personnel conducting testing who are trained in the methods and procedures to test and monitor tieback systems of similar type and equal complexity, as the proposed system.
 3. Have not less than five (5) years experience in testing of tieback systems of similar type and equal complexity as the proposed system.
 4. Have successfully tested at least three (3) tieback systems of similar type and equal complexity as the proposed system.
- J. Install all temporary excavation support systems under the supervision of a supervisor having the following qualifications:
1. Not less than five (5) years experience in installation of systems of similar type and equal complexity as the proposed system.
 2. Completed at least five (5) successful temporary excavation support systems of similar type and equal complexity as the proposed system.

1.06 DESIGN CRITERIA:

- A. Design of temporary excavation support systems shall meet the following minimum requirements:
1. Support systems shall be designed for earth pressures, hydrostatic pressure, equipment, temporary stockpiles, construction loads, roadways, railroads, and other surcharge loads.
 2. Design a bracing system to provide sufficient reaction to maintain stability.
 3. Limit movement of ground adjacent to the excavation support system to be within the allowable ground deformation as specified.
 4. Design the embedment depth below bottom of excavation to minimize lateral and vertical earth movements and provide bottom stability. Toe of braced temporary excavation support systems shall not be less than 5 feet [1.5 m] below the bottom of the excavation.
 5. Design temporary excavation support systems to withstand an additional 2 feet [60 cm] of excavation below proposed bottom of excavation without redesign except for the addition of lagging and/or bracing.
 6. Maximum width of pipe trench excavation shall be as indicated on the drawings.

7. Do not cast permanent structure walls directly against excavation support walls.
8. The design location of the excavation support wall shall be determined such that the installed wall and bracing system components are all located outside the limits of the permanent structure. Construction tolerances (e.g. wall verticality) shall be considered in determining the plan location.

1.07 DELIVERY, STORAGE AND HANDLING:

- A. Provide in accordance with Sections 01610 and as specified.
- B. Store sheeting and bracing materials to prevent sagging which would produce permanent deformation. Keep concentrated loads which occur during stacking or lifting below the level which would produce permanent deformation of the material.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Structural Steel: All soldier piles, wales, rakers, struts, wedges, plates, waterstop and accessory steel shapes shall conform to ASTM A36.
- B. Steel Sheet Piling: ASTM A328, continuous interlocking type.
- C. Timber Lagging Left in Place: Pressured treated per appropriate AWWA standards.
- D. Tieback Tendons: Tieback tendons shall be high strength steel wire strand cables conforming to ASTM A416, or bars conforming to ASTM A722. Splicing of individual cables shall not be permitted.
- E. Raker Ties: ASTM A615 Grade 60.
- F. Cement Grout Materials And Admixtures For Tieback Anchorages: Grout cube strength shall be a minimum 3500 psi at 7 days and 5000 psi at 28 days.
- G. Tamping tools adapted for backfilling voids after removal of the excavation support system.
- H. Provide specific trench box sizes for each pipe and utility excavation with structural capacity of retaining soil types as described in OSHA's 29 CFR Part 1926 Subpart P.

2.02 EQUIPMENT:

- A. A vibratory hammer shall be utilized for driving the temporary sheet piling providing that such operations do not exceed vibration/noise requirements of the specifications. Impact hammer shall be utilized when vibratory hammer is unable to drive temporary sheet piling to required depth and/or unable to meet vibration requirements. Impact hammer shall also meet noise requirement.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Installation of the temporary excavation support systems shall not commence until the related earth excavation and dewatering submittals have been reviewed by the Engineer with all Engineer's comments satisfactorily addressed.
- B. Install excavation support systems in accordance with the temporary excavation support plan.
- C. If utilizing a tieback system, all performance and proof tests shall be conducted in the presence of the Engineer. Testing performed without the Engineer present will not be accepted. Repeat testing in the Engineer's presence at no additional cost to the Owner.
- D. Do not drive sheeting within 100 feet [30 m] of concrete less than seven (7) days old.
- E. Carry out program of temporary excavation support in such a manner as to prevent undermining or disturbing foundations of existing structures of work ongoing or previously completed.
- F. Bottom of the trench box excavation support system shall be above the pipe invert prior to installing the pipe.
- G. Install and read geotechnical instrumentation in accordance with the temporary excavation support plan. Notify the Engineer immediately if any geotechnical instrumentation is damaged. Repair or replace damaged geotechnical instrumentation at the sole option of the Engineer and at no additional cost to the Owner.
- H. Continuously monitor movements of the ground adjacent to excavation support systems and adjacent structures. In events of the measured movements approaching or exceeding the allowable movements, take immediate steps to arrest further movement by revising procedures such as providing supplementary bracing, filling voids behind the trench box, supporting utilities or other measures (Construction Contingency Plan) as required.

- I. Notify utility owners if existing utilities interfere with the temporary excavation support system. Modify the existing utility with the utility owners permission or have the utility owner make the modifications at no additional cost to Owner.

3.02 GROUND DEFORMATION ADJACENT TO EXCAVATION SUPPORT SYSTEMS:

- A. Allowable Vertical (heave/settlement) and Lateral Movements: 2 inches [5 cm] maximum for the trench box excavation support system, and 1 inch [2.5 cm] maximum for other types of excavation support systems at any location behind the excavation support system.
- B. Monitoring personnel shall use a procedure for reading and recording geotechnical instrumentation data which compares the current reading to the last reading during data collection to eliminate spurious readings.
- C. Plot the observed ground deformation readings versus time. Annotate the plots with construction loading and excavation events having an impact on the readings. Evaluate plots by means of secondary rate-of-change plots to provide early warning of accelerating ground movements.
- D. Notify the Engineer when the allowable ground deformation is exceeded.
- E. Implement Construction Contingency Plan under direction of the temporary excavation support system designer and the Engineer.

3.03 REMOVAL OF EARTH RETENTION SYSTEM:

- A. Sheet piling shall be left in place unless otherwise indicated or approved in writing by the Engineer.
- B. When indicated or approved by the Engineer, remove the temporary excavation support system without endangering the constructed or adjacent structures, utilities, or property. Immediately backfill all voids left or caused by withdrawal of temporary excavation support systems with bank-run gravel, screened gravel or select borrow by tamping with tools specifically adapted for that purpose.
- C. When tiebacks are used, release tension in tiebacks as the excavation is backfilled. Do not leave tensioned tieback in place at the completion of the work.
- D. The excavation support system left-in-place shall be cut-off a minimum of 2 feet [60 cm] below the bottom of the next higher foundation level or a minimum of 5 feet [152 cm] below finished grade.

- E. Conduct survey of the locations and final cut-off elevations of the excavation support systems left in place.

3.04 CONTRACT CLOSEOUT:

- A. Provide in accordance with Section 01700.

END OF SECTION

SECTION 02210

EARTH EXCAVATION, BACKFILL, FILL AND GRADING

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Perform the following earth excavation, backfill, fill and grading as indicated or specified:
 - 1. Make excavations to accommodate piping and other structures.
 - 2. Provide materials for backfilling excavations and fills as indicated and specified.
 - 3. Grade surfaces to meet finished grades indicated.
 - 4. Immediately notify the Engineer if suspected hazardous materials are encountered and cease operations in that part of work.
 - 5. Remove boulders within the excavation limits.

1.02 RELATED WORK:

- A. Section 01568: Erosion Control Sedimentation and Containment of Construction Materials.
- B. Section 02100: Site Preparation.
- C. Section 02223: Screened Gravel
- D. Section 02225: Select Borrow
- E. Section 02435: Crushed Stone

1.03 REFERENCES:

- A. American Society for Testing and Materials (ASTM) Publications:
 - 1. C33: Specification for Concrete Aggregates.
 - 2. C136: Sieve Analysis of Fine and Coarse Aggregates.
 - 3. D421: Practice for Dry Preparation of Soil Samples for Particle Size Analysis and Determination of Soil Constants.

4. D422: Test Method for Particle-Size Analysis of Soils.
5. D1140: Test Method for Amount of Material in Soils Finer than the No. 200 (75 Fm) Sieve.
6. D1556: Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
7. D1557: Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort 56,000 ft-lb/ft³.
8. D2167: Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
9. D2922: Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods. (Shallow Depth).
10. D3017: Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
11. D4318: Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
12. D4718: Practice for Correction of Unit Weight and Water Content for Soils Containing Oversized Particles.
13. D4944: Test Method for Field Determination of Water (Moisture) Content of Soil by the Calcium Carbide Pressure Tester Method.
14. D4959: Test Method for Field Determination of Water (Moisture) Content of Soil by Direct Heating Method.
15. D5080: Test Method for Rapid Determination of Percent Compaction.

- B. Occupational Safety and Health Administration (OSHA) Standards and Regulations contained in Title 29: Subpart P - Excavations, Trenching and Shoring.

1.04 DEFINITIONS:

- A. Percentage of compaction is defined as the ratio of the field dry density, as determined by ASTM D1556 to the maximum dry density determined by ASTM D1557 Procedure C, multiplied by 100.
- B. Proof Roll: Compaction with a minimum of 4 passes of a vibratory steel drum or rubber tire roller. Vibratory plate compactors shall be used in small areas where vibratory steel drum or rubber tire roller cannot be used.

- C. Acceptable Material: Material which does not contain organic silt or organic clay, peat, vegetation, wood or roots, stones or rock fragments over 6-inch in diameter, porous biodegradable matter, loose or soft fill, excavated pavement, construction debris, or refuse. Stones or rock fragments shall not exceed 40 percent by weight of the backfill material.
- D. Unacceptable Materials: Materials that do not comply with the requirements for the acceptable material or which cannot be compacted to the specified or indicated density.

1.05 SUBMITTALS:

- A. Submit the following in accordance with Section 01300:
 - 1. Qualifications of the Contractor's Independent Testing Laboratory as specified in Paragraph 1.06 I, four (4) weeks prior to the execution of any earth excavation, backfilling, filling, or compaction process.
 - 2. Submit an excavation, backfilling, and filling plan at least two weeks prior to start of any earth moving activities. The review will be only for the information of the Owner and third parties for an overall understanding of the project relating to access, maintenance of existing facilities and proper utilization of the site. The Contractor shall remain responsible for the adequacy and safety of the means, methods, and sequencing of construction. The plan shall include, but not be limited to the following items:
 - a. Detailed sequence of work.
 - b. General description of construction methods.
 - c. Numbers, types, and sizes of equipment proposed to perform excavation and compaction.
 - d. Details of dust control measures.
 - e. Proposed locations of stockpiled excavation and/or backfill materials.
 - f. Proposed surplus excavated material off-site disposal areas and required permits.
 - g. Details of erosion and sedimentation control measures which will prevent erosion and sedimentation during the earth moving activities.
 - 3. The following material submittals shall be submitted to the Engineer prior to backfilling and filling:

- a. Screened Gravel: As specified in Section 02223.
 - b. Select Borrow: As specified in Section 02225.
 - c. Crushed Stone: As specified in Section 02435.
 - d. Other Acceptable Materials: Laboratory testing results of gradation and moisture-density relationship. Submittal shall include specific location of the source and the date when sample was taken.
4. During Construction, submit written confirmation of fill lift thickness, in-place soil moisture content, and percentage of compaction to the Engineer before placing the next lift or constructing foundations.

1.06 QUALITY ASSURANCE AND CONTROL:

- A. Provide in accordance with Section 01400 and as specified.
- B. Excavations shall be performed in the dry, and kept free from water, snow, and ice during construction. Bedding and backfill material shall not be placed in water. Water shall not be allowed to rise upon or flow over the bedding and backfill material.
- C. The Contractor shall be solely responsible for making all excavations in a safe manner. All excavation, trenching, and related sheeting, bracing, etc. shall comply with the requirements of OSHA excavation safety standards (29 CFR Part 1926 Subpart P) and State requirements. Where conflict between OSHA and State regulations exists, the more stringent requirements shall apply.
- D. Do not excavate, construct embankments, or fill until all the required submittals have been reviewed by the Engineer.
- E. Formulate excavation, backfilling, and filling schedule and procedures to eliminate possibility of undermining or disturbing foundations of partially and completed structures, pipelines and embankments or existing structures and pipelines.
- F. Employ an independent testing laboratory to perform particle size and gradation analyses in accordance with ASTM D422, and to determine compactability in accordance with ASTM D1557 for all the proposed backfill and fill materials, and monitoring field compaction operations. The Contractor's independent testing laboratory shall have the following qualifications:
 - 1. Be accredited by the American Associates of State Highway and Transportation Officials (AASHTO) Accreditation Program.

2. Have three (3) years experience in sampling, testing and analysis of soil and aggregates, and monitoring field compaction operations.
3. Able to provide three (3) references from previous work.

G. Field Testing and Inspections:

1. By Contractor's independent testing laboratory, acceptable to the Engineer, at Contractor's expense as specified in Paragraph 1.06 I.
2. Location of tests mutually acceptable to testing laboratory and the Engineer or as directed by the Engineer.
3. In the event compacted material does not meet specified in-place density, recompact material and retest this area until specified results are obtained at no additional to the Owner.
4. Contractor's testing laboratory to perform inspection at least once daily to confirm lift thickness and compaction effort for entire fill area.
5. Owner may retain the services of an independent testing laboratory to conduct confirmatory testing and inspection.

H. Methods of Field Testing:

1. In-Place Density: ASTM D1556, ASTM D2167, or ASTM D2922.
2. In-Place Moisture Content: ASTM D3017, ASTM D4944, or ASTM D4959.

I. Material Testing Frequency: The following testing frequencies are minimum required for all structural and non-structural fill, grading and embankment.

1. Field In-Place Density and Moisture Content - Screened gravel and crushed stone shall be compacted as specified and indicated. For other backfill and fill materials, minimum test frequency shall be as follows, and no less than one test per:
 - a. Trenches under structures foundation preparation or roadways subbase: Every 1000 lin. ft. per lift.
 - b. Paved Roadways: Every 200 lin. ft. per lift.
2. Moisture Density - One per source, except for screened gravel and crushed stone. Repeat the moisture density test for every 5,000 cubic yard of material use, and whenever visual inspection indicates a change in material gradation as determined by the Engineer.

3. Gradation Analysis - A minimum of one per source and for each moisture density test and whenever visual inspection indicates a change in material gradation.
4. Liquid Limit, Plastic Limit and Plasticity Index - Minimum of one test per 5,000 cubic yard of soil for use as fill material and whenever classification of material is in doubt as determined by the Engineer.
5. Owner's testing laboratory may conduct confirmatory testing at a minimum frequency of 25% of the specified frequencies in paragraph 1.06.I, or as directed by Owner's Engineer.

J. Construction Tolerances:

1. Construct finished surfaces to plus or minus 1 inch of the elevations indicated.
2. Grade cut and fill areas to plus or minus 0.20 foot of the grades indicated.
3. Complete embankment edges to plus or minus 6 inches of the slope lines indicated.
4. Provide the Engineer with adequate survey information to verify compliance with above tolerances.

K. Cut pavement with a saw or pneumatic tools to prevent damage to remaining pavement without extra compensation. Where pavement is removed in large pieces, dispose of pieces before proceeding with excavation.

L. Pipes, drains, and other utilities may exist in certain locations not indicated on drawings. No attempt has been made to show all services. Completeness or accuracy of information given is not guaranteed.

M. Carefully support and protect from damage, existing pipes, poles, wires, fences, curbing, property line markers, and other structures, which the Engineer determines must be preserved in place without being temporarily or permanently relocated. Should such items be damaged, restore without compensation therefore, to at least as good condition as that in which they were found immediately before the work was begun.

N. Whenever certain existing structures, as described below, are encountered, and the Engineer so directs, change the location, remove, and later restore, or replace such structures, or assist the Owner in doing so. Such work to be paid for under applicable items of work, otherwise as Extra Work.

O. In removing existing pipes or other structures, include for payment only those new materials which are necessary to replace those unavoidably damaged as determined by the Engineer.

- P. The preceding two paragraphs apply to pipes, wires, and other structures which meet the following: (a) are not indicated on the drawings or otherwise provided for, (b) encroach upon or are encountered near and substantially parallel to the edge of the excavation, and (c) in the opinion of the Engineer, will impede progress to such an extent that satisfactory construction cannot proceed until they have been changed in location, removed (to be later restored), or replaced.
- Q. Restore existing property or structures as promptly as practicable.
- R. If material unacceptable for foundation (in the opinion of the Engineer) is found at or below the grade to which excavation would normally be carried in accordance with the drawings and/or specifications, remove such material to the required width and depth as directed by the Engineer and replace it with screened gravel, select borrow, or concrete.
- S. Do not remove excavation materials from the site of the work or dispose of except as directed or permitted by the Engineer.
- T. Haul away and dispose of surplus excavated materials at locations directed by the Engineer at no additional cost to the Owner.
- U. During progress of work, conduct earth moving operations and maintain work site so as to minimize the creation and dispersion of dust. Furnish and spread calcium chloride if the Engineer decides that it is necessary for more effective dust control.
- V. Provide suitable and safe bridges and other crossings where required for accommodation of travel, and to provide access to private property during construction, and remove said structures thereafter.

PART 2 - PRODUCTS

2.01 GENERAL:

- A. Use only acceptable materials from excavations or borrows.
- B. Provide screened gravel, fine aggregate, select borrow, and crushed stone.
- C. Provide Fine Aggregate conforming to ASTM C33.
- D. Provide erosion/sedimentation control devices as indicated, including geotextile fabric in accordance with Section 02273.
- E. Provide geotextile fabric as indicated, meeting the requirements, and conforming to Section 02273.

2.02 EQUIPMENT:

- A. The compaction equipment shall be selected by the Contractor and shall be capable of consistently achieving the specified compaction requirements. The selected compaction equipment shall meet the following minimum requirements:
 - 1. Manually operated vibratory plate compactors weighing no less than 200 pounds with vibration frequency no less than 1600 cycles per minute.
 - 2. Vibratory steel drum or rubber tire roller weighing at least 12,000 pounds.

PART 3 - EXECUTION

3.01 SITE MAINTENANCE:

- A. Roadway and Site Leveling: Grade roadway and site as to maintain them in a level unrutted condition and to eliminate puddling of surface and subsurface water.

3.02 EXCAVATION:

- A. Execution of any earth excavation shall not commence until the related dewatering, excavation support systems, and backfill and fill materials submittals are reviewed by the Engineer and all Engineer's comments satisfactorily addressed.
- B. Carry out program of excavation, dewatering, and excavation support systems to eliminate possibility of undermining or disturbing foundations of existing structures or of work previously completed under this contract.
- C. Excavate to widths that give suitable room for laying and jointing piping.
- D. Do not plow, scrape, or dig by machinery near to finished subgrade in a manner that would result in disturbance of subgrade.
- E. Excavate to lines and grades indicated in an orderly and continuous program.
- F. Establish limits of excavation to allow adequate working space for installing forms and for safety of personnel.
- G. Excavate to elevations indicated, or deeper, as directed by the Engineer, to remove unacceptable bottom material.
- H. Exercise care to preserve material below and beyond the lines of excavations.
- I. Place excavated material at the approved stockpile locations and in no case closer than 3 feet from edge of excavations to prevent cave-ins of bank slides.

- J. Regard small, less than one cubic yard, boulders, rock fragments, and concrete encountered during excavation as a normal part of in-place soils and not included for payment as rock.

3.03 SEPARATION OF EXCAVATED MATERIALS FOR REUSE:

- A. Remove only existing pavement that is necessary for performance of work.
- B. Carefully remove acceptable material from excavated areas and store separately for further use as backfill material.
- C. Excavated material shall not be used as pipe bedding.

3.04 TRENCH EXCAVATION:

- A. When pipe is to be laid in gravel bedding or concrete cradle, excavate trench by machinery to, or just below designated subgrade. If material remaining at bottom of trench is disturbed, recompaction shall be required.
- B. When pipe is to be laid directly on bottom of trench, do not excavate lower part of trenches by machinery to subgrade. Remove remainder of material to be excavated just before placing of pipe by use of hand tools. Form a flat or shaped bottom, true to grade, so pipe will have a uniform and continuous bearing. Support on firm and undisturbed material between joints, except for limited areas where use of pipe slings has disturbed bottom.

3.05 DEPTH OF TRENCH:

- A. Excavate trenches to depths so as to permit pipe to be laid at elevations, slopes, or depths of cover indicated on drawings, and at uniform slopes between indicated elevations.

3.06 WIDTH OF TRENCH:

- A. Make pipe trenches as narrow as practicable and do not widen by scraping or loosening materials from the sides. Make every effort to maintain sides of trenches firm and undisturbed until backfilling has been placed and compacted.
- B. Excavate trenches with approximately vertical sides between springline of pipe and elevation 1 ft. above top of pipe.

3.07 TRENCH EXCAVATION IN FILL:

- A. Place and compact material to top of fill or to a minimum height of 1 ft. above top of pipe, whichever is less, when pipe is to be laid in embankment or other recently filled material. Take particular care to ensure maximum consolidation of material under pipe location. Excavate pipe trench as though in undisturbed material.

3.08 EXCAVATION NEAR EXISTING STRUCTURES:

- A. Discontinue digging by machinery when excavation approaches pipes, conduits, or other underground structures. Continue excavation by use of hand tools. Include such manual excavation in work to be done when incidental to normal excavation and under items involving normal excavation.
- B. Excavate test pits when determination of exact location of pipe or other underground structure is necessary for doing work properly.

3.09 REMOVAL OF SUBSURFACE OBSTRUCTIONS:

- A. Remove indicated subsurface structures and related obstructions to extent shown.
- B. Promptly notify the Engineer when any unexpected subsurface facilities are encountered during excavation such as utility lines and appurtenances, walls, and foundations.

3.10 UNAUTHORIZED EXCAVATION:

- A. When the bottom of any excavation for structures is taken out beyond limits indicated or specified, backfill, with screened gravel and crushed stone wrapped with non-woven geotextile fabric or with 1,500 psi concrete.

3.11 REUSE AND DISPOSAL OF SURPLUS EXCAVATED MATERIALS:

- A. Reuse surplus acceptable excavated materials for backfill; deposit neatly and grade so as to make or widen fills, flatten side slopes, or fill depressions; or legally dispose off-site; all as directed or permitted and without additional compensation. Excavated material shall not be used as pipe bedding.

3.12 SUBGRADE PREPARATION AND PROTECTION:

- A. As directed by the Engineer, overexcavate unacceptable materials below the foundation subgrade. Backfill the overexcavation with compacted screened gravel or crushed stone wrapped with nonwoven geotextile fabric. In no case shall the screened gravel be placed directly on the exposed subgrade prior to placing the geotextile fabric.
- B. Proof roll the foundation subgrade prior to backfilling and filling operation or placing foundation concrete.

- C. Utilize excavating equipment equipped with a toothless or smooth edged, excavating bucket to expose the pipe trench foundation subgrade to avoid disturbance of the bearing surface. Tamp the exposed subgrade with the excavating bucket prior to backfilling and filling operation, or placing soil-supported pipeline.

3.13 CARE AND RESTORATION OF PROPERTY:

- A. Do not use or operate tractors, bulldozers, or other power-operated equipment on paved surfaces when their treads or wheels of which are so shaped as to cut or otherwise damage such surfaces.
- B. Restore surfaces damaged by the Contractor's operations to a condition at least equal to that in which they were found immediately before work commenced. Use suitable materials and methods for such restoration.

3.14 BACKFILLING - GENERAL:

- A. Do not place frozen materials in backfill or place backfill upon frozen material. Remove previously frozen material or treat before new backfill is placed.
- B. Do not place, spread, roll, or compact fill material during unfavorable weather conditions. If interrupted by heavy rain or other unfavorable conditions, do not resume until ascertaining that the moisture content and density of the previously placed soil are as specified.
- C. Do not use puddling, ponding, or flooding as a means of compaction.

3.15 MATERIAL PLACEMENT AND COMPACTION REQUIREMENTS:

- A. Select Borrow, and Fine Aggregate:
 - 1. Dump and spread in layers not to exceed 8-in. uncompacted thickness.
 - 2. Compact, fill and backfill under structure and bedding for pipes (from below pipe to spring line) as indicated but to not less than 95 percent. Compact to not less than 90 percent in other areas unless otherwise indicated.
- B. Screened Gravel and Crushed Stone:
 - 1. Dump and spread in layers not to exceed 8-in. uncompacted thickness.
 - 2. Compact using self propelled vibratory steel drum or rubber tire rollers with a minimum of 4 passes in directions perpendicular to one another in open areas. In small areas, use manually operated vibratory plate compactors with a minimum of 4 passes.

C. Acceptable materials for use as non-structural fill:

1. Dump and spread in layers not to exceed 12-in. uncompacted thickness.
2. Compact to not less than 90 percent unless otherwise indicated.

D. Backfilling and filling operation shall be suspended in areas where tests are being made until tests are completed and the testing laboratory has advised the Engineer that adequate densities are obtained.

3.16 BACKFILLING PIPE TRENCHES:

A. General:

1. Begin backfilling and proceed until completed after: the pipes and conduits have been laid, joints have acquired maximum degree of hardness, pipelines and conduits have successfully passed tests and inspections as required in the Specifications, and concrete or masonry structures within the trench have reached their design strength to support all loads.
2. Backfill and compact indicated material under, around, and above pipes, conduits, and other structures to the indicated or specified compaction density requirement. Utilize compaction devices which will not damage the pipe, conduit, or structure within the trench.
3. Do not drop backfill material into trench from a height of more than 5 ft., or in a manner which will damage the pipe, conduit, or other structure within trench.

B. Pipe Trenches:

1. Materials:
 - a. From below pipe to 1 ft. above top of pipe: Use screened gravel, or crushed stone, unless otherwise indicated.
 - b. One foot above top of pipe to finished grade or to pavement subbase: Use bank-run gravel or acceptable materials, unless otherwise indicated.
2. Compacting Around Pipes: Compact material around circumference of pipe and the area between the trench wall and the pipe by hand tamping in 6 inches layers.
3. Compacting Above Pipe: Compact material by hand tamping. If trench width is wide enough to accommodate power tools and the compacted material over the pipe will support the load of the power tools without damage to the pipe, use

rollers or other powered compaction equipment able to more readily achieve compaction requirements.

3.17 COMPACTION CONTROL OF BACKFILL AND FILL:

- A. Compact to density specified and indicated for various types of material. Control moisture content of material being placed as specified or if not specified, at a level slightly lower than optimum.
- B. The soil testing laboratory shall provide inspection during filling or backfilling operations to ensure compaction of screened gravel or crushed stone and record compaction equipment in use.
- C. Moisture control may be required either at the stockpile area, pits, or backfill. Increase moisture content when material is too dry by sprinkling or other means of wetting uniformly. Reduce moisture content when material is too wet by using ditches, pumps, drainage wells, or other devices and by exposing the greatest possible area to sun and air in conjunction with harrowing, plowing, spreading of material or any other effective methods.

3.18 ALLOWANCE FOR SHRINKAGE:

- A. Backfill to a height above finished grade which will, in the opinion of the Engineer, allow for the shrinkage or consolidation of material. Initially, provide at all points, an excess of at least one percent of total height of backfill measured from stripped surface to top of finished surface.
- B. Supply specified materials and build up low places as directed, without additional cost if backfilling settles so as to be below the indicated level for proposed finished surface at any time before final acceptance of the work.

3.19 CONTRACT CLOSEOUT

- A. Provide in accordance with Section 01700.

END OF SECTION

SECTION 02223
SCREENED GRAVEL

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. Provide and compact screened gravel as indicated and specified.

1.02 RELATED WORK:

- A. Section 02210: Earth Excavation, Backfill, Fill and Grading

1.03 REFERENCES:

- A. American Society for Testing and Materials (ASTM) Publications:

- 1. C33: Specification for Concrete Aggregates
- 2. D422: Test Method for Particle-Size Analysis of Soils.

1.04 SUBMITTALS:

- A. Submit the following in accordance with Section 01300:

- 1. Gradation test result from the soil testing laboratory, at least two (2) weeks prior to hauling material, for the Engineer's acceptance.
- 2. Submit a 20-lb. sample of the material when requested by the Engineer.

1.05 QUALITY ASSURANCE:

- A. Provide in accordance with Section 01400 and as specified.
- B. Qualifications of the independent soil testing laboratory as specified in Section 02210.
- C. Maximum particle size and gradation analyses shall be performed in accordance with ASTM D422.
- D. Material testing frequency and requirements as specified in Section 02210.

PART 2 – PRODUCTS

2.01 MATERIAL:

- A. Screened gravel: Gradation and physical property requirements of screened gravel shall conform to ASTM C33, Coarse Aggregate number 67.
- B. Screened gravel shall be free from roots, leaves, and other organic materials, and free of ice, snow, frost and frozen soil particles.
- C. Crushed rock of equivalent size and grading may be used instead of screened gravel.

PART 3 – EXECUTION

3.01 PLACEMENT AND COMPACTION:

- A. Specified in Section 02210 and as indicated on the drawings.

3.02 CONTRACT CLOSEOUT:

- A. Provide in accordance with Section 01700.

END OF SECTION

SECTION 02225
SELECT BORROW

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. Provide and compact select borrow as indicated and specified.

1.02 RELATED WORK:

- A. Section 02210: Earth Excavation, Backfill, Fill and Grading

1.03 REFERENCES:

- A. American Society for Testing and Materials (ASTM) Publications:
- B. C33: Specification for Concrete Aggregates
- C. D422: Test Method for Particle-Size Analysis of Soils.
- D. D1140: Test Method for Amount of Material in Soils Finer than the No. 200 Sieve.
- E. D1557: Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).
- F. D2487: Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

1.04 SUBMITTALS:

- A. Submit the following in accordance with Section 01300:
- B. Gradation and compaction test results from the soil testing laboratory, at least two (2) weeks prior to hauling material, for the Engineer's acceptance.
- C. Submit a 20-lb. sample of the material when requested by the Engineer.

1.05 QUALITY ASSURANCE:

- A. Provide in accordance with Section 01400 and as specified.
- B. Qualifications of the independent soil testing laboratory as specified in Section 02210.

C. Maximum particle size and gradation analyses shall be performed in accordance with ASTM D422. Soil compaction test shall be performed in accordance with ASTM D1557 Procedure C.

D. Material testing frequency and requirements as specified in Section 02210.

PART 2 - PRODUCT

2.01 MATERIAL:

- A. Use only material free from roots, leaves, and organic matter, and free of ice, snow, frost and frozen soil particles.
- B. Select borrow shall be well-graded coarse-grained soil in accordance with ASTM D2487 and shall meet the following gradation:

<u>Sieve Designation</u>	<u>Percentage by Weight Passing Square Mesh Sieves</u>
3 in.	100
1-1/2 in.	70 - 100
3/4 in.	50 - 85
No. 4	30 - 60
No. 50	10 - 25
No. 200	0 - 5

- C. Soil particles shall conform to the physical property requirements of ASTM C33.

PART 3 – EXECUTION

3.01 PLACEMENT AND COMPACTION:

- A. Specified in Section 02210 and as indicated on the drawings.

3.02 CONTRACT CLOSEOUT:

- A. Provide in accordance with Section 01700.

END OF SECTION

SECTION 02435
CRUSHED STONE

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Provide and compact crushed stone as indicated and specified.

1.02 RELATED WORK:

- A. Section 02210: Earth Excavation, Backfill, Fill and Grading

1.03 REFERENCES:

- A. American Society for Testing and Materials (ASTM) Publications:

- 1. C33: Specification for Concrete Aggregates
- 2. D422: Test Method for Particle-Size Analysis of Soils.

1.04 SUBMITTALS:

- A. Submit the following in accordance with Section 01300 - Submittals:

- 1. Gradation test result from the soil testing laboratory, at least two (2) weeks prior to hauling material, for the Engineer's acceptance.
- 2. Submit a 20-lb. sample of the material when requested by the Engineer.

1.05 QUALITY ASSURANCE:

- A. Provide in accordance with Section 01400 and as specified.
- B. Qualifications of the independent soil testing laboratory as specified in Section 02210.
- C. Maximum particle size and gradation analyses shall be performed in accordance with ASTM D422.
- D. Material testing frequency and requirements as specified in Section 02210.

PART 2 - PRODUCTS

2.01 MATERIAL:

- A. Crushed Stone: Gradation and physical property requirements of crushed stone shall conform to ASTM C33, Coarse Aggregate number 67.
- B. Crushed stone shall be free from roots, leaves, and other organic materials, and free of ice, snow or frost and frozen soil particles.

PART 3 - EXECUTION

3.01 PLACEMENT AND COMPACTION:

- A. Specified in Section 02210 and as indicated on the drawings.

3.02 CONTRACT CLOSEOUT:

- A. Provide in accordance with Section 01700.

END OF SECTION

SECTION 02624

HDPE PIPE

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. This Specification covers the minimum requirements for materials, inspection, and testing of High Density Polyethylene Pipe (HDPE), intended for the conveyance of residuals from the South Sedimentation Basin.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01300: Submittals
- B. Section 01400: Quality Assurance

1.03 REFERENCES:

Comply with the following Standards and Standard Specifications, as specified and amended herein. Where a discrepancy exists between the referenced Standard/Standard Specification and this Specification, the most stringent requirement shall apply.

A. ASTM International (ASTM):

- 1. ASTM F412, Standard Terminology Relating to Plastic Piping Systems
- 2. ASTM F2620 - Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings
- 3. ASTM F2634 - Standard Test Method for Laboratory Testing of Polyethylene (PE) Butt Fusion Joints using Tensile-Impact Method
- 4. ASTM F3123 – Standard Specification for Metric Outside Diameter Polyethylene (PE) Plastic Pipe (DR-PN)

B. American Water Works Association (AWWA):

- 1. AWWA C906 Polyethylene (PE) pressure Pipe & Fittings, 4 inch through 63 inch for water

C. Plastic Pipe Institute (PPI)

- 1. TR-33 Generic Butt Fusion Joining Procedure for Field Joining of Polyethylene

1.04 Submittals

- A. Shop Drawings and/or brochures shall be submitted for all items to be furnished in accordance with the provisions of the DOCUMENT 00700, GENERAL CONDITIONS.
- B. Submittals required under this section include, but are not limited to the following:
 - 1. Pipe and fittings.
 - 2. Gaskets.

3. Couplings and solid sleeves.
4. Valves.
- C. Certificates:
 1. Affidavit of Compliance of shop tests showing compliance with AWWA C906.
 2. Provide Manufacturer's chain of custody and product records.
- D. Manufacturer's Literature:
 1. Test Specification data listing resin type, cell classification, stock density, melt flow, flexural modulus, tensile strength, and coloration for HDPE pipe.
 2. HDPE Pipe dimensions listing average outside diameter, average inside diameter, and minimum and average wall thickness.
- E. Submit the following Shop Drawings in accordance with Section 01300:
 1. Manufacturer's product data sheets.
 2. Clarifications and Exceptions:
 - a. A copy of the Contract Drawings and Specifications, with addenda, marked to show all changes proposed. If no changes are proposed, mark all Contract Drawings and Specifications with "No changes requested" or provide a statement that no changes are requested.
 3. Qualifications of Supplier/Distributor:
 - a. Documentation of the Supplier/Distributor's experience with examples, including references, of successfully completed projects similar in material and from the same product manufacturer proposed.
 - b. Provide evidence of producing pipe that conforms to AWWA C906 in the specified size, resin class and DR
 4. Quality Assurance and Quality Control Plan.
 5. Inspection and Test Plan (ITP). The ITP shall include identification of hold points for the required inspections and tests.
 6. Qualifications of manufacturer's QA/QC Managers and Inspectors:
 - a. Documentation of QA/QC Managers and Inspectors certifications, training and experience.
 7. Certificates of Accreditation for the manufacturer's third-party testing laboratories, if used.
 8. Provide evidence of compliance to ASTM D3350.
- F. Submit the following no later than 30 days prior to on site assembly of pipe;
 1. Submit qualifications of welding personnel to be used in butt fusing of all pipe. Welding personnel to be trained specifically for the fusing machine being utilized, by qualified technician from the pipe Supplier/Distributor and to be agreed with

by the welding machine manufacturer. Jointing machine to be approved by pipe Supplier/Distributor.

2. Provide a written verification from Supplier/Distributor certifying that the Contractor's personnel who will perform the jointing, is qualified and that the jointing equipment has been inspected and is suitable for the pipe supplied.
3. Provide detailed written jointing procedures, including specification of the jointing method, the fusion parameters, the fusion equipment, the jointing conditions, the level of skill of the operator, and the quality control methods to be used

G. Submit the following daily during pipe fusing and assembly operations;

1. Data from fusing machine data logging device, including fusing temperatures, pressures and times for each pipe joint and confirmation of compliance with visual acceptance criteria for each weld as per ASTM F2620.
2. Written Qc documents
3. Pressure Testing records of assembled pipe string.

1.05 QUALITY ASSURANCE:

A. Comply with the requirements of this specification and Section 01400.

B. Quality Control:

1. Inspection
 - a. The Contractor shall afford the Engineer every facility to access and inspect all plant to be provided, work to be performed, materials to be supplied and equipment or machinery to be installed in accordance with Specifications.
2. Testing of Pipe and Materials
 - a. The Contractor shall provide access to the Engineer or his appointed representative to conduct plant inspections, prior to commencement of manufacture, and at any time during the manufacture process,. The Contractor shall provide a minimum of 14 calendar days' notice of commencement of pipe manufacture, for the purposes of scheduling plant inspections.

1.06 DELIVERY, STORAGE AND HANDLING:

A. Comply with the requirements of Manufacturer's written instructions and this Specification.

B. Store pipe with long axis vertical to limit ovality.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. HDPE Pipe

1. 12-inch IPS, DR 11 class 200 pipe.

2. Permanent piping shall be buried or have a UV stabilizer.
3. Feedstock Compounds
 - a. Feedstock compounds must be designated as PE4710, as listed with the Plastic Pipe Institute's (PPI) TR4.
 - b. Feedstock compound shall meet all the technical and performance requirements for PE4710 and shall conform to ASTM D3350 and ASTM F714.
 - c. The PE4710 feedstock compound shall meet or exceed all of the technical requirements of PPI TR4 including but not limited to the properties specified in the table below
4. PE pipe shall meet the following mechanical Requirements
 - a. Pressure Rating 200 psi for DR 11 pipe, at 73 degrees Fahrenheit.
 - b. Polyethylene Pipe shall meet following Mechanical Properties;

Pipe Property	Standard	Units	Typical Value
Pipe Classification	PPI-TR4		PE4710
Cell Classification	ASTM D3350		445574C
Density	ASTM D3350	g/cc	0.960
Melt Index	ASTM D1238	g/10 minutes	<0.15
Flexural Modulus	ASTM D790	psi	>110,000
Tensile Strength	ASTM D638	psi	≥3500
Slow Crack Growth (PENT)	ASTM F1473	Hours	>500
Hydrostatic Design Stress (HDS) @ 73°F	PPI-TR4	psi	1000
Hydrostatic Design Basis (HDB) @ 73°F	ASTM D2837	psi	1600
Color/ UV Stabilizer	ASTM D3350		Carbon Black

5. Acceptable Manufacturers
 - a. WL Plastics
 - b. JM Eagle
 - c. AGRU
 - d. Or Approved Equal

B. Joints:

1. All polyethylene pipe shall be joined by thermal butt fusion in accordance with ASTM F2620, unless indicated otherwise.
2. Electrofusion couplings shall be provided, as indicated on the drawings.
 - a. Electrofusion couplings shall meet the requirements of ASTM F1055 and AWWA c906.
 - b. Electrofusion couplings shall be polyethylene compound having cell classification and material designation equal to or exceeding compound used in pipe.
 - c. Working pressure: 200 psi

C. Backup Rings

1. Backup Rings shall be 316 Stainless Steel.
2. Backup rings to be encased in concrete shall be in general conformance to AWWA C207, and fusion bonded epoxy coated to AWWA C213.
3. Backup ring bolting and drilling pattern may be DIN EN 1092-1 PN 10" sizes for temporary connections and internal pipe connections. Bolting patterns connecting to plant components, couplers and flanges shall be to AWWA C207/ASME B16.1 Class B dimensions
4. Acceptable Products
 - a. WL Plastics
 - b. JM Eagle
 - c. AGRU
 - d. Or Approved Equal

D. Stub Ends and Blind Flanges

1. HDPE stub ends shall be provided at each end of each pipe segment for testing and permanent bulkheads, flanges and anchor rings.
2. HDPE stub ends and HDPE blind flange shall be manufactured of same feedstock and compatible with main pipe.
3. Acceptable Products
 - a. WL Plastics
 - b. JM Eagle
 - c. AGRU
 - d. Or Approved Equal

- E. Fittings:
 - 1. Provide fittings conforming to AWWA C906 and ASTM D3261.
 - 2. Fittings shall be polyethylene compound having cell classification and material designation equal to or exceeding compound used in pipe.
 - 3. Fittings shall have a wall thickness equal to that of the related HDPE pipe.
 - 4. Provide molded fittings rather than fabricated fittings.
- F. Bolts and Fasteners
 - a. Bolts washers and nuts shall be 316 Stainless Steel.
 - 2. Bolts for temporary service shall be ASTM A307 Grade B, with ASTM A563 Grade A heavy hex nuts as per AWWA C207. Bolts to be galvanized.

PART 3 EXECUTION

3.01 GENERAL:

- A. Pre-Inspection:
 - 1. All pipe shall be inspected post-delivery at assembly site, prior to further fabrication. Pipe with defects and damage in excess of relevant Standard shall be identified and marked for further inspection. If Engineer determines the pipe or portions of the pipe are acceptable, then defective section of pipe shall be cut and removed. Remaining pipe may be used for fusion of pipe strings.
- B. Work Site layout and assembly
 - 1. Contractor shall provide drawings and details of proposed fabrication yard and assembly methods and equipment.
 - 2. Pipe shall be handled with appropriate pipe slings. Use of cables and chains resulting in injurious damages to pipe will not be permitted
 - 3. Where pipelines are stored in marine environment, protect pipe from damage by winds, wave, tides and marine craft

3.02 HDPE JOINTING AND FUSING

- A. Thermal butt fusing to be in accordance with ASTM F2620.
- B. Use only qualified personnel for all welding operations (butt-fusion jointing of polyethylene pipe).
- C. Re-round ovalized pipe in fusing machine or by use of re-rounding clamps prior to fusing.
- D. Check the temperature and uniformity of temperature over the heating surface of the heating tool with a pyrometer on the first joint of the day and periodically during the day. Select multiple checkpoints to ensure uniform surface temperature.
- E. Use a data logging device with the hydraulic joining equipment to record fusion parameters of pressure, temperature, and time for each joint.

- F. Prior to commencement of the works provide Manufacturer's written bulletins on required heat and pressures. Use procedures to allow pressure readings during fusion to be accurately measured.
- G. Ensure pipe ends are clean and dry prior to commencing fusing and do not allow ends of pipe to become wet during fusion operation.
- H. During cold or inclement weather, provide adequate shelter over the pipe joining equipment while fusing for protection from the elements (i.e. cold, rain, or wind, etc.).
- I. Provide PE stub end ring at limits of each assembled pipe section.
- J. Temperature correct fused length of pipe line segment to ensure installed length conforms to design.
- K. Handle pipe by approved methods. Do not use chains or cables passed through pipe bore so that weight of pipe bears on pipe ends. Do not drag pipe in a manner which may scratch or otherwise damage the pipe.
- L. Temporary watertight plugs shall be utilized at the end of each working day to prevent the intrusion of silt, debris and water into the pipeline. When working in areas with a high potential for flooding of the pipe from groundwater, streams, storm drains, sewers and/or other means, the temporary plug shall be used on each pipe length during installation.
- M. In the event of flooding of the pipeline, all pipe laying shall cease until the pipeline has been thoroughly cleaned, as determined by the Engineer.
- N. When joined together, pipeline shall form a smooth continuous line and grade on straight sections and on curved sections (both vertical and horizontal) shall have uniform deflections within the required limits and conforming in general to the line and profile of adjacent roadway or easement. Location of rubber rings shall be determined with a checking gauge before backfilling the pipe.
- O. Pipe shall be joined and laid in accordance with the manufacturer's latest published instructions.
- P. Maximum lengths of fused HDPE pipe to be handled as one section shall be placed according to manufacturer's recommendations as to pipe size, pipe SDR and topography so as not to cause excessive gouging or surface abrasion; Maximum length of pipe to be assembled and stored on land not to exceed 400 ft.

3.03 TESTING

- A. Pre-Installation Testing
 - 1. Prior to installing pipe, each completed segment of HDPE pipe shall be pressure tested by hydrostatic means. Pipeline shall be visually assessed for leaks during test phase.
 - 2. Pressure test shall be recorded using automated recording device. The Engineer will provide Test Record form
 - 3. Expansion phase pressure shall be 275 KPa (40 psi)
 - 4. Test phase pressure shall be 205KPa (30 psi)

5. The test section should be completely filled with the test liquid, taking care to bleed off any trapped air. Venting at high points may be required to purge air pockets while the test section is filling. Venting may be provided by bleed valves or equipment vents.
6. The test procedure consists of initial expansion, and test phases. For the initial expansion phase, the test section is pressurized to test pressure and make-up test liquid is added as required to maintain maximum test pressure for four (4) hours. For the test phase, the test pressure is reduced by 70 KPa (10 psi). This is the target test pressure. If the pressure remains steady (within 5% of the target test pressure) for one hour, leakage is not indicated.
7. If leaks are discovered, depressurize the test section before repairing leaks. Leakage at a butt fusion joint may indicate imminent catastrophic rupture. Depressurize the test section immediately if butt fusion leakage is discovered. Leaks at fusion joints require the fusion joint to be cut out and re-done.
8. If the pressure leak test is not completed due to leakage, equipment failure, etc., the test section should be de-pressurized and repairs made. Allow the test section to remain depressurized for at least eight (8) hours before retesting.

END OF SECTION

SECTION 15103

STAINLESS STEEL SLIDE GATES AND APPURTENANCES

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Install and test stainless steel slide gates and appurtenances, provided by the Owner, as indicated and in compliance with Contract Documents.

1.02 REFERENCES:

- A. ASTM International (ASTM):
 - 1. A240: Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 - 2. A276: Standard Specifications for Stainless Steel Bars and Shapes.
 - 3. B584: Standard Specification for Copper Alloy Sand Castings for General Applications.
 - 4. D2000: Standard Classification System for Rubber Products in Automotive Applications.
 - 5. D4020: Standard Specification for Ultra-High-Molecular-Weight Polyethylene Molding and Extrusion Materials.
- B. American Welding Society Code.
- C. American Water Works Association (AWWA):
 - 1. C561: Fabricated Stainless Steel Slide Gates.

1.03 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Section 01400.
- B. Welding: In accordance with latest applicable American Welding Society Code, ASME Welding Code.
- C. Services of Manufacturer's Representative as stated in Section 01400 and as specified herein.
- D. Provide services of factory-trained Service Technician, specifically trained on type of equipment specified:

1. Service Technician must be present on site for all items listed below. Person-day requirements listed are exclusive of travel time, and do not relieve Contractor of the obligation to place equipment in operation as specified.
2. Installation: Inspect grouting, location of anchor bolts; setting, leveling, alignment, field erection:
 - a. 2 person-days.
3. Functional Testing: Calibrate, check alignment, and perform a functional test. Tests to include all items specified.
 - a. 2 person-days.
4. Field Performance Testing: Field performance test equipment specified.
 - a. 2 person-days.
5. Credit to the Owner, all unused service person-days specified above, at the manufacturer's published field service rate.
6. Any additional time required of the factory trained service technician to assist in placing the equipment in operation, or testing or to correct deficiencies in installation, equipment or material shall be provided at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- A. Stainless Steel Slide Gates:
 1. Whipps

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Install items in accordance with shop drawings, manufacturer's printed instructions and as indicated.
- B. Clean debris, dirt, and gravel, from inside of gates and channels before placing gates.
- C. Install slide gates in completely assembled condition.
- D. Erect and support slide gates in positions free from distortion and strain on appurtenances during handling and installation.

- E. Inspect material for defects in workmanship and material.
- F. Clean out debris and foreign material from gate opening and seats, test operating mechanisms to check proper functioning, and check nuts and bolts for tightness. Repair gates and other equipment which do not operate easily or are otherwise defective.
- G. Set floorstand operators and stem guides so stems run smoothly in true alignment. Anchor guides firmly to walls. Check distances from centerlines of gates to operating level or base of floorstand and adjust if necessary to suit actual conditions of installation.

3.02 FIELD TESTING:

- A. Field testing will not be conducted without a procedure accepted by the Engineer for all testing equipment and a completed and signed pretesting check list. See Division 1 for checklist.
- B. After installation of gates, and after inspection, operation, testing and adjustment have been completed by the manufacturer's field service technician, conduct operating and leakage test for each gate in presence of the Engineer to determine its ability to operate as specified, and to operate smoothly without jamming under specified conditions.
- C. Test all operators.
- D. Leakage Test: Leakage not to exceed 0.05 gpm per foot of seal perimeter.
 - 1. Conduct tests at design heads shown in the slide gate schedule.
- E. Immediately correct or replace all defects or defective equipment revealed by or noted during tests at no additional cost to the Owner.
- F. Repeat tests until specified results are obtained.
- G. Contractor to provide all water labor, piping, testing equipment for conducting tests.
- H. Make all adjustments necessary to place equipment in specified working order at time of above tests.
- I. Remove and replace equipment at no additional cost to the Owner with equipment that will meet all requirements specified and indicated if unable to demonstrate to the satisfaction of the Engineer that equipment will perform the service specified, indicated and as submitted.

3.03 FIELD TOUCH-UP PAINTING:

- A. After installation and testing accepted by the Engineer, apply touch-up paint to all scratched, abraded and damaged shop painted surfaces. Coating type and color shall match shop painting.

3.04 CONTRACT CLOSEOUT:

- A. Provide in accordance with Section 01700.

END OF SECTION

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Appendix A



MEMORANDUM

DATE: November 3, 2022

TO: Peter D. DiLorenzo – Providence Water

CC: Timothy P. Thies, P.E. – Pare Corporation
Mike Moulico – Pare Corporation
Matt DaSilva – Pare Corporation

FROM: Shane P. Driscoll, P.E.

RE: **Sedimentation Surveying Program**
Providence Water Supply Board
Providence, Rhode Island
(Pare Project No. 14256.35)

The purpose of this memorandum is to provide the Providence Water Supply Board (Providence Water) with a summary of Pare Corporation's (Pare) Sedimentation Surveying Program at the Philip J. Holton Water Purification Works facility located at 61 North Road in Scituate, Rhode Island. In particular, the program included sludge surveying and analysis in Providence Water's South Sedimentation Basin, settling lagoons (identified as Lagoons 1A, 1B, Intermediate, and 2) and drying beds (identified as Drying Beds 1, 2, and 3). The following sections include the project background, survey and sampling methodology and analysis, and next steps in support of Providence Water's recently initiated plant residuals and backwash recycle upgrades project.

BACKGROUND

Providence Water has recently observed an increase in turbidity in water entering their filtration system from their South Sedimentation Basin. Their North Sedimentation Basin is currently offline for maintenance, as each basin is periodically drained and flushed of accumulated sludge resulting from the sedimentation process. It appears that this reduction in sedimentation basin volume could be contributing to the increase in turbidity observed at the plant. It was reported that Providence Water has also increased their ferric sulfate dosage rate, which would result in more flocculated colloidal material in the basin. To evaluate the sludge volume in the south basin, Providence Water requested that Pare perform a sedimentation survey of the system. This survey will also support the plant residuals and backwash recycle upgrades project, which will include sludge removal from the South Sedimentation Basin and modifications to their existing lagoon and drying bed system. In support of the modifications to the lagoon and drying bed system, Providence Water has requested that Pare perform a sedimentation survey of these areas as well as part of the Sedimentation Survey Program.

The program also included a sampling of sludge in the basin and lagoon system for percent solids and specific gravity. A total of twenty (20) samples were collected as part of the program, including six (6) from the South Sedimentation Basin and two (2) from each lagoon and drying bed. Samples were collected in laboratory-provided glassware and transported off-site for analysis of percent solids and specific gravity by the New England Testing Laboratory (NETLAB) in West Warwick, Rhode Island.

SURVEY METHODOLOGY & ANALYSIS

South Sedimentation Basin - Pare performed a bathymetric survey of the South Sedimentation Basin to find the depth to the top of sludge – defined as consolidated sludge probe refusal – utilizing Providence Water’s Leica GPS system to collect data points using a local base station established on-site to the NAVD88 datum. A 10-foot electric-powered aluminum boat was supplied by Providence Water to allow Pare personnel to traverse the basin, creating a grid of points approximately 30 feet apart. The top of sludge GPS points were recorded using a stadia rod lowered into the basin, with elevation data collected at each point once refusal was reached. These GPS data points were imported into AutoCAD Civil 3D to establish a top of sludge surface and volume for the basin sludge. To develop the sludge volume, Pare utilized existing facility record drawings to establish a base surface to represent the bottom limits of the basin, assuming the basin’s bottom surface channels were filled with sludge. The calculated sludge volume can be found in *Table 1* and is presented in *Attachment 1 – South Sedimentation Basin Plan*.

Settling Lagoons - Similar to the methodology performed for the South Sedimentation Basin, Pare personnel performed bathymetric surveys of the settling lagoons. While the sedimentation basin utilized existing record drawings for the bottom surfaces, there were no records of the bottom surface for the lagoons. Therefore, Pare personnel collected two (2) depth layers for each lagoon – the top layer of sludge and depth-to-refusal (bottom) – to establish a volume of sludge in each lagoon. Points were recorded using a ¾-inch section of steel pipe, connected to the Leica GPS system, to ensure depth-to-refusal (bottom) was achieved. The GPS data points were then imported into Civil 3D and surfaces were created for the top of sludge and sludge bottom. These surfaces were then used to create the volume of sludge in each lagoon. The calculated sludge volumes can be found in *Table 1* and are presented in *Attachment 2 – Lagoons Plan*.

Drying Beds - Pare personnel also performed bathymetric surveys of the drying beds. Similar to the settling lagoons, there were no records of the bottom surface for the drying beds. Therefore, Pare personnel established a top and bottom layer for each drying bed by collecting a limited number of GPS points that were representative of the top layer of sludge and depth-to-sludge refusal for each drying bed. Bottom points were collected by extending the GPS rod down to refusal and recording the elevation at the bottom of each location. Pare then collected GPS points for the top layer of sludge. These GPS data points were then imported into AutoCAD Civil 3D and surfaces were created for the top of sludge and sludge bottom. These surfaces were then used to create the volume of sludge in each drying bed. The calculated sludge volumes can be found in *Table 1* and are presented in *Attachment 3 – Drying Beds Plan*.

Table 1 – Sludge Volumes

Sedimentation Surveying Program – Sludge Volumes		
System Identification	Sludge Volume (cu. yds)	Total Depth of Sludge (ft)
South Basin	129,500 ±	0-12
Lagoon 1A	14,500 ±	0-4
Lagoon 1B	45,000 ±	0-12
Lagoon Intermediate	2,000 ±	0-8
Lagoon 2	7,500 ±	0-3
Drying Bed 1	3,350 ±	0-4.5
Drying Bed 2	5,600 ±	0-6
Drying Bed 3	850 ±	0-3

SAMPLING METHODOLOGY & ANALYSIS

South Sedimentation Basin - Utilizing the volume profile created from the bathymetric survey of the south basin, Pare selected two (2) sample locations corresponding to areas with significant sludge accumulation – one in the southwestern section of the basin and one in the southeastern section of the basin. At each location, a total of three (3) composite samples (i.e., top, middle, bottom) were collected, with the depth range of each sample determined by visual observations of the sludge's thickness and color. Samples S-1 and S-4 included sludge at a depth range of 0-4 ft from the bottom, S-2 and S-5 at a depth range of 4-6 ft from the bottom, and S-3 and S-6 at a depth range 6-10 ft. The boat and GPS were used to navigate to the sample locations and a sludge collection system (i.e., “Sludge Judge”) was used to collect the samples, which allowed the ferric sulfate flocculant to settle out within the tubing prior to draining into a five-gallon bucket for decanting. Once the decanting was complete, the samples were composited in laboratory-provided glassware and analyzed for percent solids and specific gravity by NETLAB. Analytical results can be found below in *Table 2* and are presented in *Attachment 1 – South Sedimentation Basin Plan* and *Attachment 4 – Analytical Reports*.

Table 2 – South Sedimentation Basin Analytical Results

South Sedimentation Basin		
Sample ID	Percent Solids (%)	Specific Gravity
S-1	5.30	1.0427
S-2	1.38	1.0118
S-3	0.0077	1.0089
S-4	6.19	1.0602
S-5	0.0170	1.0089
S-6	0.0065	1.0009

Settling Lagoons - Pare personnel collected samples from each settling lagoon. A total of eight (8) samples were collected from the settling lagoons – two (2) samples from each lagoon – with sample locations corresponding to areas with significant amounts of sludge accumulation. Lagoon samples were taken at depths ranging from 1 foot to 6 feet from refusal (*see Attachment 2*). Similar to the sedimentation basin sampling methodology, a “Sludge Judge” was used to collect the samples, with a five-gallon bucket used to decant the samples. Once the decanting was complete, the samples were collected in laboratory-provided glassware and analyzed for percent solids and specific gravity by NETLAB. Sample locations were recorded using the Leica GPS system. Analytical results can be found below in *Table 3* and are presented in *Attachment 2 – Lagoons Plan* and *Attachment 4 – Analytical Reports*.

Table 3 – Settling Lagoons Analytical Results

Settling Lagoons			
Sample ID	Lagoon ID	Percent Solids (%)	Specific Gravity
L1A-S1	Lagoon 1A	0.0017	1.0566
L1A-S2	Lagoon 1A	0.0263	1.0439
L1B-S1	Lagoon 1B	0.0249	1.0312
L1B-S2	Lagoon 1B	6.03	1.0530
IN-S1	Intermediate Lagoon	0.0411	1.0505
IN-S2	Intermediate Lagoon	0.0175	1.0304
L2-S1	Lagoon 2	0.0475	1.0820
L2-S2	Lagoon 2	0.0029	1.0310

Drying Beds - Pare personnel collected samples from each drying bed. A total of six (6) samples were collected from the drying beds – two (2) samples from each drying bed. Each sample was collected as a composite sample representing the full depth from the top of sludge to bottom of sludge in each drying bed. The sludge profile was established at each sample location utilizing a hand-dug test pit that identified the depth to the interface between the sludge and the native soil. The samples were collected in laboratory-provided glassware and analyzed for percent solids and specific gravity by NETLAB. Sample locations were recorded using the Leica GPS system. Analytical results can be found below in *Table 4* and are presented in *Attachment 3 – Drying Beds Plan* and *Attachment 4 – Analytical Reports*.

Table 4 – Drying Beds Analytical Results

Drying Beds			
Sample ID	Drying Bed ID	Percent Solids (%)	Specific Gravity
DB1-S1	Drying Bed 1	41.7	1.4142
DB1-S2	Drying Bed 1	54.9	1.4036
DB2-S1	Drying Bed 2	22.6	1.6240
DB2-S2	Drying Bed 2	38.8	1.2246
DB3-S1	Drying Bed 3	48.2	1.5333
DB3-S2	Drying Bed 3	68.4	1.7310

NEXT STEPS

The results of the sampling program provided herein will be utilized to assist Providence Water in the execution of their plant residuals and backwash recycle upgrades project, which will include sludge removal from the South Sedimentation Basin and modifications to their existing lagoon and drying bed system.

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When you've had an opportunity to review this information, please give me a call to discuss it.

Attachments:

- 1 – South Sedimentation Basin Plan
- 2 – Lagoons Plan
- 3 – Drying Beds Plan
- 4 – Analytical Reports



SCALE ADJUSTMENT GUIDE

0" 1"

BAR IS ONE INCH ON ORIGINAL DRAWING

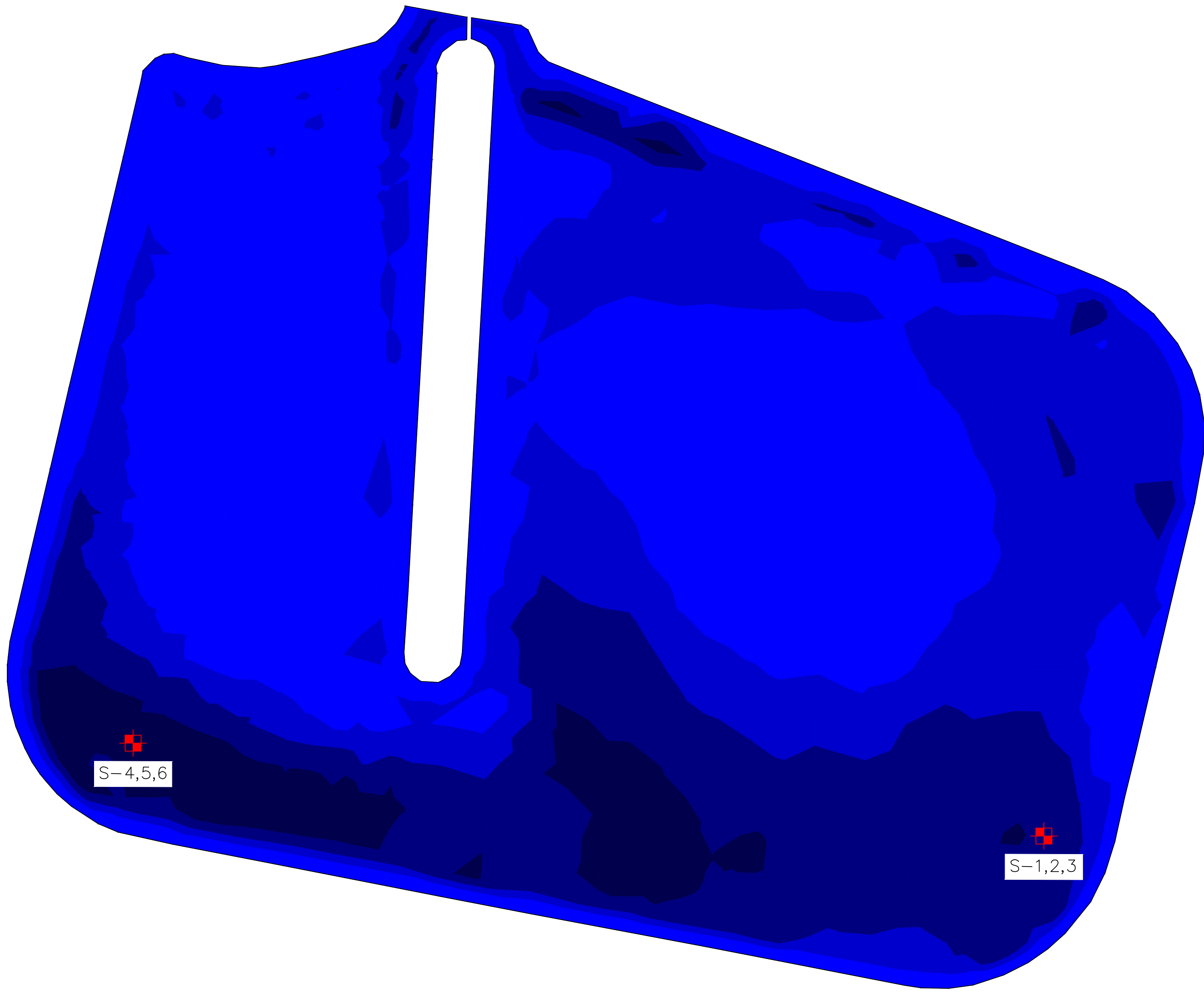
Providence Water Supply Board Sedimentation Survey

REVISIONS:





PROJECT NO.:	14256.35
DATE:	SEPTEMBER 2022
SCALE:	AS NOTED
DESIGNED BY:	MGM
CHECKED BY:	SPD
DRAWN BY:	MGM
APPROVED BY:	SPD
DRAWING TITLE:	

SOUTH SEDIMENTATION BASIN PLAN


RAWING NO.:
XBT-1
SHEET NO. 1 OF 3



SOUTH SEDIMENTATION BASIN - BATHYMETRIC SURVEY

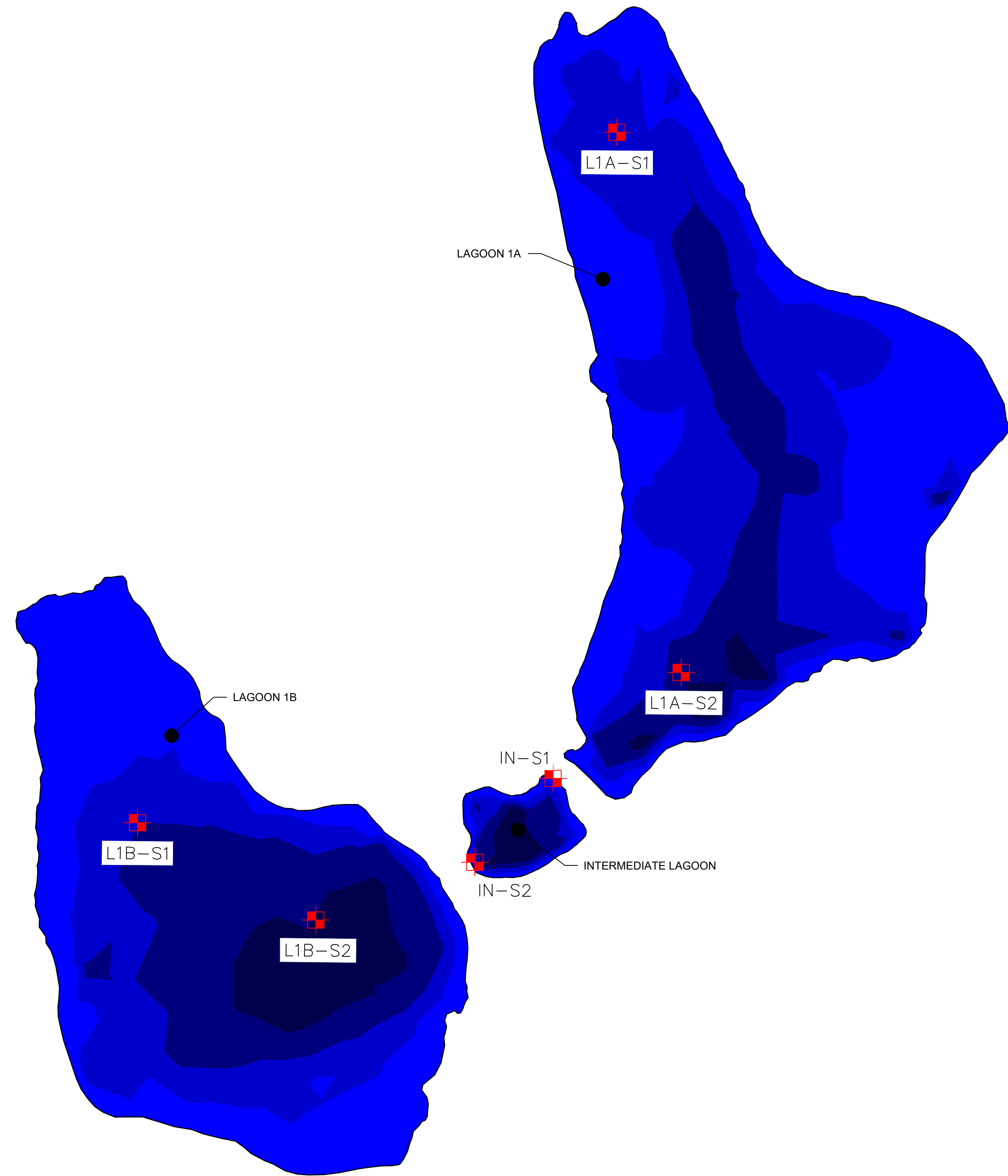
South Sedimentation Basin		
Sludge Depth (Minimum, ft)	Sludge Depth (Maximum, ft)	Color
0.00	3.00	
3.00	6.00	
6.00	9.00	
9.00	12.00	
Approx. Sludge Volume = 129,000 ± cu. yds		





SLUDGE VOLUME LEGEND

South Sedimentation Basin			
Sample ID	Depth from Bottom (ft)	Percent Solids (%)	Specific Gravity
S-1	0-4	5.30	1.0427
S-2	4-6	1.38	1.0118
S-3	6-10	0.008	1.0089
S-4	0-4	6.19	1.0602
S-5	4-6	0.017	1.0089
S-6	6-10	0.007	1.0009
Symbology:  S-X			

ANALYTICAL RESULTS TABLE

DRAFT



Lagoons			
Sample ID	Depth from Bottom (ft)	Percent Solids (%)	Specific Gravity
Lagoon 1A			
L1A-S1	1	0.002	1.0556
L1A-S2	1	0.026	1.0439
Symbology:  L1A-SX			
Intermediate Lagoon			
IN-S1	6	0.041	1.0505
IN-S2	6	0.018	1.0304
Symbology:  IN-SX			
Lagoon 1B			
L1B-S1	3	0.025	1.0312
L1B-S2	2	6.03	1.0530
Symbology:  L1B-SX			
Lagoon 2			
L2-S1	1	0.048	1.0820
L2-S2	1	0.003	1.0310
Symbology:  L2-SX			

ANALYTICAL RESULTS TABLE

DRAFT

REVISIONS:	
PROJECT NO.:	14256.35
DATE:	SEPTEMBER 2022
SCALE:	AS NOTED
DESIGNED BY:	MGM
CHECKED BY:	SPD
DRAWN BY:	MGM
APPROVED BY:	SPD
DRAWING TITLE:	
LAGOON	
1A, INTERMEDIATE, 1B, 2	
PLAN	
DRAWING NO.:	
XBT-2	
SHEET NO.	2 OF 3



SCALE ADJUSTMENT GUIDE

0" 1"

BAR IS ONE INCH ON ORIGINAL DRAWING

Providence Water Supply Board Sedimentation Survey

REVISIONS:

[illegible]

PROJECT NO.:	14256.35
DATE:	SEPTEMBER 2022
SCALE:	AS NOTED
DESIGNED BY:	MGM
CHECKED BY:	SPD
DRAWN BY:	MGM
APPROVED BY:	SPD

RAWING TITLE:
 DRYING BEDS
 1, 2, 3
 PLAN

RAWING NO.:
XBT-3
HEET NO. 3 OF 3



SLUDGE VOLUME LEGEND

ANALYTICAL RESULTS TABLE

DRYING BEDS - BATHYMETRIC SURVEY

SCALE: 1"=40'

DRAFT



New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 2H18040
Client Project: Providence Water

Report Date: 29-August-2022

Prepared for:

Michael Moulico
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 08/18/22. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 2H18040. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
2H18040-01	S-1	Soil	08/09/2022	08/18/2022
2H18040-02	S-2	Soil	08/09/2022	08/18/2022
2H18040-03	S-3	Water	08/09/2022	08/18/2022
2H18040-04	S-4	Soil	08/09/2022	08/18/2022
2H18040-05	S-5	Water	08/09/2022	08/18/2022
2H18040-06	S-6	Water	08/09/2022	08/18/2022

DRAFT

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

S-1 (Lab Number: 2H18040-01)

Analysis

Percent Total Solids

Method

Gravimetric

S-2 (Lab Number: 2H18040-02)

Analysis

Percent Total Solids

Method

Gravimetric

S-3 (Lab Number: 2H18040-03)

Analysis

Total Solids

Method

SM2540-G (11)

S-4 (Lab Number: 2H18040-04)

Analysis

Percent Total Solids

Method

Gravimetric

S-5 (Lab Number: 2H18040-05)

Analysis

Total Solids

Method

SM2540-G (11)

S-6 (Lab Number: 2H18040-06)

Analysis

Total Solids

Method

SM2540-G (11)

Method References

Annual Book of ASTM Standards: Water and Environmental Technology, American Society for Testing and Materials

Standard Methods for the Examination of Water and Wastewater, 20th Edition, APHA/ AWWA-WPCF, 1998

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt:

The samples associated with this work order were received in appropriately cooled and preserved containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Exceptions: None

DRAFT

Results: General Chemistry

Sample: S-1
Lab Number: 2H18040-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Solids, Percent	5.30		0.05	Percent	08/18/22	08/19/22

DRAFT

Results: General Chemistry

Sample: S-2
Lab Number: 2H18040-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Solids, Percent	1.38		0.05	Percent	08/18/22	08/19/22

DRAFT

Results: General Chemistry

Sample: S-3
Lab Number: 2H18040-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total solids (TS)	7700		10.0	mg/L	08/18/22	08/18/22

DRAFT

Results: General Chemistry

Sample: S-4
Lab Number: 2H18040-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Solids, Percent	6.19		0.05	Percent	08/18/22	08/19/22

DRAFT

Results: General Chemistry

Sample: S-5
Lab Number: 2H18040-05 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total solids (TS)	17000		10.0	mg/L	08/18/22	08/18/22

DRAFT

Results: General Chemistry

Sample: S-6
Lab Number: 2H18040-06 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total solids (TS)	6540		10.0	mg/L	08/18/22	08/18/22

DRAFT



Sterling Analytical, Inc.

15 Agawam Avenue
West Springfield, MA 01089
Phone (413) 214-6541 Fax (413) 214-6842

Visit our website: www.sterlinganalytical.com

Report Date August 25, 2022

Customer	Contact	Laboratory Supervisor	eMail
New England Testing Lab, Inc	G. Dryfuse	Dale Percoski	customerservice@sterlinganalytical.com
Sample Description Analysis of Sludge Samples			

Samples Analyzed

Enclosed are Report No(s): 77845 to 77850

DRAFT

Thank you for your business

Dale Percoski

Dale Percoski, Laboratory Supervisor

8/25/2022

Date

ALL the information contained in this report has been reviewed for accuracy and checked against all quality control requirements outlined in each applicable method.

This report may not be reproduced, except in full, without written approval from Sterling Analytical, Inc.

Sample	Description	Source	Taken/Time		Received
77845	2H18040-01	New England Testing Lab, Inc	8/9/22	11:47	8/19/22
Parameter	Results	RDL	Method	Analyzed/Time	Tech
Specific Gravity	1.0427		SM2710F	08/24/22	sjr

Sample	Description	Source	Taken/Time		Received
77846	2H18040-02	New England Testing Lab, Inc	8/9/22	11:52	8/19/22
Parameter	Results	RDL	Method	Analyzed/Time	Tech
Specific Gravity	1.0118		SM2710F	08/24/22	sjr

Sample	Description	Source	Taken/Time	Received	
77847	2H18040-03	New England Testing Lab, Inc	8/9/22 11:57	8/19/22	
Parameter	Results	RDL	Method	Analyzed/Time	Tech
Specific Gravity	1.0089		SM2710F	08/24/22	sjr

Sample	Description	Source	Taken/Time		Received
77848	2H18040-04	New England Testing Lab, Inc	8/9/22	12:10	8/19/22
Parameter	Results	RDL	Method	Analyzed/Time	Tech
Specific Gravity	1.0602		SM2710F	08/24/22	sjr

Sample	Description	Source	Taken/Time		Received
77849	2H18040-06	New England Testing Lab, Inc	8/9/22	12:16	8/19/22
Parameter	Results	RDL	Method	Analyzed/Time	Tech
Specific Gravity	1.0089		SM2710F	08/24/22	sjr

Sample Description		Source	Taken/Time		Received
77850	2H18040-06	New England Testing Lab, Inc	8/9/22	12:22	8/19/22
Parameter	Results	RDL	Method	Analyzed/Time	Tech
Specific Gravity	1.0009		SM2710F	08/24/22	sjr

DRAFT

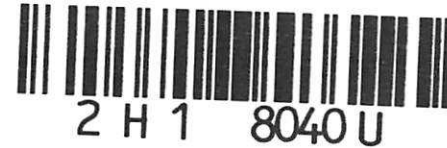
Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

DRAFT

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

CHAIN OF CUSTODY RECO

[illegible]

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH



New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 2H24050
Client Project: Providence Water

Report Date: 01-September-2022

Prepared for:

Michael Moulico
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 08/24/22. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 2H24050. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
2H24050-01	L1A-S1	Water	08/24/2022	08/24/2022
2H24050-02	L1A-S2	Water	08/24/2022	08/24/2022
2H24050-03	IN - S1	Water	08/24/2022	08/24/2022
2H24050-04	IN - S2	Water	08/24/2022	08/24/2022
2H24050-05	L1B- S1	Water	08/24/2022	08/24/2022
2H24050-06	L1B-S2	Soil	08/24/2022	08/24/2022
2H24050-07	L2-S1	Water	08/24/2022	08/24/2022
2H24050-08	L2- S2	Water	08/24/2022	08/24/2022
2H24050-09	DB1-S1	Soil	08/24/2022	08/24/2022
2H24050-10	DB2-S2	Soil	08/24/2022	08/24/2022
2H24050-11	DB1-S2	Soil	08/24/2022	08/24/2022
2H24050-12	DB2-S1	Soil	08/24/2022	08/24/2022
2H24050-13	DB3-S1	Soil	08/24/2022	08/24/2022
2H24050-14	DB3-S2	Soil	08/24/2022	08/24/2022

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

DB1-S1 (Lab Number: 2H24050-09)

Analysis

Percent Total Solids

Method

Gravimetric

DB1-S2 (Lab Number: 2H24050-11)

Analysis

Percent Total Solids

Method

Gravimetric

DB2-S1 (Lab Number: 2H24050-12)

Analysis

Percent Total Solids

Method

Gravimetric

DB2-S2 (Lab Number: 2H24050-10)

Analysis

Percent Total Solids

Method

Gravimetric

DB3-S1 (Lab Number: 2H24050-13)

Analysis

Percent Total Solids

Method

Gravimetric

DB3-S2 (Lab Number: 2H24050-14)

Analysis

Percent Total Solids

Method

Gravimetric

IN - S1 (Lab Number: 2H24050-03)

Analysis

Total Solids

Method

SM2540-C (11)

IN - S2 (Lab Number: 2H24050-04)

Analysis

Total Solids

Method

SM2540-C (11)

L1A-S1 (Lab Number: 2H24050-01)

Analysis

Total Solids

Method

SM2540-C (11)

L1A-S2 (Lab Number: 2H24050-02)

Analysis

Total Solids

Method

SM2540-C (11)

L1B- S1 (Lab Number: 2H24050-05)

Analysis

Total Solids

Method

SM2540-C (11)

L1B-S2 (Lab Number: 2H24050-06)

Analysis

Percent Total Solids

Method

Gravimetric

Request for Analysis (continued)

L2- S2 (Lab Number: 2H24050-08)

Analysis

Total Solids

Method

SM2540-C (11)

L2-S1 (Lab Number: 2H24050-07)

Analysis

Total Solids

Method

SM2540-C (11)

Method References

Annual Book of ASTM Standards: Water and Environmental Technology, American Society for Testing and Materials

Standard Methods for the Examination of Water and Wastewater, 20th Edition, APHA/ AWWA-WPCF, 1998

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

DRAFT

Case Narrative

Sample Receipt:

The samples associated with this work order were received in appropriately cooled and preserved containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Exceptions: None

Analysis:

All samples were prepared and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances. Results for all soil samples, unless otherwise indicated, are reported on a dry weight basis.

Exceptions: None

DRAFT

Results: General Chemistry

Sample: L1A-S1
Lab Number: 2H24050-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total solids (TS)	1700		10	mg/L	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: L1A-S2
Lab Number: 2H24050-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total solids (TS)	26300		10	mg/L	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: IN - S1
Lab Number: 2H24050-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total solids (TS)	41100		10	mg/L	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: IN - S2
Lab Number: 2H24050-04 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total solids (TS)	17500		10	mg/L	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: L1B- S1
Lab Number: 2H24050-05 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total solids (TS)	24900		10	mg/L	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: L1B-S2
Lab Number: 2H24050-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Solids, Percent	6.03		0.05	Percent	08/25/22	08/26/22

DRAFT

Results: General Chemistry

Sample: L2-S1
Lab Number: 2H24050-07 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total solids (TS)	47500		10	mg/L	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: L2- S2
Lab Number: 2H24050-08 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total solids (TS)	2850		10	mg/L	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: DB1-S1
Lab Number: 2H24050-09 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Solids, Percent	41.7		0.05	Percent	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: DB2-S2
Lab Number: 2H24050-10 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Solids, Percent	38.8		0.05	Percent	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: DB1-S2
Lab Number: 2H24050-11 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Solids, Percent	54.9		0.05	Percent	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: DB2-S1
Lab Number: 2H24050-12 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Solids, Percent	22.6		0.05	Percent	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: DB3-S1
Lab Number: 2H24050-13 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Solids, Percent	48.2		0.05	Percent	08/25/22	08/25/22

DRAFT

Results: General Chemistry

Sample: DB3-S2
Lab Number: 2H24050-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Solids, Percent	68.4		0.05	Percent	08/25/22	08/25/22

DRAFT



Sterling Analytical, Inc.

15 Agawam Avenue
West Springfield, MA 01089
Phone (413) 214-6541 Fax (413) 214-6842

Visit our website: www.sterlinganalytical.com

Report Date September 1, 2022

Customer	Contact	Laboratory Supervisor	eMail
New England Testing Lab, Inc	G. Dryfuse	Dale Percoski	customerservice@sterlinganalytical.com
Sample Description Analysis of Liquid & Solid Samples			

Samples Analyzed

Enclosed are Report No(s): 77911 to 77924

DRAFT

Thank you for your business

Dale Percoski

Dale Percoski, Laboratory Supervisor

9/1/2022

Date

ALL the information contained in this report has been reviewed for accuracy and checked against all quality control requirements outlined in each applicable method.

This report may not be reproduced, except in full, without written approval from Sterling Analytical, Inc.

Sample Description	Source	Taken/Time	Received
77911 2H24050-01	New England Testing Lab, Inc	8/24/22 00:00	8/26/22
Parameter	Results	RDL Method	Analyzed/Time Tech
Specific Gravity@ 70°F	1.0566	0.10SM2710 F	08/30/22 sjr

Sample Description	Source	Taken/Time	Received
77912 2H24050-02	New England Testing Lab, Inc	8/24/22 00:00	8/26/22
Parameter	Results	RDL Method	Analyzed/Time Tech
Specific Gravity@ 70°F	1.0439	0.10SM2710 F	08/30/22 sjr

Sample Description	Source	Taken/Time	Received
77913 2H24050-03	New England Testing Lab, Inc	8/24/22 00:00	8/26/22
Parameter	Results	RDL Method	Analyzed/Time Tech
Specific Gravity@ 70°F	1.0505	0.10SM2710 F	08/30/22 sjr

Sample Description	Source	Taken/Time	Received
77914 2H24050-04	New England Testing Lab, Inc	8/24/22 00:00	8/26/22
Parameter	Results	RDL Method	Analyzed/Time Tech
Specific Gravity@ 70°F	1.0304	0.10SM2710 F	08/30/22 sjr

Sample Description	Source	Taken/Time	Received
77915 2H24050-05	New England Testing Lab, Inc	8/24/22 00:00	8/26/22
Parameter	Results	RDL Method	Analyzed/Time Tech
Specific Gravity@ 70°F	1.0312	0.10SM2710 F	08/30/22 sjr

Sample Description	Source	Taken/Time	Received
77916 2H24050-06	New England Testing Lab, Inc	8/24/22 00:00	8/26/22
Parameter	Results	RDL Method	Analyzed/Time Tech
Density	1.0530 gm/mL	0.10 SM2710 F	08/30/22 sjr

Sample Description	Source	Taken/Time	Received
77917 2H24050-07	New England Testing Lab, Inc	8/24/22 00:00	8/26/22
Parameter	Results	RDL Method	Analyzed/Time Tech
Specific Gravity@ 70°F	1.0820	0.10 SM2710 F	08/30/22 sjr

Sample Description	Source	Taken/Time	Received
77918 2H24050-08	New England Testing Lab, Inc	8/24/22 00:00	8/26/22
Parameter	Results	RDL Method	Analyzed/Time Tech
Specific Gravity@ 70°F	1.0310	0.10 SM2710 F	08/30/22 sjr

Sample Description	Source	Taken/Time	Received
77919 2H24050-09	New England Testing Lab, Inc	8/24/22 00:00	8/26/22
Parameter	Results	RDL Method	Analyzed/Time Tech
Density	1.4142 gm/mL	0.10 SM2710 F	08/30/22 sjr

Sample Description	Source	Taken/Time	Received
77920 2H24050-10	New England Testing Lab, Inc	8/24/22 00:00	8/26/22
Parameter	Results	RDL Method	Analyzed/Time Tech
Density	1.4036 gm/mL	0.10 SM2710 F	08/30/22 sjr

Sample	Description	Source		Taken/Time		Received
77921	2H24050-11	New England Testing Lab, Inc		8/24/22	00:00	8/26/22
Parameter	Results		RDL	Method	Analyzed/Time	Tech
Density	1.6240	gm/mL	0.10	SM2710 F	08/30/22	sjr

Sample	Description	Source	Taken/Time	Received	
77922	2H24050-12	New England Testing Lab, Inc	8/24/22 00:00	8/26/22	
Parameter	Results	RDL	Method	Analyzed/Time	Tech
Density	1.2246	gm/mL	0.10 SM2710 F	08/30/22	sjr

Sample	Description	Source	Taken/Time	Received	
77923	2H24050-13	New England Testing Lab, Inc	8/24/22 00:00	8/26/22	
Parameter	Results	RDL	Method	Analyzed/Time	Tech
Density	1.5333	gm/mL	0.10 SM2710 F	08/30/22	sjr

Sample	Description	Source	Taken/Time	Received	
77924	2H24050-14	New England Testing Lab, Inc	8/24/22 00:00	8/26/22	
Parameter	Results	RDL	Method	Analyzed/Time	Tech
Density	1.7310 gm/mL	0.10	SM2710 F	08/30/22	sjr

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

DRAFT

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522



CHAIN OF CUSTODY RECORD

PROJ. NO. 14256.35		PROJECT NAME/LOCATION SEDIMENT SURVEY / PW, SCITUATE, RI				PRESERVATIVE	TESTS PERCENT SOLIDS SPECIFIC GRAVITY					REMARKS		
CLIENT PROVIDENCE WATER SUPPLY BOARD				AQUEOUS	SOIL								OTHER	NO. OF CONTAINERS
REPORT TO: mdasilva@parecorp.com INVOICE TO: PAGE ACCOUNTING														
DATE	TIME	COMP	GRAB	SAMPLE I.D.										
8/24		X		L1A-S1	X		1	NIA	X	X		AGUEOUS SG :		
				L1A-S2								EPA 2710 F		
				IN-S1								SOIL SG :		
				IN-S2								ASTM STANDARD		
				L1B-S1										
				L1B-S2										
				L2-S1										
				L2-S2										
				DB1-S1	X									
				DB2-S2										
				DB1-S2										
				DB2-S1										
				DB3-S1										
				DB3-S2										
Sampled by: (Signature) <i>Mrs. Dahn</i>		Date/Time 8/24 3:15		Received by: (Signature) <i>[Signature]</i>		Date/Time 8/24/20 3:15		Laboratory Remarks: Temp. received: 19 Cooled <input checked="" type="checkbox"/>		Special Instructions: List Specific Detection Limit Requirements:				
Relinquished by: (Signature) <i>Mrs. Dahn</i>		Date/Time 8/24 3:15		Received by: (Signature) <i>[Signature]</i>		Date/Time 8/24/20 3:15								
Relinquished by: (Signature)		Date/Time		Received for Laboratory by: (Signature)		Date/Time								
										Turnaround (Business Days) 7				

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH



Appendix B

Additional Sediment Sampling (From 12/30/2022)							
Location	Sample ID	Total Dissolved Solids (mg/L)	Percent Solids (%)	Specific Gravity	Depth to Bottom (ft.)	"Clear" Liquid Depth (ft.)	Sample Depth Compiled (ft.)
South Basin	S-7	--	5.06	1.0300	16.0	4.2	0-4 (Bottom)
	S-8	--	3.16	1.0116			4-8 (Middle)
	S-9	16000	0.016	1.0156			8-12 (Top)
South Basin	S-10	--	7.22	1.0242	17.9	14.45	0-4
South Basin	S-13	11800	0.0118	1.0035	22.0	17.0	0-5
South Basin	S-16	--	6.06	1.1933	20.9	13.1	0-4 (Bottom)
	S-17	13600	0.0136	1.0162			4-8 (Top)
Drying Bed 2	DB2-S3	--	26.0	1.2651			
Drying Bed 1	DB1-S1	--	59.1	1.5934			
Notes -- Sample Collected had enough solids present to be analyzed as a soil matrix by New England Testing Laboratory. S-9, S-13, and S-17 were classified as a water matrix, which yields results in TDS. TDS can be converted to Percent Solids by dividing the value by 1,000,000.							

Providence Water South Basin Sample Locations

Sample Locations are Approximate.

Legend

-  61 N Rd
-  Philip J. Holton Water purification Works



Appendix C



225 Chapman Street, 4th Floor
Providence, RI 02905
Telephone: 401.272.6000
Fax: 401.272.9185

Letter of Transmittal

TO: Hart Engineering Corp., Inc.
Highland Corporate Park
800 Scenic View Drive
Cumberland, RI 02864

DATE 10/6/14	JOB NO. 18340
ATTENTION Robert Mulligan.	
RE: Philip J. Holton Water Purification Plant Influent Facilities Improvements Project	

WE ARE SENDING YOU

- | | |
|---|---|
| <input checked="" type="checkbox"/> Attached | <input type="checkbox"/> Under separate cover via _____ the following items: |
| <input checked="" type="checkbox"/> Shop drawings | <input type="checkbox"/> Prints <input type="checkbox"/> Plans <input type="checkbox"/> Samples <input type="checkbox"/> Specifications |
| <input type="checkbox"/> Copy of letter | <input type="checkbox"/> Change order <input type="checkbox"/> _____ |

COPIES	DATE	NO.	DESCRIPTION
2			CDR-IFP #042: 11201-002 Rev 001: SG-1,2,3 to reflect 36X36WT and 6" offset

THESE ARE TRANSMITTED as checked below:

- | | | |
|---|---|--|
| <input type="checkbox"/> For approval | <input type="checkbox"/> Approved as submitted | <input type="checkbox"/> Resubmit ____ copies for approval |
| <input type="checkbox"/> For your use | <input checked="" type="checkbox"/> Approved as noted | <input type="checkbox"/> Submit ____ copies for distribution |
| <input type="checkbox"/> As requested | <input type="checkbox"/> Returned for corrections | <input type="checkbox"/> Return ____ corrected prints |
| <input type="checkbox"/> For review and comment | <input type="checkbox"/> _____ | |
| <input type="checkbox"/> FOR BIDS DUE _____ | <input type="checkbox"/> PRINTS RETURNED AFTER LOAN TO US | |

Remarks: Please see attached reviewed shop drawings; all given Action Codes 2, "Approved as Noted".

COPY TO Leo Fontaine (PWSB), B. Pociask, FILE SIGNED Allison Cunha

If enclosures are not as noted, kindly notify us at once.



225 Chapman Street, 4th Floor
Providence, RI 02905
Ph: (401) 272-6000

SUBMITTAL REVIEW COMMENTS

Providence Water Supply Board
Philip J. Holton Water Purification Plant
Influent Facilities Improvements Project

Date: 9-24-2014

Job No.: 18340

CDR|Maguire Shop Drawing Submittal No.: CDR-IFP-042

Contractor Control No.: 11201-002-B Rev 001

"SG-1,2,3 to reflect 36X36 and 6" stem offset"

Response:

This shop drawing submittal has been reviewed and has been assigned an Action Code #2 "*Approved as Noted.*"

1. Six inch stem offset is based on field measurements provided to Engineer.
2. Manufacturer shall insure that the six inch stem offset will not affect gate performance, racking or longevity.
3. The first stem guide anchor, closest to the slide gates, interferes with the bonnets of the bypass gate valves above. This guide should be moved and an additional stem guide should be added per offset distance requirements.

General

ACTION CODE

1. Approved
2. Approved As Noted
3. Revise And Resubmit
4. Disapproved
5. Noted-No Action Taken

Action Code: 2
Reviewed By: A. Cunha
Date Completed: 10-6-2014

Hart PWSB Site

60 North Road
Rte. 116
Hope, RI 02831

Phone: 401-828-1701
Fax: 401-828-1702

TRANSMITTAL

No. 00061

PROJECT: Influent Facilities Improvements

DATE: 9/23/2014

TO: Maguire Group, Inc.
225 Chapman St.
Providence, RI 02905

REF: Submittals

ATTN: Allison Cunha

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input checked="" type="checkbox"/> Shop Drawings	<input checked="" type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input checked="" type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	SENT VIA:	<input type="checkbox"/> Returned
<input type="checkbox"/> Specifications	<input checked="" type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input checked="" type="checkbox"/> Other: Made from Submittal	<input type="checkbox"/> Separate Cover Via: Mail	<input type="checkbox"/> Due Date:

ITEM	PACKAGE	SUBMITTAL	DRAWING	REV.	ITEM NO.	COPIES	DATE	DESCRIPTION	STATUS
SUB	11201	D-11201-002-E		001		5	9/23/2014	Dwg: Title: SG-1,2,3 Desc: SG-1,2,3 to reflect 36X36WT and 6" stem offset	NEW

CDR-1FP-042

1. APPROVED	4. REJECTED
<input checked="" type="checkbox"/> 2. APPROVED AS NOTED Resubmission not required	5. NOTED - No action required
3. REVISE AND RESUBMIT	(Check mark indicates action taken)

Review and approval is only for the limited purpose of checking general conformance with the design concept of the Project and the information given in the Contract Documents. Contractor is responsible for all dimensions, quantities and performance requirements to be confirmed and correlated at the job site; for all information that pertains to the fabrication processes and to techniques of construction including means and methods; and for all coordination of the work of all trades; and for assuring consistency with the Contract Documents.

Review and approval of drawings or items does not relieve the Contractor of the responsibility for deviations or errors and omissions in the shop drawings and for complying with all requirements of the Contract Documents.

CDR MAGUIRE INC.

Date: _____ By: _____

CC:

Signed: _____
Christopher Mulligan



P.O. Box 1058 • 370 South Athol Rd.
Athol, Massachusetts 01331
Phone: (978) 249-7924
Fax: (978) 249-3072

09/18/14

Hart Engineering Corp, Inc.
800 Scenic View Drive,
Cumberland, RI 02864

Subject: PWSB Philip J Holton WTP, RI.
Your P.O. # Letter of Intent.
Our Ref. # 22279 SUBMITTAL 04 (Section 11201 S.S. Fabricated Gates)

Attn: Gerald Lagesse,

Further to revised plan sheet mark-up for the Influent Control Chamber received 09/16/14 please find attached an electronic copy of the revised install, shop drawings & resubmittal information for gates SG-1, 2 & 3. To assist the reviewer, a brief summary of changes is provided beneath each modified document in italics. Whipps require approval / comments in writing & CO in hand before we can release materials for manufacture.

Section 15201 – Fabricated Gates

A-222-793.(A) Stainless Steel Sluice Gate Material and Engineering Standards
BC-955-251.(D) (3) Series 955 S.S. Sluice Gate Install, 36" x 36" **Tag: SG-1, 2, 3**
(Re-sized to suit existing 36" x 36" WT, stem offset 6" from C/L of gate to clear obstruction above).
BC-955-251-S2.(C) Sections
Revised to show connection to existing 36" x 36" wall thimble).
BC-955-251-S3.(B) FA16 Pedestal
BC-955-251-S4.(A) Stem Guide – Frame Mount
BC-955-251-S5.(C) Stem Guide – Wall (Extended)
(Length reduced by 1" to reflect elimination of 1" grout pad associated with oversized gates)

Standard Drawings

ST-100-054.(A) Stem Coupling

Miscellaneous

Adhesive Anchor Recommendations Sheet
I OM Fabricated Gates Installation, O&M Fabricated Gates – *Draft*
(1)-Year Warranty Whipps Standard (1) Year Warranty Document

Notes

1. Draft Installation, Operation & Maintenance manuals are provided for review, full project specific O&M's including 'As-Built' drawings to be submitted upon approval.

The proposed equipment is our best interpretation of the latest versions of available contract documents. It is Whipps, Inc. policy that all equipment is fabricated to approved submittal drawings only. Verification of all elevations and dimensions relating to any existing and / or proposed structures is the responsibility of the reviewing engineer and the contractor, therefore we ask careful review is provided to ensure the equipment is properly fabricated to suit desired locations.

Please don't hesitate to contact us with any questions or concerns you may have during the review of this submittal.

Sincerely,
Whipps, Inc.

Andrew Coverdale

cc. Atlantic Fluid Technology Inc.

Attn: Moji Amini

ENGINEERING STANDARDS	Whipps, Inc. 370 South Athol Rd, Athol MA 01331	DATE	03/15/14	DRAWN BY	APC
		S.O. NUMBER			
		22279			
STAINLESS STEEL SLUICE GATES <u>GATES SG-1 TO SG-5 ONLY</u>		DRAWING NUMBER		REV	
		A-222-793		A	

GATE DESIGN TO AWWA STANDARD C561-12
 WELDING TO AWS D1.6
 ALL WELDS & CONTAMINATED SURFACES SHALL BE MECHANICALLY DESCALED &
 PASSIVATED IN ACCORDANCE WITH STANDARD ASTM A380
 ALL WELDERS TO BE AWS CERTIFIED

SLIDE

- MIN THICKNESS 1/4" ALL PARTS
- MAX BENDING STRESS 15,000 PSI
- MAX BENDING DEFLECTION 1/720

FRAME

- MIN THICKNESS 1/4" ALL PARTS

STEM

- MAX UNSUPPORTED STEM LENGTH $\leq 200 L/r$ BASED ON PITCH DIAMETER

HOIST

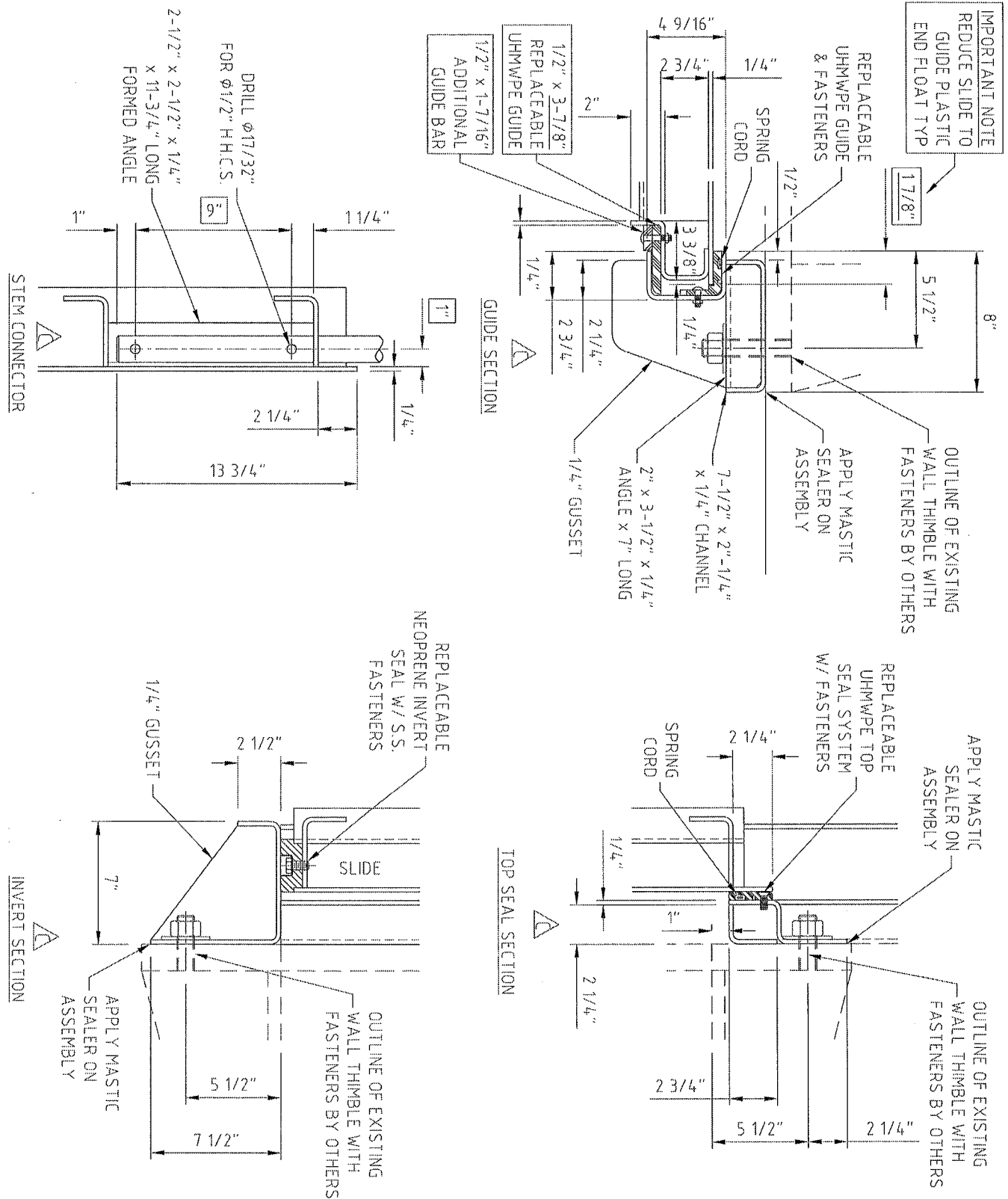
- LIMITORQUE ELECTRIC OPERATOR OR MANUAL GEARBOX
- MAX 40# PULL @ SPECIFIED OPERATING HEAD

MATERIAL STANDARDS


SLIDE PLATE	ASTM A240, TYPE 316L STAINLESS STEEL
SLIDE STIFFENERS	ASTM A240, TYPE 316L STAINLESS STEEL
SLIDE STEM CONNECTOR	ASTM A240, TYPE 316L STAINLESS STEEL
FRAME GUIDE	ASTM A240, TYPE 316L STAINLESS STEEL
FRAME INVERT	ASTM A240, TYPE 316L STAINLESS STEEL
FRAME SEALS	ASTM D4020 UHMWPE
COMPRESSION CORD	ASTM D-2000 NITRILE
INVERT SEAL	ASTM D2000, 55-60 DUROMETER EPDM
PEDESTAL	ASTM A240, TYPE 316L STAINLESS STEEL
STEM	ASTM A276, TYPE 316 STAINLESS STEEL
STEM COUPLING	ASTM A276, TYPE 316 STAINLESS STEEL
STEM GUIDE BUSHING	ASTM D4020 UHMWPE
STEM GUIDE BRACKET	ASTM A240, TYPE 316L STAINLESS STEEL
ADAPTOR PLATE	ASTM B221, ALUMINUM TYPE 6061-T6
DOWN STOP COLLAR	ASTM B221, ALUMINUM TYPE 6061-T6
OPERATOR CASTINGS (102)	ASTM B26, TYPE A380
STEM COVER	ASTM D3935 POLYCARBONATE W/ CAP & VENTS
GATE FASTENERS	ASTM A276, STAINLESS STEEL TYPE 316
ANCHOR FASTERNERS	ASTM A276, STAINLESS STEEL TYPE 316

WHIPPS INC MANUFACTURES ALL STAINLESS STEEL FORMED SECTIONS FROM ASTM A240 PLATE.
 ASTM A276 RELATES TO STAINLESS STEEL BAR (OPERATING STEM) & TUBE SECTIONS ONLY

370 SOUTH ATHOL RD.
ATHOL, MA 01331



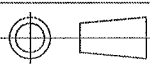
Title
**SERIES 955 SLIDE GATE
SECTION DETAILS**

Material **STAINLESS STEEL 316L** 
 Dwg. No. **BC-955-251-S2** S.O. No. **22279**

DO NOT SCALE
THIS DRAWING
Work to Dimensions
Linear Dimensions are Inches

Scale: 1:7.5

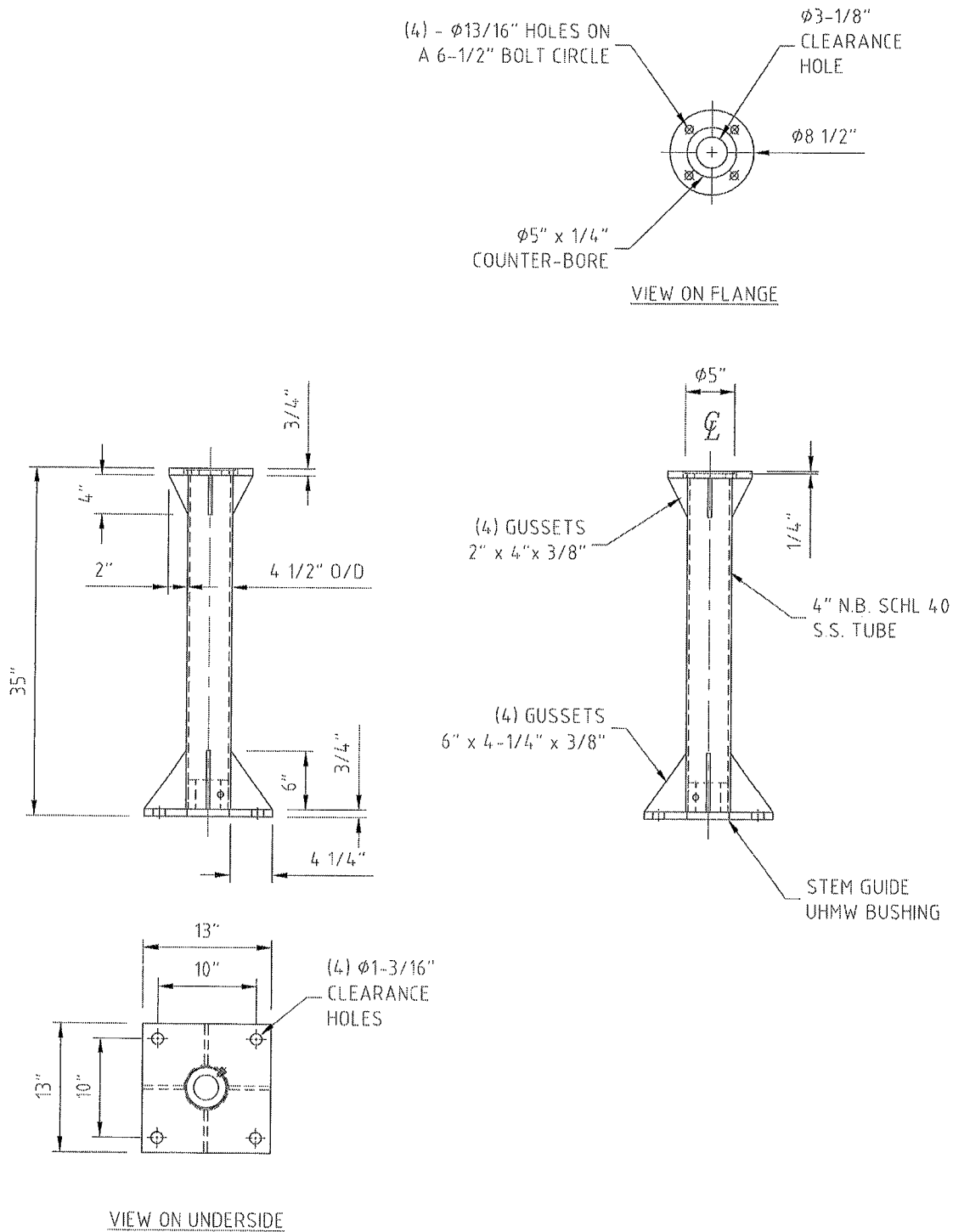
THIRD
ANGLE
PROJECTION



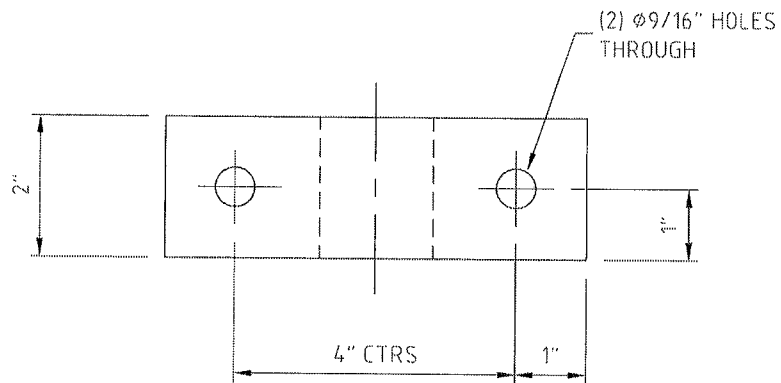
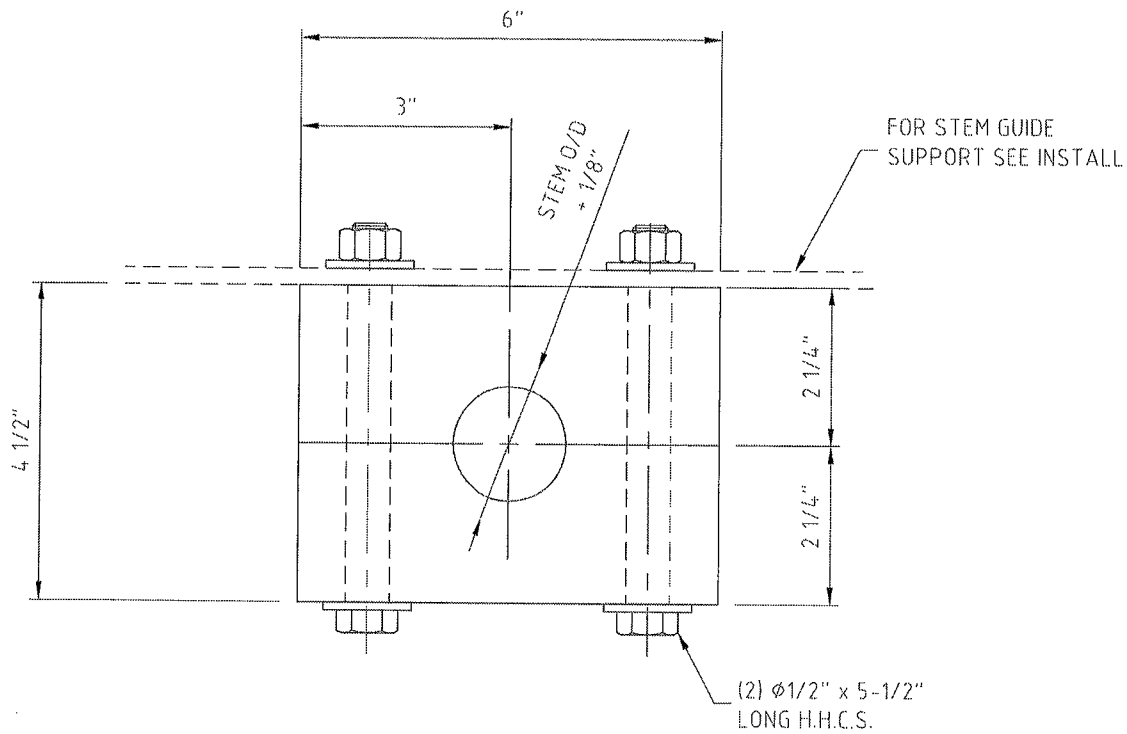
C	REVISED FOR DIRECT WT MOUNT.	09/17/14	APC	APC
B	SECTIONS UPDATED TO DEPICT EXISTING WALL C.I. THIMBLE.	03/15/14	APC	APC
A	Original Issue	10/28/13	APC	APC
Rev.	Rev. Record	Date	Eng.	Chk.

Whipps, Inc.

370 SOUTH ATHOL ROAD
ATHOL, MA 01331



Title FA16 PEDESTAL <div><div></div><div>B</div></div>		DO NOT SCALE THIS DRAWING Work to Dimensions Linear Dimensions are Inches								
		Material STAINLESS STEEL GRADE 316L		Scale: 1:15		B	MATERIAL SS316L WAS SS304L	03/15/14	APC	APC
						A	Original Issue	10/28/13	APC	APC
Drg. No. BC-955-251-S3		S O No. 22279		Rev.	Rev. Record	Date	Eng.	Chk.		
		THIRD ANGLE PROJECTION		<div><div></div><div></div></div>		Whipps, Inc. 370 SOUTH ATHOL RD. ATHOL, MA 01331				



Title STEM GUIDE - FRAME

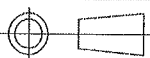
DO NOT SCALE
THIS DRAWING
Work to Dimensions
Linear Dimensions are Inches

Scale: 1:2.5

Material U.H.M.W.P.E.

Dwg. No. BC-955-251-S4 SO No. 22279

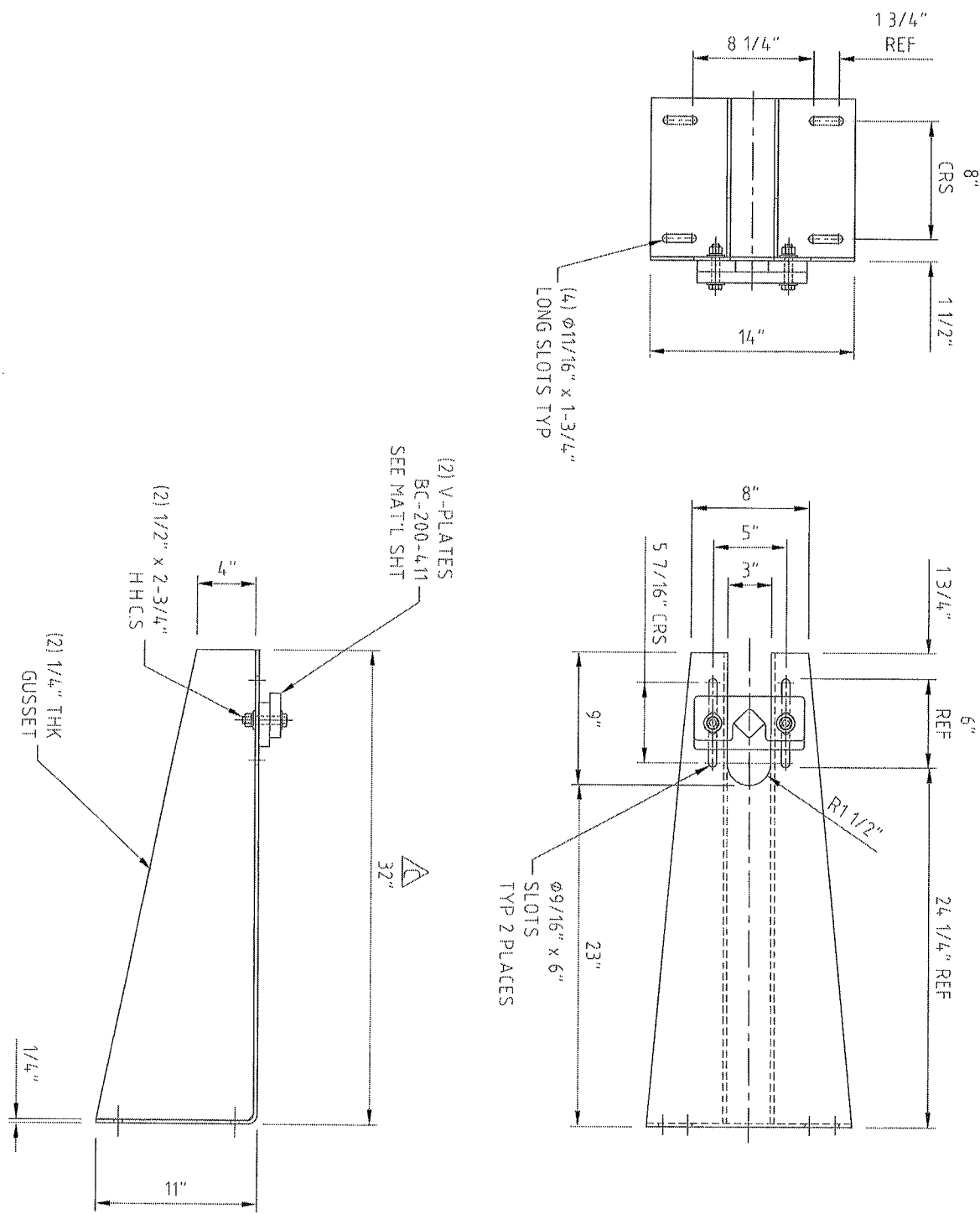
THIRD
ANGLE
PROJECTION






A	Original Issue	10/28/13	APC	APC	
Rev.	Rev. Record	Date	Eng.	Chk.	

Whipps, Inc.

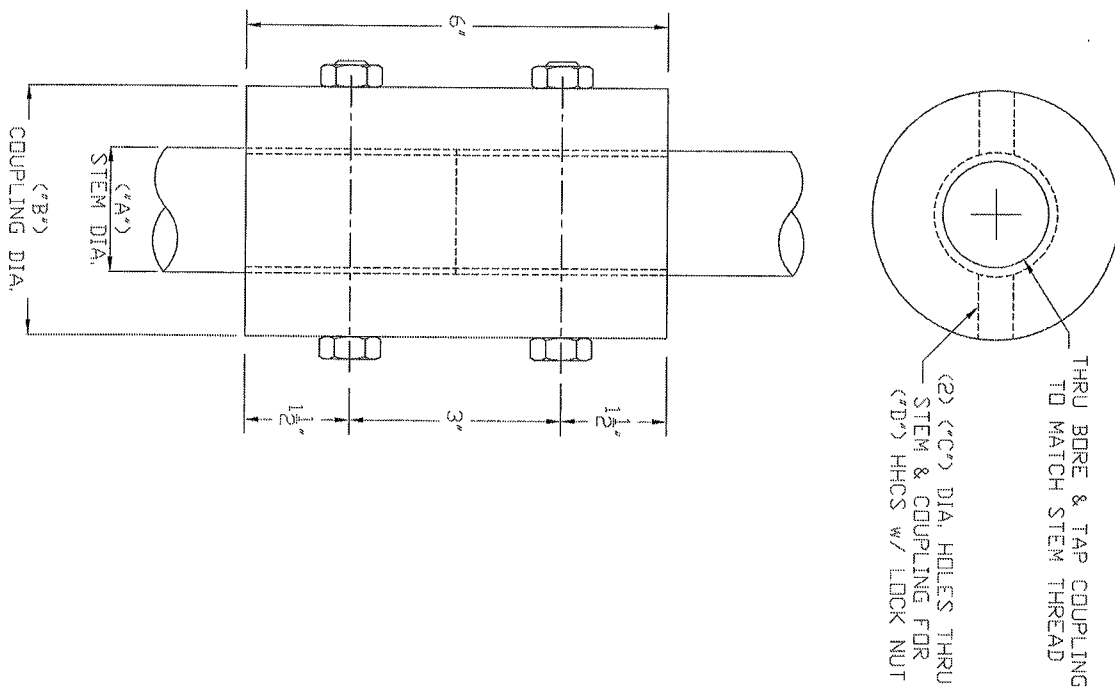
370 SOUTH ATHOL ROAD
ATHOL, MA 01331



Title		DO NOT SCALE THIS DRAWING Work to Dimensions Linear Dimensions are Inches													
STEM GUIDE - EXTENDED				C	O/ALL LENGTH 32" WAS 33"		09/17/14		APC		APC				
				B	MATERIAL SS316L WAS SS304L		03/15/14		APC		APC				
				A	Original Issue		10/28/13		APC		APC				
Material		STAINLESS STEEL GRADE 316L		Rev.	Rev. Record		Date		Eng.		Chk.				
Org No.		BC-955-251-S5		SO No.		22279							370 SOUTH ATHOL RD. ATHOL, MA 01331		

"A"	"B"	"C"	"D"
1-3/8"	2-1/2"	17/32"	1/2" x 3-1/2"
1-1/2"	2-1/2"	17/32"	1/2" x 3-1/2"
1-3/4"	2-3/4"	21/32"	5/8" x 3-3/4"
2"	3"	21/32"	5/8" x 3-3/4"
2-1/4"	3-1/2"	21/32"	5/8" x 4-1/4"
2-1/2"	4"	25/32"	3/4" x 5"
2-3/4"	4"	25/32"	3/4" x 5"
3"	4-1/2"	25/32"	3/4" x 5-1/4"
3-1/4"	5"	25/32"	3/4" x 6"

COUPLING MATERIAL - SEE ENG. SHEET



Title STEM COUPLING		DO NOT SCALE THIS DRAWING Work to Dimensions Linear Dimensions are Inches							
		Scale: FD		A Original Issue		10/26/12 KS			
Drg. No. ST-100-054		S.D. No.		Rev. Rev. Record		Date		Eng. Chk.	
THIRD ANGLE PROJECTION		Whipps, Inc.		370 SOUTH ATHOL RD. ATHOL, MA 01331					

ADHESIVE ANCHOR RECOMMENDATIONS

ADHESIVE SUPPLIED BY INSTALLER TO BE:

- **HILTI** HIT RE500 EPOXY ADHESIVE
- **ITW RAMSET / REDHEAD** EPCON CERAMIC 6 EPOXY ADHESIVE
- OR APPROVED EQUAL

Whipps Inc. Supplies the Threaded Rod, Nuts & Washers required for installation.

Unless otherwise noted, the embedment depth required for each size anchor will be

Anchor Diameter	Embedment Depth
1/2"	4-1/2"
5/8"	6"
3/4"	7"
7/8"	8"
1"	9"

Whipps, inc.

Installation Instructions

Fabricated Sluice Gate, Slide Gate, Weir Gate and Stop Gate

Table of Contents

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This manual should be read carefully before installation, operation,
and maintenance of Whipps, Inc. equipment

Introduction

This manual describes the recommended methods of installation, initial operation and maintenance for Whipps, Inc. fabricated sluice gates, slide gates, weir gates, operating mechanisms and related components. This manual should be used in conjunction with the approved installation drawings provided by Whipps, Inc.

Whipps, Inc. gates are custom built to meet the requirements of each specific application. The gates provided have low leakage characteristics. However, care must be taken in the handling, storage and installation of the equipment to ensure that it will function as intended and restrict leakage within the specified parameters.

The information in this manual is intended only as a recommendation for the proper and satisfactory installation of our equipment. Whipps, Inc. assumes no liability, expressed or implied, for the interpretation of the recommendations or faulty installation of the gates. Whipps, Inc.'s responsibility is limited to defects in manufacturing.

Handling and Storage

To prevent personal injury or equipment damage, follow standard safety procedures when handling equipment and be sure rigging equipment is properly set and in safe working condition.

When unloading the equipment from the box trailer or flat bed truck, use care during removal and storage. If the equipment has been shipped mounted to a wooden skid, lift the skidded material from the bottom.

If damage has occurred in transit, file the necessary report with the freight carrier. Please take photos of the damage if possible and contact Whipps, Inc. immediately.

Thoroughly review the packing list and compare the items on the list to the equipment received.

Although Whipps Inc. gates are durable and heavily constructed, care is necessary during storage, handling and installation. Stem threads and hoists have precision surfaces that should be protected from damage.

Equipment should be stored on planks or timbers on a flat surface to keep them off the ground and to prevent distortion. Equipment should be covered with tarps to protect the equipment from foreign matter while stored. Where there are a number of medium or small gates and where storage space is limited, it may be necessary to stack the gates with heavy timber blocking placed between the gates to prevent damage. When stacking equipment, take care to avoid damaging operator pinion shafts or other components that may extend upward or outward.

If electric actuators or hydraulic cylinders are provided, extra care is required to protect this precision equipment. This equipment should be stored indoors in accordance with the original manufacturer's instructions. For electric actuators, this may include the energizing of

heaters upon receipt of units to prevent corrosion of controls. For hydraulic cylinders, this includes storing cylinders vertically to prevent damage to seals.

To prevent bending when handling and storing, stems should be supported over their full length. They should be stored on a flat surface and the threaded portion should be covered and protected from damage. Couplings and thrust nuts (when applicable) may be shipped on the stems and may require removal prior to installation. Stop collars and anchor bolt hardware is normally shipped in a bag or box. Operating mechanisms should be handled and treated as precision machinery and protected accordingly.

Installation

Installation - General

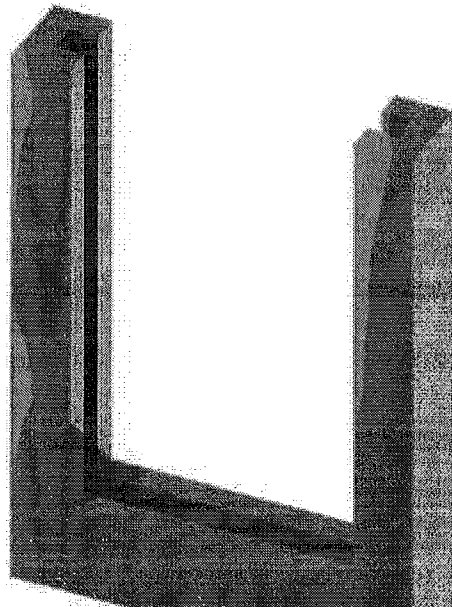
The most important aspects of a gate installation are listed in this section. If these recommendations are followed, a proper gate installation is assured.

Carefully review the installation drawing for each gate prior to installation to confirm proper setting and component location. If the installation drawings are not available, please contact Whipps Inc. at 978-249-7924 or www.whipps.com.

If up stop bolts (upward opening gates) or down stop bolts (downward opening gates) have been removed from the side frames to facilitate installation, they must be re-installed.

Installation - Embedded Frames

1. On gates with embedded side frames and/or an embedded invert member, box-outs or recesses are required in the channel walls and/or the channel floor during the concrete pour. The box-outs shall be of sufficient size to accommodate the gate. See installation drawings for dimensional information.
2. The frame must be well supported prior to the addition of grout to prevent distortion. Distortion of the frame will cause excessive operating effort and / or excessive leakage.
3. Care should be taken to keep the seals and slide free from grout.



Installation – Gate and/or Components Mounted with Anchor Bolts

When anchor bolts are furnished for mounting the gate or components such as pedestals, stem guides and/or wall brackets, the location and projection of the anchor bolts will be shown on the installation drawing. In most cases, epoxy or wedge type anchor bolts will be utilized. When

hook type anchor bolts are utilized, the anchor bolts should be placed in the holes drilled in the forms at locations indicated on the drawings. The hook ends of the anchor bolts should then be wired to the opposite form or to reinforcing rods to hold the bolts firmly in place.

Where gates are mounted with anchor bolts it is necessary that a uniform grout pad (non-shrink grout) or a resilient gasket be placed between the flange of the gate and the concrete wall. This grout or gasket is necessary to serve as a seal between the gate and wall and the type will be indicated on the installation drawings. The projection of the anchor bolts, shown on the installation drawings, includes provisions for the grout or gasket. Grout pads might also be required for pedestals, stem guides or wall brackets.

When a gasket is utilized to seal between the gate and the wall, the wall will need to be straight and plumb. If the wall is not straight and plumb, leakage can occur between the gate and the wall. Removal of the gate, modifications to the wall and re-installation of the gate may be required to rectify this situation.

Gates should not be mounted directly to a wall without grout or a gasket as this will result in leakage between the gate and wall.

1. All anchor bolts should be checked to prior to installation to ensure that the threads are undamaged. Anchor bolts should be installed as recommended by the anchor bolt manufacturer.
2. **Do not install the gates without mounting the jacking nuts on the anchor bolts as shown on the installation drawing.** If the jacking nuts are not installed and the outside nuts are over tightened, frame distortion can occur and this can lead to excessive leakage. Frame distortion can pull the seal away from the slide thus creating a path for leakage.



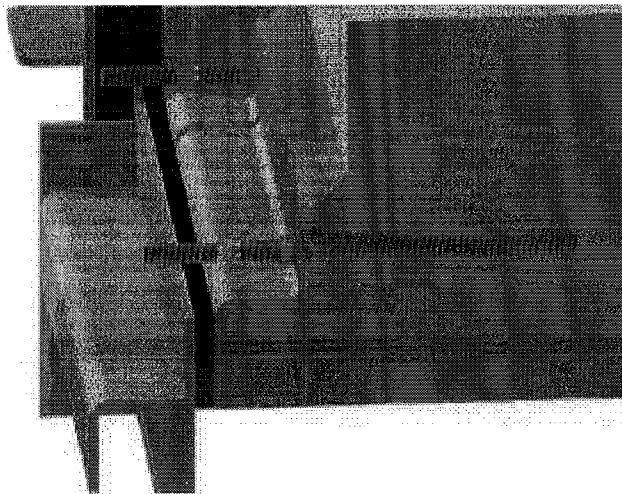
3. Two nuts will be provided for each anchor bolt that requires a jacking nut. Refer to the installation drawings for details. The jacking nut should be installed on the anchor bolt prior to mounting the gate, leaving approximately 1 inch for the insertion of grout. The jacking nut needs to be positioned to ensure that the gate will be mounted true and plumb, even if the concrete wall is not straight.
4. After anchor bolt and jacking nut installation, the gate should be lifted and carefully set in place in such a way as to not damage the threads on the bolts. After the gate is mounted on the anchor bolts, attach the other nuts on the anchor bolts. The use of the double nut arrangement helps to ensure that the gate will be mounted straight and plumb and can be firmly tightened into position without distortion.

5. Horizontal Invert and Top Seals – Special Care:

Wall mounted gates that have a horizontal invert seal, or horizontal top seal: extra care will be required to insure the correct seal compress against the slide plate to insure minimum amount of leakage. This may require that the gate frame with horizontal seals, to be jacked away from the concrete wall to apply more force on the seal that is in contact with the slide plate. This is accomplished by using the jacking nut that was installed the anchor studs behind the horizontal seal. When properly adjusted, one should not be able to slide a 0.004 feeler gauge between the seal and the gate disc. **This is one of the most important procedures on installing gates with a horizontal seal member.**

6. With the gate flange located approximately 1 inch from the wall, forms should be mounted around the flange and a non-shrink grout should be placed between the flange and the concrete wall. The grout needs to be completely applied around the perimeter of the gate as shown on the installation drawings. All voids should be filled with grout to ensure that leakage cannot occur between the gate and the wall. Dry packing grout will not produce a proper water seal and should not be considered.
7. Care should be taken to avoid getting grout on the seals or the slide. Extra care should be taken on gates with top seals. All grout that adheres to the seals or the slide should be removed before operating the gate. This could cause extensive seal damage.

8. **Closely review the installation drawings, as it might be necessary to grind or cut off a portion of the anchor studs to provide clearance for unimpeded vertical travel of the slide.** In particular, check the anchor bolt projection on the anchor bolts across the top of the opening on upward opening gates with top seals and check the anchor bolt projection across the bottom of the opening on downward opening gates. Where shown, the anchor studs should be cut down to the nut.

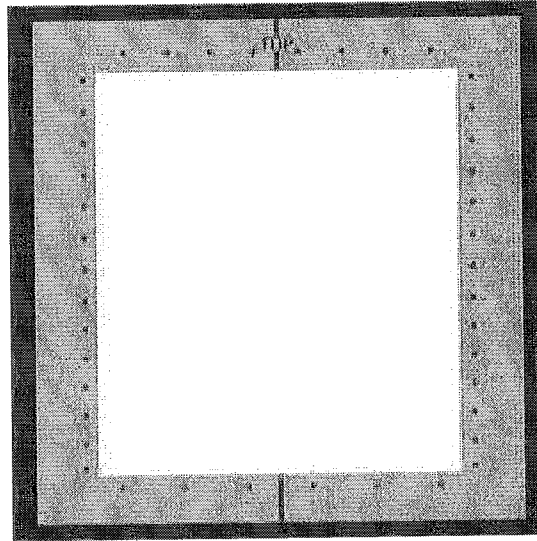


9. If any upstop bolts (upward opening gates) or downstop bolts (downward opening gates) were removed from the side frames to facilitate installation, they need to be re-installed.

Installation - Wall Thimbles

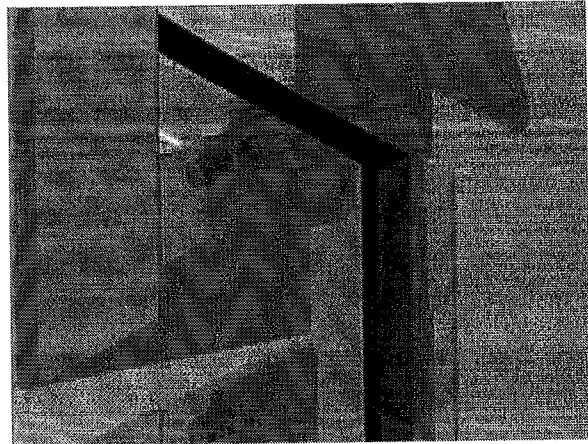
1. The front face of the rectangular, square or circular wall thimbles are marked with vertical centerlines and with "TOP" stamped on the top of the wall thimble. **Wall thimbles should be set in place with the "TOP" mark up and top and bottom centerline marks plumb.**
2. After being set at the proper elevation, the wall thimble must be internally braced to carry the weight of the concrete. Care should be used in placement of the braces so as not to distort the wall thimble. Gate attachment hardware will be misaligned if the wall thimble is distorted.

3. The wall thimble should be firmly supported on the form. Forms should be supported and stiffened against movement. If forms move, they will distort the wall thimble mounting flange and the gate may leak.
4. The tapped holes in the face of the wall thimble must be plugged or capped to prevent concrete from entering the holes.
5. After the concrete has hardened and the forms removed, the front surface of the wall thimble should be thoroughly cleaned. Make sure to remove all concrete that has flowed onto the surface from the edges. All tapped holes should be inspected and cleaned of concrete if necessary.



Installation - Gate Mounted to New Wall Thimble

1. The face of the wall thimble should be thoroughly cleaned and all wall thimble studs in place. Care should be taken to prevent damage to the studs during installation.
2. A gasket material is required between the surface of the wall thimble and the mounting flange of the gate. Mastic is normally used for this purpose and should be applied in accordance with the label directions.
3. If a gasket material other than mastic is used, it should be installed over the studs to provide a smooth mounting surface for the gate. If the gasket is other than one piece, the gasket joints should be aligned in accordance with the match markings and cemented with a liquid-type gasket material. When applying gasket materials, care should be taken to ensure that excessive amounts of lumpy, dried materials are not present when the gate is drawn tightly and evenly to the wall thimble.
4. The mounting flange of the gate should be thoroughly cleaned.
5. The gate can then be lifted and set over the studs and the nuts put in place and tightened. Care should be taken during this process to help ensure that the threads on the studs are not damaged. The sequence of tightening should be done in multiple passes by applying progressively larger force each pass. Equal torque should be applied to all nuts so that the gate is firmly and evenly tightened to the mounting flange without distortion.



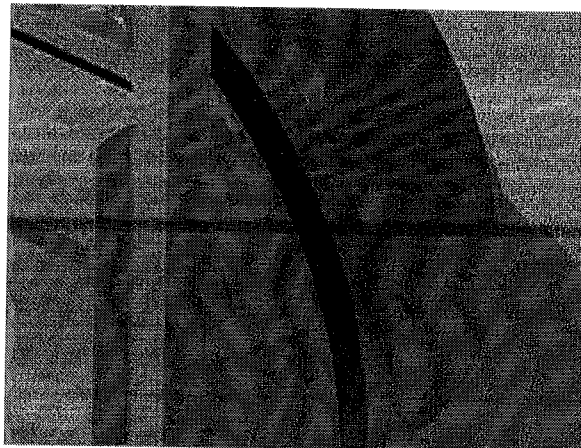
Installation - Gate Mounted to an Existing Wall Thimble

See instructions for "Installation - Gate Mounted to a New Wall Thimble" after a close inspection of the existing wall thimble once the front flange is accessible. If the mounting flange of the existing wall thimble is damaged, contact the factory prior to installation.

Installation – Gate Mounted to a Pipe Flange

Where gates are mounted on pipe flanges, the procedure is the same as when the gate is mounted on a wall thimble. The type of attachment hardware shall be as shown on the installation drawings.

Consult the factory for assistance if the flange on which the gate is to be installed is damaged or unusable for any reason.



Nut Tightening Torque

Proper tightening of the nuts on anchor bolts holding the gate to the wall or studs holding the gate to the wall thimble may prevent serious problems in operation or performance of the gate. Tabulated below, are recommended torque values for common fastener sizes.

*DIAMETER (in.)	TORQUE (ft.-lb.)
½	35
5/8	75
¾	100
7/8	150
1	200

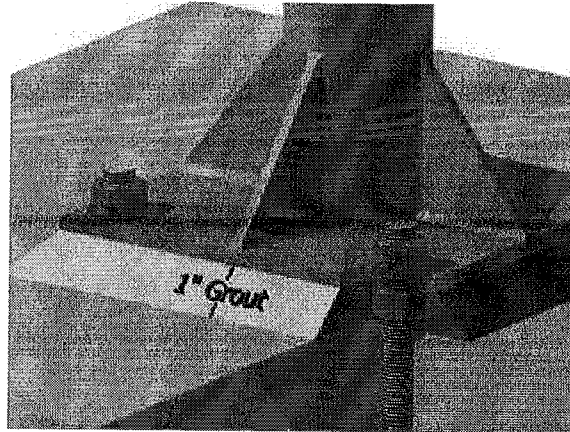
Installation – Assembly

On non-self contained gates, some field assembly is required. Refer to the installation drawings for the location and position of all components.

When assembling gates that have dual stems. Be sure that the stems are installed straight and plumb. When the operators are installed, it is important that both stems be in proper time and the top of the slide be level.

All pedestals are identified by the installation drawing and/or drawing number and should be used with the proper gate and stem.

1. After the stem has been completely assembled and positioned in place, the operator can be lowered onto the stem and turned into position by operation of the handwheel or crank.
2. Jacking nuts should be placed on the anchor bolts between the operating floor and the base of the pedestal so that it is plumb and the base is approximately 1" above the operating floor.
3. Approximately 1" of grout should then be placed between the pedestal base and the operating floor.
4. After the grout has hardened, the outside anchor nuts should be tightened firmly in place.
5. For manual operators, after the operator has been installed, tension should be applied to the stem by the handle or crank in a direction that would normally open the gate. However, the gate should not be opened. The intent is merely to apply tension that will result in a straight stem.
6. For electric actuators, the gate should be opened with the manual handwheel at least 3 inches before using the electric controls. In this manner, the proper phasing and direction of rotation of the motor can be determined without damaging the gate assembly. Once the unit has been installed, the manufacturer's directions should be followed closely in setting the closing and opening limit switches. The torque switches have been properly set at the factory and should not need adjustment. Follow the manufacturer's instructions if it appears that adjustment is necessary.
7. The stem guide, when applicable, should be anchor bolted to the wall in accordance with the installation drawings with uniform clearance possible between the stem and the stem guide bushing.
8. The stem should be thoroughly cleaned and lubricated with high pressure type industrial grease, such as Mobil Centaur Moly or equal. See lubrication chart.
9. The gates should be placed in the fully closed position. On upward opening gates, the slide should be lowered so that there is minimum compression of the slide onto the invert seal. On downward opening gates, the slide should be positioned as shown on the installation drawing.
10. Stop collars are provided on manually operated gates. The stop collar should be threaded onto the top of the stem only after the operator has been installed and the gate is in the fully closed position. Set the stop collar so there is approximately 1/16" of clearance between the bottom of the stop collar and the top of the operator nut. Set screws should then be tightened to hold the stop collar in place.



11. The crank or handwheel should turn easily. If there is any binding or noise during operation, check to be sure that the stem guides, pedestal and stem are properly aligned and the stem threads are lubricated. No more than 40 foot pounds of force should be applied while turning

Hydraulic Cylinder Operators

Hydraulic cylinders should be stored in the vertical position and filled with hydraulic fluid. If it is necessary to store them horizontally for a short period, they should be rotated every two weeks to help prevent damage to the seals.

1. Hydraulic cylinders should be mounted on the anchor bolts in such a way that the piston rod and stem are in proper alignment and there is sufficient clearance for piping, fitting, etc.
2. The coupling between the piston rod and the stem should be screwed into place and locked.
3. With the gate in the closed position, the piston should be lowered so that it is in contact with the bottom head of the cylinder.
4. With the piston in this position, the thrust nut should be adjusted on the stem so that it is in contact with the bottom of the thrust nut pocket. Set screws should be tightened to lock it in place. In most cases, the top area of the piston is larger than the underside. Therefore, if pressure applied to both surfaces is the same, more force will be applied in the closing direction than in the opening direction. For that reason, pressure-reducing valves should be provided in the line to the top of the cylinder to lower the pressure to that required to properly close the gate. In this way, full operating pressure can be applied to the bottom of the piston resulting in more opening than closing force. All piping should be thoroughly flushed and cleaned prior to making connection to the hydraulic cylinder.

Prior to Operating

1. Clean both sides of the slide, the guides, seals and stem of all grout, sand, paint and other debris.
2. Check to make sure that stem guides are positioned correctly and are securely fastened.
3. Clean and lubricate the stem threads. See lubrication chart.

Operating Instructions

Whipps, Inc. fabricated gates are constructed to operate satisfactorily under the specified operating conditions. These gates should be operated with care so as not to exceed the specified conditions. If, in the operation of the gate, an obstruction is met, either in the opening or closing direction, the obstruction should be removed before continuing in the operation. When the gate is fully opened or closed, excessive force should not be placed on the handwheel, crank or gate

stem by personnel in an effort to move the gate further. There should never be a need for a pipe extension or other additional leverage applied to the handwheel or crank. If excessive force is required, a thorough visual inspection of the gate assembly and stem is strongly recommended.

If a problem arises in the operation of the gate, such as an unusual head condition or evidence of excessive corrosion, the factory should be consulted before the gate is used or operated.

Installation Inspection Check List

Manually Operated Gates

1. Check hoist, stem guide, and gate attaching bolts for proper tightness.
2. Apply tension to stem and check any stem guides for proper alignment. There must be a uniform clearance between the operating stem and all stem guides.
3. Visually inspect all gate seals, including the invert seal, and both sides of the slide. Thoroughly clean off all foreign matter.
4. Visually inspect the threaded portion of the stem. It must be clean and free of foreign matter, including dirt or sand, and lubricated with suitable industrial grease. If a wire brush is used to clean the stem, use only a stainless steel type. Do not use a carbons steel brush!
5. Adjust stem stop collar to within 1/16" of the top of the hoist operating nut and lock in place.
6. Install stem cover and place Mylar indicating strips, positioned to indicate the location of the gate in both the fully open and closed positions.

Maintenance Instructions

Gates

Gates should be visually inspected at regular intervals (at least every six months) for signs of misalignment, damage or corrosive attack. Please keep in mind that corrosion, when it occurs, is most prominent at the water line.

Please note that gates with non-rising stems typically require additional maintenance. If the water level rises to the threaded portion of the stem, the threads may become coated with grit or debris. If the threads become grit laden, the following procedure is recommended to prolong the useful service life of the operating nut (mounted on the slide):

1. The threaded portion of stem should be cleaned and re-greased. The stem must remain free of grit and be sufficiently lubricated to prevent accelerated wear to the operating nut (mounted on the slide).

Manual Operators

At least once a year, all grease fittings (if applicable) should be lubricated with a small amount of heavy duty grease which will not harden in cold weather nor become liquid in warm weather. See Lubrication Chart. Some manual operators may be permanently sealed and these units will not have lubrication fittings.

Electric and Hydraulic Operators

Periodic maintenance schedules should be set-up in accordance with the original manufacturer's operation and maintenance manual. Do not operate with portable an electric or hydraulic operator until all stop collars have been placed in the proper position and set into place.

Modulating Electric Operators

These operators can cause accelerated wear in the operating nut since the stem and gates are operated more frequently and at times continuously.

1. The threaded portion of the stem must be clean and greased at all times.
2. The operating nuts should be removed and inspected for wear after the first six months of operation and every year thereafter.
3. Replace bronze operating nut as soon as noticeable wear is evident.

Operating Stems

It is important that operating stems be periodically cleaned and greased. Even though some environmental conditions are more severe than others and the use of pipe covers will protect stems, they still need to be cleaned and greased at least once every six months, more often if the grease becomes dirty. This is especially important on large gates and/or frequently operated gates such as gates with modulating electric actuators. See Lubrication Chart.

Installation Drawings

The drawings submitted by Whipps, Inc. for approval and/or field use, are planned so that the installation drawing is the master reference.

The drawings depict as much as possible of the structure surrounding the supplied equipment. The location of embedded material such as anchor bolts and wall thimbles are shown. The identification of fasteners and components (studs, anchor bolts, gate assemblies, hoists, stems, stem guides, stem couplings, adaptor plates, wall thimbles, thrust nuts, stop collars and other equipment) is done by calling out physical sizes and/or assembly or detail drawing numbers. More information is available on the detail drawings, which have been included with the installation drawing.

Spare Parts

Whipps, Inc. does not typically recommend the stocking of spare parts by customers or owners since the equipment is designed for a very long service life when recommended maintenance procedures are followed.

If a repair part is required, contact the PARTS DEPARTMENT at Whipps, Inc. at 978-249-7924 or www.whipps.com with as much of the following information as possible:

1. Plant name and location.
2. Original (four or five digit) shop order number which is indicated on correspondence and installation drawings.
3. The installation drawing number, and a description of the part, with any other available drawing numbers or the size (width x height) and location of the gate in the plant.
4. Description of damage and cause. (Digital photos of damage are useful.)
5. Approximate delivery requirements.

Gate Shipment Policy

The equipment furnished on this order has been inspected prior to leaving the factory and has been accepted by the freight carrier. Please check the packing list accompanying the shipment for shortages and examine the equipment for damages prior to accepting the shipment. Before handling, storing or installing this equipment, read the installation manual that accompanies the shipment.

Missing Equipment

If there is missing equipment, report it to the Whipps, Inc. Service Department upon receiving the equipment. Claims for shortages of equipment shown on the packing list will not be accepted unless a claim is filed within thirty days of the shipment of the equipment.

Damage in Transit

If the equipment has been damaged in transit, the purchaser is responsible for filing the claim with the transport company. Please contact Whipps, Inc. for assistance in filing the claim.

Installation, Inspection and Adjustment

Installation supervision, inspection of installed equipment, setting of limit switches and certification of satisfactory initial operation are not included unless specifically indicated on the

customer's purchase order and accepted by the company. Otherwise, Whipps, Inc. will provide this service at the standard published charges.

Field Issues

If trouble develops either in the installation, operation or performance of the equipment, the installation manual and drawings should be checked to determine if the equipment has been installed properly. If proper performance or operation cannot be obtained and assistance from the factory is desired, please contact Whipps Inc or the local representative. Arrangements will be made to send a service technician to the job site if this is required. The service technician will make a thorough examination of the problem and if the equipment is faulty in workmanship or material, the necessary repairs will be made by the factory at no cost to the purchaser if within the warranty period.

If, however, the problem is due to faulty installation or adjustment, the cost of the field service will be charged to the purchaser.

If repairs are made in the field by the purchaser or authorized by the purchaser, back charges for these repairs will not be accepted by the company unless the company has been notified prior to the incurring of these costs and has accepted the responsibility for these repairs.

Whipps, Inc. will not be liable for contingent costs or costs of delays due to the faulty equipment and the repairs thereof.

Field Service Policy

Field service charges begin from the time of departure until the return of the service person and include a daily rate plus travel and subsistence expenses. Premium day and hour rates will be charge on Saturdays, Sundays, and Holidays and for time spent before 6 a.m. or after 5 p.m., or over eight hours per day. A schedule of Field Service charges is available from the Whipps, Inc. Field Service Department.

In an EMERGENCY SITUATION, check the following:

Check the operator where the operator and stem interface. In particular, check the operating nut to ensure that the nut is intact. If the internal threads on the nut have been stripped, proceed with replacement of the nut. If a stripped nut has caused the slide to drop and the slide needs to be raised, a mechanical means of lifting the slide will be required. Once lifted, the slide should be secured in place.

If the operating nut is intact, check the connection between the lower portion of the stem and the slide. On gates with rising stems, this connection is typically a bolted connection. On gates with non-rising stems, there may be a bronze thrust nut. If a thrust nut is used, check the internal threading on the thrust nut to ensure that nut has not been stripped. If a stripped nut has caused the slide to drop and the slide needs to be raised, a mechanical means of lifting the slide will be

required. The stem may need to be removed prior to raising the slide. Once lifted, the slide should be secured in place.

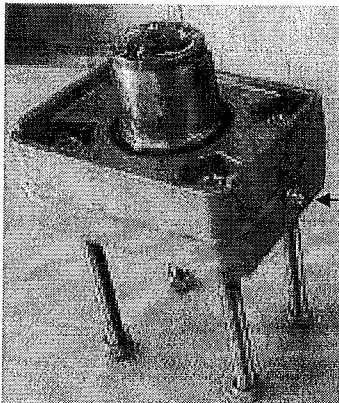
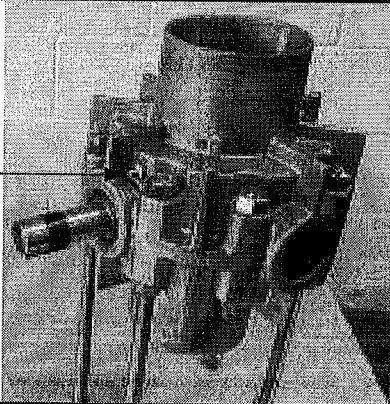
If the gate is outfitted with electric actuator and the actuator is not functioning, please consult the troubleshooting portion of the O&M manual.

If there are no apparent problems with the operating nut, thrust nut or actuator, visually inspect the gate to ensure that there are no obstructions preventing operation.

Further Questions?

Please contact Whipps, Inc. if unforeseen problems occur that are not covered in this manual.

LUBRICATION CHART

<u>Equipment</u>	<u>Method</u>	<u>Recommended Types</u>	<u>Frequency</u>
Type 101 Manual Actuator	Grease Gun	Mobil - Mobilux EP2 Chevron Ultra Duty EP-2 Sunoco - Ultra Prestige 2EP Or Equal	<i>Every 6 months</i>
 <div>Grease Fittings</div>			
Type 102 Manual Actuator	Grease Gun	Mobil - Mobilux EP2 Chevron Ultra Duty EP-2 Sunoco - Ultra Prestige 2EP Or Equal	<i>Every 6 months</i>
<div>Grease Fittings</div> 			

Type 104 Manual Actuator	Grease Gun	Chevron Ultra Duty EP-2 Sunoco - Ultra Prestige 2EP Or Equal	<i>Every 6 months</i>
Operating Stems	Clean with S.S. wire brush, apply grease	Chevron Ultra Duty EP-2 Sunoco - Ultra Prestige 2EP Or Equal	<i>Every 6 months, or whenever exposed to severe dust.</i>
Operating Stems in High Temp areas	Clean with S.S wire brush, apply grease	SI-123 or Equal	<i>Every 6 months, or whenever exposed to severe dust or heat.</i>
Gate Seals	N/A	N/A	N/A

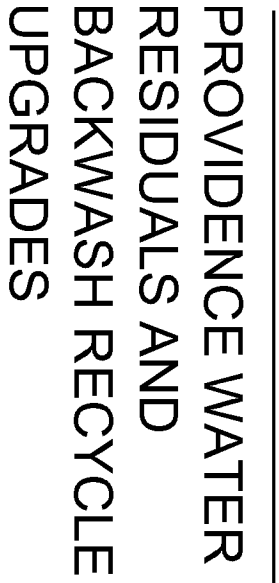


P.O. Box 1058 • 370 South Athol Rd.
Athol, Massachusetts 01331
Phone: (978) 249-7924
Fax: (978) 249-3072

WHIPPS, INC. – (1) YEAR WARRANTY

The seller guarantees this equipment to be free of defects in material and workmanship for a period of one year from date of delivery to Buyer's destination. Seller agrees to repair or replace F.O.B. factory any parts breaking during the warranty year provided the Buyer gives immediate notice of such breakage, and in the opinion of the Seller, the equipment shows unmistakable evidence of defective materials and workmanship. The cost to the Seller shall not exceed the cost of part repair and replacement and in no case shall the Seller be liable for any consequential losses or damage. The Seller's liability will cease and terminate entirely at the end of the warranty year.

Appendix D



PROVIDENCE WATER
125 Dupont Drive
Providence, RI 02907

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
www.aecom.com

RHONDA M. POGODZIENSKI
 No. 1799
 REGISTERED
 PROFESSIONAL ENGINEER

ISSUE/REVISION

[illegible]

Designed By:	B. SOULE
Drawn By:	A. FOOTE
Dept Check:	J. CORPARO
Proj Check:	R. POGODZIENSKI
Date:	FEBRUARY 2023
Scale:	AS NOTED

DISCIPLINE
CIVIL
SHEET TITLE
RESIDUALS REMOVAL AND DISPOSAL
FROM SOUTH SEDIMENTATION BASIN

FIGURE 1

