



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

REQUEST FOR PROPOSALS

Item Description: SLIDE GATE OPERATOR REPAIR – FOX POINT HURRICANE BARRIER, ALLENS AVENUE

Date to be opened: December 5, 2022

Issuing Department: Department of Public Works

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 Agent Chevell Burgess.
 - Phone: (401) 680-5264
 - Email: cburgess@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:
 - Roger Biron, Assistant Chief Engineer
 - (401) 680-7531
 - Rbiron@providenceri.gov
 - Andrew Morosky, Senior Project Manager
 - (203) 948-2236
 - amorosky@tighebond.com
- Please use the subject line “**RFP Question - SLIDE GATE OPERATOR REPAIR - FOX POINT HURRICANE BARRIER, ALLENS AVENUE**”.

All questions or comments concerning this RFP must be submitted via email by Wednesday, November 23, 2022 at 12:00 PM. Bidders are responsible to monitor the website for addendum. An addendum acknowledgment page is included in the Bid Instructions.

Pre-bid Conference

A non-mandatory Pre-bid conference will be held on November 16, 2022 at 9:00 a.m. at the Project Site, the intersection of Henderson Street and Allens Avenue.



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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 the City Council Chambers, 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 3 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 \$_____ must be deposited with the City Clerk as a guarantee that the Contract will be signed and delivered by the bidder.
 - b) ☒ A bid bond in the amount of **five (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: _____

Use additional pages if necessary for additional bidding details.

Signature of Representation

Title



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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.

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

Printed Name

Date Signed

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

Printed Name of City of Providence
MBE/WBE Outreach Director

Date Signed



BOARD OF CONTRACT AND SUPPLY
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BID PACKAGE SPECIFICATIONS

Request for Proposal, Slide Gate Operator Repair - Fox Point Hurricane Barrier – Allens Avenue, prepared by Tighe & Bond, Inc., 70 Romano Vineyard Way, Suite 134, North Kingstown, RI 02852 dated August 2022 (attached)



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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 complying with Section 5.30.F of the Contract Book.



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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



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

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.

C I T Y O F

**CONTRACT DOCUMENTS
SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER, ALLENS AVENUE**

P R O V I D E N C E , R H O D E I S L A N D

**HONORABLE JORGE O. ELORZA
MAYOR, CITY OF PROVIDENCE**



PREPARED BY:

TIGHE & BOND, INC. FOR

**DEPARTMENT OF PUBLIC WORKS
700 ALLENS AVENUE
PROVIDENCE, RI 02905
401-680-7500**

LEO J. PERROTTA, DIRECTOR

OCTOBER, 2022

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1. INVITATION FOR BIDS

The City of Providence owns and operates two hydraulic slide (sluice) gates that are housed in a Sewer Slide Gate Structure (the Structure) located on Allens Avenue (Route 1A). The existing slide gates are an ancillary system to the Providence Hurricane Barrier (the Barrier) and control the main sewer outflow from the Downtown area and points north.

The gates are generally only closed when there is a risk of storm surge to prevent floodwaters from short circuiting below the Barrier. The work included in this project includes removal and replacement of the existing gate operators and system hydraulics. The removal of the operators requires the removal of the top of the Structure. The top will be sawed off and replaced with two precast concrete sections, each with a hatch above the operator located below. Due to the size and location of the structure within Allens Avenue, considerable traffic control will be required, including a detour of southbound traffic.

The Owner is defined as the City of Providence (City), and the City of Providence Department of Public Works (DPW). All the above shall be performed in strict accordance with the Contract Documents and is to be completed in full by **June 30, 2023**. The vault roof and temporary road restoration shall be complete by May 31, 2023.

Copies of the Bidding/Contract Documents will be available for inspection at the office of the Purchasing Agent, Providence City Hall, 3rd Floor, Providence, Rhode Island 02903, on November 7, 2022. Bid documents will also be available for download from <https://www.providenceri.gov/purchasing/>. There will be no charge or fee for obtaining each set of bidding documents.

A Performance Bond in an amount of One Hundred (100%) percent of the contract price and a Labor and Material Payment Bond in the amount of One Hundred (100%) percent of the Contract Price with a satisfactory surety company will be required of the successful bidder. All surety companies must be listed with the Department of the Treasury, Fiscal Services, Circular 570 (Latest Revision published by the Federal Register). All bonds shall be in accordance with RIGL 37-12-1 and RIGL 37-13-14.

The Bidders' attention is called to the fact that minimum salaries and wages, as set forth in the Bidding/Contract Documents, must be paid on this project. Paid wages shall be at rates not less than those prevailing on the same type of work on similar construction in the immediate locality as determined by the United States Secretary of Labor, in accordance with the Act of August 30, 1935, known as the Davis-Bacon Act, under Decision Nos. 1 through 6 as applicable. Prevailing wage rates and Davis-Bacon Wage Determination Reference Materials are available online at <https://beta.sam.gov/>.

The Bidders' attention is called to the fact that the Project is using federal assistance provided to the City of Providence by the U.S. Department of Treasury from the Coronavirus State and Local Fiscal Recovery Fund established pursuant to Sections 602 and 603 of the Social Security Act, as added by Section 9901 of the American Rescue Plan Act of 2021, Pub. L. No. 117-2 (March 11, 2021) ("ARPA"). Certain terms and conditions will apply to contractors and vendors entering this contract pursuant to ARPA, its applicable regulations, and/or as established by the U.S. Department of Treasury. These terms and conditions can be found in the Contract Addendum section of this manual.

The Bidders' attention is called to the fact that the Contractor must ensure that employees and applicants for employment are not discriminated against because of their race, color, place of national origin, religion, sexual preference, or gender.

The Owner will not consider bids from prime bidders who do not prove at least 5 years construction experience (within the last 7 years) on Projects that include slide gates or similar mechanical devices located in similar conditions. These Projects shall be defined as existing, active construction projects within an existing city, state, or federally owned right-of-way. Instructions on documenting this experience are included in the "Statement of Bidders Qualifications" bid form in the Contract Documents.

Bids may be held by the Owner for a period not to exceed ninety (90) days from the date of opening of bids, for the purpose of reviewing the bids and investigating the qualifications of bidders, all prior to award of the Contract. The Owner reserves the right to reject any or all bids either in part or in full. All bidders shall be available for a Pre-Bid Award Descope Meeting as may be required by the Owner. The Owner reserves the right to descope one or more bidders. Additionally, the meeting minutes of the Descope Meeting shall be enumerated as part of the signed contract agreement. The intent is NOT to renegotiate cost in any manner but to obtain clarifications and details of representations made by the Bidder to assure an understanding of the bid prior to final award.

After a thorough review (and descope as required) of bids, the Owner anticipates submitting their recommendation for award of contract to the lowest responsible bidder to the Board of Contract and Supply for its regular meeting of Monday, January 2, 2023. The Board of Contract and Supply may take up to sixty (60) days to formally award.

2. INSTRUCTION TO BIDDERS

2.1. USE OF SEPARATE BID FORMS

The Contract Documents include a complete set of Bidding Documents such as, but not limited to Front End Documents, Specifications, Drawings, Addendum and Contract forms which are compiled for the convenience of Bidders and are not to be detached from the Contract Documents, filled out, or executed. Separate copies of the Bid Forms are furnished for this purpose and can be found in this document.

2.2. INTERPRETATIONS OR ADDENDA

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the Owner. Any inquiry received seven or more days prior to the date fixed for opening of Bids will be given consideration. Every interpretation made to a bidder will be in the form of an Addendum to the Contract Documents when issued and will be on file with the City of Providence Purchasing Department. In addition, all Addenda will be emailed to each person registered as holding Contract Documents, but it shall be the Bidder's responsibility to make inquiry as to the Addenda issued. All such addenda shall become part of the Contract and all Bidders shall be bound by such Addenda, whether or not received by the Bidder.

2.3. INSPECTION OF SITE

- A. Each Bidder should visit the site in person and not rely on digital street and overhead views provided by mediums such as, but not limited to, Google and Bing to review areas of the proposed work and fully acquaint himself with the existing conditions there, relating to construction and labor, and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the Contract. The Bidder should thoroughly examine and familiarize himself with the Drawings, Technical Specifications and all other Contract Documents and supporting information. The Contractor, by the execution of the Contract, shall in no way be relieved of any obligation under it due to their failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing, and the Owner will be justified in rejecting any claim based on facts regarding which, he should have been on notice as a result thereof.
- B. At the time of the opening of Bids, each Bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Contract Documents (including all addenda). The failure or omission of any Bidder to examine any form, instrument or document or to inspect the site, shall in no way relieve any Bidder from any obligation in respect to their Bid.

2.4. ALTERNATIVE BIDS

NOT USED

2.5. ALLOWANCES

- A. Allowances shall be included as part of the Base Bid and then further delineated in the Project Schedule of Values. Allowances are subject to all general conditions and standards of the Contract.

- 1. ADD ALLOWANCES (\$39,770.00):

Item 3A. Allowance for Testing - Grain Size Through No. 200 Sieve (\$500)

Item 3B. Allowance for Testing - Moisture Density Relationship (\$450)

Item 3C. Allowance for Testing - Dry Density and As-Placed Moisture Content (\$1,500)

Item 3D. Allowance for Concrete Compression Test (\$320)

Item 5B. Allowance for Supplementary Traffic Control (\$12,000)

Item 9. Allowance for Miscellaneous Electrical and Hydraulic Repairs (\$25,000)

Item 12. Allowance for Emergency Response (\$10,000)

These items shall be reimbursed in accordance with Section 01025 – Measurement and Payment

- B. While allowances are part of the Overall Bid Value submitted, that Contractor is advised that there are No Guarantees that they will be used or otherwise drawn down on and should have no expectation of the allowance work being awarded. Allowances will be accounted for the Schedule of Values as separate Lines Items with the value debited as separate values as they are drawn against.

2.6. BIDS

- A. All Bids must be submitted on forms supplied by the Owner and shall include all of the requirements of the Contract Documents, including, but not limited to, the Drawings and other incidental and appurtenant exhibits including these INSTRUCTIONS TO BIDDERS. All Bids shall be complete in every respect and no interlineations, excisions or special conditions shall be made to be included in the Bid Form by the Bidder. All blank spaces for Bid Prices shall be filled in in ink or typewritten; in both words and figures.
- B. Required documents: Bid, Bid Documents including the Bid, the Bid Guarantee, the Non-Collusion Affidavit and the Statement of Bidder's Qualifications (if requested), shall be submitted to the City's Board of Contract and Supply as indicated on Page 1 of this document. One original and one paper copy of the bid documents and required forms shall be submitted along with one USB drive with a single PDF containing all bid documents and required forms. No CDs or emailed PDFs will be accepted. Failure to submit a USB stick with a single PDF of the required documents and forms may result in disqualification.
- C. The Owner may consider as irregular any Bid on which there is an alteration of or departure from the Bid Form hereto attached and, at its option may reject the same.
- D. If the Contract is awarded it will be awarded by the Owner to a responsible Bidder on the basis of the lowest Bid and the selected Alternative Bid items, if any. However, the City reserves the right to select an alternate bidder, if in the best interest of the City. The Contract will require the completion of the work according to the Contract Documents.
- E. Each Bidder shall include in their Bid the following information:
1. Firm (name, address, phone, web address)
 2. Principals (names and home addresses)

2.7. BID GUARANTEE

- A. The Bid must be accompanied by a Bid Guarantee which shall not be less than **five percent (5%)** of the amount of Bid. The guarantee may be a bid bond in the form attached. The Bid

Bond shall be secured by a guarantee or a surety company listed in the latest issue of the U.S. Treasury Circular 570. The amount of such Bid Bond shall be within the maximum amount specified for such company in said Circular 570. No Bid will be considered unless it is accompanied by the required guarantee. Certified checks, cashier's checks, or cash deposits will not be accepted. The Bid Guarantee shall insure the execution of the Agreement and the furnishing of the surety bond or bonds by the successful Bidder; all as required by the Contract Documents.

- B. Revised Bids submitted before the opening of Bids, whether forwarded by mail or telegram, if representing an increase in excess of two percent (2%) of the original Bid, must have the Bid Guarantee adjusted accordingly, otherwise the Bid will not be considered.
- C. Bid Bonds of unsuccessful Bidders will be returned as soon as practical after the opening of Bids.

2.8. COLLUSIVE AGREEMENTS

- A. Each Bidder submitting a Bid to the Owner for any portion of the work contemplated by the documents on which bidding is based, shall execute and attach thereto, an affidavit substantially in the form herein provided, to the effect that he has not entered into a collusive agreement with any other person, firm, or corporation in regard to any Bid submitted.
- B. Before executing any subcontract, the successful Bidder shall submit the name of any proposed Subcontractor for prior approval and an affidavit substantially in the form provided in this document.

2.9. STATEMENT OF BIDDER'S QUALIFICATIONS

- A. Each Bidder shall completely fill out a Statement of Bidder's Qualifications noting their experience record in constructing the type of improvements embraced in the work, their organization and equipment available for the work contemplated on the form furnished for that purpose, and when specifically requested by the Owner, a detailed financial statement. The Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform their obligations under the Contract and the Bidder shall furnish the Owner all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the contract.
- B. The Low Bidder (Responsive and Responsible) must:
 - 1. Provide a list of equipment owned/leased in their possession;
 - 2. Provide the names and qualifications of the Superintendent and Supervisory personnel assigned major features of work;
 - 3. Provide a description of all self-performed work;
 - 4. Provide the names of proposed subcontractors and extent of work to be performed;
 - 5. The Contractor shall demonstrate and provide a work plan to comply with the State Public Works Contract apprenticeship program as prescribed by RIGL Title 37 Section 37-13-3.1. These documents are considered part of the Contract as if attached and written in full.
 - 6. Provide the name of the firm's Equal Employment Opportunity with reference to the City or State;

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7. Provide Certification of Non-Discrimination in Equal Employment Opportunity with reference to the State;
 8. Provide financial references and set of audited financial statements (prepared by a CPA) for most recent 3-year period to City for its' review and approval;
 9. Provide original letters from Bonding & Insurance Companies District Offices indicating willingness to furnish bonds/certificates;
 10. Provide insurance documentation naming the Owner as additionally insured;
 11. Provide list of 10 most recent contracts completed;
 12. Provide list of all uncompleted contracts;
 13. List whether in the past 3 years the firm has had any bids rejected for lack of qualifications, Responsibility, submission of informal/non-responsive bids, been denied or revoked of pre-qualification; or violated any State labor law or prevailing wage citation.
 14. Provide proof of five years' work experience on projects of similar scope and size.

2.10. UNIT PRICES, SUPPLEMENTAL UNIT PRICES AND ALTERNATES

- A. The Unit Price for each of the items in the proposal of each Bidder shall include as part of the Unit Cost the pro rata share of overhead and profit so that the sum of the products obtained by multiplying the quantity shown for each item by the Unit Price Bid represents the Total Bid. Bid pricing sheets are included in Appendix A.
- B. The special attention of all Bidders is called to this provision for, should conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities nor extra compensation allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items of work (i.e., difference in cost) shall not increase or decrease the original contract price by more than twenty-five percent (25%), except for work not covered in the Drawings and Technical Specifications as provided for in the RHODE ISLAND DEPARTMENT OF TRANSPORTATION Standard Specifications for Road and Bridge Construction, 2004 Edition, Amended March 2018 GENERAL CONDITIONS PART 1, Section 104.0.7 a2.
- C. The Bidder shall provide Bid Unit Costs that reflect the Fair Market Value of the work to be performed to prevent an unbalanced bid. As such the practice of submitting Penny, Dollar or Token Bid values is discouraged and could result in rejection of the bid if found to be unbalanced.

2.11. CORRECTIONS

Erasures or other changes in the Bids must be explained or noted over the signature of the Bidder.

2.12. TIME FOR RECEIVING BIDS

- A. Bids received prior to the advertised hour of opening will be securely kept and sealed. The officer whose duty it is to open them will decide when the specified time has arrived and no Bid received thereafter will be considered. Bidders are solely responsible for delivery to and receipt by the Owner of bids. The time of receipt will determine the acceptability of mailed bids, regardless of postmark.

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- B. Bidders are cautioned that while telegraphic modifications of Bids may be received as provided above, such modifications, if not explicit and if in any sense subject to misinterpretation, shall make the Bid so modified, or amended, subject to rejection.

2.13. OPENING OF BIDS

At the time and place fixed for the opening of Bids, the Owner will cause to be opened and publicly read aloud, every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present in person or by representative.

2.14. WITHDRAWAL OF BIDS

Bids may be withdrawn upon written or telegraphic request dispatched by the Bidder in time for delivery in the normal course of business to the time fixed for opening provided that written confirmation of any telegraphic withdrawal over the signature of the Bidder is placed in the mail and postmarked prior to the time set for Bid opening. The Bid Guarantee of any Bidder withdrawing their Bid in accordance with the foregoing conditions will be returned promptly.

2.15. DESCOPE MEETING

All bidders shall be available for a Pre-Bid Award Descope Meeting as may be required by the Owner. The Owner reserves the right to descope one or more bidders. Additionally, the meeting minutes of the Descope Meeting shall be enumerated as part of the signed contract agreement. The intent is NOT to renegotiate cost in any manner but to obtain clarifications and details of representations made by the Bidder to assure an understanding of the bid prior to final award.

2.16. AWARD OF CONTRACT; REJECTION OF BIDS

- A. The Contract will be awarded to the lowest, qualified responsible Bidder submitting the lowest bid complying with the conditions of the Invitation for Bids. The Bidder to whom the award is made will be notified at the earliest possible date. The Owner, however, reserves the right to reject any and all Bids and to waive any informality in Bids received, whenever such rejection or waiver is in its interest.
- B. The Owner reserves the right to consider as unqualified to do the work of general construction, any Bidder who does not habitually perform work with their own forces, the major portions of the work involved in the construction of the improvements embraced in this Site Improvements contract.
- C. The Owner will not award the Contract to any Contractor who is, at the time, ineligible under the provisions of any regulations issued by the Secretary of Labor; United States Department of Labor; or is not qualified under applicable ordinances of the City of Providence or the Laws of the State of Rhode Island. Attention of all Bidders is called to Title 37, Chapter 13, Sections 1-14, General Laws of Rhode Island, 1956, relative to the payment of wages, obligations and charges by Contractors on public works (see GENERAL CONDITIONS PART II, Section 202).

2.17. EXECUTION OF AGREEMENT; PERFORMANCE AND PAYMENT BOND

- A. Subsequent to the award within ten (10) days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the Owner an Agreement on the form included in the Contract Documents in such number of copies as the Owner may require.
- B. Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall, within the period specified in paragraph "A" above, furnish a statutory surety bond in a penal sum not less than the amount of the Contract as awarded, as security

2. INSTRUCTIONS TO BIDDERS

for the faithful performance of the Contract and for the payment of all persons, firms or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services employed or used by him in performing the work. Such Bond shall be in the same form as that included in the Contract Documents and shall bear the same date as, or a date subsequent to, that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bond. This bond shall be signed by a guarantee or surety company listed in the latest issue of the U.S. Treasury Circular 570 and the penal sum shall be within the maximum specified for such company in said Circular 570.

- C. The failure of the successful Bidder to execute such Agreement and to supply the required bond or bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as the Owner may grant based upon reasons determined sufficient by the Local Public Agency, shall constitute a default and the Owner may either award the Contract to the next lowest responsible Bidder, or readvertise for Bids and, may charge against the Bidder the difference between the amount of the Bid and the amount for which a Contract for the work is subsequently executed; irrespective of whether the amount thus due exceeds the amount of the Bid Bond. If a more favorable Bid is received by readvertising, the defaulting Bidder shall have no claim against the Owner for a refund.

2.18. WAGES AND SALARIES

- A. Attention of Bidders is particularly called to the requirements concerning the payment of not less than the prevailing wage and salary rates specified in the Contract Documents and the conditions of employment with respect to certain categories and classifications of employees. See General Conditions, Part II.
- B. The rates of pay set forth under General Conditions, Part II, are the minimums to be paid during the life of the Contract. It is therefore the responsibility of Bidders to inform themselves as to local labor conditions, such as length of workday and work week, overtime compensation, health and welfare contributions, labor supply and prospective changes or adjustments of rates.
- C. Attention of all Bidders is called to Title 37, Chapter 13, Section I-14 of the General Laws of Rhode Island, 1956, relative to the payment of wages, obligations, and charges by contractors on public works.
- D. Prevailing wage rates and Davis-Bacon Wage Determination Reference Materials are available online at <https://beta.sam.gov/>.

2.19. EQUAL EMPLOYMENT OPPORTUNITY

Attention of Bidders is particularly called to the requirement for ensuring that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin.

2.20. NOTICE TO PROCEED, TIME OF COMPLETION, AND LIQUIDATED DAMAGES

- A. The Bidder must agree to commence work on or before a date to be specified in a written Notice to Proceed by the Owner and to be fully completed by **June 30, 2023**. The vault roof and temporary pavement must be in place by May 31, 2023.
- B. The Contractor is required to sign and date four (4) copies of the Notice to Proceed. The Contractor shall keep one copy and return the other three copies to the Department of Public Works, 700 Allens Avenue, Providence, RI, 02905 (2 copies for DPW and 1 copy for City of Providence Recovery Office).

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- C. The Bidder must agree to commence work on or before a date to be specified in a written Notice to Proceed by the Owner and to fully complete the project by the indicated completion date. The Bidder will be subject to liquidated damages as indicated in the SPECIAL CONDITIONS, Section 303.

2.21. ITEMS NOT LISTED IN THE BID

Appurtenant items of work shown on the drawings or specified or required to complete the work but not listed separately under the list of items in the Bid shall be included in the cost of payment under the various applicable Bid items of work and no separate payment will be made for such items. It shall be the responsibility of the Contractor to verify any missing or incomplete data.

2.22. BALANCED BIDDING

Minus-bidding on any item or items of the specifications is prohibited. Bids should be made on each separate item of work shown in the Bid (proposal) with reasonable relation to the probable cost of doing the work included in such items; the right is reserved to reject wholly any Bid in case an item or items thereof are obviously unbalanced or appear to the Owner to be so unbalanced as to affect, or liable to affect adversely any interests of the Owner. The attention of the Bidder is called to the fact that unbalancing of Bids may adversely affect the Contractor if certain portions of the work are increased or decreased as provided in the Contract Documents.

2.23. PRICES

- A. Bidders shall state the proposed price for the work by which the Bids will be compared. This price is to cover all the expenses incidental to the completion of the work in full conformity with the contract specifications and drawings. The price or prices proposed shall be stated both in writing and in figures, and any Bid not so stated may be rejected.
- B. If there is a discrepancy between the price written in words, and written in figures, the price written in words shall govern. No bid will be accepted which does not contain a unit or lump sum price for every item contained in the Bid Form.
- C. The Contractor shall provide Schedule of Rates for all Labor and Equipment as part of the Bid for the project. This rate table will be used for adjustments in costs in the event they are required.

2.24. UNCERTAINTY OF QUANTITIES

- A. The quantities listed in the Bid (proposal) are approximate and are given only for use in comparing Bids and to indicate approximately the total amount of the contract, and the Owner does not expressly or by implication represent that the actual amounts of work will even approximately correspond therewith but does call particular attention to the uncertainty in the quantities of the work involved which cannot be predicted in advance. The work under certain items may be materially greater or less than those given in the Bid (proposal) as may be necessary in the judgment of the Owner to complete the work contemplated in the contract. Attention is particularly called to the fact that the quantity of work to be done under some Bids may be largely dependent on subsurface ground conditions encountered and therefore the quantities of work to be done under the various items may vary substantially from the estimated quantities or may even be omitted.
- B. Under the contract, the Owner reserves the right to increase or decrease the approximate quantities for, or to omit entirely, any of the items as listed in the Bid.

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- C. Only such quantities of the respective items of work performed and accepted will be paid for. An increase or decrease in the quantity for any item shall not be regarded as ground for an increase or decrease in the Bid Prices.

2.25. CONTRACT

A contract in the form set forth hereinafter will be required to be executed by the successful Bidder and the Owner. The attention of all Bidders is, therefore, called to the form of said proposed contract and the provisions thereof.

2.26. WORK ON PRIVATE PROPERTY

Conditions may warrant work on private property due to grade change at a driveway, sidewalk or curb ramp. Work on private property may only occur with instruction from the Engineer and Owner.

2.27. CONDITIONS OF WORK

- A. Each Bidder must inform himself fully of the conditions relating to the construction and labor under which the work is now or will be performed; failure to do so will not relieve the successful Bidder of their obligation to furnish all required materials, equipment, services, systems, and labor necessary to carry out all of the provisions of the Contract Documents, and to complete the prescribed set forth in their Bid. Insofar as possible, the Contractor, in the carrying out of their work must employ such methods or means as will not cause any reasonable interruption of or interference with traffic, the use of existing facilities and utilities, the use of municipally or State- or privately-owned lands, or with the work being performed by others. The Contractor shall perform the work in accordance with the Drawings and the Traffic Management Plan, as found in the appendices. The Contractor is responsible for any and all additional efforts required to accommodate protections for pedestrians, vehicles and bicycle traffic through the work zone, including providing temporary access routes/ramps that are detectable and include accessibility features consistent with the existing sidewalks, resulting infield conditions created by the means and methods deployed by the Contractor.
- B. The Contractor must satisfy himself by their own investigation and research as to the nature and location of the work, the general and local conditions, including but not restricted to those bearing upon underground pipes and structures, subsurface soil conditions including rock and groundwater, transportation, disposal, handling and storage of materials, water, electric power, roads, means of access, the construction and making of connections of the work to existing facilities and utilities, the locations of existing utilities and structures affecting the work, or other similar conditions at the site, the character of equipment and facilities needed preliminary to and during prosecution of the work, requirements of owners and controlling authorities having jurisdiction over the various lands, existing structures, facilities and utilities and all other conditions affecting the work to be done and labor and materials needed, and make their Bid in sole reliance thereon, and shall not at any time after the submission of a Bid assert that there was any misunderstanding in regard to the nature or amount of the work to be done.

2.28. NOTICE OF SPECIAL CONDITIONS

Attention is particularly called to those parts of the contract documents and specifications which deal with the following:

- A. Inspection and testing of materials
- B. Insurance requirements
- C. Wage rates

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- D. Interpretation of drawings and specifications
 - E. Test Pits
 - F. The use of explosives
 - G. As-built drawings
 - H. Existing utilities and connections
 - I. Layout of work
 - J. Locations of work
 - K. Schedule of work
 - L. Salvageable materials
 - M. Construction schedule
 - N. Preconstruction conference
 - O. Occupational Safety and Health Standards (OSHA) required PPE shall be provided by the Contractor as part of their costs, as well as any PPE Requirements related to Covid-19.
 - P. The Contractor shall submit a Life and Safety Plan prior to the execution of the Work including the Contractor's COVID-19 Plan
 - Q. Environmental

2.29. LAWS AND REGULATIONS

The Bidder's attention is directed to the fact that all applicable Federal and State laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included as if they are attached and written in full.

2.30. DEFINITIONS

Owner: The term "Owner" means the City of Providence (City), and the Department of Public Works (DPW) which are authorized to undertake this contract.

2.31. SEQUENCE OF CONSTRUCTION

The Contractor shall schedule their operations so as to minimize delays and inconvenience to traffic and shall at all times cooperate with the City of Providence, Parks Department, Department of Public Properties, Police and Fire Departments, the Traffic Engineering Department and the Department of Planning & Development and their appointed representatives. The Contractor shall also cooperate with the Department of Public Works, the Rhode Island Department of Transportation, the Providence Water Supply Board, National Grid, the Rhode Island Public Transit Authority (bus stops and route impacts) and other private companies. The Contractor shall submit their proposed "Sequence of Construction" to the Engineer and Owner for approval before commencing work and shall be flexible in revising the "Sequence of Construction" to meet the Owner's needs.

2.32. TITLE 37 - CHAPTER 13 (LABOR AND PAYMENT OF DEBTS BY CONTRACTORS – GENERAL LAWS OF RI, 1956, AS AMENDED)

Title 37 - Chapter 37-13 of the General Laws of RI, 1956, as amended, shall be considered part of this Contract as if attached and written in full.

2.33. PROVIDENCE CODE OF ORDINANCES – SECTION 21.28.1. QUALIFICATIONS OF PARTIES DOING BUSINESS WITH THE CITY.

The Contractor shall comply fully with this Section as if attached and written in full (https://library.municode.com/ri/providence/codes/code_of_ordinances)

2.34. INSTRUCTIONS TO BIDDERS

Instructions to Bidders are contained in the Instructions to Bidders Section, of which this Article is hereby made part of. When the provisions of the Contract Documents are changed by this Article, the portion modified is referred to by number. Unchanged portions and other provisions remain intact.

2.35. BID SECURITY

Bid Security shall be in the amount stated in the Board of Contract and Supply CONSTRUCTION & SERVICE CONTRACT BID TERMS and INVITATION FOR BIDS and shall be: Bid Bond naming the City of Providence as Obligee.

2.36. PRE-BID CONFERENCE

A non-mandatory pre-bid conference has been scheduled for the project site. Refer to the Request for Proposals for further information.

2.37. BIDDING REQUIREMENTS

- A. Attention is particularly called to those parts of the Contract Documents and Specifications dealing with the following:
1. Non-Collusive Affidavit
 2. Insurance Requirements
 3. Wage Rates
 4. Required State Certifications
 5. Requirements for Affirmative Action
 6. Federal Procurement Regulations
 7. Minority Employment and EEO Compliance
 8. Special Requirement for All Out-of-State Contractors and Firms
 9. First Source List
 10. Miscellaneous/Notifications/Required License

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11. City of Providence Code of Ordinances, Chapter 21, Article II, Section 21-52. Minority and Women Business Enterprise
 12. City of Providence Code of Ordinances, Chapter 21, Article II, Section 21-28.1. Qualifications of parties doing business with the Owner.

- B. The Bidder is specifically advised that any person or firm, or other party to whom it is proposed to award a subcontract under this Contract must be acceptable to the Owner.

2.38. REQUIRED BID DOCUMENTS

The following documents must be fully executed on the special forms provided herein and must accompany all bids: [REVIEW]

- A. City of Providence Board of Contract and Supply and MBE/WBE Participation Forms
- B. Bid Bond
- C. Certificate of Corporate Principal
- D. Non-Collusion Affidavit of Prime Bidder
- E. Certification of Non-Segregated Facilities
- F. Bidder's Certification for Equal Employment Opportunity
- G. Special Requirement for All Out-of-State Contractors and Firms
- H. Certification with Regard to Performance of Previous Contracts and Subcontracts
- I. Affidavit of Non-Discrimination
- J. Certification of Non-Discrimination in Equal Employment Opportunity
- K. Statement of Bidders Qualifications
- L. Proposed Subcontractors
- M. Schedule of Unit Prices

2.39. CERTIFICATE OF NON-SEGREGATED FACILITIES

All contractors should be aware of the Certification of Non-Segregated Facilities which is part of the Bid proposal.

2.40. CERTIFICATION WITH REGARD TO PERFORMANCE OF PREVIOUS CONTRACTS OR SUBCONTRACTS SUBJECT TO THE EQUAL OPPORTUNITY CLAUSE

In general, this certificate refers to Standard Form 100, which is an annual form submitted by certain contractors to the U.S. Department of Labor. Contractors should refer to the Federal Procurement Regulations for a more thorough explanation of this report.

2.41. SUBMISSION OF STANDARD FORM 257

Bidders shall be advised that the contractor who is awarded the Contract will be required to submit to the Department of Labor Form 66 and the Minority Manpower Utilization Report. This report will be completed for the Owner on the fifth day of each month for work done the preceding month. This report is required of not only the prime contractor, but all subcontractors and must reflect minority manpower utilization for all work done in the State during the performance of this Contract.

2.42. MISCELLANEOUS / NOTIFICATIONS

- A. The Contractor shall notify "Dig-Safe" and all public and private utility companies for confirmation and layout of utility locations prior to the commencement of work.

City-Owned utilities such as but not limited to drainage, sewers, traffic signal and street lighting infrastructure are NOT PART of the DIG SAFE program in Providence and are not marked by the City of Providence. Contractors are urged to exercise due diligence and review handholes, manholes, fixtures and other visual clues that underground utilities exist in the Work Zone that may not be located and marked by Dig Safe. This effort may require observing underground structures by removing manhole and handhole covers to observed depths and direction of utilities. Additionally, the Providence Department of Public Works does have a limited library of public utilities and roadway information on file. This information can be obtained by contacting the Engineering Division at DPW.

- B. Refer to the Contract Specifications for Additional Requirements.
- C. The Contractor shall verify all dimensions and accurately locate the property boundary and Limit-of-Work lines to the satisfaction of the Owner prior to the commencement of work.
- D. As of May 18, 1995, all contractors proposing to execute work within the public right-of-way in the City of Providence must obtain an annual sidewalk license through the Providence Department of Public Works, 700 Allens Avenue, Providence, RI. The annual license fee is \$100.00, to be paid by the Contractor.
- E. The Contractor shall be back charged for at actual costs to correct issues resulting from not failure to perform this task and required timely notifications of work. The Contractor will not be eligible for extensions in time for failure to comply.
- F. Project layout and the highest standards of execution for the project is extremely important. All methods and materials will be approved in advance of the execution of work. The Contractor, Owner and the Engineer Inspector and Project Manager shall agree on a project schedule, acceptable work schedule and schedule of approvals in advance of any work or action taken on the site and delivery of materials.
- G. Contractors and Subcontractors shall provide all the qualified and skilled labor required to meet the quality level expected for this project. If the Owner determines that the Contractor is not providing the labor and skill required he/she will be required to immediately provide new personnel or Subcontractor for said skill acceptable to the Owner to replace unacceptable sections/areas and continue the project.
- H. Work deemed unacceptable during the course of the work will be cause for the Owner to reasonably withhold payments for work completed to-date until acceptability is achieved and required work is properly corrected. The contractor shall not proceed to new work until work done to-date is acceptable.

2.43. HOLDING OF BIDS

- A. Bids may be held by the Owner for a period not to exceed ninety (90) days from the date of Opening of Bids, for the purpose of reviewing of bids and investigating the qualifications of bidders, all prior to award of Contract.

2.44. AWARD OF CONTRACT / START OF CONSTRUCTION

- A. The CONTRACT for construction is expected to be awarded on January 2, 2023, although this is subject to change. The Board of Contract and Supply may take up to 60 days to formally award the Contract and the Contractor shall commence work within 90 days of Contract Award unless otherwise agreed to in writing.
- B. CONTRACTOR shall commence construction within ten (10) calendar days of issuance of NOTICE-TO-PROCEED. The Contractor shall have made application for required bonds no later than the day after Contract Award. The City reserves the right to issue notices to proceed in phases.

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3. REQUIRED BIDDING DOCUMENTS

LIST OF FORMS:

The following forms must be completed and signed by the bidder and included with the bid. Failure to execute any form, or portion thereof may lead to disqualification of a bid. Blank copies of the forms are included in the Appendix.

1. Form of Bid
2. Purchasing Department Documents and MBE/WBE Participation Forms
3. Bid Bond
4. Certificate of Corporate Principal
5. Non-Collusion Affidavit of Prime Bidder
6. Non-Collusion Affidavit of Subcontractor
7. Certification of Non-Segregated Facilities
8. Bidder's Certification for Equal Employment Opportunity
9. Special Requirement for All Out-of-State Contractors and Firms
10. Certification with Regard to Performance of Previous Contracts and Subcontracts
11. Affidavit of Non-Discrimination
12. Certification of Non-Discrimination in Equal Employment Opportunity
13. Statement of Bidders Qualifications
14. Proposed Subcontractors
15. Schedule of Unit Prices

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4. CONTRACT FORMS

Copies of the following contract forms are included in the Appendix.

LIST OF FORMS

- A. Construction Agreement
- B. Partial Release
- C. Final Release
- D. Contract Bond for Complete Performance and Full Payment

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5. GENERAL CONDITIONS

5.1. BRIEF SCOPE OF WORK

City of Providence owns and operates two hydraulic slide (sluice) gates that are housed in a Sewer Slide Gate Structure (the Structure) located on Allens Avenue (Route 1A). The existing slide gates are an ancillary system to the Providence Hurricane Barrier (the Barrier) and control the main sewer outflow from the Downtown area and points north. The gates are generally only closed when there is a risk of storm surge to prevent floodwaters from short circuiting below the Barrier.

The work requires that, in the event of a power failure while the gates are in the open position, they are to remain open. If the gates are closed when the power fails, they are to remain closed.

The work included in this project includes removal and replacement of the existing gate operators and system hydraulics. The removal of the operators requires the removal of the top of the Structure. The top will be sawed off and replaced with two precast concrete sections, each with a hatch above the operator located below. Also included in the work is the establishment of a traffic detour during construction and the restoration of the roadway and sidewalks affected by the work. Due to the size and location of the structure within Allens Avenue, considerable traffic control will be required, including a detour of southbound traffic.

5.2. DEFINITIONS

Whenever used in any of the Contract Documents, the following meanings shall be given to the terms defined:

- A. Addendum: The term "Addendum" or "Addenda" means any changes, revisions or clarifications of the Contract Documents which have been duly issued by the Owner to prospective Bidders prior to the time of receiving Bids.
- B. Contract: The term "Contract" means the Contract executed by the Owner and the Contractor, of which these GENERAL CONDITIONS form a part.
- C. Contract Documents: The term "Contract Documents" means and shall include the following: Executed Agreement, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Condition, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings).
- D. Contractor: The term "Contractor" means the person, firm or corporation entering into the Contract with the Owner to construct and install the improvements embraced in this Contract.
- E. Design Engineer: The term "Design Engineer" means **Tighe & Bond, Inc., 70 Romano Vineyard Way, North Kingstown, RI 02852**. The Design Engineer does not have unilateral authority and the Owner and the Design Engineer shall work collaboratively on all matters related to this Work.
- F. Drawings: The term "Drawings" means the drawings listed in the Schedule of Drawings.
- G. Engineer: The term "Engineer" means any qualified person or persons, employed by the Local Public Agency for the purpose of directing or having in charge the work of Site Improvements embraced in this Contract, the said Engineer acting directly or indirectly through any Assistant Engineer having general charge of the work or through any assistant having immediate charge of a portion thereof limited by the particular duties entrusted to him.

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- H. Local Government: The term "Local Government" means the City of Providence, Rhode Island, within which the Project Area is situated.
 - I. Owner: The term "Owner" means the CITY OF PROVIDENCE, and the THE CITY OF PROVIDENCE DEPARTMENT OF PUBLIC WORKS (DPW) which are authorized to undertake this Contract.
 - J. Project Area: The term "Project Area" means the site of the Allens Avenue Slide Gate Rehabilitation within the City of Providence which are the specified Contract limits of the improvements contemplated to be constructed in whole or in part under this Contract. The Project Area shall be considered the City of Providence boundaries.
 - K. Technical Specifications: The term "Technical Specifications" means that part of the Contract Documents which describes, outlines and stipulates: the quality of the materials to be furnished; the quality of workmanship required; and the methods to be used in carrying out the construction work to be performed under this Contract.
 - L. Wherever in the specifications or upon the contract drawings the words directed, required, permitted, ordered instructed, designated, considered necessary, or words of like import are used, it shall be understood that the direction, requirement, permission, order, instructions, designation or decision of the Engineer is intended; where as shown, as indicated, as detailed or words of similar import are used, it shall be understood that reference to the drawings accompanying these specifications is made unless otherwise stated; and similarly the words approved, acceptable, satisfactory, or words of like import shall mean approved by, or acceptable, or satisfactory to the Engineer. As used herein "provided" shall be understood to mean "provided complete in place", that is "furnished and installed complete".

5.3. SUPERINTENDENCE BY CONTRACTOR

- A. Except where the Contractor is an individual and gives their personal superintendence to the work, the Contractor shall provide a competent Superintendent and/or Project Manager, dedicated to the project and satisfactory to the Owner and the Engineer, on the work at all times during working hours with full authority to act on behalf of the Contractor. The Contractor shall also provide an adequate staff for the proper coordination and expediting of their work.
- B. The Contractor shall lay out their own work and shall be responsible for all work executed under the Contract. The Contractor shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from failure to do so.

5.4. SUBCONTRACTS

- A. The Contractor shall not execute an agreement with any Subcontractor or permit any Subcontractor to perform any work included in this contract until they have submitted a non-collusion affidavit from the Subcontractor and have received written approval of such Subcontractor from the Owner. (See Non-Collusion Affidavit for Subcontractor in Bidding Documents section)
- B. No proposed Subcontractor shall be disapproved by the Owner except for cause.
- C. The Contractor shall be as fully responsible to the Owner for the acts and omissions of their Subcontractors, and of persons either directly or indirectly employed by them as they are for the acts and omissions of persons directly employed by them.
- D. The Contractor shall cause appropriate provision to be inserted in all subcontracts relative to the work to require compliance by each Subcontractor with the applicable provisions of the Contract for the improvements embraced in the Site Preparation.

5. GENERAL CONDITIONS

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- E. Nothing contained in the Contract shall create any contractual relation between any Subcontractor and the Owner.
 - F. The Contractor shall have full control over their Subcontractors to deliver the project and/or elements of the project allowing the Contractor to perform the work timely. The Contractor shall not permit any Subcontractor from holding up the project due to unavailability or not wanting to perform small sections of Work. If a Subcontractor is not able to perform work in a timely manner, the Contractor shall replace them with a replacement Subcontractor approved by the Owner.
 - G. The Contractor shall provide complete sets of items, such as, but not limited to, Contracts, Specifications, Drawings, Sketches and other applicable documents for both office and field use.

5.5. OTHER CONTRACTS

The Owner may award, or may have awarded, other contracts for additional work, and the Contractor shall cooperate fully with such other Contractor, by scheduling their own work with that to be performed under other Contracts as may be directed by the Owner. The Contractor shall not commit or permit any act, which will interfere with the performance of work by any other Contractor as scheduled.

5.6. FITTING AND COORDINATION OF THE WORK

The Contractor shall be fully responsible for the proper fitting of all work and for the coordination of the operations of all trades, Subcontractors, or materialmen engaged upon this Contract. The Contractor shall be prepared to guarantee to each of their Subcontractors the locations and measurements which they may require for the fitting of their work to all surrounding work.

5.7. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts or neglect on the part of the Contractor, any other Contractor or any Subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other Contractor or Subcontractor by agreement or arbitration, if such other Contractor or Subcontractor will so settle. If such other Contractor or Subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner will notify this Contractor, who shall defend at their own expense any suit based upon such claim, and, if any judgment or claims against the Owner shall be allowed, the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connections therewith.

5.8. PROGRESS SCHEDULE

The Contractor shall submit for approval immediately after execution of the Agreement, a carefully prepared Cost Loaded Progress Schedule (in PDF and Native Format), showing the proposed dates of starting and completing each of the various sections of the work, the anticipated monthly payments to become due the Contractor, and the accumulated percent of progress every two weeks. Every two weeks, the Contractor shall update and submit the progress schedules for review by the Owner. Failure to maintain the progress schedule will be cause to withhold payments due to the Contractor.

5.9. COMPENSATION AND PAYMENTS TO CONTRACTOR

- A. Compensation:

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1. The Owner will pay and the Contractor shall receive as full compensation for all work completed to date according to the unit prices and Section 01025 – Measurement and Payment.
 2. Unit prices shall be based on a schedule dividing the project into component parts, together with a quantity and price for each part such that the sum of the product prices and quantities will equal the Base Bid total. A final schedule shall be submitted by the Contractor for the approval of the Owner before the first estimate becomes due. A Schedule of Values shall be provided for the length of the project.
 3. The Contractor shall not be paid for materials in storage.
 4. When base bid, unit-price-item quantities are exceeded, they shall be added to the Schedule of Values as a new line item. The Contractor, Design Engineer, and the Owner all shall monitor overages versus those items coming in lower than estimated to assure that the budget health is not compromised.
 5. The amount of the Contract (accepted bid prices) listed in the Bid is based on the estimated quantities and the unit and/or lump sum bid prices as set forth in the Bid. Actual work may result in greater or lesser quantities estimated. It is understood and agreed that the Contractor will accept as payment the actual measured quantities at the unit and/or lump sum bid prices as set forth in the accepted bid and may be considered for an adjustment as prescribed in accordance with the terms outlined in Section 109 hereof.
 6. The estimated quantities given in the Bid (proposal) for the various items of work are given for the purpose of comparing proposals offered for the work under this contract and if it is found in the performance of the contract work that any or all of the said estimated quantities are not even approximately correct, the Contractor shall have no claim for anticipated profits, or for loss of profits or for increase in prices as listed in the accepted Bid because of the difference between the quantities of the various items of work actually done and the estimated quantities stated in the accepted Bid (proposal) except as provided for in Section 109 hereof.
 7. It is understood that, except as otherwise specifically stated in the contract documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to protect, execute, complete and deliver the work within the specified time.
 8. Any work necessary to be performed after regular working hours, on Saturdays, Sundays and legal holidays, shall be performed by the Contractor without additional expense to the Owner.
 9. Night work or work on Saturdays, Sundays and legal holidays shall be done only with the approval of the Providence Traffic Engineering Department or as specified in the Contract Documents.

B. Partial Payments:

1. The Contractor shall prepare their requisition for partial payment monthly, at a date to be specified by the Owner, and submit it digitally in a PDF and unlocked Excel document formats, to the Engineer for their approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) five percent (5%) of the total amount, to be retained until final payment and (2) the amount of all previous

payments. If the Contractor is from out of state, the five percent retainage shall be increased to eight percent (8%) (refer to RIGL 44-1-6). The total value of work completed to date shall be based on the actual quantities of work completed and on the unit prices contained in the agreement. For lump sum items the value of the work completed to date will be based on the actual amount of the work done and the schedule required to be submitted by the Contractor in Section 108. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be available for inspection by the Engineer and Owner.

2. Monthly or partial payments made by the Owner to the Contractor are monies advanced for the purpose of assisting the Contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Owner. The Contractor shall obtain additional insurance for stockpiled materials within the project site. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.
3. THE OWNER, PRIOR TO MAKING EACH PAYMENT TO THE CONTRACTOR, shall require the Contractor to furnish releases or receipts from any or all persons / firms performing work and supplying material or services to the Contractor, or any Subcontractor, if this is deemed necessary to protect its interest. Additionally, the Contractor may be required to submit certified payrolls for any and all employees, including Subcontractors.

C. Final Payment:

1. After final inspection and acceptance by the Owner of all work under the Contract, the Contractor shall prepare their requisition for final payment which shall be based upon the carefully measured or computed quantity of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this contract shall be the amount computed as described above less all previous payments. Final payment to the Contractor shall be made subject to their furnishing the Owner with a release in satisfactory form of all claims against the Owner arising under and by virtue of their contract, other than such claims, if any as may be specifically excepted by the Contractor from the operation of the release as provided under Section 113 hereof.
2. The Contractor shall retain consent of surety. This shall be submitted at the time of the final Payment requisition.
3. The Owner, before paying the final estimate, may require the Contractor to furnish releases or receipts from all Subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the Owner deems the same necessary in order to protect its interest. The Owner, however, may if it deems such action advisable, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments so made shall in nowise impair the obligations of any surety or sureties furnished under this Contract.
4. Withholding of any amount from the Owner under Section 303, entitled "Liquidated Damages", under SPECIAL CONDITIONS, shall be deducted from the final payment due the Contractor.

D. Withholding Payments:

5. GENERAL CONDITIONS

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1. The Owner may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the Owner and if it so elects may also withhold any amounts due from the Contractor to any Subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and their Subcontractors or material dealers, or to withhold any monies for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any monies from the Contractor shall in nowise impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

- (a) Certified Payroll
- (b) WBE and DBE
- (c) Liens Releases
- (d) Supporting information to review invoices
- (e) Incomplete Work
- (f) Not Addressing REAL TIME Punch lists

E. Payments Subject to Submission of Materials Certificates and Materials Testing:

1. Each payment to the Contractor by the Owner shall be made subject to submission by the Contractor of all written certifications required of him and their Subcontractors. Materials and associated bid items found to be deficient by the City's third-party testing agency will not be paid until defective materials have been replaced.

F. Payments Subject to Reporting Requirements:

1. Each payment to the Contractor by the Owner shall be made after satisfactory reporting is submitted for First Source, Apprenticeship Utilization, MBE/WBE utilization and any other reporting as stated at the pre-construction meeting. Payment to the Contractor by the Owner is also contingent upon receipt of updated and accurate project construction schedules.

G. Payments Subject to Certified Payroll Requirements:

1. Complete and executed certified payroll statements are required to be submitted with all invoice requests. Failure to do so will result in non-payment until certified payrolls are received.

H. Payments Subject to Progress Schedule

1. Each payment to the Contractor by the Owner shall be made subject to submission of a current, accurate and reasonable progress schedule. Failure to do so will result in non-payment until a progress schedule is received and accepted.

5.10. CHANGES IN THE WORK

- A. The Owner may make changes in the scope of the work required to be performed by the Contractor under the Contract or making additions thereto, or by omitting work therefrom, without invalidation of the Contract, and without relieving or releasing the Contractor from any of their obligations under the Contract or any guarantee given by him pursuant to the Contract

provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise.

- B. Except for the purpose of affording protection against any emergency endangering health, life, limb or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.
- C. If applicable unit prices are contained in the Agreement (established as a result of either a unit price bid or a Supplemental Schedule of Unit Prices) the Owner may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase or decrease the original total amount shown in the Agreement by more than twenty-five percent (25%) in accordance with the Section entitled Unit Prices, under INSTRUCTIONS TO BIDDERS.
- D. If applicable unit prices are not contained in the Agreement or if the total net change increases or decreases the total Contract Price more than twenty-five percent (25%) the Owner shall, before ordering the Contractor to proceed with desired changes, request an itemized proposal from him covering the work involved in the change after which the procedure shall be as follows:
 - 1. If the proposal is acceptable, the Owner will prepare the change order in accordance with Paragraph E below for acceptance by the Contractor, and
 - 2. If the proposal is not acceptable and prompt agreement between the two parties cannot be reached, the Owner may order the Contractor to proceed with the work on a cost-plus-limited basis, defined as the net cost of the Contractor's labor, materials and insurance plus fifteen percent (15%) of said net cost to cover overhead and profit, the total cost not to exceed a specified limit.
- E. Each change order shall include in its final form:
 - 1. A detailed description of the change in the work.
 - 2. The Contractor's proposal (if any) or a conformed copy thereof.
 - 3. A definite statement as to the resulting change in the contract price and/or time.
 - 4. The statement that all work involved in the change shall be performed in accordance with Contract requirements except as modified by the change order.
- F. For any changes agreed by Owner and the Contractor, the Contractor shall be allowed a markup on any additional work not accounted for, as follows:
 - 1. The Contractor shall consider a markup of cost of work plus general conditions at three percent (3%) plus overhead and profit at nine percent (9%).
 - 2. The Subcontractor shall consider a markup of cost of work plus general conditions at three percent (3%) plus overhead and profit at nine percent (9%).
 - 3. The Contractor's markup on Subcontractors shall be five percent (5%).

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4. Labor and equipment rates shall be as provided as part of the original Bid document.

5.11. CLAIMS FOR EXTRA COST

- A. If the Contractor has any claims for additional cost or extension of time, they shall, within three days after the occurrence of the claim, and in any event before proceeding to execute the work, submit their claim in writing to the Owner, stating clearly in detail the basis of the claim. No such claim will be considered unless so made.
- B. Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.
- C. Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall at once be reported to the Owner and work shall not proceed except at the Contractor's risk, until written instructions have been received by him from the Owner.
- D. If, on the basis of the available evidence, the Owner determines that an adjustment of the Contract Price and/or Time is justifiable, the procedure shall be as provided in Section 109 hereof.

5.12. TERMINATION, DELAYS, AND LIQUIDATED DAMAGES

- A. Termination of Contract: If the Contractor or any of their Subcontractors refuses or fails to prosecute the work with such diligence as will ensure its completion within the time specified in these Contract Documents, or as modified as provided in these Contract Drawings, or violates any other Provisions of this Contract, the Owner, by written notice to the Contractor, may terminate the Contractor's right to proceed with the work. Upon such termination, the Owner may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and their sureties shall be liable to the Owner for any additional cost incurred by the Owner in its completion of the work and they shall also be liable to the Owner for liquidated damages for any delay in the completion of the work as provided below. If the Contractor's right to proceed is so terminated, the Owner may take possession of and utilize in completing the work such materials, tools, equipment, and plant as may be on the site of the work and necessary therefor.
- B. Liquidated Damages for Delays: If the work is not completed within the time stipulated in the SPECIAL CONDITIONS, Section 302, including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the Owner as fixed, agreed, and liquidated damages for each calendar day of delay, until the work is completed, the amount as set forth in SPECIAL CONDITIONS, Section 303, and the Contractor and their sureties shall be liable to the Owner for the amount thereof.
- C. Excusable Delays: An excusable delay is defined as a delay to the Contract or Milestone/phase completion date which was unforeseeable and beyond the Contractor's control and not caused by the Contractor's fault or negligence and for which a Contract or Milestone time extension may be granted by the Owner. Excusable delays include the following:
1. Acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency;

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2. Acts of the Owner;
 3. Causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to acts of God or of the public enemy, acts of another Contractor in the performance of some other contract with the Owner, fires, floods, epidemics, pandemics, quarantine, restriction, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones, and other extreme weather conditions; and
 4. Any delay of any Subcontractor occasioned by any of the causes specified in subparagraphs (1), (2) and (3) of this paragraph "C". Provided, however, that the Contractor promptly notify the Owner within three (3) days in writing of the cause of the delay. Upon receipt of such notification the Owner shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

5.13. ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the Owner's sole discretion.

5.14. DISPUTES

- A. Disputes to be resolved in accordance with the Rhode Island General Law Tittle 37, Chapter 37-16 et seq.
- B. All claims, disputes, and other matters in question arising out of or relating to this contract or the performance or interpretation thereof shall be submitted to arbitration. Arbitration shall be commenced by a demand in writing made by one party to the contract upon the other within a reasonable time after the dispute, claim, or other matter in question arose but in no event after payment in full of the contract price has been made and accepted. The written demand shall contain a statement of the question to be arbitrated and a detailed statement of each item or matter in dispute and the name of the arbitrator appointed by that party. The other party to the contract within ten (10) days of the receipt of the written demand shall appoint an arbitrator and give notice in writing thereof to the party who commenced arbitration. The two (2) arbitrators appointed by the parties shall within ten (10) days of the date of the appointment of the second arbitrator select a third arbitrator who shall be designated as chairperson and who immediately shall give written notice to the parties of their appointment. The third arbitrator shall select a time, date, and place for hearing and give each party five (5) days notice in writing thereof. The date for hearing shall not be more than fifteen (15) days after the date of appointment of the third arbitrator. The award shall be made promptly by the arbitrators and, unless otherwise agreed by the parties or specified by law, no later than thirty (30) days from the date of closing the hearing, or, if oral hearings have been waived, from the date of the transmittal of the final statements and proofs to the arbitrators. The award shall be in writing and shall be signed by a majority of the arbitrators. It shall be executed in the manner required by law. The arbitrator shall provide a written explanation of the reasoning for the award. In the event the party of whom arbitration is demanded shall fail to appoint their arbitrator within the time specified or the two (2) arbitrators appointed by the parties are unable to agree on an appointment of the third arbitrator within the time specified, either party may petition the presiding justice of the superior court to appoint a single arbitrator who shall hear the parties and make an award as provided herein. The petitioner shall give five (5) days notice in writing to the other party before filing their petition.

5.15. TECHNICAL SPECIFICATIONS AND DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Technical Specifications, shall be of like effect as if shown on or mentioned in both. In case of any difference or discrepancy in Drawings or Technical Specifications, the matter shall be immediately submitted to the Owner, without whose decision, said difference/discrepancy shall not be adjusted by the Contractor, save only at their own risk and expense.

5.16. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

It shall be the responsibility of the Contractor to make timely requests of the Owner for any additional information not already in their possession which should be furnished by the Owner under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need is approached, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. The additional drawings and instructions thus supplied to the Contractor will coordinate with the Contract and instructions thus supplied to the Contractor will coordinate with the Contract Documents and will be so prepared so that they can be reasonably interpreted as part thereof. The Contractor shall carry out the work in accordance with the additional detail drawings and instructions. The Contractor and the Engineer will prepare jointly a schedule, fixing the dates at which special detail drawings will be required, such drawings if any, to be furnished by the Engineer in accordance with said schedule, and a schedule fixing the respective dates for the submission of shop drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment, and the completion of the various parts of the work; each such schedule to be subject to change from time to time in accordance with the progress of the work. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in their work or to others arising from their failure to comply fully with the provisions of this Section.

5.17. SHOP DRAWINGS

- A. The Contractor shall submit promptly to the Engineer each shop drawing, machinery or equipment details, layout drawings, or setting drawing, etc., prepared in accordance with the schedule predetermined as aforesaid. After examination of such drawings by the Engineer and returned approval/denial, the Contractor shall make such corrections to the drawings as have been indicated and shall submit new shop drawings. Regardless of corrections made in or approval given to such drawings by the Engineer, the Contractor will nevertheless be responsible for the accuracy of such drawings and for their conformity to the drawings and specifications, unless they notify the Engineer in writing of any deviations at the time they furnish such drawings.
- B. The Contractor is required to have a portal to provide the Owner access to shop drawing documents. The portal shall be maintained for five years. The Owner shall be afforded administrative access. Five (5) seats shall be provided to the Owner.
- C. Shop drawings of all fabricated work shall be submitted to the Engineer for approval and no work shall be fabricated by the Contractor save at their own risk until approval has been given.
- D. The Contractor shall submit all shop and setting drawings and dates sufficiently in advance of requirements to enable the Engineer ample time for checking same, including time for correction, resubmission and recheck if necessary, and no claim for delay will be granted the Contractor by reason of their failure in this respect.

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- E. All shop drawings submitted must bear the stamp of approval of the Contractor as evidence that the Drawings have been checked by the Contractor. Any drawings submitted without this stamp of approval will not be considered and will be returned to the Contractor for resubmission. If the shop drawings show variations from the requirements of the Contract Documents because of standard shop practice or other reason, the Contractor shall make specified mention of such variation in their letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment; otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the contract documents even though such shop drawings have been approved.
- F. Where shop drawings are submitted by the Contractor that indicate a departure from the Contract which the Engineer deems to be a minor adjustment in their interest and not involving a change in the Contract price or extension of time, the Engineer may approve the drawings by the approval will contain, in substance, the following:
- The modification shown on the attached drawings is approved in the interest of the Owner to effect an improvement for the Project and is ordered with the understanding that it does not involve any change in the Contract price or time; that it is subject generally to all Contract stipulations and covenants; and that it is without prejudice to any and all rights of the Owner under the contract and surety bond or bonds.
- G. The approval of shop drawings will be general and shall not relieve the Contractor from the responsibility for adherence to the Contract nor shall it relieve him of the responsibility for any error which may exist.
- H. The Contractor agrees to hold the Engineer and the Owner harmless and defend them against damages or claims for damages arising out of injury to others or property of third persons which result from errors on shop, working or setting drawings whether or not the same have been approved by the Engineer and/or the Owner.

5.18. MATERIALS AND WORKMANSHIP

- A. Unless otherwise specifically provided for in the Technical Specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the Technical Specifications as "equal to" any particular standard, the Engineer shall decide the question of equality. Whenever a material or article required is specified or shown on the drawings by using the name of the proprietary product or of a particular manufacturer or vendor, any material or article which will perform adequately the duties imposed by the general design may be considered equal and satisfactory providing the material or article so proposed is of equal substance and function in the opinion of the Engineer. It shall not be purchased or installed without their written approval. In all cases, new material shall be used in the project. If two or more brands, makes or material, devices or equipment are shown or specified, each should be regarded as the approved equal of the other. Any other brand, make of material, device or equipment, which in the opinion of the Engineer or their authorized agent, is the recognized approved equal of that specified, considering quality, workmanship and economy of operation and is suitable for the purpose intended, may be accepted.
- B. The Contractor shall furnish to the Owner for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval as required full information concerning all other materials or articles which he proposes to incorporate in the work.

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- C. Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.
 - D. Materials specified by reference to the number or symbol of a specific standard, such as an A.S.T.M. Standard, a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof any amendment or supplement thereto in effect on the date of the invitation for Bids, except as limited to type, class or grade, or modified in such reference. The Standards referred to, except as modified in the Technical Specifications shall have full force and effect as though printed therein.
 - E. The Owner may require the Contractor to dismiss from the work such employee or employees as the Owner or the Engineer may deem incompetent, or careless, or insubordinate.

5.19. SAMPLES, CERTIFICATIONS AND TESTS

- A. The Contractor shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the Contract Documents, or required by the Engineer, promptly after award of the Contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the Contract time.
- B. Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with Contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Engineer in passing upon the acceptability of the sample promptly. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.
- C. Approval of any materials shall be general only, and shall not constitute a waiver of the Owner's right to demand full compliance with the Contract Documents after actual deliveries, the Engineer will have such check tests made as they deem necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.
- D. Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:
 - 5. The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer or testing agency, however, the Contractor shall cooperate with and assist the Engineer or testing agency in the taking of samples on the project where the taking of samples is deemed necessary by the Engineer.
 - 6. The Contractor shall assume all costs of retesting materials which fail to meet contract requirements. The Contractor shall assume all costs of testing materials offered in substitution for those found deficient. All other expenses for testing of materials will be paid for by the Owner.

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- E. Testing and inspection of the various materials, equipment, or articles, etc., heretofore mentioned shall be performed by testing agency or agencies selected by the Owner.
 - F. Payments to the testing agency or agencies shall be paid for by the Local Owner.

5.20. PERMITS AND LICENSES

- A. The Contractor shall give all notices required by and comply with all applicable laws, ordinances, standard requirements, and codes of the Local Government. All construction work and/or utility installation shall comply with all applicable ordinances, standard requirements, and codes including all written waivers. Before installing any work, the Contractor shall examine the Drawings and Technical Specifications for compliance with applicable ordinances, standard requirements and codes and shall immediately report any discrepancy to the Owner. Where the requirements of the Drawings and Technical Specifications fail to comply with such applicable ordinances, standard requirements, or codes, the Owner will adjust the Contract by Change Order to conform to such ordinances, standard requirements, or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated prices. Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance, standard requirement, or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the Drawings and Technical Specifications), the Contractor shall remove such work without cost to the Owner, but a Change Order will be issued to cover only the excess cost the Contractor would have been entitled to receive if the change had been made before the Contractor commenced work on the items involved.
- B. The Contractor shall, at their own expense, secure and pay to the appropriate department of the Local Government the fees or charges for all permits for street pavement, sidewalks, sheds, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies. The required permits shall be those set forth in SPECIAL CONDITIONS, Section 6.66.
- C. The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements embraced in this Contract.

5.21. CARE OF WORK

- A. The Contractor shall be responsible for all damages to person or property that occur as a result of their fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the Owner.
- B. The Contractor shall provide at their own expense sufficient competent watchmen, both day and night, including Saturday, Sundays, and holidays, from the time the work is commenced until final completion and acceptance.
- C. In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the Owner, is authorized to act at their discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the Owner. Any compensation claimed by the Contractor on

account of such emergency work will be determined by the Owner as provided in the GENERAL CONDITIONS, PART 1, Section 109.

- D. The Contractor shall avoid damage as a result of their operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at their own expense completely repair any damage thereto caused by their operations.
- E. The Contractor shall shore up, brace, underpin, secure, and protect as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Improvements embraced in this Contract. The Contractor shall be responsible for giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Owner from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Owner may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

5.22. ACCIDENT PREVENTION AND JOB SAFETY

- A. The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of their prosecution of the work. The safety provisions of applicable laws and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the Owner may determine to be reasonable necessary. Further, the Contractor shall comply, and shall cause all Subcontractors to comply with all applicable provisions of the U.S. Department of Labor "Williams-Steiger Occupational Safety and Health Act of 1970."
- B. The Contractor shall maintain an accurate record of all cases of death, occupational disease, or injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Owner with reports concerning these matters.
- C. The Contractor shall indemnify and save harmless the Owner and the Engineer from any claims for damages resulting from property damage, personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.
- D. Upon execution of the Contract, the Contractor shall provide their Safety Program to the Owner.

5.23. SANITARY FACILITIES

- A. The Contractor shall furnish, install, and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and Local Government. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.
- B. Sanitary facilities shall not be placed in the public right-of-way.

5.24. USE OF PREMISES

- A. The Contractor shall confine their equipment, storage of materials, and construction operations to the Contract Limits as shown on the Drawings and as prescribed by ordinances or permits, or as may be desired by the Owner, and shall not unreasonably encumber the site or public rights-of-way with their materials and construction equipment.
- B. The Contractor shall comply with all reasonable instructions of the Owner and the ordinances and codes of the Local Government, regarding signs, advertising, traffic, fires, explosives, danger signals and barricades.
- C. The Contractor is not permitted to store equipment or stockpiles in the public right-of-way.

5.25. REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights-of-way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for the work and put the whole site to the work and public rights-of-way in a neat and clean condition. No trash burning will be permitted on the site of the work. The Contractor shall obey all Owner and existing State and local regulations.

5.26. INSPECTION

- A. All materials and workmanship shall be subject to inspection, examination, or test by the Owner and the Engineer at any and all times during manufacture or construction and at any and all places where such manufacture or construction is carried on. The Owner shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge therefor. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the Owner may by Contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any monies which may be due the Contractor, without prejudice to any other rights or remedies of the Owner.
- B. The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. (See Section 519 hereof.) All tests by the Owner will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the Technical Specifications.
- C. The Contractor shall notify the Owner sufficiently in advance of backfilling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the Owner, the Contractor shall uncover for inspection and recover such facilities all at their own expense, when so requested by the Owner. Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or their Subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus 15% of such costs to cover superintendence, general expenses and profit, shall be allowed the Contractor and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

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- D. Inspection of materials and appurtenances to be incorporated in the Improvements embraced in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the Technical Specifications, shall be final except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.
 - E. Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the Owner or its agents shall relieve the Contractor or their sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

5.27. REVIEW BY OWNER

The Owner, its authorized representatives and agents shall, at all times, have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however, that all instructions and approval with respect to the work will be given to the Contractor only by the Owner through its authorized representatives or agents.

5.28. FINAL INSPECTION

When the Improvements embraced in this Contract are substantially completed, the Contractor shall notify the Owner in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The notice will be given at least ten (10) days prior to the date stated for final inspection and bear the signed concurrence of the representative of the Owner having charge of inspection. If the Owner determines that the status of the improvements is as represented, it will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable. The inspection party will also include the representatives of each department of the Local Government.

5.29. CORRECTION OF WORK

All work, all materials, whether incorporated in the work or not, all processes of manufacture, and all methods of construction shall be at all times and places subject to the inspection of the Engineer who shall be the final judge of the quality and suitability of the work, materials, processes of manufacture and methods of construction for the purposes for which they are used. Should they fail to meet their approval they shall be forthwith reconstructed, made good, replaced and/or corrected, as the case may be, by the Contractor, at their own expense. Rejected material shall immediately be removed from the site. If, in the opinion of the Engineer and the Owner, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgment of the Owner shall be equitable. The Contractor shall be responsible for all costs associated with correction of work, including but not limited to police details, construction management/inspection, Traffic Engineering fees and materials testing.

5.30. INSURANCE

Contract Party shall procure Required Insurance as defined herein:

- A. At the sole cost and expense of Contract Party.
- B. Obtain and maintain such Required Insurance in full force and effect during the entire term of the Contract until all obligations of Contract Party have been discharged, including any warranty periods or extended reporting periods, against claims that may arise out of, are

alleged to arise out of, directly or indirectly, in whole or in part, from or in connection with the Contract and/or result from the performance of the Contract.

- C. Any deductible, self-insured retention, or form of self-insurance under the policies shall be the sole responsibility of the Contract Party and shall be disclosed to and acceptable to the Owner.
- D. Any required liability insurance policy that is to insure any form of products liability and/or completed operations exposure created by Contract Party must provide extended coverage as follows:
 - 1. When required liability insurance policy uses "Occurrence" coverage trigger (Including that known as "Reported Occurrence"):
 - (a) Policy issued by same insurer for Contract Party as of effective date of Contract between State and Contract Party or by comparable insurer providing renewal insurance policy of 1-same coverage terms and conditions of prior expired policy or 2-coverage at least equal to that required by Contract.
 - 2. Such coverage must be provided for a period of not less than five (5) years after the later of:
 - (a) when the Contract has ended; or
 - (b) when products or services have been put to intended use; or
 - (c) when hardware, software, buildings, other physical structures or repairs have been put to intended use.
 - 3. Such required insurance can be provided by annual insurance policies or by single runoff policy commonly referred to as "discontinued products or operations."
- E. When required liability insurance policy uses any form of "claims-first made trigger:"
 - 1. Policy issued by same insurer for Contract Party as of effective date of Contract between State and Contract Party or by comparable insurer providing renewal insurance policy of 1-same coverage terms and conditions of prior expired policy or 2-coverage at least equal to that required by Contract and provide the Owner with an additional endorsement for additional insured requirements.
 - 2. Provide coverage with a retroactive date on or before the effective date of the Contract or at the beginning of Contract work.
 - 3. Such coverage must be provided for a period of not less than five (5) years after the later of:
 - (a) when the Contract has ended; or
 - (b) when products or services have been put to intended use; or
 - (c) when hardware, software, buildings, other physical structures or repairs have been put to intended use.
 - 4. Such required insurance can be provided by annual insurance policies or by single runoff policy commonly referred to as "discontinued products or operations".

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5. If “claims-first made” liability insurance policy is cancelled or not renewed, and not replaced with another claims-made policy form with a retroactive date prior to the Contract date, the Contract Party must purchase extended reporting coverage for a minimum of five (5) years after completion of work.
 6. Required Insurance limits to be provided by single insurance policy or through “follow form primary” layered excess insurance policies to obtain overall required limit(s).
 7. Contract Party’s subcontractors to maintain same insurance.
 8. Any insurance obtained by Contract Party that includes an “insured vs. insured” exclusion must be revised to exclude State and Owner as Additional Insured.
 9. The Owner reserve the right to consider and accept alternative forms and plans of insurance or to require additional more extensive coverage for any individual requirement and can modify types of insurance and revise limits required of Contract Party at any time during the term of this Contract.

F. Required Insurance:

1. Commercial General Liability Insurance:

Commercial General Liability Insurance (“CGL”) based on Insurance Services Office (“ISO”) most recent version of Commercial General Liability policy form CG00 01, or its equivalent:

- (a) Covering bodily injury (including death), broad form property damage, personal and advertising injury, independent contractors, products and completed operations and contractual liability.
- (b) Such insurance coverage is subject to a minimum combined single limit of \$1,000,000 per occurrence, \$2,000,000 general aggregate and \$1,000,000 products/completed operations aggregate.
- (c) The general aggregate must be on a “per project” or “per location” basis.
- (d) Shall include waiver of subrogation in favor of State and City of Providence.
- (e) Include State and Owner as additional insured on a primary and non-contributory basis.
- (f) The Contract Party shall submit a copy of any policy endorsement, or blanket endorsement, evidencing the State and Owner as additional insured on a primary and non- contributory basis and a waiver of subrogation in favor of State and Owner. All endorsements shall be subject to review and approval by the authorized State personnel.
- (g) Any time Contract Party is responsible for construction of any kind the additional status for State shall include additional Insured-products/completed operations in addition to additional insured-premises/operations.

2. Automobile Liability Insurance:

Automobile Liability Insurance based on ISO most recent version of Business Automobile Policy (“BAP”) CA 00 01, or its equivalent:

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- (a) Covering bodily injury and property damage for any vehicles used in conjunction with the performance of this Contract including owned, non-owned, and hired vehicles.
 - (b) If a Contract Party does not own any vehicle at any time during the duration of this Contract then the Contract Party can seek hired and non-owned automobile coverage as provided by BAP or by hired non-owned automobile coverage endorsement to CGL.
 - (c) At a minimum Contract Party must maintain hired and non-owned automobile coverage for the full duration of this Contract.
 - (d) Such insurance coverage is subject to a minimum combined single limit of \$1,000,000 per occurrence and \$2,000,000 aggregate.
 - (e) Shall include waiver of subrogation in favor of State and City of Providence.
3. Workers' Compensation and Employers' Liability:
- (a) Statutory coverage as required by the workers' compensation laws of the State of Rhode Island, plus any applicable state law other than State of Rhode Island if employee(s) state of hire is other than State of Rhode Island or employee(s) work related to the Contract is not in the State of Rhode Island.
 - (b) Policy form based on NCCI or its equivalent.
 - (c) Employers' Liability with minimum limits of \$500,000 each accident, \$500,000 disease or policy limit and \$500,000 each employee or minimum amount necessary for umbrella/excess liability policy of Contract Party.
 - (d) A Contract Party neither eligible for, nor entitled to, Worker's Compensation who is an independent Contract Party under Rhode Island law must comply with the statutory procedure precluding an independent Contract Party from bringing a workers' compensation claim against the State or the Owner.
 - (e) Policy to include waiver of subrogation in favor of State and Owner.
 - (f) The Contract Party shall submit a copy of any policy endorsement or blanket endorsement evidencing the waiver of subrogation in favor of the State and Owner. All endorsements shall be subject to review and approval by the State authorized personnel.
4. Umbrella Liability Insurance
- (a) \$5,000,000 per occurrence and \$5,000,000 in aggregate.
5. Pollution Liability Insurance
- (a) \$2,000,000 policy limit
- G. All Required Insurance shall be placed with insurers:
- 1. Authorized to do business in Rhode Island.
 - 2. Rated "A-," class X or better by A.M. Best Company, Inc.

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3. Any insurer with a lesser financial rating must be approved by the authorized State personnel.
- H. The legal defense provided to the State and the Owner under the policy and any endorsements must be free of any conflicts of interest, even if retention of separate legal counsel for the State and the Owner is necessary.
- I. As evidence of the insurance required by this Contract, the Contract Party shall furnish to Owner Certificates of Insurance, including confirmation of all required policy endorsements including, but not limited to, additional insured endorsements:
1. In form acceptable to the Owner prior to project award. Failure to comply with this provision may result in rejection of the bid offer.
 2. All certificates of insurance, whenever issued, shall include the requirement of the insurer for thirty (30) days advance written notice of cancellation or non-renewal of any insurance policy to the Owner. Contract Party shall also immediately notify the Owner if the Required Insurance is cancelled, non-renewed, potential exhaustion of policy limits or otherwise changed.
 3. Certificates of Insurance and required endorsements shall thereafter be submitted annually or earlier upon expiration and renewal of any of the policies.
 4. All Certificates of Insurance and to the extent possible endorsements shall reference the State procurement number.
 5. Owner retains the right to demand a certified copy of any Required Insurance policy, Certificate of Insurance or endorsement.
 6. The Contract Party shall submit a copy of any policy endorsement, or blanket endorsement, evidencing the Owner as additional insureds on a primary and non-contributory basis and a waiver of subrogation in favor of Owner. All endorsements shall be subject to review and approval by the Owner.
- J. The Contract Party shall be responsible to obtain and maintain insurance on any real or personal property owned, leased or used by Owner that is in the care, custody or control of Contract Party. All property insurance of Contract Party must include a waiver of subrogation that shall apply in favor of the Owner.
- K. No warranty is made that the coverages and limits listed herein are adequate to cover and protect the interests of the Contract Party for the Contract Party's operations. These are solely minimums that have been established to protect the interest of the Owner.
- L. Owner shall be indemnified and held harmless as required by the Contract and to the full extent of any coverage actually secured by the Contract Party in excess of the minimum requirements set forth above.
- M. The Contract Party shall use at its own risk and insure at its own cost any of its owned, leased or used real or personal property. All such insurance of Contract Party must include a waiver of subrogation that shall apply in favor of the Owner.
- N. The Contract Party shall comply with any other insurance requirements including, but not limited to, additional coverages or limits contained in the procurement or solicitation.
- O. Failure to comply with these Insurance Requirements is a material breach entitling the Owner to terminate or suspend the Contract immediately.

P. These Insurance Requirements shall survive expiration or termination of the Contract.

5.31. PATENTS

The Contractor shall hold and save the Owner, its officers and employees, harmless from liability of any nature or kind, including costs and expenses, for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated in the Technical Specifications.

5.32. WARRANTY OF TITLE

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvement and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens, or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

5.33. GENERAL GUARANTEE

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the Improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of 24 months from the date of final acceptance of the work. Final acceptance shall be defined as the date in which all outstanding punch list items are completed and when all work items identified during the final inspection are completed. The Owner will give notice of defective materials and work with reasonable promptness.

5.34. REPRESENTATIONS OF CONTRACTOR

The Contractor represents and warrants:

- A. That they are financially solvent and that they are experienced and competent to perform the type of work or furnish the plant, material, supplies, or equipment to be performed or furnished by them; and
- B. That they are familiar with all Federal, State, municipal and department laws, ordinances, orders and regulations which may in any way effect the work of those employed therein, including but not limited to any special, acts relating to the work or to the project of which it is a part; and
- C. That such temporary and permanent work required by the Contract Documents to be done by them can be satisfactorily constructed and used for the purpose for which it is intended, and that such construction will not injure any person or damage any property; and

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- D. That they have carefully examined the Drawings, Technical Specifications and addendum (or addenda), if any, and the site of the work, and that from their own investigation they have satisfied themselves as to the nature and location of the work, the character, quality and quantity of surface and subsurface materials likely to be encountered, the character of equipment and other facilities needed for the performance of the work, the general and local conditions, and all other materials which may in any way affect the work or its performance.

5.35. WEATHER CONDITIONS

In the event of temporary suspension of work, or during inclement weather, or whenever the Engineer shall direct, the Contractor shall, and shall cause their Subcontractors to protect carefully their work and materials against damage or injury from the weather at no additional cost to the Owner. If, in the opinion of the Engineer, any work or material shall have been damaged or injured by reason of failure on the part of the Contractor or any of their Subcontractors so to protect their work, or otherwise damaged by the negligence of the Contractor, Subcontractors or their agents or servants, or is otherwise defective, such materials shall be removed and replaced at the expense of the Contractor. Special attention shall be given to the winter shutdown period. All temporary patching to make the roads passable or to keep driveways open and safe, shall be done at no additional cost to the Owner.

5.36. QUANTITIES OF ESTIMATE

Wherever the estimated quantities of work to be done and materials to be furnished under this contract are shown in any of the Contract Documents including the Bid (proposal), they are given for use in comparing bids and the right is especially reserved by the Owner to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner, and such increase or diminution shall in no way vitiate claims or liability for damages except as provided for in Section 109 hereof.

5.37. NOTICE AND SERVICE THEREOF

- A. The service of any notice, letter or other communication shall be deemed to have been made to one of the contracting parties on the other party to the Contract when such letter, notice or other communication has been delivered to the legal office address of the addressee, by a duly authorized representative of the address or in person, or when such notice, letter or other communication has been deposited in any regularly maintained mailbox of the United States Postal Department in a properly addressed, postpaid wrapper. The date of such service shall be considered to be the date of such personal delivery or mailing.
- B. The address of the Contractor noted in their bid (proposal) and/or the address of their field office on or near the site of the work hereunder shall be considered as their legal address for the purposes as above set forth.

5.38. PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and 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 or correction.

5.39. RELEASES

- A. Neither the final payment nor any part of the retained percentage shall become due until the Contractor delivers to the Owner a complete release of all liens, damages, and/or release of liens arising out of this contract, or receipts in full in lieu thereof, and an affidavit that so far as

5. GENERAL CONDITIONS

he has knowledge or information the releases and receipts include all the labor and material for which a lien could be filed, but the Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner to indemnify him against any liens. If any liens remain unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

- B. THE OWNER, PRIOR TO MAKING EACH PAYMENT TO THE CONTRACTOR, may require the Contractor to furnish releases or receipts from any or all persons / firms performing work and supplying material or services to the Contractor, or any Subcontractor, if deemed necessary to protect its interest.

5.40. CONTRACTOR'S OBLIGATIONS

- A. The Contractor shall and will in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this Contract, within the time herein specified, in accordance with the provisions of this Contract and said Technical Specifications and in accordance with the Plans and Drawings covered by this contract and any and all supplemental Plans and Drawings, and in accordance with the directions of the Engineer as given from time to time during the progress of the work as may be required. He alone shall be responsible for the safety, efficiency and adequacy of their plant, appliances and methods and for any damage which may result from their failure or their improper construction, maintenance or operation. The Contractor shall observe, comply with and be subject to all terms, conditions, requirements and limitations of the Contract specifications, and shall do, carry on, and complete the entire work to the satisfaction of the Engineer and the Owner.
- B. The Contractor shall be solely responsible for all the work and shall provide all precautionary measures necessary for preventing injury to persons or damage to property. All injury or damage of whatever nature resulting from the work or resulting to persons, property or the work during its progress, from whatever cause, shall be the responsibility of and shall be borne and sustained by the Contractor. The Contractor shall hold the Engineer, the Owner or their agents harmless and defend and indemnify the Engineer and the Owner or their agents against damages or claims for damages due to injuries to persons or to property arising out of the execution of the work and for damages to materials furnished for the work, infringement of inventions, patents and patent rights used in doing the work, or damages arising out of the use of any improper materials, equipment, or labor used in the work, and for any act, omission or neglect of the Contractor, their agents, employees and their Subcontractors therein. He shall bear all losses resulting to him including but not limited to losses sustained on account of character, quality or quantity of any part or all of the work, or because the nature of the land in or on which the work done being different from what was estimated or indicated, or on account of the weather, elements or other causes.

5.41. ENGINEER'S AUTHORITY

- A. The Engineer shall give all orders and directions contemplated under this Contract and Technical Specifications relative to the execution of the work. The Engineer shall determine the amount, quality, acceptability and fitness of the several kinds of work and materials which are to be paid for under this Contract and shall decide all questions which may arise in relation to said work and construction thereof. The Engineer's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said Contract or Technical Specifications, the determination or decision of the Engineer shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this Contract affected in any manner or to any extent by such question. The Engineer shall decide the meaning and intent

of any portion of the Technical Specifications and of any Plans or Drawings where the same may be found obscure or be in dispute. Any differences or conflicts in regard to their work which may arise between the Contractor under this Contract and other Contractors performing work for the Owner shall be adjusted and determined by the Engineer.

- B. The Engineer does not have unilateral authority and shall work collaboratively with the Owner.

5.42. ALL WORK SUBJECT TO CONTROL BY ENGINEER

- A. In the performance of the work, the Contractor shall abide by all orders, directions and requirements of the Engineer or their designee, and shall perform all work to the satisfaction of the Engineer, and at such time and places, by such methods and in such manner and sequence as he may require. The Engineer shall determine the amount, quality, acceptability and fitness of all parts of the work. The Engineer shall interpret the Drawings, Technical Specifications, Contract, all other documents and the extra work orders. The Engineer shall also decide all other questions in connection with the work. The Contractor shall employ no plant, equipment, materials, methods or men to which the Engineer objects and shall remove no plant, materials, equipment or other facilities from the site of the work without the Engineer's permission. Upon request, the Engineer will confirm in writing any oral order, direction, requirement or determination.
- B. Inspectors shall be authorized to inspect all work done and material furnished. Such inspection may extend to all or any part of the work, and to the preparation or manufacture of the materials to be used. The presence or absence of an Inspector shall not relieve the Contractor from any requirements of the Contract. In case of any dispute arising between the Contractor and the Inspector as to materials furnished or the manner of performing the work, the Inspector shall have the authority to reject material or suspend the work until the question at issue can be referred to and decided by the Engineer. The Inspector shall not be authorized to revoke, alter, enlarge, relax or release any requirement of these specifications, nor to approve or accept any portion of the work, nor to issue instructions contrary to the drawings and specifications. The Inspector shall in no case act as foreman or perform other duties for the Contractor, or interfere with the management of the work by the latter. Any advice which the Inspector may give the Contractor shall in no wise be construed as binding the Owner or the Engineer in any way nor releasing the Contractor from the fulfillment of the terms of the contract.

5.43. INTERPRETATION OF DRAWINGS AND TECHNICAL SPECIFICATIONS

- A. Except the Contractor's executed set, all Drawings and Technical Specifications are the property of the Owner. The Owner will furnish the Contractor electronic files of Drawings and Technical Specifications. The Contractor is responsible to print the documents to supply to construction personnel.
- B. The Contractor shall keep at the site of the work one copy of the Drawings and Technical Specifications, and shall at all times give the Owner and the Engineer and their representatives access thereto. Anything shown on the Drawings and not mentioned in the Technical Specifications, or mentioned in the Technical Specifications and not shown on the Drawings, shall have the same effect as if shown or mentioned in both. In case of any conflict or inconsistency between the Drawings and Technical Specifications, the Specifications shall take precedence. Any discrepancy in the Technical Specifications and the Drawings shall be immediately submitted by the Contractor to the Owner and Engineer for decision and the decision thereon by the Owner and Engineer shall be final. In case of differences between small and large scale drawings, the larger scale drawings shall take precedence.

5.44. ENGINEER'S CONTROL NOT LIMITED

The enumeration in this Contract of particular instances in which the opinion, judgment, discretion or determination of the Engineer shall control or in which work shall be performed to their satisfaction or subject to their approval or inspection, shall not imply that only matters similar to those enumerated shall be so governed and performed, but without exception all the work shall be so governed and performed.

5.45. CONTRACT AND CONTRACT DOCUMENTS

The Drawings, the Technical Specifications and Addendum (or Addenda), the Advertisement, the Information for and Notice To Bidders, and the Bid (Proposal) as accepted by the Owner as evidenced by the Owner's Notice to Award to the Contractor, which Notice is made a part of this Contract. Special Provisions and the General Provisions shall form a part of this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The table of contents, titles, headings, running headlines and marginal references to various provisions of the Contract Documents are in no way to affect, limit or cast light on the interpretation of the provisions to which they refer. Whenever the term "Contract Documents" is used, it shall mean and include this Contract, the enumerated Drawings, Special Provisions, General Provisions, the Technical Specifications, the Advertisement, the enumerated Addendum (or Addenda), Information for Bidders, the Bid (Proposal) as accepted by the Owner. The Owner shall interpret their own requirements. In case of any conflict or inconsistency between the provisions or this signed portion of the Contract and those of the Technical Specifications, the provisions of this signed portion of the Contract shall govern.

5.46. LIST OF DRAWINGS:

The list of Drawings for the project can be found in the SPECIAL CONDITIONS, Section 6.70.

5.47. COORDINATION WITH UTILITIES

- A. The Contractor shall arrange and cooperate with the various utility corporations or other parties interested in connection with the relocation and maintenance of all public fixtures when necessary and appurtenances or service connections within or adjacent to the limits of construction, as directed by the Engineer. There shall be no additional payment for such coordination. The Contractor shall be aware of such projects and prepare the schedule accordingly.
- B. The Contractor will be responsible for any damage done to any utility poles or lines, curbing, basins, hydrants, water and sewer lines, conduits and other accessories and appurtenances of a similar nature which are fixed or controlled by the City Public Utility Company or Corporation. They shall perform and carry out their work in such a manner as not to interfere with or damage fixtures mentioned herein, or as shown on the Plans or discovered during construction.
- C. The Contractor shall notify the affected Utility companies at least fourteen (14) calendar days prior to commencing work in the location of the respective utility.
- D. The purpose of this advanced notification is to allow the utility company ample time to adjust, reconstruct or reset utility features within the influence of the Work of the roadways and sidewalks scheduled for construction.

5.48. MAINTENANCE OF FIRE LANES

Fire lanes designated by the Department of Public Safety must be accessible at all times for firefighting equipment, other emergency apparatus and traffic crossing.

5.49. "OR APPROVED EQUAL" CLAUSE

Whenever a material or article required is specified or shown on the Drawings by using the name of the proprietary product or of a particular manufacturer or vendor, any material or article which will perform adequately the duties imposed by the general design will be considered equal and satisfactory providing the material or article so proposed is of equal substance and function in the Engineer's and City's opinion. It shall not be purchased or installed without the Owner's written approval. In all cases new material shall be used on the project.

5.50. REPORTS, RECORDS AND DATA

The Contractor and each of their Subcontractors shall submit to the Owner such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Engineer may request concerning work performed or to be performed under this Contract.

5.51. SAFETY AND HEALTH REGULATIONS

These construction documents, and the joint and several phases of construction hereby contemplated, are to be governed, at all times, by applicable provisions of the Federal law(s), including, but not limited to, the latest amendments of the following:

- A. Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596;
- B. Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations;
- C. Part 1926 - Safety and Health Regulations for Construction, Chapter XVII of Title 29, Code of Federal Regulations.

5.52. PROTECTION OF LIVES AND PROPERTY

- A. In order to protect the lives and health of their employees under the Contract, the Contractor shall comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Incorporated, and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under this Contract.
- B. The Contractor alone shall be responsible for the safety, efficiency and adequacy of their plant, appliances and methods, and for any damage which may result from their failure or their improper construction, maintenance or operation.
- C. The Contractor shall be solely responsible for the acts and omissions of their agents, employees and their Subcontractors and their agents and employees and shall hold the Engineers and the Owner harmless and defend the injuries to others or property of others which result from said acts or omissions.

5.53. CONTRACTOR TO LAY OUT THEIR OWN WORK

The Contractor shall be responsible to lay out all the contract work and shall be responsible for the accuracy of all lines, grades and measurements, and conformance to the Americans with Disabilities Act.

5.54. SUBSURFACE DATA

- A. The Contractor shall be aware that some buildings in the City have basements and/or utility vaults under the sidewalks. The Contractor shall be solely responsible to verify the presence of building/utility vaults and use extreme care when working within or adjacent to sidewalks in front of buildings that may contain vaults. Any basement or utility vaults damaged by the Contractor while carrying out this Contract shall be repaired by the Contractor to the satisfaction of the Engineer at no additional charge to the Owner. The Contractor is solely responsible for the investigation of subsurface basement vaults. It is recommended that the Contractor perform a pre-existing conditions survey.
- B. Pavement cores have not been obtained by the Design Engineer. Core logs are not included in the Contract Documents.

5.55. NON-FEDERAL LABOR STANDARD PROVISIONS

The following Non-Federal Labor Standards Provisions, including the following provisions concerning maximum hours of work, minimum rates of pay, and overtime compensation, with respect to the categories and classifications of employees hereinafter mentioned are included in this Contract pursuant to the requirements of applicable State or local laws, but the inclusion of such provisions shall not be construed to relieve the Contractor or any Subcontractor from the pertinent requirements of any corresponding Federal Labor-Standards Provisions of this contract. In case the set forth in the Federal Labor Standards Provisions of this Contract for corresponding classifications, be the applicable minimum rates of pay for such classifications. The limitations, if any, in these employees engage on the work covered by this Contract may be required of permitted to work thereon shall not be exceeded.

- A. Other Stipulations
 - 1. The Contractor shall comply with the applicable provisions of all Rhode Island labor laws as administered by the Rhode Island State Department of Labor, including particularly the provisions of the following:
 - (a) Title 37, Chapter 13, Sections 1 to 14
 - (b) Title 28, Chapter 16, Sections 1 and 2
 - (c) Title 45, Chapter 32, Sections 43 and 44
- B. The Contractor shall further comply with the applicable provisions of the Rhode Island Employment Security Act and the Rhode Island Temporary Disability Insurance Act, and shall report, upon the certified copies of payrolls as required by the GENERAL CONDITIONS, all employer contributions made and all employee deductions taken in compliance with said Acts.
- C. The Contractor shall further comply with the applicable provisions of Title 28, Chapter 5, Sections 1 to 43, of the General Laws of Rhode Island, 1956 the State Fair Employment Practices Act, as amended.
- D. Schedule of Salaries and Wages

The rates of payment of wages, obligations and charges for labor by the contractor shall be not less than Davis-Wage determinations available online at <https://beta.sam.gov/>.

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6. SPECIAL CONDITIONS

6.1. PROJECT AREA

The Project Area for the Allens Avenue Slide Gate Rehabilitation is shown on the project drawings and generally encompasses the area around where the Fox Point Hurricane Barrier intersects with Allens Avenue.

6.2. TIME FOR COMPLETION

The work which the Contractor is required to perform under this Contract shall be commenced at the time stipulated by the Owner in the Notice to Proceed to the Contractor and shall be fully completed, including all punch list items by Wednesday, **May 31, 2023**. Time is of the essence and the construction needs to occur in a continuous manner without gaps in the work, unless an excusable delay occurs, as defined in GENERAL PROVISIONS PART I, Section 111.

6.3. LIQUIDATED DAMAGES

- A. Liquidated damages shall be as set forth below.
- B. The Contractor shall pay special attention to the timelines and liquidated damages associated with the substantial completion of the work. In the event the Engineer determines that the project is not substantially complete by **May 31, 2023**, as required herein, a daily charge will be deducted from monies due the Contractor.
- C. The charge for this Contract will be \$5,000.00 per day for each calendar day that the work is not in compliance.

6.4. RESPONSIBILITIES OF CONTRACTOR

Except as otherwise specifically stated in the Contract Documents and Technical Specifications, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fee or other expenses and all other services and facilities of every nature whatsoever necessary for the performance of the Contract and to deliver all improvements embraced in the Contract for Site Preparation complete in every respect within the specified time.

6.5. COMMUNICATIONS

- A. All notices, demands, requests, instructions, approvals, proposals, and claims must be in writing.
- B. Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may from time to time designate in writing to the Owner), or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.
- C. All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to the Department of Public Works, 700 Allens Avenue, Providence, Rhode Island 02905, and any notice to or demand upon the Owner shall be sufficiently given if so delivered, or if deposited in the United States mail in a sealed, postage-prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said Owner at such address, or to such other representatives of the Owner or

to such other address as the Owner may subsequently specify in writing to the Contractor for such purpose.

- D. Any such notice shall be deemed to have been given as of the time of actual delivery or (in the case of mailing) when the same should have been received in due course of post, or in the case of telegrams, at the time of actual receipt, as the case may be.

6.6. PARTIAL USE OF SITE IMPROVEMENTS

The Owner, at its election, may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the Technical Specifications and if in its opinion, each such section is reasonably safe, fit and convenient for the use and accommodation for which it was intended, provided:

- A. The use of such sections of the improvements shall in no way impede the completion of the remainder of the work by the Contractor.
- B. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.
- C. The use of such sections shall in no way relieve the Contractor of their liability due to having used defective materials or to poor workmanship.
- D. The period of guarantee stipulated under GENERAL CONDITIONS, Section 5.33, shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

6.7. WORK BY OTHERS

The Contractor will consult and cooperate with the utility companies to permit their work to proceed coincidentally with the work under this contract so as not to delay completion of the project.

6.8. CONTRACT DOCUMENTS AND DRAWINGS

The Owner will furnish the Contractor with three (3) paper copies and a CD/DVD containing the Contract Documents, Plans and Addenda without charge.

6.9. DISPOSAL OF SALVAGED MATERIALS

- A. All salvaged material such as granite curbing; manhole frames and covers; catch basin frames, grates, covers and traps; etc., not required to be installed in the work shall be removed and transported to the City of Providence, Department of Public Works storage yards located in the vicinity of 700 Allens Avenue, Providence, Rhode Island 02905.
- B. The above work shall be accomplished at no additional expense to the Owner but the cost of the work shall be included in the submitted unit price for the applicable items of work.
- C. The Contractor shall be responsible for arranging salvaged materials delivery and obtaining signed receipt(s) from responsible personnel at the above agencies listing material types and quantities salvaged and delivered. Copies of receipt(s) shall be provided said agencies and the Local Public Agency on the date of delivery.

6.10. PROVISION FOR FLOW OF PRESENT DRAINAGE

Provision for the flow of all sewers, drains and watercourses that are met or altered during construction shall be provided by the Contractor and all the connections shall be restored without

extra charge. All offensive matter shall be removed immediately with such precautions as may be directed. If required, the Contractor shall install temporary bypass connections for surface or pipe drainage facilities to provide uninterrupted or continuous service during the work of construction. Contractor is responsible to clean sediment and erosion control devices, as well as clearing standing water as a result of the presence of sediment and erosion controls immediately upon request, and at no additional charge.

6.11. WORK TO BE ACCOMPLISHED IN ACCORDANCE WITH THE DRAWINGS AND TECHNICAL SPECIFICATIONS

The work, during its progress and at its completion, shall conform to the lines and grades shown on the Drawings and to the directions given by the Engineer from time to time, subject to such modifications or additions as they shall determine to be necessary during the execution of the work; and in no case, will any work be paid for in excess of such requirements. The work shall also be accomplished in accordance with the date provided in Section 6.2 (Time for Completion), hereof.

6.12. CONTRACTOR TO CHECK DIMENSIONS AND SCHEDULES

The Contractor will be required to check all dimensions and quantities shown on the Drawings or schedules given to him by the Engineer and shall notify the Engineer of all errors therein which he may discover by examining and checking them. The Contractor shall not take advantage of any error or omissions in these Technical Specifications, Drawings or schedules. The Engineer will furnish all instructions should such errors or omissions be discovered, and the Contractor shall carry out such instructions as if originally specified.

6.13. PROTECTION OF TREES

The Contractor shall take special care to preserve and protect from injury all trees and other plant material to remain along the lines of construction. No such trees or plant material shall be removed or cut down, trimmed or otherwise cut without permission from the Engineer. Failure to comply may result in a fine by the City Forester.

6.14. REMOVAL OF WATER AND PROTECTION FROM FLOODING

The Contractor shall construct and maintain, at no additional expense to the Owner, all pumps, drains, well points or any other facility for the control and collection of groundwater and/or surface water and provide all pumps and piping for the removal of water from the trenches and excavations so that all trenches and excavations may be kept, at all times, free from water and so that all construction work may be performed in the dry. Any damage resulting from the failure of the dewatering operations of the Contractor and any damage resulting from the failure of the Contractor to maintain the areas of all work in a suitable dry condition, shall be repaired by the Contractor as directed by the Engineer, at no additional expense to the Owner. The Contractor's pumping and dewatering operations shall be carried out in such a manner as to prevent damage to existing structures and utilities and the contract work, and so that no loss of ground will result from these operations. Precautions shall be taken to protect new and existing work from flooding during storms or from other causes. Pumping shall be continuous where directed by the Engineer, to protect the work and/or maintain satisfactory progress. All pipe lines or structures not stable against uplift during construction or prior to completion shall be thoroughly braced or otherwise protected. Water from the trenches, excavations and drainage operations shall be disposed of in such a manner as will neither cause public nuisance, nor cause injury to public health nor to public or private property nor to the work completed, nor to the work in progress. No extra payment will be made for the removal of water, protection from flooding, drainage work, diversion of existing water courses and such other work; but compensation therefor shall be considered as having been included in the prices stipulated for the appropriate items of work as listed in the Bid.

6.15. HURRICANE PROTECTION

Should hurricane warnings be issued, the Contractor shall take every practicable precaution to minimize danger to persons, to the work and to adjacent property. These precautions shall include closing all openings, removing all loose materials, tools and/or equipment from exposed locations, and removing or securing scaffolding and other temporary work.

6.16. FIRST-AID TO INJURED

The Contractor shall keep in their office, ready for immediate use, all articles necessary for giving first aid to injured employees. He shall also provide arrangements for the immediate removal and hospital treatment of any employee injured on the work who may require the same.

6.17. CONFORMANCE WITH DIRECTIONS

The Engineer may make alterations in the line, grade, plan, form, dimensions or materials of the work, or any part thereof, either before or after the commencement of construction. If such alterations diminish the quantity included in any item of work to be done and paid for at a Unit Price, the Contractor shall have no claim for damages or for anticipated profits and the work that may thus be dispensed with. If they increase the quantity included in any such item, such increase shall be paid for at the stipulated price, but no such alteration shall increase shall be paid for at the stipulated price, but no such alteration shall be made without the consent of the Owner.

6.18. PROTECTION AGAINST HIGH WATER AND STORM

- A. The Contractor shall take all precautions to prevent damage to the work or equipment by high waters or by storms. The Engineer may prohibit the carrying out of any work at any time when, in their judgment, high waters or storm conditions are unfavorable or not suitable, or at any time, regardless of the weather, when proper precautions are not being taken to safeguard previously constructed work or work in progress.
- B. In case of damage caused by the failure of the Contractor to take adequate precautions, the Contractor shall repair or replace equipment damaged and shall make such repairs or rebuild such parts of the damaged work, as the Engineer may require, at no additional expense to the Owner.

6.19. SEQUENCE OF WORK

- A. The Contractor shall be required to prosecute their work in accordance with a schedule prepared by him in advance in accordance with additional requirements specified herein and approved by the Engineer. This schedule shall state the methods and shall forecast the times for doing each portion of the work. Before beginning any portion of the work, the Contractor shall give the Engineer advance notice and ample time for making the necessary preparations.
- B. Sequence and scheduling of the Work shall be submitted to the Contractor by City. The City reserves the right to indicate the sequence of work prior to construction.
- C. In areas where both Roadway and Sidewalk work are to be constructed, the curbing and sidewalk work is to be constructed prior to final paving of adjacent roadways.
- D. In areas where the Roadway is to be cold planed or patched, the Roadway is to be resurfaced within seven (7) calendar days after the original pavement surface is removed.
- E. In areas where the Sidewalk is to be reconstructed or constructed, the sidewalk is to be in place within seven (7) calendar days after the original sidewalk surface is removed or

6. SPECIAL CONDITIONS

excavation for the new sidewalk has taken place. Work in sidewalk areas shall be performed on one side of the road at a time, detouring pedestrians to the other side of the street to provide an accessible route for pedestrians. The Contractor shall work on whole blocks at a time to keep the construction zone contained and compressed. The length of the construction zone shall be approved the Engineer before work is started.

- F. Work to install waterborne temporary striping shall occur immediately after paving. Work to install epoxy resin pavement striping shall occur fourteen (14) days after paving. If markings do not begin at this time, this could be cause for suspending resurfacing operations until pavement striping and loop operation is put into effect.
- G. Traffic detector loops shall be installed within 72 hours of disturbance or final paving.

6.20. COMPETENT HELP TO BE EMPLOYED

The Contractor shall employ experienced foremen, craftsmen and other workmen competent in the work in, which they are to be engaged, and whenever the Engineer shall notify the Contractor in writing that any person employed on the project is, in their opinion, incompetent, unfaithful, disorderly, or otherwise unsatisfactory, or not employed in accordance with 'the provisions of this contract, such person shall be discharged from the project and shall not be again employed on it.

6.21. STREETS AND SIDEWALKS TO BE KEPT OPEN

- A. The Contractor shall at all times keep the streets, highways, roads, private walks and sidewalks in which he may be at work, open for pedestrian and vehicular traffic at their own expense, unless otherwise authorized by the Engineer in writing. If, in the opinion of the Engineer, the interest of abutters and public requires it, the Contractor shall bridge or construct plank crossings over the trenches at street crossings, roads, or private ways, or provide such temporary means of crossing and guarding as shall be acceptable to the Engineer. The Contractor shall conduct their work for this objective in such manner as the Engineer may direct from time to time. No sidewalk shall be obstructed where it is possible to avoid it. The closing of any traffic lanes shall be done only with the approval of the Providence Traffic Engineering Department.
- B. The Contractor shall provide at their own expense, all necessary fire crossings at principal intersections or ways usually traveled by fire apparatus.

6.22. LIGHTS, BARRIERS, WATCHMEN AND INDEMNITY

- A. The Contractor shall put up and maintain such barriers, lighting and warning lights, danger warning signals and signs that will prevent accidents during the construction work and protect the work and insure the safety of personnel and the public at all times and places, and the Contractor shall indemnify and protect the Owner and the Engineer in every respect from any injury or damage whatsoever caused by any act or neglect of the Contractor or their subcontractors, or their servants or agents.
- B. In addition to the above, when and as needed, or when required by the Engineer, the Contractor shall post signs and employ watchmen for excluding at all times unauthorized persons from the work, for which the Contractor will not be paid additional compensation.
- C. The Contractor shall be responsible for excluding at all times from lands within easement areas, all persons not directly connected with the work or authorized by the Owner to be in the work areas.

6.23. TRAFFIC CONTROL

- A. Approval of any street closure, lane closure, sidewalk closure or detour must be coordinated with City of Providence Traffic Engineer before it is put into operation. All proper Traffic Engineering permits must be approved prior to work starting.
- B. The Contractor shall make himself aware of all City regulations governing construction and their effect on vehicular and pedestrian traffic.
- C. Whenever necessary, or whenever directed by the Engineer, the Contractor shall employ traffic control devices to insure a safe, orderly routing of traffic around or across the work. No separate payment shall be made for this work, but compensation, therefore, shall be considered as having been included in the prices stipulated for the appropriate items of work as listed in the bid.
- D. Where deemed necessary by the Engineer, supplementary traffic control shall be provided by off-duty, City of Providence Police Officers.
- E. The Contractor shall request for use of off-duty, City of Providence Police Officers for supplementary traffic control in accordance with the unit price for this work submitted as part of the Bid. Invoices shall be billed directly to the Owner.
- F. The Contractor shall be solely responsible for the safe passage of traffic and shall indemnify and protect the Owner and the Engineer in every respect from any injury or damage whatsoever caused by any act or neglect of the Contractor or their Subcontractors, or their servants or agents.

6.24. NIGHT WORK

- A. Night work, or work on Saturdays, Sundays and legal holidays may be required in order to perform certain construction operations without causing excessive interference with or disruption of traffic flow, water service, etc.
- B. Night work or work on Saturdays, Sundays and legal holidays shall be done only with the approval of the Providence Traffic Engineering Department.
- C. All water work operations requiring the closing or shutdown of existing water service facilities will be conducted at those times as directed by the Engineer that will minimize the interference with, or disruption of service.
- D. All trenching, pipe laying, paving operations, etc., shall be conducted at times as directed by the Engineer that will minimize the interference with normal and emergency vehicular traffic flow.
- E. No work shall be scheduled by the Contractor on nights, Saturdays, Sundays or legal holidays unless directed or approved in writing by the Owner. The Contractor will receive no extra payment for work at these times and compensation shall be considered as having been included in the prices stipulated for the appropriate items of work as listed in the Proposal.
- F. All necessary lighting, safety precautions, and other requirements for night, Saturday, Sunday and holiday work shall be provided at no extra cost to the Owner.
- G. The assumption is made that all work outside of milling, paving and pavement marking activity will be able to occur during daylight hours.

6.25. BUS LINE INTERFERENCE

Whenever it may be necessary to interfere with any bus lines, notice shall be given to the Rhode Island Public Transit Authority (RIPTA) owning the same, and reasonable time shall be given to said corporation to arrange the schedule for operation of same, as may be necessary. RIPTA shall be notified for any work impacting their bus routes or adjacent (within 200 to their shelters from the approach side and 100 feet to the exit side).

6.26. WORK IN COLD WEATHER

- A. The Engineer will determine when conditions are unfavorable for work and may order the work or any portion of it suspended whenever, in their opinion, the conditions are not such as will insure first class work. In general, work shall be prosecuted throughout the year and the Contractor will be expected to keep work going and employment of labor as continuous as possible.
- B. All methods and materials used for concrete or masonry work in cold weather shall be subject to the approval of the Engineer. The Contractor shall take the necessary precautions to protect the work from damage and for removing ice and frost from materials, including heating the water, sand and coarse aggregate and for protecting the newly laid masonry. This protection shall also include the covering of work with tarpaulins and the heating by salamanders or steam pipes or other suitable method. The Contractor will receive no extra payment or any labor, apparatus, tools or materials necessary to comply with the above requirements, but compensation shall be considered to be included in the prices stipulated for the appropriate items of work as listed in the bid.
- C. In the event of temporary suspension of work, or during inclement weather, or whenever the Engineer shall direct, the Contractor will, and will cause their Subcontractors to protect carefully their work and materials against damage or injury from the weather. If in the opinion of the Engineer, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of their Subcontractors to so protect their work, such materials shall be removed and replaced at the expense of the Contractor.
- D. In the event that the project is shut down during the winter months, the Contractor will be required to install, maintain and remove such temporary materials as may be required to protect completed work and to provide safe vehicular and pedestrian access. No separate payment shall be made to the Contractor for such temporary materials and labor.

6.27. BLASTING AND EXPLOSIVES

- A. Blasting or use of explosives will not be permitted on this project.
- B. Rock, boulders, ledge, concrete foundations, etc., shall be removed by the use of pneumatic tools; drilling and splitting mechanically or by hand; or by other means not requiring the use of explosives.

6.28. RESERVED MATERIALS

- A. Materials found on the work suitable for any special use shall be reserved for that purpose without charge to the Owner.
- B. Where permitted, the Contractor may use in the various parts of the work, without charge to the Owner, therefore, any materials taken from the excavations.

6.29. DISPOSAL OF MATERIALS. ACCESS TO HYDRANTS AND GATES AND MATERIALS TRIMMED- UP FOR CONVENIENCE OF PUBLIC TRAVEL OR ADJOINING TENANTS

- A. The materials from the trench and excavations and those used in the construction of the work shall be deposited in such a manner so they will not endanger persons or the work, and so that free access may be had at any time to all hydrants and gates in the vicinity of the work. The materials shall be kept trimmed-up so as to be of as little inconvenience as possible to the public travel or the adjoining tenants. All excavated materials not approved for backfill and fill, all surplus material and all rock resulting from the excavations shall be removed and satisfactorily disposed of off the site by the Contractor at no additional expense to the Owner.
- B. The disposal of any excess or unsuitable material including earth, pavement, debris from demolished structures of all types, vegetative matter and any other material either found on the work site or brought to the site by the contractor or subcontractors will be in accordance with all applicable local, State and Federal laws. The following procedures will be encountered during the prosecution of work:
 - 1. Under no circumstances will any material be deposited in a freshwater or coastal wetland or regulated areas. The Contractor must obtain the permission of the Engineer prior to on site disposal of material.
 - 2. The off-site disposal of any material will be allowed only by written permission of the property owner upon whose property the material is to be deposited. The Contractor must furnish a copy of said written permission.
 - 3. For all off-site disposal areas, it will be the Contractor's responsibility to obtain the approval of the Department of Environmental Management, the Coastal Resources Management council, and any other governmental agency as necessary.
- C. The above procedures will be performed by the Contractor at no additional cost to the Agency or City. Under these procedures, the Contractor retains all responsibilities and liabilities under City, State and Federal laws for violations resulting from disposal of material from the project and will defend and hold the Agency and City harmless there from.
- D. Removal and disposal of the Asbestos Cement materials shall be according to all current City, State and Federal regulations.

6.30. LENGTH OF TRENCH TO BE OPENED, MAINTAINING PREMISES FROM OBSTRUCTIONS, CROSSOVERS, DIRECTIONAL SIGNS, AND LIGHTS

- A. The length of trench opened at any time from point where ground is being broken to completed backfill and also the amount of space in streets or public and private lands occupied by equipment, trench and supplies, shall not exceed the length or space considered reasonably necessary and expedient by the Engineer. In determining the length of open trench or spaces for equipment, materials, supplies and other necessities, the Engineer will consider the nature of the construction and equipment being used, inconvenience to the public or to private parties, possible dangers and other proper matters. All work must be constructed with a minimum of inconvenience and danger to the public and all other parties concerned.
- B. Whenever any trench obstructs pedestrian and vehicular traffic in or to any, public street, private driveway or property entrance, or on private property, the Contractor shall take such means as may be necessary to maintain pedestrian and vehicular traffic and access. Until such time as the work may have attained sufficient strength to support backfill, or if for any other reason it is not expedient to backfill the trench immediately the Contractor shall construct and maintain suitable plank crossings and bridges to carry essential traffic in or to the street, driveway or property in question as specified or directed.

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- C. Suitable signs, lights and such required items to direct traffic shall be furnished and maintained by the Contractor.
 - D. The Contractor must keep streets and premises free from unnecessary obstructions, debris and all other materials. The Engineer may, at any time, order all equipment, materials, surplus from excavations, debris and all other materials lying outside that length of working space promptly removed and should the Contractor fail to remove such material within 24 hours after notice to remove the same, the Engineer may cause any part or all of such materials to be removed by such persons as he may employ, at the Contractor under the contract. In special cases, where public safety urgently demands it, the Engineer may cause such materials to be removed without prior notice.

6.31. INTERFERENCE WITH EXISTING STRUCTURES

- A. Whenever it may be necessary to cross or interfere with existing culverts, drains, sewers, water pipes or fixtures, guardrails, fences, gas pipes or fixtures, or other structures needing special care, due notice shall be given to the Engineer and to the various public and private agencies or individuals responsible for the utility or structure that is interfered with. Whenever required, all objects shall be strengthened to meet any additional stress that the work herein specified may impose upon it, and any damage caused shall be thoroughly repaired. The entire work shall be the responsibility of the Contractor and the work shall be performed at no additional expense to the Owner.
- B. The Contractor shall be responsible for all broken mains or utilities encountered during the progress of the work and shall repair and be responsible for correcting all damages to existing utilities and structures at no additional expense to the Owner. The Contractor shall contact the proper utility or authority to correct or make any changes due to utility or other obstructions encountered during the work, but the entire responsibility and expense shall be with the Contractor.
- C. All damaged items of work or items required to be removed and replaced due to construction shall be replaced or repaired by the Contractor to the complete satisfaction of the property owners and/or the Engineer at no additional expense to the Owner.

6.32. MATERIALS

All materials furnished and used in the completed work shall be new, of best quality workmanship and design and recognized as standard in good construction practices. Whenever a specification number or reference is given, the subsequent amendments (if any) shall be included. The standards set forth in the selection of materials and supplies are intended to conform with those standards adopted by the Owner. Preference in manufacture shall be given to adopted standards and the Contractor shall further familiarize himself with the requirements of the Owner when the occasion or choice of materials or supplies so demands.

6.33. DEFECTIVE MATERIALS, INSPECTION AND TESTING OF MATERIALS FURNISHED, SAMPLES AND ORDERING LISTS

- A. No materials shall be laid or used which are known, or may be found to be in any way defective. Any materials found to be defective at the site of the work or upon installation shall be replaced by the Contractor at their expense. Notice shall be given to the Engineer of any defective or imperfect material. Defective or unfit material found to have been laid shall be removed and replaced by the Contractor with sound and unobjectionable material without additional expense to the Owner.
- B. The Contractor shall be responsible to compensate the City's Project Management team and police details and materials testing for errors, defective work or damage caused by the

Contractor. This will be done by direct invoice to the Contractor or monies deducted through invoices.

- C. All materials furnished by the Contractor are subject to thorough inspections and tests by the Engineer.
- D. All ordering lists shall be submitted by the Contractor to the Engineer for approval and shall be approved before the ordering of the materials.

6.34. SPIRITUOUS LIQUORS

The Contractor shall neither permit nor suffer the introduction or use of spirituous liquors upon the work embraced in this contract.

6.35. FINISHING AND CLEANING UP

In completing the backfilling of the trenches, etc. the Contractor shall replace all surface material to the satisfaction of the Engineer, and shall then immediately remove all surplus material, and all tools and other property belonging to him, leaving the entire street or surroundings free and clean and in good order, at no additional expense to the Owner. The backfilling and removing of the surplus materials shall follow closely upon the completion of the work. The Contractor shall exercise special care in keeping rights-of-way and private lands, upon which work is to be performed, clean and free of debris at all times and to remove tools and other property belonging to the Contractor when they are not being used.

6.36. CLEAN-UP AT CONTRACTOR'S EXPENSE

In case the Contractor shall fail or neglect, after backfilling, to promptly remove all surplus materials, tools and other incidentals, or promptly do the required repaving when ordered, the Engineer may, after 24 hours notice, cause the work to be done and the cost thereof shall be deducted from any monies then or thereafter due the Contractor.

6.37. RIGHTS OF ACCESS

Nothing herein contained or shown on the Drawings shall be construed as giving the Contractor exclusive occupancy of the work areas involved. The Owner or any other Contractor employed by the Owner, the various utilities companies, Contractors or Subcontractors employed by the Federal, State or Local governmental agencies or other utility firms or agencies involved in the general project or upon public rights-of-way, may enter upon or cross the area of work or occupy portions of it as directed or permitted. When the territory of one contract is the convenient means of access to the other, each Contractor shall arrange their work in such manner as to permit such access to the other and prevent unnecessary delay to the work as a whole.

6.38. LOADING

No part of the structures involved in this contract shall be loaded during construction with a load greater than is calculated to carry with safety. Should any accidents or damage occur through any violation of this requirement, the Contractor will be held responsible under their Contract and bond.

6.39. EXISTING UTILITIES OR CONNECTIONS

- A. The Location of existing underground pipes, conduits and structures, as may be shown in the project drawings, has been collected from the best available sources and the Engineer and the Owner together with its agents does not guarantee, expressly or by implication, the data and information in connection with underground pipes, conduits, structures, electric and telephone ducts and lines, vaults and such other parts as to their completeness nor their

locations as indicated. The Contractor shall assume that there are existing water, gas, electric, and other utility connections to each and every building enroute, whether they appear on the Drawings or not. Any expense and/or delay occasioned by utilities and structures or damage thereto, including those not shown, shall be the responsibility of the Contractor, at no additional expense to the Owner.

- B. Before proceeding with construction operations, the Contractor shall make such supplemental investigations, including exploratory excavations by hand digging, as he deems necessary to uncover and determine the exact locations of utilities and structures and shall have no claims for damages due to encountering subsurface structures or utilities in locations other than shown on the Drawings, or which are made known to the Contractor prior to construction operations. The Contractor shall be responsible and liable for all damages to the existing utilities and structures.

6.40. COMPLETENESS OF WORK

In addition to the specified or described portions, all other work and all other materials, equipment and labor of whatever description which are necessary or required to complete the work, or for carrying out the full intent of the Drawings and Technical Specifications, as interpreted by the Engineer, such work, labor, materials, and equipment shall be provided by the Contractor, and payment therefor shall be considered as having been included in the prices stipulated for the appropriate items of work as listed in the Bid.

6.41. VEHICLE CROSSINGS

As required or directed by the Engineer, the Contractor shall install in selected locations suitable plank, timber or steel crossings substantially bound and reinforced to sustain vehicular traffic across trench or other excavations. Crossings shall be constructed with side and usable approaches for use by the traveling public, private property owners or firefighting equipment. No separate payment will be made for this work, but the cost shall be included in the prices stipulated for the appropriate items of work as listed in the Bid.

6.42. CLEANING FINISHED WORK

After the work is completed, the sewers, manholes, and structures shall be carefully cleaned free of dirt, broken masonry, mortar, construction and other debris and left in first class condition ready for use. All temporary or excess materials shall be disposed of and the work left broom-clean to the satisfaction of the Engineer.

6.43. DUST CONTROL

At all times during the progress of the work under this contract and when directed, the Contractor shall furnish and apply calcium chloride at the sites of the work over the surfaces of all earth piles along excavations, earth stockpiles and surfaces of refilled trenches, and as directed by the Engineer. Payment will be made for furnishing and applying calcium chloride and water for dust control in accordance with the unit price for this work submitted as part of the Bid.

6.44. CARE OF THE WORK

The Contractor shall be responsible for all damages to persons or property that occur as a result of their fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all material delivered and work performed until completion and final acceptance, whether or not the same has been covered by partial payments made by the Owner.

6.45. INDEMNITY

- A. The Contractor will indemnify and hold harmless the Owner and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the Work, including but not limited to , that any such claim, damage, loss or expense, etc., provided that any such claim, damage, loss or expense; a) Is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom, and; b) Is caused in whole or in part by any negligent act or omission of the Contractor any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.
- B. In any and all claims against the or Owner or any of their agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under GENERAL CONDITIONS, Section 5.30 shall not be limited in any way by any limitation on the amount or type of damages, compensation acts, disability benefit acts or other employee benefit acts.
- C. The obligation of the Contractor under paragraph GENERAL CONDITIONS, Section 5.30 shall not extend to the liability of the Agency, their agents or employees arising out of a) the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, designs or Specifications or; b) the giving of or the failure to give directions or Instructions by the Agency their agents or employees provided such giving or failure to give is the primary cause of injury or damage.

6.46. CONSTRUCTION SCHEDULE

- A. In addition to the other requirements specified and prior to issuance of the Notice to Proceed, the Contractor shall confer with the Owner and the Engineer for the purpose of drafting a construction schedule satisfactory to the Owner and the Engineer which is to include all the work of this contract. The Contractor shall perform the work of this contract to conform to the construction schedule as approved by the Owner, except the Owner reserves the right to amend and alter the construction schedule, as approved, at any time, in a manner which it deems to be in the best interests of the Owner to do so.
- B. The Contractor shall arrange their work under this Contract to conform with the construction schedule as it shall be revised biweekly by the Contractor, at no additional expense to the Owner. The Contractor shall notify the Engineer immediately of any circumstances which may affect the performance of the work in accordance with the current construction schedule. Failure to maintain schedule will delay in processing pay applications.

6.47. OTHER WORK

The Owner reserves the right to do any other work which may connect with, or become a part of, or be adjacent to the work embraced by this Contract, at any time, by contract work or otherwise. The Contractor shall not interfere with or obstruct in any way the work of such other persons as the Owner may employ, and shall execute their own work in such manner as to aid in the executing of work by others as may, be required. No backfilling of trenches or excavations will be permitted until such work by the Owner is completed.

6.48. CHANGES AND MODIFICATIONS

The Owner reserves the right to delete or cancel any item or items or parts thereof as listed in the Bid, without recourse by the Contractor. The Owner also reserves the right to add to any item or

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part thereof as listed in the Bid. The compensation to be paid the Contractor for such additional extension, appurtenance or item shall be made under the applicable items as listed in the bid. Where no applicable items are provided in the bid for such additional extension, appurtenance or item, the compensation to be paid the Contractor shall be as set forth under GENERAL CONDITIONS, Section 5.10. No further mobilization charges shall be considered for changes or modifications in the work.

6.49. LAYOUT OF WORK

- A. The Contractor shall provide all materials, labor, equipment, etc., necessary to layout the work and shall be responsible for all lines, grades, elevations, measurements, etc. conforming to the Americans with Disabilities Act.
- B. The Contractor shall employ a Professional Engineer or Land Surveyor, registered in the State of Rhode Island, for establishing all lines, levels, grades, elevations, measurements, dimensions, locations, etc. The Engineer or Land Surveyor proposed for this work must be approved by the Engineer and the Owner. In addition, as part of the layout of work, he shall be placed at the disposal of the Engineer and Owner, from time to time as required, for checking purposes.
- C. The Contractor shall establish control points, at the direction of the Engineer suitable for the layout of all utility work, both public and private.
- D. No separate payment will be made for this work, but the cost shall be included in the prices stipulated for the appropriate items of work as listed in the Bid.
- E. To assist in the layout of the work, survey data prepared by the Engineer, which has been submitted to the Owner, will be made available to the Contractor.

6.50. PROTECTION OF LIVES AND HEALTH

- A. In order to protect the lives and health of their employees under the Contract, the Contractor shall comply with all pertinent provisions of the U.S. Department of Labor, "Williams-Steiger Occupational Safety and Health Act of 1970", and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or Causing loss of time from work, arising out of and in the course of employment on work under the contract.
- B. The Contractor alone shall be responsible for the safety, efficiency and adequacy of their plant, appliances and methods, and for any damage which may result from their failure or their improper construction, maintenance or operation.
- C. The Contractor shall be solely responsible for the acts and omissions of their agents, employees and their Subcontractors and their agents and employees and shall hold the Engineer and the Owner harmless and defend the Engineer, and the Owner against damage or claims for damages arising out of injuries to others or property of others which result from said acts or omissions.

6.51. SUBSURFACE STRUCTURES AND UTILITIES

- A. Available information of the location of existing substructures and utilities has been collected from various sources but the results of the investigations shown on the Drawings are not guaranteed to be accurate complete. [attached/include available boring logs/test pits etc. if available]
- B. The Contractor shall make all supplemental investigations including exploratory excavations, by hand digging, as he seems necessary to uncover and determine the exact locations of

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utilities and structures and shall have no claims for damages due to encountering subsurface structures or utilities in locations other than shown on the Drawings, or which are made known to the Contractor prior to construction operations.

6.52. CONTRACTOR'S RESPONSIBILITY FOR DAMAGED STORM DRAINS

The Contractor shall use care when working within or in the vicinity of existing drainage structures. Any drainage structures or pipes damaged while carrying out any work on this contract shall be the Contractor's responsibility. Any drainage structures or pipes damaged by the Contractor while carrying out this Contract shall be replaced or repaired by the Contractor to the satisfaction of the Owner at no additional charge to the Owner.

6.53. PROTECTION OF CONSTRUCTION FEATURES

The Contractor shall take adequate precautions to protect existing sidewalks, curbs, pavements, utilities, building vaults, adjoining property and such incidentals and to avoid damage thereto. The Contractor shall completely repair the damage caused by their operations at no additional expense to the Owner.

6.54. TEST PITS

At locations where new utilities are to connect to existing utilities, the Contractor shall not proceed with the work until a test pit has been dug to determine existing conditions such as inverts of sanitary or storm sewers; outside diameter of water pipes so that sleeves or couplings can be correctly purchased, etc.

6.55. LOCATION OF WORK

The Contractor's attention is directed to the fact that work under this contract is performed strictly within the Wards, within the City of Providence.

6.56. PRE-CONSTRUCTION CONFERENCE

- A. Within ten (10) days after award of Contract, a preconstruction conference shall be held between the Owner, the Contractor, the Engineer and other City of Providence agencies having jurisdiction over the project area.
- B. No work of any nature shall be performed by the Contractor until the pre-construction conference has been held, and all required permits have been obtained.

6.57. NOTIFICATION PRIOR TO CONSTRUCTION

- A. Not less than ten (10) calendar days prior to the start of any work under this contract the Contractor shall send written notification of their intentions to the following:
 - 1. DEPARTMENT OF PUBLIC WORKS
700 Allens Avenue
Providence, RI 02905
Leo Perrotta, Director
lperrotta@providenceri.gov
(401) 680-7500
 - 2. DEPARTMENT OF PLANNING AND DEVELOPMENT
444 Westminster Street
Providence, RI 02903
Robert Azar, Deputy Director

razar@providenceri.gov
(401) 680-8524

3. RIPTA
705 Elmwood Avenue
Providence, RI 02907
(401) 781-9400
4. RHODE ISLAND ENERGY
280 Melrose Street
Providence, RI 02907-2152
Marisa Albanese
MAAlbanese@rienergy.com
(401) 784-7090

Cc: Jim Paulette
JIPaulette@rienergy.com

5. RIDOT
Two Capitol Hill
Providence, RI 02903
Robert Rocchio, Chief Engineer
(401) 222-2023

Cc: Mike Sprague, Managing Engineer
(401) 563-4221

6. VERIZON
85 High Street
Pawtucket, RI 02865
Peter DeCosta, State Highway Coordinator
(774) 409-3177

7. COX COMMUNICATIONS
9 J.P. Murphy Hwy.
West Warwick, RI 02893
David Velilla, Right Of Way Agent II
(401) 615-1284

8. PROVIDENCE WATER SUPPLY BOARD
125 Dupont Drive
Providence, RI 02907
Mr. Peter LePage, Sr., P.E., Director of Engineering
plepage@provwater.com
(401) 521-6300 Ext. 7242

9. DEPARTMENT OF TELECOMMUNICATIONS
1 Communications Place, West Exchange Street
Providence, RI 02903
Carolyn Bourbeau, Director of Telecommunications
cbourbeau@providenceri.gov
(401) 243-6000

10. NARRAGANSETT BAY COMMISSION
1 Service Road
Providence, RI 02905

David Bowens, Engineering Manager
(401) 461-6540
dbowens@narrabay.com

Cc: Margaret Goulet
mgoulet@narrabay.com

- B. This notification shall set forth the Contractor's proposed sequence of construction and shall give the approximate dates of when each street or phase of the work is expected to begin. The sequence of construction shall also state the expected completion dates of each street or phase of the work.
- C. Copies of each notification shall be sent to the Engineering Division, Department of Public Works, 700 Allens Ave., Providence, Rhode Island 02905 (c/o Craig Hochman, chochman@providenceri.gov). The notifications shall reference the Project, include a description of the work to be performed, including street names, and shall indicate when the construction will start. Additionally, the Contractor shall request the name and telephone number of the person or department to be contacted when assistance is required, copies of all replies shall be forwarded to the Chief Engineer, Department of Public Works, 700 Allens Ave., Providence, Rhode Island 02905.

6.58. NON-INTERFERENCE WITH ADJACENT PROPERTIES

All work under this Contract shall be performed in a manner which will minimize interference with the normal neighborhood operations.

6.59. FIRE PROTECTION AND PREVENTION

- A. Federal laws (Occupational Safety and Health Act) and all State and municipal rules and regulations with respect to fire prevention, fire-resistant construction and fire protection shall be strictly adhered to and all work and facilities necessary therefore shall be provided and maintained by the Contractor in an approved manner.
- B. All fire protection equipment such as water tanks, hoses, pumps, extinguishers, and other materials and apparatus shall be provided for the protection of the Contract work, temporary work and adjacent property. Trained personnel experienced in the operation of all fire protection equipment and apparatus shall be available on the sites whenever work is in progress and at such other times as may be necessary for the safety of the public and the work.

6.60. PLANIMETER

For estimating quantities in which the computation of areas by analytic and geometric methods would be comparatively laborious, it is stipulated and agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such areas.

6.61. DAILY REPORTS

The Contractor shall submit, on an approved form, daily activity reports for the duration of the project. The reports shall indicate all personnel currently employed on the work including each trade and every Subcontractor; all equipment and whether such equipment was idle for the particular day; a general description of all work accomplished; any authorized extra work (time and material reports shall be submitted on separate forms).

6.62. OTHER PROHIBITED INTERESTS

No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or to take part in negotiating, making, accepting or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part hereof. No officer, employee, architect, attorney, engineer or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

6.63. WATER

The Contractor shall provide and maintain at their own expense an adequate supply of water for their use for construction and domestic consumption, and to install and maintain necessary supply connections and piping for same, but only at such locations and in such manner as may be approved by the Owner. All water shall be carefully conserved. Before final acceptance, temporary connections and piping installed by the Contractor shall be removed in a manner satisfactory to the Owner.

6.64. Electricity

All electric current required by the Contractor shall be furnished at their own expense and all temporary connections for electricity shall be subject to approval of the Engineer. All temporary lines shall be furnished, installed, connected and maintained by the Contractor in a workmanlike manner satisfactory to the Engineer and shall be removed by the Contractor in like manner at their own expense prior to completion of the construction.

6.65. Drawings

- A. The Contractor shall use the dimensions of the Drawings as shown. Measurements shall not be by scale. Full size details have preference over scale details, and large-scale details and photographs have preference over small.
- B. If discrepancies exist between Drawings and Technical Specifications, or if necessary measurements and work specified or shown is obviously incorrect or impossible to execute, and/or if figures fail to check, the Contractor shall bring these facts to the attention of the Engineer. The decision of the Engineer as to the intention of the Contract Documents shall be final. No work shall start until all such problems have been resolved.

6.66. PERMITS

- A. Contractor to obtain all required permits to complete work.
- B. Engineering Division, Department of Public Works Permits.
 - 1. Sewer Permit
 - 2. Road Opening Permit
- C. Traffic Engineering, Department of Public Works
 - 1. Providence Traffic Engineering permits are required for Posting Emergency No Parking Signs at work zones prior to the beginning of the workday, detour permits and

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lane/sidewalk closing permits. Traffic Engineering permits are required when work zones occupy public sidewalk or road or a detour is required.

2. The Contractor is responsible for the scheduling of the permit applications as described on the Traffic Engineering website (<http://www.providenceri.gov/public-works/traffic-engineering>). Permit applications shall be sent to Providence Traffic Engineering at least two business days in advance of the requested start date on the permit. The Contractor shall obtain approval from the PDPW or their agent as to the number and time frame of Posting Emergency No Parking Signs prior to scheduling. Failure to obtain traffic engineering permits may result in shutting down the job site and other fines. There will be no compensation paid to the Contractor for job shut down relating to the failure to obtain permits and other fines.

3. The Traffic Engineering permit fees for this project shall be waived.

D. Narragansett Bay Commission (NBC)

1. NBC Regulations: Section 4.5 Sewer Alteration Permit
2. Any person(s) planning to initiate road construction which will modify or expose structures such as, but not limited to, manholes, catch basins, and sewers owned by the NBC must obtain a sewer alteration permit before performing any alterations to the NBC's facilities. The sewer alteration permit application must be obtained from the NBC and the applicant shall submit the completed application and any required information prior to issuance of a sewer alteration permit.

E. Rhode Island Department of Transportation (RIDOT)

1. Physical Alteration Permit (PAP)

6.67. SIDEWALK WORK

- A. Curing: All sections prone to pedestrian / vehicular movement shall be protected, as necessary, until proper curing has occurred. All vandalized sections shall be replaced at contractor's expense.
- B. Dates: The Providence Department of Public Works does not allow pouring of cement concrete sidewalks between November 17 and April 15 of the next calendar year.
- C. Sawcutting: Cutting shall take place at existing control and expansion joints only.

6.68. COORDINATION WITH OTHER CONTRACTS

- A. The Contractor is hereby notified that multiple construction projects may be ongoing throughout the construction period. The Contractor shall attend bi-weekly meetings or as required by the Owner, at a location to be determined, to assure cooperation between all involved parties.
- B. Contracts that may require coordination include, but are not limited to:
 1. Providence Water Main Replacement and Lining
 2. National Grid Main Replacement
 3. Hurricane Barrier Road Cover Replacements

6.69. JOB SITE POSTERS

The contractor must comply with US Department of Labor requirements for job site posters per Exhibit A at the end of this Section.

6.70. LIST OF CONTRACT DRAWINGS

- A. TITLE, INDEX OF DRAWINGS, LOCATION AND VICINITY MAPS
- B. DETAILS AND ABBREVIATIONS
- C. GENERAL NOTES
- D. OVERALL SITE PLAN
- E. TEMPORARY TRAFFIC MANAGEMENT PLAN - 1
- F. TEMPORARY TRAFFIC MANAGEMENT PLAN - 2
- G. TEMPORARY TRAFFIC MANAGEMENT PLAN - 3
- H. TEMPORARY TRAFFIC MANAGEMENT DETAILS - 1
- I. TEMPORARY TRAFFIC MANAGEMENT DETAILS - 2
- J. DEMOLITION AND REMOVAL PLAN AND SECTIONS
- K. PROPOSED IMPROVEMENT PLAN
- L. PROPOSED IMPROVEMENT SECTIONS
- M. PROPOSED HYDRAULIC LINES PLAN
- N. CONTROL HOUSE DEMOLITION
- O. CONTROL HOUSE PROPOSED IMPROVEMENTS
- P. STRUCTURAL DETAILS - 1
- Q. STRUCTURAL DETAILS - 2
- R. MISCELLANEOUS DETAILS
- S. SUGGESTED CONSTRUCTION SEQUENCE DETAILS - 1
- T. SUGGESTED CONSTRUCTION SEQUENCE DETAILS - 2
- U. SUGGESTED CONSTRUCTION SEQUENCE DETAILS - 3
- V. SUGGESTED CONSTRUCTION SEQUENCE DETAILS - 4
- W. All work under this Contract shall be done in conformance with the RIDOT Standard Specifications for Road and Bridge Construction, Amended 2018, with all revisions, and the State and Federal Special Provisions included in the contract documents. Standard Details

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for this project are City of Providence Standard Details, 2017 Edition, with all revisions. Refer to RIDOT Standard Details, 2019 Edition, with all revisions, for all other standard details.

6.71. UTILITY AND MUNICIPAL NOTIFICATION AND COORDINATION:

- A. The Contractor shall contact DIG SAFE at 1-888-DIG SAFE (1-888-344-7233) prior to construction.
- B. The Contractor shall coordinate with the utility Companies and necessary municipal offices prior to the start of work.
- C. Refer to SPECIAL CONDITIONS for utility company contacts.

6.72. SHOP DRAWINGS

The Contractor must develop and submit shop drawings, product data, and/or catalogue cut-sheets in accordance with the GENERAL CONDITIONS. At a minimum, shop drawings shall be submitted for:

- A. Precast Concrete Vault Lids
- B. Hydraulic Actuators and Remote Power Modules
- C. Doors and Hardware
- D. Electrical Conduit and Supports
- E. Access Hatch
- F. Ladder
- G. Structural Steel Internal Bracing

6.73. SEQUENCE OF CONSTRUCTION/MAINTENANCE AND MOVEMENT OF TRAFFIC/WORK RESTRICTIONS

- A. The Contractor is required to clean any catch basins (pay item code 708.9041) before installing silt sacks to ensure that the silt sack functions correctly. Any construction debris, sediment, or silt at project completion shall be removed at the Contractor's expense. The Contractor shall perform an MS4 inspection as part of the catch basin cleaning (refer to Job Specific Specifications).
- B. The Contractor shall note the allowable work durations for specific roadways. See Special Conditions, Section 6.99 for more information.
- C. Action Required by Contractor:
 - 1. Approval of the work sequence and time schedule is required before the start of any construction or other work associated with this contract. The proposed construction and time schedule must consider and address the safe vehicle passage through the project.
 - 2. In addition to the requirements of the Standard Specifications for Road and Bridge Construction and the Special Requirements of other sections of these contract documents, the Contractor must adhere to the following requirements:

-
- (a) The Contractor is advised that any signs and other traffic control devices shown on the Plans are minimum requirements, and it is the Contractor's responsibility to supplement these if necessary to ensure the public's safety. All Maintenance and Protection of Traffic devices shall be in place and approved by the City of Providence Division of Traffic Engineering prior to starting construction. All Maintenance and Protection of Traffic shall conform with the latest edition and revisions of the Manual on Uniform Traffic Control Devices (MUTCD). The Contractor must submit for approval a traffic control plan when implementing any changes to the details shown on the plans or when providing traffic control for situations differing from those shown on the plans, including subcontractor work.
 - (b) Any deviations from the requirements stated here or detailed in the plans, as well as any deviation from the approved construction sequence and time schedule, must be submitted to the City of Providence Division of Traffic Engineering in writing for approval a minimum of 24 hours prior to implementation.
 - (c) The construction operations of this project must be coordinated with the local community public safety officials. It is the Contractor's responsibility to coordinate the construction operations of this project with the local public safety officials. In case of an emergency, the Contractor will be required to move equipment to allow the passage of emergency vehicles. The safety of the residents of the area must be considered at all times.
 - (d) The Contractor shall work continuously to restore traffic signal operation to its intended purpose when replacing the traffic signal equipment. A police detail is required to direct traffic at the intersection at all times the traffic signal is inoperative. At no time shall the Contractor leave the site before restoring full traffic signal operations or with the approval of the Engineer provide traffic control as directed by the Engineer.
 - (e) The Contractor shall maintain one full travel lane (11 foot minimum) in each direction of travel at all times, except during the execution of the southbound detour, unless otherwise approved by the City of Providence Division of Traffic Engineering. Safe access and egress to side streets and all driveways must be maintained at all times unless otherwise directed by the City of Providence Division of Traffic Engineering. The Contractor shall open the roadway to all parking and vehicle and pedestrian traffic at the end of each work day/night.
 - (f) Detours are permitted only upon written approval from the City of Providence Division of Traffic Engineering. The Contractor must submit a detour plan with written approval from the City of Providence Traffic Engineer.
 - (g) The Contractor shall be responsible for maintaining appropriate construction related signing at all times. Any signs not appropriate for the lane closures, speed limits or any construction activity taking place at any given time shall be removed or covered to the satisfaction of the City of Providence Division of Traffic Engineering.

D. The following definitions will apply:

- 1. Travel Lane - A travel lane must be at least 11 feet wide and must be paved with a hard smooth surface. This surface may be existing pavement, existing base course, or new pavement. Gravel or dirt surfaces will not be acceptable.
- 2. Pedestrian Way - A pedestrian way must have an unobstructed clear width of five feet (per ADA requirements) and must have a hard, smooth surface, and must conform to all handicapped accessibility requirements. The surface may be existing pavement, new

pavement, or plywood. All wooden walkways shall meet the Engineer's approval for surface smoothness and deflection. If there is a drop-off in excess of six inches from the edge of the pedestrian way, a handrail conforming to all applicable standards shall also be provided. There shall be no additional compensation for the provision of Pedestrian Ways; all costs shall be considered incidental to the Contract.

- E. Pedestrian ways to all building entrances including service entrances must be maintained at all times. The Contractor shall provide temporary access routes/ramps through construction areas to insure this access. The Contractor must provide for pedestrians to safely guide them away from broken and uneven pavement, open excavations, drop-offs, construction operations and other hazards at all times.
- F. The Contractor shall backfill or place steel plates capable of supporting HS-20 vehicle loading over all trenches and excavations at the end of work each day except when otherwise directed by the City of Providence Division of Traffic Engineering. There shall be no additional compensation for backfilling, re-excavating and/or plating these trenches.
- G. The Contractor shall install and maintain a Rhode Island Standard 26.2.0 barricade at each location where adjustments to grade and/or reconstruction of drainage and utility structures have been made until resurfacing work has been performed. Other types of protective devices may be used if approved by the City of Providence Division of Traffic Engineering.

6.74. LEGAL RELATIONS AND RESPONSIBILITIES TO PUBLIC UTILITIES AND FACILITIES

- A. In those areas where the Contractor's operations are adjacent or proximate to underground utilities such as gas, electric, water, telephone, fire alarm, sanitary and storm sewers, the provisions of Section 105.06 of the Rhode Island Standard Specifications for Road and Bridge Construction shall be followed.
- B. During the process of the work, the Contractor shall cooperate with the Owners of the utilities and permit their representatives access to the work to determine if their utilities are being endangered in any way.

6.75. WORK ADJACENT TO GAS LINES, WATER LINES AND TELEPHONE DUCTS

Extreme care, particularly when installing traffic signal poles, foundations, conduit, manholes, catch basins, drain pipes and handholes shall be exercised during construction in the vicinity of the gas lines, water lines and telephone ducts. Complete coordination with the utility companies shall be maintained.

6.76. BUILDING UTILITY SERVICES

The Contractor is to assume building services connections (electric, gas, telephone, water, and sanitary) are present to all buildings. Locations are to be checked with appropriate utility companies. The Contractor shall follow the Dig Safe process in accordance with the State of Rhode Island specifications for road and bridge construction.

6.77. DAMAGE TO EXISTING UTILITIES

The Contractor shall check and verify the exact location of all existing utilities and service connections with Dig Safe. Any damage to the utilities, which are detailed by Dig Safe, shall be the Contractor's responsibility. Cost to repair such damage shall be borne by the Contractor.

6.78. LOCAL POLICE COMPENSATION

It will be the responsibility of the Contractor to retain the services of local police for traffic control and protection for this project, in consultation with the project manager, per Special Provision 999.0001.

6.79. Parking Space(s) Loss

When work requires the loss of any parking space (s), the Contractor will be responsible for obtaining temporary "No Parking" signs from the City of Providence Traffic Engineer and the posting of said signs per Special Provision 999.0002. The Contractor shall also be responsible for the removal of said temporary signs when the parking space(s) is opened.

6.80. STORAGE OF CONSTRUCTION MATERIALS AND/OR EQUIPMENT

In addition to the requirements of Division I Part 100 Section 106.06 "Storage of Materials" of the Rhode Island Standard Specification for Road and Bridge Construction 2004 Edition, the Contractor shall submit for approval the location of Material & Equipment Storage to the Engineer. No materials shall be stockpiled in the Public Right-of-Way.

6.81. DISPOSAL OF SURPLUS MATERIALS

All existing or other materials not required or needed for use on the project, and not required to be removed and stockpiled, shall become the property of the Contractor and shall be removed from the site during the construction period and legally disposed of. No separate payment will be made for this work, but all costs in connection therewith shall be included in the unit bid prices for this Contract.

6.82. LOCATION OF SIGNS

- A. The location of all new signs shall be marked in the field and approved by the City of Providence Division of Traffic Engineering prior to installation.

6.83. CONSTRUCTION REQUIREMENTS FOR TRAFFIC SIGNAL INSTALLATION

- A. The Contractor will be allowed to activate the new controllers once the City of Providence Division of Traffic Engineering has determined the minimum system elements have been installed.
- B. A factory representative must be available within 24 to 48 hours to field test the equipment and make any corrections necessary to ensure proper operation as shown on the plans, if necessary and requested by the City of Providence.
- C. When an intersection is completed and activated by the Contractor, the Engineer will perform a preliminary inspection. The Engineer will provide the Contractor with a report containing the results of the Preliminary Inspection along with a list of work items needed to satisfy this portion of the construction inspection. If the Contractor informs the Engineer that items on the list have been corrected and a second inspection indicates items have not been corrected, the Contractor will be back-charged for the second inspection and all subsequent inspections necessary prior to the next phase of the inspection. This does not apply to items that malfunction due to technical failure.
- D. After the items identified during the Preliminary Inspection are mitigated to the satisfaction of the Engineer, the second part of the inspection, or Central to Field Integration Inspection, will be conducted. The Engineer will provide the Contractor with a report containing the results of the Central to Field Integration inspection along with a list of work items needed to satisfy this

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portion of the construction inspection. If the Contractor informs the Engineer that items on the list have been corrected and a second inspection indicates items have not been corrected, the Contractor will be back-charged for the second inspection and all subsequent inspections necessary for final acceptance except the final inspection. This does not apply to items that malfunction due to technical failure.

- E. It will be the Contractor's responsibility to extract signal timing values from the plans and install those timings on the controller. The signal timings must be checked and approved by the Engineer before the system is made fully operational.
- F. All loop detectors (if applicable) shall be cut into the final pavement surface course in locations shown on the plans. Locations of the video detection zones shown on the plans are approximate. Final size and locations of the video detection zones shall be positioned in the field and tested in cooperation with the City of Providence Division of Traffic Engineering or its representative to ensure that detection zones are established to cover the approach width and that the detection system is functioning to the satisfaction of the City of Providence.
- G. The proposed video detection cameras shall be located at the exact dimension called for on the plans, unless otherwise approved by the Engineer. Any existing traffic signal mounting hardware, brackets, arms, or safety chains that are damaged during construction or are deemed to be unsuitable for relocation (where called for on the plans) shall be replaced in kind and color by the Contractor at no additional cost.

6.84. SIDEWALK REMOVAL/INSTALLATION

- A. The Contractor shall take all necessary precautions to prevent damage to walls and fences abutting sidewalks and driveways designated for replacement. Where required, new sidewalks shall meet said walls and fences. Prior to sidewalk removal, a sawcut shall be provided in all sidewalks to be removed a distance, to be determined by the City of Providence Department of Public Works (6 inches minimum) from the face of adjacent buildings, retaining walls, and fences. The final 6 inches (minimum) of sidewalk will be removed with caution under the City of Providence Department of Public Works' supervision. There will be no additional payment for labor or equipment necessary to meet this "remove with caution" requirement.
- B. Any brick, paver, or stamped concrete/asphalt sidewalk, crosswalk, or roadway disturbed by construction activity shall be repaired by the Contractor at no additional cost. Any brick, paver, or stamped concrete/asphalt sidewalk, crosswalk, or roadway damaged or to be restored shall match the same materials that exist, including concrete base if appropriate, unless otherwise indicated on the plans, or directed by the Engineer.

6.85. PAVING NOTES

- A. The locations of all utility gate boxes and heads shall be marked prior to paving and adjusted upwards after the leveling course has been installed.
- B. The Contractor shall take extreme care to avoid tracking residue (pavement, tack coat, etc.) from newly paved areas onto adjacent areas especially stamped crosswalks. Any surfaces where residue is detected shall be replaced at the expense of the Contractor.

6.86. CURB RAMPS

- A. The final location of all curb ramps shall be coordinated in the field with the Engineer with proposed and/or existing locations of drainage structures, utility poles, light poles, and other appurtenances to ensure a clear pedestrian path. All proposed curb ramps shall be constructed in accordance with RIDOT curb ramp details and per the details on the Plans.

-
- B. The installation of curb ramp curb will include the granite transition stones as well as the flush granite curb at the base of the ramp. In addition, a sawcut of the end sections abutting the 2-foot curb returns to be removed will be necessary (where applicable), to install the curb ramp transition curbs.
 - C. Any existing curb ramps disturbed by conduit installation or other construction activities shall be replaced with a new curb ramp in accordance with RIDOT curb ramp details including required curbing to match existing, if required.

6.87. DIFFERING SITE CONDITIONS, CHANGES, AND EXTRA WORK

Any changes in the original scope of work shall be in accordance with the GENERAL CONDITIONS.

6.88. SURVEY OF CURB RADII

All curb geometry and dimensions shown in the details are approximate. The Contractor shall survey all curb dimensions and radii prior to removal of curb.

6.89. COORDINATION WITH RIPTA

The Contractor shall coordinate with the Rhode Island Public Transportation Authority (RIPTA) to ensure that RIPTA remains operational at all times, as specified in the SPECIAL CONDITIONS.

6.90. NATIONAL GRID REQUIREMENTS

- A. Guidelines for backfill and compaction around gas pipes permanent backfill and compaction

- 1. Description

- (a) This work shall consist of backfilling and compacting all disturbed material at and around existing gas pipes and facilities. Size of pipe, material, length of exposed pipe, location of pipe, etc. will all follow the same set of Standards and Specifications stipulated by National Grid Company. If design plans call for gas pipes to be exposed and supported (sheeting methods not used), then at the time of backfill, all disturbed material below the invert of the gas pipe shall be removed and replaced with suitable roadway or trench excavation material or bedding material.
- (b) The contractor will not be allowed to replace this disturbed material with the same existing material if it has now been mixed with adjacent silty subsoil (clays) and fines. Well-graded gravel and sands will be used to replace the unsuitable material when no excess suitable material is available on site. Soils with high humus or mineral content should not be used to for backfill because they can promote electrolytic or bacterial attack.
- (c) Backfilling the gas pipe should begin immediately after the work in that location is complete.
- (d) The region within 6" alongside and on top of the gas pipe shall be backfilled with padding sand (free of cinders, ash, and rock). In no case shall the material used for backfilling in this region contain any stones. Backfill shall consist of suitable materials (medium to coarse sands with little or no silts) placed in layers of not more than 8" to 12" after compaction.
- (e) Trench spoil material shall be suitable for backfilling above the padding material as long as rocks with a diameter larger than 3" are removed. The layers shall be

6. SPECIAL CONDITIONS

mechanically compacted to the industry standard of 95% or until a density comparable to the unexcavated material is achieved. In some instances, flooding with water is an acceptable method of compaction but only if the back-fill material is clean, coarse, and adequate drainage is existent. The above specified backfill material is essential in order to attain the degree of compaction necessary to avoid future settlement.

- (f) Tracing Wire, if necessary, shall be installed 2" to 6" below Plastic gas pipes. Warning Tape shall be installed approximately 12" above the gas pipe.
- (g) A minimum of 2" temporary pavement shall be applied over the trench as soon as possible.

2. Guidelines for Working Around Corrosion Control System Components Description

- (a) This guideline shall control work around existing Corrosion Control components. Replacement of test stations, anodes and test wire leads shall comply with Standards and Specifications stipulated by National Grid. If design plans call for work in the area of Corrosion Control components, care must be taken to prevent damage to such components.

3. General National Grid Considerations

- (a) The contractor shall perform replacement of damaged corrosion control test boxes, resetting of disturbed test boxes, and ensure a minimum of 12" of excess wire above the rim of the test box after set to finished grade. Wires shall not be pulled taught to achieve the 12" above the box, as this will cause stress on the wire connection at the main. Wires needing to be lengthened, damaged corrosion control components i.e. wires, or wire coating, shall require notification to the Corrosion Control Department (525-5610 or 474-5171) to initiate inspection/repair or replacement of the damaged components.
- (b) Backfilling exposed Corrosion Control wire components should begin immediately after the work in that location is complete. The region within 6" alongside and on top of the connector wires shall be backfilled with padding sand (free of cinders, ash, and rock). Test wire leads must be kept with enough slack to prevent stress on the points where the wires connect to the gas main. Trench spoil material shall be suitable for backfilling above the padding material as long as rocks with a diameter larger than 3" are removed. The 8" to 12" backfill layers shall be mechanically compacted to the industry standard of 95%.

4. Efforts to Repair Gas Leaks Prior to Final Construction (Nic)

- (a) The Contractor shall notify National Grid Gas (Sean Gunter – 617-719-2726) prior to any permanent paving, sidewalk or finishing operations for the purpose of a leak survey.
- (b) All efforts shall be made to minimize the time between road excavation/coldplane/reclamation so as to reduce gas leaks. The maximum time between road excavation/coldplane/reclamation is seven (7) calendar days.

6.91. CITY OF PROVIDENCE TECHNICAL SPECIFICATIONS

In addition to the standard and job specific specifications included in these Contract Documents, the construction in this Contract shall be in accordance with the City of Providence "Technical Specifications".

6. SPECIAL CONDITIONS

6.92. PAVEMENT INFORMATION

Pavement restoration shall be in accordance with the RIDOT standard details and specifications. Pavement section shall, at a minimum, match existing pavement section at the payment limits, provided that the existing section meets RIDOT standards.

6.93. UTILITY PROBE INFORMATION

Not Used

6.94. TESTING AND CERTIFICATION OF MATERIALS

- A. The Contractor shall adhere to the RIDOT Materials Testing and Certification Schedule. Testing of materials will be per the RIDOT specifications unless determined otherwise by the Owner.
- B. Documentation of conformance to the required testing or certification of compliance as outlined in the schedule for each bid item must be submitted and approved by the Engineer prior to request for payment. Partial or complete payment for a given bid item may be delayed or refused without testing/certification documentation approved by the Engineer.
- C. Materials not meeting the requirements of the specifications will be rejected. Testing of materials will be completed by the Owner's testing agency. The Contractor is responsible to provide 48-hour advanced notice to the Owner prior to fabrication of precast structures to be inspected at the plant or delivery of any materials to be tested under the Materials Testing and Certification Schedule. Materials sample sizes shall be per the RIDOT Master Schedule for the Preparation of a Project Schedule for Sampling, Testing, and Certification of Materials, latest edition.
- D. Authorized representatives performing the testing shall have access to the Work at all times and at all locations where the work is in progress. The Contractor shall provide facilities for such access to enable the personnel to perform their functions properly. Concrete and bituminous mixes will be subject to inspection and testing at the mixing plants and at the locations of installation for compliance with quality requirements.
- E. Concrete, asphalt and soils testing will be tested randomly as determined by the Engineer. The concrete testing will be performed by the Owners selected Testing agency and/or the Engineer. Costs for testing will be borne by the Owner. Concrete and asphalt not meeting the requirements of the specification and/or the approved shop drawings (mix design) will be rejected.
- F. The Contractor shall cooperate with the Local Public Agency's selected testing agency and all others responsible for testing and inspecting the Work.
- G. All specimens and samples for testing, unless otherwise provided in the Contract Documents shall be taken by the testing personnel.
- H. With the exception of some testing to be performed by the Engineer all sampling equipment and personnel will be provided by the testing laboratory.
- I. All deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

6.95. FIRST SOURCE ORDINANCE

The attention of prospective bidders is called to the fact this project is to be bid upon and executed under the City of Providence, Code of Ordinances Chapter 21 Art. III 1/2 First Source Agreements Sec. 21-91 through 21-96. This ordinance outlines requirements for hiring employees to work on this project. The attention of prospective bidders is called to the fact that reporting the efforts undertaken and progress towards achieving the requirements in this ordinance is a condition for payment. Compliance reporting shall be submitted with any contract payment requisition, in the format to be provided. This demonstration of compliance through such reports shall be a condition of the requisition for payment to be processed. Upon the contract being awarded to the successful bidder, a mandatory meeting will be scheduled to review the project requirements relative to the First Source Agreements and the process and protocols by which these goals will be achieved. At this meeting, specific forms and procedures for the documentation and achievement of these requirements by the successful bidder will be provided, discussed and agreed upon for the execution of the contract.

6.96. APPRENTICE REQUIREMENTS

Attention of prospective bidders is called to the fact this project is to be bid upon and executed under the City of Providence, Code of Ordinances Chapter 21 Art. II Section 21-28.1 c (1) and (2) relating to utilizing apprentices in the contract. This ordinance outlines requirements for utilizing not less than 15% of total hours worked by apprentices. The attention of prospective bidders is called to the fact that reporting the efforts undertaken and progress towards achieving the requirements in this ordinance is a condition for payment. Compliance reporting shall be submitted with any contract payment requisition, in the format to be provided. This demonstration of compliance through such reports shall be a condition of the requisition for payment to be processed. Upon the contract being awarded to the successful bidder, a mandatory meeting will be scheduled to review the project requirements relative to apprenticeship requirements and the process and protocols by which these goals will be achieved. At this meeting, specific forms and procedures for the documentation and achievement of these requirements by the successful bidder will be provided, discussed and agreed upon for the execution of the contract.

6.97. AMERICANS WITH DISABILITIES ACT REQUIREMENTS

All sidewalks being constructed have been designed to comply with the ADA (Americans with Disabilities Act) requirements. A minimum clearance of thirty-six (36) inches of width at a point of narrowing, excluding curb width, and forty-eight (48) inches of continuous width elsewhere is required. Prior to installing any new sidewalks, the contractor must verify, by field review with the Engineer, that these requirements have been met. Sidewalk construction shall not commence without prior approval of the Engineer in circumstances where these requirements cannot be attained.

6.98. STORM WATER POLLUTION PREVENTION PLAN

Not Required

6.99. CONSTRUCTION DURATION/RESTRICTIONS

- A. All work shall be completed by **June 30, 2023**, with vault roof and temporary pavement restoration completed by **May 31, 2023**, and shall be made safe for pedestrians, bicyclists and motorists.
- B. Restrictions for work can be found in the Transportation Management Plan located in the drawings.

6.100. DRIVEWAYS

- A. The Contractor shall provide notice to abutters at least 24 hours before sidewalk or driveway work will be performed. When installing cement concrete driveways, the Contractor shall provide at least 48 hours' notice that the driveway will be inaccessible while grading, forming, pouring and curing. The notices shall state the Contractor's name, a statement that the Contractor is working for the Providence of Public Works, a contact name and phone number for the contractor and the date and time that the driveway will be accessible. The Contractor shall remove all warning tape and stakes when the driveway is accessible.
- B. The Contractor shall also coordinate with the City Parking Administrator when residents are displaced during a driveway pour. The Parking Administrator will coordinate with the Providence Police Department to allow for overnight street parking.

6.101. SECURITY

- A. The Contractor shall provide security personnel for all work which will otherwise be unattended during cure time or while the site is unattended during non-working hours. All work damaged during this cure time or unattended time shall be removed and reconstructed at the Contractor's expense.

6.102. DIG SAFE

- A. The Contractor shall comply with the Rhode Island General Law, Chapter 39-1.2, "Excavation Near Underground Utility Facilities" which became effective on July 1, 1984.
- B. Before commencing with the construction of any work, identify any water main, gas main, telephone duct, electric duct, and/or other utility present which is or could be in conflict with the proposed work.
- C. Relocation of the affected utilities shall be done as directed by the Local Public Agency and in accordance with the requirements of the corresponding utility company.
- D. The attention of the Contractor is directed to the fact that certain utility companies may not fall under the provisions of "DIG SAFE". Individual utility company notifications by the Contractor shall be necessary to insure proper notification and protection of all existing utilities affected by this Contract. This includes, but is not limited to Providence sewer and streetlight assets.

6.103. CONTRACTORS WORKING HOURS

- A. Work shall be performed during normal business hours, Monday through Friday, 7:00 AM-5:00PM. Some jobs may require the Contractor to work outside normal business hours. In this event, the Contractor may request to work on Saturdays and Sunday or during the
- B. night, only with approval by the City. Such restrictions shall not be the basis for damages or claims against the City.
- C. The Contractor's attention is also directed to the fact that it may be deemed necessary to perform various items of work during off-peak traffic hours, during early morning or late at night. The City will dictate these special conditions prior to awarding work to the Contractor.
- D. The Contractor shall not be entitled to any additional compensation from the City for any expenses including premiums on labor that may be incurred by change of working hours and/or scheduling.

6.104. CITY FORESTER

- A. The Contractor shall be required to have all proposed tree work, which includes as a minimum all trimming, root pruning, tree removal, tree planting or tree well work approved by the City Forester.
- B. The Contractor's attention is directed to the requirement that all sidewalks are to be a minimum of 36- inches wide, and the City Forester is to be notified when that minimum width cannot be met due to interference with an existing tree.
- C. The Contractor shall coordinate the scheduling of the City Forester with the Engineer. The Engineer shall be present during the City Forester evaluation and document the outcome.

6.105. PROGRESS MEETINGS

- A. The Engineer will schedule and administer progress meetings and specially called meetings throughout the duration of the Work if deemed necessary by the Engineer.
- B. The time and location of such meetings shall be designated by the Engineer and shall be convenient for all parties involved.
- C. The Engineer will, prepare agenda with copies for participants, preside at meetings, records minutes, and distribute copies to participants, and those affected by decisions made.

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APPENDIX

APPENDIX A: BID FORMS

APPENDIX B: CONSTRUCTION AGREEMENT

APPENDIX C: TECHNICAL SPECIFICATIONS

APPENDIX D: MATERIALS TESTING AND CERTIFICATION SCHEDULE

APPENDIX E: FOX POINT HURRICANE BARRIER COORDINATION GUIDE

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APPENDIX A:

BID FORMS

- A. Form of Bid
- B. Purchasing Department Documents and MBE/WBE Participation Forms
- C. Bid Bond
- D. Certificate of Corporate Principal
- E. Non-Collusion Affidavit of Prime Bidder
- F. Non-Collusion Affidavit of Subcontractor
- G. Certification of Non-Segregated Facilities
- H. Bidder's Certification for Equal Employment Opportunity
- I. Special Requirement for All Out-of-State Contractors and Firms
- J. Certification with Regard to Performance of Previous Contracts and Subcontracts
- K. Affidavit of Non-Discrimination
- L. Certification of Non-Discrimination in Equal Employment Opportunity
- M. Statement of Bidders Qualifications
- N. Proposed Subcontractors
- O. Schedule of Unit Prices

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CITY OF

FORM OF BID

PROVIDENCE, RHODE ISLAND

TO: PURCHASING OFFICE
3rd Floor City Hall
Providence, Rhode Island 02903

1. The undersigned, having familiarized (himself) (themselves) (itself) with existing conditions at the SLIDE GATE OPERATOR REPAIR - FOX POINT HURRICANE BARRIER – ALLENS AVENUE project affecting the cost of work, and with the Contract Documents (which includes the Invitation for Bids, Instructions to Bidders, Form of Bid, Form of Bid Bond, Form of Agreement, Form of Non-Collusive Affidavit, Addenda (if any), Drawings, Technical Specifications, Form of Surety Bond(s); as prepared by the Department of Public Works, and on file in the office of the Department of Public Works, 700 Allens Avenue, Providence, RI 02905, hereby proposes to furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services including utility and transportation services, and to perform and complete all required work for the **ALLENS AVENUE SEWER SLIDE GATE OPERATOR REPAIRS** project and such other required and incidental work, complete, all in accordance with the above listed documents and for the unit prices for work in-place for the following items and quantities.

Total of Bid - For the sum of: \$ _____
_____ **Dollars**

2. In submitting this Bid, the Bidder understands that the right is reserved by the Department of Public Works to reject any and all Bids. If written notice of acceptance of this Bid is mailed, telegraphed or delivered to the undersigned within (90) days after the opening thereof, or at any time thereafter before this Bid is withdrawn, the undersigned agrees to execute and deliver an Agreement in the prescribed form and furnish the required bond within ten (10) days after the Agreement is presented to him/her for signature.

3. Security in the sum of _____ Dollars
(\$ _____), in the form of _____
is submitted herewith in accordance with the Instructions to Bidders.

4. Attached hereto is an affidavit in proof that the undersigned has not colluded with any person in respect to this Bid or any Bids for the Contract for which this Bid is submitted. Also attached is a Statement of Bidder's Qualifications.

5. The Bidder is prepared to submit a financial and experience statement upon request.

6. If applicable unit prices are contained in the Agreement (established as the result of either a Unit Price, the Local Public Agency may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase or decrease the original total amount shown in the Agreement by more than **twenty-five percent (25%)** in accordance with the Section entitled Unit Prices, under Instructions to Bidders.

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

Bidder Signature and Acknowledgement of Addenda:

DATE: _____, 20____

Official Address:

Name of Bidder (Firm):

By: _____ (Signature)
Title: _____

Bidder shall indicate, in space provided,
the earliest possible Project **Start-up Date:** _____, 20____

ADDENDA: The undersigned acknowledges receipt of the following Addenda, if any, and has included the provisions thereof in this Bid:

<u>Addendum No.</u>	<u>Date</u>	<u>Addendum No.</u>	<u>Date</u>
_____	_____, 20____	_____	_____, 20____
_____	_____, 20____	_____	_____, 20____
_____	_____, 20____	_____	_____, 20____
_____	_____, 20____	_____	_____, 20____

C I T Y O F

MBE/WBE FORMS

P R O V I D E N C E , R H O D E I S L A N D

REFER TO BOARD OF CONTRACT AND SUPPLY RFP FOR REQUIRED MBE/WBE FORMS

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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CITY OF

BID BOND

PROVIDENCE, RHODE ISLAND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ as
(Name of Principal)
PRINCIPAL, and _____ AS SURETY are held and firmly bound unto
(Name of Surety)

the **City of Providence** thereafter called the "Local Public Agency", in the penal sum of

_____ Dollars,

(\$ _____) lawful money of the United States, for the payment of which sum well
and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns,
jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that Whereas the principal has submitted the
Accompanying Bid, Dated _____, 20____, for

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after
the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and
shall within the period specified therefor, or if no period be specified, within ten (10) days after the
prescribed forms are presented to him for signature, enter into a written Contract with the Local Public
Agency in accordance with the Bid as accepted and give bond with good and sufficient surety or sureties,
as may be required, for the faithful performance and proper fulfillment of such Contract; or in the event of
the withdrawal of said Bid, within the period specified, or the failure to enter into such Contract and give
such bond within the time specified, if the Principal shall pay the Local Public Agency the difference
between the amount specified in said Bid and the amount for which the Local Public Agency may procure
the required work or supplies or both, if the latter be in excess of the former, then the above obligation
shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several
seals this _____ day of _____, 20____, the name and corporate seal of each
corporate party being hereto affixed and these presents signed by its undersigned representative,
pursuant to authority of its governing body.

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

In presence of: _____ (Seal)

(Individual Principal) _____

(Business Address including Zip)

(Title) _____ (Seal)
(Partnership)

(Business Address including Zip)

By: _____

Attest:

(Corporate Principal)

(Business Address including Zip)

By: _____
(Affix Corporate Seal)

Attest:

(Corporate Surety)

By: _____
(Affix Corporate Seal)

Countersigned:
by _____

*Attorney-in-Fact, State of _____

(*Power-of-attorney for person signing for surety company must be attached to bond.)

CITY OF

CERTIFICATE AS TO CORPORATE PRINCIPAL

P R O V I D E N C E , R H O D E I S L A N D

I, _____, certify that I am the _____, Secretary of the Corporation named as Principal in the within bond; that, who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

_____ (Corporate Seal)

(Title)

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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CITY OF

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

PROVIDENCE, RHODE ISLAND

State of _____

County of _____

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

- (1) He is _____ of _____
(owner, partner, officer, representative, or agent) _____
, the Bidder that has submitted the attached Bid:
- (2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid:
- (3) Such Bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement, any advantage against the Department of Public Works or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

(Title)

Subscribed and sworn to before me this

_____ day of _____, 20____

(Title)

My Commission expires _____

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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CITY OF

NON-COLLUSION AFFIDAVIT OF SUBCONTRACTOR

PROVIDENCE, RHODE ISLAND

State of _____

County of _____

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

- (1) He is _____ of _____
(owner, partner, officer, representative, or agent) _____
, the Subcontractor that has submitted the attached Bid:
- (2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid:
- (3) Such Bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said Subcontractor nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Subcontractor, Bidder, firm or person to submit a collusive sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has communication or conference with any other Subcontractor, Bidder, firm or person to fix the price or prices in the attached Bid or of any other Subcontractor, Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Subcontractor, Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement, any advantage against the Department of Public Works or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Subcontractor or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

(Title)

Subscribed and sworn to before me this

_____ day of _____, 20____

(Title)

My Commission expires _____

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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CITY OF

CERTIFICATION OF NON-SEGREGATED FACILITIES

PROVIDENCE, RHODE ISLAND

The Bidder certifies that he/she does not maintain or provide for his/her employees any segregated facilities at any of his establishments, and that he/she does not permit his/her employees to perform their services at any location, under his/her control, where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity Clause in any contract resulting from acceptance of this Bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work rooms, restrooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The Bidder agrees that (except where he/she has obtained identical certification from proposed subcontractors for specific time periods) he/she will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000.00 which are not exempt from provisions of the Equal Opportunity Clause, and that he/she will retain such certifications in his/her files.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. & 1001.

Date _____, 20____

Official Address:

Name of Bidder (Firm):

By _____
(Name)

(Signature)

Title _____

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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CITY OF

BIDDER'S CERTIFICATION FOR EQUAL EMPLOYMENT OPPORTUNITY

PROVIDENCE, RHODE ISLAND

In compliance with Executive Order 11246 Equal Opportunity (GC II, Section 210, or latest publication) the Bidder hereby certifies he shall comply with Bid Conditions, Affirmative Action Requirements, Equal Employment Opportunity, as provided in the attachment Shown on pages GC II - 47a to GC II - 47f, or latest publication.

Full name and address of individual or company submitting this Bid:

Signed _____

Name _____

Title _____

Date _____

Notice: Bid should be signed in ink by a person having proper legal authority, and the person's title should be given, such as "Owner" in the case of an individual, "Partner" in the case of a general partnership, "President", Treasurer, or other authorized officer in the case of a corporation.

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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CITY OF

SPECIAL REQUIREMENT FOR ALL OUT-OF-STATE CONTRACTORS AND FIRMS

PROVIDENCE, RHODE ISLAND

It is the understanding that any and all out-of-state firms and companies must be registered to do business in the State of Rhode Island with the Secretary of State's Office. Any false statements made in this regard will cause this Contract to become null and void at the option of the City, therefore, in accordance with this requirement the following statement is made:

I (we) being duly sworn officers of said company or firm, hereby declare and affirm that this company or firm is registered with the Rhode Island Secretary of State's Office to do business in Rhode Island.

(Company or Firm)

Attest:

Signature _____

Name _____

Title _____

Note: If proposal is being made by an in-state contractor or firm, this form may be left blank.

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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CITY OF

CERTIFICATION WITH REGARD TO PERFORMANCE OF PREVIOUS CONTRACTS AND SUBCONTRACTS

PROVIDENCE, RHODE ISLAND

The Bidder _____, proposed Subcontractor _____, hereby certifies that he/she ____ HAS ____ HAS NOT, participated in a previous contract or subcontract subject to the Equal Opportunity Clause, as required by Executive Orders 10924, 11114, or 11246 and that he/she ____ HAS ____ HAS NOT, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements:

	Company _____
Signature _____	By _____
Date _____	Title _____

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7 (b)(1), and must be submitted by bidders and proposed subcontractors any in connection with the contracts and subcontracts which are subject to the Equal Opportunity Clause. Contracts and subcontracts which are exempt from the Equal Opportunity Clause are set forth in 41 CFR 60-15. Generally, only contracts or subcontracts of \$10,000.00 or under are exempt.

Currently, Standard Form 100 (EEO-11) is the only report required by the Executive Orders or their implementing regulations. Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the

Executive Orders and have filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts

and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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CITY OF

AFFIDAVIT OF NON-DISCRIMINATION

PROVIDENCE, RHODE ISLAND

State of _____

County of _____

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

He is the _____ of _____

a corporation organized and existing under the Laws of _____ and the

Contractor for the _____

Project No. that he makes this affidavit for and on behalf of said Corporation; that during the period

_____, 20____ to _____, 20____, the said corporation has maintained the practices of employment as required by federal, state, and city laws in regards to the hiring of employees for the aforementioned project and that in employment, upgrading, the demotion or transfer, recruitment or recruitment advertising; layoffs or termination, rates of pay or other forms of compensation; and selection for training including apprenticeship, that it has not discriminated against any employee or applicant for employment on the work covered by this contract because of race, religion, color or national origin.

Signed _____

Name _____

Title _____

Subscribed and sworn to before me this

_____ day of _____, 20____ (Seal)

Signed _____

Title _____

My commission Expires _____

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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CITY OF

CERTIFICATION OF NON-DISCRIMINATION IN EQUAL EMPLOYMENT OPPORTUNITY

PROVIDENCE, RHODE ISLAND

The bidder represents the he/she

☐ **has** ☐ **has not** participated in a previous contract or subcontract to either the equal opportunity clause contracted in Section 202 of the Executive Order 11246;

that he/she

☐ **has** ☐ **has not** filed with the Joint Reporting Committee, the Director of OFCC, any Federal agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements of those organizations; and that representations indicating submission of required compliance reports, signed by proposed subcontractors will be obtained prior to subcontract awards.

Full name and address of individual or company submitting this Bid:

Signed _____

Name _____

Title _____

Date _____

Notice: Bid should be signed in ink by a person having proper legal authority, and the person's title should be given, such as "Owner" in the case of an individual, "Partner" in the case of a general partnership, "President", Treasurer, or other authorized officer in the case of a corporation.

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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C I T Y O F

STATEMENT OF BIDDER'S QUALIFICATIONS

P R O V I D E N C E , R H O D E I S L A N D

Separate statements shall be submitted by the bidder with his/her proposal for Him/herself, the Designer, the Construction Contractor, and for major design or construction subcontractors. All questions must be answered completely. The date given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached pages keyed into this form. The bidder may submit any additional information he/she desires.

1. Name of Bidder _____ (Proper Name First)
2. Contact Person / Title _____
3. Permanent Main
 Office Address _____

4. Telephone _____
5. When Organized _____
6. If a Corporation,
 When Incorporated _____
7. How many years have you been engaged in the contracting business under your present firm or
 trade name? _____

8. State your current contracts in-hand. (Schedule the contracts showing amount of each contract
 and the appropriate anticipated date of completion.)

9. Will your firm be the Bidder, Designer, Construction Contractor, or Design or Construction
 Contractor for this project? _____

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

10. State the general character of work performed by your Company:

11. Have you ever failed to complete any work awarded to you? _____

If so, where and why: _____

12. Have you ever defaulted on a contract? _____

If so, where and why: _____

13. List the more important projects recently completed by your Company, stating the appropriate cost for each, and the month and year complete:

Projects	Cost	Completion Date
----------	------	-----------------

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

14. List the major equipment your Company has available for this project:

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

15. List the names of projects, owners, architects, contract amounts, dates of completion, and percent of work accomplished with own forces which have been completed within the last five (5) years (or projects etc. which a partner or officer, while associated with another organization, was primarily responsible for:

<u>Project Location</u>	<u>Owner</u>	<u>Engineer/ Architect</u>	<u>Contract Amount</u>	<u>Date Completed</u>	<u>Contact Name/Phone</u>

16. List the background and experience of all principal members of your organization:

<u>Name</u>	<u>Background / Experience</u>

17. State your firm's particular qualifications, services, etc. for completing the project on-time within the project's program:

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

18. Based on your knowledge of construction and the Owner's program for the project, indicate a project completion date:

19. Credit Available: _____

20. Give bank reference: _____

21. Will you, upon request, complete a detailed financial statement and furnish any other information requested by the Owner?

22. The Bidder hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Owner in verification of the recitals comprising this:

STATEMENT OF BIDDER'S QUALIFICATIONS, dated _____

this _____ day of _____, 20____

Name of Bidder _____

By/Title _____

State of _____

County of _____

Subscribed and sworn before me

____ day of _____, 20____

Signed _____

Title _____

My Commission expires _____

CITY OF

PROPOSED SUBCONTRACTORS

PROVIDENCE, RHODE ISLAND

I, _____, the BIDDER, hereby propose to utilize the following named SUBCONTRACTORS for the CITY WALK PHASE2 project, Providence, RI, for the work items and/or estimated prices stated below and understand that the Owner reserves the right to reject any subcontractor if investigation determines they do not meet federal requirements or are otherwise unacceptable for the Project.

1. WORK ITEM/DESCRIPTION: _____

Estimated Value of Work: _____

Subcontractor: _____

Address: _____

City/State/Zip-Code: _____

Telephone No.: _____

2. WORK ITEM/DESCRIPTION: _____

Estimated Value of Work: _____

Subcontractor: _____

Address: _____

City/State/Zip-Code: _____

Telephone No.: _____

3. WORK ITEM/DESCRIPTION: _____

Estimated Value of Work: _____

Subcontractor: _____

Address: _____

City/State/Zip-Code: _____

Telephone No.: _____

SLIDE GATE OPERATOR REPAIR
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4. WORK ITEM/DESCRIPTION: _____

Estimated Value of Work: _____

Subcontractor: _____

Address: _____

City/State/Zip-Code: _____

Telephone No.: _____

5. WORK ITEM/DESCRIPTION: _____

Estimated Value of Work: _____

Subcontractor: _____

Address: _____

City/State/Zip-Code: _____

Telephone No.: _____

6. WORK ITEM/DESCRIPTION: _____

Estimated Value of Work: _____

Subcontractor: _____

Address: _____

City/State/Zip-Code: _____

Telephone No.: _____

7. WORK ITEM/DESCRIPTION: _____

Estimated Value of Work: _____

Subcontractor: _____

Address: _____

City/State/Zip-Code: _____

Telephone No.: _____

(Add additional pages if necessary)

C I T Y O F

SCHEDULE OF UNIT PRICES

P R O V I D E N C E , R H O D E I S L A N D

SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER - ALLENS AVENUE

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ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT BID PRICE	TOTAL COST
1.	General Requirements	LS	1	\$_____	\$_____
UNIT PRICE IN WORDS: _____					
2.	Mobilization (Shall Not exceed 10% of the Total Amount of all Bid Items)	LS	1	\$_____	\$_____
UNIT PRICE IN WORDS: _____					
3.	Quality Control				
3A.	Allowance for Testing - Grain Size Through No. 200 Sieve	EA	4	\$125	\$500
UNIT PRICE IN WORDS: One Hundred Twenty Five Dollars and no cents					
3B.	Allowance for Testing - Moisture Density Relationship	EA	2	\$225	\$450
UNIT PRICE IN WORDS: Two Hundred Twenty Five Dollars and no cents					
3C.	Allowance for Testing - Dry Density and As-Placed Moisture Content	1/2 DAY	3	\$500	\$1,500
UNIT PRICE IN WORDS: Five Hundred Dollars and no cents					
3D.	Allowance for Concrete Compression Test	EA	8	\$40	\$320
UNIT PRICE IN WORDS: Forty Dollars and no cents					
4.	Erosion and Sedimentation Controls	LS	1	\$_____	\$_____
UNIT PRICE IN WORDS: _____					
5A.	Temporary Traffic Control	LS	1	\$_____	\$_____
UNIT PRICE IN WORDS: _____					
5B.	Allowance for Supplementary Traffic Control	HR	120	\$100	\$12,000
UNIT PRICE IN WORDS: One Hundred Dollars and no cents					

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT BID PRICE	TOTAL COST
6.	Demolition and Removal	LS	1	\$ _____	\$ _____
UNIT PRICE IN WORDS: _____					
7.	Gate Operators				
7A.	Temporary Personnel Scaffolding/Access Platforms	LS	1	\$ _____	\$ _____
UNIT PRICE IN WORDS: _____					
7B.	Temporary Gate Supports and Operator Mechanisms	LS	1	\$ _____	\$ _____
UNIT PRICE IN WORDS: _____					
7C.	Remove and Dispose of Existing Gate Operators	LS	1	\$ _____	\$ _____
UNIT PRICE IN WORDS: _____					
7D.	New Gate Operators	LS	1	\$ _____	\$ _____
UNIT PRICE IN WORDS: _____					
7E.	Fitment Modifications of New Gate Operators	LS	1	\$ _____	\$ _____
UNIT PRICE IN WORDS: _____					
8.	Slide Gate Structure Improvements				
8A.	Permanent Interior Bracing	LS	1	\$ _____	\$ _____
UNIT PRICE IN WORDS: _____					
8B.	Furnish New Precast Concrete Lids	LS	1	\$ _____	\$ _____
UNIT PRICE IN WORDS: _____					

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT BID PRICE	TOTAL COST
8C.	Install New Precast Lids	LS	1	\$ _____	\$ _____

UNIT PRICE IN WORDS: _____

9.	Allowance for Miscellaneous Electrical and Hydraulic Repairs	LS	1	<u>\$25,000.00</u>	<u>\$25,000.00</u>
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UNIT PRICE IN WORDS: _____

10.	Control House Exterior Door	LS	1	\$ _____	\$ _____
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UNIT PRICE IN WORDS: _____

11.	Bituminous Concrete Pavement	SY	60	\$ _____	\$ _____
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UNIT PRICE IN WORDS: _____

12.	Allowance for Emergency Response	LS	1	<u>\$10,000.00</u>	<u>\$10,000.00</u>
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UNIT PRICE IN WORDS: _____

13.	Demobilization and Clean-up	LS	1	\$ _____	\$ _____
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UNIT PRICE IN WORDS: _____

TOTAL BID AMOUNT FOR DETERMINATION OF LOWEST BID

TOTAL SUM OF EXTENDED UNIT PRICE ITEMS
PLUS LUMP SUM ITEMS (ITEMS 1-13)

\$ _____

(Amount in Figures)

_____ Dollars and _____ Cents

(Amount in Words)

ADD ALT.	DESCRIPTION	UNIT	QUANTITY	UNIT BID PRICE	TOTAL COST
-------------	-------------	------	----------	----------------	------------

1. No Add Alternatives

UNIT PRICE IN WORDS: _____

APPENDIX B:

CONTRACT FORMS

- A. Construction Agreement
- B. Partial Release – Contractor
- C. Final Release – Contractor
- D. Partial Release – Subcontractor
- E. Final Release – Subcontractor
- F. Contract Bond for Complete Performance and Full Payment

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CONSTRUCTION AGREEMENT

BETWEEN
THE CITY OF PROVIDENCE, RI
AND
[CONTRACTOR NAME]

SLIDE GATE OPERATOR REPAIR – FOX POINT HURRICANE BARRIER – ALLENS AVENUE

This Construction Agreement (“Agreement”) is made on the latest day undersigned by and between the City of Providence, City of Providence Department of Public Works (DPW), (“Owner”) and [CONTRACTOR NAME, ADDRESS, CITY, STATE, ZIP] (“Contractor”) (jointly, “Parties”).

Project Description: The City of Providence owns and operates two hydraulic slide (sluice) gates that are housed in a Sewer Slide Gate Structure (the Structure) located on Allens Avenue (Route 1A). The existing slide gates are an ancillary system to the Providence Hurricane Barrier (the Barrier) and control the main sewer outflow from the Downtown area and points north.

The gates are generally only closed when there is a risk of storm surge to prevent floodwaters from short circuiting below the Barrier. The work included in this project includes removal and replacement of the existing gate operators and system hydraulics. The removal of the operators requires the removal of the top of the Structure. The top will be sawed off and replaced with two precast concrete sections, each with a hatch above the operator located below.

Project Location: The project is located at 60 Allens Avenue, Providence, Rhode Island.

Contractor agrees to complete the work identified in this Agreement and in the Contract Documents, (“Project”). With regard to the Project, Owner and Contractor agree:

1. CONTRACT DOCUMENTS

- 1.1. This Agreement, the scope of work, invitation for bids, and any other documents referenced in or attached to this agreement are collectively referred to as the “contract documents,” and include:
- 1.2. Contract Documents prepared by the Department of Public Works (DPW) and issued by Owner as part of the Request for Proposals – Allens Avenue Sewer Slide Gate Operator Repairs awarded on [DATE];
 - A. Bid submitted by Contractor dated [DATE];
 - B. Contract Documents, Allens Avenue Sewer Slide Gate Operator Repairs, prepared by Tighe & Bond, Inc. on behalf of the Department of Public Works, dated [DATE];
 - C. The City of Providence Contract Addendum: American Rescue Plan Act (ARPA) attached hereto (the “ARPA Addendum”).
- 1.3. Each of the Contract Documents forms part of and is fully incorporated in this Agreement.
- 1.4. To the extent any of the Contract Documents that form part of and are incorporated in this Agreement differ or contradict the terms of this Agreement, the terms of this Agreement shall control, except that in the case of a difference or contradiction between the terms of this Agreement and the ARPA Addendum, the ARPA Addendum shall control.

2. SCOPE OF WORK AND AGREEMENT PRICE

- 2.1. Contractor, having examined the Contract Documents and Project Site, agrees to be bound by the Contract Documents.
- 2.2. Contractor agrees to furnish all required Project Management, labor, materials, equipment, competent supervision, tools, safety measures, transportation costs, proof of insurance, performance bond and payment bond (as directed by Owner) and any and all other appurtenant items necessary for complete performance of the Contract Work in a good and workmanlike manner.
- 2.3. The Contract Work shall conform to all applicable laws, regulations and/or ordinances of any and all governmental agencies including Quasi and having jurisdiction over the Contract Work. All required standards required by the Utility Providers shall be strictly complied with unless otherwise confirmed in writing by the Engineer and Owner.
- 2.4. Contractor agrees to perform the necessary construction, project installation and oversight work set forth in the Scope of Work.
- 2.5. Contractor agrees to perform the Contract Work strictly in accordance with the Contract Documents, task order and subject to the final approval of Owner for the Agreement Price of [written price (\$x,xxx.xx)], as stated in the bid submitted by the Contractor on [month, day, year]. Owner and Contractor may amend the Agreement Price only by a written Change Order executed by both Parties. Contractor shall not charge overtime or travel time to Owner unless Owner first approves such charges in writing.
- 2.6. Contractor is responsible for the cleanup and removal of all debris associated with the Contract Work to assure the safety and protection of all persons and property associated with the Project.
- 2.7. If the progress schedule cannot be met due to business interruption and circumstances beyond the control of Contractor, the Owner and Contractor shall discuss and document the cause of such delay and present to the Owner to review and discuss reasonable means to complete the work to avoid further delay. No overtime work will be conducted without an agreed upon Change Order.
- 2.8. From Time to Time the Contractor may be given advanced notice of special events taking place within the Project Limit Lines that will require special attention to work around and/or otherwise provide detailed cleanup, minimize road openings and sidewalk closures as well other applicable tasks that may be required. These events will be required to be captured in the Project Schedule and worked around as necessary to accommodate the events and assure that efforts are made to accommodate the events.
- 2.9. Contractor is employed as an independent contractor to perform the Contract Work and is responsible to provide all tools, equipment and incidentals required to complete the Work.
- 2.10. Contractor has examined the Project Site and has acquainted themselves with local conditions, including readable availability of a project management Team, labor, sub-contractors, equipment and materials.
- 2.11. Based on the Contractors examination of the Project Site, the Contractor accepts all open and obvious conditions at the Project Site visible upon reasonable inspection as of the date of this Agreement. No allowances will be made after the date of this Agreement for any oversight, error or omission by Contractor in assessing the Project Site with respect to the Scope of Work to be performed and the Agreement Price for conditions falling within these parameters.

3. PERFORMANCE AND WARRANTY

- 3.1. Time is of the essence.
- 3.2. Contractor shall cooperate with Owner in scheduling and performing the Contract Work to avoid conflict, delay in or interference with any separate work of the Owner or other engineers or contractors. Performance requirements may be included in task order, to be agreed to by the City and Contractor.
- 3.3. At Owner's request, Contractor shall promptly provide Owner with proof of the ordering of all materials, equipment and supplies required for complete performance of the Contract Work.
- 3.4. Within Ten (10) Calendar Days, the Contractor shall promptly provide Owner with a schedule of work to be performed which shall be considered a living schedule and update a minimum of every two (2) weeks. Failure to submit and update may result in rescinding work and/or withholding of payment.
- 3.5. Contractor shall use only new material for the Contract Work. Contractor shall remove and replace promptly, at Contractor's own expense, all defective or nonconforming work or materials. Contractor shall promptly report to Owner, in writing, any errors, inconsistencies or omissions relating to the Contract Work and any errors, inconsistencies or omissions in the Drawings and Specifications. Contractor may use salvaged materials with the approval of the Owner provided environmental test reports are provided to assure they are not contaminated. Test reports shall be provided in advance of materials being brought to the site.
- 3.6. Contractor shall complete each aspect of the Contract Work in strict accordance with the standards set forth in this Agreement and the other Contract Documents. Notice to proceed will be issued upon the Contractor's furnishing of insurance, bond, and execution of this Agreement. Contractor shall begin the work no earlier than **permitted by RIDOT**, and must complete work by **June 30, 2023** unless otherwise stipulated in the task order. The Completion Date may be changed only by a written Change Order signed by the Contractor and Owner. Contractor's failure to perform and timely complete each aspect of the Contract Work, excluding delays caused by Owner or third party persons who are not under Contractor's control, in strict accordance with the Contract Documents, or delay of any work by other engineers, contractors or Owner caused by Contractor, constitutes a material breach of this Agreement, and Contractor shall be responsible for all additional costs incurred by Owner or other engineers or contractors, including overhead, profit, attorneys' fees and litigation expenses resulting from any such breach.
- 3.7. If Contractor, by its own fault or omission, fails to diligently pursue completion of the Contract Work, overtime work may be required by Contractor without additional compensation from Owner.
- 3.8. In certain situations, Contractor may be required by Owner to work overtime and, if Contractor is not in default under the Agreement, Contractor shall be paid additional compensation as agreed to in writing prior to performance of the overtime work. Owner must approve in advance and in writing all overtime work for which Contractor seeks additional compensation and such overtime work will be addressed in a Change Order.
 - A. The Contractor shall provide Schedule of Rates for all Labor and Equipment as part of the Bid for the project. This rate table will be used for adjustments in costs in the event they are required.
 - B. The rate Schedule will be reviewed during Bid Review process for fairness and will be part of the review for the De-Scope Meeting.

- 3.9. Contractor agrees to keep Owner informed both verbally and in writing as to the progress of the Contract Work and shall perform the Contract Work faithfully and in such order as necessary to keep the overall Project on schedule and to avoid any delay in completion of the Project. Failure to updated project schedule may result in rescinding work and/or withholding of payment.
- 3.10. Contractor shall provide safe and proper facilities for inspection at all times during performance of the Contract Work including preparing and maintaining a **Safety Plan to be submitted prior to the start of Work.**
- 3.11. Contractor warrants that the Contract Work shall (i) be free of defects in material and workmanship for a period of Two (2) years except where prescribed to be for a longer period; (ii) comply with the Drawings and the Specifications or as otherwise agreed to by the Parties; (iii) be performed in safe and workmanlike manner by trained, qualified, and efficient workers, in strict conformity with construction best practices; and (iv) be constructed of new materials of the most suitable grade for the application, and furnish satisfactory evidence to Owner of the type and quality of materials so furnished and used. In the event that the Contract Work fails to meet any of the aforementioned warranties, Contractor shall have the right to cure any nonconforming or defective Work and may replace the defective Contract Work, or reimburse Owner for the Contract Work at the invoice or market price, within thirty (30) days after discovery of the breach of warranty. Contractor shall also, at its cost, remove all material, equipment, and Contract Work which does not comply with the Drawings or meet the Specifications, or is otherwise defective, whether incorporated in the Project or not, and shall re-execute the Contract Work and correct any other work damaged thereby. If Contractor does not remove nonconforming or defective Contract Work promptly, Owner may do so and restore such nonconforming Contract Work at Contractor's expense.
- 3.12. Contractor shall reimburse Owner for all reasonable costs and expenditures made in the settlement of any claim against Owner relating to nonconforming or defective Contract Work.
- 3.13. Neither acceptance of the Contract Work nor payment of some or all of the Agreement Price shall relieve Contractor of responsibility for faulty materials, equipment or workmanship. Contractor shall remedy, as soon as possible, defects appearing within two (2) years from the date of final payment, or within such longer period of time as provided by any manufacturer's warranty, and correct resulting damage to other work at no cost to Owner.

4. ASSIGNMENT

- 4.1. Contractor shall not assign or sublet the whole or any part of this Agreement or any funds accrued or to accrue under this Agreement without the prior written consent of Owner; any assignment or sublet without prior written consent of Owner shall be voidable at the election of Owner. Owner retains the right to refuse any and all assignments or subletting in Owner's sole and absolute discretion. Any attempt to assign this Agreement in whole or in part without Owner's prior written consent constitutes a material breach of this Agreement.

5. CHANGES AND DELAYS

- 5.1. Contractor shall not deviate from the Contract Documents except on written order of Owner, received by Contractor before beginning any deviation.
- 5.2. Owner may make written changes in the Contract Documents which may add to or deduct from the Contract Work without invalidating this Agreement. All work outside the scope of the Contract Work to which Contractor is directed to perform by Owner or Owner's authorized representative without an agreement as to the price or time for the work shall be preserved and resolved through the dispute resolution clause in Section 14 of this Agreement.

- 5.3. Unless a written Construction Change Directive has been issued to Contractor by Owner directing that certain work be performed prior to agreement on extra compensation and/or time or in the event of a dispute as to whether the work is within the original Scope of Work, no extra compensation for extra work, materials or any time extension shall be allowed unless a written Change Order has been signed by Owner, nor shall Contractor proceed with extra work without a written Change Order signed by Owner. Compensation for any work added by a Change Order shall be in accordance with unit prices, applicable add/alternate prices, a lump sum price, or with the prior approval of Owner, shall be performed on a time and material basis with a detailed account of labor and material costs associated with the work.
- 5.4. Recovery by Contractor for delays caused by Owner shall be limited to time extensions only as set forth in an executed Change Order. Contractor shall not be entitled to damages or compensation for any losses on account of delay from any cause whatsoever, including, but not limited to, any act, neglect, omission, default or failure of performance by Owner or separate contractors, failure to obtain required materials, delay in obtaining permits, or other conditions.
- 5.5. If the progress schedule cannot be met due to business interruption and circumstances beyond the control of Contractor, the Owner and Contractor shall discuss and document the cause of such delay and present to the Owner to review and discuss reasonable means to complete the work to avoid further delay. No overtime work will be conducted without an agreed upon Change Order.
- 5.6. If materials are not delivered promptly, Owner may expedite or substitute delivery of material to be supplied by Contractor and back charge Contractor for any costs incurred.

6. PROTECTION OF THE WORK AND EMPLOYEES; SUPERVISION AT THE PROJECT SITE

- 6.1. Until the Contract Work is complete, Contractor shall effectively secure and protect the Contract Work and shall repair and/or replace all loss or damage to the Contract Work caused by the Contractor or anyone for whom Contractor is responsible.
- 6.2. Following completion of the Contract Work, Contractor shall be bound by the warranty obligations of Contractor and its subcontractors and suppliers.
- 6.3. Contractor shall at all times supply a sufficient number of skilled workers to perform the Contract Work in a timely and efficient manner. In addition, Contractor shall assign a competent person who shall supervise the performance of the Contract Work, be present at the Project Site at all times when Contract Work is being performed, and act as Contractor's representative at the Project Site for the purposes of coordinating Contractor's activities with those of the Owner and others at the Project Site.

7. BREACH AND REMEDIES

- 7.1. Contractor shall be deemed to be in material breach of this Agreement if Contractor: (i) fails to perform the Contract Work in strict accordance with the Contract Documents or task order; (ii) fails to provide competent supervision or a sufficient number of properly skilled workers; (iii) fails to supply sufficient material or equipment of proper quality; (iv) fails to correct nonconforming or defective work promptly; (v) fails to perform any terms of this Agreement; (vi) is unable to meet its debts or fails to pay promptly for labor, material or other obligations; (vii) becomes financially insecure; (viii) disregards any law, including, without limitation, the Environmental Laws, rules, regulations or ordinances applicable to the Contract Work; (ix) by negligent act or omission causes delay or interference with Owner or separate contractors; (x) assigns this Agreement for any reason without the prior written consent of Owner; or (xi) performs or fails to perform any act the commission or omission of which is defined elsewhere

in the Contract Documents as a material breach of this Agreement or which would constitute a material breach at common law.

- 7.2. In the event of Contractor's breach, Owner shall have the following remedies in addition to any other remedies available at law or in equity:
- A. Upon five (5) days' written notice to Contractor, Owner may declare Contractor in breach of this Agreement subject to the Contractor's right to cure, and after such time, the Owner may (i) terminate the Agreement; (ii) after termination, employ one or more other contractors to complete the Contract Work; (iii) complete the Contract Work with its own forces; or (iv) employ some combination of the foregoing to complete the Contract Work. Upon Contractor's breach, Contractor shall assign all material, equipment, tools, services, and supplies, and all of Contractor's agreements and supply contracts to Owner for the purpose of assisting Owner's completion of the Contract Work by any of the foregoing means. Equipment and tools left on the Project Site subject to a security or rental agreement shall be returned to Contractor. Equipment or tools owned outright by Contractor left on the Project Site may be assigned to Owner upon the termination of this Agreement resulting from Contractor's breach of the Contract Documents for use to complete the Project.
 - B. Contractor shall remain liable to Owner for all costs incurred by Contractor in completing the Contract Work caused by Contractor's breach of the terms of this Agreement.
- 7.3. If Contractor breaches this Agreement, Contractor shall not be entitled to any further payments for Contract Work not completed until the Contract Work has been completed and accepted by Owner and all above-described expenses have been paid by Contractor to Owner. Contractor shall be liable to Owner for all costs of completion of the Contract Work that exceed the balance due under this Agreement, and Contractor shall promptly pay all valid amounts owed to Owner upon demand.
- 7.4. The Owner will be in breach of this Agreement and in default if any of the following events occur. Owner shall have five (5) days to rectify the situation after event occurs and is identified.
- A. Owner fails or refuses to pay on time (generally within 60 days of acceptance of Payment Application) any monies due under the Contract Documents;
 - B. Owner fails or refuses to perform any obligation required under the Contract Documents.

8. INDEMNITY

- 8.1. To the fullest extent permitted by law, Contractor shall indemnify, defend, at the owner's option, and hold harmless Owner, its respective employees, agents, officers, directors and representatives (collectively, the "Indemnified Parties") from, for, of, and against any and all claims, damages, losses, liabilities, demands, costs and expenses, including but not limited to attorneys' fees and litigation expenses arising out of or resulting from, in whole or in part, the performance of the Contract Work, or which are caused, in whole or in part, by any negligent act or omission of the Contractor, or by any of Contractor's subcontractors or suppliers, or anyone directly or indirectly employed by them. Excluded from this indemnity section is any claim directly attributable to the conduct and actions of the Owner or arising out of any non-delegable duty owed by the Owner.
- 8.2. To the fullest extent permitted by law, Owner shall indemnify and hold harmless Contractor and its agents, officers, directors and employees from, for, of, and against any and all claims, damages, losses, liabilities, demands, costs and expenses, including but not limited to

attorneys' fees and litigation expenses attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property which are caused, in whole, by any negligent act or omission of Owner, or any of Owner's separate contractors, or anyone directly or indirectly employed by them.

- 8.3. Such obligations shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this section.

9. INSURANCE

- 9.1. Contractor shall purchase and maintain the following insurance for limits in amounts no less than set forth below:
- A. GENERAL LIABILITY INSURANCE – PROPERTY DAMAGE AND BODILY INJURY: One Million Dollars (\$1,000,000) per Occurrence; Two Million Dollars (\$2,000,000) Aggregate Limit.
 - B. OWNED, HIRED AND NON-OWNED AUTOMOBILE LIABILITY INSURANCE: for Bodily Injury, Wrongful Death and Property Damage; One Million Dollars (\$1,000,000) per Occurrence; Two Million Dollars (\$2,000,000) Aggregate.
 - C. WORKERS COMPENSATION AND OCCUPATIONAL DISEASE: including Employer's Liability-Statutory Limit, such Employer's Liability limits for bodily injury by accident or disease to not be less than Five Hundred Thousand Dollars (\$500,000) each accident, Five Hundred Thousand Dollars (\$500,000) each employee and Five Hundred Thousand Dollars (\$500,000) policy limit.
 - D. UMBRELLA LIABILITY INSURANCE: Five Million Dollars (\$5,000,000) per Occurrence; Five Million Dollars (\$5,000,000) Aggregate.
 - E. POLLUTION LIABILITY INSURANCE: Two Million Dollars (\$2,000,000) policy limit.
- 9.2. All required insurance coverages listed above shall be written on an occurrence-basis, and shall be maintained continuously, without interruption, from the date of commencement of this Agreement until the completion of the Contract Work or the date of final payment for the Contract Work, whichever occurs later.
- 9.3. Certificates of insurance acceptable to Owner shall be submitted to Owner before commencement of the Contract Work. The certificates of insurance and the insurance policies required above shall include a provision stating that the insurance coverage under each policy shall not be cancelled or otherwise allowed to expire until at least thirty (30) days' advance notice has been given directly to Owner by the insurance company or companies.
- 9.4. The insurance policies required for general liability coverages, owned, hired and non-owned automobile liability coverage shall include Owner (City of Providence and the City of Providence Recovery Office) as an additional insured and shall provide that these insurance coverages are primary and non-contributory in the event any additional insured is insured for the same coverages under another insurance policy or policies. Contractor shall provide copies of the endorsements from the carrier showing that these entities have been added as additional insured.
- 9.5. Nothing in the provisions of this Section shall modify, alter or otherwise affect the indemnity obligations of Contractor under Section 8 of this Agreement.

10. SAFETY

- 10.1. At its own expense and at all times, Contractor shall have the responsibility to and take all necessary precautions to protect persons and property at or adjacent to the Project Site from damage, loss, or injury resulting from performance of the Contract Work by the Contractor, its employees, subcontractors and others for whom Contractor is responsible.
- 10.2. If any accident occurs, person is injured, or property is damaged at or near the Project Site resulting from the performance of the Contract Work by Contractor, its employees, subcontractors or others for whom Contractor is responsible, Contractor shall immediately notify Owner both verbally and in writing.
- 10.3. Contractor shall maintain a safety program that complies with all applicable laws and shall comply with all specific safety requirements promulgated by any applicable governmental authority and the City of Providence, including without limitation, the requirements of the Occupational Safety and Health Act ("OSHA"). Copies of the program shall be furnished to the Owner upon request.
- 10.4. The Contractor shall submit a Life and Safety Plan prior to the execution of the Work including the Contractors COVID-19 Plan.

11. COMPLIANCE WITH LAWS

- 11.1. Contractor shall comply with all applicable federal, state, and local laws, codes, regulations and ordinances, including, but not limited to, the Fair Labor Standards Act, OSHA, workers compensation, social security, employment and wage and hour laws.
- 11.2. Contractor acknowledges this is a contract funded under ARPA, and therefore agrees to abide by all applicable terms in the ARPA Addendum.
- 11.3. Contractor shall not discriminate in the employment or advancement of any employee or applicant because of race, national origin, sex, color, age, religion, creed, physical handicap, Veteran's status or any protected class.
- 11.4. Contractor shall maintain all records and accounts for the employment of labor and the furnishing of materials and supplies in accordance with proper accounting and record keeping procedures and with all federal, state, and local laws, codes, regulations and ordinances. Copies of such records shall be provided to Owner upon request.

12. PAYMENTS

- 12.1. For the satisfactory performance and timely completion of the Contract Work, Owner shall pay Contractor the Agreement Price, subject to additions and deductions as herein provided. Payment will be less the aggregate of previous payments.
- 12.2. As a condition precedent to Contractor's right to payment, Contractor shall submit to Owner pay applications in AIA format in MS Excel Format not locked based on an Owner Approved Schedule of Values containing the following, and no pay applications will be accepted or processed for payment without the following:
 - A. Project Site name and address;
 - B. Date of the Contract Work;
 - C. CIP Number and Name

- D. Milestone of Project Completion or line item percent complete in Schedule of Values.
 - E. MBE/WBE Utilization form
 - F. Apprenticeship utilization reports
 - G. Certified Payrolls
 - H. Partial Lien Releases
 - I. Cost Loaded Progress Schedule
 - J. Digital Progress Photos (Labeled)
 - K. Real time Punch List Items Addressed
- 12.3. Pencil pay applications shall be submitted digitally (unlocked MS Excel Format) to Owner on a thirty (30) day billing cycle, by. Owner shall have fourteen (14) days from receipt of a properly documented pay application to approve and certify the pay application. Owner shall review each line item independently and base payment approval on each line item. In no case shall a disputed line item constitute a rejection of an entire pay application. In the case of a disputed line item(s), payment shall be made for all other line items and disputed line item(s) shall be settled in accordance with Section 14. Owner shall generally issue payment within 60 days after the pay application is approved and certified.
- 12.4. Payment shall not be considered approval or acceptance of Contract Work or materials that do not comply with the Contract Documents.
- 12.5. Retainage in the amount of 5% will be withheld by the Owner until final completion and acceptance of the project. If the Contractor is from out of state, the 5% retainage shall be increased to 8% to account for the extra 3% withheld for sales tax under RIGL 44-1-6.
- 12.6. If labor, materials or other charges relating to the Contract Work are not being paid by Contractor when due, Owner may take all steps necessary to ensure such payments are made, including paying Contractor's bills directly, and charge such payments to Contractor.
- 12.7. Owner may reduce or delay payment to Contractor for any and all of the following reasons: (i) unsatisfactory job progress; (ii) defective work or materials not remedied; (iii) disputed work; (iv) failure of Contractor to comply with the provisions of this Agreement; (v) legitimate and non-frivolous third party claims filed or reasonable evidence that a legitimate and non-frivolous claim will be filed; (vi) failure of Contractor to make timely payments for labor, equipment and materials; (vii) damage to Owner or a separate contractor; (viii) reasonable evidence that the Agreement cannot be completed for the unpaid balance of the Agreement Price, (ix) failure to submit apprenticeship utilization reports, MBE/WBE utilization reports or updated construction schedule, or (x) punch lists not being addressed as project proceed (Real Time).
- 12.8. If Contractor's materialmen, suppliers, or subcontractors file a lien or other claim, or attempt to exercise any right or remedy against Owner, Owner's interest in the Project Site, or the Project Site, Contractor shall immediately remove the lien or other claim, by payment, bond, or otherwise. If Contractor fails to act on the notice of lien or claim as outlined above within thirty (30) days, the Owner may, in addition to its right to declare a material breach of this Agreement and exercise all rights and remedies, take whatever acts are necessary to remove the lien or resolve such claims and charge Contractor for the costs incurred.

- 12.9. Final payment to Contractor is conditioned upon and subject to the approval of the Contract Work by Owner. As a condition of final payment, Contractor shall provide to Owner "as built" drawings of the finished Project and all warranties, operating instructions and manuals and an agreement to hold Owner harmless from all claims, all in forms acceptable to Owner. Contractor also shall provide to Owner a final release and lien waiver for labor and materials furnished by Contractor, its subcontractors and suppliers and from all lower tier subcontractors and suppliers who have served preliminary lien notices on Owner or Contractor. The Contractor shall provide consent of the Surety Company as well.
- A. Acceptance of final payment shall act as a waiver and release of any and all claims by Contractor, except unknown claims for personal injury or property damage caused by Owner.
- 12.10. Final payment by the Owner shall in no way relieve the Contractor for liability for its obligations to repair or replace faulty or defective Contract Work discovered after final payment. All such defenses Contractor may have to such claims are preserved.

13. RIGHTS AND REMEDIES

- 13.1. Duties and obligations imposed by this Agreement and rights and remedies available hereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available at law or in equity.

14. DISPUTES

- 14.1. Disputes to be resolved in accordance with the Rhode Island General Law Tittle 37, Chapter 37-16 et seq.
- 14.2. All claims, disputes, and other matters in question arising out of or relating to this contract or the performance or interpretation thereof shall be submitted to arbitration. Arbitration shall be commenced by a demand in writing made by one party to the contract upon the other within a reasonable time after the dispute, claim, or other matter in question arose but in no event after payment in full of the contract price has been made and accepted. The written demand shall contain a statement of the question to be arbitrated and a detailed statement of each item or matter in dispute and the name of the arbitrator appointed by that party. The other party to the contract within ten (10) days of the receipt of the written demand shall appoint an arbitrator and give notice in writing thereof to the party who commenced arbitration. The two (2) arbitrators appointed by the parties shall within ten (10) days of the date of the appointment of the second arbitrator select a third arbitrator who shall be designated as chairperson and who immediately shall give written notice to the parties of his or her appointment. The third arbitrator shall select a time, date, and place for hearing and give each party five (5) days notice in writing thereof. The date for hearing shall not be more than fifteen (15) days after the date of appointment of the third arbitrator. The award shall be made promptly by the arbitrators and, unless otherwise agreed by the parties or specified by law, no later than thirty (30) days from the date of closing the hearing, or, if oral hearings have been waived, from the date of the transmittal of the final statements and proofs to the arbitrators. The award shall be in writing and shall be signed by a majority of the arbitrators. It shall be executed in the manner required by law. The arbitrator shall provide a written explanation of the reasoning for the award. In the event the party of whom arbitration is demanded shall fail to appoint his or her arbitrator within the time specified or the two (2) arbitrators appointed by the parties are unable to agree on an appointment of the third arbitrator within the time specified, either party may petition the presiding justice of the superior court to appoint a single arbitrator who shall hear the parties and make an award as provided herein. The petitioner shall give five (5) days notice in writing to the other party before filing his or her petition.

15. GOVERNING LAW

- 15.1. This Agreement shall be governed by and construed under the laws of the State of Rhode Island, without regard to its conflicts of law principles.

16. ALL CHANGES TO AGREEMENT SHALL BE IN WRITING

- 16.1. This Agreement shall not be changed except by written agreement of Owner and Contractor.

17. LEGAL EFFECT

- 17.1. In the event any provision contained herein is found to be legally unenforceable, all other provisions of this Agreement shall remain in full force and effect as if the unenforceable provision was never made a part of this Agreement.

18. INTERPRETATION

- 18.1. This Agreement is the result of negotiations between the parties and, accordingly, shall not be construed for or against either party regardless of which party drafted this Agreement or any portion thereof.

19. NO PARTNERSHIP

- 19.1. Nothing contained herein shall, or shall be deemed to, create any relationship between the Parties other than that of Owner and Contractor.

20. FURTHER DOCUMENTS

- 20.1. The Parties shall execute and deliver all such documents and perform all such acts as reasonably requested by the other party from time to time, to carry out the matters contemplated by this Agreement.

21. RECORD KEEPING, AUDIT AND INSPECTION

- 21.1. Contractor shall retain all books and records pertaining to the provision of the Contract Work for a period of no less than five (5) years after completion of all Contract Work or the termination of this Agreement, whichever occurs earlier and shall, during such time, shall permit Owner and its designated representative(s) to audit, inspect and make copies of all such books and records so maintained by Contractor. Any such audit and inspection shall take place during normal business hours upon reasonable prior notice to Contractor. The right to audit and inspect shall survive the termination of the Agreement.

22. NOTICE

- 22.1. All notices to either party pursuant to this Agreement shall be in writing and signed by a duly authorized representative of the party giving such notice and shall be served either in person, by overnight delivery service or by certified mail, return receipt requested, to the respective address for each party given in the Agreement.

23. AUTHORITY

- 23.1. The individuals executing this Agreement on behalf of the parties represent they are duly authorized to sign on behalf of the parties and bind the Parties hereto.

24. COUNTERPARTS

- 24.1. This Agreement may be signed in counterparts.

25. NOTICES

- 25.1. No notice, consent, approval or other communication given in connection herewith shall be validly given, made, delivered or served unless in writing and delivered by hand, email, or by registered/certified United States mail to Owner or Contractor, as the case may be. Correspondence shall be delivered to the respective mailing and/or email addresses set forth below, or to such other addresses as either party may from time to time designate in writing and deliver to the other party. Notices, consents, approval or communications shall be deemed given or received 24 hours after deposit in the mail, or immediately if hand-delivered or sent by email transmission. All written correspondence shall be followed by a telephone call within 24 hours of sending to confirm that it was received by the other party.

A. If to City:

Leo Perrotta, Director
Department of Public Works
700 Allens Avenue
Providence, RI 02905
401-680-7500
lperotta@providenceri.gov

cc:

Craig Hochman, Chief Engineer
401-680-7515
chochman@providenceri.gov

B. If to City of Providence Recovery Office:

Diana Perdomo, Chief of Policy
City of Providence Recovery Office
25 Dorrance Street
Providence, RI 02903

C. If to Contractor:

[CONTACT NAME, TITLE]
[COMPANY]
[ADDRESS]
[CITY, STATE, ZIP]
[PHONE]
[EMAIL]

NOW, THEREFORE, the Parties execute this Agreement.

**CITY OF PROVIDENCE DEPARTMENT OF PUBLIC
WORKS**

By: _____

Name (Printed): _____

Title: _____

Date: _____

CITY OF PROVIDENCE RECOVERY OFFICE

By: _____

Name (Printed): _____

Title: _____

Date: _____

[CONTRACTOR NAME]

By: _____

Name (Printed): _____

Title: _____

Date: _____

APPROVED AS TO FORM AND CORRECTNESS

By: _____

Name (Printed): _____

Title: _____

Date: _____

**CITY OF PROVIDENCE CONTRACT ADDENDUM:
AMERICAN RESCUE PLAN ACT (ARPA)**

The contract to which this addendum is attached is made using federal assistance provided to the City of Providence by the U.S. Department of Treasury from the Coronavirus State and Local Fiscal Recovery Fund established pursuant to Sections 602 and 603 of the Social Security Act, as added by Section 9901 of the American Rescue Plan Act of 2021, Pub. L. No. 117-2 (March 11, 2021) ("ARPA"). The following terms and conditions apply to contractors and vendors entering this contract pursuant to ARPA, its applicable regulations, and/or as established by the U.S. Department of Treasury.

- I. **Equal Employment Opportunity.** If this is a construction contract exceeding \$10,000, Contractor and any subcontractors shall comply with Executive Order 11246, "Equal Employment Opportunity," as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR Part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor." Further, the clause provided under 41 CFR § 60-1.4(b) shall be considered part of this contract.
- II. **Davis-Bacon & Copeland "Anti-Kickback" Acts.** If this is a construction contract exceeding \$2,000, Contractor and any subcontractors shall comply with 40 USC §§ 3141-3144 and 3146-3148 and 29 CFR Part 5, requiring that contractors pay wages to laborers and mechanics at a rate not less than the prevailing wages specified by the U.S. Secretary of Labor and not less than once a week. Contractors and subcontractors must also comply with 40 USC § 276c, 18 USC § 874, and 29 CFR Part 3, requiring that deductions from workers' pay be permissible and that contractors and subcontractors maintain and submit weekly payroll statements. The City shall report all suspected or reported violations to the U.S. Department of Treasury.
- III. **Contract Work Hours and Safety Standards Act.** If this contract exceeds \$100,000 and involves the employment of mechanics or laborers, Contractor and any subcontractor shall comply with 40 U.S.C. §§ 3702 and 3704, as supplemented by U.S. Department of Labor regulations (29 CFR Part 5) requiring that laborers and mechanics receive overtime compensation (time and one-half pay) for hours they have worked in excess of 40 hours in one week and cannot be required to work in unsanitary, hazardous, or dangerous working conditions; provided, however, that these requirements do not apply to the purchase of supplies or materials ordinarily available on the open market or contracts for transportation. Violations under this Act carry a liquidated damages penalty of \$10 per day per violation, which may be withheld by the City of Providence from the money payable to the Contractor.
- IV. **Rights to Inventions Made Under a Contract or Agreement.** If this is a contract for the performance of experimental, developmental, or research work, Contractor shall comply with 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements."
- V. **Clean Air Act and the Federal Water Pollution Control Act.** If this contract exceeds \$150,000, Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq., and the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation to the Federal Emergency Management Agency and the Regional Office of the U.S. Environmental Protection Agency (EPA).
- VI. **Debarment and Suspension.** In accordance with Executive Orders 12549 and 12689, the Contractor shall not enter into any agreement, written or oral, with any subcontractor without

- the prior determination by the City of Providence of the subcontractor's eligibility. A contractor or subcontractor is not eligible to receive funds if the contractor is listed on the Federal Consolidated List of Debarred, Suspended, and Ineligible Contractors.
- VII. **Byrd Anti-Lobbying Amendment.** If this contract exceeds \$100,000, Contractor must file the certification required under 31 U.S.C. § 1352 certifying that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Contractor shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award.
- VIII. **Procurement of Recovered Materials.** The Contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, to the extent applicable and in accordance with 2 CFR § 200.323.
- IX. **Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment.** Contractor is prohibited from obligating or expending grant funds to contract, re-contract, procure, or obtain equipment, services, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- X. **Domestic Preferences for Procurements.** Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States, as defined by 2 CFR § 200.322(b) (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts and purchase orders for work or products under this contract.

PARTIAL RELEASE

WHEREAS, the undersigned Contractor supplied labor, materials, equipment and/or services to the Owner, _____, relative to improvements made to the property owned by _____, which project was located at the street address of _____.

NOW, THEREFORE, the undersigned for and in consideration of payment in the amount of \$ _____, (for monies due Contractor through and including month/day/year) contingent upon the receipt of said payment, does hereby unconditionally and irrevocably waives and releases any and all actions, claims, demands, liens, damages, or any and all claims whatsoever against the Owner, the Project or the property whether arising at law, in equity or under the Mechanic's Lien law in the State of Rhode Island, which Contractor has or may have against the Owner or the property on account of labor, materials, equipment and/or services furnished for use at the project as of the date of the execution of this document. This Release does not release any pending change orders or retainage due or to become due to Contractor nor does this Release release any of the following items: _____.

The undersigned warrants that all costs for labor, materials, equipment and/or services incurred by Contractor or its employees, consultants, subcontractors, sub-subcontractors, suppliers and all tiers have been paid or will be paid out of these proceeds by the undersigned. The Contractor warrants that no obligations, legal, equitable, or otherwise will be owed to any person arising out of or from Contractor's work on the project that will not be satisfied by the payment set forth above for all work, labor, materials, equipment and/or services performed by

or furnished to Contractor on the project up to and inclusive of the date this document is executed.

Contractor agrees to indemnify, defend and hold harmless the Owner from any claim, lien, damage, cost or expense brought by any employee, agent or consultant of Contractor, any subcontractor or lower tier subcontractor, and any material supplier relating to any labor, material and/or equipment furnished, supplied or performed for, or on behalf of the Contractor or the project to which payment was made to Contractor for the work performed.

By:

(Name and Title)

STATE OF RHODE ISLAND

COUNTY OF _____

Subscribed and sworn to before me on this _____ day of _____, 2021.

NOTARY PUBLIC

My Commission Expires: _____

FINAL RELEASE

WHEREAS, the undersigned Contractor supplied labor, materials, equipment and/or services to the Owner, _____, relative to improvements made to the property owned by _____, which project was located at the street address of _____.

NOW, THEREFORE, the undersigned for and in consideration of the final payment in the amount of \$ _____, contingent upon the receipt of said payment, does hereby unconditionally and irrevocably waives and releases any and all actions, claims, demands, liens or other claims whatsoever against the Owner, the Project or the property whether arising at law, in equity or under the Mechanic's Lien law in the State of Rhode Island, which Contractor has or may have against the Owner or the property on account of labor, materials, equipment and/or services furnished for use at the project as of the date of the execution of this document.

The undersigned warrants that all costs for labor, materials, equipment and/or services incurred by Contractor or its employees, consultants, subcontractors, sub-subcontractors, suppliers and all tiers have been paid or will be paid out of these proceeds by the undersigned. The Contractor warrants that no obligations, legal, equitable, or otherwise will be owed to any person arising out of or from Contractor's work on the project that will not be satisfied out of the full and final payment set forth above for all work, labor, materials, equipment and/or services performed by or furnished to Contractor on the project up to and inclusive of the date this document is executed.

Contractor agrees to indemnify, defend and hold harmless the Owner from any claim, lien, damage, cost or expense brought by any employee, agent or consultant of Contractor, any subcontractor or lower tier subcontractor, and any material supplier relating to any labor, material and/or equipment furnished, supplied or performed for, or on behalf of the Contractor or the project to which payment was made to Contractor for the work performed.

By:

(Name and Title)

STATE OF RHODE ISLAND

COUNTY OF _____

Subscribed and sworn to before me on this _____ day of _____, 2022.

NOTARY PUBLIC

My Commission Expires: _____

PARTIAL RELEASE

WHEREAS, the undersigned subcontractor supplied labor, materials, equipment and/or services to the general contractor, _____, relative to improvements made to the property owned by (Name of Owners), which project was located at a street address of _____.

NOW, THEREFORE, the undersigned for and in consideration of payment in the amount of \$_____, (for monies due Contractor through and including month/day/year) contingent upon the receipt of said payment, does hereby waive and release any and all actions, claims, demands, liens or bond claims against _____, its surety, the project, the Owner and the property described herein whether arising at law, in equity or under the Mechanic's Lien law in the State of Rhode Island, which subcontractor has or may have against _____, its surety, the project and the property described herein on account of labor, materials, equipment and/or services furnished for use at the project as of the date of the execution of this document.

Upon presenting this signed waiver to _____, the above payment will be issued to the subcontractor in accordance with the terms of the subcontract agreement.

The undersigned warrants that all costs for labor, materials, equipment and/or services incurred by subcontractor or its employees, consultants, sub-subcontractors, suppliers and all tiers have been paid or will be paid out of these proceeds by the undersigned. The subcontractor warrants that no obligations, legal, equitable, or otherwise will be owed to any person arising out of or from subcontractor's work on the project that will not be satisfied by the payment set forth above for all work, labor, materials, equipment and/or services performed by or furnished to subcontractor on the project up to and inclusive of the date this document is executed.

Exempt from release are any retained amounts being withheld pursuant to the subcontract agreement on account of labor, materials, equipment and/or services furnished by subcontractor on the project.

(Name of Subcontractor)

By:

(Name and Title)

STATE OF RHODE ISLAND

COUNTY OF _____

Subscribed and sworn to before me on this _____ day of _____, 2022.

NOTARY PUBLIC

My Commission Expires: _____

FINAL RELEASE

WHEREAS, the undersigned subcontractor supplied labor, materials, equipment and/or services to the general contractor, _____, relative to improvements made to the property owned by (Name of Owners), which project was located at a street address of _____.

NOW, THEREFORE, the undersigned for and in consideration of the final payment in the amount of \$ _____, contingent upon the receipt of said payment, does hereby unconditionally and irrevocably waive and release any and all actions, claims, demands, liens or bond claims against _____, its surety, the project, the Owner and the property described herein whether arising at law, in equity or under the Mechanic's Lien law in the State of Rhode Island, which subcontractor has or may have against _____, its surety, the project and the property described herein on account of labor, materials, equipment and/or services furnished for use at the project, whether known or unknown by the subcontractor as of the date of the execution of this document.

Upon presenting this signed waiver to _____, the above payment will be issued to the subcontractor in accordance with the terms of the subcontract agreement.

The undersigned warrants that all costs for labor, materials, equipment and/or services incurred by subcontractor or its employees, consultants, sub-subcontractors, suppliers and all tiers have been paid or will be paid out of these proceeds by the undersigned. The subcontractor warrants that no obligations, legal, equitable, or otherwise will be owed to any person arising out of or from subcontractor's work on the project that will not be satisfied out of the full and final payment set forth above for all work, labor, materials, equipment and/or services performed by or furnished to subcontractor on the project up to and inclusive of the date this document is

executed.

This final release does not extinguish and is subject to subcontractor's warranty and contractual obligations set forth in its contract and/or agreement with Bowerman Associates, Inc.

(Name of Subcontractor)

By:

(Name and Title)

STATE OF RHODE ISLAND

COUNTY OF _____

Subscribed and sworn to before me on this _____ day of _____, 2021.

NOTARY PUBLIC

My Commission Expires: _____

CONTRACT BOND FOR COMPLETE PERFORMANCE AND FULL PAYMENT

PROVIDENCE, RHODE ISLAND

KNOW ALL MEN BY THESE PRESENTS, THAT, _____ of _____ hereinafter called the "Contractor," and _____ AS SURETY are held and hereinafter called the "Surety," a corporation authorized to execute surety bonds under the laws of the State of Rhode Island, are held and firmly bounden unto the City of Providence, City of Providence Department of Public Works, and the Rhode Island Department of Transportation in the penal sum _____ Dollars, (\$ _____) lawful money of the United States of America, to the payment of which sum, well and truly to be made the Contractor and the Surety herein firmly bind themselves and their respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT,

WHEREAS, the contractor did on the ____ day of ____ 20____, enter into a written Contract for _____ in the sum of _____ (\$00).

NOW, THEREFORE, if the Contractor, its executors, administrators or successors, shall in all things well and truly keep and perform the covenants, conditions and agreements in the Contract and in any alterations thereof made as therein provided, on its part to be kept and performed, at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the City of Providence, City of Providence Department of Public Works, and the Rhode Island Department of Transportation, as therein stipulated, and shall also promptly pay for all such labor performed or furnished, (which as to equipment shall mean payment of the reasonable rental value, as determined by the City of Providence, City of Providence Department of Public Works, and the Rhode Island Department of Transportation, for its use during the period of its use), as shall be performed or furnished for and are promptly paid for, whether or not the labor is directly performed for or furnished to the Contractor or is even directly performed upon the work covered by the Contract, and whether or not the materials are furnished to the Contractor or become component parts of the work, and whether or not the equipment is furnished to the Contractor or even directly used upon the work; and shall also pay for all Wages, Workers' Compensation, Public Liability, Fire Insurance, Federal and State Unemployment, Social Security and Compensation Taxes; then this obligation shall become and be null and void; otherwise it shall abe and remain in full force and virtue.

This Bond is subject to all such rights and powers of the City of Providence, City of Providence Department of Public Works, and the Rhode Island Department of Transportation and such other provisions as are set forth in the Contract and the Plans, Specifications and Proposal incorporated by reference in the Contract; and is subject also to all rights of the State and others which are set forth with respect to such a bond in RIGL §37-12-1 et. seq. and RIGL §37-13-14 and is subject to the provision that no extension of the time of performance of the Contract or delay in the completion of the work thereunder or any alterations thereof, made as therein provided, shall invalidate this Bond or release the liability of the Surety hereunder.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed, and these presents signed by its undersigned representative, pursuant to authority of its governing body.

In presence of: _____(Seal)

(Individual Principal) _____

(Business Address including Zip)

(Title) _____(Seal)
(Partnership)

(Business Address including Zip)

By: _____

Attest:

(Corporate Principal)

(Business Address including Zip)

By: _____
(Affix Corporate Seal)

Attest: _____

(Corporate Surety)

By: _____
(Affix Corporate Seal)

Countersigned:

by _____

*Attorney-in-Fact, State of _____

(*Power-of-attorney for person signing for surety company must be attached to bond.)

APPENDIX C:

TECHNICAL SPECIFICATIONS

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**SECTION 01025
MEASUREMENT AND PAYMENT**

PART 1 GENERAL

1.1 ADMINISTRATIVE SUBMITTALS

- A. Application for Payment: Suitable to Owner and as specified herein.
- B. Final Application for Payment: As specified herein.

1.2 APPLICATION FOR PAYMENT

- A. Use separate, detailed Application for Payment Form suitable to Owner for each pay application.
- B. Preparation:
 - 1. List each Change Order and Written Amendment executed prior to date of submission as a separate line item.
 - 2. Submit three (3) copies of Application for Payment Form, and such supporting data as may be requested by Owner.

1.3 MEASUREMENT - GENERAL

- A. All unit prices that are specified for measurement by the linear foot (LF) shall be measured from the beginning to the termination point of the unit being measured.
- B. Units of measure shown on the Bid Form shall be as follows unless specified otherwise.

<u>Item</u>	<u>Method of Measurement</u>
½ DAY	One-Half Day, Field Count by Owner/Engineer
DAY	One Day, Field Count by Owner/Engineer
EA	Each, Field Count by Owner/Engineer
CREW HR	One Crew Hour, Field Count by Owner/Engineer
SY	Square Yard, Field Measurement by Owner/Engineer
LS	Unit is one, no measurement will be made
TON	Ton, Based on Certified Trip Tickets

1.4 PAYMENT

- A. General: Progress payment requests shall be submitted monthly.
- B. Payment for Lump Sum Work covers all Work necessary to furnish, install and/or complete the following items.

Bid Item No.	Description
1.	<u>General Requirements:</u> Project management; submittals, construction meetings; coordination by telephone; electric, water, sanitary sewer, and gas company requirements; bonds and insurance requirements; downtime due to weather conditions; debris control; site security (e.g., temporary fencing); construction phasing; survey

**SECTION 01025
MEASUREMENT AND PAYMENT**

Bid Item No.	Description
	<p>as required; traffic control; permit requirements; schedules; full-time supervision; and closeout documents.</p> <p>As part of this Bid Item, the Contractor shall be responsible for preparing hand annotated full-size drawings that reflect the revisions/changes made in the field. These drawings shall be utilized by the Owner/Engineer at the end of the project to prepare the Project Record Drawings. Progress payments to the Contractor by the Owner shall be contingent upon the daily preparation and maintenance of these drawings as determined by regular inspections by the Owner/Engineer.</p> <p>Payment for this Bid Item shall be 35% of the Lump Sum Bid price in the first month with the remainder of the payment (65%) being equally divided among the remaining months in the contract time. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; off-site disposal; and other fees, equipment, supervision, and supplies required for the work.</p>
2.	<p><u>Mobilization</u>: Move in personnel, equipment, and materials; and set up and install temporary trailer(s) and utilities as required. <u>Note</u>: The Contractor shall provide temporary trailer(s) as required for its own use and is not responsible for providing a temporary trailer for the Owner's/Engineer's use.</p> <p>Mobilization shall not exceed 10% of the Total Amount of all Base Bid Items and will not be affected due to Owner exercising Bid Alternates, if any. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.</p>
4.	<p><u>Erosion and Sediment Controls</u>: Furnish, install, and maintain erosion and sedimentation controls (e.g., silt fence, straw bales, silt socks, dewatering bags, and catch basin inserts) as required, and remove erosion and sediment controls in their entirety at completion. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.</p>
5A.	<p><u>Temporary Traffic Control</u>: Furnish all labor, materials, and equipment to implement the temporary traffic management plan for Allens Avenue as specified and shown in the Contract Documents, including temporary road widening and restoration of roadway, curb and sidewalk affected by the widening. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work, including multiple setups (if required).</p>
6.	<p><u>Demolition and Removal</u>: Furnish all labor, materials, and equipment to sawcut and remove the existing asphalt and concrete, including concrete road base; excavate, load, and transport excavated soil to</p>

**SECTION 01025
MEASUREMENT AND PAYMENT**

Bid Item No.	Description
	the Stockpile/Storage Area; temporarily support existing utilities; sawcut and remove the existing concrete lid; demolish and remove the existing access ladder; demolish and remove the existing hydraulic equipment, metal door and metal door frame from the control house, load demolition debris; and truck and dispose of demolition debris offsite as specified and shown in the Contract Documents. All demolition material shall be disposed of offsite in accordance with all local, State, and Federal Laws and Regulations. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; off-site disposal; and other fees, equipment, supervision, and supplies required for the work.
7A.	<u>Temporary Personnel Scaffolding/Access Platforms:</u> Furnish all labor, materials, and equipment to install temporary scaffolding/access platforms to facilitate installing/removing the temporary gate supports and disconnecting/reconnecting the gate operator stems from the existing Slide Gates as specified and shown in the Contract Documents. The temporary scaffolding/access platforms shall be removed in their entirety upon completion of the Work, and any deficiencies caused by their installation (i.e., drill holes) shall be repaired by the Contractor at no additional cost to the Owner. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.
7B.	<u>Temporary Gate Supports and Operator Mechanisms:</u> Furnish all labor, materials, and equipment to temporarily support the existing Slide Gates in the open position and provide a temporary mechanism to operate the Slide Gates while the hydraulic operators are not in service, as specified and shown in the Contract Documents. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.
7C.	<u>Remove and Dispose of Existing Gate Operators:</u> Furnish all labor, materials, and equipment to disconnect, remove, and dispose of the existing Slide Gate Operators and anchorage as specified and shown in the Contract Documents. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.
7D.	<u>New Gate Operators:</u> Furnish all labor, materials, and equipment to install and connect the new hydraulic gate operators and remote hydraulic power units, complete, as specified and shown in the Contract Documents. This Item shall also include the work required to connect electricity to the remote power units in the Control House, install the conduits as shown on the drawings including inside the control house and the vault and to have the hydraulic gate operator supplier visit the site and test the system upon installation. Following the testing, the supplier shall provide a written Compliance Report stating that the new gate operators have been operated and are in good working order. Payment for this Lump Sum Bid Item shall be

**SECTION 01025
MEASUREMENT AND PAYMENT**

Bid Item No.	Description
	considered full compensation for all labor; materials; equipment warranties; and other fees, equipment, supervision, and supplies required for the work.
7E.	<u>Fitment Modifications of New Gate Operators:</u> Furnish all labor, materials, and equipment to modify/machine the gate stems as required to make the final connections to the existing Slide Gates. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.
8A.	<u>Permanent Interior Bracing:</u> Furnish all labor, materials, and equipment to install the permanent interior bracing as specified and shown in the Contract Documents. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.
8B.	<u>Furnish New Precast Concrete Lids:</u> Furnish all labor, materials, and equipment to furnish the new precast concrete lids with access hatches, complete, as specified and shown in the Contract Documents. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.
8C.	<u>Install New Precast Concrete Lids:</u> Furnish all labor, materials, and equipment to install the levelling grout, set the precast concrete lids, drill and grout the anchor rods, furnish and install the access ladders, and backfill & compact up to the pavement subgrade elevation, as specified and shown in the Contract Documents. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.
9.	<u>Allowance for miscellaneous electrical, and hydraulic repairs.</u> This allowance item is for any miscellaneous work including electrical or hydraulic work, not specified elsewhere, that is required as a result of the project's execution. Contractor to provide Owner a detailed cost estimate of work for review and approval by Owner. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.
10.	<u>Control House Exterior Door:</u> Furnish all labor, materials and equipment to remove and replace the existing door to the Control House as shown in the Contract Documents, including door, frame, hardware and painting. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor, materials, equipment, supervision and supplies required for the work.
12.	<u>Emergency Response:</u> This allowance item is for any work required to furnish labor, materials, and equipment to operate the existing Slide Gates and/or clear Allens Avenue as required for the City to operate the Hurricane Barrier Gates in anticipation of a storm event, at the

**SECTION 01025
MEASUREMENT AND PAYMENT**

Bid Item No.	Description
	City's direction. Contractor to provide Owner a detailed cost estimate of work for review and approval by Owner. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; and other fees, equipment, supervision, and supplies required for the work.
13.	<u>Demobilization and Cleanup</u> : Move out personnel, equipment, and unused material; clean entire site occupied during the work; and remove all rubbish and debris. Payment for this Lump Sum Bid Item shall be considered full compensation for all labor; materials; off-site disposal; and other fees, equipment, supervision, and supplies required for the work.

- C. Payment for unit price items covers all Work necessary to furnish, install, and/or complete the following items.

Bid Item No.	Description
3A.	<u>Grain Size through No. 200</u> : This allowance item is for performance of grain size analyses in accordance with ASTM D422 and by an independent third party, licensed/certified to perform such work. Payment for this Unit Price Item will be measured based on the number of Grain Size tests completed, in accordance with the Contract Documents, and as accepted by the Owner.
3B.	<u>Moisture Density Relationship</u> : This allowance item is for performance of moisture density tests in accordance with ASTM D1557 and by an independent third party, licensed/certified to perform such work. Payment for this Unit Price Item will be measured based on the number of Moisture Density Relationship tests completed, in accordance with the Contract Documents, and as accepted by the Owner.
3C.	<u>Dry Density and As-Place Moisture Content</u> : This allowance item is for performance of in-place dry density and as-placed moisture content in accordance with ASTM D2922 and D3017 and by an independent third party, licensed/certified to perform such work. Payment for this Unit Price Item will be measured based on the number of ½ Days of Dry Density and As-Place Moisture tests completed, in accordance with the Contract Documents, and as accepted by the Owner.
3D.	<u>Concrete Compression Test</u> : This allowance item is for the provision of a Laboratory Technician to collect, cure, and test concrete cylinders in accordance with ASTM C31 and C39 and by an independent third party, licensed/certified to perform such work. Payment for this Unit Price Item will be measured based on the number of Concrete Compressive Strength tests completed, in accordance with the Contract Documents, and as accepted by the Owner.
5B.	<u>Supplementary Traffic Control</u> : This allowance item is for any supplementary traffic control during the performance of the work which shall be provided by off-duty, City of Providence Police Officers,

**SECTION 01025
MEASUREMENT AND PAYMENT**

Bid Item No.	Description
	in accordance with Special Condition 6.23 Traffic Control. Payment for this Unit Price Item will be on a pass-through basis, measured based on the number of hours invoiced by the City of Providence monthly, and as accepted by the Owner.
11.	<u>Permanent Pavement Restoration:</u> Furnish all labor, materials, and equipment to restore the asphalt pavement, including concrete base (drilling and doweling), signalization repairs, full width (curbline to curbline) milling and overlay, curb restoration, sidewalks and lane striping as specified and shown in the Contract Documents. Payment for this Unit Price Item will be measured based on the square yards of asphalt placed, in accordance with the Contract Documents, and as accepted by the Owner.

- D. Payment for add alternate lump sum and/or unit price items covers all Work necessary to furnish, install, and/or complete the following items.

Alternates	Description
--	There are no alternates for this project.

- E. Payment for equipment, materials and labor for items not included on the Bid or described in Article PAYMENT, herein, shall be considered incidental and no separate payment will be made.

1.5 NONPAYMENT FOR REJECTED OR UNUSED PRODUCTS

- A. Payment will not be made for following:

1. Loading, hauling, and disposing of rejected material.
2. Quantities of material wasted or disposed of in manner not called for under the Contract Documents.
3. Rejected loads of material, including material rejected after it has been placed by Contractor.
4. Material not unloaded from transporting vehicle.
5. Defective Work not accepted by the Engineer.
6. Material remaining on hand after completion of Work.

1.6 PARTIAL PAYMENT FOR STORED MATERIALS AND EQUIPMENT

- A. Final Payment: Will be made only for materials incorporated into the Work in the Contract; no partial payments shall be made for equipment or materials delivered to the site but not used, unless otherwise agreed to be the Owner.

1.7 FINAL APPLICATION FOR PAYMENT

**SECTION 01025
MEASUREMENT AND PAYMENT**

- A. Reference the Owner's Contract, and as may otherwise be required in the Plans and Technical Specifications.
- B. Prior to submitting final application, make acceptable delivery of required documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 01040
COORDINATION AND SITE CONDITIONS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Requirements for coordinating and sequencing the work under the Contract and with other Contracts, and requirements regarding existing site conditions and permits.

1.2 JOBSITE COORDINATION

- A. Coordination with other work: The project work shall be coordinated with the following:
 - 1. The traffic flow along Allens Avenue and the proposed detour route, in accordance with the approved RIDOT TMP.
 - 2. The replacement of the existing Hurricane Barrier Gate Support Foundations and hatches.
 - 3. The restoration of Allens Avenue in the project area where required due to the excavation, the temporary widening for the necessary traffic pattern(s), and site restoration.

1.3 SITE CONDITIONS

- A. Information on Site Conditions:
 - 1. General: Other information obtained by the Owner/Engineer regarding the site conditions, topography, subsurface information, groundwater elevations, existing construction of site facilities as applicable, and similar data will be available for inspection at the office of the Owner. Such technical data includes but is not limited to the original bulkhead drawings and subsequent bulkhead repair drawings.
 - 2. Topographic and bathymetric maps were used in the project design. Topographic and bathymetric maps are included in the Drawings.
 - 3. Profile Elevations:
 - a. Existing Slide Gate Vault sections and elevations shown on the Drawings were taken from the original design drawings for Fox Point Hurricane Barrier prepared by Fenton G. Keyes Associates and U.S. Army Corps of Engineers, dated March 31st, 1961, as provided by the City of Providence.
 - 4. Control Points: The Owner/Engineer has performed supplemental survey work and has established vertical and horizontal survey control points on structures and improvements located in the vicinity of the work. The location of vertical and horizontal survey control points is shown on the Drawings.

**SECTION 01040
COORDINATION AND SITE CONDITIONS**

B. Existing Utilities:

1. Refer to the Drawings for existing utilities and sources.
2. Contractor's Responsibilities:
 - a. The Contractor shall comply with the requirements of the Fox Point Hurricane Barrier Coordination Guide.
 - b. Where Contractor's operations could cause damage or inconvenience to railway, telephone, fiber optic, television, power, oil, fuel, gas, water, sewer, or irrigation systems, the Contractor shall make arrangements necessary for the protection of these utilities and services. Replace existing utilities removed or damaged during construction, unless otherwise provided for in these Drawings and Specifications.
 - c. Notify utility offices that are affected by construction operations at least 3-business days in advance. Under no circumstances, expose any utility without first obtaining permission from the appropriate utility. Once permission has been granted, locate, expose, and provide temporary support for the utilities as required.
 - d. The Contractor shall relocate power poles as required for the performance of the work.
 - e. The Contractor shall be solely and directly responsible to Owner and Operator of such properties for damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of injuries or damage which may result from construction operations under this Contract.
 - f. Neither Owner nor its officers or agents shall be responsible to Contractor for damages as a result of Contractor's failure to protect utilities encountered in the work.
 - g. In event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental damage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration as promptly as possible and pay for repair. Prevent interruption of utility service unless granted by the utility owner.
 - h. In the event Contractor encounters water service lines that interfere with trenching, obtain prior approval of the water utility, cut the service, dig through, and restore service to previous conditions using equal materials.
3. Utility Contact:
 - a. Mr. Craig Hochman, PE, Chief Engineer, Department of Public Works, City of Providence (401-680-7515, chochman@providenceri.com).
 - b. Mr. Roger Biron, PE, Assistant Chief Engineer, Department of Public Works, City of Providence (401-680-7531, rbiron@providenceri.com).

**SECTION 01040
COORDINATION AND SITE CONDITIONS**

c. Meg Goulet, PE, Director of Operations and Maintenance, Narragansett Bay Commission (401 443-4572, mgoulet@narrabay.com)

4. Contractor shall not perform work or occupy any part of Allens Avenue without prior authorization from RIDOT and notice to the Narragansett Bay Commission and RIPTA.

C. Interfering Structures:

1. Protect and take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground. An attempt has been made to show the major structures on the Drawings. While the information has been compiled from the best available sources, its completeness and accuracy cannot be guaranteed.

D. Field Relocation:

1. During construction, minor relocations of proposed facilities and structures may be necessary. Make such relocations only by directive of the Owner/Engineer. If existing structures are encountered that prevent construction as shown, notify the Owner/Engineer before continuing with work so that Owner/Engineer may make necessary field revisions.

E. Monuments and Markers:

1. Protect survey monuments and markers throughout construction. If damage occurs or removal becomes necessary, immediately notify the Owner/Engineer and restore or replace monument or marker in accordance with applicable State of Rhode Island regulations.

F. Easements:

1. It is not anticipated that easements will be required to perform this work.

1.4 PROJECT MEETINGS

- A. See Section 01200, PROJECT MEETINGS.

1.5 TIME OF WORK:

- A. In accordance with the Standard Workweek established by the Owner.
- B. Night work may be scheduled by the Contractor when absolutely necessary and with the written permission of Owner and RIDOT. Such written permission, however, may be revoked at any time if Contractor fails to properly execute and control nighttime work.
- C. Overtime Notice: If Contractor for convenience should desire to carry on work at night or outside regular hours, submit written notice 1 day in advance of

**SECTION 01040
COORDINATION AND SITE CONDITIONS**

performing the work to the Owner/Engineer and allow ample time for satisfactory arrangements to be made for inspecting work in progress.

1.6 HEALTH, SAFETY, ACCIDENT PREVENTION, AND TRAINING

A. GENERAL:

1. It shall be the Contractor's responsibility to provide a complete and working Safety Activity Plan prior to starting to work.

1.7 PERMITS

- A. Refer to Special Conditions Section 6.66 for information on required permits.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01200
PROJECT MEETINGS

PART 1 GENERAL

1.1 REQUIREMENTS

- A. The Owner/Engineer shall schedule and administer the Pre-Construction Conference. The Owner/Engineer shall:
 - 1. Prepare the agenda for the meeting.
 - 2. Notify all parties required to attend the meeting.
 - 3. Make physical arrangements for the meeting.
 - 4. Preside at the meeting.
 - 5. Record the minutes, including significant proceedings and decisions.
 - 6. Reproduce and distribute copies of minutes within seven (7) calendar days after the meeting to participants in the meeting and other parties affected by decisions made at the meeting.
- B. The Owner/Engineer shall schedule and administer progress meetings at least once every week throughout the progress of the work. The Owner/Engineer shall:
 - 1. Prepare the agenda for the meetings.
 - 2. Make physical arrangements for the meetings.
 - 3. Preside at the meetings.
 - 4. Record the minutes, including significant proceedings and decisions.
 - 5. Reproduce and distribute copies of minutes within seven (7) calendar days after each meeting to participants in the meeting and other parties affected by decisions made at the meeting.
- C. Representatives of Contractors, Subcontractors and suppliers attending meetings shall be qualified and authorized to act on the behalf of the entity each represents.

1.2 PRE-CONSTRUCTION CONFERENCE

- A. Attendance:
 - 1. Owner and/or representative.
 - 2. Resident project representative.
 - 3. Contractor's superintendent.

SECTION 01200
PROJECT MEETINGS

4. Major Subcontractors.
 5. Major suppliers.
 6. Others as appropriate.
- B. Suggested Agenda:
1. Distribution and discussion of:
 - a. List of major Subcontractors and suppliers.
 - b. Projected construction schedules.
 2. Critical work sequencing.
 3. Major equipment deliveries and priorities.
 4. Project coordination:
 - a. Designation of responsible personnel.
 5. Procedures and processing of:
 - a. Field decisions.
 - b. Proposal requests.
 - c. Submittals.
 - d. Change orders.
 - e. Applications for payment.
 6. Adequacy of and distribution of Plans and Technical Specifications.
 7. Procedures for maintaining record documents.
 8. Use of premises:
 - a. Office, work and storage areas.
 - b. Owner's requirements.
 9. Construction facilities, controls and construction aids.
 10. Temporary utilities.
 11. Safety and first-aid procedures.

SECTION 01200
PROJECT MEETINGS

12. Security procedures.
13. Housekeeping procedures.
14. Place, date and time for regular progress meetings.

1.3 PROGRESS MEETINGS

- A. Conduct regularly scheduled progress meetings at place, dates, and times agreed upon at Pre-Construction Conference.
- B. Conduct additional meetings as the progress of the work dictates.
- C. Attendance:
 1. Owner.
 2. Engineer.
 3. Contractor's Superintendent.
 4. Subcontractors as appropriate to the agenda.
 5. Suppliers as appropriate to the agenda.
 6. Others.
- D. Suggested Agenda:
 1. Review approval of minutes of previous meeting.
 2. Review of work progress since previous meeting.
 3. Field observations, problems, and conflicts.
 4. Problems which impede the construction schedule.
 5. Review of off-site fabrication, delivery schedules.
 6. Corrective measures and procedures to regain projected schedule.
 7. Revisions to construction schedule.
 8. Progress schedule during succeeding work period.
 9. Maintenance of quality standards.
 10. Pending changes and substitutions.

SECTION 01200
PROJECT MEETINGS

11. Coordination of schedules.
12. Review submittal schedules; expedite as required.
13. Review proposed changes for:
 - a. Effect on construction schedule and on completion date.
 - b. Effect on subcontracts of the project.
14. Other business.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 01340
SUBMITTALS**

PART 1 GENERAL

1.1 REQUIREMENTS

- A. This section specifies procedural requirements for non-administrative submittals including shop drawings, product data, samples and other miscellaneous work-related submittals. Shop drawings, product data, samples and other work-related submittals are required to amplify, expand and coordinate the information contained in the Plans and Technical Specifications.
 - 1. Refer to other Division-1 sections and other sections for specifications on administrative, non-work-related submittals. Such submittals include, but are not limited to the following items:
 - a. Permits.
 - b. Written consents.
 - c. Manifests
 - d. Payment applications.
 - e. Performance and payment bonds.
 - f. Insurance certificates.
 - g. Inspection and test reports.
 - h. Progress reports.
 - i. Listing of Subcontractors.
 - j. Construction schedules.
- B. Shop drawings are technical drawings and data that have been specially prepared for this project, including but not limited to the following items:
 - 1. Fabrication and installation drawings.
 - 2. Coordination drawings (for use on-site).
 - 3. Schedules.
- C. Product data includes standard printed information on manufactured products that has not been specially prepared for this project, including but not limited to the following items:
 - 1. Manufacturer's product specifications/installation instructions.
 - 2. Catalog cuts.
- D. Samples are physical examples of work, including but not limited to the following items:
 - 1. Partial sections of manufactured or fabricated work.
 - 2. Small cuts or containers of materials.

**SECTION 01340
SUBMITTALS**

- E. Miscellaneous submittals are work-related, non-administrative submittals that do not fit in the three previous categories, including, but not limited to the following:
 - 1. Specially prepared and standard printed warranties.
 - 2. Project photographs.
 - 3. Testing and certification reports.
 - 4. Record drawings.
 - 5. Field measurement data.
 - 6. Keys and other security protection devices.
- F. A summary of key submittals anticipated for this project is presented in Exhibit B. This list is not intended to be all inclusive. Refer to the individual Specification Sections and the Contract Documents for a complete and comprehensive listing.

1.2 SUBMITTAL PROCEDURES

- A. Coordinate the preparation and processing of submittals with the performance of the work. Coordinate each separate submittal with other submittals and related activities such as testing, purchasing, fabrication, delivery and similar activities that require sequential activity.
 - 1. Coordinate the submittal of different units of interrelated work so that one submittal will not be delayed by the Owner's/Engineer's need to review a related submittal. The Owner/Engineer reserves the right to withhold action on any submittal requiring coordination with other submittals until related submittals are forthcoming.
- B. In each appropriate administrative submittal, such as the progress schedule, show the principal work-related submittals and time requirements for coordination of submittal activity with related work.
- C. Prepare and transmit each submittal to the Owner/Engineer sufficiently in advance of the scheduled performance of related work and other applicable activities. Transmit different kinds of submittals for the same unit of work so that processing will not be delayed by the Owner's/Engineer's need to review submittals concurrently for coordination.
- D. Allow sufficient time so that installation will not be delayed as a result of the time required to properly process submittals, including time for re-submittal, if necessary. Advise the Owner/Engineer on each submittal, as to whether processing time is critical to the progress of the work, and if the work would be expedited if processing time could be shortened.

**SECTION 01340
SUBMITTALS**

1. Allow fourteen (14) calendar days for the Owner's/Engineer's initial processing of each submittal. Allow a longer time period where processing must be delayed for coordination with subsequent submittals. The Owner/Engineer will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination.
 2. Allow fourteen (14) calendar days for reprocessing each submittal.
 3. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Owner/Engineer sufficiently in advance of the work.
- E. Mark each submittal with a permanent label for identification. Provide the following information on the label for proper processing and recording of action taken.
1. Project name.
 2. Date.
 3. Name and address of Owner.
 4. Name and address of Contractor.
 5. Name and address of supplier.
 6. Name of manufacturer.
 7. Number and title of appropriate specification section.
 8. Drawing number and detail references, as appropriate.
 9. Similar definitive information as necessary.
 10. Provide a space on the label for the Contractor's review and approval markings, and a space for the Owner's/Engineer's "Action" marking.
- F. Package each submittal appropriately for transmittal and handling. Transmit three (3) copies, plus the number of copies the Contractor wants returned to it, after review of each submittal from the Contractor to the Owner/Engineer, and to other destinations as required, by use of a transmittal form. Prepare a separate transmittal form for each division of work and identify each submittal by specification section number on the transmittal form. Submittals received from sources other than the Contractor will be returned to the sender "without action".
1. Record relevant information and requests for data on the transmittal form. On the transmittal form, or on a separate sheet attached to the form, record deviations from the requirements of the Contract Documents, if any, including minor variations and limitations.
 2. No submittals will be accepted by the Owner/Engineer if transmitted via FAX machine or e-mail.
 3. Include the Contractor's signed certification stating that the information submitted complies with the requirements of the Plans and Technical Specifications.

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SUBMITTALS**

4. Sequentially number the transmittal forms; re-submittals to have original number with an alphabetic suffix.
- G. Contractor Review: Stamp of approval indicates to Owner and Engineer that all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data have been determined and verified, and that each submittal has been reviewed or coordinated with the requirements of the Work.
- H. No portion of Work requiring shop drawings shall be started or any materials be fabricated, delivered to site, or installed prior to approval of such items. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at Contractor's risk. Owner will not be liable for any expense or delay due to corrections or remedies required for conformity.

1.3 SPECIFIC SUBMITTAL REQUIREMENTS

A. Miscellaneous Submittals:

1. Inspection and Test Reports: Classify each inspection and test report as being either "shop drawings" or "product data" depending on whether the report is specially prepared for the project, or a standard publication of workmanship control testing at the point of production. Process inspection and test reports accordingly.
2. Survey Data: Provide copies of all survey data in electronic form and hard copy, in a format compatible with the Owner's and engineer's software, that is collected for property surveys, field measurements, quantitative records of actual work, damage surveys and similar data required by the individual sections of these specifications. None of the specified copies will be returned.
3. Standards: Where submittal of a copy of standards is indicated, and except where copies of standards are specified as an integral part of a "Product Data" submittal, submit a single copy of standards for the Owner's/Engineer's use. Where workmanship, whether at the project site or elsewhere, is governed by a standard, furnish additional copies of the standard to installers, Owner's field representative, and others involved in the performance of the work.
4. Closeout Submittals: Refer to individual sections of these specifications for specific submittal requirements of project closeout information, materials, tools, and similar items.
 - a. Record Documents: Furnish one set of original and reproducible documents as maintained on the project site.
5. General Distribution: Provide additional distribution of submittals to Subcontractors, suppliers, fabricators, installers, governing authorities and others as necessary for the proper performance of the work. Include such

**SECTION 01340
SUBMITTALS**

additional copies of submittals in the transmittal to the Engineer where the submittals are required to receive "Action" marking before final distribution. Record distributions on transmittal forms.

1.4 OWNER'S/ENGINEER'S ACTION

A. General: Except for submittals for the record and similar purposes, where action and return on submittals is required or requested, the Owner/Engineer will review each submittal, mark with appropriate "Action", and where possible return within twenty one (21) calendar days of receipt. Where the submittal must be held for coordination, the Owner/Engineer will so advise the Contractor without delay.

1. Action Stamp: The Owner/Engineer will stamp, sign and date each submittal copy to be returned to Contractor and indicate disposition of each submittal.

B. Owner/Engineer Review:

1. Owner's/Engineer's review of submitted drawings and data will cover only general conformity to drawings and specifications, external connections, and dimensions which affect layout.
2. Owner's/Engineer's review does not indicate thorough review of all dimensions.
3. Owner's/Engineer's review of submittals does not relieve Contractor's responsibility for errors, omissions, or deviations, nor of responsibility for compliance with the Plans and Technical Specifications.

1.5 RESUBMISSION REQUIREMENTS

A. Make any corrections or changes in the submittals required by the Owner/Engineer and resubmit until they are denoted "Approved as Submitted" or "Approved as Noted" by the Owner/Engineer. Resubmission requirements specified in individual specification sections, which differ from these requirements, will take precedence over these requirements.

B. Shop Drawings and Product Data:

1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
2. Indicate any changes which have been made other than those requested by the Owner/Engineer.

C. Samples: Submit new samples as required for initial submittal.

1.6 DISTRIBUTION

**SECTION 01340
SUBMITTALS**

- A. Distribute reproductions of shop drawings and copies of product data which carry the Owner/Engineer stamp denoting "No Exception Taken" or "Make Corrections Noted" to:
1. Job site file.
 2. Record documents file.
 3. Subcontractors.
 4. Supplier or fabricator.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 01400
QUALITY CONTROL**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Quality Control that the Contractor will perform during the performance of this work.

1.2 SUBMITTALS

- A. Submit a Quality Control Plan to the Owner/Engineer at least fourteen (14) calendar days before starting work which includes the following information:
 - 1. Statement and description of Contractor's overall Quality Control (QC) program as described below. Each Sub-contractor shall submit a separate QC program applicable to their scope of work to the Contractor.
 - 2. Procedures to be used in obtaining field samples of materials except where required for submittal under other sections.
 - 3. Name, qualifications, and prior experience of inspection and testing laboratories that Contractor proposes for Owner's/Engineer's consideration.

1.3 QUALITY CONTROL (QC) PROGRAM

- A. Formulation, Submission, Details and Acceptance of Plan:
 - 1. The plan shall identify personnel, and establish procedures, instructions, records, and forms to be used. If Contractor fails to submit an acceptable QC Plan, the Owner/Engineer will refuse to allow construction to start.
 - 2. The Contractor's QC Plan shall include as a minimum, the following:
 - a. A description of the Contractor's QC organization, including a chart showing lines of authority, and acknowledgement that the Contractor's QC staff shall conduct inspections for all aspects of the work specified.
 - b. The name, qualifications, responsibilities, and authority of each person assigned to the Contractor's QC function.
 - c. Procedures for scheduling and managing submittals, including those of Subcontractors, fabricators, suppliers, and purchasing agents.
 - d. Control procedures to be promulgated.
 - e. Control testing procedures for each specific test, including field sampling.
 - f. Reporting procedures including proposed reporting formats.

**SECTION 01400
QUALITY CONTROL**

3. Acceptance of Plan: Acceptance of the Contractor's plan by the Owner/Engineer is required prior to the start of construction. Acceptance is conditional, and its continuation will depend on satisfactory performance by the Contractor during construction. The Owner/Engineer reserves the right to require the Contractor to make changes in the Contractor's QC Plan and operations as necessary to obtain the quality specified, at no additional cost to the Owner.
 4. Notification of Changes: After acceptance of the Contractor's QC Plan, the Contractor shall notify the Owner/Engineer in writing of any proposed change. The proposed changes will be subject to acceptance by the Owner/Engineer.
- B. Implementation of QC Plan:
1. General:
 - a. Comply with the highest industry standards except when specified requirements indicate more rigid standards, or more precise workmanship is required.
 - b. Provide personnel to produce work of specified quality.
 - c. Secure, protect, and maintain products and Work completed or in progress from damage during the progress of remaining Work.
 2. Preparatory Inspection: This shall be performed prior to beginning any segment of Work. It shall include a review of Contract requirements; a check to assure that all materials and or equipment are on hand, and have been tested, samples submitted and approved; a check to assure that provisions have been made to do required control testing; examination of the work has been completed; and a physical examination of materials, equipment and sample work to assure that they conform to approved shop drawings or submittal data. Contractor shall instruct each Subcontractor contributing work as to the acceptable level of workmanship required in the Contractor's QC Plan in order to meet Specifications.
 3. Initial Inspection: This shall be performed as soon as a representative portion of a particular segment of Work has been accomplished, and shall include an examination of the quality of workmanship and materials, a review of control testing for compliance with Contract requirements, and inspection for omissions and dimensional requirements.
 4. Follow-up Inspections: These shall be performed regularly to assure continuing compliance with Contract requirements, including control testing, until Completion. Final follow-up inspections shall be conducted and deficiencies corrected prior to final acceptance of segments of Work.

**SECTION 01400
QUALITY CONTROL**

5. Tests: A list of QC tests, and the frequency of their performance, which the Contractor understands it is to perform, and on which it is to submit reports shall satisfy the requirements described under Table 1.
6. Prompt turn-around is required for all analyses, so as not to jeopardize the project schedule. Verbal turn-around time on soil samples is not to exceed 72 hours and written turn-around time is not to exceed 120 hours.
7. The Contractor shall submit the list of tests, and the frequency of their performance, as a part of the Contractor's QC Plan, to the Engineer. The list shall give the test name, Specification Paragraph containing the test requirements, and the personnel and laboratory responsible for each type of test. The Contractor shall perform the following activities:
 - a. Verify that testing procedures comply with Contract requirements.
 - b. Verify that facilities and testing equipment are available and comply with testing standards.
 - c. Check instrument calibration data against certified standards.
 - d. Verify that recording forms, including all the test documentation requirements, have been prepared.
8. Testing for Laboratory Capability:
 - a. Capability Check: Owner/Engineer shall have the right to check laboratory equipment in proposed laboratories for compliance with testing procedures.
 - b. Capability Rechecks: If the selected laboratory fails the capability check the Contractor shall be assessed actual costs to reimburse the Owner/Engineer for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory.
9. Documentation:
 - a. The Contractor shall maintain records of QC operations, activities and tests performed including the Work of suppliers and Subcontractors. These records shall be on an acceptable form and shall include a description of the trades working on the project, the number of personnel working, weather conditions encountered, and delays encountered, and acknowledgement of deficiencies noted along with corrective actions taken on current or previous deficiencies. Additionally, these records shall include evidence that required activities or tests have been performed, including but not limited to the following:
 1. Type and number of control activities and tests performed.

**SECTION 01400
QUALITY CONTROL**

2. Results of control activities or tests, including nature of any defects, causes for rejection, and other information related to deficient features.
3. Proposed remedies and accomplished corrections.
- b. These records shall cover both conforming and defective features, and shall include a statement that supplies and materials incorporated in the Work comply with the Contract requirements. Legible copies of these records shall be submitted to the Owner/Engineer.
- c. Notification of Noncompliance: Owner/Engineer will notify the Contractor or the designated representative of any observed noncompliance with requirements of this Section. If the Contractor fails or refuses to comply promptly, the Owner/Engineer may issue an order stopping all or part of the Work until satisfactory corrective action has been taken.

1.4 WEIGHTS AND MEASURES

- A. The Contractor shall weigh and measure its own materials.
- B. Give one copy of each delivery's weight or measurement to Owner/Engineer prior to stockpiling or storage.

1.5 REFERENCE STANDARDS

- A. Where reference to an industry standard does not include a date of issue, conform to issue current as of date of Contract Documents.
- B. Where reference to an industry standard includes a date of issue, conform to issue current as of the date specified.

1.6 INSPECTION AND TESTING LABORATORIES

- A. Independent testing laboratories shall perform inspections, tests, and other services specified in individual specification sections and the Contractor's Quality Control Plan. These laboratories shall be certified or approved by the State of Rhode Island to perform the services for which they will be used. Proof of certification shall be provided to the City.
- B. Reports and test results shall be submitted by the independent testing laboratory directly to the Owner/Engineer, indicating observations and results of tests and indicating compliance or noncompliance with the requirements of the specifications.
- C. Contractor shall provide access to the work and fully cooperate with laboratory firms. Notify Owner/Engineer at least 48 hours prior to expected time when work is ready for inspection, sampling, or testing, if not otherwise specified for the particular work to be tested.

**SECTION 01400
QUALITY CONTROL**

- D. Retesting required due to nonconformance to the specified requirements shall be performed by the same independent testing laboratories on instructions from the Owner/Engineer. Retesting costs shall be borne by the Contractor and will not be applied to any unit price items.

PART 2 PRODUCTS

2.1 MATERIALS

- A. See Section 02200, EARTHWORK for the types of soil and rock to be used on this project.
- B. See Section 03200, REINFORCING STEEL and 03310, CONCRETE for the types of reinforcing steel and concrete to be used on this project.
- C. See other applicable Specification Sections for other types of material and equipment to be used on this project.

PART 3 EXECUTION

3.1 PRECONSTRUCTION TESTING

- A. Prior to construction, identify sources for soil, rock, concrete, and bituminous materials and test samples of each material from each source to determine whether they meet the required material specifications.
- B. Document all tests. Soil, rock, concrete, and bituminous materials shall be accepted or rejected according to the test results. Some or all of the following tests shall be performed in the evaluation of the material properties for construction purposes:
 - 1. ASTM D422: Particle Size Analysis
 - 2. ASTM D1557: Moisture/Density Relationship
 - 3. ASTM D2216: Moisture Content
 - 4. AASHTO T-245: Marshall Density
 - 5. ASTM D85: Specific Gravity
 - 6. ASTM C31: Making and Curing Test Specimens in the field
 - 7. ASTM C39: Compressive Strength of Cylindrical Concrete Specimens
- C. All material evaluation tests shall be performed by the independent testing laboratory retained by the Contractor and approved for use by the Owner/Engineer.

3.2 CONSTRUCTION TESTING

- A. Document all tests. Some or all the following tests shall be performed in the evaluation of the in-place properties of soil, rock, bituminous, and concrete materials.
 - 1. ASTM D422: Particle Size Analysis

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QUALITY CONTROL**

2. ASTM D1557: Moisture/Density Relationship
 3. ASTM D2216: Moisture Content
 4. ASTM D85: Specific Gravity
 5. AASHTO T-24: Marshall Density
 6. ASTM D1556: Density of Soil in Place by Sand-Cone Method
 7. ASTM D2216: Laboratory Determination of Water Content
 8. ASTM D2922: Density of Soil in Place by Nuclear Methods
 9. ASTM D3017: Water Content of Soil in Place by Nuclear Methods
 10. ASTM 31: Making and Curing Test Specimens in the Field
 11. ASTM 39: Compressive Strength of Cylindrical Concrete Specimens
- B. Further material testing may be necessary if alternative sources of material are required during construction or, if based on visual inspection during delivery to the site, it appears that a material change (color, grain size, plasticity) as occurred. Additional source testing due to change of material shall be borne by the Contractor and will not be applied to any unit price items.
- C. Nuclear density methods shall be used for all density testing due to the ease of testing and the relatively large number of tests that can be run in a specified time. Check the moisture content with at least two samples and correct Nuclear Gauge moisture readings if appropriate.
- D. Questions concerning the accuracy of any single test shall be addressed by retesting the same or another location. Perform periodic checks using the sand-cone method at the direction of the Owner/Engineer to verify the nuclear density results. Wherever a conflict exists, sand-cone results shall be accepted over nuclear density results.
- E. At locations where the field-testing indicates densities below the requirements of the specifications, rework and re-compact the location.

3.3 QC TESTING FREQUENCY

- A. All QC testing shall be conducted in accordance with the Contractor's QC Plan. Documentation and reporting of test results shall be the responsibility of the Contractor.
- B. Recommended testing frequencies for material evaluation and construction quality evaluation are presented in Table 1 of this section.
- C. Sampling locations shall be approved by the Owner/Engineer.
- D. A special testing frequency shall be used at the discretion of the Owner/Engineer when visual observations of construction performance indicate a potential problem. Additional testing for suspected areas shall be considered when:
1. Rollers slip during rolling operations
 2. Lift thickness appears greater than specified
 3. Fill appears to be at improper and/or variable moisture content
 4. Dirt-clogged rollers are used to compact the material

**SECTION 01400
QUALITY CONTROL**

5. Rollers may not have used optimum ballast
 6. Materials appear substantially different from those specified
 7. The degree of compaction is doubtful
 8. Directed by the Owner/Engineer
- E. During construction, the frequency of testing may also be increased in the following situations:
1. Adverse weather conditions
 2. Breakdown of equipment
 3. At the start and finish of grading
 4. Material fails to meet specification
 5. The work area is reduced

3.4 DEFICIENCIES

- A. If a defect is discovered, the Contractor shall immediately determine the extent and nature of the defect.
1. If the defect is indicated by unsatisfactory test results, the Contractor shall determine the extent of the deficient area by additional tests, observations, a review of records, or other means that the Contractor deems appropriate. Costs for additional testing shall be borne by the Contractor and not applied to any unit price items.
 2. If the defect is related to adverse site conditions, such as overly wet soils or surface desiccation, the Contractor shall define the limits and nature of the defect.
- B. After determining the extent and nature of a defect, the Contractor shall notify the Owner/Engineer and schedule for defect repair and retesting.
- C. The Contractor shall correct the deficiency to the satisfaction of the Owner/Engineer. If the project specification criteria cannot be met, or if unusual weather conditions hinder work, then the Contractor shall develop and present to the Owner/Engineer suggested solutions for his approval.
- D. All retests by the Contractor must verify that the defect has been corrected before any additional work is performed by the Contractor around the deficiency. The Contractor shall also verify that all installation requirements are met and that all required submittals are provided.

END OF SECTION

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Table 1
Recommended Schedule of Quality Control Testing
SLIDE GATE OPERATOR REPAIR FOX POINT HURRICANE BARRIER – ALLENS AVENUE
City of Providence

Material	Situation	Test	Minimum Frequency
Select Backfill / Gravel Borrow	Source Investigation	Grain Size through 0.002 mm Moisture Density Relationship	1 per source 1 per source
	During Placement	Grain Size through 0.002 mm Moisture Density Relationship	1 per 100 tons 1 per 100 tons
	As-Placed	Dry Density and As-Placed Moisture	1 per compacted lift per 500 square feet
Concrete	Pre-Cast and Cast- in-Place	Concrete Compressive Strength, Slump, and Air Entrainment	6 cylinders per each lid pour (break 1 @ 7 days, 3 @ 28 days, and keep 2 in reserve)

Note:

1. Payment for concrete compressive strength, slump, and air entrainment shall be in accordance with the actual number of cylinders that are tested and broken (i.e., reserve concrete cylinders that are collected but not tested for compressive strength shall not be paid for).

**SECTION 01500
TEMPORARY CONSTRUCTION FACILITIES**

PART 1 GENERAL

1.1 REQUIREMENTS

- A. Furnish, install, and maintain temporary construction facilities as required for construction, and remove at the completion of work. This Section includes but is not limited to requirements for:
 - 1. Field Offices.
 - 2. Miscellaneous construction facilities.
 - 3. Temporary utility connections.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with National Electric Code.
- B. Comply with Federal, State and Local Codes, Laws, Ordinances, and Regulations and with utility company requirements.

1.3 SUBMITTALS

- A. Submit drawings within fourteen (14) calendar days of starting work to Owner/Engineer for approval, showing layout, furnishings, and facilities of field office trailers and information concerning how Contractor proposes to furnish utilities.

1.4 JOB CONDITIONS

- A. Scheduled Uses: Provide temporary construction facilities at time first needed at the site; and maintain, expand and modify facilities as needed throughout construction period.
- B. Conditions of Use: Operate, maintain, control and protect support facilities in a manner which will prevent fire, hazardous exposures, health problems, unsanitary conditions, pollution, contamination, discomfort to users, flooding, freeze-up, interference with construction work, public nuisances and similar deleterious effects.
- C. The Owner is not responsible for damage to any facilities due to severe natural occurrences, vandalism, or negligence on the part of the Contractor. The Contractor shall take all necessary precautions to protect and deter potential theft and vandalism within the construction site.

1.5 COSTS

- A. Include all costs associated with furnishing, installing, and removing Contractor's field offices, and providing all utilities, equipment, furnishings, waste disposal receptacles, services, maintenance, and removal as part of lump sum bid for Mobilization/Demobilization.

**SECTION 01500
TEMPORARY CONSTRUCTION FACILITIES**

- B. Include all costs for providing continuous electric, water, sewer, heating/air conditioning, and telephone services to offices throughout construction period.

PART 2 PRODUCTS

2.1 GENERAL

- A. Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.
- B. Coordinate interruptions of permanent utilities with utility companies and affected users.

2.2 FIELD OFFICES

A. Contractor's Field Office:

- 1. The Contractor shall provide its own field offices and such other temporary housing as it may need for storage or fabrication purposes and completely remove at the completion of the work.
- 2. Provide storage space for all shop drawing submittals, project samples, field laboratory test data and analyses, and other project-related information.
- 3. Store all documents in fireproof, lockable cabinets.
- 4. The Contractor and Subcontractors shall arrange for and have installed a telephone or provide mobile telephones for the use of their own field offices and personnel.

2.3 MISCELLANEOUS CONSTRUCTION FACILITIES

A. Storage Sheds:

- 1. General: Install individual storage sheds as required to accommodate the work; sized, furnished and equipped properly. Sheds are defined to include both open shelters and fully enclosed spaces.

PART 3 EXECUTION

3.1 INSTALLATION OF SUPPORT FACILITIES

- A. General: Use qualified tradesmen for installation of support facilities. Locate facilities where they will serve the total project construction work adequately, and result in minimum interference with the performance of the work. Relocate, modify and extend facilities as required during course of the work, to properly accommodate entire work of project. Locate field offices for easy access to construction work, and position so that the windows give the best possible view

**SECTION 01500
TEMPORARY CONSTRUCTION FACILITIES**

of construction activities. Provide a reasonably neat and uniform appearance in support facilities, acceptable to Engineer, and to Owner.

- B. Maintain and operate temporary utility systems to assure continuous service.
- C. Modify and extend temporary utility systems as work progress requires.

3.2 INSTALLATION

A. Contractor's Office:

- 1. Install office at or near site of work as required to complete the work. Office to be headquarters of authorized representative to receive drawings, instruction or other communication or articles.
- 2. Contractor to keep copies of drawings, specifications, and other Contract Documents at office at site of work and make readily available for Engineer's or Owner's use at all times.
- 3. Toilet facilities are not available at the project site, the Contractor shall provide portable his/her toilets for the duration of the work.

B. Engineer's Office:

- 1. To be provided by Owner if required.

C. Connect field offices to temporary utilities as required. Include backfill to connect telephone, electric, water and sewer utility lines; if applicable, insulate and heat the water and sewer lines to the extent necessary to prevent freezing. All sewer, water, electric, and telephone services shall be continuously connected and in proper working order.

3.3 MAINTENANCE

- A. The inside and outside of the Contractor's field offices shall be maintained in a clean condition.

3.4 REMOVAL OF TEMPORARY CONSTRUCTION FACILITIES

- A. Completely remove temporary materials and equipment when their use is no longer required.
- B. Upon completion of work of all trades and before final acceptance of entire project, each trade shall remove, at its own expense, all wiring, appurtenances, and accessories used in performance of its respective work.
- C. Temporary sheds, utilities, barricades, signs, and other appurtenances related to prosecution of the work and not incorporated in the permanent construction shall be completely removed from the site prior to acceptance of work by Owner.

END OF SECTION

**SECTION 01500
TEMPORARY CONSTRUCTION FACILITIES**

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**SECTION 01510
TEMPORARY UTILITIES**

PART 1 GENERAL

1.1 REQUIREMENTS

- A. Furnishing, installing, and maintaining temporary utilities to support construction including:
 - 1. Electric and Lighting
 - 2. Heating and Ventilation
 - 3. Water
 - 4. Sanitary Facilities

1.2 TEMPORARY ELECTRICITY AND LIGHTING

- A. Electrical power is not available at the project site.
- B. Install circuit and branch wiring, with area distribution boxes located so that power and lighting is available throughout construction by use of construction-type power cords.
- C. Provide artificial lighting for areas of work when natural light is not adequate for work, and for areas accessible to public.
- D. Furnish all extension cords, sockets, lamps, motors, and accessories for work. Ground all outlets.
- E. All temporary wiring, service equipment, and accessories thereto installed shall be removed at the expense of the Contractor after serving its purpose.
- F. Contractor is required to pay for replacement of all lamps broken and/or removed from premises during construction period and until date of substantial completion of work and written acceptance by Owner.

1.3 TEMPORARY HEATING AND VENTILATION

- A. Provide temporary heating when temperature falls below 50 deg. F and as otherwise required to:
 - 1. Maintain working conditions acceptable to Owner/Engineer.
 - 2. Protect all work, materials, and equipment against damage from dampness or cold.
 - 3. Dry out structures.
 - 4. Maintain proper conditions for installation and curing of materials.
- B. Ensure that heating equipment and fuels are compatible for the intended purpose and include safety devices in accordance with industry standards.

**SECTION 01510
TEMPORARY UTILITIES**

- C. Do not use combustion type heaters without proper venting nor in areas where such equipment might introduce a hazard.
- D. Ensure that all enclosed areas are ventilated (using forced-draft equipment when necessary) as required to maintain proper conditions for personnel and work, and to avoid any accumulation of hazardous dust or fumes.
- E. Pay costs associated with furnishing, installing, maintaining, operating, and removing of heating and ventilation equipment.

1.4 TEMPORARY WATER

- A. Furnish all water required for and in connection with work to be done under this Contract.
- B. Pay costs associated with furnishing, installing, maintaining, operating, and removing of water-related equipment.

1.5 TEMPORARY SANITARY FACILITIES

- A. Toilet facilities are not available at the project site.
- B. If the Contractor elects to provide chemical toilets, ensure that these facilities are:
 - 1. Of a capacity acceptable to Owner/Engineer.
 - 2. Maintained throughout construction period.
 - 3. Obscured from public view to the greatest extent possible and secured to prevent vandalism.
- C. Enforce use of such sanitary facilities by all personnel at site.
- D. Pay costs associated with furnishing, installing, maintaining, operating and removing sanitary facilities.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

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**SECTION 01560
TEMPORARY CONTROLS**

PART 1 GENERAL

1.1 REQUIREMENTS

- A. Controlling Contractor's operations and work.
- B. Furnishing, installing, and operating temporary controls during construction for:
 - 1. Noise
 - 2. Dust
 - 3. Surface Water
 - 4. Pollution
 - 5. Debris and Clean Up
 - 6. Air Pollution
 - 7. Public Safety

1.2 PRIVATE LAND

- A. The Contractor shall not enter or occupy private land outside of rights-of-ways, except by written permission of the property owner. Furnish Owner/Engineer copies of all side agreements the Contractor has with property owners to enter or occupy private lands.

1.3 OPEN EXCAVATIONS

- A. All open excavations shall be adequately safeguarded by providing temporary fencing, barricades, caution signs, lights, and other means, as shown on the plans, to prevent accidents to persons, and damage to property. Traffic management during times of open excavation shall be in accordance with the requirements of RIDOT as stipulated in the Physical Alteration Permit Application.

1.4 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 its expense, to a condition similar or equal to that existing before the damage was done, or it shall make good the damage in other manner acceptable to the Owner/Engineer.

1.5 PROTECTION 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, electric and telephone cables, and cesspools adjacent to trench excavations, 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

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damage resulting from the Contractor's operations shall be repaired by it at its expense, to the damaged items original condition.

1.6 PROTECTION OF WORK

- A. The Contractor shall always protect excavations, trenches, new construction, old construction, all job materials, apparatus and fixtures from rain, wind, snow, ice, dust, dirt, mud, groundwater, back-up or leakage of sewers, drains, or other piping, and from water of any other origin, and shall remove promptly any accumulation of the above. The Contractor shall provide and operate all pumps, piping and other equipment necessary to this end at no additional cost to Owner.
- B. Thoroughly protect all completed work and all stored materials.
- C. Replace or rectify work or materials damaged by workmen, by the elements or by any other cause, to the satisfaction of the Owner/Engineer and at no additional expense to the Owner.
- D. Repair streets, curbs, sidewalks, poles, grass, shrubs, trees, or other existing site features, if disturbed by building operations. Leave them in as good condition as they were before being disturbed.
- E. Do not allow workmen, including those of any Subcontractor or supplier, to mark finish surfaces with marking pens or other such devices that are not readily erasable.

1.7 SECURITY

- A. The Contractor shall take all precautions necessary to prevent loss or damage caused by vandalism, theft, burglary, pilferage, or unexplained disappearance of property of the Owner or Contractor, whether or not forming part of the work, located within the limits of work. The Contractor shall have full responsibility for the security of such property located in such areas and shall reimburse the Owner for any such loss, damage, or injury, except such as may be directly caused by agents or employees of the Owner.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 GENERAL

- A. Suitable signs, lights and such required items to direct traffic shall be furnished and maintained by the Contractor.
- B. The Contractor must keep streets and premises free from unnecessary obstructions, debris, and all other materials. The Owner/Engineer may, at any time, order all equipment, materials, surplus from excavations, debris and all other materials lying outside that length of working space promptly removed, and should the Contractor fail to remove such material within 24 hours after notice to remove the same, the Owner/Engineer may cause any part or all of such

**SECTION 01560
TEMPORARY CONTROLS**

materials to be removed by such persons as it may employ, at the Contractor's expense, and may deduct the cost thereof from payment which may be or may become due to the Contractor under the contract. In special cases, where public safety urgently demands it, the Engineer may cause such materials to be removed without prior notice.

3.2 INTERFERENCE WITH EXISTING STRUCTURES

- A. Whenever it may be necessary to cross or interfere with existing culverts, drains, water pipes or fixtures, guardrails, fences, or other structures needing special care, due notice shall be given to the Owner/Engineer and to the various public and private agencies or individuals responsible for the utility or structure that is interfered with. Whenever required, all objects shall be strengthened to meet any additional stress that the work herein specified may impose upon it, and any damage caused shall be thoroughly repaired. The entire work shall be the responsibility of the Contractor and the work shall be performed at no additional expense to the Owner. All damaged items of work or items required to be removed and replaced due to construction shall be replaced or repaired by the Contractor to the complete satisfaction of the property Owners and/or the Owner/Engineer at no additional expense to the Owner.

3.3 ODOR CONTROL

- A. If the Contractor's scheduled work plan shows the top of the vault being open more than two weeks, the Contractor shall submit an odor control contingency plan to the Owner and Engineer for review that will detail the controls and all necessary steps required to prevent odors from becoming a nuisance to surrounding areas.

3.4 SURFACE WATER CONTROL

- A. Provide for drainage of storm water and such water as may be applied or discharged on site in performance of work.
- B. Ensure that drainage facilities are adequate to prevent damage to work, site, and adjacent property.

3.5 POLLUTION CONTROL

- A. Prevent pollution of drains and watercourses by sanitary wastes, sediment, debris, and other substances resulting from construction activities.
 - 1. In order to protect the Narragansett Bay from hazardous materials releases by the construction equipment involved in this project, equipment must be in good condition and inspected for leaks daily; spill control and cleanup equipment shall be stored on site; and the Contractor shall be responsible for all cleanup and remediation of hazardous materials releases. All hydraulic equipment operating adjacent to the Narragansett Bay shall utilize non-toxic, biodegradable hydraulic oil.

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TEMPORARY CONTROLS**

2. Do not allow sanitary wastes to enter any drain or watercourse other than sanitary sewers or onsite septic systems.
3. Do not allow sediment, debris, or other substances to enter sanitary sewers and take measures to prevent such materials from entering any drain or watercourse.
4. All moving of equipment, water control, and other operations likely to create silting, shall be planned and conducted so as to avoid pollution of the Narragansett Bay and its tributaries. Water used for any purpose that has become contaminated with oil, bitumen, salt, or other pollutants shall be discharged so as to avoid affecting nearby waters. Under no circumstances shall pollutants be discharged directly into the Narragansett Bay and its tributaries.

3.6 DEBRIS AND CLEANUP

- A. Keep all premises free at all times from accumulation of waste materials and rubbish.
 1. Immediately after unpacking, remove and dispose of all packing materials, case lumber, excelsior, wrapping, or other rubbish from site.
- B. Provide trash receptacles about site, and empty containers daily.
- C. Neatly stack construction materials, such as concrete forms and scaffolding, when not in use.
- D. Promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solution from surfaces to prevent marring or other damage to satisfaction of Owner/Engineer.
- E. Ensure that wastes are not buried or burned on site or disposed into storm drains, sanitary sewers, streams, or waterways.
 1. Remove all wastes from site and dispose in a manner complying with local ordinances and anti-pollution laws.
 2. Store volatile wastes in covered metal containers and remove daily.
- E. Cleanup as determined by Owner/Engineer will be a condition for recommendation of progress payment application.
 1. Contractor shall have full responsibility for cleaning up during and immediately upon completion of work. Remove all rubbish, waste, tools, equipment, and appurtenances caused by and used in execution of work, leaving site clean, free of debris and in condition acceptable to Owner/Engineer.

**SECTION 01560
TEMPORARY CONTROLS**

2. Equipment or material shall not be left within any work area after acceptance of Contract without written permission of Owner/Engineer. Do not abandon any material at or near site regardless of its value.

3.7 PUBLIC SAFETY

- A. At all times until final acceptance of Work by Owner, the Contractor shall protect Work and shall take all precautions of preventing injuries to persons or damage to property on or about site.
- B. Contractor shall comply with all applicable laws, ordinances, rules, and regulations regarding safety of persons or property or with regard to protecting them from damage, injury, or loss and shall not load or permit any part of work to be placed so as to endanger safety of work.
- C. Conduct work such that abutters shall have reasonable access to their property.

3.8 REMOVAL OF TEMPORARY CONTROLS

- A. Completely remove temporary materials and equipment when their use is no longer required.
- B. Upon completion of work of all trades and before final acceptance of entire project, each trade shall remove, at its own expense, all wiring, appurtenances and accessories used in performance of its respective work
- C. Temporary sheds, utilities, barricades, signs, and other appurtenances related to the prosecution of the work and not incorporated in the permanent construction shall be completely removed from the site prior to acceptance of work by Owner.

END OF SECTION

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**SECTION 01720
PROJECT RECORD DOCUMENTS**

PART 1 GENERAL

1.1 REQUIREMENTS

A. Maintain at the site for the Owner one record copy of

1. Drawings
2. Specifications
3. Addenda
4. Change orders and other modifications to the contract
5. Engineer field orders or written instructions
6. Reviewed shop drawings, product data and samples
7. Field test records

B. The Contractor will be required to furnish, at no additional expense to the Owner, the services of a surveyor and/or Engineer registered in the state where the project is located and under whose direction shall be obtained and recorded all surveys, measurements and such other data required for the determination of the as-built records of the construction of all site work.

1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
- B. Provide locked file cabinet for storage of documents.
- C. Provide locked cabinet space for storage of samples.
- D. File documents and samples in accordance with CSI/CSC format.
- E. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- F. Make documents and samples available at all times for inspection by Engineer and Owner.

1.3 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in a color code approved by Owner/Engineer.

1.4 RECORDING

- A. Label each document "Project Record" in neat large printed letters.

**SECTION 01720
PROJECT RECORD DOCUMENTS**

- B. Record information concurrently with construction progress.
- C. Do not conceal any work until required information is recorded.
- D. Drawings: Principal dimensions, elevations and other data, as required, shall be recorded for all work, such as:
 - 1. Deviations of any nature made during construction.
 - 2. Location of underground utilities.
 - 3. Field changes of dimension and detail.
 - 4. Changes made by field order or by change order.
 - 5. Details not on original contract drawings.
- E. The marked-up prints shall be inspected periodically by the Owner/Engineer and shall be corrected immediately if found either inaccurate or incomplete.
- F. Specifications and Addenda: Legibly mark each section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 - 2. Changes made by field order or by change order.

1.5 FINAL MEASUREMENTS

- A. The Contractor shall provide qualified personnel and equipment for taking final measurements for quantities and record documents.

1.6 RECORD DRAWINGS

- A. At the completion of the project, the record prints shall be submitted to the Owner/Engineer for final review, comment, and the preparation of the Record Drawings.
- B. The Contractor shall correct, amplify, and do all other work as may be required by the Owner/Engineer to complete the Drawings in a manner satisfactory to the Owner/Engineer and at no additional cost to the Owner.

1.7 SUBMITTAL

- A. At contract closeout, deliver record documents to Owner.
- B. Accompany submittal with transmittal letter in duplicate, containing:
 - 1. Date

**SECTION 01720
PROJECT RECORD DOCUMENTS**

2. Project title and number
3. Contractor's name and address
4. Title and number of each record document
5. Signature of Contractor or his authorized representative

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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**SECTION 02005
MOBILIZATION / DEMOBILIZATION**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. This section covers the work necessary to move in personnel and equipment; set up Contractor's temporary offices, buildings, facilities, and utilities; prepare the site for construction; and demobilize complete.

1.2 GENERAL

- A. The Contractor's Work Limits and potential areas designated for Contractor staging are shown on the Drawings.
- B. The limits of the Owner's property are shown on the Drawings.
- C. In the event additional space is required for the Contractor's operations, the Contractor shall make its own arrangements and pay for such additional space.

PART 2 PRODUCTS

2.1 SECURITY FENCE

- A. Construct temporary security fence, barrier or other suitable enclosures as required for the protection of the Contractor's materials, tools, and equipment. Maintain fencing/enclosures during construction.

2.2 PARKING FACILITIES

- A. Parking is available onsite within the Contractor's Staging Area shown on the Drawings.

PART 3 EXECUTION

3.1 LAYOUT

- A. Set up construction facilities in a neat and orderly manner within the Contractor's Staging Area and/or at a location acceptable to the Owner/Engineer. Accomplish all required work in accordance with applicable portions of these Specifications. Confine operations within the general work limits shown.

3.2 DEMOBILIZATION

- A. At the completion of the work, and immediately prior to final inspection, clean the entire project area occupied by the Contractor during the work. Remove all unused material, debris, soil, and rubbish, unless otherwise specified. Disposal of material shall be in accordance with Federal, State, and local laws and regulations.
 - 1. Should Contractor not remove rubbish or debris or not clean the facilities and site as specified above, the Owner reserves the right to have final cleaning done by others at the sole expense of the Contractor.

**SECTION 02005
MOBILIZATION / DEMOBILIZATION**

B. The Contractor shall:

1. Employ experienced workers or professional cleaners for final cleaning.
2. Conduct final inspection of concealed spaces in preparation for Contract completion.
3. Remove from the property temporary structures and materials, equipment, and appurtenances not required as part of, or appurtenant to, the completed work.
4. Leave watercourse, gutters, and ditches open and in a condition satisfactory to Owner/Engineer.

END OF SECTION

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**SECTION 02050
DEMOLITION AND REMOVAL**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. This section covers the work associated with demolition, removal, and/or abandonment of utilities as specified and shown on the Drawings.

1.2 GENERAL

- A. The Contractor shall submit to the Owner/Engineer a Demolition and Removal Plan, including a schedule for removal, stockpiling, and disposal of all demolition debris.

PART 2 PRODUCTS

2.1 GENERAL

- A. The Contractor shall provide all materials and equipment in suitable and adequate quantity to accomplish the work shown and specified.

PART 3 EXECUTION

3.1 GENERAL

- A. Demolish and remove all timber, steel, concrete, and miscellaneous components as specified and shown on the Drawings.

3.2 DISPOSAL

- A. No burning of combustible materials shall be permitted.
- B. All demolition debris shall be disposed of offsite in accordance with the Contractor's Demolition and Removal Plan and in accordance with all applicable Federal, State, and Local laws and regulations.

END OF SECTION

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**SECTION 02200
EARTHWORK**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. This section covers the work necessary for the earthwork, complete.

1.2 DEFINITIONS

- A. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D1557. Corrections for oversize material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the Engineer.
- B. Optimum Moisture Content: Determined by the ASTM standard specified to determine the maximum dry density for relative compaction.
- C. Relative Density: As defined by ASTM D4253 or D4254.
- D. Prepared Ground Surface: The ground surface after clearing, grubbing, stripping, excavation, and scarification and/or compaction.
- E. Completed Course: A course or layer that is ready for the next layer or next phase of the work.
- F. Well-Graded: A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes. Well-graded does not define any numerical value that must be placed on the coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters. Well-graded is used to define a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.
- G. Influence Area: The area within planes sloped downward and outward at an angle of 60 degrees from the horizontal from (a) 1 foot outside the outermost edge at the base of foundations or slabs; or (b) 1 foot outside the outermost edge at the surface of roadways or shoulder; or (c) 0.5 foot outside the exterior edge at the spring line of pipes and culverts.
- H. Unclassified Excavation: The nature of materials to be encountered has not been identified or described herein.
- I. Imported Material: Material obtained by the Contractor from sources off the site.
- J. Excess Material: Material generated during this project that is not suitable for reuse as determined by the Owner/Engineer.
- K. Boulder: Rock material greater than 1 cubic yard in volume that cannot be removed with a standard backhoe or excavator without significant effort.
- L. Rock: Rock material in beds, ledges, un-stratified masses, and conglomerate deposits and boulders of rock material exceeding 1 cubic yards that cannot be removed by rock excavating equipment and systematic drilling, ram hammering, ripping or

**SECTION 02200
EARTHWORK**

hydraulic splitting.

- M. Unsuitable Material: Unsatisfactory soils directed to be removed by the Owner/Engineer.

1.3 EXISTING UTILITIES

- A. Call Dig Safe **1-888-DIG-SAFE (1-888-344-7233)** a minimum of three (3) business days before commencing with any excavation, in order that all pertinent utility companies become informed of such work. Coordinate with the Owner for locating their onsite utilities. Sewer, street lighting, fire alarm and traffic signals are not covered by the Dig Safe program.
- B. If active utilities existing on the site are encountered, they shall be carefully protected from damage. When an active utility line is exposed during construction, its location and elevation shall be documented and both the Engineer and the Owner notified in writing.
- C. Active utility lines damaged in the course of construction operations shall be repaired or replaced as determined by the Owner/Engineer, without additional cost to the Owner.

1.4 SUBMITTALS

- A. Provide the following submittals:
 - 1. Certification, test results, source, and samples for all imported earth materials.
 - 2. Catalog and manufacturer's data sheets for compaction equipment.
 - 3. Manufacturer's certificate of compliance attesting that geotextile/geogrid meets the requirements of these specifications. Provide mill certificates stating the length and width of fabric/geogrid contained on each roll.

1.5 IMPORTED MATERIAL ACCEPTANCE

- A. All imported earth materials specified in this section are subject to the following requirements:
 - 1. All tests necessary for the Contractor to locate acceptable sources of imported material shall be made by the Contractor. Certification that the material conforms to the Specification requirements along with copies of the test results from a qualified commercial testing laboratory shall be submitted to the Owner/Engineer for approval at least 14 calendar days before the material is required for use. All material samples shall be a minimum mass required by ASTM D75 and furnished by the Contractor at the Contractor's sole expense. Samples shall be representative and be clearly marked to show the source of the material and the intended use on the project. Sampling of the material source shall be done by the Contractor in accordance with ASTM D75. Tentative acceptance of the material shall be based on an inspection of the source by the Owner/Engineer and/or the certified test results submitted by the Contractor to the

**SECTION 02200
EARTHWORK**

Owner/Engineer at the Owner's/Engineer's discretion. No imported materials shall be delivered to the site until the proposed source and materials tests have been tentatively accepted in writing by the Owner/Engineer. Final acceptance will be based on Quality Control and Quality Assurance tests made on samples of material taken from the completed and compacted course.

2. Gradation tests by the Contractor shall be made on samples taken at the place of production prior to shipment. Samples of the finished product for gradation testing shall be taken as specified in the Contract Documents, or more often as directed by the Owner/Engineer if variation in gradation is occurring, or if the material appears to depart from the Specifications. Verbal test results shall be forwarded to the Owner/Engineer within 72 hours of testing, and written results within 120 hours.
3. If tests conducted by the Contractor or the Owner/Engineer indicate that the material does not meet Specification requirements, material placement will be terminated until corrective measures are taken. Material that does not conform to the Specification requirements and is placed in the work shall be removed and replaced at the Contractor's sole expense. Retesting of material that does not meet specification requirements shall be performed at the Contractor's sole expense.

1.6 EXCAVATION SAFETY

- A. The Contractor shall be solely responsible for making all excavations in a safe manner, in accordance with any Federal, State, local, and/or Owner safety standards. Provide appropriate measures to retain excavation side slopes and prevent earth slides to ensure that persons working in or near the excavation are protected.

1.7 CODES, ORDINANCES, AND STATUS

- A. The Contractor shall familiarize itself with, and comply with, all applicable codes, ordinances, statutes, and bear sole responsibility for the penalties imposed for noncompliance.

1.8 TOLERANCES

- A. All material limits shall be constructed within a vertical tolerance of 0.1 foot and a horizontal tolerance of 1 foot except where dimensions or grades are shown or specified as minimum. All grading shall be performed to maintain slopes and drainage as shown. No reverse slopes will be permitted.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Select Backfill Material shall be excavated onsite granular material with less than 15 percent passing a No. 200 sieve, free from stones, roots, and organic material and of suitable gradation for satisfactory compaction. If excavated material at a particular location is not satisfactory, as determined by the Owner/Engineer, use imported Gravel Borrow.

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EARTHWORK**

- B. Gravel Borrow shall be imported granular material conforming to Item M.01.07 of the Standard Specifications.
- C. Water for compaction shall be furnished by the Contractor. Water for compaction from sources other than potable sources shall be as approved by the Owner/Engineer.
- D. Geotextile Fabric shall be nonwoven and needle punched pervious sheets of polyester, polyethylene, nylon, or polypropylene filaments formed into a uniform pattern. Geotextile fabric shall be Style 1160N as manufactured by Marafi. The geotextile fabric shall have the following minimum properties when measured in accordance with the referenced standards.

Test	Method	Specified
Mass per Unit Area (oz/yd ²)	ASTM D-3776	16
Grab Tensile Strength (lbs)	ASTM D-4632	380
Puncture Strength (lbs)	Modified ASTM D-6241	1,000
Trapezoid Tear (lbs/in ²)	ASTM D-4533	140
Elongation at Required Strength (%)	ASTM D-4642	50
UV Resistance	ASTM D-4355	70% at 500 hr.
Equivalent Opening (US Standard Sieve)	ASTM D-4751	100
Permittivity (sec ⁻¹)	ASTM D-4491 with 60 mm Falling Head	0.8
Water Flow Rate (gal/min/ft ²) at 50 mm Constant Head	See Note 2	50

Notes:

- 1. All numerical values represent minimum/maximum average roll values (i.e., the average of minimum test results on any roll in a lot should meet or exceed the minimum specified values).
- 2. Water flow rate in gal/min/ft² shall be determined by multiplying permittivity in sec⁻¹ as determined by ASTM D-4491 by a conversion factor of 74.

**SECTION 02200
EARTHWORK**

PART 3 EXECUTION

3.1 GENERAL

- A. Unsuitable or excess materials shall be stripped from areas of new construction or re-grading. Materials suitable for reuse shall be stored onsite in approved locations near the work in progress that will not interfere with construction operations. All excess and unsuitable earth materials shall be stockpiled in the Contractor's staging area.
- B. In general, earth excavation is unclassified and shall include the excavation, removal and satisfactory disposal of all materials of whatever nature encountered from within the limits indicated or specified or as directed in writing. It shall include, but not be limited to, earth materials such as peats, organic or inorganic silts, clay, sand and gravel, cobbles and boulders less than or equal to 1 cubic yards in volume, soft or disintegrated rock which, in the opinion of the Owner/Engineer, can be removed without drilling and splitting, pavement, and all obstructions not specifically included in another section.
- C. All excavations shall be backfilled as specified.

3.2 REMOVAL OF WATER

- A. Dewater as specified and shown in the Contract Documents.
- B. Provide adequate sedimentation controls prior to discharge into a nearby watercourse.

3.3 STOCKPILE OPERATION

- A. As specified and shown in the Contract Documents.

3.4 SUBGRADE COMPACTION

- A. Prior to backfilling, the Contractor shall compact the existing sub-grade to 95 percent relative compaction.

3.5 BACKFILL (GENERAL)

- A. The Contractor shall inform the Owner/Engineer in writing a minimum of 48 hours prior to starting any backfill operation. The information shall include the location to be filled, the amount of fill to be placed, and the material to be placed.
- B. Prior to placing any backfill, remove all trash, debris, and/or any other unsuitable material from areas where backfill is to be placed. Do not place frozen backfill. Do not place backfill on frozen ground or in areas where standing water is present.
- C. Backfill around and adjacent to concrete structures only after the concrete has attained 2/3 of the specified compressive strength or as approved by the Owner/Engineer.
- D. Do not operate earth-moving or other heavy equipment within a distance that will

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EARTHWORK**

cause damage to new or existing structures. Compact backfill adjacent to and on top of existing and new structures, utilities, and concrete walls with hand-operated vibratory compactors or other acceptable equipment. Compaction shall be performed in a manner which will not damage new or existing structures and utilities.

3.6 SELECT BACKFILL/GRAVEL BORROW PLACEMENT

- A. Place Select Backfill/Gravel Borrow at the locations shown on the Drawings. Do not exceed loose lifts of 10 inches. Compact each lift to not less than 95 percent relative compaction and maintain the moisture content of the material being compacted within -2 to 2% of the optimum moisture content.

3.7 GEOTEXTILE FABRIC/GEOGRID PLACEMENT

- A. The area shall be graded smooth and all stones, roots, sticks, or other foreign material which would interfere with the fabric/grid being completely in contact with the soil shall be removed prior to placing the fabric/grid. The surfaces to accept geotextiles/grids shall be compacted to not less than 95 percent relative compaction.
- B. The fabric/grid shall be placed loosely with the machine direction of the fabric laid perpendicular with the proposed bulkhead. Pinning or stapling may be required to hold the geotextile/ grid in place. Separate pieces of fabric/ grid shall be joined by overlapping or sewing. The fabric/grid in the overlapped jointed shall be placed with a minimum overlap of 24 inches. When required, overlaps in the downstream direction shall be laid (i.e., shingled) to shed water. After placement, the fabric/grid shall be exposed no longer than 48 hours prior to covering.
- C. Damaged areas shall be covered with a patch of fabric/grid using a 36 inch overlap in all directions.

3.8 MOISTURE CONTROL

- A. During the compacting operations, the moisture content of the material shall be within the range necessary to obtain the specified compaction, as determined by laboratory testing.
- B. Maintain moisture content throughout the lift. Insofar as practicable, add water to the material at the site of exaction. Supplement, if required, by sprinkling the material.
- C. Do not compact material that contains excessive moisture. Aerate material by blading, discing, harrowing, or as approved, to hasten the drying process.

3.9 COMPACTION TESTING

- A. The Contractor shall make all necessary excavations and preparations for testing in accordance with the Contract Documents. Excavations for density tests shall be backfilled with material similar to that excavated, and compacted to the specified density by the Contractor. Failure of the backfill material to achieve the specified density will be just cause for rejection of any or all portions of the excavation section tested. The Contractor shall not be granted an extension of time or additional

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compensation for testing or repair of backfill ordered by the Owner/Engineer.

END OF SECTION

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**SECTION 02270
EROSION AND SEDIMENT CONTROL**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Work covered under this Section shall include all work for erosion and sediment control.

1.2 SUBMITTALS

- A. Provide the following submittals:
 - 1. Location, dimensions, and details for erosion and sediment control devices.
 - 2. Manufacturer's certificate of compliance for geotextiles.

PART 2 PRODUCTS

- A. Straw bale, silt fence, and/or silt socks shall be provided as required during the work to prevent sediment from entering the Narragansett Bay or its tributaries.
- B. Dewatering bags, if necessary, shall be as manufactured by Dandy Dewatering Bag (Contact 800-591-2284) or approved equal and sized in accordance with the Contractor's Water Control Plan.

PART 3 EXECUTION

- A. The Contractor shall maintain straw bales, silt fence, silt socks and dewatering bags in good condition and remove in their entirety upon completion of the work.
- B. The Contractor shall remove accumulated sediment trapped within the straw bales, silt fence, silt socks, and dewatering bags periodically and as directed by the Owner/Engineer.

END OF SECTION

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**SECTION 02400
DEWATERING, CONTROL, AND DIVERSION OF WATER**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Work covered under this section consists of the Dewatering, Control, and Diversion of Water as required to perform the work.

1.2 SUBMITTALS

- A. Water Control Plan

1. Describe how dewatering, control, and diversion of water shall be accomplished.
2. Provide Plans, Sections, and Details showing the type and location of dewatering sumps/wells, electrical services, discharge hoses, and pre-treatment and sedimentation controls.
3. Provide the estimated average and peak dewatering rates, in gallons per minute (gpm), for each anticipated phase of the project, including Supporting Calculations.
5. Provide details and methods for providing back-up power and emergency procedures for maintaining continuous, uninterrupted dewatering operations as required.
6. Provide manufacturer's literature and/or cut-sheets for pumps, sump/well casing and screen, filter pack, pre-treatment equipment, and sedimentation controls.
7. The Water Control Plan shall be coordinated with the requirements of Section 02270, EROSION AND SEDIMENT CONTROL, and other specification sections as required. All submittals shall be received and approved by the Owner/Engineer prior to ordering materials and starting work.

1.3 QUALIFICATIONS

- A. Dewatering Contractor: Minimum of 5 years of past experience with similar soil and groundwater conditions on at least 5 projects completed within the same time period.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. The Contractor shall provide all materials and equipment including, but not limited to pipe, fittings, valves, pumps, tools, fuel, and other appurtenances in suitable and adequate quantities as required in order for controlling water.
- B. Absorbent pads, if required, shall be high-performance universal dimpled gray, 15" x 19", Heavy Weight, Model No. GPB100H as manufactured/supplied by Absorbents Online.com.
- C. Absorbent booms, if required, shall be floating type, 4-inch-diameter x 10-feet-long,

**SECTION 02400
DEWATERING, CONTROL, AND DIVERSION OF WATER**

Model No. WB410SN, as manufactured/supplied by Absorbents Online/com.

PART 3 EXECUTION

3.1 SURFACE DRAINAGE

- A. The Contractor shall intercept and divert surface drainage away from the work sites by the use of dikes, curb walls, ditches, sumps or other means. The Contractor shall design surface drainage systems so that they do not cause erosion on or off the site. Surface runoff shall be controlled to prevent entry of water into excavations. The Contractor shall remove drainage systems when no longer needed.

3.2 WATER CONTROL IN EXCAVATIONS

- A. The Contractor shall use water control methods, which are appropriate to the ground conditions, the construction operations, and the requirements of these Contract Documents. The methods shall involve the removal of water within the excavation and may involve the removal of water outside the excavation or construction of facilities to control water movement into the excavation.
- B. Water control measures shall minimize adverse effects of elevated or reduced water pressure on the work, the surrounding ground, and adjacent facilities and structures. The water control measures shall be designed and operated so as to prevent the removal of in-situ materials, or loosening or softening of in-situ materials within the excavation. The Contractor shall control groundwater and surface water such that construction operations will be performed without adverse effects of water, and to prevent hydrostatic uplift pressures until construction has been completed.
- C. Water shall be controlled and maintained 2 feet below the lowest working elevation during periods when the sub-grade is being compacted, when earth materials are being placed, when geotextiles, geogrids, grout, and/or concrete (except tremie concrete) are being placed, and at such other times as is necessary for the safe execution of the work. If the Contractor encounters large amounts of water entering the excavation, immediate action shall be taken to control the water inflow. A large amount of inflow requiring control shall be defined as that which adversely affects the performance of the work or has the potential of causing loss or damage to adjacent property or structures.

3.3 PROPERTY LOSSES FROM REMOVAL OR DISTURBANCE OF GROUNDWATER

- A. Any structure, including but not limited to buildings, bridges, streets, and utilities that become unstable or vulnerable to settlement due to removal or disturbance of groundwater shall be supported immediately by the Contractor. Support shall include but not be limited to bracing, underpinning, or compaction grouting.
- B. All loss or damage arising from the removal or disturbance of groundwater, including but not limited to claims for subsidence and the loss of structure support, that may occur in the prosecution of the work shall be sustained and borne by the Contractor.
- C. If the Contractor needs to correct the damage resulting from his operations, the Owner may, 30 days after notifying the Contractor in writing, proceed to repair,

**SECTION 02400
DEWATERING, CONTROL, AND DIVERSION OF WATER**

rebuild or otherwise restore such damaged property as may be deemed necessary, and the cost thereof shall be deducted from compensation which may be or become due the Contractor under this Contract.

END OF SECTION

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**SECTION 02512
BITUMINOUS CONCRETE PAVEMENT**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Work under this section includes installation of bituminous concrete pavement as shown on the Drawings. All existing pavement to remain, but damaged as a result of the construction operations, shall be restored in accordance with the requirements of this section.
- B. Related Sections
 - 1. Section 02760 – Pavement Markings

1.2 QUALITY ASSURANCE/SUBMITTALS

- A. For actual finishing of bituminous concrete surfaces and operation of the required equipment, use only personnel who are thoroughly trained and experienced in the skills required and whose prime occupation is this type of work.
- B.
- C. The Contractor shall submit to the Engineer, data showing gradation and composition of materials proposed.

1.3 PRODUCT HANDLING

- A. Use all means necessary to protect bituminous concrete pavement materials before, ongoing, and after installation, and to protect the installed work and materials of all other trades.
- B.
- C. In the event of damage, immediately make all repairs and replacements necessary as directed by the Engineer.

PART 2 PRODUCTS

2.1 PAVEMENT SUBBASE AND BASE

- A. Select Backfill/Gravel Borrow as specified in Section 02200, EARTHWORK.

2.2 BITUMINOUS CONCRETE BASE COURSE

- A. Conform to Item M.03.01, RIDOT Class 19 of the Standard Specifications.

2.3 BITUMINOUS CONCRETE SURFACE COURSE

- A. Conform to Item M.03.01, RIDOT Class 9.5 of the Standard Specifications.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Contractor Requirements:
 - 1. The Contractor shall perform and complete the construction work within the limits indicated in a continuous manner so that the pavement placement work may proceed without delay.
 - 2. The Contractor shall, at all times, prior to acceptance of the work by the Engineer,

**SECTION 02512
BITUMINOUS CONCRETE PAVEMENT**

maintain the completed work in a safe and satisfactory condition. All maintenance and repairs to the completed work shall be subject to the approval of the Engineer. All maintenance and repairs of the completed work shall be provided by the Contractor at no additional cost to the Owner.

3. Equipment used in the work will be subject to approval by the Engineer and shall be maintained in a satisfactory condition at all times. Unless otherwise permitted, compaction shall be performed by use of suitable power rollers. Finished surfaces of new asphaltic surface courses shall finish even with adjacent existing pavement surfaces and be free from surface irregularities.
4. It shall be the responsibility of the Contractor to perform the work in accordance with all customs and requirements of the controlling authorities, in addition to those specified herein, and at no additional expense to the Owner.
5. Existing pavements outside of the indicated work limits which are damaged as a result of the Contractor's operations, including base courses, bituminous tack coats and surface courses, shall be replaced by the Contractor in accordance with the requirements specified herein for the respective type of pavement; in a satisfactory manner and at no additional cost to the Owner.
6. In case of settlement or other defects in replaced pavements, the Contractor shall cut out, replace, restore or repair the damaged pavements at no additional expense to the Owner. This requirement shall remain in effect for 2 years after the acceptance of the work by the Owner. The pavement area to be replaced, repaired or restored, shall extend from edge of pavement to edge of pavement, a minimum of 20 feet on either side of the defect; final pavement course shall be feathered to provide a smooth finish detail.
 - a. The Contractor shall furnish a bond for the 2-year duration to the Owner insuring that the corrective repairs will be performed if necessary.
7. This Contract shall not be considered complete until the replacement, restoration and repair of pavements has been provided in a manner satisfactory to the Owner, and in accordance with the requirements specified herein.

3.2 SUBGRADE PREPARATION

- A. Prepare subgrade by shaping and compacting to proper grade. Remove all soft and yielding material from the subgrade and replace with suitable material. Compact thoroughly using approved types of rollers or tampers. Ensure that all areas are stable and dry.
- B. Saw cut edges of existing pavement along even lines to obtain undisturbed, clean and sound vertical edges of original pavement.
- C. Do not store or stockpile materials on the subgrade.

3.3 SUBBASE PLACEMENT

- A. As specified in Section 02200, EARTHWORK.

**SECTION 02512
BITUMINOUS CONCRETE PAVEMENT**

- B. All compaction shall be performed with approved equipment well suited to the location and material being compacted. Use heavy vibratory rollers where heavy equipment is authorized.
- C. Do not operate heavy equipment closer to a foundation than a horizontal distance equal to height of backfill above bottom of foundation. Compact remaining area with hand tampers suitable for the material being compacted. Place and compact backfill around pipes with care to avoid damage.

3.4 BITUMINOUS CONCRETE BASE COURSE

- A. Place Bituminous Concrete Base Course on the Subbase in compacted thickness as shown on the Drawings. The Bituminous Concrete Base Course shall be provided in accordance with the applicable requirements of the Standard Specifications.

3.5 BITUMINOUS CONCRETE SURFACE COURSE

- A. Place Bituminous Concrete Surface Course on the Bituminous Base Course in compacted thickness as shown on the Drawings. The finished pavement surface shall conform to the proposed grades of the roadway or as directed, and shall be flush with all existing pavements unless otherwise indicated.
- B. The Bituminous Concrete Surface Course shall be provided in accordance with the applicable requirements of the Standard Specifications.

3.6 COMPACTION

- A. The Contractor shall conform to the Standard Specifications for pavement operations, including compaction.
- B. Immediately after the bituminous mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling. The surface shall be rolled when the mixture is in the proper condition and when rolling does not cause undue displacement, cracking, and shoving.
- C. The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction while the mixture is in a workable condition. Rolling shall be continued until all roller marks are eliminated and the minimum densities have been obtained based upon 95 percent of laboratory Marshall Densities made in the proportions of the job-mix formula, AASHTO T-245.
- D. Steel-Tired, Static Weight Rollers: The maximum roller speeds for steel-tired static-weight rollers for various operations shall not exceed three miles per hour. The wheels of steel-wheel rollers shall be kept moist and clean to prevent adhesion of the fresh material, but an excess of water will not be permitted.
- E. Vibratory Rollers: The maximum roller speed for vibratory rollers shall be that which provides impact spacing less than the compacted lift thickness. When vibratory rollers are used in the static mode, roller speed shall not exceed three miles per hour.
 - 1. When an approved vibratory roller is used for breakdown rolling in a vibratory mode, intermediate rolling will not be required. When the vibratory roller is used

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BITUMINOUS CONCRETE PAVEMENT**

for finish rolling it shall be used in the static mode. Rolling shall progress continuously until the specified density of the corresponding daily plant Marshall Density, AASHTO T-245 has been attained. Finish rolling shall continue until all roller marks are eliminated.

- F. Unless otherwise directed, rolling shall start longitudinally at the sides and gradually progress toward the center of the pavement except on super-elevated curves where the rolling shall begin on the low side and progress to the high side, overlapping on successive trips by at least one-half the width of tandem rollers and uniformly lapping each preceding track.
- G. The motion of the rollers shall be slow enough at all times to avoid displacement of the hot mixture. Any displacement resulting from reversing the direction of the rollers or from any other cause shall be satisfactorily corrected.
- H. When the base course, binder course, or wearing course fails to comply with the density requirements herein specified, additional compaction may be applied when permitted and as directed, to attain the required density. If satisfactory density cannot be attained the Contractor shall be required to remove and replace, at his own expense, any affected area which is proven to be structurally inadequate and/or incapable of maintaining material integrity.
- I. Any mixture that becomes loose and broken, mixed with dirt, or is in any way defective, shall be removed and replaced with fresh hot mixture which shall be compacted to conform to the surrounding area. Any area showing an excess or deficiency of bituminous material shall be removed and replaced.
- J. In the event of dispute as to the creditability of the results, density shall be determined from cores taken from the pavement.

END OF SECTION

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**SECTION 02760
PAVEMENT MARKINGS**

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. All labor, materials, accessories, service and equipment necessary to furnish and apply all pavement striping, and traffic markings as indicated on the Drawings and as specified herein.
 - a. New painted temporary pavement markings
 - b. New epoxy resin final pavement markings
 - c. Replacement of pavement markings disturbed as part of construction activities
 - d. Replacement of pavement markings in permanent pavement repair areas

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. There is no individual payment item for pavement markings. This item is incidental to the pavement repair items and payment shall be included within those Bid items.

B. Related Sections

1. Special Conditions – 6.19 Sequence of Work
2. Section 01040 – Coordination and Site Conditions
 - a. Rhode Island Department of Transportation – Physical Alteration Permit
3. Section 02740 - Bituminous Concrete Pavement

1.3 REFERENCES

- A. AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing, 1986 Edition, as amended.
- B. Rhode Island Department of Transportation – Standard Specifications for Road and Bridge Construction, 2004 Edition (Amended March 2018)

1.4 SUBMITTALS

- A. Submit manufacturers literature and material specifications for all materials furnished under this Section including, but not limited to, the following:
 1. Pavement marking
 - a. Temporary Waterborne Striping
 - b. Final Epoxy Striping
 2. Paint application system and equipment

**SECTION 02760
PAVEMENT MARKINGS**

- B. Submit affidavit stating submitted materials comply with the above-noted Standards.

1.5 WARRANTY

- A. Provide a written one-year unconditional guarantee against fading, chipping, peeling, wearing, etc.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Waterborne Pavement Marking Paint
 - 1. In accordance with the Rhode Island Department of Transportation - Standard Specifications for Road and Bridge Construction, 2004 Edition (Amended March 2018), pavement marking materials shall conform to the requirements of Section M.17.02.
- B. Epoxy Resin Pavement Markings
 - 1. In accordance with the Rhode Island Department of Transportation - Standard Specifications for Road and Bridge Construction, 2004 Edition (Amended March 2018), epoxy resin pavement marking materials shall conform to the requirements of Section M.17.04.

PART 3 EXECUTION

3.1 PREPARATION

- A. Protect the building, walks, pavement, curbing, trees, shrubs, mulch, etc. from over-spray of paint and damage.
- B. Clean and sweep all areas to be striped or re-striped of all sand, dirt, grease, oil, etc. Large areas of tar, grease or foreign materials may require sand blasting, steam cleaning or power brooming to accomplish complete removal.
- C. Application of markings shall not proceed until authorization is received from Engineer.
- D. Bituminous concrete pavements shall have been in place for at least 7 days prior to the application of pavement markings.

3.2 INSTALLATION

- A. Installation shall be by skilled workers who are experienced and normally employed in the Work of installing pavement markings.
- B. All permanent pavement repair areas shall be repainted to match the original pavement markings.
 - 1. Painting shall be in accordance with Section T.20 of the Rhode Island Department of Transportation - Standard Specifications for Road and Bridge Construction, 2004 Edition (Amended March 2018).

**SECTION 02760
PAVEMENT MARKINGS**

- C. All stripes shall be applied one coat with brush, spray or marking machine over dry clean pavement only.
- D. All paint shall be installed at a rate of not more than 300 linear feet of 4-inch wide lines per gallon of paint (approximately 0.016 inch dry film thickness).
- E. If material is applied to the pavement by an extrusion method, one side of the shaping die shall be the pavement and the other three sides are contained by, or are part of, suitable equipment for controlling the flow of paint.
- F. After application and proper drying time, the material shall show no appreciable deformation or discoloration under traffic conditions and in air and/or road temperature ranging from 0 - 120 degrees F.
- G. The stripe shall maintain its original dimensions and placement. The exposed surface shall be free from tack. Cold ductility of the material shall permit normal movement with the pavement surface without chipping or cracking.
- H. No paint or pavement marking material shall be heated above the temperature allowed per manufacturer's instructions.
- I. All painting shall be performed in a neat and workmanlike manner.
- J. Lines shall sharp and clear with no feathered edging or fogging.
- K. If, for any reason, material is spilled or tracked on the pavement or any markings applied by Contractor, in Engineer's judgment, are not acceptable, then the Contractor shall remove such material by a method that shall not damage the roadway surface and is acceptable to Engineer, clean and prepare the surface for a reapplication of markings, and reapply the markings as directed.
- L. Application Requirements
 - 1. Marking paint shall be applied at a rate of 100 to 115 square feet per gallon.
 - 2. Material application temperature shall be from 40°F to 120°F.
 - 3. No thinners shall be used for the above listed pavement marking applications except in accordance with the manufacturer's specifications and at the direction of the Engineer.
 - 4. Minimum finished paint thickness shall be 15 mils.

3.3 PROTECTION

- A. Markings shall remain protected until sufficiently dry to bear traffic on roadways that are open to traffic.
- B. Precautions shall be taken to prevent tracking by tires of the striping equipment.

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PAVEMENT MARKINGS**

- C. Traffic cones used for protection of markings shall be not less than 28 inches in height.

END OF SECTION

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**SECTION 03200
REINFORCING STEEL**

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Furnish and install steel reinforcement and associated items required for cast-in-place concrete, complete.
- B. Related Sections
 - 1. Section 03310 – Concrete

1.2 REFERENCES

- A. The latest editions of the following American Concrete Institute (ACI) publications shall be used as reference standards:
 - 1. ACI SP-66 ACI Detailing Manual
 - 2. ACI 301 Specifications for Structural Concrete for Buildings
 - 3. ACI 318 Reinforced Concrete
- B. The latest editions of the following American Society for Testing and Materials (ASTM) publications shall be used as reference standards:
 - 1. ASTM A775 Specifications for Deformed and Plain Billet. Steel Bars for Concrete Reinforcement.

1.3 SUBMITTALS

- A. Submit the following:
 - 1. Mill test reports for each shipment of reinforcement. Identify reports with specific lots in shipments and submit prior to use of reinforcement in work.
 - 2. Chemical composition of reinforcing steel. Ladle analysis to identify percentage of carbon, phosphorous, manganese and sulfur present in steel.
 - 3. Welder's certification in accordance with AWS D1.4 prior to welding, when welding is indicated or specified.
 - 4. Shop and placement drawings to the Owner/Engineer for review prior to fabrication, which show:
 - a. All construction and expansion joints.
 - b. Reinforcement detailed in conformance with ACI SP-66.
 - c. Support bars and details of bar supports including type, size and spacing.
 - d. Marking for each reinforcement item.

1.4 PRODUCT HANDLING

- A. Protection:
 - 1. Use all means necessary to protect reinforcing steel before, during, and after installation and to protect the installed work and materials of all other trades.
 - 2. Store in a manner to prevent excessive rusting and fouling with dirt, grease, and other bond-breaking coatings.
 - 3. Use all necessary precautions to maintain identification after the bundles are broken.

- B. Replacements:

**SECTION 03200
REINFORCING STEEL**

1. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner/Engineer and at no additional cost to the Owner.

PART 2 PRODUCTS

2.1 DOMESTIC PREFERENCES FOR PROCUREMENTS

Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States, as defined by 2 CFR § 200.322(b) (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts and purchase orders for work or products under this contract.

2.2 REINFORCING STEEL

- A. Reinforcing steel shall be new, free from rust, and epoxy coated conforming to ASTM A-615, Grade 60.

2.3 OTHER MATERIALS

- A. All other materials not specifically described but required for a complete and proper installation of reinforcing steel, shall be as selected by the Contractor subject to the approval of the Owner/Engineer.

PART 3 EXECUTION

3.1 SURFACE CONDITIONS

- A. Inspection:
 1. Prior to installation of the work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 2. Verify that reinforcing steel may be installed in strict accordance with all pertinent codes and regulations, the approved Shop Drawings, and the original design.
- B. Discrepancies:
 1. In the event of discrepancy, immediately notify the Owner/Engineer.
 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.2 BENDING

- A. General:
 1. Fabricate all reinforcement in strict accordance with the approved Shop Drawings.
 2. Do not use bars with kinks or bends not shown on the Drawings or on the approved Shop Drawings.
 3. Do not bend or straighten steel in a manner that will damage the material.
- B. Design:

**SECTION 03200
REINFORCING STEEL**

1. All bends shall be in accordance with ACI 318. Bend all bars cold.

3.3 PLACING

A. General:

Before the start of concrete placement, accurately place all reinforcing steel, positively securing and supporting by concrete blocks, metal chairs or spacers, or by metal hangers.

B. Splicing:

1. Horizontal Bars:

- a. Place bars in horizontal members with minimum laps at splices sufficient to develop the strength of the bars in accordance with ACI 318.
- b. Bars may be wired together at laps except at points of support of the member, at which points preserve the clear space described above.
- c. Wherever possible, stagger the splices of adjacent bars.

2. Other Splices:

Make only those other splices that are indicated on the approved Shop Drawings or specifically approved by the Owner/Engineer.

3. Dowels:

Place all required steel dowels and securely anchor them into position before the concrete is placed. Dowels placed into existing concrete shall be securely anchored with high strength epoxy as indicated on the Drawings.

4. Obstructions:

In the event conduits, piping, inserts, sleeves, or any other items interfere with placing reinforcement as indicated on the Drawings or as otherwise required, immediately consult the Engineer and obtain approval of new procedure before placing concrete.

5. Use pre-cast concrete bar support blocks for foundation mats.

3.4 MINIMUM COVER

- A. Unless otherwise shown on the Drawings, provide the following minimum cover:**

	Minimum Cover
Concrete cast against and permanently exposed to earth (e.g. footings)	3"
Stirrups, ties, and spirals	1 ½"

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REINFORCING STEEL**

All other bars

2"

3.5 CLEANING REINFORCEMENT

- A. Steel reinforcement, at the time concrete is placed around it, shall be free from rust scale, loose mill scale, oil, paint, and all other coatings which will destroy or reduce the bond between steel and concrete.

END OF SECTION

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**SECTION 03310
CONCRETE**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. The work covered under this Section includes, but is not limited to, the furnishing of all plant, labor, equipment, appliances and materials including all joint fillers and sealants, and performing all operations in connection with providing cast-in-place and precast concrete in accordance with these specifications and in close conformity with the lines and grades shown.

1.2 QUALITY CONTROL

- A. As the work progresses, the Contractor shall be required to perform tests and/or engage a testing laboratory in order to confirm that the quality of the concrete will be in conformance with these Specifications. Concrete shall be sampled in accordance with Section 01400, QUALITY CONTROL.
- B. Compression test specimens shall be made by the Contractor and cured according to ASTM C31.
- C. If the concrete is found to be substandard as a result of the initial testing, then any additional work for replacement or removal of the substandard concrete or retesting shall be at the Contractor's expense.

1.3 SUBMITTALS

- A. Submit the following:
 - 1. Batch plant details giving the location, layout, capacity, and type of batch plant and the method of transporting concrete from the batch plant to the work location. The Contractor shall provide documentation that all requirements of local authorities and regulations have been met.
 - 2. Notification to the Engineer of concrete deliveries, a minimum of 24 hours in advance of the scheduled delivery. Include within this notification, class and quantity of concrete, frequency of trucks, and ordered slump.
 - 3. Description of methods for cold-weather and hot weather batching, mixing and delivery.
 - 4. Concrete Mix Designs:
 - i. Submit concrete mix designs to the Engineer within a minimum of fourteen (14) calendar days prior to placement. Include a complete list of materials including admixtures, applicable reference specifications, and copies of test reports showing the mix has been successfully tested to produce the properties specified.
 - ii. For each design mix, provide:

**SECTION 03310
CONCRETE**

- a. Certifications by the concrete supplier that ingredients conform to the specified requirements.
 - b. Certifications by the concrete supplier that design mix conforms to specified strength, unit weight, maximum size aggregate, air entrainment, slump and to be free of soluble chloride content.
 - c. Coarse aggregate gradation, specific gravity, and dry rodded unit weight.
 - d. Identify admixtures, and planned dosage rate.
5. Compression test results.

PART 2 PRODUCTS

2.1 DOMESTIC PREFERENCES FOR PROCUREMENTS

Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States, as defined by 2 CFR § 200.322(b) (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts and purchase orders for work or products under this contract.

2.2 CEMENT

- A. Cement shall conform to ASTM C150, Type II. The tricalcium aluminate (C3A) content shall not be less than 4 percent to provide protection for the reinforcement and shall not be more than 10 percent to obtain concrete that is resistant to sulfate attack.

2.3 FLY ASH

- A. Fly ash shall comply with ASTM C 618, Type F; except that the maximum calcium oxide content shall be 8 percent, the maximum available alkalis shall be 1.5 percent, and the maximum allowable loss on ignition shall be 6 percent. Report the chemical analysis of the fly ash in accordance with ASTM C311. Evaluate and classify fly ash in accordance with ASTM D 5759. If fly ash is utilized to improve the concrete properties, its content shall not exceed 20 percent by weight of the total cementitious material.

2.4 GRANULATED BLAST FURNACE SLAG

- A. Slag shall be finely ground, hydraulic cement, produced from granulated blast furnace slag, a product of the iron making process. It shall conform to ASTM C 989-99 as manufactured by Lafarge Necem or approved equal. If Slag is utilized to improve the concrete properties, its content shall not exceed 40 percent by weight of the total cementitious material.

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CONCRETE**

2.5 MICROSILICA

- A. Microsilica shall be Force 10,000 as manufactured by Grace Construction Products or approved equal. If Microsilica is utilized to improve the concrete properties, its content shall not exceed 10 percent by weight of the total cementitious material.

2.5 AGGREGATES

- A. Aggregates shall conform to ASTM C33, except as modified herein:
 - a. The combined aggregates in the mixture (coarse, fine, and blending sizes) shall be well graded from coarse to the fine with not more than 18 percent nor less than 8 percent, unless otherwise permitted, of the combined aggregate retained on any individual sieve, with the exception that:
 - i. The No. 50 may have less than 8 percent retained;
 - ii. Sieves finer than No. 50 shall have less than 8 percent retained; and
 - iii. The coarsest sieve may have less than 8 percent retained.

Use blending sizes where necessary to provide a well graded combined aggregate. Reports of individual aggregates shall include standard concrete aggregate sieve sizes including 1-1/2", 1", 3/4", 1/2", 3/8", No. 4, No. 8, No. 16, No. 30, No. 50, and No. 100.

- b. Provide aggregates for exposed concrete from one source. Do not provide aggregates that react deleteriously with alkalis in cement. Refer to Appendix Paragraph entitled "TEST METHOD C227" of ASTM C33 for expansion limits. Provide aggregate containing no deleterious material properties as identified by ASTM C295.
- c. Aggregate, when subjected to five (5) cycles of the soundness test in accordance with ASTM C88, shall not have a loss greater than 10 percent when sodium sulfate is used.
- d. Where a size designation is indicated, the designation indicates the nominal maximum size of the coarse aggregate.
- e. Where historical data is used, provide aggregates from the same sources and having the same size ranges as those used in the concrete represented by historical data.

2.6 WATER

- A. Water shall comply with the requirements of ASTM C 94 and the chloride and sulfate limits in accordance with ASTM D 512 and ASTM D 516. Mixing water shall not contain more than 500 parts per million of chlorides as Cl and not more than 100 parts per million of sulfates as SO₄. Minimize the amount of water in the mix. Water shall be fresh, clean, and potable; free from injurious

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CONCRETE**

amounts of oils, acids, alkalis, salts, organic materials, or other substances deleterious to concrete.

2.7 PRE-CAST CONCRETE VAULT LIDS

- A. Pre-cast concrete for the vault lid shall conform to Section 601 of the Standard Specifications, Class HP, $f'_c = 5,000$ psi.

2.8 PREFORMED JOINT FILLER

- A. Preformed joint filler shall be extruded closed cell polyethylene foam as manufactured/supplied by Foamtech or approved equal.

2.9 POLYURETHANE JOINT SEALANT

- A. Polyurethane joint sealant shall be Sikaflex-1a as manufactured/supplied by Sika or approved equal.

2.10 BONDING AGENTS

- A. Bonding agent shall be SIKAFLEX-Armatec® 110 EpoCem®, as manufactured/supplied by SIKA or approved equal. Apply in accordance with the manufacturer's instructions.

2.11 NON-SHRINK GROUT

- A. Non-Shrink Grout shall be Sikatop-123 plus as manufactured/supplied by Sika Corp. or approved equal.

2.11 THREADED ANCHORS

- A. Drilled and grouted threaded anchors shall be the lengths and diameters shown and shall conform to the requirements of ACI 355.4 and ASTM F1554, Gr. 55.

2.11 EPOXY GROUT

- A. Epoxy grout for drilling and grouting anchors shall be HILTI HIT-RE 500 V3, as manufactured/supplied by the Hilti Corporation, or approved equal.

PART 3 EXECUTION

3.1 PREPARATION OF EQUIPMENT AND PLACE OF DEPOSIT

- A. Before placement, all equipment for mixing and transporting the concrete shall be cleaned, and all debris and ice shall be removed from the places to be occupied by the concrete. Forms shall be thoroughly wetted (except in freezing weather) or oiled. The reinforcement shall be thoroughly cleaned of ice, dirt, rust scale or other deleterious coatings.

3.2 PLACING CONCRETE

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- A. Concrete shall be placed only when the Engineer is present.
- B. Concrete work shall be in accordance with ACI 318 Building Code Requirements for Reinforced Concrete, latest edition.
- C. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to re-handling or flowing. The placing of concrete shall be carried on at such a rate that concrete is at all times plastic and flows readily. No concrete that has been contaminated by foreign material shall be used nor shall re-tempered concrete be used.
- D. Do not exceed a free vertical drop of 3 feet from the point of discharge.
- E. Concrete delivery trucks shall not have aluminum chutes. All chutes shall be round-bottomed.
- F. When placing is started, it shall be carried on as a continuous operation until placement is completed.
- G. All concrete shall be thoroughly consolidated during placement by vibration or other approved means. It shall be thoroughly worked around embedded fixtures and into the corners of the forms.

3.3 VIBRATING CONCRETE

- A. Vibration of concrete shall comply with the requirements of ACI 301, ACI 309R, and ASTM A775 for epoxy-coated bar using vibrators with a minimum frequency of 9000 vibrations per minute (VPM). Use only high cycle or high frequency vibrators. Motor-in-head 60 cycle vibrators may not be used.
- B. For walls and deep beams, use a minimum of two vibrators with the first to melt down the mixture and the second to thoroughly consolidate the mass. Furnish a spare, working, vibrator on the job site whenever concrete is placed.
- C. Operate internal vibrators with the vibratory element submerged in the concrete. Do not use vibrators to transport the concrete in the forms.
- D. Place concrete in 18" maximum vertical lifts. Insert and withdraw vibrators approximately 18" apart. Penetrate at least 8" into the previously placed lift with the vibrator when more than one lift is required. Extract the vibrator using a series of up and down motions to drive the trapped air out of the concrete and from between the concrete and the forms.
- E. External vibrators shall be used on the exterior surface of the forms when internal vibrators do not provide adequate consolidation of the concrete.
- F. For slab construction, use vibrating screeds designed to consolidate the full depth of the concrete.

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CONCRETE**

- G. Where beams and slabs intersect, use an internal vibrator to consolidate the beam.
- H. Do not vibrate concrete placed with anti-washout admixtures.
- I. Vibrators shall be equipped with rubber vibrator heads.

3.4 COLD WEATHER REQUIREMENTS

- A. Proceed in accordance with ACI 306.1. Unless otherwise approved, the temperature of the mixed concrete shall be not less than 50° F and not more than 90° F at the time of placing it in the forms. Obtain approval prior to placing concrete when the ambient temperature is below 40 ° F or when concrete is likely to be subjected to freezing temperatures within 24 hours. Cover concrete and provide sufficient heat to maintain 60 ° F minimum for a minimum of 5 days after placing the concrete, and above 40 ° F for an additional 9 days. The temperature shall then be gradually lowered to that of the surrounding atmosphere.

3.5 HOT WEATHER REQUIREMENTS

- A. Placement of concrete in hot weather shall be performed in accordance with ACI 305R. Maintain required concrete temperature using Figure 2.1.5, "EFFECT OF CONCRETE TEMPERATURES, RELATIVE HUMIDITY, AND WIND VELOCITY ON THE RATE OF EVAPORATION OF SURFACE MOISTURE FROM CONCRETE" in ACI 305R to prevent the evaporation rate from exceeding 0.2 pound of water per square foot of exposed concrete per hour. Cool ingredients before mixing or use other suitable means to control concrete temperature and prevent rapid drying of newly placed concrete. Shade the fresh concrete as soon as possible after placing. Start curing when the surface of the fresh concrete is sufficiently hard to permit curing without damage. Provide water hoses, pipes, spraying equipment, and water hauling equipment, where job site is remote to water source to maintain a moist concrete surface throughout the curing period. Provide burlap cover or other suitable permeable material with fog spray or continuous wetting of the concrete when weather conditions prevent the use of either liquid membrane curing compound or impervious sheets. For vertical surfaces, protect forms from direct sunlight and add water to top of structure once concrete is set.

3.6 FORMS

- A. Forms shall conform to shapes, lines and dimensions of the members as called for on the Drawings and shall be sufficiently tight to prevent leakage of concrete. They shall be properly braced or tied together so as to maintain position and shape.
- B. Forms shall be removed in such a manner as to ensure the complete safety of the structure. In no case shall supporting forms or shoring be removed until members have acquired sufficient strength to support their weight and imposed loads safely.

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CONCRETE**

3.7 JOINTS

- A. Construction Joints: Concrete shall be installed to the limits indicated with the use of construction joints as shown on the Drawings or as approved by the Engineer. Additional construction joints, other than those indicated on the Drawings, shall not be incorporated into the work without the approval of the Engineer.
- B. All concrete between consecutive joints shall be placed in a continuous operation.
- C. Thoroughly clean the surface of the concrete at construction joints and remove laitance prior to placing adjoining concrete.
- D. Apply a bonding agent to surface of hardened concrete in accordance with the manufacturer's requirements prior to placing adjoining concrete.

3.8 CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Formed Surfaces: Cure formed concrete surfaces, including underside of cap and other similar surfaces. If forms remain during curing period, continue curing for the remainder of the curing period.
- C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure all unformed surfaces.
- D. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding and bull floating or darbying concrete, but before float finishing.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods.
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in the widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

**SECTION 03310
CONCRETE**

3.9 EXPOSED EDGES

- A. All exposed edges and reentrant corners not otherwise detailed on the Drawings shall have a minimum $\frac{3}{4}$ " chamfer.

3.10 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Use patching mortar to repair and patch defective areas when approved by the Engineer. Remove and replace concrete that cannot be repaired and patched to the Engineer's satisfaction.
- B. Repairing Formed Surfaces: Repair and patch all voids at form ties and all surface defects including color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, remove snap-tie cones, cut out honeycombs, rock pockets, and voids more than $\frac{1}{2}$ inch (13mm) in any dimension in solid concrete, but not less than 1 inch (25mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat all holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried.
 - 2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
- C. Patching Mortar: Mix dry-pack patching mortar, consisting of one-part Portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.

3.11 FINISH

- A. Concrete shall receive a smooth form finish as follows:
 - 1. Use form facing materials that will produce a smooth, hard, and uniform texture on the concrete.
 - 2. Arrange facing materials in an orderly, symmetrical manner, with a minimum number of seams.
 - 3. Limit form face deflection.
 - 4. Avoid the use of defective or damaged materials that will impair the concrete surface texture.

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CONCRETE**

- B. The smooth form finish shall provide a neat and uniform appearance, provide a smooth and non-abrasive surface, and if done properly shall not require a smooth rubbed finish.
- C. Exposed concrete that will receive foot traffic shall receive a non-skid broom finish.

END OF SECTION

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**SECTION 05500
MISCELLANEOUS METALS**

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Aluminum ladders.
 - 2. Fasteners for Miscellaneous Metals items.
 - 3. Safety climb device.
- B. Related Sections
 - 1. Section 09900 – Painting.

1.2 REFERENCES

- A. American Iron and Steel Institute (AISI), Stainless Steel Types
 - 1. AISI Type 316 - Stainless Steel Bolts, Bars, Sheets and Shapes
 - 2. AISI Type 316L - Stainless Steel Bars, Shapes, Plates and Pipe
- B. American National Standards Institute (ANSI)
 - 1. A14.3, Safety Requirements for Fixed Ladders
- C. American Society for Testing and Materials (ASTM)
 - 1. A143, Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedures for Detecting Embrittlement
 - 2. B209, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
 - 3. B210, Standard Specification for Aluminum-Alloy Drawn Seamless Tubes
 - 4. B221, Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
 - 5. B241, Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube
 - 6. B316, Standard Specification for Aluminum and Aluminum-Alloy Rivet and Cold Heading Wire and Rods
 - 7. B429, Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube
- D. International Conference of Building Officials (ICBO): Evaluation Reports for Concrete and Masonry Anchors.
- E. Occupational Safety and Health Administration (OSHA):
 - 1. 29 CFR 1910.27, Fixed Ladders.

**SECTION 05500
MISCELLANEOUS METALS**

1.3 SUBMITTALS

A. Product Data:

1. Concrete and Masonry Drilled Anchors:
 - a. Manufacturer's product descriptions.
 - b. Specific installation instructions, including drilled hole size, preparation, placement procedures, and instructions for safe handling of anchoring systems.
2. Safety Climb System:
 - a. Manufacturer's product descriptions.
 - b. Certification of system load ratings.
 - c. Installation, Operation, and Maintenance Instructions.
3. Prime Paint.
4. Bitumastic Troweling for Surfaces in Contact with Concrete.

B. Shop Drawings:

1. Detailed shop drawings, including erection drawings, for all metal fabrications, including welding and fastener information:
 - a. Submit for approval before fabrication.
 - b. Identify sizes of structural members, method of assembly, anchorage, and connection to other members.

C. Quality Control Submittals:

1. Connection Design Calculations: stamped by a licensed professional structural engineer, registered in the State where the work will be performed, properly coordinated with Shop Drawings.
2. Concrete and Masonry Drilled Anchors:
 - a. Current test data or ICBO evaluation report.
 - b. Adhesive Anchor Installer Certification.
3. Ladders:
 - a. Certification of load and fatigue tests to verify design loads and deflection on rungs and rungs to side rail attachments:
 - 1) Testing shall be certified by an independent testing laboratory.
 - 2) Design loads shall be applied and released for a minimum of 200,000 cycles to demonstrate fatigue resistance and service life.

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MISCELLANEOUS METALS**

- 3) Deflection shall be checked periodically and shall not exceed $L/360$ at any time under full load.
- 4) After completion of testing, all components and attachments shall be inspected and certified to be free of cracks, distortion, permanent deformation (bending) or other signs of defect or damage.

1.4 QUALITY ASSURANCE

- A. Shop Assembly: Pre-assemble items in shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Handle and stack materials carefully to prevent deformation or damage.

PART 2 PRODUCTS

- A. Unless otherwise indicated, meet the following requirements:

2.1 DOMESTIC PREFERENCES FOR PROCUREMENTS

Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States, as defined by 2 CFR § 200.322(b) (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts and purchase orders for work or products under this contract.

2.2 MANUFACTURED UNITS

- A. Concrete and Masonry Drilled Anchors
 1. General: Materials shall be AISI Type 316 stainless steel.
 2. Adhesive Anchors:
 - a. Threaded Rod:
 - 1) ASTM F593 stainless steel threaded rod, diameter as shown on Drawings.
 - 2) Length as required, to provide minimum depth of embedment.
 - 3) Clean and free of grease, oil, or other deleterious material.
 - 4) For hollow-unit masonry, provide galvanized or stainless steel wire cloth screen tube to fit threaded rod.

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- b. Adhesive:
 - 1) Disposable, self-contained cartridge system capable of dispensing both components in the proper mixing ratio and fitting into a manually or pneumatically operated caulking gun.
 - 2) Two-component, designed to be used in adverse freeze/thaw environments, with gray color after mixing.
 - 3) Cure Temperature, Pot Life, and Workability: Compatible for intended use and environmental conditions.
 - 4) Nonsag, with selected viscosity base on installation temperature and overhead application where applicable.
- c. Manufacturers and Products:
 - 1) ITW Ramset/Red Head, Wood Dale, IL; Epcon Ceramic 6 Epoxy or A7 Adhesive Anchor System. (Use only Epcon A7 Adhesive System for hollow masonry.)
 - 2) Hilti, Inc., Tulsa, OK; HIT Injection Adhesive System, HIT HY 200 (HIT HY 70 for hollow masonry).
 - 3) Powers Rawl, New Rochelle, NY; Power Fast Epoxy Injection Gel Cartridge System.
 - 4) Simpson Strong-Tie Co., Inc., Pleasanton, CA; Epoxy-Tie Adhesive ET.
 - 5) Covert Operations, Inc., Long Beach, CA; CIA-Gel 7000 Epoxy Anchors.
 - 6) Unitex, Kansas City, MO; Pro-Poxy 300 and Pro-Poxy 300 Fast Epoxy Adhesive Anchors.
- 3. Adhesive Threaded Inserts:
 - a. Stainless steel, internally threaded insert.
 - b. Manufacturer and Product: Hilti, Inc., Tulsa, OK; HIS-R Insert with HIT HY 200 adhesive.

B. Fasteners:

- 1. Use stainless steel material types as indicated in Data Sheet – 05500 – A, FASTENER MATERIALS SCHEDULE, at the end of this section.
- 2. Bolts, Nuts and Washers: ASTM A325, galvanized to ASTM A153 for galvanized members.
- 3. Anchor Bolts: ASTM F1554, Grade 36
- 4. High-Strength Bolts: ASTM A325 or ASTM A490, Type 1, plain uncoated. Bolt length and thread length shall be as required for the connection type shown, with hardened washers as required.

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MISCELLANEOUS METALS**

5. Tension Control (TC) Bolts:
 - a. ASTM F1852, Type 1, equivalent to A325 or A490
 - b. Manufacturers:
 - 1) LeJeune Bolt Company, Burnsville, MN.
 - 2) Nucor Fastener, Saint Joe, IN.
 - 3) T.S. Bolts and Tools, Bristol Machine Co., Walnut, CA.
 - 4) Haydon Bolts, Philadelphia, PA.
 - 5) Vermont Fasteners Manufacturing, Swanton, VT.
 - 6) Or equal.
- C. Aluminum Ladders
 1. The ladders and all ancillary equipment shall be fabricated in accordance with the details on the plans and described herein and shall comply with the requirements of ANSI-A14.3.
 2. Ladder side rail shall be 1-1/2 inch diameter Schedule 40 pipe, alloy 6063-T6, 6105-T5 or 6105-T6. Ladder side rail pipe shall conform to ASTM B429 or ASTM B221.
 3. Ladder rungs shall be extruded aluminum, alloy 6063-T6, with a non-slip power grip surface, flat 1 inch wide serrated top surface, straight sides and a semi-circular bottom. The rung sides and bottom shall have striations at approximately 5/16 inch centers for gripping surface.
 4. Other ladder system components:
 - a. Brackets and base flanges - aluminum.
 - b. Anchors, bolts, and screws - stainless steel (unless noted otherwise on the plans).
 - c. The contractor shall refer to the plans for ladder system details and component locations.
 5. The ladder shall be designed for the following minimum loads:
 - a. Rungs - 250 lbs concentrated load plus 30 percent impact. (Maximum rung deflection shall not exceed L/360). The design load shall be applied at the center of the rung over a 4 inch wide area.
 - b. Side rails - 250 lbs. live load plus 30% impact concentrated between any two consecutive attachments.
 6. Submit test reports for approval to verify design loads and deflection on rungs and rungs to side rail attachments. Testing shall be certified by an independent testing laboratory. Design loads shall be applied and released for a minimum of 200,000 cycles to demonstrate fatigue resistance and service life. Deflection shall be checked periodically and

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shall not exceed $L/360$ at any time under full load. After completion of testing all components and attachments shall be inspected and certified to be free of cracks, distortion, permanent deformation (bending) or other signs of defect or damage.

2.3 ACCESSORIES

- A. Electrolysis Isolators: All dissimilar metals shall be isolated over their full length with 1/8 inch thick neoprene unless otherwise noted.

2.4 SHOP FABRICATION

A. General

1. All dimensions shall be verified at the site before fabrication is started.
2. Galvanized items shall be shop fabricated and completely welded prior to galvanizing.
3. Fit and shop assemble items in largest practical sections, for delivery to site.
4. Fabricate items with joints tightly fitted and secured.
5. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
6. Exposed Mechanical Fastenings: Flush countersunk screws or bolts, unobtrusively located, consistent with the design of the component, except where specifically noted otherwise.
7. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
8. Miscellaneous metals work shall be formed true to detail, with clean, straight, sharply defined profiles and smooth surfaces of uniform color and texture and free from defects impairing strength or durability.
9. Metal Surfaces: For fabrication of miscellaneous metal work that will be exposed to view, use only materials that are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
10. Connections and accessories shall be of sufficient strength to safely withstand stresses and strains to which they will be subjected. Accessories and connections to steel or cast iron shall be steel, unless otherwise specified. Threaded connections shall be made so that the threads are concealed by fittings.
11. Castings shall be of good quality, strong, tough, even-grained, smooth, free from scale, lumps, blisters, sand holes, and defects of any kind which render them unfit for the service for which they are intended. Castings shall be thoroughly cleaned and will be subjected to a hammer inspection in the field by the Engineer. Finished surfaces

**SECTION 05500
MISCELLANEOUS METALS**

shown on the Drawings and/or specified shall be machined to a true plane surface and shall be true and seat at all points without rocking. Allowances shall be made in the patterns so that the thickness specified or shown shall not be reduced in obtaining finished surfaces. Castings will not be acceptable if the actual weight is less than 95% of the theoretical weight computed from the dimensions shown.

12. No splicing of any member or part of the work will be allowed where full-length members are commercially available.
13. Screws, bolts, studs and other connecting devices required in the work shall be concealed wherever possible. On all finish work where fasteners must be exposed to view, they shall be countersunk and finished flush with the exposed surfaces. All screws, bolts and other fastening devices used for exterior work shall be aluminum, bronze or stainless steel, whichever is appropriate for the work in which it is to be used.

B. Fabrication Tolerances:

1. Squareness: 1/8 inch maximum difference in diagonal measurements.
2. Maximum Offset Between Faces: 1/16 inch.
3. Maximum Misalignment of Adjacent Members: 1/16 inch.
4. Maximum Bow: 1/8 inch in 48 inches.
5. Maximum Deviation From Plane: 1/16 inch in 48 inches.

2.5 FINISHES

A. Aluminum Materials

1. Finished contact surfaces shall be finished in accordance with the Aluminum Association designation AA-M32C22A41.

2.6 SOURCE QUALITY CONTROL

- A. Miscellaneous Metals fabrications, materials, and workmanship shall be subjected to inspection and testing in mill, shop and/or field by the Engineer.
- B. Maintain inspection and quality control records of shop and field work.
- C. The Contractor shall maintain records of each impact wrench used in the shop, showing dates, sizes of bolts tested and the corresponding torque values. Certified copies of the records shall be made available to the Engineer, upon request.
- D. Notify the Engineer prior to start of any fabrication, the start of sandblasting and painting, or other phases of work so as to afford them reasonable opportunity to inspect work.
- E. Furnish the Engineer upon request, with the following:
 1. Complete sets of approved Shop Drawings and corrective work procedures at fabricating shop(s) and in field.

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MISCELLANEOUS METALS**

2. Cutting lists, order lists, material bills, and shipping lists.
 3. Information as to time and place of all rollings and shipments of material to shops and field.
 4. Representative sample pieces requested for testing.
 5. Full and ample means and assistance for testing materials, and proper facilities for inspection of work, in mill, shop and field.
- F. Do not remove any marks or tags identifying rejected work.
- G. Any work found deficient shall be corrected or replaced in accordance with these specifications. Deficient welds shall be cut out to sound material and re-welded. Deficient assemblies shall be taken apart, corrected and reassembled, using new materials as required. ASTM A490 bolts shall not be reused. ASTM A325 bolts may be retightened once only.
- H. Miscellaneous Metals work that has been rejected by the Engineer in the mill or shop shall be corrected without delay and at no expense to the Owner.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Verify that anchor bolts, bearing plates, and other items furnished to be installed by others have been installed correctly.

3.2 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. All steel and aluminum surfaces to come in contact with exposed concrete or masonry shall receive a protective coating of an approved heavy bitumastic troweling applied in accordance with manufacturer's instructions prior to installation.

3.3 FIELD FABRICATION

- A. No fabricated section shall be cut in the field without the permission of the Engineer.
- B. All miscellaneous metals work shall be formed true to detail, with clean, straight, sharply defined profiles and smooth surfaces of uniform color and texture and free from defects impairing strength or durability.
- C. Connections and accessories shall be of sufficient strength to safely withstand stresses and strains to which they will be subjected. Accessories and connections to steel or cast iron shall be steel, unless otherwise specified. Threaded connections shall be made so that the threads are concealed by fittings.

**SECTION 05500
MISCELLANEOUS METALS**

- D. No splicing of any member or part of the work will be allowed where full-length members are commercially available. Jointing shall meet the approval of the Engineer.
- E. Screws, bolts, studs and other connecting devices required in the work shall be concealed wherever possible. On finish work where fasteners must be exposed to view, they shall be countersunk and finished flush with the exposed surfaces. Screws, bolts and other fastening devices used for exterior work shall be aluminum, bronze or stainless steel, whichever is appropriate for the work in which it is to be used.

3.4 INSTALLATION

- A. Install all items furnished except items to be imbedded in concrete or masonry. Items to be attached to concrete or masonry after such work is completed shall be installed in accordance with the details shown. Fastening to wood plugs in masonry will not be permitted.
- B. Where aluminum contacts wood, apply two coats of aluminum metal and masonry paint to the wood.

3.5 ANCHOR BOLTS

- A. Accurately locate and hold anchor bolts in place with templates at the time concrete is placed.
- B. Use sleeves for location adjustment and provide two nuts and one washer per bolt of same material as bolt.

3.6 CONCRETE AND MASONRY DRILLED ANCHORS

- A. Begin installation only after concrete or masonry to receive anchors has attained design strength.
- B. Install in accordance with manufacturer's instructions.
- C. Provide minimum embedment, edge distance, and spacing as follows, unless indicated otherwise by anchor manufacturer's instructions or shown otherwise on Drawings:

Anchor Type	Min. Embedment (bolt diameters)	Min. Edge Distance (bolt diameters)	Min. Spacing (bolt diameters)
Wedge	9	6	12
Expansion and Sleeve	4	6	12
Undercut	9	12	16
Adhesive	9	9	13.5

- D. Use only drill type, bit type, and diameter recommended by anchor manufacturer. Clean hole of debris and dust with brush and compressed air.

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MISCELLANEOUS METALS**

- E. For undercut anchors, use special undercutting drill bit and rotary hammer drill and apply final torque as recommended by anchor manufacturer.
- F. When embedded steel or rebar is encountered in the drill path, slant drill to clear obstruction. If drill must be slanted more than 10 degrees to clear obstruction, notify Engineer for direction on how to proceed.
- G. Adhesive Anchors:
 - 1. Do not install adhesive anchors when temperature of concrete is below 40 degrees F or above 100 degrees F.
 - 2. Remove any standing water from hole with oil-free compressed air. Inside surface of hole shall be dry where required by manufacturer's instructions.
 - 3. Do not disturb anchor during recommended curing time.
 - 4. Do not exceed maximum torque as specified in manufacturer's instructions.

3.7 FIELD QUALITY CONTROL

- A. The fact that Miscellaneous Metals work has been accepted at the shop shall not prevent its final rejection at the job site, even after it has been erected, if it is found to be defective in any way.
- B. Miscellaneous Metals erection, materials, and workmanship shall be subjected to inspection and testing in mill, shop and/or field by the Engineer.
- C. Maintain inspection and quality control records of shop and field work.
- D. Furnish the Engineer upon request, with the following:
 - 1. Complete sets of approved Shop Drawings and corrective work procedures at fabricating shop(s) and in field.
 - 2. Full and ample means and assistance for testing materials, and proper facilities for inspection of work, in mill, shop and field.
- E. Do not remove any marks or tags identifying rejected work.
- F. Any work found deficient shall be corrected or replaced in accordance with these specifications, without delay and at no expense to the Owner.

3.8 ADJUST AND CLEAN

- A. Touch-Up Painting - Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as approved for use for shop painting.
- B. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- C. For galvanized surfaces, clean field welds, bolted connections and abraded areas and touch-up all damage using suitable touch up material complying with ASTM A780.

3.9 FASTENERS

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MISCELLANEOUS METALS**

- A. Anti-seizing Lubricant: Use on all stainless steel threads.
- B. Do not use adhesive anchors to support fire-resistive construction or where ambient temperature will exceed 120 degrees F.
- C. Provide fasteners in accordance with Data Sheet – 05500 – A, unless otherwise noted on the drawings.

DATA SHEET 05500-A

Fastener Materials Schedule

Service Use and Location	Product	Remarks
Drilled Anchors for Metal Components to Concrete (Ladders, Handrail Posts, Electrical Panels, and other Equipment)		
Exterior and Interior Wet and Dry Areas	Hot-dip galvanized steel or stainless steel sleeve, wedge, or expansion anchors, or stainless steel adhesive anchors	Use zinc-plated undercut anchors for overhead and ceiling installations.
Submerged or Corrosive Areas	Stainless steel adhesive anchors	

END OF SECTION

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**SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER – ALLENS AVENUE
SECTION 08110
STEEL DOORS AND FRAMES**

OCTOBER 2022

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Hollow metal doors and frames
- B. Related Sections
 - 1. Section 08710, Door Hardware – Templates for hardware, reinforcing and cut-outs in doors and frames and the furnishing of all hardware.
 - 2. Section 09900, Painting – Finish painting of doors and frames.

1.2 REFERENCES

- A. ANSI A250.8 (Formerly SDI-100) – Recommended Specifications for Standard Steel Doors and Frames
- B. Steel Door Institute (SDI-105) – Recommended Erection Instruction for Steel Frames
- C. Door and Hardware Institute – Recommended Locations for Builder's Hardware
- D. ANSI A115 – Specification for Door and Frame Preparation for Hardware
- E. ASTM A90 – Standard Test Method for Weight (Mass) of Coating on Iron or Steel Articles with Zinc or Zinc-Alloy Coatings
- F. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- G. ASTM A568 – Standard Specification for Steel, Sheet, Carbon and High-Strength, Low Alloy, Hot-Rolled Sheet and Cold-Rolled Sheet
- H. ASTM A653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process
- I. ASTM A1008 – Standard Specification for Steel, Sheet, Cold-Rolled Carbon, Structural, High Strength Low-Alloy and High Strength Low Alloy with Improved Formability
- J. ASTM A1011 – Standard Specification for Steel, Sheet and Strip – Hot Rolled, Carbon Structural, High Strength Low-Alloy and High Strength Low Alloy with Improved Formability
- K. ASTM C1363 – Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Guarded Hot Box
- L. ASTM E2074 – Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side Hinged and Pivot Swinging Door Assemblies
- M. NFPA 80 – Standard for Fire Doors and Windows

1.3 SUBMITTALS

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- A. Product Data – Submit manufacturer’s technical product data substantiating that products comply with these requirements.
- B. Shop Drawings – Submit for fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.
 - 1. Provide schedule of doors and frames using same reference number for details and openings as those on Contract Drawings.
 - 2. Indicate coordination of glazing frames and stops with glass and glazing requirements.

1.4 QUALITY ASSURANCE

- A. Provide doors and frames complying with ANSI A250.8 and as specified in this section.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver hollow metal work in cartons or crates to provide protection during transit and job storage. Provide additional sealed plastic wrapping for factory finished doors.
- B. Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Engineer; otherwise, remove and replace damaged items as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4 inch high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove carton immediately. Provide ¼ inch spaces between stacked doors to promote air circulation.

PART 2 PRODUCTS

2.1 DOMESTIC PREFERENCES FOR PROCUREMENTS

Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States, as defined by 2 CFR § 200.322(b) (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts and purchase orders for work or products under this contract.

2.2 ACCEPTABLE MANUFACTURERS

- A. Manufacturer – Subject to compliance with requirements, provide products by one of the following:
 - 1. Ceco Door Products
 - 2. Curries Mfg., Inc.
 - 3. E.H. Frederick Co.
 - 4. The Philipp Manufacturing Co.

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- 5. Pioneer Industries, Inc.
- 6. or equal.

2.3 MATERIALS

- A. Hot-Rolled Steel Sheets and Strip – Commercial quality carbon steel, pickled and oiled, complying with ASTM A1011 and ASTM A568.
- B. Cold-Rolled Steel Sheets – Commercial quality carbon steel, complying with ASTM A1008 and ASTM A568.
- C. Galvanized Steel Sheets – Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A90 and ASTM A653, G60 zinc coating, mill phosphatized.

2.4 STEEL DOORS AND FRAMES FABRICATION, GENERAL

- A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at project site. Comply with ANSI A250.8 Level 3, extra heavy-duty, Model 3, minimum 14-gauge faces for doors and 14 gauge for frames.
- B. Fabricate frames, concealed stiffeners reinforcement, edge channels and moldings from either cold-rolled or hot-rolled steel (at fabricator's option).
- C. Fabricate doors, panels, and frames from galvanized sheet steel. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16-gauge inverted steel channels.
- D. Exposed Fasteners – Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.
- E. Thermal-Rated (Insulating) Assemblies – Provide doors which have been fabricated as thermal insulating door and frame assemblies and tested in accordance with ASTM C236.
 - 1. Unless otherwise indicated, provide thermal-rated assemblies with U factor of $0.24 \text{ Btu}/(\text{hr.} \times \text{ft}^2 \times ^\circ\text{F})$
- F. Fire-Rated Door Assemblies – Where fire-rated door assemblies are indicated or required, provide fire-rated door and assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed, and labeled in accordance with ASTM E2074 "Standard Methods of Fire Tests of Door Assemblies" by a nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.
- G. Finish Hardware Preparation – Prepare doors and frames to receive mortised and concealed finish hardware in accordance with templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 series specifications for door and frame preparation for hardware.
- H. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied finish hardware may be done at project site.

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- I. Locate finish hardware as indicated on final shop drawings or, if not shown, in accordance with "Recommended Locations for Builder's Hardware", published by the Door and Hardware Institute.

2.5 STANDARD STEEL FRAMES

- A. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of types and styles as shown on Drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricate frames of minimum 14-gauge cold-rolled furniture steel.
 1. Fabricate frames with mitered and welded corners.
- B. Door Silencers – Except on weather-stripped frames, drill stops to receive 3 silencers on strike jambs of single-swing frames and 2 silencers on heads of double-swing frames.
- C. Plaster Guards – Provide 26-gauge steel plaster guards or mortar boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.

2.6 SURFACE PREPARATION AND PAINTING

- A. Surface preparation and prime painting is provided under this Section. Prime paint shall conform to the requirements and be of the same manufacturer as that provided under Section 09900 – Painting. Coordinate prime painting with the Painting contractor. Finish painting is included under Section 09900.

PART 3 EXECUTION

3.1 INSTALLATION

- A. General – Install standard steel doors, frames, and accessories in accordance with final shop drawings, manufacturer's data, and as herein specified.
- B. Placing Frames – Comply with provisions of SDI-105 "Recommended Erection Instructions For Steel Frames", unless otherwise indicated.
 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.
 2. In masonry construction, locate 3 wall anchors per jamb at hinge and strike levels.
 3. At poured-in-place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.
 4. Install fire-rated door frames in accordance with NFPA Std. No. 80.
 5. In metal stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels. In open steel stud partitions, place studs in

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wall anchor notches and wire tie. In closed steel stud partitions, attach wall anchors to studs with tapping screws.

C. Door Installation

1. Fit hollow metal doors accurately in frames, within clearances specified in ANSI A250.8.
2. Place fire-rated doors with clearances as specified in NFPA Standard No. 80.

3.2 ADJUST AND CLEAN

- A. Prime Coat Touch-up – Immediately after erection, touch-up prime coat as specified in Section 09900 – Painting.
- B. Protection Removal – Immediately prior to final inspection, remove protection plastic wrappings from prefinished doors.
- C. Final Adjustments – Check and re-adjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating conditions.

END OF SECTION

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**SECTION 08310
ACCESS HATCHES**

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Door hatches and frames
- B. Related Sections
 - 1. Section 03310 - Concrete
 - 2. Section 03399 – Precast Concrete Structures
 - 3. Section 05500 – Miscellaneous Metals
 - 4. Section 09900 - Painting

1.2 REFERENCES

- A. AASHTO M306
- B. ASTM A36 – Standard Specification for Carbon Structural Steel
- C. OSHA 29 CFR Part 1910.27 – Fixed Ladders

1.3 SUBMITTALS

- A. Product Data - Submit manufacturer's product data, roughing in diagrams, and installation instructions for each type and size of hatch. Provide operating instructions and maintenance information.
- B. Shop Drawings - Submit shop drawings for special components and installations which are not fully dimensioned or detailed on manufacturer's data sheets.

1.4 HANDLING

- A. Deliver materials in manufacturer's original packaging.
- B. Store materials in a dry, protected, well-vented area. Thoroughly inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.
- C. Remove protective wrapping immediately after installation (if applicable).

1.5 JOB CONDITIONS

- A. Verify that other trades with related work are completed before installation.
- B. Mounting surfaces shall be straight and secure; substrates shall be of proper width.
- C. Coordinate installation with other trades before starting.

1.6 WARRANTY/GUARANTEE

**SECTION 08310
ACCESS HATCHES**

- A. Manufacturer's standard warranty: Materials shall be free of defects in material and workmanship for a period of 5 years from the date of substantial completion.

1.7 QUALITY ASSURANCE

- A. Castings shall be smooth, free of blowholes, and imperfections. Hinges and latches shall act freely and without binding.

PART 2 PRODUCTS

2.1 DOMESTIC PREFERENCES FOR PROCUREMENTS

Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States, as defined by 2 CFR § 200.322(b) (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts and purchase orders for work or products under this contract.

2.2 MANUFACTURER

- A. USF Fabrication, Hialeah, FL
- B. Approved equal.

2.3 HATCHES - GENERAL

- A. Where indicated on the Drawings, provide prefabricated road hatches.
- B. Hatch assembly shall be airport extra heavy-duty ductile iron construction.
- C. Hatch shall include the following:
 - 1. ½" angle with special anchoring system welded to the frame and a skirt for a 12" top slab
 - 2. 3/8" diamond plate reinforced for AASHTO HL-93 wheel loads
 - 3. 316 stainless steel hold open arm, hinges and hinge pins
 - 4. Cover bolted to frame with zinc plated grade 8 bolts
 - 5. Stainless Steel compression springs for lift assistance
- D. Hinges, latches, hasps, handles and all miscellaneous hardware shall be stainless steel.
- E. Doors shall be equipped with flush drop handle that does not protrude above the cover.
- F. Doors shall be equipped with an automatic hold-open arm complete with vinyl grip handle to permit easy one hand release.
- G. All hooks, anchor bolts, angles and all miscellaneous hardware shall be Type 316 stainless steel.
- H. Hatches shall be equipped with a push bar for emergency exit.

**SECTION 08310
ACCESS HATCHES**

2.4 SAFETY CLIMB DEVICE

A. General:

1. Shall conform to OSHA 29 CFR Part 1910.27.
2. Belt and harness shall withstand minimum drop test of 250 pounds in 6 foot free fall.
3. Fall Prevention System Material: Aluminum 6061-T6.

B. Components and Accessories:

1. Main Components: Sleeve or Trolley, Safety Harness, and Carrier or Climbing Rail.
2. Ladder rung clamps with aluminum mounting brackets and hardware.
3. Removable extension kit with tiedown rod or trolley gate, mandrel, and carrier rail for ladders under manholes and hatches.

C. Manufacturers and Products:

1. North Safety Products, Specialty Products Division, Toronto, Ontario, Canada; Saf-T-Climb Fall Prevention System.
2. Miller Equipment, Franklin, PA; Sure Track Rail System.
3. TS Products, St. Charles, IL; TS Safety Rail System.

2.5 SAFETY NET

- A. All hatches shall be provided with a safety net fall through prevention system. Net shall be made of heavy-duty polyester, with a minimum breaking strength of 5,000 pounds. All hooks, anchor bolts, angles and all miscellaneous hardware shall be type 316 stainless steel.

2.6 HATCH SCHEDULE

Location	Size	Quantity
Allens Avenue	40" x 78"	2

PART 3 EXECUTION

3.1 FIELD INSTALLATION

- A. Hatches shall be installed where indicated in accordance with manufacturer's printed instructions and approved submittals.
- B. Hatches shall be free from binding.

END OF SECTION

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**SECTION 08710
DOOR HARDWARE**

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Finish hardware including the following:

- a. Hinges and butts.
- b. Lock cylinders and keying.
- c. Locks, latches, and bolts.
- d. Closers and door control devices.
- e. Door trim units.
- f. Weatherstripping.
- g. Thresholds.
- h. Protection plates.
- i. Silencers.
- j. Surface bolts.

B. Related Sections

1. Section 08110 - Steel Doors and Frames

1.2 REFERENCES

- A. ANSI/BHMA A156 series.
- B. ADA Accessibility Guidelines for Buildings and Facilities.
- C. Door and Hardware Institute - Recommended Locations for Builders' Hardware.

1.3 QUALITY ASSURANCE

- A. Manufacturer - Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from only one manufacturer (except where noted in the Schedule), although several may be indicated as offering products complying with requirements.
- B. Comply with all Federal, State, and Local Codes for handicap accessibility.

1.4 SUBMITTALS

- A. Product Data - Submit manufacturers' technical product data for each item of hardware. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.
- B. Hardware Schedule - Submit final hardware schedule in manner indicated below. Coordinate hardware with doors, frames and related work to ensure

**SECTION 08710
DOOR HARDWARE**

proper size, thickness, hand function and finish of hardware. Refer to Section 08110, Steel Doors and Frames.

1. Final Hardware Schedule Content - Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
 - a. Type, style, function, size and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Catalog cuts of each item.
 - d. Fastenings and other pertinent information.
 - e. Location of hardware set cross-referenced to indications on Drawings both on floor plans and in door schedule.
 - f. Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
 - g. Mounting locations for hardware.
 - h. Door and frame sizes and materials.
- C. Submittal Sequence - Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of the hardware schedule.
 1. Keying Schedule - Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks have been fulfilled.
- D. Templates - Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work, to confirm that adequate provisions are made for proper location and installation of hardware.

1.5 PRODUCT HANDLING

- A. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Packaging of hardware is the responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.
- C. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.

**SECTION 08710
DOOR HARDWARE**

1.6 KEY CONTROL SYSTEM

- A. Provide hardware and keys compatible with Owners existing key control system.

PART 2 PRODUCTS

2.1 DOMESTIC PREFERENCES FOR PROCUREMENTS

Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States, as defined by 2 CFR § 200.322(b) (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts and purchase orders for work or products under this contract.

2.2 GENERAL

- A. Coordinate all hardware with the Engineer.
- B. Hand of Door - Drawings show direction of swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
- C. Manufacturer's Name Plate - Do not use manufacturer's products which have manufacturer's name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with required UL labels and as otherwise acceptable to Engineer.
 - 1. Manufacturer's identification will be permitted on rim of lock cylinders only.
- D. Base Metals - Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for the applicable hardware units by applicable ANSI/BHMA A156 series standard for each type hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise approved.
- E. Fasteners - Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.
- F. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.
- G. Provide concealed fasteners for hardware units that are exposed when door is closed, except to the extent that no standard units of the type specified are available with concealed fasteners. Do not use thru-bolts for installation

**SECTION 08710
DOOR HARDWARE**

where bolt head or nut on the opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each thru-bolt or use hexscrew fasteners.

- H. Tools and Maintenance Instructions for Maintenance - Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of finish hardware.
- I. Hardware Finishes
 - 1. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set for color and texture.
 - 2. Provide finishes that match those established by BHMA.
 - 3. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for the applicable units of hardware by referenced standards.
 - 4. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze and aluminum, except as otherwise indicated. The suffix "-NL" is used with standard finish designations to indicate "no lacquer".
 - 5. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18, Materials & Finishes Standard, including coordination with the traditional US finishes shown by certain manufacturers for their products.

2.3 ACCEPTABLE MANUFACTURERS

- A. Hinges and Butts - Hager Companies, Lawrence Hardware, Pemko Manufacturing Company, Stanley, or equal.
- B. Locks - Sargent, Schlage, Yale, or equal.
- C. Bolts - Ives, Rockwood, Corbin-Russwin, Sargent, Stanley, or equal.
- D. Kickplates/Armorplates - Baldwin, Brookline, Cipco, Hiawatha, Liberty, Rockwood, Corbin-Russwin, or equal.
- E. Overhead Closers - Corbin-Russwin, Dorma, LCN, Sargent, Yale, or equal.
- F. Door Control Devices - Baldwin, Brookline, Corbin-Russwin, Door Controls Int'l., Glynn-Johnson, Ives, Rockwood, or equal.
- G. Door Trim Units - Baldwin, Brookline, Rockwood, or equal.
- H. Door Stripping and Seals - National Guard, Pemko, Reese, Zero, or equal.
- I. Thresholds - National Guard, Pemko, Reese, Zero, or equal.

**SECTION 08710
DOOR HARDWARE**

- J. Exit Devices – Corbin-Russwin, Sargent, Yale, or equal.

2.4 HINGES AND BUTTS

- A. Comply with ANSI/BHMA A156.1
- B. Templates - Provide only template-produced units.
- C. Screws - Furnish Phillips flat-head or machine screws for installation of units. Finish screw heads to match surface of hinges or pivots.
- D. Hinge Pins - Except as otherwise indicated, provide hinge pins as follows:
 - 1. Steel Hinges - Steel pins.
 - 2. Exterior Doors - Non-removable pins.
 - 3. Out-swing Corridor Doors - Non-removable pins.
 - 4. Interior Doors - Non-rising pins.
 - 5. Tips - Flat button and matching plug, finished to match leaves.
 - 6. Number of Hinges - Provide number of hinges indicated but not less than 3 hinges per door leaf for doors 90-inches or less in height and one additional hinge for each 30-inches of additional height.
- E. Provide Stanley Model No. FBB199 - US32D, 4½ by 4½ inch hinges, Hager Model BB1199, or equal.

2.5 LOCK CYLINDERS AND KEYING

- A. General - Meet with the Engineer and Owner to finalize keying requirements and obtain final instructions in writing.
- B. Metals - Construct lock cylinder parts from brass/bronze, stainless steel and nickel silver.
- C. Comply with Engineer's instructions for masterkeying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.
 - 1. Permanently inscribe each key with number or lock that identifies cylinder manufacturer key symbol, and notation "DO NOT DUPLICATE".
- D. Key Material - Provide keys of nickel silver only.
- E. Key quantity - Furnish 5 change keys for each lock.
 - 1. Deliver keys to Owner.
- F. Equip all locks with interchangeable cores constructed of solid brass for final and construction cores.

2.6 LOCKS, LATCHES AND BOLTS

- A. Cylindrical Locks - Comply with ANSI/BHMA 156.2 Series 4000 Grade 1.

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DOOR HARDWARE**

- B. Mortise Locks - Comply with ANSI/BHMA A156.13 Series 1000 Grade 1 operational, Grade 3 security.
- C. Strikes - Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.
 - 1. Provide dust-proof strikes for foot bolts, except where special threshold construction provides non-recessed strike for bolt.
 - 2. Provide roller type strikes where recommended by manufacturer of the latch and lock units.
- D. Lock Throw - Provide 5/8 inch minimum throw of latch and deadbolt used on pairs of doors.
 - 1. Provide ½ inch minimum throw on other latch and deadlock bolts.
- E. Rabbeted Doors - Where rabbeted door stiles are indicated, provide special rabbeted front on lock and latch units and bolts.
- F. Exit devices comply with ANSI/BHMA A156.3.
- G. For exterior single doors, provide Sargent Model No. 8913 ETL – US32D lockset/exit device, or equal.

2.7 CLOSERS AND DOOR CONTROL DEVICES

- A. Door control devices comply with ANSI/BHMA A156.4.
- B. Size of Units - Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.
 - 1. Provide regular arms for all overhead closers, except as otherwise indicated.
 - 2. Provide closers with reduced opening force for all handicap accessible doors.
 - 3. Provide closers with stops where door stops are not indicated or appropriate.
- C. Provide grey resilient parts for exposed bumpers.
- D. Provide Yale Security Inc. Model No. 3521, 3501, PA3521, or PA3501 door closer, equal by Sargent, or equal. See door hardware sets for particular application. All closers should be US32D finish.
- E. Provide Rockwood Model No. 400 wall stop, or equal.
- F. Provide Ives Model No. 20 door silencer, or equal
- G. Provide Ives Model No. 180 lockguard, equal by Hager, or equal.

2.8 DOOR TRIM UNITS

**SECTION 08710
DOOR HARDWARE**

- A. Fasteners - Provide manufacturer's standard exposed fasteners for door trim units (push plates, pull plates, kick plates, edge trim, and similar units); either machine screws or self-taping screws.
- B. Fabricate protection plates (armor, kick or mop) not more than 1½ inch less than door width on stop side and not more than ½ inch less than door width on pull side, by 16 inches high or as otherwise indicated on the Finish Hardware Schedule.
 - 1. Metal Plates - Stainless steel, 0.050 inch (US 18 ga.).
 - 2. Plastic Plates – ¼ inch thick, beveled on 4 edges.
- C. Provide Rockwood Model No. 70C, 4 inch by 16 inch SS push plate, or equal.
- D. Provide Rockwood Model No. 107 x 70C SS pull plate, or equal.
- E. Provide Rockwood 16 inch by 34 inch SS kickplate, equal by Hager, or equal.

2.9 WEATHERSTRIPPING

- A. Provide continuous weatherstripping at each edge of every exterior door leaf. Provide non-corrosive fasteners as recommended by manufacturer for application indicated.
- B. Replaceable Seal Strips - Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer.
- C. Weatherstripping at Jambs and Heads:
 - 1. Provide bumper-type resilient insert and metal retainer strips, surface-applied unless shown as mortised or semi-mortise, of following metal, finish and resilient bumper material:
 - 2. Extruded aluminum with natural anodized finish; 0.062 inch minimum thickness of main walls and flanges.
 - 3. Extruded bronze (brass), finish to match door/frames, 0.05 inch minimum thickness of main walls and flanges.
 - 4. Provide Pemko Model No. 305CR weatherstrip, National Guard Products Model 140PA, or equal.
- D. Weatherstripping at Door Bottoms
 - 1. Provide threshold consisting of contact type resilient insert and metal housing of design and size shown; of following metal, finish, and resilient seal strip:
 - a. Extruded aluminum with natural anodized finish; 0.062 inch minimum thickness of main walls and flanges.
 - b. Solid neoprene wiper or sweep seal complying with MIL R 6055, Class II, Grade 40.

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DOOR HARDWARE**

- c. Provide Pemko Model No. 315CN door bottom sweep, equal by National Guard Products, or equal.

2.10 THRESHOLDS

- A. General - Except as otherwise indicated provide standard aluminum threshold unit of type, size and profile as shown or scheduled.
- B. Exterior Hinged/Pivoted Doors - Provide units not less than the width of the door frame, formed to accommodate change in floor elevation where indicated, fabricated to accommodate door hardware and to fit door frames, and as follows:
 - 1. For out-swinging doors provide rabbeted type units with replaceable weatherstrip insert in stop.
- C. Provide Pemko Model No. 172A threshold, Reese Model S426A, or equal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations of "ADA Accessibility Guidelines for Buildings and Facilities - Federal Register/Vol. 56, No. 144, 7-26-91", and except as may be otherwise directed by the Engineer.
- B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface projections with finishing work specified under other specifications. Do not install surface-mounted items until finishes have been completed on the substrate.
- C. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units that are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant.

3.2 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as indicated for the application made.
- B. Clean adjacent surfaces soiled by hardware installation.

**SECTION 08710
DOOR HARDWARE**

- C. Final Adjustment - Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- D. Instruct Owner's personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

3.3 FINISH HARDWARE SCHEDULE

- A. Manufacturer's names and specific hardware models are designated in section 2 and in the hardware sets to indicate type and quality of hardware items required for each type of door indicated. However, the Contractor is not limited to the specific manufacturers listed in the specification for each hardware set.
- B. Refer to the list of acceptable manufacturers listed previously for each door hardware item.

HW-1 (Exterior Single Door)

1½ pr.	Hinges
1	Lockset/Exit Device
1	Threshold
1	Door Bottom Sweep
1 set	Weatherstrip
1	Closer - No. PA3521xUS32D – Yale
1	Lockguard
1	Kick Plate

END OF SECTION

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**SECTION 09900
PAINTING**

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Surface preparation and application of coatings.
- B. The Work to be done under these Sections is shown on the Drawings, Sheet No. 15 of 22
- C. Related Sections
 - 1. Section 08110 – Steel Doors and Frames

1.2 REFERENCES

- A. The Society for Protective Coatings (SSPC):
 - 1. Surface Preparation Specifications
 - a. SP-1 - Solvent Cleaning
 - b. SP-2 - Hand Tool Cleaning
 - c. SP-3 - Power Tool Cleaning
 - d. SP-5 - White Metal Blast Cleaning
 - e. SP-6 - Commercial Blast Cleaning
 - f. SP-7 - Brush-Off Blast Cleaning
 - g. SP-10 - Near-White Blast Cleaning
 - 2. SP-16 – Brush Off Blast of Galvanized and Non-Ferrous Metals
 - 3. National Association of Pipe Fabricators (NAPF):
 - a. NAPF 500-03-01 - Solvent Cleaning
 - b. NAPF 500-03-02 – Hand Tool Cleaning
 - c. NAPF 500-03-03 – Power Tool Cleaning
 - d. NAPF 500-03-04 – Abrasive Blast Cleaning for Ductile Iron Pipe
 - e. NAPF 500-03-05 – Abrasive Blast Cleaning for Cast Ductile Iron Pipe
 - 4. SSPC-PA 1 – Shop, Field and Maintenance Painting
 - 5. SSPC-PA 2 - Measurement of Dry Coating Thickness with Magnetic Gages
 - 6. SSPC Visual Standards SSPC VIS 1-89
- B. Occupational Safety and Health Administration (OSHA) Standards
- C. American Society for Testing and Materials (ASTM)

**SECTION 09900
PAINTING**

1. ASTM D4263 – Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
- D. International Concrete Repair Institute (ICRI)
 1. ICRI 310 - Selecting And Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair

1.3 SCOPE OF WORK

- A. Items of work include but are not limited to the surface preparation and coating of the following:
 1. Interior and exterior sides of hollow metal steel doors and frames
 2. Exposed electrical conduit, conduit fittings, and outlet boxes
 3. Back painting items that will be inaccessible to finish painting once installed including but not limited to lintels, door frames, window frames, clip angles, structural steel, miscellaneous metals
- B. Coatings are not required for glass, stainless steel, chrome, cadmium plate or aluminum that is not in contact with concrete.
- C. Ventilation, dehumidification, and temperature control equipment required to provide and maintain the proper environment for worker protection and for coating application and curing.

1.4 SUBMITTALS

- A. Applicator qualifications for general coatings.
- B. Applicator qualifications for H₂S resistant coatings
- C. List of coating products and systems proposed, giving brand, type and manufacturer.
- D. Product for product listing of the manufacturer's coating system showing a comparison with the specified coating systems in Schedules 09900-A and 09900-B.
- E. Manufacturer's current printed recommendations and product data sheets for each system, and ASTM performance criteria.
- F. Paint manufacturer's compatibility guide, to be a complete listing of all compatible paint systems/combinations produced by the paint manufacturer.
- G. Copies of manufacturer's complete color charts for each coating system.
- H. When requested by the Engineer, provide product container labels and labeled mixing instructions for products utilized in the Work.
- I. Method and equipment to be used for dehumidification.
- J. Ventilating plan describing procedures and equipment that will be used.
- K. Method and equipment to be used for temperature control.

1.5 QUALITY ASSURANCE

**SECTION 09900
PAINTING**

- A. Applicator Qualifications – Minimum 5 years experience in application of specified products.
- B. Regulatory Requirements – Meet federal, state and local requirements limiting the emission of volatile organic compounds.

1.6 DELIVERY, HANDLING, STORAGE AND PROTECTION

- A. Deliver materials to painter's area in original, unbroken, containers with name and analysis of product, manufacturer's name, and shelf life date. Do not use or retain contaminated, outdated, prematurely opened, or diluted materials.
- B. Storage of materials shall be in accordance with the paint manufacturer's recommendations.
- C. Store coated items carefully. Store paints and painter's materials only in areas designated solely for this purpose. Avoid damaging or dirtying coatings by contact with soil, pavement or other harmful materials that might necessitate special cleaning. Use suitable blocking during storage.
- D. Confine mixing, thinning, clean-up and associated operations, and storage of painting debris before authorized disposal, to these areas.
- E. Do not use plumbing fixtures, piping or mechanical equipment for mixing or disposal of paint materials.
- F. During surface preparation, cleaning and painting operations, protect all surfaces not to be painted.
- G. Upon completion of field painting, ensure coatings are undamaged and in good condition. Repair damaged or deteriorated coating, resulting from failure to observe foregoing requirements.

1.7 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
 - 1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be applied.
 - 2. Do not apply coatings when dust is being generated.
- B. Cover or otherwise protect work by other trades and surfaces not being painted during all painting operations.
- C. All shop primed ferrous metals shall be primed using the same coatings specified in the paint schedule.

1.8 EXTRA MATERIALS

- A. Provide one spare 1 quart paint container for each type and color applied.
- B. Multi-component products shall have sufficient unopened quantities of each component to produce the required amount of mixed paint for future maintenance.

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PAINTING**

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Coating systems are designated by reference to Tnemec Company, Inc. and Sherman Williams products to establish the type and quality required. Equal products as manufactured by International Protective Coatings, PPG Industries, Carboline Company or equal will be considered if provided with a "Product for Product" listing with the submittal. The Engineer reserves the right to request and receive detailed technical literature of each proposed coating system before approval.
- B. No coating systems will be considered that decrease the film thickness, decrease the number of coats, decrease the effectiveness of the surface preparation or change the type of coating specified in the schedule of this section.

2.2 MATERIALS, GENERAL

- A. Paint Coatings - Suitable for intended use, recommended by their manufacturer for intended service. All coatings, unless otherwise specified, shall be suitable for severe service.
- B. Products Used - Minimum of five years satisfactory use under similar service conditions.
- C. Use products of one manufacturer in any one paint coating system; all coating materials compatible. Coatings for touch-up - same as original.
- D. Equipment prime or finish painted by the equipment manufacturer shall be painted in strict accordance with this Section and the equipment's individual specification section.
- E. Bear entire responsibility in providing complete compatibility of all shop and field painting systems.
- F. It is recognized that the specific application of the coating products varies for each specific manufacturer (number of coats, mil thickness per coat, etc.). Therefore, these Specifications represent the minimum to be provided under this contract and shall be increased in accordance with each manufacturer's recommendations.

2.3 COLORS AND FINISHES

- A. All finish colors will be selected from manufacturer's color chips. The Owner will select the colors. Match final colors to selected color chips, as scheduled.
- B. To provide contrast between successive coats, lightly tint each coat to distinguish it from preceding coats.
- C. Unless otherwise indicated, use gloss or semi-gloss for finish paint.

2.4 COATING TYPES

- A. Coating types and minimum acceptable percent (by volume) of component solids are described in Schedule 09900-A Coating Types. Description of coating

**SECTION 09900
PAINTING**

systems including surface preparation and dry film thicknesses are included in Schedule 09900-B Coating Systems.

PART 3 EXECUTION

3.1 GENERAL

- A. Examine surfaces scheduled to receive paint and finishes for conditions that will adversely affect execution, permanence or quality of work and which cannot be put into an acceptable condition through preparatory work.
- B. Do not proceed with surface preparation or coating application until conditions are suitable.
- C. The following shop and field instruments shall be used to inspect surface preparation and dry film thickness.
 - 1. SSPC visual standards SSPC-VIS 1-89
 - 2. Testex Press-O-Film replica type x-coarse
 - 3. Surface temperature thermometer
 - 4. Sling psychrometer and psychrometric tables
 - 5. Type I or Type II dry film thickness gauges
 - 6. SSPC-PA2 methods

3.2 PREPARATION

- A. Basic Steps
 - 1. Arrange to do all preparation and paint work in heated enclosure unless ambient weather conditions ensure still, dry air and a minimum of 50 degree F temperature. Do not apply paints to surfaces in direct sunlight.
 - 2. Coordinate cleaning and painting operations to eliminate contamination of one by the other.
 - 3. Maintain all coating materials at manufacturer's recommended mixing and application temperatures for not less than 24 hours before use. Have clean, proper containers, spray equipment, applicators and accessory items ready for use before decanting or mixing paint materials.
 - 4. Ensure proper coordination of materials to be applied hereunder with previous coatings on affected surfaces. Have all manufacturer's written directions on hand, and follow them strictly, except where otherwise specified.
 - 5. Carefully coordinate preparation and material compatibility requirements of paint systems used by manufacturers to shop prime equipment.
- B. Before any paint application, carefully clean all surfaces to be coated of dust, dirt, grease, rust, mill scale, paint unsuitable for top coatings, efflorescence, oil, moisture, foreign matter or conditions detrimental to coating bond and durability.

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1. Following cleaning, apply preparatory treatment in strict accordance with manufacturer's written instructions.
 2. Fill imperfections and holes in surfaces to be painted.
- C. Metals
1. Prepare all field and shop primed ferrous metals, including galvanized ferrous metals, in accordance with Schedule 09900-B Coating System Schedule included under this Section.
 2. A needle gun may be used for field welds and shop welds which occur in narrow, unprimed areas in an otherwise shop primed surface.
 3. Bituminous coated metals for paint finish - clean of all dirt, grease, oil and foreign matter, and prime with a barrier coat to seal the bitumen and prevent bleeding and discoloration of finish.
- D. Provide higher degree of cleaning for acceptable equivalent paint products when paint manufacturer recommends in his printed surface preparation recommendations.
- E. Before applying field coat, touch-up abraded areas of shop coats with paint of the same type. Apply an entire coat if necessary. Touch-up coats are in addition to, and not a substitute for first field coat. Clean deteriorated surfaces to bare metal before applying touch-up coat.
- F. After installation and before applying field coats, touch-up all scratches and blemishes on equipment, motors, pumps, instrumentation panels, electrical switchgear, and similar items with shop coats, paint filler, enamel or other treatment customary with manufacturer.
- G. After installation, touch up all scratches and blemishes on all steel.

3.3 VENTILATION

- A. Particular care shall be exercised during the cleaning and painting of interior spaces. Means of adequately removing air shall be provided, in order to remove dust and solvent vapors.
- B. During the cleaning and painting operations, the painters shall be provided with proper respiratory protection in accordance with OSHA regulations.
- C. In addition to meeting the minimum requirements listed above, the Contractor shall be responsible for complying with all applicable regulations of the various local, state, and federal agencies.

3.4 DEHUMIDIFICATION

- A. Continuous dehumidification of areas where paint coatings will be applied may be required twenty-four hours per day during all surface preparation, painting, and curing. The equipment used must be capable of maintaining the interior air quality at or below 20 percent relative humidity during surface preparation and between 40% and 80% during the coating application and curing process of interior finish coat(s). The surfaces must be dry and 5 degrees above the dew point.

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- B. Humidity shall be monitored using a strip chart recorder that provides continuous measurement of humidity and air temperature.
- C. In the event of dehumidification equipment failure, prepared surfaces that have been approved for priming will not be allowed to stand uncoated and must be painted before the end of the shift.

3.5 TEMPERATURE CONTROL

- A. Auxiliary heat and/or cooling may be necessary to maintain the room temperature at an acceptable level for the coating manufacturer's application parameters. The equipment must be compatible with the required dehumidification equipment and meet the following requirements.
 - 1. The air from heaters and refrigerant type systems shall be connected to the process air supply duct from the dehumidifier.
 - 2. Only electric, indirect fired combustion, or steam coil auxiliary heaters may be used. Direct-fired space heaters are not permitted during the blasting, coating or curing phases.
 - 3. Heaters shall be equipped with controls that automatically turn the heaters off if the airflow is interrupted or the internal temperature exceeds its design temperature or that of the supply duct.
 - 4. The area where dehumidification is introduced shall be sealed to allow the air to escape away from the entry point while maintaining a slight positive pressure unless dust from the operation is hazardous. The design of the filter system, if necessary, shall be such that it does not interfere with the dehumidification equipment's ability to control the dew point and temperature parameters in that space. Do not recirculate the air from the space or from the filtration equipment back through the dehumidifier during the coating application or when solvent vapors are present.
 - 5. Maintain a minimum temperature of 50 degrees F for a minimum of seven (7) days after a coating application.

3.6 APPLICATION

- A. Conditions
 - 1. Do not apply paints or other finish to wet or damp surfaces, except in accordance with instructions of manufacturer. Do not apply exterior paint during cold, rainy, or frosty weather, or when temperature is likely to drop to freezing within the paint coatings curing time as specified by the paint manufacturer. Avoid painting of surfaces while they are exposed to direct sunlight.
 - 2. Paint surfaces which have been cleaned, pretreated, or otherwise prepared for painting with first finish coat as soon as practicable after such preparation has been completed, but in any event prior to deterioration of prepared surface.
 - 3. Coat blast cleaned metal surfaces immediately after cleaning, before any rusting or other deterioration or contamination of the surface occurs. Do

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not coat blast cleaned surfaces later than 8 hours after cleaning under ideal conditions or sooner if conditions are not ideal.

4. Work shall conform to SSPC-PA 1.

B. Methods

1. Prepare surfaces, mix and apply paint materials in strict accordance with manufacturer's printed instructions and recommendations, except where specifically directed otherwise. Control temperature of materials upon mixing and application, surface temperature and condition, thinning and modifying.
2. Protect surfaces to be coated, before, during and after application unless ambient weather conditions are favorable.

C. Workmanship

1. Apply coating materials to meet manufacturer's spreading rate and dry film thickness recommendations. Dry film thicknesses specified are constant for brush, spray, roller or other form of application.
 - a. Control thinning for spray use and to manufacturer's printed instructions, and produce specified dry film thickness on level surfaces, interior and exterior angles.
 - b. Record quantities of materials of each type, for each coat used.
2. Apply paints and coatings using skilled painters, brushed or rolled or sprayed out carefully to a smooth, even coating without runs or sags. Allow each coat of paint to dry thoroughly, on the surface and throughout the film thickness, before the next coat is applied. High polymer coatings may be exempted from the drying requirement if recoat time is specified by manufacturer.
3. Finish surfaces - Uniform in finish and color, and free from flash spots and brush marks.
4. Accessory items, finish hardware, lighting fixtures, escutcheons, plates, trim and similar finish items not to be painted: Remove or carefully mask before painting adjacent surfaces; carefully replace and reposition upon completion of adjacent painting and cleaning work.

3.7 PROTECTION, CLEAN-UP

- A. Protect all materials and surfaces painted or coated under this Section, from the time of surface preparation until the final coat has fully dried. Also protect all adjacent work and materials from touch-up painting by the use of sufficient drop cloths during the progress of this work. Upon completion of the work, clean up all paint spots, oil, and stains from floors, glass, hardware, and similar finished items.

3.8 PAINT SCHEDULE

- A. Coordinate, schedule and confirm the various cleaning, touch-up and finishing operations. Ensure the transmission of materials data, color selections and

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coating system methods between the coating applicators. Take responsibility for not exceeding exposure and recoat time limits.

B.

3.9 FIELD QUALITY CONTROL

A. Leave staging and lighting in place until the Engineer has inspected surface or coating. Replace staging removed prior to approval by the Engineer. Provide additional staging and lighting as requested by the Engineer.

B. Unsatisfactory Application

1. If surface has an improper finish color or insufficient film thickness, clean surface and topcoat with specified paint material to obtain specified color and coverage. Obtain specific surface preparation information from coating manufacturer.
2. Evidence of runs, bridges, shiners, laps or other imperfections is cause for rejection.
3. Repair defects in accordance with written recommendations of coating manufacturer.

C. Damaged coatings, Pinholes and Holidays

1. Feather edges and repair in accordance with recommendations of paint manufacturer.
2. Hand or power sand visible areas of chipped, peeled or abraded paint, and feather the edges. Follow with primer and finish coat. Depending on the extent of repair and appearance, a finish sanding and topcoat may be required.
3. Apply finish coats, including touchup and damage repair coats in a manner that will present a uniform texture and color-matched appearance.

3.10 FINAL TOUCH-UP

- A. Prior to final completion and acceptance, examine painted and finished surfaces and retouch or refinish as necessary to leave surfaces in perfect condition.
- B. After doors have been fitted and hung, refinish edges, tops and bottoms.

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PAINTING**

Schedule 09900-A - Coating Types		
Tnemec Company Inc.	Sherwin-Williams	Type of Coating System (Solids Content by Volume)
Series 1026 Enduratone	DTM Acrylic Primer-Finish or Pro Industrial Pro-Cryl Universal Acrylic Primer	Acrylic Emulsion (43.0 ± 2.0%).
Series 20HS Pota-Pox	Macropoxy 646 PW Potable Water Epoxy or Macropoxy 5500 Low VOC Epoxy	Polyamide Epoxy (77.0 ± 2.0%)
Series FC20HS Pota-Pox (Fast Cure)	Macropoxy 646 PW Potable Water Epoxy or Macropoxy 5500 Low VOC Epoxy	Polyamide Epoxy (77.0 ± 2.0%)
Series 1029 Enduratone	Sher-Cryl HPA High Performance Acrylic-Semi- Gloss	HDP Acrylic Polymer (40.0 ± 2.0%)
Series 66HS Hi-Build Epoxoline	Macropoxy 5500 Low VOC Epoxy	Polyamide Epoxy (78.0 ± 2.0%)
Series 73 Endura Shield	Acrolon 218 HS Acrylic Polyurethane-Semi-Gloss	Aliphatic Acrylic Polyurethane (58.0 ± 2.0%)
Series 94-H2O Hydro-Zinc	Corothane I Galvapak 2K 100 Zinc Primer (NSF)	Aromatic Urethane, Zinc Rich (63.0 ± 2.0%)
Series 151 Elasto-Grip	Preprite ProBlock Interior/Exterior Latex Primer	Waterborne Modified Polyamine Epoxy (17.0 ± 2.0%)
Series 434 PermaShield	DuraPlate 5900 HB Epoxy (formerly Cor-Cote SC Plus) with Type SC aggregate.	Modified Aliphatic Amine Epoxy Mortar (100%)
Series 435 Perma-Glaze	Dura-Plate 5900 HB Epoxy (formely Cor Cote SC Plus).	Modified Polyamine Epoxy (100%)
Series 1 Omnithane	Corothane I Galvapak Two Pack Zinc Primer (NSF).	MIO/Zinc-Filled Urethane (61.0 ± 2.0%)
Series 215 Surfacing Epoxy	Steel Seam FT910 Epoxy Patching and Surfacing Compound.	Modified Polyamine Epoxy (100%)

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Schedule 09900-B - Coating Systems				
Surface	System Surface Preparation (Shop/Field)	System Finishes		
		Primer	2nd	Final
		DFT = Dry Film Thickness, Mils		
Ferrous Metals, Interior Non-Submerged	SSPC-SP-6	Series 1 (2.5-3.5 DFT)	Series 66HS (4.0-6.0 DFT)	Series 73 (2.5-5.0 DFT)
		<i>Corothane I Galvapak 2K</i>	<i>Macropoxy 646 FC Epoxy</i>	<i>Acrolon 218 HS Polyurethane</i>
Ferrous Metals, Exterior Non-Submerged	SSPC-SP-6	Series 1 (2.5-3.5 DFT)	Series 66HS (3.0-5.0 DFT)	Series 73 (2.5-5.0 DFT)
		<i>Corothane I Galvapak 2K</i>	<i>Macropoxy 646 FC Epoxy</i>	<i>Acrolon 218 HS Polyurethane .</i>
		<i>Macropoxy 646 PW</i>		<i>Macropoxy 646 PW</i>
Galvanized Steel, Interior and Exterior	SSPC-SP-16 Surface Preparation of Galvanized Steel 1.0-1.5 mil profile	Series 1 for field touch-up (2.5-3.5 DFT)	Series 66HS (2.0-3.0 DFT)	Series 73 (2.5-3.0 DFT)
		<i>Corothane I Galvapak 1K for field touch up</i>	<i>Macropoxy 646 FC Epoxy</i>	<i>Acrolon 218 HS Polyurethane</i>
		<i>Dura-Plate 2300</i>		<i>Dura-Plate 5900 + Type SC aggregate</i>
Wood, Exterior or Interior	Sand Smooth & Remove Dust	Series 151-1051 (1.0-1.5 DFT)	Series 1029 (2.5-3.5 DFT)	Series 1029 (2.5-3.0 DFT)
		<i>Preprite ProBlock Int/Ext Primer</i>	<i>Sher-Cryl HPA Semi-gloss</i>	<i>Sher-Cry HPA Semi-Gloss</i>
		<i>Preprite ProBlock Int/Ext Primer</i>	<i>Sher-Cryl HPA</i>	<i>Sher-Cryl HPA</i>
Notes				
(1) Tnemec Products are listed in the first row for each surface and Sherwin-Williams products are listed in italics on the second row for each surface without a dry film thickness. Refer to Paragraph 2.1 for "or equal" products.				

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PAINTING**

END OF SECTION

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**SECTION 11286
HYDRAULIC SLIDE GATE ACTUATORS**

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Fail-in-place hydraulic actuator system. All the equipment specified under this section shall be furnished by a single manufacturer that is fully experienced, reputable, and qualified in the manufacture of the equipment specified.
- B. Related Sections
 - 1. Section 16070 – Electrical Hangers and Supports
 - 2. Section 16131 – Conduit

1.2 REFERENCES

- A. American Iron and Steel Institute (AISI)
 - 1. Type 304/304L Stainless Steel
 - 2. Type 316/316L Stainless Steel
- B. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
- C. ASTM F593 – Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
- D. ASTM F594 – Standard Specification for Stainless Steel Nuts
- E. AWWA C541-16 – Hydraulic and Pneumatic Cylinder and Vane-Type Actuators for Valves and Slide Gates
- F. The Society for Protective Coatings (SSPC)
- G. ANSI/ISA-96.06.01-2014 – Guidelines for the Specification of Self Contained Electro-Hydraulic Valve Actuators.
- H. CSA/UL Standards for Equipment Use in Hazardous Area Locations

1.3 SUBMITTALS

- A. Provide submittals in accordance with Section 01340. Submittals shall describe the equipment in sufficient detail, including parts list and materials of construction, to permit an item comparison with the specifications and to indicate full conformance.
- B. Submit documentation to demonstrate that the actuator manufacturer has a minimum of 10 similar projects that have been in satisfactory operation for at least 10 years within the United States.
- C. Submit manufacturer's instructions for shipping, storage and protection, handling, and installation of the equipment.
- D. Submit certified shop and erection drawings showing all important details of fabrication, construction dimensions, anchor bolt locations, and installation instructions, and weights of all major items of equipment.
- E. Submit a certification that all components were designed based upon the maximum seating and unseating heads.
- F. Submit a Certificate of Compliance for painting system and procedures, and demonstrate compliance with NSF/ANSI 60 where specified.

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HYDRAULIC SLIDE GATE ACTUATORS**

- G. Field Services and Testing
 - 1. Submit qualifications of the manufacturer's representative that will be present on site as required during the installation, commissioning, startup, training, and testing of the equipment.
 - 2. Submit functional field test procedures and checklist at least two weeks in advance of testing.
 - 3. Submit manufacturer's field inspection reports, field testing reports, and installation certificate, following field checking of slide gate operation and appurtenances after installation and before equipment is placed in operation.
 - 4. Submit written certification that the equipment is installed correctly and in accordance with the gate manufacturer's requirements, and that the complete installation will operate as expected.
- H. Operation and Maintenance Manuals
 - 1. Submit manufacturer's standard Operation and Maintenance Manuals and Equipment Start-up Reports.
 - 2. Include installation, operation, and start-up procedures, and operating and maintenance instructions.
 - 3. Include name, address, and telephone number of the nearest competent service representative who can furnish parts and technical service.
 - 4. Include descriptive literature, including illustrations, covering the operational features of the equipment, specific for the particular installation, with all inapplicable information omitted or marked out.
 - 5. Include operating, maintenance, and troubleshooting information.
 - 6. Include copies of approved Shop Drawings.

1.4 QUALITY ASSURANCE

- A. Actuators and appurtenances provided under this Section shall be the standard product in regular production by manufacturers whose products have proven reliable in similar service, and who have been engaged in manufacturing the equipment for not less than 5 years.
- B. All actuators and related components shall be furnished by a single manufacturer (the actuator manufacturer) fully experienced, reputable, and qualified in the manufacture of the equipment specified.
- C. All electrical components shall conform to the requirements of the National Electric Code and must be listed and labeled "Approved" by Underwriters Laboratories (UL).
- D. The actuator must adhere to ANSI/ISA-96.06.01-2014.
- E. The actuator supplier must be ISO 9001 certified and provide confirming documentation.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Actuators shall be completely shop assembled to insure proper fit and adjustment of all parts. Actuators shall be complete when shipped and the manufacturer shall use all due and customary care in preparing them for shipment to avoid damage in handling or in transit.

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HYDRAULIC SLIDE GATE ACTUATORS**

- B. Deliver materials to the site to ensure uninterrupted progress of the Work.
- C. Store all actuators and appurtenances off the ground in an approved enclosed shelter. Protect all materials from condensation and corrosion.
- D. Handle all actuators and appurtenances with extreme care. Actuators that are found cracked, chipped, distorted or otherwise damaged or dropped will not be acceptable.

1.6 DESIGN CRITERIA

- A. *Actuator Scope of Supply* – The actuators shall be supplied as a complete assembly that includes a hydraulic actuator, an electronics enclosure containing a dedicated programmable microprocessor controller and electrical cables connecting the components.
- B. *Position Indication* – The valve actuators shall include electric limit switches and positions feedback, described further herewith.
- C. *Manual Operation* – The actuators shall come equipped with mechanical means to operate the actuator when electrical supply power is not available. Said mechanical means should be independent of the actuator hydraulics and capable of being isolated during normal operation of the actuator. A declutchable manual hand-wheel that adapts to allow a cordless drill operation is required.
- D. *Modes of Operation* – The actuators shall have at least two modes of operation, one for local control and the other for automatic control. Local control is defined as an operational state where the actuator can be controlled at the electronics of said actuator manually by an operator. Automatic mode is defined as the operational state where the actuator is controlled remotely by a SCADA, DCS etc. It is also required that the actuators have a third mode dedicated to set-up and calibration.
- E. *Fail-Safe-Action* – As defined below
 - 1. Upon loss of primary power, the actuators shall fail in last position, remaining hydraulically locked in place until power is restored or manual operation is engaged. Upon loss or discontinuation of control signal, the actuator shall be capable of failing and hydraulically locking fully open, fully closed or in last position.

PART 2 PRODUCTS

2.1 DOMESTIC PREFERENCES FOR PROCUREMENTS

Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States, as defined by 2 CFR § 200.322(b) (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts and purchase orders for work or products under this contract.

2.2 MANUFACTURERS

- A. Provide actuators and appurtenances as manufactured by one of the following:
 - 1. REXA Inc., West Bridgewater, MA
 - 2. Or engineer approved equal

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2.3 ACTUATOR DESIGN REQUIREMENTS

1. Location:	Allens Avenue Slide Gate
2. Application:	Sanitary Sewer Flow at Barrier
3. Tag #s	— Gate#1 & Gate #2
4. Type of units:	Self-contained, linear actuators
5. Number of units:	2
6. Voltage/phase/HZ:	230 V / Single Phase / 60 Hz
7. Valve/Gate:	Gate
8. Maximum Stroke:	60 inches
9. Stroke rate @100% speed:	~ 5 seconds per inch of travel minimum
10. Rated thrust output:	15,000 lbs
11. Fail-safe Requirement:	Remain in position
12. Manual override:	Handwheel/drill-drive
13. Cables and Tubing:	500 Feet or Less
14. Area Classification:	CSA/UL Class 1 Division 2

2.4 HAZARDOUS USE APPROVALS

- A. Actuators used for hazardous area locations shall come with a 3rd party certification to ensure full compliance of equipment within a given hazardous use are, per below:
1. 3rd party certifying body shall be CSA or UL. Certifications from either are required to be supplied as part of the submittal process.
 2. Complete assembly of any actuator being placed in a hazardous area must have been previously tested by named certifying body and shall carry certification for said assembly in said hazardous area.
 3. Any deviations of electrical components within an assembly being supplied for this project that were not previously tested by named certifying body shall be a non-compliance. Every electrical component of the assembly shall match those named in the certification of the 3rd party test certification.
 4. Actuators made up on electrical components that have been certified for hazardous use as standalone items, but that have never been tested & certified together as an assembled product, will not be accepted as within full compliance of a hazardous use approved product.
 5. Actuator suppliers shall confirm full compliance with hazardous use requirements prior to the project bid.
 6. No exceptions are allowed for hazardous use approvals.

2.5 GENERAL DESCRIPTION

- A. A hydraulic or electro-hydraulic actuator (referred to as hydraulic) is required for this service.

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- B. Electric gear-based/ multi turn actuators will not be accepted.
- C. Centralized hydraulic actuator systems will not be accepted.
- D. Hydraulic Actuators that employ an active reservoir for fluid movement will not be accepted.
- E. Substitutions that do not meet the Hydraulic Specifications will not be accepted.

2.6 APPLICATION REQUIREMENTS

The actuators shall be specifically designed for 100 percent continuous duty for modulating service. Actuators with any limitations on starts & stops will not be acceptable.

The actuators shall be rated for outdoors service, being constructed of anodized aluminum & steel with a three-part epoxy or two part powder coating for maximum corrosion resistance.

Minimum coating requirements for all carbon steel components:

Prep: All painted surfaces to be prepared to bead blasted to white finish per NACE (1) SSPC-SP-5.

Three part Epoxy systems shall meet the following minimum requirements:

- Primer Coat: Zinc based 2-3Mils DFT
- Mastic Coat: Epoxy 4-6Mils DFT
- Top Coat: Polyurethane 2-3 Mils DFT
- Total acceptable DFT 8 to 12 mils

Two part powder systems shall meet the following minimums:

- Primer Coat: Zinc Based with minimum 7,000 hour ASTM B117-97 hour salt spray rating.
- To Coat: TGIC-Polyester
- Total acceptable DFT >5mils

The speed of the actuator shall be electronically adjustable via programming of the actuator electronics. Standard speed setting shall be approximately ~ 5 seconds per inch of linear travel minimum.

Signal repeatability shall be a minimum of 0.10% of full travel.

Actuators must be designed with sufficient force output capable to continuously meet the maximum required thrust for each gate.

2.7 DESIGN FEATURES

- A. *Actuator Scope of Supply* – The actuators shall be supplied as a complete assembly that includes a hydraulic actuator, an electronics enclosure containing a dedicated programmable microprocessor controller and electrical cables connecting the aforementioned components.

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- B. *Position Indication* – The valve actuators shall include electric limit switches and positions feedback, described further herewith.
- C. *Manual Operation* – The actuators shall come equipped with mechanical means to operate the actuator when electrical supply power is not available. Said mechanical means should be independent of the actuator hydraulics and capable of being isolated during normal operation of the actuator. A declutchable manual hand-wheel that adapts to allow a cordless drill operation is required.
- D. *Modes of Operation* – The actuators shall have at least two modes of operation, one for local control and the other for automatic control. Local control is defined as an operational state where the actuator can be controlled at the electronics of said actuator manually by an operator. Automatic mode is defined as the operational state where the actuator is controlled remotely by a SCADA, DCS etc. It is also required that the actuators have a third mode dedicated to set-up and calibration.
- E. *Fail-Safe-Action* – As defined below
 - 1. Upon loss of primary power, the actuators shall fail in last position, remaining hydraulically locked in place until power is restored or manual operation is engaged. Upon loss or discontinuation of control signal, the actuator shall be capable of failing and hydraulically locking fully open, fully closed or in last position.

2.8 HYDRAULIC SPECIFICATIONS

- A. The hydraulic actuators shall consist of a linear, double-acting, single-rod hydraulic cylinder connected to a rising stem slide gate.
- B. The hydraulic actuator shall be capable of being mounted in any position.
- C. The actuator hydraulics will employ cold temp rated oil for the hydraulic medium.
- D. All internal oil shall be pressurized to a minimum of 15psi to ensure no external contamination of moisture can enter the system. Open reservoirs, vents or breathers are not allowed.
- E. The actuator shall provide sufficient force throughout the entire stroke to overcome breakaway/seating friction and process dynamics. The hydraulic assembly shall be designed to operate at a standard internal hydraulic operating pressure of 2,000 psi, but will only generate the amount of internal psi required to transfer hydraulic volume into force capable of overcoming the thrust required to the gate as required at any given moment. In addition, the hydraulic actuators shall contain pressure limiting devices that allow the user to limit the internal pressure build-up of the hydraulics to 2,200-2,300 psi maximum, and field adjustable to lower values, in order to protect the internals of the hydraulics. Hydraulic actuators that operate at a constant, standard internal pressure greater than 2,000 psi will not be accepted.

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- F. The actuator hydraulics shall be supplied from the manufacturer containing at maximum 1200 cubic inches of oil, completely purged of air and hermetically sealed off from the environment. Said actuator shall require no additional oil volume after it ships from the manufacturer. Actuators using hydraulics that require oil volume in excess of this limitation are not acceptable. Actuators requiring oil filtration, or containing any type of oil filtration means, will not be acceptable: no oil filters are to be incorporated into the hydraulic design of the required actuators.
- G. All hydraulic control valves used for modulating or normal operation shall be constructed of durable metal. Actuators that employ solenoids to meter fluid for position control will not be accepted, due to durability concerns posed by soft seats. Solenoids are only allowed in the hydraulic design for the use of isolating an accumulator fail-safe system, without exception.
- H. The actuators shall employ a hydraulic circuit that is double-acting, transferring oil from one side of the operating cylinder to the other during normal operation. Oil shall not be transferred to or removed from a reservoir when the actuator makes a position change. Centralized hydraulics employing active reservoirs (used during normal operation) will not be acceptable. Accumulator-based hydraulic systems shall not be allowed. Spring-opposed based hydraulic systems will not be allowed.
- I. The hydraulic power drive/module assembly shall consist of a drive train apparatus containing a bi-directional gear pump and a hydraulic circuit regulating equal volumes of oil flow into and out of the hydraulic cylinder. Said hydraulic circuit shall provide dual action, acting as a check valve in one direction and throttling valve for the hydraulic pump in the opposite direction. The valves shall direct flow from the pump to cause the actuator to stroke in the direction indicated by the controller.
- J. The hydraulic power drive/module assembly shall also contain a motor that is directly coupled to the pump within the hydraulic manifold. The motor shall only operate when a valve position change is required. Continuously running motors are not acceptable. Motors shall be of a brushless servo or stepper motor design. Induction motors will not be acceptable.
- K. During normal operation, when the motor/pump is stopped, the hydraulic circuit shall be closed, securely locking the actuator in place.
- L. A 2 oz., pressurized oil expansion chamber integral to the hydraulic manifold with an indicator button to show oil level shall be provided as part of the hydraulic assembly. The expansion chamber shall be isolated from the normal hydraulic circuit by suction check valves and only be used for thermal expansion and contraction of oil in the closed-loop system. The expansion and contraction of oil in the closed-loop system. The expansion chamber shall be under a minimum of 20 psi positive pressure to eliminate atmospheric ingress. A thermostatically controlled cartridge heater shall be included in the hydraulic manifold assembly in order to maintain appropriate oil viscosity in the event ambient temperatures should fall below 40° F. Heaters supplied are only allowed for the purposes of maintaining oil viscosity and shall not be employed as condensation heaters. Condensation heaters are not allowed.
- M. Hydraulic seals shall be rated for ~ 1 million full stroke cycles (~ 10 million "dither" cycles defined as <1.0% step changes) before recommended

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replacement for preventative maintenance. Hydraulic actuators designed for lower duty cycles with recommended seal upgrades for services less than 50,000 full stroke cycles are not allowed.

- N. All tubing shall be 316SS stainless per ASTM A 269. All tube fittings shall be Swagelok 316SS.
- O. All tube connections shall be straight thread with an O-ring seal.
- P. Any hydraulic hoses will be supplied by the manufacturer as quick disconnect type that are prefilled with oil. Hoses will be supplied to lengths as directed by contractor prior to shipment to site.

2.9 ELECTRICAL SPECIFICATIONS

- A. Actuator shall have no limitations on motor starts and stops per hour.
- B. To realize municipal operations energy reduction goals the actuator shall be designed to have < 50 watts of power consumption while in standby not making position movements.
- C. A separate control enclosure will be provided with each hydraulic actuator. A microprocessor controller shall be remote mounted and include the CPU board with a five (5) button keypad LED display, motor driver, internal power supply and wire terminations. The controller shall be mounted in the control enclosure. The Controller shall incorporate self-diagnostics. In the event of a system malfunction; an error code shall register on the LED display. The actuator shall be provided with an indoor / outdoor rated, external HMI screen with a flip up mechanical cover to insure maximum protection and push button interface. The HMI shall be full features and at a minimum be able to perform the following functions:
 - i. Manually move the actuator up and down with keypad interface.
 - ii. Display all fault codes.
 - iii. Provide interface for calibration of span, analog input and output tuning, relay indication setpoint.
 - iv. Provide a visual indication of the current position and the current mode of operation
 - v. Provide touch buttons to change the mode of operation
 - vi. Provide a password feature to lock out all interface function to restrict access.
- D. The electronics will be housed in a NEMA 4x control enclosure, supplied by the actuator manufacture. Electrical controls/apparatus responsible for interpreting incoming control signal demand and directing actuator movement shall be housed in enclosure separate from the hydraulic portion of the actuator, connected by electrical cables. Hydraulic actuators with "on-board/all-in-one" electronics will not be acceptable, due to the environmental conditions of the actuator installation and end-user preferences.
- E. Local controls shall be included and shall be mounted on the cover of the control enclosure. Local controls shall provide the user the ability to transfer between different modes of the supplied actuator, such as a "LOCAL", "AUTOMATIC" or "SET-UP" mode.

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- F. A LOCAL-REMOTE selector switch shall be mounted on the cover of the control enclosure.
 - a. In LOCAL, the operator can open and close the valve from a membrane keypad mounted on the front of the enclosure.
 - b. In REMOTE, the operator can open and close the valve from the MOCP.
- G. The electronics will monitor the incoming 4-20 mA control signal from the SCADA, DCS, etc., while monitoring the real-time position of the hydraulic actuator, ensuring both control signal demand and current actuator position are in accordance with each other, as programmed by the dead-band setting of the actuator electronics (programmable down to 0.05% dead-band). A change in control signal outside of the dead-band setting will trigger the electronics to make a position change response by signaling the motor of the hydraulic actuator to respond accordingly. Said response will be virtually instantaneous with no noticeable dead-time between demand and movement of the actuator.
- H. The electronics shall provide discrete OPEN and CLOSED feedback signals for remote monitoring.
- I. The electronics shall have a clock, used to timestamp and record any alarm or warning errors for diagnostics.
- J. The valve actuators shall be designed for 230 volt, single-phase, 60 hertz, power supply. Transformers may be used to convert a power source of different supply to the required voltage.
- K. Electrical surge protection for the electronics of each valve actuator assembly will be supplied on both the incoming supply power and control signal connections.
- L. A box mounted breaker switch shall be included inside of the control box.
- M. The feedback potentiometer shall be directly mounted to the actuator output shaft for 1 to 1 ratio position readout. Geared feedback mechanism is not allowed.
- N. A continuous position feedback system shall be provided between the valve actuator and the SCADA system. All valve actuators shall include the ability to transmit a 4-20 mA continuous position indication signal for remote monitoring by the SCADA system. The valve actuators shall be designed with passive position transmitters. The Contractor shall provide all power and wiring to the actuator local control panels as shown on the drawings.
- O. The Contractor shall provide all power and wiring to the actuator local control panels as shown on the drawings.
- P. All cables for connections between the electronics and the hydraulic portion of the actuator shall be supplied by the actuator manufacturer. Due to the arrangement of the valves in the Effluent Pumping Station, the cable lengths will vary for each actuator. The Contractor and manufacturer shall supply cables with quick connects based upon on-site measurements. Cables are to be bundled in cable trays overhead (no conduits will be required).
- Q. The electronics shall have two relays for remote fault monitoring. The first relay is a trouble or fault indicator highlighting the need for further

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investigation however the actuator is still working. The second is an alarm indicator when the actuator is no longer working.

2.10 COORDINATION

- A. The chosen actuator OEM shall coordinate the following requirements in conjunction with the contractor and engineer.
- B. Upon orders being placed by the contractor, the chosen actuator OEM shall confirm all thrust requirements for proper design and sizing of the actuator. Required is a raw value for the maximum required thrust based off the worst-case operating head conditions, without a safety factor included. Also required is the maximum allowed stem thrust, based on stem buckling load calculations supplied by the gate OEM, if available. The actuator shall be designed according to these given values, applying the 1.5x or 2x safety values, where applicable.
- C. The actuator OEM shall supply an adjustable base mounting plate, the design of which shall be coordinated with the gate OEM.
- D. Anchor bolts shall be provided by the contractor for mounting the equipment where shown on the installation drawings.
- E. The actuator OEM shall also provide custom-designed adaption for connecting the hydraulic cylinder rod stick-out to the special gate shaft/extension, as required for each location.
- F. Shaft extensions and external stem guides shall be provided as needed, the design of which shall be coordinated between the Contractor and actuator OEM.
- G. The actuators shall be connected to the gates at the job site, where the actuator will be used to move the gate for any required testing.
- H. The actuator OEM shall also send a technician to the installation site to oversee and commission the installation of the actuators. Start-up of these actuators shall not commence until the technician is on-site. Pricing for this actuator technician to be on-site for one full day for each gate on this project shall be included in the proposal.

2.11 QUALITY ASSURANCE

- A. The actuators specified under this Section shall be furnished by a single manufacturer with a minimum of 5 years of experience designing and manufacturing actuators in the North American municipal market. The manufacturer shall show evidence of satisfactory operation of 5 separate installations of the same model actuators similar in size & scope that have been operating for 5 years minimum in a wastewater treatment plant, without exception. Installations that do not meet the minimum duration or that are from other industries will not be accepted as experience. References shall be given, upon request.
- B. Actuators must be supplied as a complete assembly from a single manufacturer, whereby said supplier has a dedicated manufacturing space & process within their facility for providing said product to the field.

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Documentation to prove out a dedicated manufacturing process for said product that has existed for 5+ years shall be provided. Actuators made solely of buy-out sub-assemblies that are not regularly assembled as part of a standard product offering by said supplier will not be accepted.

- C. The actuator must adhere to ANSI/ISA-96.06.01-2014.
- D. The actuator supplier must be ISO 9001 certified and provide documentation to confirm.
- E. Product manuals shall be provided during the submittal phase to confirm said product is a regularly manufactured system.
- F. This section supersedes all others within this project when conflicts in spec language arise.

2.12 WARRANTY

- A. 5 years from the date of actuator installation (commissioning on-site by an actuator OEM technician) or from 6 months after shipment, whichever is sooner, without exception.
- B. Any routine maintenance required during the warranty period, such as inspections, oil and filter changes, shall be performed by a technician employed by the manufacturer and included in the scope of supply

PART 3 EXECUTION

3.1 PREPARATION

- A. Repairs required to concrete surfaces as a result of the execution of the Work shall be made in a manner satisfactory to the Engineer and at no additional cost to the Owner. No repair work shall commence until the Contractor has received Engineer's approval of proposed methods and materials.

3.2 INSTALLATION

- A. Install all actuators and appurtenances in accordance with manufacturer's printed installation manual and recommendations. Use extreme care in the handling, storage and installation of all equipment to prevent damage or distortion and insure proper performance.
- B. Set anchor bolts in accordance with gate manufacturer's approved drawings.

3.3 FIELD QUALITY CONTROL

- A. After all adjustments have been made and the mechanisms properly cleaned and lubricated, each slide gates shall be operated through one complete cycle as a final check on proper operation. Check for proper alignment and for any indications of binding throughout a complete cycle.
- B. Manufacturer's Representative Field Services
 - 1. Provide the services of a qualified, factory trained representative of the manufacturer to check and approve the installation before it is placed in operation, and to be present during the field leakage tests.
 - 2. The field service representative shall be a full-time employee of the manufacturer and shall have at least 5 years' experience in the type of slide gate equipment furnished under these Specifications. Manufacturer's agents will not be allowed to perform field service requirements.

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3. Manufacturer's representative shall provide installation and startup and testing services in accordance with the Slide Gate Schedule in Paragraph 3.4.
4. Manufacturer's representative shall provide a minimum 4-hour session of on-site instruction to the Owner's personnel in the operation, care, and maintenance of the actuators and appurtenances.

END OF SECTION

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**SECTION 16070
ELECTRICAL HANGERS AND SUPPORTS**

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Support channel
 - 2. Fastening hardware
 - 3. Anchor bolts

1.2 REFERENCES

- A. ASTM A-780 – Standard Practice for Repair of Damaged and Uncoated Areas of Hot Dipped Galvanized Coatings

1.3 SUBMITTALS

- A. Submit shop drawings, product data, and reports.

1.4 QUALITY ASSURANCE

- A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 PRODUCTS

2.1 DOMESTIC PREFERENCES FOR PROCUREMENTS

Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States, as defined by 2 CFR § 200.322(b) (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts and purchase orders for work or products under this contract.

2.2 SUPPORT CHANNEL

- A. Support channel shall be hot dipped galvanized steel unless noted otherwise.
- B. Support channel assembly hardware shall be stainless steel.
- C. In wet locations, support channel components in contact with the floor shall be stainless steel.
- D. Manufacturer:
 - 1. Unistrut
 - 2. B-Line
 - 3. ABB Super Strut Installation Products
 - 4. Or equal

2.3 FASTENING HARDWARE

- A. All fastening hardware shall be 304-stainless steel unless noted otherwise.

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2.4 ANCHOR BOLTS

- A. Anchor bolts shall be suitable for cracked or uncracked concrete and CMU construction.
- B. Anchor bolts, nuts, washers, bolt sleeves, and assembly hardware shall be Type 316 stainless steel.
- C. Use expansion anchors in solid masonry walls; self-drilling anchors or expansion anchor on concrete surfaces.
- D. Manufacturer:
 - 1. Hilti, Kwik-Bolt TZ SS 316
 - 2. Powers Fasteners, Power-Stud+ SD6
 - 3. Simpson Strong-Tie, Strong-Bolt 2
 - 4. Or Equal

2.5 PIPE CLAMPS AND STANDOFFS

- A. Pipe clamps and standoffs shall be one hole, galvanized malleable iron type. They shall be of the same manufacturer and shall be designed to be used together.
- B. Strut pipe clamps shall be 2-piece type, stainless steel.
- C. The finish shall be suitable for the piping system being supported.

2.6 THREADED RODS

- A. Threaded hanging rods shall be 304 stainless steel and be one piece. The size shall be suitable for the loads being supported.

2.7 SCREWS

- A. Use Sheet Metal Screws in sheet metal studs.
- B. Use Wood Screws in wood construction.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors, preset inserts or beam clamps. Do not use spring steel clips and clamps.
- B. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.
- C. Do not use powder-actuated anchors.
- D. Hanger rods shall be subjected to tension only. Lateral and axial movements shall be accommodated by proper linkage in the rod assembly.

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ELECTRICAL HANGERS AND SUPPORTS**

- E. Fabricate supports from support channel rigidly welded or bolted to present a neat appearance. Galvanized structural steel may be used where galvanized support channel is allowed. Use stainless steel hexagon head bolts with spring lock washers under all nuts. Coat ends of galvanized steel channel that has been cut with zinc-rich paint in accordance with ASTM A-780.
- F. Install freestanding electrical equipment on 4 inch concrete housekeeping pads.
- G. Install surface-mounted cabinets and panelboards with minimum of four anchors. Provide channel supports to stand cabinet 1 inch off wall.
- H. Bridge studs top and bottom with galvanized steel channels to support flush-mounted cabinets and panelboards in stud walls.
- I. Use standoffs for all surface mounted conduit to maintain ¼ inch space between conduits and walls.

END OF SECTION

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**SECTION 16131
CONDUIT**

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Galvanized rigid steel conduit
 - 2. Fittings and conduit bodies
 - 3. Conduit wall seals, new walls
 - 4. Conduit wall seals, existing walls
 - 5. Fire stop fittings
 - 6. Underground warning tape
 - 7. Conduit expansion joint
 - 8. Conduit sealing bushing
 - 9. Cold galvanizing compound
- B. Related Sections
 - 1. Section 16070, Electrical Hangers and Supports

1.2 REFERENCES

- A. ACI 318 – Building Code Requirements for Structural Concrete
- B. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies
- C. ANSI/NFPA 70 - National Electric Code
- D. ANSI C80.1 - Galvanized Rigid Steel Conduit, Zinc Coated
- E. UL-6 – Standard for Rigid Metal Conduit
- F. UL-6A – Electrical Rigid Metal Conduit – Aluminum, Red Brass and Stainless Steel

1.3 SUBMITTALS

- A. Shop drawings, product data and reports
- B. Riser Diagrams for the electrical installation

1.4 DESIGN REQUIREMENTS

- A. Conduit Size: ANSI/NFPA 70

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Accept conduit on site. Inspect for damage.
- B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

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CONDUIT**

- C. Protect PVC conduit from sunlight.

1.6 PROJECT CONDITIONS

- A. Verify that field measurements are as shown on Drawings.
- B. Verify routing and termination locations of conduit prior to rough-in.
- C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete hydraulic piping and wiring system.
- D. Provide complete conduit systems between electrical equipment and devices as required.
- E. Where it is necessary to core a hole through an existing concrete slab or wall, the Contractor shall conduct a survey with a pachometer or by similar means to identify the location of steel reinforcing bars. The new hole shall be located so as to avoid cutting reinforcing bars or existing embedded conduits. Where reinforcing steel is close enough together that it is not possible to core the required hole without cutting reinforcing bars, contact the Engineer for further direction before cutting a hole. Where reinforcing bars are cut without the consent of the Engineer, the slab or wall will be repaired at the expense of the Contractor.

PART 2 PRODUCTS

2.1 DOMESTIC PREFERENCES FOR PROCUREMENTS

Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States, as defined by 2 CFR § 200.322(b) (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subcontracts and purchase orders for work or products under this contract.

2.2 GENERAL CONDUIT REQUIREMENTS

- A. Minimum Size: 3/4 inch unless otherwise specified
- B. Outdoor locations:
 - 1. Use galvanized rigid steel conduit
- C. Connections to portable equipment from junction boxes and connections to all motors: use liquid tight flexible conduit, metallic where metallic conduit is used and nonmetallic where nonmetallic conduit is used.
 - 1. Minimum Length: 12 inches
 - 2. Maximum Length: 36 inches

2.3 GALVANIZED RIGID STEEL CONDUIT

- A. Rigid Steel Conduit: ANSI C80.1
- B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; all steel fittings

**SECTION 16131
CONDUIT**

- C. Hot dipped galvanized inside and outside with additional passivation coating for extra protection.

2.4 LIQUIDTIGHT FLEXIBLE METAL CONDUIT AND FITTINGS

- A. Description: Interlocked steel construction with PVC jacket
- B. Liquidtight flexible metal conduit and fittings shall be appropriate outer jacket and metallic core for application requirements.
- C. Fittings: ANSI/NEMA FB 1. Fittings shall be gasketed. Material shall be zinc-coated in dry locations, galvanized in wet and damp locations, and stainless steel in corrosive locations.
- D. Manufacturer
 - 1. ABB Installation Products
 - 2. Carlon
 - 3. Anamet
 - 4. Electriflex
 - 5. Or equal

2.5 CONDUIT WALL SEALS, EXISTING WALLS

- A. Type - Suitable for core drilled holes
- B. Manufacturer
 - 1. O-Z Gedney, Type CSM
 - 2. Equal by Crouse-Hinds
 - 3. Or equal

2.6 FIRE STOP FITTINGS

- A. Type - Fittings with elastomeric rings to seal smoke and fumes
- B. Fire rating of seal to be equal to or greater than rating of wall
- C. Manufacturers
 - 1. O-Z Gedney, Type CFS
 - 2. Or equal

2.7 UNDERGROUND WARNING TAPE

- A. Warning tape for all buried electrical conduit shall be polyethylene and printed with the words "CAUTION - BURIED ELECTRICAL LINE BELOW" or similar wording.
- B. Tape shall be red and 6 inches wide.
- C. Manufacturers

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CONDUIT**

1. Seton Name Plate Corp
2. Cable Accessories
3. E. L. S. Products Corp
4. Or equal

2.8 FITTINGS AND CONDUIT BODIES

A. Fittings

1. Description - Threaded, malleable Iron. Material and coating to correspond with type of conduit system being used, galvanized where galvanized steel conduit is used, PVC where PVC conduit is used, and PVC-coated where PVC-coated conduit is used.

B. Conduit Bodies

1. Description - Threaded, malleable Iron. Material and coating to correspond with type of conduit system being used, galvanized where galvanized steel conduit is used, PVC where PVC conduit is used, and PVC-coated where PVC-coated conduit is used.
2. Manufacturer
 - a. Appleton-Type Mogul - malleable iron
 - b. Equal by ABB Installation Products
 - c. Equal by O-Z Gedney
 - d. Equal by Crouse-Hinds
 - e. or equal

C. Conduit Hubs

1. Manufacturer
 - a. Crouse Hinds – Myers hub Type HUB
 - 1) Galvanized steel in damp and wet locations
 - 2) Stainless steel in corrosive locations
 - 3) Zinc coated steel in dry locations
 - b. Equal by O-Z Gedney
 - c. Equal by RACO
 - d. Equal by Appleton
 - e. or equal

2.9 CONDUIT EXPANSION JOINT, RIGID METAL CONDUIT

**SECTION 16131
CONDUIT**

- A. Weather tight, internal ground, expansion joint for galvanized rigid steel conduit, 4 inch maximum conduit movement
- B. Manufacturer
 - 1. ABB Type XJG Installation Products
 - 2. Crouse-Hinds Type XJG
 - 3. Appleton Type XJ
 - 4. O-Z Gedney Type AX
 - 5. or equal

2.10 CONDUIT SEALING BUSHING

- A. Description: Bushing that provides a waterproof seal around wire and cables in a conduit
- B. Construction: Slotted PVC coated steel discs, neoprene sealing ring and stainless steel head cap screws and washers
- C. Manufacturer
 - 1. O-Z Gedney Type CSBI

2.11 COLD GALVANIZING COMPOUND

- A. Cold galvanizing compound shall be applied to all field threads and shall be as manufactured by ZRC Products Company, a division of Norfolk Corp. or equal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Junction boxes shown on the Drawings shall be provided in locations indicated. Additional boxes shall be provided as needed to comply with NFPA 70 requirements.
- B. Install conduit in accordance with NECA "Standards of Installation."
- C. Arrange supports to prevent misalignment during wiring and hydraulic tubing installation.
- D. Support rigid steel conduit using galvanized steel or galvanized malleable iron straps, pipe hangers, U-bolt clamps and beam clamps.
- E. Fasten conduit supports to building structure and surfaces under provisions of Section 16070.
- F. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.
- G. Do not attach conduit to ceiling support wires.
- H. Arrange conduit to maintain headroom and present neat appearance.

**SECTION 16131
CONDUIT**

- I. Route exposed conduit parallel and perpendicular to walls.
- J. Maintain adequate clearance between conduit and piping.
- K. Maintain 12 inch clearance between conduit and surfaces with temperatures exceeding 104°F.
- L. Cut conduit square using saw or pipe cutter; de-burr cut ends.
- M. Before installation of wires and cables, clean and dry inside of each conduit run.
- N. For galvanized conduit, apply cold galvanizing compound to all field threads.
- O. Use conduit hubs to fasten conduit to boxes and enclosures in damp locations, wet locations, and locations below fluid piping. For wet and corrosive locations, use stainless steel conduit hubs.
- P. Install no more than equivalent of three 90° bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams. Use factory elbows for bends in metal conduit larger than 2 inch size.
- Q. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- R. Provide suitable fittings to accommodate expansion and deflection where conduit crosses control and expansion joints per Manufacturer's best practice and recommendations.
- S. Provide 100-lb. test nylon pull string in each conduit 2 inch or larger except sleeves and nipples.
- T. Use suitable caps (cast metal or thermoplastic) to protect installed conduit against entrance of dirt and moisture.
- U. Ground and bond conduit.
- V. Use two locknuts, one inside and one outside of each box and enclosure when enclosure ratings are NEMA 1 or 12.
- W. Install a chromium plated, spun or split type escutcheon on all exposed conduits passing through walls or ceilings.
- X. Extend pipe sleeves 3/4 inch above finished floors.
- Y. Install a water and fire resistant caulking around all conduits passing through floors.
- Z. Provide thru wall seals on all conduits passing through foundation walls.
- AA. Provide a 4 inch band of black asphaltic paint, 2 inches in the concrete and 2 inches in the soil, at all galvanized rigid steel penetrations through floors or walls into soil.
- BB. Install underground warning tape 12 inches above all underground conduits.
- CC. Install underground conduit with minimum cover, in accordance with National Electric Code or utility requirements, but no less than 36 inches.

**SECTION 16131
CONDUIT**

- DD. For non-concrete encased underground conduit installations, backfill the trench with sand borrow for the full width of the trench (at least 3-inches around sides and bottom of conduit) and extend the sand borrow 12-inches over the conduit.
- EE. For penetrations in existing walls, patch with mortar and touch up paint. Match existing paint color.
- FF. For penetrations in fire rated walls, use materials that maintain the fire rating of the wall.
- GG. Provide conduit expansion joints for underground conduits that enter a building through an exterior wall or connect to an exterior mounted disconnect switch, meter, or other equipment.

END OF SECTION

J:_North Kingstown\19111.01 - Allens Avenue Sewer Sluice Gate Design\SPECS\90% Submission\16131 - Conduit.docx

APPENDIX D:

MATERIALS TESTING AND CERTIFICATION SCHEDULE

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SUBMITTALS AND MATERIAL / SYSTEM TESTING

Item(s)	Description	Unit	Submittals	Material / System Testing
4	Erosion and Sedimentation Controls	LS	Required	May Be Required
7A	Temporary Personnel Scaffolding	LS	Required	May Be Required
7B	Temporary Gate Supports and Operator Mechanisms	LS	Required	May Be Required
8A	Permanent Interior Bracing	LS	Required	May Be Required
3D, 8B, 8C	Precast Concrete Vault Lid	LS	Required	May Be Required
8B, 8C	Access Hatches	LS	Required	Required
7D	Hydraulic Actuators and Remote Power Modules	LS	Required	Required
7D	Conduit and Support	LS	Required	May Be Required
9	Metal Door and Hardware	LS	Required	May Be Required
9	Painting	LS	Required	May be Required
3A, 3B, 10	Gravel / Road Base	SY	Required	May Be Required
10	Bituminous Concrete Pavement	SY	Required	May Be Required
9	Portland Cement Concrete Sidewalk	LS	Required	May Be Required

APPENDIX E:

FOX POINT HURRICANE BARRIER

COORDINATION GUIDE

Fox Point Hurricane Barrier (FPHB) Coordination Guide

Providence Emergency Management Agency

Updated

June 2021



Fox Point Hurricane Barrier (FPHB)
Coordination Guide

The *Fox Point Hurricane Barrier (FPHB) Coordination Guide* and Appendices have been approved for implementation by



Clara Decerbo, PhD, CEM
Director, Emergency Management

July 7, 2021

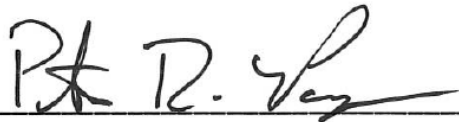
Date



Leo Perrotta
Director, Public Works

7-7-2021

Date



Peter R. LePage
Director of Engineer, Water Supply Board

7-7-21

Date



Meg Goulet
Director of Operations & Maintenance
Narragansett Bay Commission

7/9/2021

Date



John MacPherson
Canal Manager
US Army Corps of Engineers

07 July 2021

Date

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1.1 PURPOSE

This Coordination Guide outlines activating and operating the Fox Point Hurricane Barrier (FPHB) located in the City of Providence. This Guide will serve as the focal point for ensuring coordination of the FPHB during a major hurricane or coastal storm between multiple federal, state, and local partners.

1.2 OBJECTIVE

This Coordination Guide has six main objectives:

- Minimize injury and loss of life;
- Minimize property damage and adverse economic impact;
- Minimize adverse environmental impact;
- Engage multiple federal, state and local partners in order to coordinate the operation of the Fox Point Hurricane Barrier during severe weather scenarios, abnormal tides / surge and special events;
- Provide awareness for federal, state and local partners about critical areas that are essential and indispensable to the operation of the Fox Point Hurricane Barrier; and
- Provide a deliberative coordination tool that facilitates the operation of the Fox Point Hurricane Barrier in order to improve operational speed and effectiveness.

1.3 SITUATION

The Fox Point Hurricane Barrier is the singular piece of critical infrastructure that is designed to protect Downtown Providence from major flooding as a result of a Hurricane or major Coastal Storm.

The primary hazards associated with a hurricane are the high sustained winds, flooding from storm surge or heavy rains and shoreline erosion. There are also a variety of secondary hazards which depend on the strength of the hurricane.

The high winds impose significant loads on structures and cause loose objects to be propelled at high velocity. In addition, falling trees and limbs can take lives, cause property damage, and knock out power and communication lines.

Flooding during a hurricane can come from a variety of sources. Communities along an exposed coast may experience storm surge, above and beyond high tide. The excessive rainfall associated with hurricanes, in some cases 6 to 12 inches, may cause flash flooding and flooding of rivers, streams, and drainage systems.

Loss of electric power is almost a certainty and since utility poles carry electricity, telephone and cable television wires, the loss of a single pole can cause widespread issues. Also common

during and following hurricanes is contamination of water supplies, flooding of sewage treatment facilities and widespread damage to infrastructure (roads, bridges, including public and private property).

The City of Providence considers the overall risk of experiencing the direct effects of a hurricane as a major risk.

Within the City of Providence, the following areas are most likely to be affected by storm surge and wave action:

- All low lying areas within the flood zone;
- Potentially the downtown business district, should the hurricane barrier fail or become over-run; and
- The following areas in Providence are particularly susceptible to high winds:
 - All buildings above 7 stories (75 feet), both residential and commercial.

1.4 ASSUMPTIONS

- The Fox Point Hurricane Barrier serves two central functions - (1) to retard high tides from potential storm surges in Narragansett Bay and (2) to maintain river flow such that water levels do not get too high behind the barrier. Although it is a fairly simple concept, the 3,000-foot long structure consists of several complex components;
- That the US Army Corps of Engineers (USACE) is jointly responsible for the operation and maintenance of the Fox Point Hurricane Barrier, which includes major elements such as the Pump House, River Gates and Canal Gates;
- That the City of Providence (Department of Public Works) is responsible for the operation and maintenance of the Fox Point Hurricane Barrier, which includes major elements such as the Dike, Sewer Gates and Vehicular Gates;
- That the Narragansett Bay Commission (NBC) will provide reasonable access to the City of Providence to the NBC's sewers and real estate owned by the NBC only to the extent necessary for the City of Providence to maintain or operate the Fox Point Hurricane Barrier.
- That the Providence Emergency Management Agency (PEMA) is responsible for the overall coordination of the Fox Point Hurricane Barrier operations, as it impacts the City, during major flooding as a result of a Hurricane or major Coastal Storm.
- That all elevation in this document has been converted to MLLW datum as per paragraph 1.10.2.2 of this document for consistency.

1.5 RELATIONSHIP TO THE EMERGENCY OPERATIONS PLAN (EOP)

This document complies with the requirements of the Emergency Operations Plan. Users of this document are expected to be familiar with the Emergency Operations Plan.

1.6 AUTHORITY

US Army Corps of Engineers (USACE)

The US Army Corps of Engineers operates under numerous Public Laws and Acts:

- Flood Control and Coastal Emergency Act, Pub.L. 84-99
- Stafford Disaster Relief and Emergency Assistance Act, Pub.L. 93-288
- Flood Control Act of 1928
- Flood Control Act of 1936 (FCA 1936), Pub.L. 74-738
- Flood Control and Coastal Emergency Act of 1955, Pub.L. 84-99
- Rivers and Harbors Act of 1962, Pub.L. 87-874
- Shore Protection Cost Sharing Act of 1946, Pub.L. 79-727 as amended
- Beach Nourishment Act of 1956, Pub.L. 84-826
- Rivers and Harbors Act of 1962, Pub.L. 87-874

Narragansett Bay Commission (NBC)

The Narragansett Bay Commission (NBC) operates under Rhode Island General Laws (RIGL) §46-25-1, et seq. The NBC mission is to maintain a leadership role in the protection and enhancement of water quality in Narragansett Bay and its tributaries. The Fox Point Hurricane Barrier System was constructed with series of sewer gates on various key sewer pipes to prevent the floodwaters from backing up into the protected area through the sewer system. These sewer gates are owned and maintained by the City of Providence.

Providence Emergency Management Agency (PEMA)

In accordance with City of Providence Code of Ordinances, Chapter 7, the Director, Emergency Management, directs the City Emergency Management efforts. The authority of the Director, Emergency Management, extends to all City departments and agencies in as far as it is necessary for the coordination of an integrated City response to major emergencies and disasters, within legally established boundaries and parameters set forth by the City of Providence Code of Ordinances.

City of Providence Department of Public Works (DPW)

In accordance with City of Providence Code of Ordinances, Chapter 23, the Director, Public Works, directs the operations as it relates to streets, sidewalks and public places and Chapter 25, Water and Sewers.

1.7 FUNCTIONAL ROLES & RESPONSIBILITIES

PROVIDENCE EMERGENCY MANAGEMENT AGENCY (PEMA)

The Providence Emergency Management Agency (PEMA) is responsible for citywide emergency preparedness, training and exercises, including ongoing enhancement of the City's Emergency Operation Plan (EOP) using an all-hazards approach that encompasses natural disasters and man-made disasters, from hazardous materials to intentional acts of terrorism.

CITY OF PROVIDENCE DEPARTMENT OF PUBLIC WORKS (DPW)

The Department of Public Works is assigned specific responsibility for the construction, reconstruction and maintenance of highways and bridges; snow removal; sidewalks and curbing; street cleaning; garbage and refuse collection and disposal; and street lighting. Additionally, since the transfer of the FPHB to the USACE, Public Works is responsible for the maintenance and operation of the barrier dike, sewer gates, and five vehicular gates. Other specific related tasks include FEMA accreditation of the dike (levee) system in accordance with 44 CFR 65.10 (National Flood Insurance Program).

PROVIDENCE WATER SUPPLY BOARD (PWSB)

The Providence Water Supply Board is responsible for the collection and storage of raw water; treatment and transmission of potable water; and quality control of the final product within the Providence Water system. The mission of the Water Supply Board is to ensure that the water is treated, tested, and readied for distribution in adequate quantity to satisfy demand while meeting all health and safety-related standards and regulations as mandated by the State of Rhode Island and established by the Federal Safe Drinking Water Act.

Note: Providence Water Supply Board does not have any infrastructure that impacts the Hurricane Barrier's operation. Although there are connections to East Providence and Bristol County that are outside the barrier, flooding would damage electronics but not impact the continued delivery of water.

NARRAGANSETT BAY COMMISSION (NBC)

The Narragansett Bay Commission (NBC) is responsible for the treatment of wastewater in its service area and the maintenance of sewer pipes under its ownership and control.

US ARMY CORPS OF ENGINEERS (USACE)

The US Army Corps of Engineers' mission is to provide vital public engineering services in peace and war to strengthen our Nation's security, energize the economy, and reduce risks from disasters. The New England District is responsible for managing the Corps' Civil Works responsibilities in a 66,000-square-mile region encompassing the six New England states east of the Lake Champlain drainage basin. The region has 6,100 miles of coastline, 13 deep draft commercial waterways, 13 major river basins, and thousands of rivers and streams. The missions of the New England District are many and varied. They include environmental remediation; flood damage control; natural resource management; stream bank and shoreline protection; navigation improvements and maintenance; disaster and emergency assistance; regulatory administration; and engineering and construction management support to other agencies.

The Cape Cod Canal Project Office is a field office of the New England District (NAE) Operations Division. The Canal office is responsible for operation and maintenance of the Canal and hurricane barriers at New Bedford, MA and Fox Point, RI.

USACE is responsible to staff the barrier as needed with personnel and contractors to maintain the barrier in a ready and functional condition. For coastal storms and hurricanes, USACE is responsible to staff the barrier with trained personnel ready to operate elements of the project under their control.

1.8 LOGISTICS SUPPORT & RESOURCE REQUIREMENTS

The Providence Emergency Management Agency (PEMA) will coordinate all logistical support and resource requirements necessary to implement and track the City's Emergency Management plans.

1.9 PLAN MAINTENANCE

All plans are maintained in accordance with the Emergency Management Plans Maintenance Policy (Policy Number 2010-02).

1.10 EXECUTION

The Fox Point Hurricane Barrier is a 3,000-foot (910 m) long tidal flood barrier spanning the Providence River in Providence, Rhode Island, located 750 feet (230 m) upstream from Fox Point. It was constructed between 1960 and 1966 to protect the low-lying downtown area of the city from damaging storm surge and floods associated with hurricanes and other major storm events.

The Fox Point Hurricane Barrier consists of six main parts: river gates, rock and earthen dikes along each shore, vehicular gates along each shore where roads pass through the dikes, sewer gates on sewers passing under the barrier, canal gates at the west end of the barrier associated with the nearby electric power station, and a pumping station to control the flow of water.

Prior to February 2010, the City of Providence maintained and operated the Fox Point Hurricane Barrier. On 19 February 2010 the City of Providence transferred operations and maintenance for the Pump House, River Gates and Canal Gates to the US Army Corps of Engineers. Since that date the operation of the Fox Point Hurricane Barrier is split between the following federal, state and local jurisdictions:

- **Federal**
 - US Army Corps of Engineers, New England District
- **State (Quasi)**
 - Narragansett Bay Commission
- **Local**
 - City of Providence Department of Public Works
 - Providence Water Supply Board

- Providence Emergency Management Agency

It is imperative that Fox Point Hurricane Barrier operations be fully synchronized and integrated between all jurisdictions in order to protect the City from flooding or storm events.

1.10.1 CONCEPT OF OPERATIONS

1.10.1.1 Operations Overview

The operations of the Fox Point Hurricane Barrier are in accordance with the regulations prescribed by the Secretary of the Army. When a hurricane reaches the 35° Longitude, a hurricane watch is placed into effect (see Figure 1.1). Additionally, watches may be required for astronomical high tides, storm surges or up river flow exceeds flood stage.

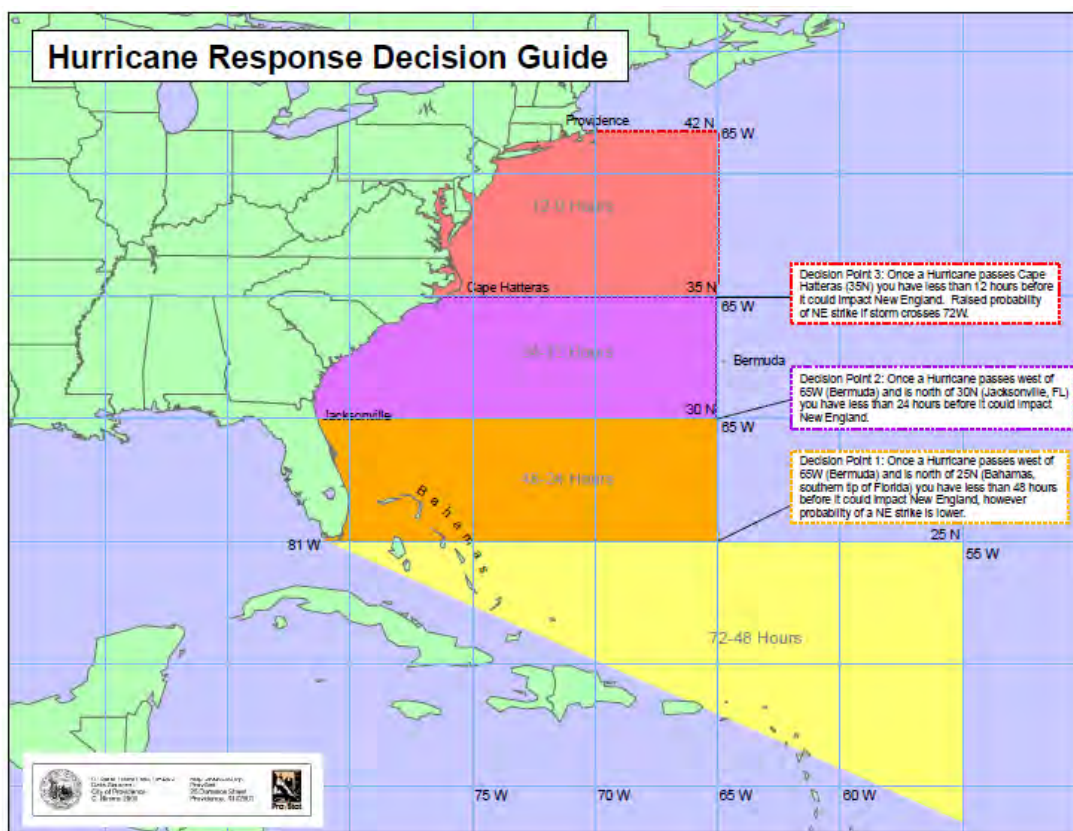


Figure 1.1

Once a storm enters the Narragansett Bay, the Fox Point Hurricane Barrier systems are put to use in two ways (see Figure 1.2);

- (1) The tainter gates are closed, providing a half mile long, 25 foot high barrier spanning from Allens Avenue to India Point Park so that high waters in the Bay do not enter the city.
- (2) As the river water behind the Barrier rises, the pumps are put into action.



Figure 1.2

1.10.1.2 Operational Tasks

US Army Corps of Engineers (USACE)

The US Army Corps of Engineers operates the Pump House, River Gates and Canal Gates.

City of Providence Department of Public Works (DPW)

The City of Providence DPW operates the Dike (Levee), Sewer Gates, and Vehicular Gates.

Providence Water Supply Board (PWSB)

The Providence Water Supply Board (PWSB) owns and operates water gate valves, mains, hydrants and service valves.

Providence Emergency Management Agency (PEMA)

The Providence Emergency Management Agency coordinates actions of Fox Point Hurricane Barrier stakeholders during major flooding as a result of a Hurricane or major Coastal Storm.

1.10.1.3 Pre-Hurricane Season Coordination and Preparations

US Army Corps of Engineers (USACE)

- In May of each year, the Cape Cod Canal Management meets with supervisors to review operations plans for the canal and hurricane barriers. The intent of this

meeting is to assure readiness of personnel, materials and supplies for the pending hurricane season.

- Contact will be made with PEMA to discuss status of barrier functionality, confirm criteria for operations in terms of water levels, and to verify/exchange points of contact and phone numbers.
- USACE will confirm that operational testing of equipment at the Fox Point Hurricane Barrier is complete.
- USACE will confirm testing of communication systems at the barrier (regular office phones, cell phones and backup radios).
- Participate in training exercises as requested by PEMA.

City of Providence Department of Public Works (DPW)

- Prepare and test street gate functionality on an annual basis in preparation for peak hurricane season.
- Remove nuisance vegetation to assure site access for staff.
- Trash Racks: There are trash racks that prevent floating debris in the Providence River from entering the cooling water canal for the Dominion power plant. Racks are located on the west side of the pump station. The trash racks have a motorized rake to remove debris. DPW is responsible to rake the trash racks and remove the debris periodically.
- Sewer Gates: Perform a pre and post hurricane season inspection of all six of the sewer gate facilities. Power supply via the power grid and backup systems for the sewer gates are inspected and tested to confirm proper operations. Each gate is partially operated during the pre-season inspection. A report summarizing the pre-season inspection is prepared and submitted to PEMA and the USACE.
- Participate in training and exercises as requested by PEMA.

Providence Water Supply Board (PWSB)

- Conducts a review of the infrastructure within the area to ensure that all valves are operational and in good working order. Metering facilities serving the east bay are inspected as well.

Providence Emergency Management Agency (PEMA)

- Conduct an annual Table Top Exercise with all Fox Point Hurricane Barrier stakeholders in order to review operations for the coming hurricane season.
- Distribute conference call numbers and instructions to Fox Point Hurricane Barrier stakeholders.
- Update and distribute the City of Providence Hurricane *Decision Timeline Map*, *Hurricane Response Execution Checklist* and a *Hurricane Smart Card* to all Fox Point Hurricane Barrier stakeholders.

1.10.1.4 Pre-Storm Coordination

US Army Corps of Engineers (USACE)

- The Cape Cod Canal will implement its Hurricane Operations Plan.
- Coordinate with the National Weather Service and participate in conference calls for up to date information on forecasts.
- Make contact with PEMA at times when the forecasted storm is 48, 24 and 12 hours away from landfall for purpose of sharing information on forecast and readiness.
- Participate in conference calls with stakeholders as requested by PEMA.
- Hold daily coordination discussions for operations staff at Cape Cod Canal Project.
- Confirm communications systems are functional.

City of Providence Department of Public Works (DPW)

- Providence Public Works will test and fuel generators and equipment.
- Conduct radio checks on citywide 800 MHz talk groups.
- Coordinate with the National Weather Service and participate in conference calls for up to date information on forecasts.
- When the National Weather Service announces that a coastal storm off the Atlantic Coast poses a possible threat to Southern New England and it crosses

the 30 degree latitude, the City of Providence will perform serviceability on all the hurricane sewer gate facilities.

- When the National Weather Service forecasts that a hurricane has the potential to impact the Southern New England area and has crossed the 38 degree latitude and abnormal tides are predicted to be observed within 6 hours, the City of Providence's staff will stand-by for direction to open/close the sewer gates as determined by tidal conditions.¹

Providence Water Supply Board (PWSB)

- All facilities and structures are inspected. Generators are tested under load and fuel tanks are topped off to maximize the potential run-time if needed. All vehicles are also fueled to ensure availability for emergency use during and after the storm.

Providence Emergency Management Agency (PEMA)

- Based on confident forecast host a coordination conference call among all Fox Point Hurricane Barrier stakeholders in order to coordinate preparations and identify shortfalls or concerns.

1.10.1.5 Storm Coordination

US Army Corps of Engineers (USACE)

- Update PEMA on status of USACE barrier operations.
- Communicate with PEMA and other stakeholders such as National Grid, Dominion power plant, Police, Fire and the local marina when a defined schedule of operations is determined.
- Immediately contact PEMA in case of any status changes at the barrier.

City of Providence Department of Public Works (DPW)

- Communicate with PEMA and other stakeholders such as Police, Fire, USACE, RIDOT, and the NBC when a defined schedule of operations is determined.

¹ July 2020: Due to pending construction work on the Allens Ave sewer gate, Providence DPW will utilize a portable generator at the gate to operate the sewer gate while it is awaiting repairs. NBC owns a portable generator which it will lend to DPW to utilize for said purposes. Upon notification from DPW, NBC will deliver the portable generator to the site for DPW's use.

- Close eastside street gates and coordinate with Providence Police and Rhode Island State Police on road closures and traffic rerouting.

Narragansett Bay Commission (NBC)

- Appropriate NBC staff is notified of the change in gate conditions impacting flow to the Fields Point Wastewater Treatment Facility.

Providence Water Supply Board (PWSB)

- Staffing is maintained at the treatment plant as well as the Central Operations Facility, 125 Dupont Drive to respond to any customer emergency calls. Communications is established with PEMA and if needed, support will be provided (i.e.; personnel, equipment).

Providence Emergency Management Agency (PEMA)

- Provide Situational Awareness among all Fox Point Hurricane Barrier stakeholders.

1.10.1.6 Post-Storm Coordination

US Army Corps of Engineers (USACE)

- Provide feedback and information as requested by PEMA.
- Provide After-Action Report (AAR) and Capability Improvement Plan (CIP) comments to PEMA.

City of Providence Department of Public Works (DPW)

- Provide post-event damage assessment of road and bridge infrastructure and equipment.
- Once the City of Providence Department of Public Works has determined the storm ending and the tidal surge conditions do not pose a flooding threat, the City of Providence will first notify the NBC of the pending gate openings and then act to reverse the gate operation procedures and return the sewer gates to their normal status.
- Provide After-Action Report (AAR) and Capability Improvement Plan (CIP) comments to PEMA.

Providence Water Supply Board (PWSB)

- Perform damage assessment of all facilities and respond to customer outages that may have occurred. Provide assistance to other City and State agencies as requested for assessment, debris removal and clean-up.
- Provide After-Action Report (AAR) and Capability Improvement Plan (CIP) comments to PEMA.

Providence Emergency Management Agency (PEMA)

- Solicit and collect After-Action Report (AAR) comments and compile Capability Improvement Plan (CIP) for all Fox Point Hurricane Barrier stakeholders.

1.10.2 COORDINATING INSTRUCTIONS

- 1.10.2.1** The source manual for operation of the Fox Point Hurricane Barrier is entitled, *“Fox Point Hurricane Protection Barrier, Providence, RI, Operation and Maintenance Manual, Department of the Army, New England Division, Corps of Engineers, Waltham, Mass., September 1966.”* Note that USACE plans to produce a revised O&M Manual.
- 1.10.2.2** All elevation measurements shall use a baseline of Mean Low Low Water (MLLW) or Zero. [Conversion example: If MSL is 2.25’ above MLLW and the document references a MSL of 6’ the correct conversion for MLLW would be 8.25’].
- 1.10.2.3** The National Geodetic Vertical Datum of 1929 (NGVD 29) equals 1.68’ (0.512m).
- 1.10.2.4** The North American Vertical Datum of 1988 (NAVD 88) equals 2.47’ (0.752m).
- 1.10.2.5** The Providence Mean High Water (PMHW) equals 2.35’ NGVD.
- 1.10.2.6** The following web sites below for checking flow rates of the two rivers coming into Providence and the USACE reservoir control website and the NOAA prediction site.
- <http://waterdata.usgs.gov/usa/nwis/uv?01114000>
http://waterdata.usgs.gov/usa/nwis/uv?site_no=01114500
http://nae-rrs2.usace.army.mil:7777/pls/cwmsweb/cwms_web.cwmsweb.cwmsindex
<http://www.nws.noaa.gov/mdl/etsurge/index.php?page=stn®ion=ne&stn=riprov&tpe=both>
- 1.10.2.7** USACE will give, at a minimum, a 2-hour notice to Providence Police and Fire that the River Gates are closing and/or opening. Providence Police and Fire moor their watercraft (Fire and Police boats) on the north-side (inside) of the Fox Point Hurricane Barrier.
- 1.10.2.8** The Fox Point Hurricane Barrier dike (levee) system was accredited, by FEMA on 21 August 2009, in accordance with 44 CFR 65.10 (National Flood Insurance

Program). FEMA will show the Fox Point Hurricane Barrier on the new DFIRM as providing protection from the flood that has a 1-percent chance of being equaled or exceeded in any given year.

1.10.2.9 The address of the Providence Fox Point Hurricane Barrier is:
Manchester Street Station (Old Dominion Energy)
40 Point Street
Providence, RI 02903
County: Providence
Lat: 41.81577; Long: -71.40211

1.10.3 Fox Point Hurricane Barrier

1.10.3.1 Fox Point Hurricane Barrier Overview

During the first half of the twentieth century, Providence, Rhode Island was the second largest city in New England. The population reached its peak of 250,000 residents in 1945. The central business district is located in a shallow natural basin with an elevation of 8 to 12 feet above mean sea level and is bordered by the Providence River.

Before 1960, Providence had suffered great losses from tidal flooding. In September of 1938 and during Hurricane Carol in August 1954, downtown Providence had experienced a water depth of over eight feet. The hurricane in 1938 had been a deadly and destructive one, costing \$200 million in damages and 250 lives; \$120 million for the city of Providence. Gusts of wind, at a rate of 72 to 100 miles per hour, blew into Providence along with water as high at 8 feet in the downtown area.

Subsequently, the Army Corps of Engineers, in cooperation with other Federal agencies, studied the behavior and frequency of hurricanes to consider possible methods of preventing loss of lives and property. If a barrier had been in place during the storms of 1938 and 1954, it would have saved an estimated \$80 million (in 1960s dollars). The proposed barrier would protect three-fourths of the area damaged by these storms. The Fox Point Hurricane Barrier was authorized by the Flood Control Act of 1958. On November 8, 1960, the Rhode Island electorate decided to support the Hurricane Barrier through the issuance of bonds. Soon thereafter, it became the first structure of its type approved for construction in the United States.

Construction on the Fox Point Hurricane Barrier, located 750 feet upstream from Fox Point, where the Providence River flows into the Narragansett Bay, began in 1960 and was completed in 1966. The area, historically significant for its maritime activity, provides access to the Atlantic Ocean. The structure is accessible through the adjacent property on the west bank of the river, and since construction has been occupied by an electric company.

1.10.3.2 Description

The Providence Hurricane Barrier is located across the Providence River in downtown Providence, Rhode Island. It is on the north end of the Narragansett Bay on the mouth of the Providence River. Interstate 195 runs east-west and is just south of the barrier. Point Street Bridge is due north, South Water Street is due east, and Interstate 95 runs north-south and is west of the Providence Hurricane Barrier. Rhode Island Hospital is 0.4 miles southwest of the barrier on Eddy Street.

1.10.3.3 Functions

The Fox Point Hurricane Barrier serves two central functions - (1) to retard high tides from potential storm surges in Narragansett Bay and (2) to maintain river flow such that water levels do not get too high behind the barrier. Although it is a fairly simple concept, the 3,000-foot long structure consists of several complex components.

The barrier's three River gate openings, through which only small boats and the river water may pass, are located near the east bank of the Providence River. The concrete structures that support the gates consist of a base mat 61.5 feet wide by 148 feet long by 8 feet thick. The two center piers extending from the top of the base mat at elevation minus 12.75 MLLW (-15' MSL) rise to a maximum elevation of 37.25' MLLW (35' MSL), and are 8 feet thick. Similar end piers are 6 feet thick. The structure is supported on a steel bearing pile, driven to the bedrock.

The sill elevation of the gates is 17.25' MLLW (15' MSL). The tainter gates are 40 feet square, weigh 53 tons, and curve outward toward the bay to break the impact of the waves. The curvature of the gate has a radius of 35 feet, measured from the inside of the trunnion to the inside face of the skin plate perpendicularly to the axis of the crust. The length of the skin plate measures 42 feet, 7 1/4 inches along the arc. The component parts of the gates are as follows: the skin plate and tee supports, the main girders and struts, trunnion and anchorage assembly.

The gates descend at a rate of 1½ feet per minute, taking roughly half an hour to lower. The maximum vertical clearance when the gates are elevated is 27.25' MLLW (25' MSL). Each gate weighs approximately 112,000 pounds and requires three horsepower to lift. They are lowered and raised by electrical motor driven hoists. The gates may be manually lowered but require electrical power to raise. The mechanics for lowering and raising the gates are located in mechanical buildings above each gate, 37.25' MLLW (35' MSL), on the piers between the gates and at the end walls.

The access bridge provides an approach from the pumping station to the River gate operating equipment. Three bridge spans are provided across the gate openings. The bridge is designed to accommodate a fork lift with total load of 10 kips that may be used to remove operating equipment.

See Appendix J for details and photos.

1.10.3.4 Pumping Station

The pumping station, located between the west bank and the center of the river, is 28.25' MLLW (26' above MSL). The station is a reinforced concrete substructure with brick superstructure. It is 213 feet long and 91 feet wide. An access bay, essentially an open wall with the floor at the ground level is located at the west end of the structure.

Within the pumping station is the control room. The control room contains much of the operating mechanics for the structure's electrical systems. It is in the control room where electricity is received from the electrical company and goes into transformers. The transformers are lever-operated from the control room. Two independent electrical lines, A and B, run into the opposing east-west ends of the control room. The A line operates the canal gates and the first and second pump, and is located on the west side of the building. The east side line, the B line, controls the river gates and the remaining pumps. Only one line is necessary, while the other is a back-up. Either electrical line may be bused over to the opposite side to provide electricity for the entire system. Operations which do not take place in the control room occur on the operating floor.

The operating floor, occupying most of the interior, houses five vertically mounted axial flow 119-inch pumps which keep the river water from backing up when the river gates are down. The five pumps are each 20 feet in diameter and 54.7 feet high and have a combined capacity of 7,000 cubic feet per second. The pumps are General Electric pumps, powered by a 4,500 horsepower motor that turns an impeller pump 150 revolutions per minute. Each pump is capable of lifting 630,000 gallons of water per minute. Together they have a capacity to move 3,150,000 gallons per minute. Each pump is also equipped with hydraulically operated backwater closures, designed to prevent reverse flow of river water.

Each of the pumps is routinely inspected. During each overhaul, the motor and shaft are removed. The upper and lower bearings have all been replaced. Although replacements have been necessary for some of the operating components of the pumps, the mechanics and the overall structures have not been altered. The equipment used in 1966 is still technologically appropriate. The only alteration includes the replacement of temperature gages with digital thermometers.

The pumping station has a small backup generator that uses natural gas to supply emergency power for some project elements. Lights, communications, river, and canal gates (movement up and down) can be operated using the backup generator. The flood control pumps used to pass river water cannot be operated on backup power.

See Appendix J for details and photos.

1.10.3.5 Canal Gates

A 1,500-foot timber panel wall forms a channel approximately 65 feet wide along the west side of the Providence River. The water source provides cooling water for the condensers of what were the Narragansett Electric Company's steam power plants. Guarding this canal is two 10 foot by 15 foot gates with an invert elevation of minus 15.72' MLLW (-18' MSL). The gates are located west of the pumps and the mechanics are contained within the pumping station structure. Soon after the dedication of the Hurricane Barrier, it was realized that the steel members of the cooling water canal were corroding. Subsequently, Galvanum was applied to the steel to protect it from the corrosive factors of the river water. See Appendix J for details and photos.

1.10.3.6 Dikes (Levees)

Two long rock and earth dikes each span the east and west banks of the Providence River, parallel to the Narragansett Bay shoreline. Composed of armor stone, rolled earth fill faced with a rock shell, the dikes extend to where the land is 25 feet above sea level - high enough to contain a storm surge. They range between 10 and 15 feet high to provide protection from tidal waves. Penetration in the dike exists only at the points of the vehicular gates (see below) and at Benefit Street which may be closed with sandbags in the case of an emergency. Because this component of the structure impedes on the land on either side of the river, the project required acquisition of land lots from outside interests.

From the east abutment, an earth-cored rip rapped 800 foot dike extends in a northeast direction toward the toe of a hill. At the abutment, on lot #16, plot #18, the dike is 17 feet above ground level and has a base width of about 80 feet. The dike severs South Main Street and continues along lot #40, tapering to a height of 11 feet and a base of 60 feet. A concrete land wall continues to the intersection of Tockwotton and Traverse Streets, crossing lot #94 and lots #135, #152, #236, and #238.

The 1,200-foot west dike begins on the property of the electric company (lots #145, #96, and #185) with an 80-foot base and 15 to 17-foot height. The dike continues in a westerly direction for 400 feet and then curves south toward Allens Avenue, severing Commercial Street and rounding a 136,000 barrel (Bbl) fuel oil storage tank. The dike cuts the southeast corners of lots #267 and #11, runs parallel for 160 feet along Allens Avenue, and then turns west 90 degrees to span the right-of-way flood gates. This cuts 35 feet off of the northwest corner of lot #243. At the west side of Allens Avenue, the dike severs the southern portion of lot #191.

See Appendix J for details and photos.

1.10.3.7 Vehicular Gates

Located where Allens Avenue and South Main Street intersect with the dikes, two vehicular gates provide a passageway. During a flood these steel swing gates may be closed and sand bags are used to seal them completely. The structural steel gates are supported by reinforced concrete abutments. The concrete used is Type V, as it is throughout the Barrier's structure. The supports are on bearing piles driven virtually in glacial till or to bedrock. The two-leaf swing gates are structural steel members faced with steel plate. The two leaves swing on hinges to meet in the center of the street, and A-frames erected in the roadway provide intermediate support. The leaves are framed with structural steel rolled sections covered with steel plate facing. The gates swing manually toward the City of Providence with the help of "arms" (on the gates themselves) and "feet" (anchored under the road).

The gates at Allens Avenue are 13 feet high and 76 feet wide, but have a clear opening of 67 feet. The top elevation is 27.25' MLLW (25' MSL) while the sill elevation is 14.50' MLLW (12.25 MSL). The abutment wall is recessed such that each gate will swing back, but with one face exposed to the weather. Three A-frames support the gates, each made of aluminum alloy and consist of a diagonal compression strut and a vertical tension member, all pin connected.

The South Main Street vehicular gate has a clear opening of 41.5 feet, a top elevation of 27.25' MLLW (25' MSL), and a sill elevation of 16.25' MLLW (14' MSL). The structure is similar to the gate at Allens Avenue. The reinforced concrete abutments and sill are supported by bearing piling. The South Main Street steel gate will also be of two leaves, but with a single A-frame support.

An additional steel swing gate provides access between the electric company plants, which are above the dike, and its fuel storage area just below. See Appendix J for details and photos.

1.10.4 General Tasks

1.10.4.1 US Army Corps of Engineers

The US Army Corps of Engineers provides technical and direct assistance to communities to reduce risk to the public, property or the environment, with the emphasis on public safety under the Flood Control and Coastal Emergency Act, often called Public Law 84-99. The law gives the Corps the authority to provide a range of assistance – technical assistance, supplies and equipment, emergency contracting, strengthening flood control works, creating temporary levees, channel clearance, dam failure relief, levee rehabilitation and participation in an intergovernmental levee task force.

1.10.4.2 Narragansett Bay Commission

Narragansett Bay Commission owns and operates Rhode Island's two largest wastewater treatment plants along with an extensive infrastructure of interceptors, pump stations, tide-gates and combined sewer overflows.

1.10.4.3 Providence Water Supply Board

Providence Water operates the largest water utility in the State of Rhode Island (the "State"). Providence Water obtains its water supply from a series of surface water reservoirs located in the central portion of the State, treats the raw water through a rapid sand filter filtration plant using conventional chemical treatment, and transmits the treated water to a retail and wholesale distribution system. The purpose of the PWSB is to supervise, manage and control water collection, storage, purification, and distribution systems of the City of Providence, Rhode Island (the "City") and other areas within its jurisdiction; and to protect and conserve the water supply of the City and other areas within its jurisdiction.

1.10.4.4 City of Providence Department of Public Works

The Department of Public Works operates and maintains responsibility for the earth fill dikes with stone slope protection that flank each side of the barrier and for the five vehicular street gates. The Narragansett Bay Commission (NBC) owns the pipes supporting the five sewer gates that comprise the rest of the project, but the Providence DPW owns and is responsible for the maintenance of the gates.

1.10.4.5 Providence Emergency Management Agency

The Providence Emergency Management Agency coordinates actions of Fox Point Hurricane Barrier stakeholders during major flooding as a result of a Hurricane or major Coastal Storm.

1.11 ADMINISTRATION & LOGISTICS

1.11.1 ADMINISTRATION

1.11.1.1 Local Area Information

The population of Providence is about 180,000 in an area of 18.47 square miles. Providence County has a population of about 622,000 in an area of 413 square miles. The Providence--Fall River--Warwick, RI--MA Metropolitan area has a population of about 1.19 million in an area of 1,142 square miles. The facility is in Census Tract 6 which has a population of 1,606 and an area of .8 square miles. All figures are from the 2010 Census.

There are about 100 public and 68 private schools or childcare-centers/preschools within a 3.9 mile radius of the building.

1.11.2 LOGISTICS

1.11.2.1 Interdependencies

- **Electric Power** is provided by:

National Grid
(800) 465-1212
www.nationalgridus.com

National Grid provides electric service to approximately 477,000 customers in Rhode Island.

- **Natural Gas** is provided by:
National Grid
(800) 640-1595
www.nationalgridus.com

National Grid provides natural gas service to approximately 245,000 customers in Rhode Island.

- **Water** is provided by:
Providence Water Supply Board
(401) 521-6300
www.provwater.com

Providence Water Supply Board sells water to 73,800 retail customer connections including houses and businesses in Providence, Johnston, North Providence, Smithfield, and Cranston and to eight wholesale communities serving a number of additional municipalities within the State. Providence Water presently supplies approximately 60 percent of the state's drinking water. Of the water produced, 36 percent is supplied to the residents of Providence, 22 percent to the retail districts outside of Providence, and 42 percent goes to the wholesale water districts.

- **Wastewater Services** are provided by:
Narragansett Bay Commission
(401) 461-8848
www.narrabay.com

Narragansett Bay Commission carries away unwanted wastewater from homes, schools, businesses and industries for 360,000 people and 8,000 businesses. It treats 64 million gallons of sewage per day.

1.12 COMMAND & SIGNAL

1.12.1 COMMAND

1.12.1.1 Points of Contact

Agency: **US Army Corps of Engineers**

Name: John MacPherson

Title: Canal Manager

Street: 40 Academy Drive

City: Buzzards Bay

State: Massachusetts

Work: (978) 318-8176

Mobile: (508) 825-3426

24/7 Canal Ops Center: 508-743-9348

E-mail: John.C.MacPherson@usace.army.mil

Agency: **US Army Corps of Engineers**

Name: Drew Cattano

Title: Barrier Manager

Street: 40 Academy Drive

City: Buzzards Bay

State: Massachusetts

Work: (978) 318-8329

Mobile: (908) 251-2587

24/7 Canal Ops Center: 508-743-9348

E-mail: Andrew.M.Cattano@usace.army.mil

Agency: **Department of Public Works**

Name: Leo Perrotta

Title: Director, DPW

Street: 700 Allens Avenue

City: Providence

State: Rhode Island

Work: (401) 467-7590

Mobile: (401) 286-1892

E-mail: lperrotta@providenceri.gov

Agency: **Department of Public Works**

Name: William Bombard

Title: City Engineer

Street: 700 Allens Avenue

City: Providence

State: Rhode Island

Work: (401) 467-7950

Mobile: (401) 440-0019

E-mail: wbombard@providenceri.com

Agency: **Narragansett Bay Commission**

Name: Meg Goulet
Title: Director of Operations & Maintenance
Street: 1 Service. Rd.
City: Providence
State: Rhode Island
Work: (401) 461-8848
Mobile: (401) 639-3217
E-mail: mgoulet@narrabay.com

Agency: **Providence Water Supply Board**

Name: Peter R. LePage
Title: Director of Engineering
Street: 125 Dupont Drive
City: Providence
State: Rhode Island
Work: (401)-521-6300 ext 7242
Mobile: (401) 316-3985
E-mail: plepage@provwater.com

Agency: **Providence Emergency Management Agency**

Name: Clara Decerbo
Title: Director
Street Address: 591 Charles St.
City: Providence
State: Rhode Island
Office: (401) 680-8091
Mobile: (401) 648-1619
E-mail: cdecerbo@providenceri.gov

1.12.1.2 Transfer to the US Army Corps of Engineers

Congress authorized responsibility of the operation and maintenance of the Fox Point Hurricane Barrier to the Secretary of the Army from the City of Providence, beginning in October 2008. This authorization was included in the FY2007 National Defense Authorization Act and required the city to convey real estate to the Secretary. The City of Providence continued to operate and maintain the project until funding was appropriated and all legal and real estate issues were resolved, to allow the Corps of Engineers to make the transfer and begin operation and maintenance of the hurricane barrier.

The U.S. Army Corps of Engineers, New England District, took over the operations and maintenance of the Fox Point Hurricane Barrier in Providence, Rhode Island, as of 1 February 2010. Day-to-day management of the Fox Point Hurricane Barrier now falls under the Corps of Engineers' Cape Cod Canal Field Office in Buzzards Bay, MA.

Operation and maintenance responsibility remains with the City of Providence for the earth fill dikes with stone slope protection that flank each side of the barrier and for the five vehicular street gates and the five sewer gates that comprise the rest of the project. Two 10-15 foot high earth fill dikes with stone slope protection, flank each side of the barrier. The eastern dike is 780 feet long and the western dike is 1,400 feet long. There are five vehicular gates located at Allens Avenue, South Main Street, India Street, South Water Street and at Dominion Energy and five sewer gates that prevent high tides from back up through the sewer lines.

1.12.2 SIGNAL

1.12.2.1 Radio Frequencies / Talk Groups

Organization	Talk Group / Frequency	Remarks
USACE	Tx Freq: 163.4875 Rx Freq: 173.4875 Tx channel Private Line guard: 100 Rx channel Private Line guard: 100	"NED" channel provides comms between Canal Project and District Office in Concord, MA,
DPW	DPW 1	City of Providence uses 800 MHz trunked banded radio system.
NBC		
PWSB	Water Supply	City of Providence uses 800 MHz trunked banded radio system.
PEMA	PEMA 1	City of Providence uses 800 MHz trunked banded radio system.
Providence Public Safety	Mayor's EAB	City of Providence uses 800 MHz trunked banded radio system.

1.13 GLOSSARY

Advisory: Highlights special weather conditions that are less serious than a warning. They are for events that may cause significant inconvenience, and if caution is not exercised, it could lead to situations that may threaten life and/or property.

All-Hazards: Describing an incident, natural or manmade, that warrants action to protect life, property, environment, and public health or safety, and to minimize disruptions of government, social, or economic activities.

Astronomical High / Low Tide: The predicted or astronomical tide is the daily change in water level produced by the gravitational interactions of the earth, moon and sun. Mathematical formulas allow the astronomical tides to be predicted years in advance for the familiar Tide Tables that list the predicted times and heights of the daily highs and lows. The highest water level that a given formula can ever predict is called Highest Astronomical Tide (HAT) and the lowest level it can predict is called Lowest Astronomical Tide (LAT). Both are used as tidal datums in the United Kingdom and elsewhere but are not among the datums officially recognized in the United States where Mean High High Water (MHHW), Mean Lower Low Water (MLLW) and Mean Sea Level (MSL) are among the tidal datums in use.

Civil Emergency Message (CEM): A message issued by the National Weather Service in coordination with Federal, state or local government to warn the general public of a non-weather related time-critical emergency which threatens life or property, e.g. nuclear accident, toxic chemical spill, etc.

Command: The act of directing, ordering, or controlling by virtue of explicit statutory, regulatory, or delegated authority.

Common Terminology: Normally used words and phrases-avoiding the use of different words/phrases for same concepts-to ensure consistency and to allow diverse incident management and support organizations to work together across a wide variety of incident management functions and hazard scenarios.

Communications: The process of transmission of information through verbal, written, or symbolic means.

Corrective Actions: The implementation of procedures that are based on lessons learned from actual incidents or from training and exercises.

Critical Infrastructure: Assets, systems, and networks, whether physical or virtual, so vital to the United States that the incapacitation or destruction of such assets, systems, or networks would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters.

Datum: A geodetic datum is a reference from which measurements are made. In surveying and geodesy, a datum is a set of reference points on the Earth's surface against which position measurements are made, and (often) an associated model of the shape of the earth (reference ellipsoid) to define a geographic coordinate system. Horizontal datums are used for describing a point on the earth's surface, in latitude and longitude or another coordinate system. Vertical datums measure elevations or depths. In engineering and drafting, a datum is a reference point, surface, or axis on an object against which measurements are made.

Emergency: Any incident, whether natural or manmade, that requires responsive action to protect life or property. Under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, an emergency means any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States.

Emergency Management Assistance Compact (EMAC): A congressionally ratified organization that provides form and structure to interstate mutual aid. Through EMAC, a disaster-affected State can request and receive assistance from other member States quickly and efficiently, resolving two key issues up front: liability and reimbursement.

Emergency Operations Center (EOC): The physical location at which the coordination of information and resources to support incident management (on-scene operations) activities normally takes place. An EOC may be a temporary facility or may be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, medical services), by jurisdiction (e.g., Federal, State, regional, tribal, city, county), or by some combination thereof.

Emergency Operations Plan: An ongoing plan for responding to a wide variety of potential hazards.

Emergency Public Information: Information that is disseminated primarily in anticipation of or during an emergency. In addition to providing situational information to the public, it frequently provides directive actions required to be taken by the general public.

Evacuation: The organized, phased, and supervised withdrawal, dispersal, or removal of civilians from dangerous or potentially dangerous areas, and their reception and care in safe areas.

Flash Flood: A rapid and extreme flow of high water into a normally dry area, or a rapid water level rise in a stream or creek above a predetermined flood level, beginning within six hours of the causative event (e.g., intense rainfall, dam failure, ice jam). However, the actual time threshold may vary in different parts of the country. Ongoing flooding can intensify to flash flooding in cases where intense rainfall results in a rapid surge of rising flood waters.

Flood Categories: Terms defined for each forecast point which describe or categorize the severity of flood impacts in the corresponding river/stream reach. Each flood category is bounded by an upper and lower stage (see Example 1). The severity of flooding at a given stage is not necessarily the same at all locations along a river reach due to varying channel/bank characteristics or presence of levees on portions of the reach. Therefore, the upper and lower stages for a given flood category are usually associated with water levels corresponding to the most significant flood impacts somewhere in the reach. The flood categories used in the NWS are:

- **Minor Flooding** - minimal or no property damage, but possibly some public threat.
- **Moderate Flooding** - some inundation of structures and roads near stream. Some evacuations of people and/or transfer of property to higher elevations.
- **Major Flooding** - extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.
- **Record Flooding** - flooding which equals or exceeds the highest stage or discharge at a given site during the period of record keeping.

Note: all three of the lower flood categories (minor, moderate, major) do not necessarily exist for a given forecast point. For example, at the level where a river reaches flood stage, it may be considered moderate flooding. However, at least one of these three flood categories must start at flood stage.

Flooding Levels (Stages): There are four levels of flooding:

- **Action Stage:** Typically at this level, the water surface is generally over the top of its banks, but no man-made structures are flooded; typically water overflowing is limited to parkland and marshland.
- **Minor Flood Stage:** Minor flooding is expected at this level, slightly above flood stage. Few, if any, buildings are expected to be inundated, however, roads may be covered with water, parklands and yards may be inundated and water may go under buildings on stilts or higher elevations.
- **Moderate Flood Stage:** Inundation of buildings begins at this stage. Roads are likely to be closed and some areas cut off. Some evacuations may be necessary.
- **Major Flood Stage:** Significant to catastrophic, life-threatening flooding is expected at this stage. Extensive flooding with some low-lying areas completely inundated is likely. Structures may be completely submerged. Large-scale evacuations may be necessary.

Flood Warning: In hydrologic terms, a release by the NWS to inform the public of flooding along larger streams in which there is a serious threat to life or property. A flood warning will usually contain river stage (level) forecasts.

Flood Watch: Issued to inform the public and cooperating agencies that current and developing hydro-meteorological conditions are such that there is a threat of flooding, but the occurrence is neither certain nor imminent.

Freeboard: In hydrologic terms, the vertical distance between the normal maximum level of the water surface in a channel, reservoir, tank, canal, etc., and the top of the sides of a levee, dam, etc., which is provided so that waves and other movements of the liquid will not overtop the confining structure.

Hazard: Something that is potentially dangerous or harmful, often the root cause of an unwanted outcome.

Hurricane Warning: A warning that sustained winds 64 kt (74 mph or 119 kph) or higher associated with a hurricane are expected in a specified coastal area in 24 hours or less. A hurricane warning can remain in effect when dangerously high water or a combination of dangerously high water and exceptionally high waves continue, even though winds may be less than hurricane force.

Hurricane Watch: An announcement of specific coastal areas that a hurricane or an incipient hurricane condition poses a possible threat, generally within 36 hours.

Incident: An occurrence, natural or manmade, that requires a response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wild land and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response.

Incident Action Plan (IAP): An oral or written plan containing general objectives reflecting the overall strategy for managing an incident. It may include the identification of operational resources and assignments. It may also include attachments that provide direction and important information for management of the incident during one or more operational periods.

Incident Commander (IC): The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.

Jurisdiction: A range or sphere of authority. Public agencies have jurisdiction at an incident related to their legal responsibilities and authority. Jurisdictional authority at an incident can be political or geographical (e.g., Federal, State, tribal, local boundary lines) or functional (e.g., law enforcement, public health).

Key Resource: Any publicly or privately controlled resource essential to the minimal operations of the economy and government.

Kilopound (Kip): The name comes from combining the words "kilo" and "pound"; it is occasionally called a *kilopound*. Its symbol is kip. A kip is a non-SI unit of force that equals 1,000

pounds-force, used primarily by architects and engineers to measure engineering loads. Although uncommon, it is occasionally also considered a unit of mass, equal to 1,000 pounds, i.e. one half of a U.S. ton. $1 \text{ kip} = 4448.222 \text{ Newton's} = 4.448222 \text{ kilonewtons (kN)}$.

Levee (Dike): A levee, dike (or dyke), embankment, flood-bank or stop-bank is a natural or artificial slope or wall to regulate water levels. It is usually earthen and often parallel to the course of a river or the coast.

Local Government: Public entities responsible for the security and welfare of a designated area as established by law. A county, municipality, city, town, township, local public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; an Indian tribe or authorized tribal entity, or in Alaska a Native Village or Alaska Regional Native Corporation; a rural community, unincorporated town or village, or other public entity. See Section 2 (10), Homeland Security Act of 2002, Pub. L. 107-296, 116 Stat. 2135 (2002).

Mean High High Water (MHHW): A tidal datum. The average of the high high water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

Mean High Water (MHW): A tidal datum. The average of all the high water heights observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

Mean Low Water (MLW): A tidal datum. The average of all the low water heights observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

Mean Low Low Water (MLLW): A tidal datum. The average of the low low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent datum of the National Tidal Datum Epoch.

Mean Sea Level (MSL): The arithmetic mean of hourly water elevations observed over a specific 19-year tidal epoch.

Mean Tide Level (MTL): The arithmetic mean of mean high water and mean low water over a suitably long period (e.g. a month).

Mitigation: Activities providing a critical foundation in the effort to reduce the loss of life and property from natural and/or manmade disasters by avoiding or lessening the impact of a disaster and providing value to the public by creating safer communities. Mitigation seeks to fix the cycle of disaster damage, reconstruction, and repeated damage. These activities or actions, in most cases, will have a long-term sustained effect.

National Geodetic Vertical Datum (NGVD): The Sea Level Datum of 1929 was the vertical control datum established for vertical control surveying in the United States of America by the General Adjustment of 1929. The datum was used to measure elevation (altitude) above, and depression (depth) below, Mean Sea Level (MSL). Mean Sea Level was measured at 26 tide gauges: 21 in the United States and 5 in Canada. The datum was defined by the observed heights of Mean Sea Level at the 26 tide gauges and by the set of elevations of all bench marks resulting from the adjustment. The adjustment required a total of 66,315 miles (106,724 km) of leveling with 246 closed circuits and 25 circuits at sea level. Since the Sea Level Datum of 1929 was a hybrid model, it was not a pure model of Mean Sea Level, the geoid, or any other equipotential surface. Therefore, it was renamed the National Geodetic Vertical Datum of 1929 (NGVD 29) in 1973. The NGVD 29 was subsequently replaced by the North American Vertical Datum of 1988 (NAVD 88) based upon the General Adjustment of the North American Datum of 1988.

National Incident Management System: A set of principles that provides a systematic, proactive approach guiding government agencies at all levels, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life or property and harm to the environment.

North American Vertical Datum of 1988 (NAVD 88): NAVD 88 is the vertical control datum established in 1991 by the minimum-constraint adjustment of the Canadian-Mexican-U.S. leveling observations. It held fixed the height of the primary tidal bench mark, referenced to the new International Great Lakes Datum of 1985 local Mean Sea Level height value, at Father Point/Rimouski, Quebec, Canada. Additional tidal bench mark elevations were not used due to the demonstrated variations in sea surface topography, i.e., the fact that Mean Sea Level is not the same equipotential surface at all tidal bench marks.

Operational Period: The time scheduled for executing a given set of operation actions, as specified in the Incident Action Plan. Operational periods can be of various lengths, although usually they last 12 to 24 hours.

Plain Language: Communication that can be understood by the intended audience and meets the purpose of the communicator. For the purpose of the National Incident Management System, plain language is designed to eliminate or limit the use of codes and acronyms, as appropriate, during incident response involving more than a single agency.

Preparedness: A continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response. Within the National Incident Management System, preparedness focuses on the following elements: planning; procedures and protocols; training and exercises; personnel qualification and certification; and equipment certification.

Prevention: Actions to avoid an incident or to intervene to stop an incident from occurring. Prevention involves actions to protect lives and property. It involves applying intelligence and other information to a range of activities that may include such countermeasures as deterrence operations; heightened inspections; improved surveillance and security operations; investigations to determine the full nature and source of the threat; public health and agricultural surveillance and testing processes; immunizations, isolation, or quarantine; and, as appropriate, specific law enforcement operations aimed at deterring, preempting, interdicting, or disrupting illegal activity and apprehending potential perpetrators and bringing them to justice.

Public Information: Processes, procedures, and systems for communicating timely, accurate, and accessible information on an incident's cause, size, and current situation; resources committed; and other matters of general interest to the public, responders, and additional stakeholders (both directly affected and indirectly affected).

Recovery: The development, coordination, and execution of service- and site-restoration plans; the reconstitution of government operations and services; individual, private-sector, nongovernmental, and public assistance programs to provide housing and to promote restoration; long-term care and treatment of affected persons; additional measures for social, political, environmental, and economic restoration; evaluation of the incident to identify lessons learned; post-incident reporting; and development of initiatives to mitigate the effects of future incidents.

Response: Activities that address the short-term, direct effects of an incident. Response includes immediate actions to save lives, protect property, and meet basic human needs. Response also includes the execution of emergency operations plans and of mitigation activities designed to limit the loss of life, personal injury, property damage, and other unfavorable outcomes. As indicated by the situation, response activities include applying intelligence and other information to lessen the effects or consequences of an incident; increased security operations; continuing investigations into nature and source of the threat; ongoing public health and agricultural surveillance and testing processes; immunizations, isolation, or quarantine; and specific law enforcement operations aimed at preempting, interdicting, or disrupting illegal activity, and apprehending actual perpetrators and bringing them to justice.

Situation Report: Confirmed or verified information regarding the specific details relating to an incident.

Standard Operating Procedure: A complete reference document or an operations manual that provides the purpose, authorities, duration, and details for the preferred method of performing a single function or a number of interrelated functions in a uniform manner.

Surge Level: The meteorologically induced component, sometimes called the non tidal residual. A large (positive) surge caused by an extreme meteorological event is called a 'storm surge'. Surge levels are not predictable in a time series as are tidal levels but their statistics do have some regularity (e.g. surges in Europe tend to persist for 1-2 days).

Threat: Natural or manmade occurrence, individual, entity, or action that has or indicates the potential to harm life, information, operations, the environment, and/or property.

Tropical Storm Warning: A warning for sustained surface winds, associated with a tropical cyclone, within the range of 34 to 63 knots (39 to 73 mph), expected in a specified coastal area within 24 hours.

Tropical Storm Watch: An announcement that a tropical storm poses or tropical storm conditions pose a threat to coastal areas generally within 36 hours. A tropical storm watch should normally not be issued if the system is forecast to attain hurricane strength.

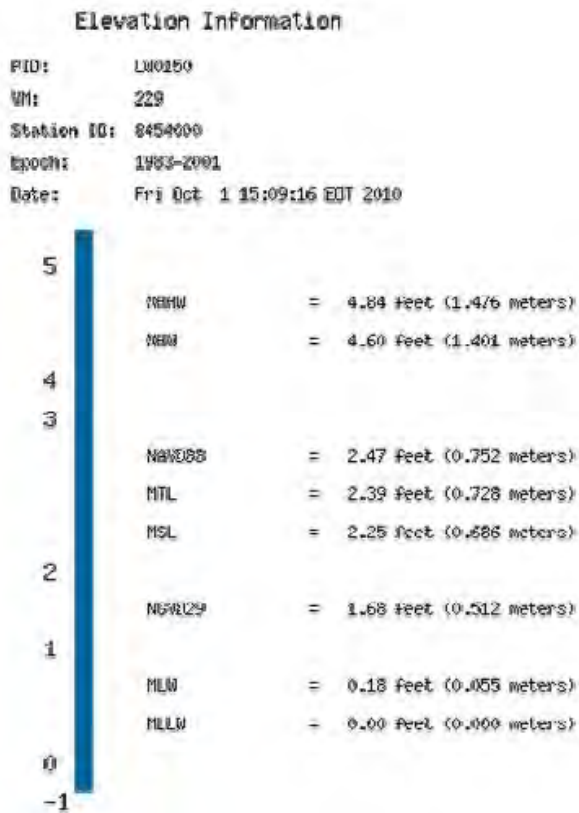
Unified Command (UC): An Incident Command System application used when more than one agency has incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the UC, often the senior persons from agencies and/or disciplines participating in the UC, to establish a common set of objectives and strategies and a single Incident Action Plan.

Unity of Command: An Incident Command System principle stating that each individual involved in incident operations will be assigned to only one supervisor.

1.14 REFERENCE

- Flood Control Act of 1958.
- DHS (U.S. Department of Homeland Security). 2008. *National Response Framework*. Washington, DC: Department of Homeland Security.
- National Incident Management System. Washington, DC: Department of Homeland Security, 2008.
- National Preparedness Guidelines. Washington DC: Department of Homeland Security, 2007.
- Local and Tribal NIMS Integration. Washington, DC: Department of Homeland Security, 2006.
- National Infrastructure Protection Plan. Washington DC: Department of Homeland Security, 2006.
- Emergency Management Accreditation Program, 2019. EMAP Standard. Lexington, KY: EMAP. (4.7.1)

APPENDIX A: Elevation Information



The NAVD 88 and the NGVD 29 elevations related to MLLW were computed from Bench Mark, 845 4000 TIDAL 6 RESET, at the station.

Displayed tidal datums are Mean Higher High Water(MHHW), Mean High Water (MHW), Mean Tide Level(MTL), Mean Sea Level (MSL), Mean Low Water(MLW), and Mean Lower Low Water(MLLW) referenced on 1983-2001 Epoch.

APPENDIX B: Elevation Heights for Design of the Fox Point Hurricane Barrier

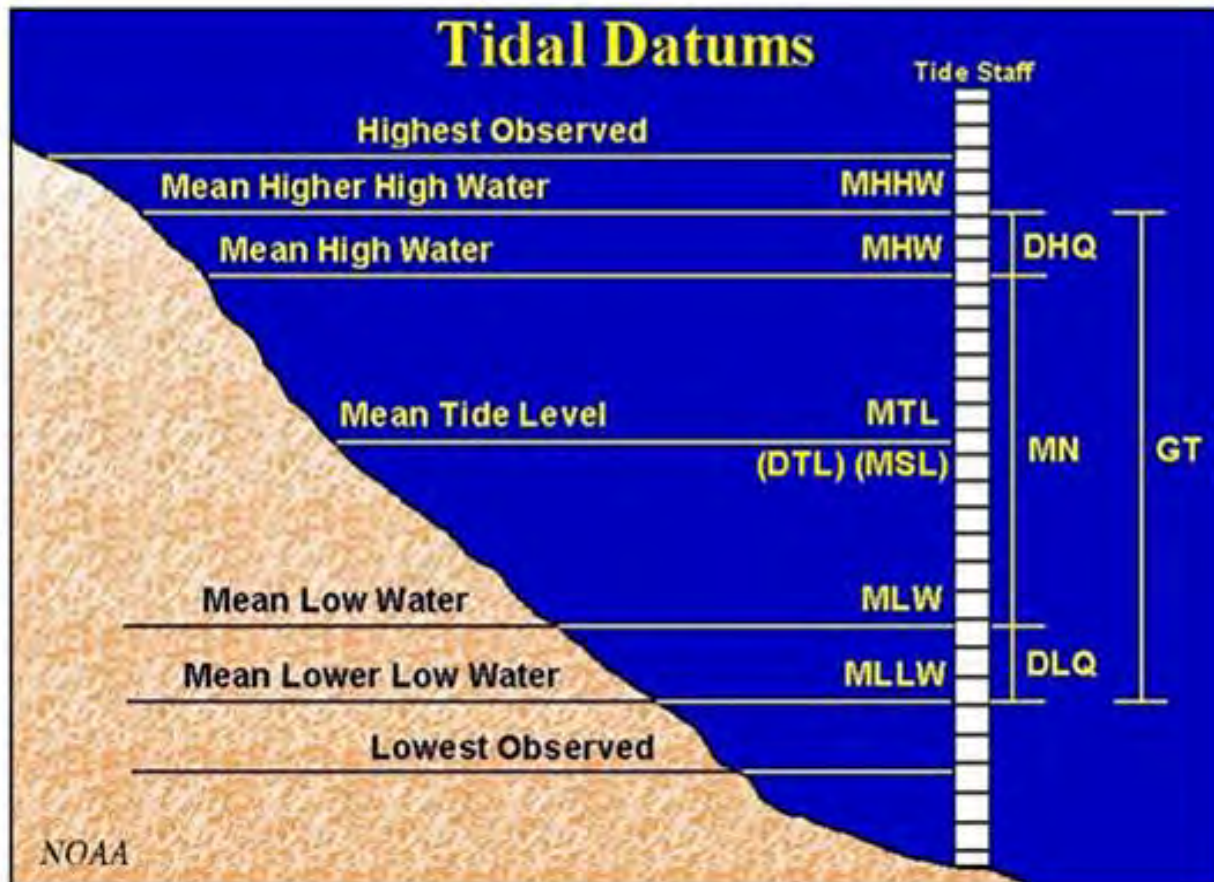
Design considerations for the Fox Point Hurricane Barrier	Feet above MLLW
Providence Flood Insurance Study	17.68
Providence FIS w/sea level (3 ft)	20.70
Providence FIS w/sea level (5 ft)	22.66
Hurricane Barrier Top	26.68
Hurricane Barrier Design Storm	22.18
1938 hurricane	17.52
NAVD88	2.47
NGVD29	1.68
MLLW	0.00

Spaulding, 2007; Providence tide gauge, 1983-2001 epoch. (NOAA, 2003)

APPENDIX C: Fox Point Hurricane Barrier – Flooding Scale



APPENDIX D: Tidal Datums



APPENDIX E: Fox Point Hurricane Barrier Hurricane Gate Location Data
(27 Sep 2010 / I-Way Construction – New Gates)

Fox Point Hurricane Barrier
Hurricane Gate Location Data
September 27, 2010
Maguire Group

Street	Sill Elev. PMHW	Sill Elev. NGVD	Lat.	Long.
South Main Street	12.69	15.04	41° 49'02"	71° 23'56"
South Water Street (former So. Main St.)	11.96	14.31	41° 49'0"	71° 23'59.5"
India Street (former So. Water St)	7.63	9.98	41° 48'58"	71° 24'02"

Elevations are per design plans.

Latitude and longitude are approximate from Google Earth

Datum - PMHW = Providence Mean High Water

0.0 PMHW = 2.35 NGVD

(Excerpt from the *Fox Point Hurricane Protection Barrier, Providence, RI, Operation and Maintenance Manual, Department of the Army, New England Division, Corps of Engineers, Waltham, Mass., September 1966.*)

1000

From medical clinic: 2 male C-14, 101 treatment on 11/21/1994

(Excerpt from the *Fox Point Hurricane Protection Barrier, Providence, RI, Operation and Maintenance Manual, Department of the Army, New England Division, Corps of Engineers, Waltham, Mass., September 1966.*)

1-800-368-6868

071803 Alleviation to meet storm abate low land

It is the author's intention that this book be used as a text for students of the history of the United States and as a reference work for those who are interested in the history of the United States.

APPENDIX H: Providence Water Supply Board (PWSB) Infrastructure

Bristol County Water Authority Wholesale Connection & Metering Vault



East Providence Water Department Wholesale Connection & Valve Vault #1



East Providence Water Department Wholesale Connection & Valve Vault #2



APPENDIX I: Fox Point Hurricane Barrier Sewer Gates



Allens Avenue Sewer Gate No.12 (Facility: AAG)

This facility consists of an underground vault in the middle of Allens Avenue with two hydraulically operated sluice gates (5'x6') and two actuators. Gate and Actuator #1 are located on the west side; and Gate and Actuator #2 are located on the east side. Hydraulic operation of these gates is performed from the Allens Avenue Hydraulic Control Building (AGH). This building (AGH) is set up such that an emergency generator can supply power to the AGH in case of a power outage. Additional photos were taken (pages AAG-1 and AAG-2) that show current conditions.



Allens Avenue Sewer Gate No. 7 and Control Station

This facility consists of one hydraulically operated sluice gate and actuator. This gate is hydraulic operated from the Allens Avenue Hydraulic Control Building (AGH). Manual operation of this gate can be performed from the elevated concrete platform located within the rip-rap of the hurricane barrier.



Allens Avenue Hydraulic Gate Control Building

This Facility consists of a masonry block building that houses the hydraulic controls for the two sewer gates at AAG and the one sewer gate at AG7.



Eddy Street Relief Gate and Control Station

This facility consists of a sluice gate and actuator operates electrically from above ground.



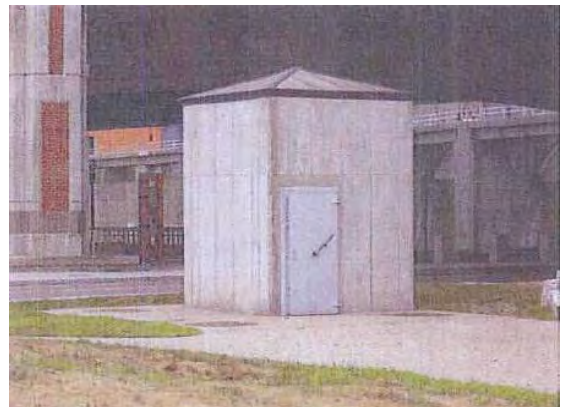
India Street Relief Gate and Control Station

This facility consists of a sluice gate and actuator operated electrically from above ground.



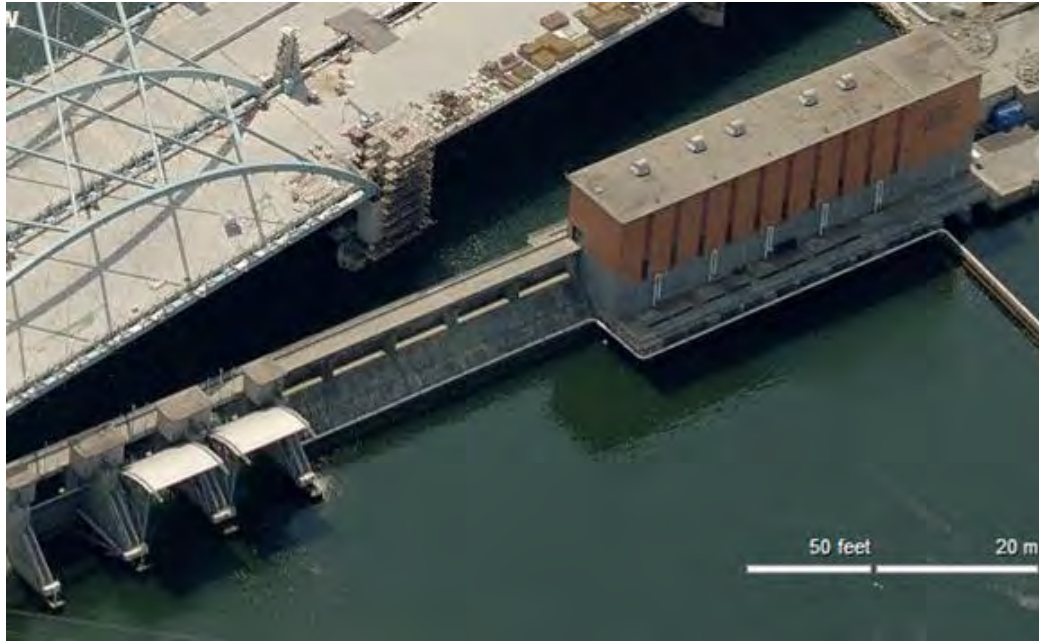
India Street Interceptor Relief Gate and Control Station

This facility consists of a small masonry structure that houses the gate actuator and is located over the sewer gate. The facility was constructed in 2008. The gate can operate electrically and manually. The electrical service can come from the grid or an emergency generator.

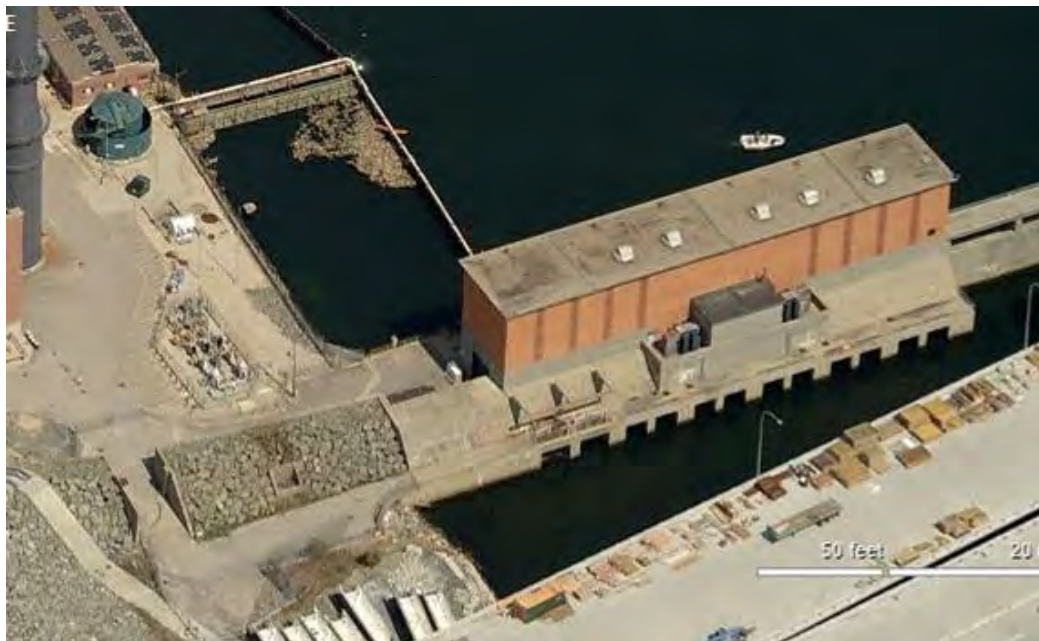


APPENDIX J: Fox Point Hurricane Barrier Infrastructure

OVERVIEW



PUMPING STATION



RIVER GATES



VEHICULAR GATES & DIKES



GATE A



GATE B



GATE C



GATE D



GATE E



APPENDIX K: Fox Point Hurricane Barrier Facts

Background

The Fox Point Hurricane Barrier was authorized by the Flood Control Act of 1958.

The Hurricane Barrier can protect against storms that produce water 20 feet above sea level.

The Hurricane Barrier protects several hundred million dollars of Downtown property in a 280 acre area.

The central business district is located in a shallow natural basin with an elevation of 8 to 12 feet above mean sea level and is bordered by the Providence River.

Construction began in 1960 and was completed in 1966.

The total cost of the project was \$16 million (1960 dollars). \$4.8 million of the project cost, or thirty percent of the cost, was financed by the City of Providence and the State of Rhode Island.

Function

Two central functions:

- (1) To retard high tides from potential storm surges in Narragansett Bay; and
- (2) To maintain river flow such that water levels do not get too high behind the barrier.

Size

3,000-foot long, 25 foot high barrier spanning from Allens Avenue to India Point Park.

Operation

The operations of the Hurricane Barrier are in accordance with the regulations prescribed by the Secretary of the Army. Today, when a hurricane reaches the 38 Longitude, a hurricane watch is effective.

The crew from the Department of Public Work gathers and the vehicular gates are closed.

Once a storm enters the Narragansett Bay, the Barrier's systems are put to use in two ways;

- (1) The tainter gates are closed, providing a half mile long, 25 foot high barrier spanning from Allens Avenue to India Point Park so that high waters in the Bay do not enter the city.
- (2) As the river water behind the Barrier rises, the pumps are put into action.

River Gates

The barrier's three openings

Mean sea level will rise to a maximum elevation of +35 feet,

The tainter gates are 40 feet square, weigh 53 tons, and curve outward toward the Bay to break the impact of the waves.

The gates descend at a rate of 1½ feet per minute, taking roughly half an hour to lower. It takes approximately 30 minutes to lower the gates which are essentially lowered by gravity. It takes about two hours to raise the gates.

The maximum vertical clearance when the gates are elevated is 25 feet above mean sea level.

Each gate weighs approximately 112,000 pounds and requires three horsepower to lift.

They are lowered and raised by electrical motor driven hoists.

Pumping Station

The pumps each require 11,000 volts of electricity to start the motors.

The pumping station, located between the west bank and the center of the river, is 68 feet above mean sea level. The station is a reinforced concrete substructure with brick superstructure. It is 213 feet long and 91 feet wide.

Two independent electrical lines, A and B, run into the opposing east-west ends of the control room. The A line operates the canal gates and the first and second pump, and is located on the west side of the building. The east side line, the B line, controls the river gates and the remaining pumps. Only one line is necessary, while the other is a back-up.

The operating floor, occupying most of the interior, houses five vertically mounted axial flow 119-inch pumps which keep the river water from backing up when the river gates are down.

The five pumps are each 20 feet in diameter and 54.7 feet high and have a combined capacity of 7000 cubic feet per second (CFS). The pumps are General Electric pumps, powered by a 4,500 horsepower motor that turns an impeller pump 150 times a minute.

Each pump is capable of lifting 630,000 gallons of water per minute. Together they have a capacity of 3,150,000 gallons per minute. Each pump is also equipped with hydraulically operated backwater closures, designed to prevent reverse flow of river water.

Dikes

Two long rock and earth dikes each span the east and west banks of the Providence River, parallel to the Narragansett Bay shoreline. Composed of armor stone, rolled earth fill faced with a rock shell, the dikes extend to where the land is 25 feet above sea level - high enough to contain a storm surge.

They range between 10 and 15 feet high to provide protection from tidal waves.

Penetration in the dike exists only at the points of the vehicular gates (see below) and at Benefit Street which may be closed with sandbags in the case of an emergency.

From the east abutment, an earth-cored rip rapped 800 foot dike extends in a northeast direction toward the toe of a hill. At the abutment, on lot #16, plot #18, the dike is 17 feet above ground level and has a base width of about 80 feet. The dike severs South Main Street and continues along lot #40, tapering to a height of 11 feet and a base of 60 feet. A concrete land wall continues to the intersection of Tockwotton and Traverse Streets, crossing lot #94 and damaging lots #135, #152, #236, and #238.

The 1200-foot west dike begins on the property of the electric company (lots #145, #96, and #185) with an 80-foot base and 15 to 17-foot height. The dike continues in a westerly direction for 400 feet and then curves south toward Allens Avenue, severing Commercial Street and rounding a 136,000 Bbl fuel oil storage tank. The dike cuts the southeast corners of lots #267 and #11, runs parallel for 160 feet along Allens Avenue, and then turns west 90 degrees to span the right-of-way flood gates. This cuts 35 feet off of the northwest corner of lot #243. As the west side of Allens Avenue, the dike severs the southern portion of lot #191.

Vehicular Gates

Located where Allens Avenue and South Main Street intersect with the dikes, two vehicular gates provide a passageway.

During a flood these steel swing gates may be closed and sand bags are used to seal them completely. The structural steel gates are supported by reinforced concrete abutments.

The gates at Allens Avenue are 13 feet high and 76 feet wide, but has a clear opening of 67 feet.

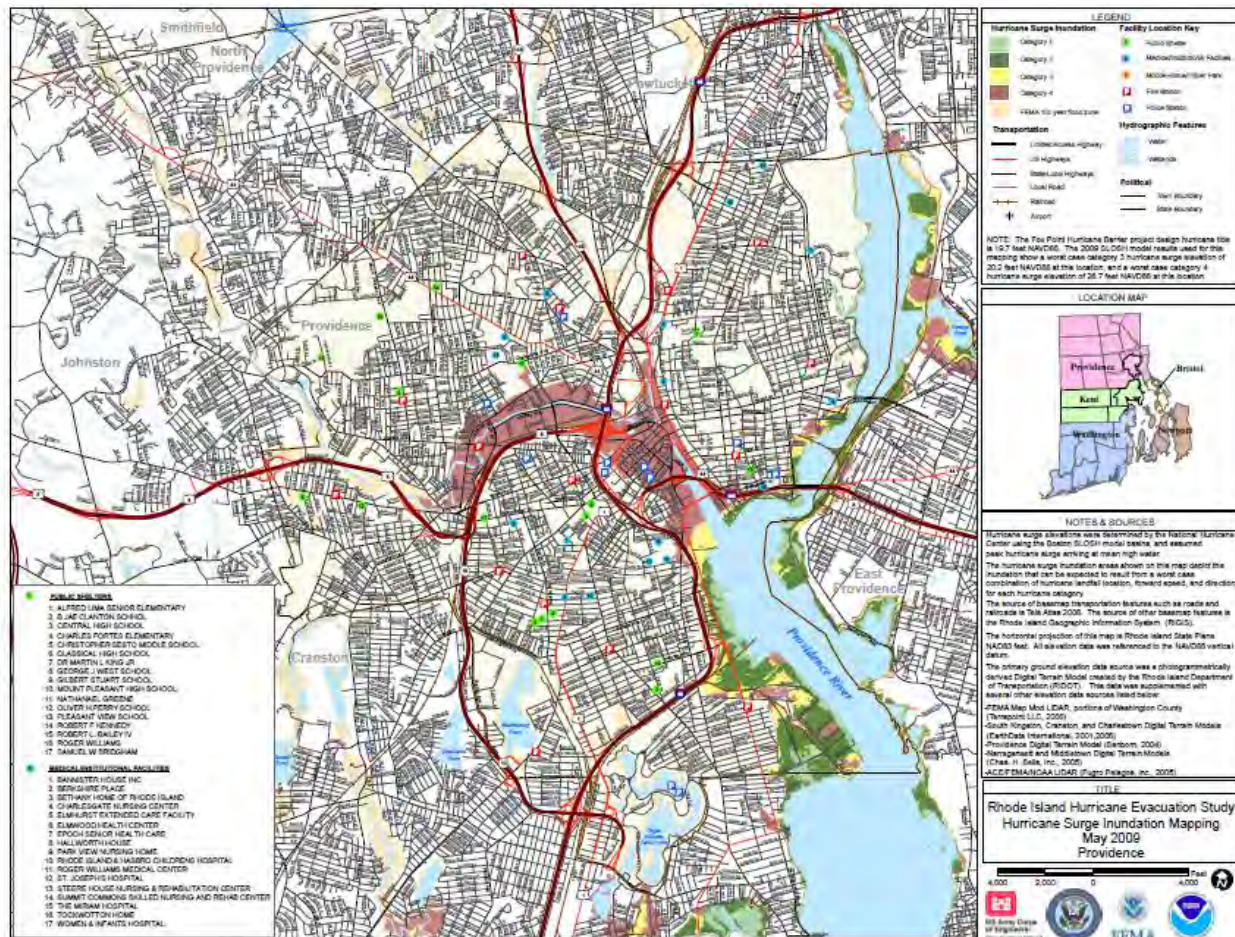
The top elevation is 25 feet above mean sea level while the sill elevation is 12.25 feet above mean sea level.

The South Main Street vehicular gate has a clear opening of 41.5 feet, a top elevation of 25 feet above mean sea level, and a sill elevation of 14 feet above mean sea level. The structure is similar to the gate at Allens Avenue.

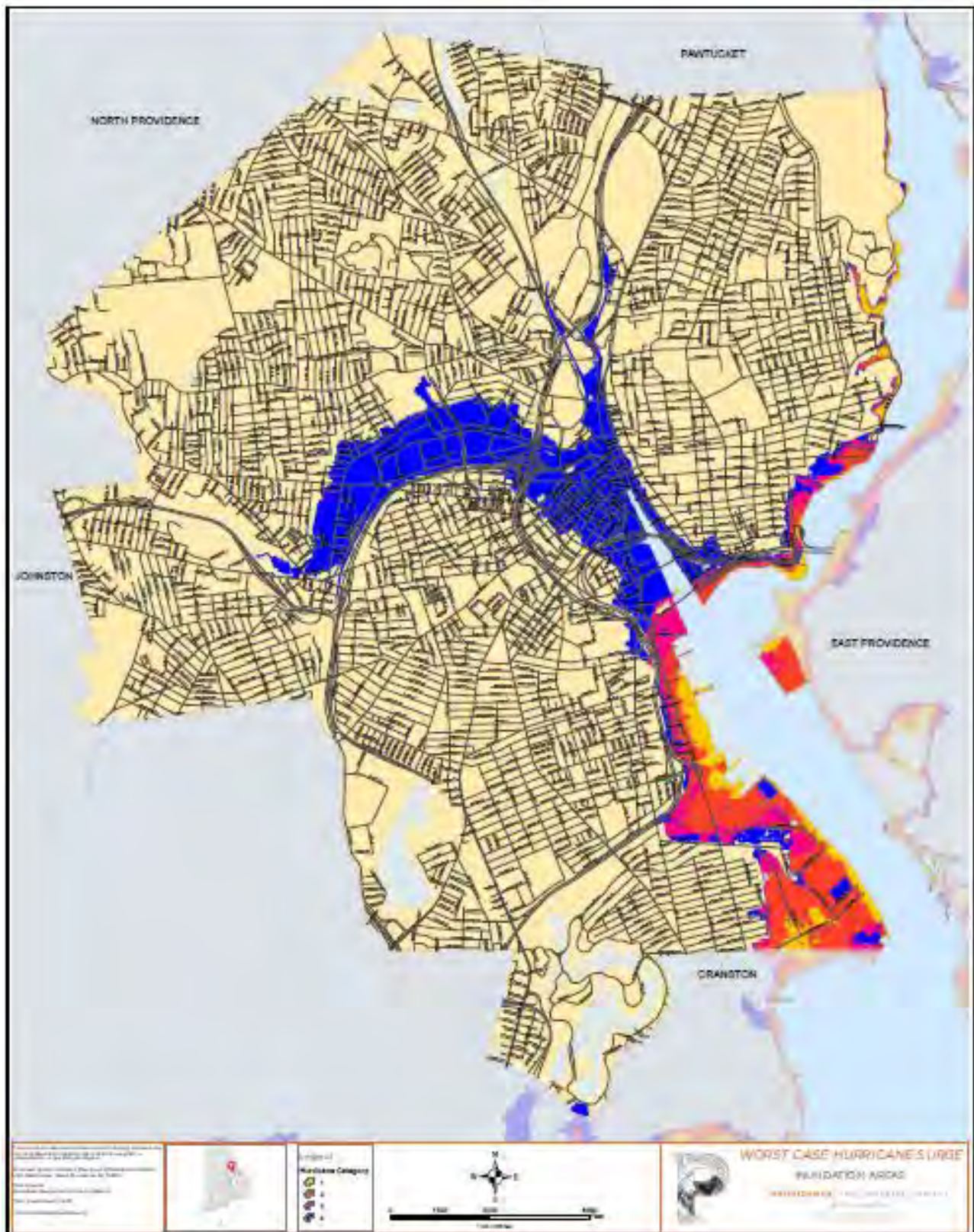
Sewer Gates

Six Sewer Gate facilities were added to the combined sewerage system to operate during severe storms to prevent the protected area behind the Fox Point Hurricane Barrier from becoming flooded by the combined sewerage system that passes under the Fox Point Hurricane Barrier. The gates are only operated during specific flood conditions and serve to seal off all forward flow of combined sewage and redirect them to the Providence River behind the Fox Point Hurricane Barrier.

APPENDIX L: Rhode Island Hurricane Evacuation Study Hurricane Surge Inundation Mapping May 2009, Providence Map



APPENDIX M: Worst Case Hurricane Surge Map



SLIDE GATE OPERATOR REPAIR

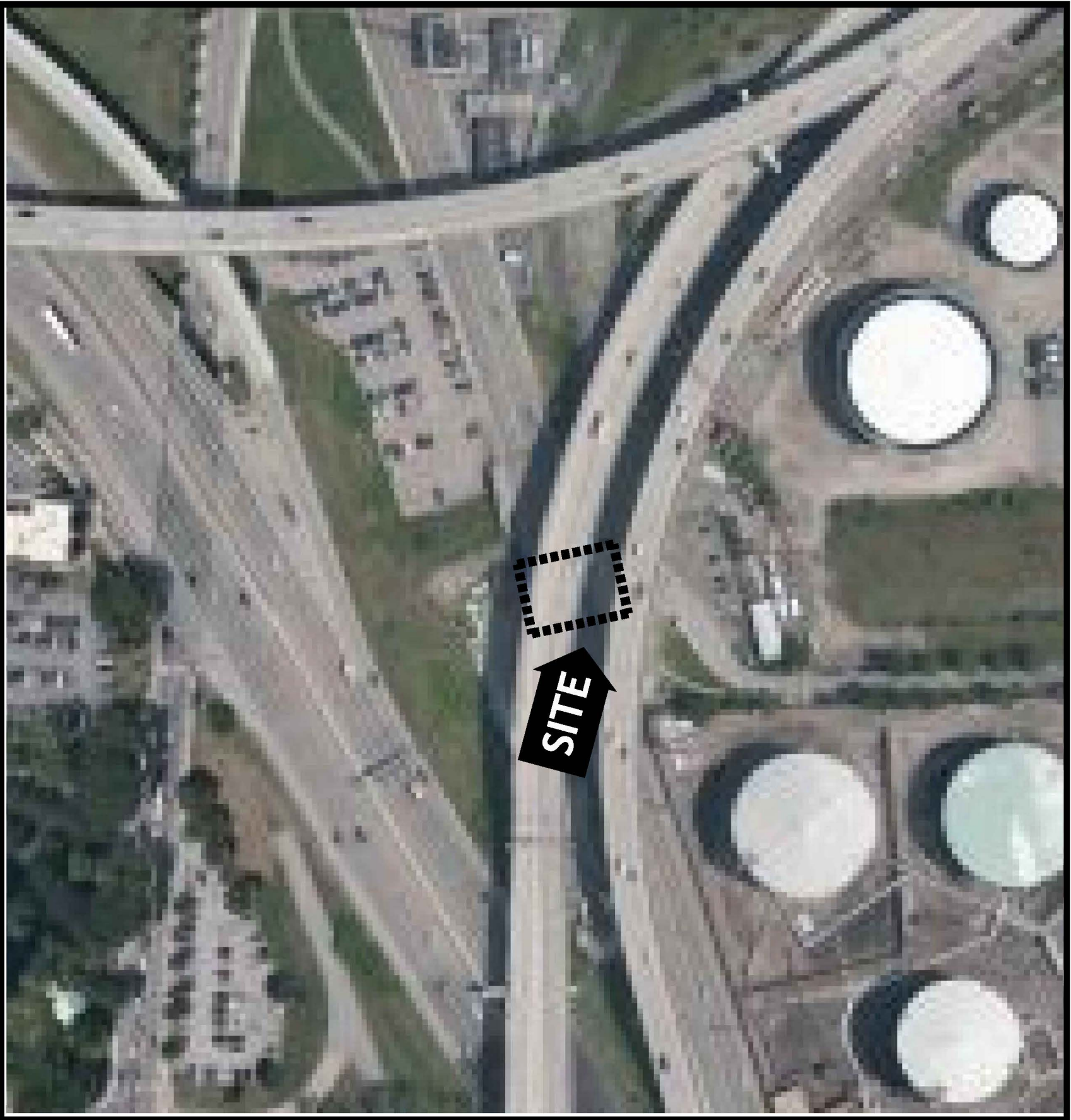
FOX POINT HURRICANE BARRIER

ALLENS AVENUE
PROVIDENCE, RHODE ISLAND

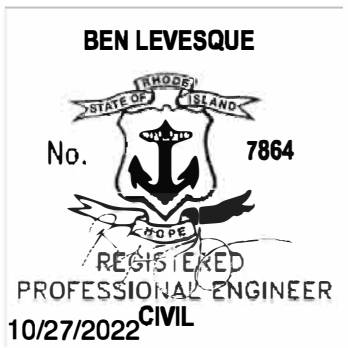


SITE VICINITY MAP

INDEX OF DRAWINGS			
CATEGORY	SHEET	DRAWING	TITLE
GENERAL	1	G-01	TITLE, INDEX OF DRAWINGS, LOCATION AND VICINITY MAPS
	2	G-02	DETAILS AND ABBREVIATIONS
	3	G-03	GENERAL NOTES
CIVIL	4	C-01	OVERALL SITE PLAN
	5	C-02	TEMPORARY TRAFFIC MANAGEMENT PLAN - 1
	6	C-03	TEMPORARY TRAFFIC MANAGEMENT PLAN - 2
	7	C-04	TEMPORARY TRAFFIC MANAGEMENT PLAN - 3
	8	C-05	TEMPORARY TRAFFIC MANAGEMENT DETAILS - 1
	9	C-06	TEMPORARY TRAFFIC MANAGEMENT DETAILS - 2
	10	C-07	DEMOLITION AND REMOVAL PLAN AND SECTIONS
	11	C-08	RESTORATION PLAN
	12	C-09	PROPOSED IMPROVEMENT PLAN
	13	C-10	PROPOSED IMPROVEMENT SECTIONS
	14	C-11	PROPOSED HYDRAULIC LINES PLAN
	15	C-12	CONTROL HOUSE DEMOLITION
	16	C-13	CONTROL HOUSE PROPOSED IMPROVEMENTS
STRUCTURAL	17	D-01	STRUCTURAL DETAILS - 1
	18	D-02	STRUCTURAL DETAILS - 2
	19	D-03	MISCELLANEOUS DETAILS
	20	D-04	SUGGESTED CONSTRUCTION SEQUENCE DETAILS - 1
	21	D-05	SUGGESTED CONSTRUCTION SEQUENCE DETAILS - 2
	22	D-06	SUGGESTED CONSTRUCTION SEQUENCE DETAILS - 3
	23	D-07	SUGGESTED CONSTRUCTION SEQUENCE DETAILS - 4



SITE LOCATION MAP



Tighe&Bond
70 Romano Vineyard Way, Ste 134
North Kingstown, RI 02852
(401) 438-3100

DSGN	SAA
DR	SAA
CHK	GJC
APVD	JBR

No. DATE

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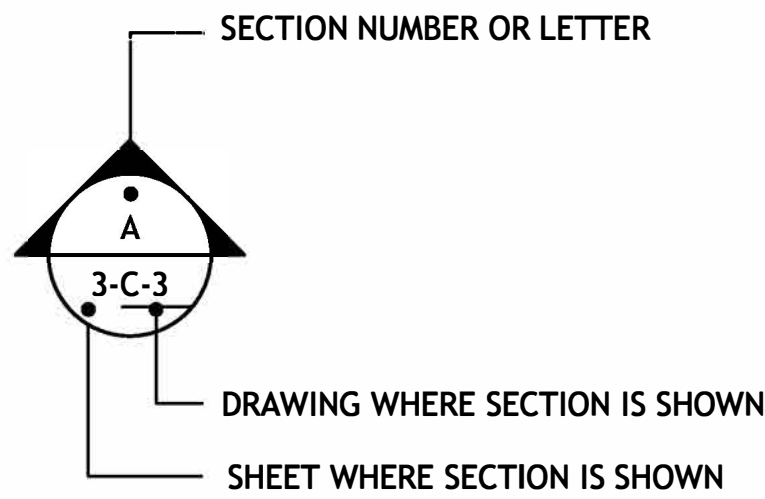
SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

TITLE, INDEX OF DRAWINGS, LOCATION
AND VICINITY MAPS

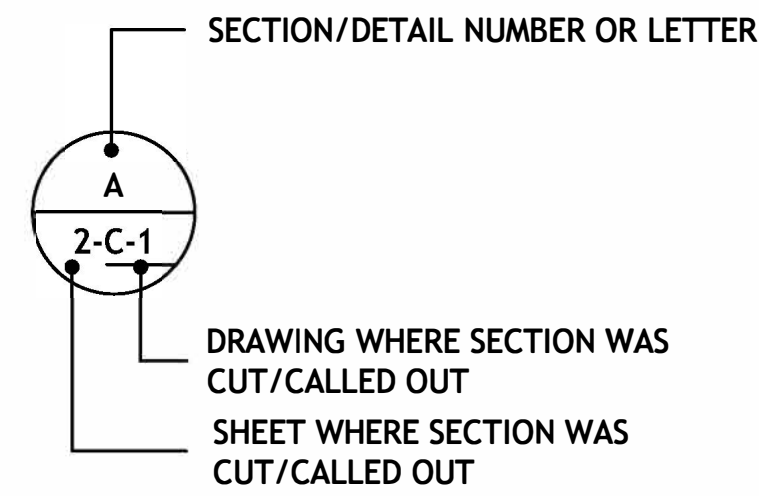
SHEET	1 of 23
DWG No.	G-01
DATE	OCTOBER 2022
PR OJNo.	25-5040-006

ABBREVIATIONS

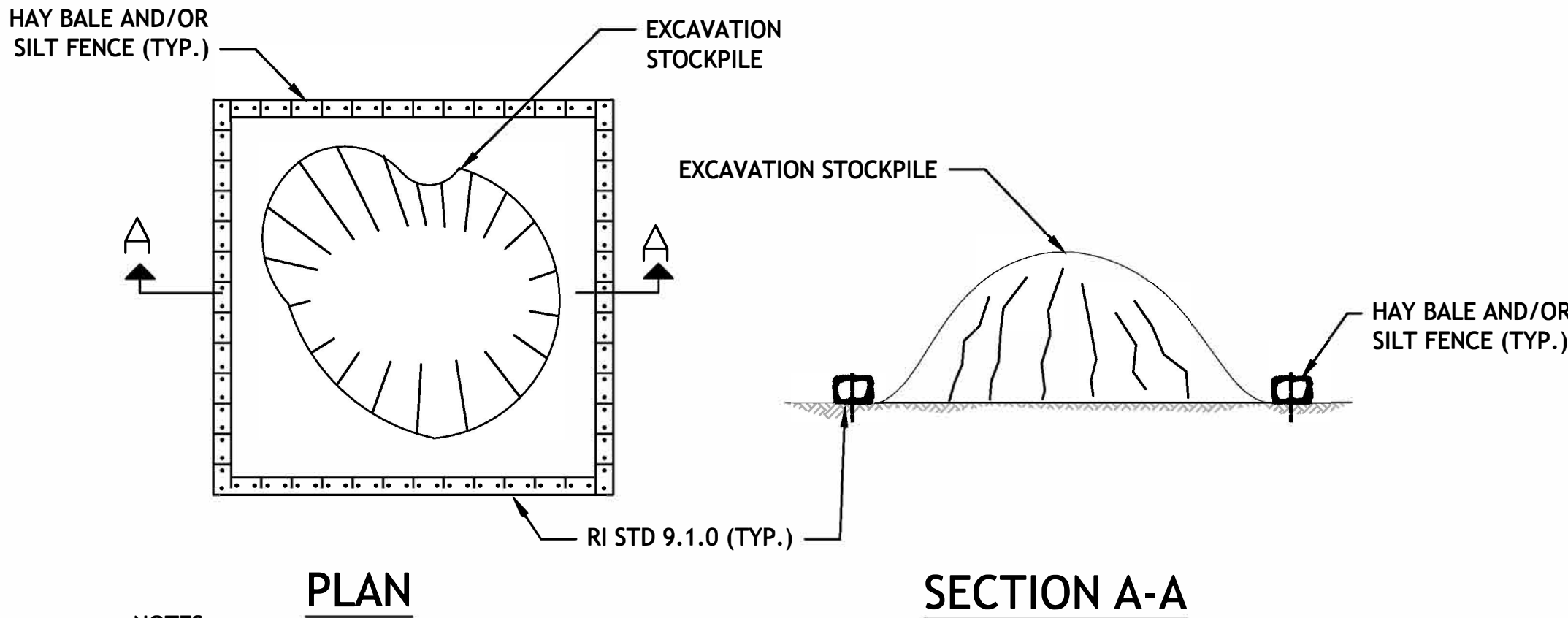
AC	ACRES
APPROX.	APPROXIMATE
BLDG.	BUILDING
CB	CATCH BASIN
CI	CAST IRON
CIP	CAST IN PLACE
C.J.	CONSTRUCTION JOINT
DI	DUCTILE IRON
DIA.	DIAMETER
EA	EACH
EL.	ELEVATION
E.J.	EXPANSION JOINT
E.O.P.	EDGE OF PAVEMENT
EPC	EPOXY COATED
EXIST	EXISTING
FM	FORCE MAIN
FT	FEET
F&I	FURNISH AND INSTALL
HDPE	HIGH DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
HORIZ	HORIZONTAL
LF	LINEAR FEET
MAX.	MAXIMUM
MIN.	MINIMUM
MHW	MEAN HIGH WATER
MHHW	MEAN HIGHER HIGH WATER
MLW	MEAN LOW WATER
MLLW	MEAN LOWER LOW WATER
MPH	MILES PER HOUR
NAD 83	NORTH AMERICAN DATUM OF 1983
NAVD 88	NORTH AMERICAN VERTICAL DATUM OF 1988
NGVD 29	NATIONAL GEODETIC VERTICAL DATUM OF 1929
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O.C.	ON CENTER
O.C.E.W.	ON CENTER EACH WAY
P&M	PROTECT AND MAINTAIN
PL	PROPERTY LINE
PVC	POLYVINYL CHLORIDE
REQ'D	REQUIRED
ROW	RIGHT OF WAY
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND REINSTALL
R&S	REMOVE AND STOCKPILE
SOE	SUPPORT OF EXCAVATION
TBD	TO BE DETERMINED
TEMP.	TEMPORARY
TCE	TRICHLOROETHYLENE
TYP.	TYPICAL
UK	UNKNOWN
VC	VITRIFIED CLAY
VERT	VERTICAL



SECTION / DETAIL



DETAIL AND SECTION DESIGNATION

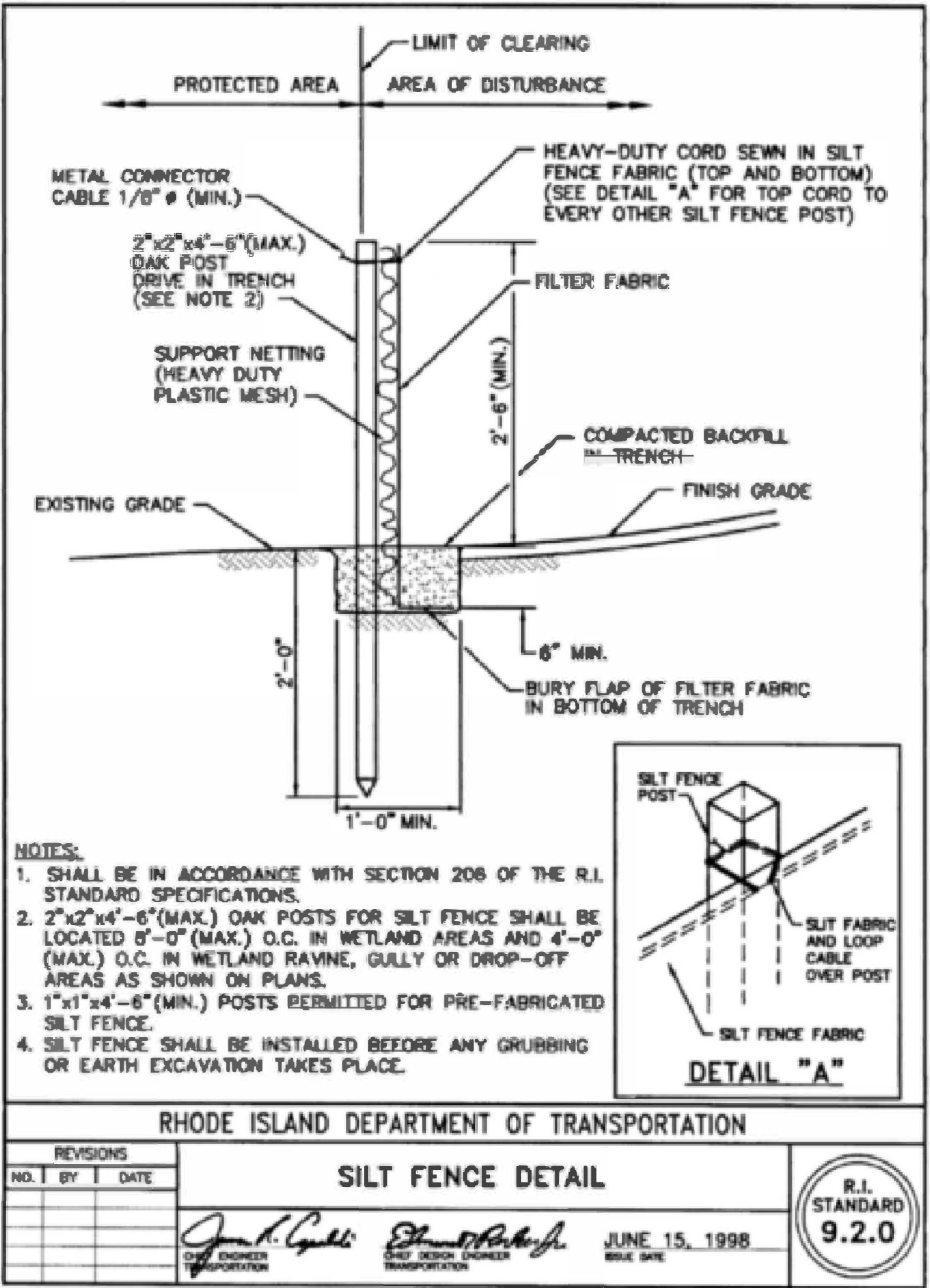


NOTES:

- THE STOCKPILE DETAIL SHOWN IS CONSIDERED TYPICAL AND MAY VARY.
- SILT SOCKS MAY BE USED IN LIEU OF HAY BALES AND/OR SILT FENCES AT THE CONTRACTOR'S DISCRETION.

STOCKPILE DETAIL

SCALE: NTS

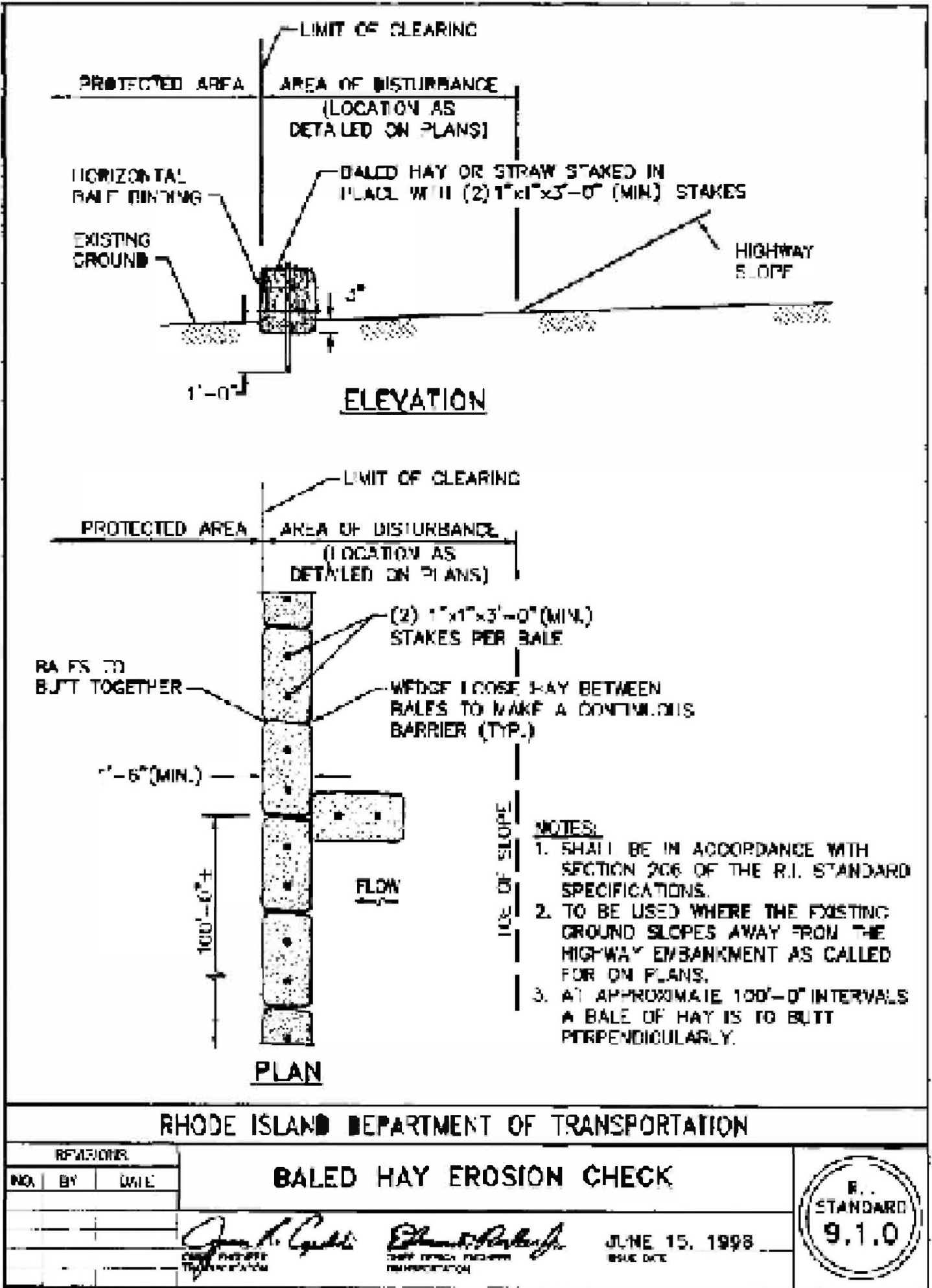


NOTES:

- SUPPORT THE FENCE POSTS UTILIZING FENCE POST BASES AS REQUIRED.
- DOUBLE GATES SHALL BE PROVIDED. PROVIDE FENCE POSTS AS REQUIRED TO SUPPORT THE PROPOSED GATES.
- SITE SECURITY AND FENCING ARE NOT OPTIONAL.

SECURITY FENCE DETAIL

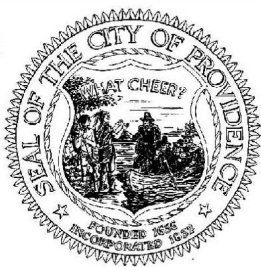
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DSGN	SAA
DR	SAA
CHK	GJC
APVD	JBR

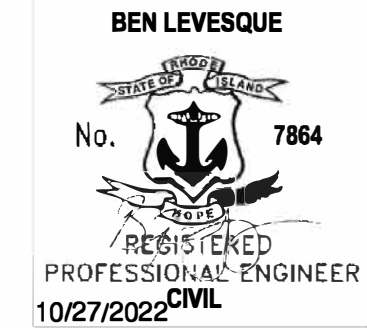
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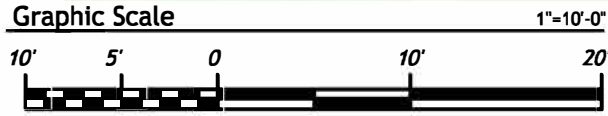
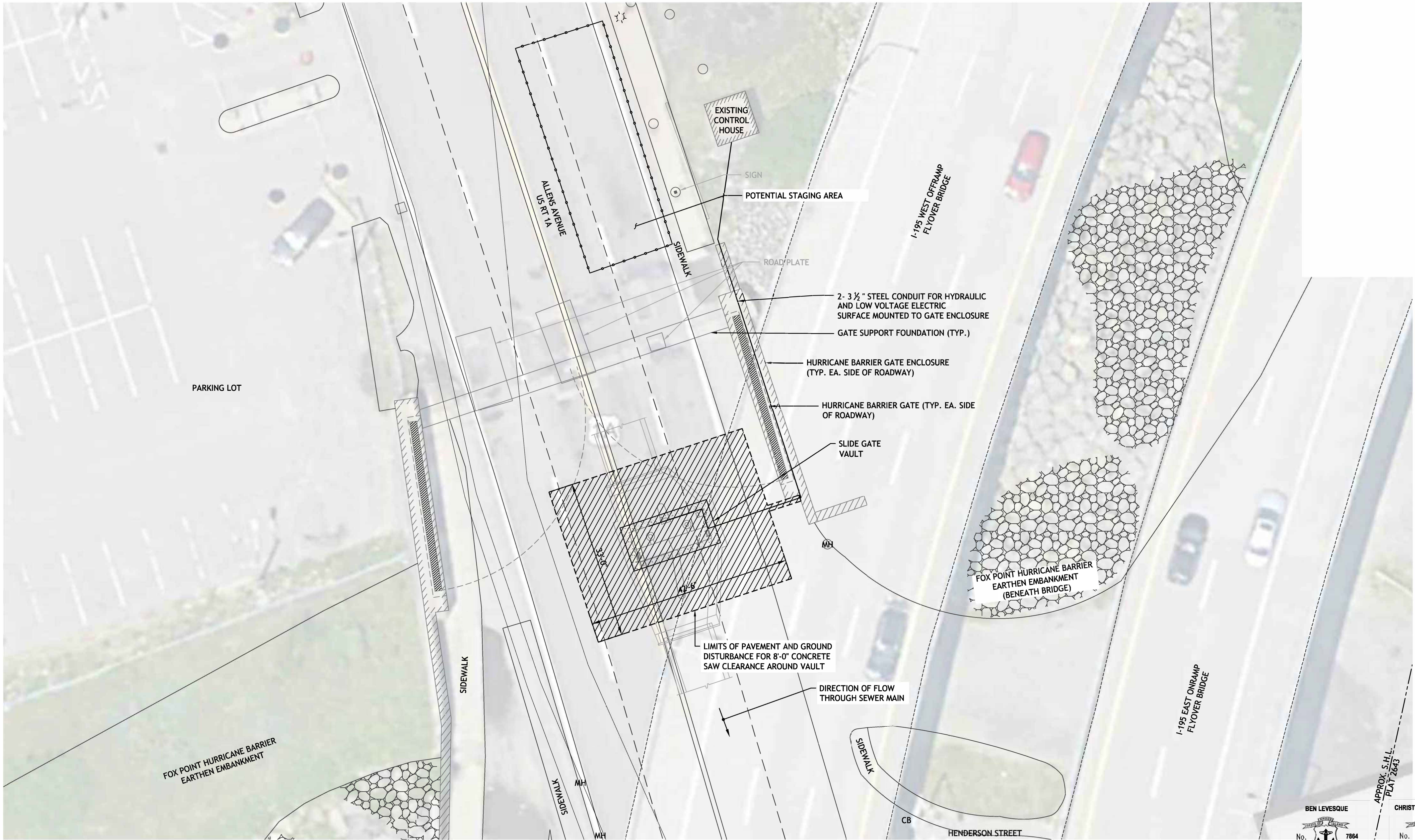
SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

DETAILS AND ABBREVIATIONS



SHEET	2 of 23
DWG No.	G-02
DATE	OCTOBER 2022
PROJ No.	25-5040-006

<div>GENERAL NOTES</div> <div><div><div><div>1.</div><div>THE SITE IS LOCATED IN PROVIDENCE, RHODE ISLAND.</div></div><div><div><div>2.</div><div>STANDARD SPECIFICATIONS, WHEN REFERENCED IN THESE DRAWINGS, SHALL MEAN THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (CURRENT ED, ADDENDA AND REVISIONS). PARTS OF THE STANDARD SPECIFICATIONS THAT ARE SPECIFICALLY REFERENCED SHALL BECOME PART OF THESE DRAWINGS AS THOUGH STATED HEREIN IN FULL. IN CASE OF A DISCREPANCY BETWEEN THE STANDARD SPECIFICATIONS AND THE REQUIREMENTS STATED WITHIN THE DRAWINGS, THE REQUIREMENTS STATED WITHIN THE DRAWINGS SHALL PREVAIL.</div></div><div><div><div>3.</div><div>PRINTING OF THE APPROVED ELECTRONIC DOCUMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THESE PLANS SHALL BE PRINTED IN COLOR, IN THE ORIGINAL SUBMITTED FORMAT, SHALL BE KEPT AT THE WORK SITE AND AVAILABLE FOR INSPECTION BY THE OWNER OR OWNERS AUTHORIZED REPRESENTATIVE</div></div><div><div><div>4.</div><div>THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS OF THE JOB SITE, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL INSTALL SITE SECURITY FENCING, THE COST OF WHICH IS INCLUDED IN MOBILIZATION AND DEMOBILIZATION. SAFETY PROVISIONS SHALL COMPLY WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. THESE REQUIREMENTS SHALL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS. CONTRACTOR IS RESPONSIBLE FOR THE OPERATION OF THE SLUICE GATES WHILE UNDER CONSTRUCTION. IF THE THE GATES ARE FOUND TO HAVE FALLEN FROM THEIR OPEN POSITION, THE CONTRACTOR MUST IMMEDIATELY RESPOND TO REOPEN THE SLUICE GATES.</div></div><div><div><div>5.</div><div>THE CONTRACTOR SHALL CONTACT DIGSAFE (1-888-DIG-SAFE) 3 BUSINESS DAYS BEFORE COMMENCING WITH ANY WORK, IN ORDER THAT ALL AFFECTED UTILITY COMPANIES ARE NOTIFIED PRIOR TO STARTING WORK. SEWERS, DRAINS, STREET LIGHTS AND FIRE ALARM ARE NOT PART OF THE DIGSAFE PROGRAM AND MUST BE RESEARCHED AND LAID OUT BY THE CONTRACTOR.</div></div><div><div><div>6.</div><div>THE WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE APPROVED TRAFFIC MANAGEMENT PLAN BY THE RIDOT AND IN ACCORDANCE WITH PROVIDENCE TRAFFIC ENGINEERING PERMITS.</div></div><div><div><div>7.</div><div>THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS IN THE FIELD BEFORE ORDERING ANY MATERIALS, COMMENCING ANY FABRICATION, OR PERFORMING ANY WORK. THE CONTRACTOR SHALL NOTIFY THE ENGINEER, IN WRITING, OF ANY CONDITIONS OR DIMENSIONS WHICH VARY FROM THOSE SHOWN IN THE DRAWINGS AND INCORPORATE SUCH VARIATIONS IN THE CONSTRUCTION AS APPROVED BY THE ENGINEER.</div></div><div><div><div>8.</div><div>THE PROPOSED WORK IS LOCATED WITHIN FEMA AE FLOOD ZONE AS SHOWN ON THE FLOOD INSURANCE RATE MAP NUMBER 44007C0309K, DATED OCTOBER 2, 2015. THE WORK ZONE IS LOCATED UNDER AND NEARBY THE FOX POINT HURRICANE BARRIER SYSTEM. THIS AREA MAY BE SUBJECT TO FLOODS FROM STORM SURGE. IN A FLOOD EVENT, THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE FOX POINT HURRICANE BARRIER COORDINATION GUIDE.</div></div><div><div><div>9.</div><div>THE USE OF THE INFORMATION SHOWN ON THESE DRAWINGS FOR DIFFERENT STRUCTURES, LOCATIONS, AND SOIL CONDITIONS IS NOT RECOMMENDED.</div></div></div><div>OPERATION OF THE SLIDE GATE AND HURRICANE BARRIER</div><div><div><div><div>1.</div><div>THE WORK SHALL NOT INHIBIT THE USE AND OPERATION OF THE ADJACENT HURRICANE BARRIER FLOOD CONTROL GATES IN THE EVENT THAT THEY NEED TO BE CLOSED IN ADVANCE OF A STORM EVENT. THE CONTRACTOR SHALL PROVIDE AN EMERGENCY CONTACT PERSON AND WORK CREW, WHO SHALL BE AVAILABLE 24 HOURS A DAY WHILE THE WORK IS OCCURRING, TO MOBILIZE TO THE SITE IN THE EVENT THAT THE WORK ZONE NEEDS TO BE CLEARED OF MATERIALS AND EQUIPMENT IN ORDER TO OPERATE THE FLOOD CONTROL GATES.</div></div><div><div><div>2.</div><div>THE CONTRACTOR SHALL PROVIDE A MEANS OF MANUALLY OPERATING THE EXISTING SLIDE GATES WHILE THE HYDRAULIC GATE OPERATORS ARE REMOVED FROM THE VAULT. SHOULD IT BE DETERMINED BY THE CITY THAT THE EXISTING SLIDE GATES MUST BE CLOSED IN ADVANCE OF A STORM EVENT, THE CONTRACTOR SHALL IMMEDIATELY MOBILIZE TO THE SITE AND CLOSE THE SLIDE GATES AS DIRECTED.</div></div><div><div><div>3.</div><div>THE EXISTING SLIDE GATE OPERATORS ARE HYDRAULICALLY CONTROLLED AND THE SLIDE GATES ARE INTENDED TO REMAIN IN THE OPEN POSITION DURING NORMAL OPERATING CONDITIONS. HOWEVER, THE OPERATORS CURRENTLY EXPERIENCE PRESSURE LOSS OVER TIME THAT RESULTS IN THE GATES CLOSING AND RESTRICTING SEWER FLOWS THROUGH THE SLIDE GATE STRUCTURE.</div></div><div><div><div>4.</div><div>THE CONTRACTOR SHALL BE RESPONSIBLE OF REPLACING THE HYDRAULIC OPERATORS AS A PART OF THIS PROJECT. THE MODIFICATIONS TO THE SLIDE GATE STRUCTURE ARE INTENDED TO FACILITATE THE SAFE AND EFFICIENT REMOVAL OF THE OPERATORS, AND TO ENHANCE ACCESS FOR FUTURE MAINTENANCE AND REPAIRS.</div></div><div><div><div>5.</div><div>IN ORDER TO FACILITATE THIS WORK, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING AND INSTALLING THE FOLLOWING COMPONENTS:<div><div>a.</div><div>TEMPORARY GATE SUPPORTS TO SUSPEND THE GATES IN THE OPEN POSITION WHILE THE GATE OPERATORS ARE NOT IN SERVICE;</div></div><div><div>b.</div><div>TEMPORARY GATE OPERATOR MECHANISMS TO RAISE AND LOWER THE GATES IN THE EVENT OF A STORM; AND</div></div><div><div>c.</div><div>TEMPORARY SCAFFOLDING/ACCESS PLATFORMS IN ORDER TO DETACH & REATTACH THE OPERATOR STEMS FROM THE SLIDE GATES, AND TO INSTALL/UNINSTALL THE TEMPORARY GATE SUPPORTS AND OPERATOR MECHANISMS.</div></div></div></div><div><div><div>6.</div><div>THE CONTRACTOR SHALL PROVIDE A SUBMITTAL FOR EACH OF THE ABOVE COMPONENTS. THE SUBMITTALS SHALL INCLUDE SHOP DRAWINGS AND DESIGN CALCULATIONS, WHICH SHALL BE COMPLETED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF RHODE ISLAND. THE MINIMUM DESIGN CRITERIA FOR THESE SYSTEMS SHALL BE AS FOLLOWS:<div><div>a.</div><div>TEMPORARY GATE SUPPORTS<div><div>i.</div><div>A MINIMUM GATE DEAD LOAD OF 3,650 LBS EACH AND SELF-WEIGHT.</div></div><div><div>ii.</div><div>TEMPORARY GATE SUPPORTS SHALL BE LOADED CONCENTRICALLY AND EVENLY, AND SHALL BE EASILY REMOVED FOR THE PURPOSES OF OPERATING THE GATE IN THE EVENT OF A STORM (AT THE CITY'S DIRECTION).</div></div></div></div><div><div>b.</div><div>TEMPORARY GATE OPERATOR MECHANISMS<div><div>i.</div><div>A MINIMUM GATE DEAD LOAD OF 3,650 LBS EACH AND SELF-WEIGHT.</div></div><div><div>ii.</div><div>THE TEMPORARY GATE OPERATOR MECHANISMS SHALL BE ABLE TO BOTH PULL AND PUSH THE GATES INTO THE OPEN AND CLOSED POSITIONS, RESPECTIVELY. THE TEMPORARY GATE OPERATOR MECHANISMS SHALL REMAIN IN PLACE FOR THE DURATION OF THE WORK FOR THE PURPOSES OF OPERATING THE GATE IN THE EVENT OF A STORM (AT THE CITY'S DIRECTION).</div></div></div><div><div>c.</div><div>TEMPORARY SCAFFOLDING/ACCESS PLATFORMS<div><div>i.</div><div>SELF-WEIGHT</div></div><div><div>ii.</div><div>A MINIMUM CONCENTRATED LIVE LOAD OF 500 LBS OR A MINIMUM UNIFORM LIVE LOAD OF 75 PSF</div></div><div><div>iii.</div><div>DESIGN OF THE SCAFFOLDING/ACCESS PLATFORMS SHALL BE PERFORMED IN ACCORDANCE WITH OSHA SECTION 1926 SUBPART L, SCAFFOLDS.</div></div><div><div>iv.</div><div>THE TEMPORARY SCAFFOLDING/ACCESS PLATFORMS SHALL NOT INTERFERE WITH OR HINDER THE OPERATION OF THE EXISTING SLIDE GATES IN THE EVENT OF A STORM.</div></div></div></div></div></div></div></div><div><div><div>7.</div><div>FOLLOWING INSTALLATION OF THE NEW OPERATORS, THE TEMPORARY COMPONENTS DISCUSSED ABOVE SHALL BE REMOVED IN THEIR ENTIRETY, AND ANY DEFICIENCIES RESULTING FROM THEIR INSTALLATION (I.E., DRILLED ANCHOR HOLES) SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.</div></div></div></div><div>DESIGN CRITERIA</div><div><div><div><div>1.</div><div>THE FOLLOWING LOADS WERE UTILIZED BY TIGHE & BOND TO DESIGN THE PROPOSED LIDS AND INTERIOR VAULT BRACING:<div><div>1.1.</div><div>D = DEAD LOAD (LIDS+HATCHES) = 48,004 LBS</div></div><div><div>1.2.</div><div>L = LIVE LOAD = HL-93 DESIGN TRUCK PER AASHTO LRFD DESIGN SPECIFICATIONS</div></div><div><div>1.3.</div><div>IM = DYNAMIC LOAD ALLOWANCE FOR BELOW GRADE COMPONENTS = 0.27</div></div><div><div>1.4.</div><div>IM = DYNAMIC LOAD ALLOWANCE FOR AT GRADE COMPONENTS = 0.33</div></div><div><div>1.5.</div><div>AT-REST PRESSURE COEFFICIENT = 0.47 (ANGLE OF INTERNAL FRICTION = 32°)</div></div></div></div><div><div>2.</div><div>THE EXISTING SOIL BACKFILL IS ASSUMED TO BE COMPACTED GRANULAR FILL WITH UNIT WEIGHT OF 125 PCF AND ANGLE OF INTERNAL FRICTION OF 32°.</div></div><div><div>3.</div><div>LOAD COMBINATIONS WERE UTILIZED IN ACCORDANCE WITH SECTION 3.4 OF AASHTO LRFD DESIGN SPECIFICATIONS.</div></div></div><div>ENVIRONMENTAL PROTECTION</div><div>THE CONTRACTOR SHALL BE RESPONSIBLE TO TAKE PREVENTATIVE MEASURES TO HELP MINIMIZE ANY ENVIRONMENTAL IMPACTS. THESE MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:<div><div>1.</div><div>NO FUEL WILL BE STORED ON SITE. ALL FUEL WILL BE BROUGHT TO THE SITE AS REQUIRED.</div></div><div><div>2.</div><div>ALL FUEL TRANSFER OPERATIONS ARE TO BE CONDUCTED IN AN EFFICIENT AND SAFE MANNER IN ACCORDANCE WITH THE CONTRACTOR'S OPERATIONS MANUAL.</div></div><div><div>3.</div><div>ABSORBENT DIAPERS DESIGNED FOR USE WITH PETROLEUM PRODUCTS SHALL BE PLACED UNDER ALL MACHINERY DURING FUELING OPERATIONS.</div></div><div><div>4.</div><div>EQUIPMENT SHALL BE PROPERLY MAINTAINED AND RECORDED IN WEEKLY LOGS INCLUDING THE REQUIREMENTS FOR AND ACTUAL MAINTENANCE COMPLETED.</div></div><div><div>5.</div><div>A SPILL KIT AND/OR ABSORBENT MATERIALS SHALL BE ON-SITE AT ALL TIMES DURING CONSTRUCTION OPERATIONS.</div></div></div><div>LAYOUT</div><div><div><div>1.</div><div>THE HORIZONTAL CONTROL DATUM FOR THIS PROJECT IS THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM (NAD83).</div></div><div><div>2.</div><div>THE VERTICAL CONTROL DATUM FOR THIS PROJECT IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAV88).</div></div><div><div>3.</div><div>THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING ALL LAYOUT WORK FROM THE CONTROL MONUMENTATION PROVIDED.</div></div></div><div>SUBMITTALS:</div><div><div>1.</div><div>COORDINATE WITH THESE DRAWINGS AND SPECIFICATION SECTION 01340, SUBMITTALS.</div></div><div>MOBILIZATION/DEMOBILIZATION:</div><div><div>1.</div><div>COORDINATE WITH THESE DRAWINGS AND SECTION 02005, MOBILIZATION/DEMOBILIZATION.</div></div><div>DEMOLITION AND REMOVAL:</div><div><div>1.</div><div>COORDINATE WITH THESE DRAWINGS AND SECTION 02050, DEMOLITION AND REMOVAL.</div></div><div>EARTHWORK:</div><div><div>1.</div><div>COORDINATE WITH THESE DRAWINGS AND SECTION 02200, EARTHWORK.</div></div><div><div>2.</div><div>THE FINAL SLOPE GEOMETRY AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES IS THE CONTRACTOR'S RESPONSIBILITY. MAKE ALL EXCAVATIONS IN A SAFE MANNER AND IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS. PROVIDE APPROPRIATE MEASURES TO RETAIN EXCAVATION SLOPES AND PREVENT EARTH SLIDES TO ENSURE THAT PERSONS WORKING IN OR NEAR THE EXCAVATIONS ARE PROTECTED.</div></div><div>EROSION AND SEDIMENT CONTROL:</div><div><div>1.</div><div>COORDINATE WITH THESE DRAWINGS AND SECTION 02270, EROSION AND SEDIMENT CONTROL.</div></div><div>DEWATERING, CONTROL, AND DIVERSION OF WATER:</div><div><div>1.</div><div>COORDINATE WITH THESE DRAWINGS AND SECTION 02400, DEWATERING, CONTROL, AND DIVERSION OF WATER.</div></div><div>BITUMINOUS CONCRETE PAVEMENT:</div><div><div>1.</div><div>COORDINATE WITH THESE DRAWINGS AND SECTION 02512, BITUMINOUS CONCRETE PAVEMENT.</div></div><div>REINFORCING STEEL:</div><div><div>1.</div><div>COORDINATE WITH THESE DRAWINGS AND SECTION 03200, REINFORCING STEEL.</div></div><div>CONCRETE:</div><div><div>1.</div><div>COORDINATE WITH THESE DRAWINGS AND SECTION 03310, CONCRETE.</div></div><div>PRECAST CONCRETE STRUCTURES:</div><div><div>1.</div><div>COORDINATE WITH THESE DRAWINGS AND SECTION 03399, PRECAST CONCRETE STRUCTURES.</div></div><div>MISCELLANEOUS MATERIALS:</div><div><div>1.</div><div>UTILITY PIPE SLEEVES SHALL BE SCHEDULE 40 PVC.</div></div></div><div>STOCKPILE MANAGEMENT</div><div><div>1.</div><div>EXCAVATED MATERIAL GENERATED DURING THE EXECUTION OF THIS WORK SHALL BE STOCKPILED AT THE DESIGNATED OFFSITE STOCKPILE AREA.</div></div><div><div>2.</div><div>THE CONTRACTOR SHALL STOCKPILE MATERIAL THAT IS EXCAVATED ABOVE THE GROUNDWATER TABLE SEPARATELY FROM MATERIAL THAT IS EXCAVATED BELOW THE GROUNDWATER TABLE.</div></div><div><div>3.</div><div>THE CONTRACTOR SHALL MAINTAIN THE STOCKPILES AND THE AREAS AROUND THEM SO THEY ARE GRADED TO DRAIN. THE CONTRACTOR SHALL ALSO TAKE ALL NECESSARY PRECAUTIONS TO MINIMIZE EROSION FROM THE STOCKPILES INCLUDING, BUT NOT LIMITED TO THE INSTALLATION OF HAY BALES OR SILT FENCES.</div></div><div><div>4.</div><div>STOCKPILED MATERIAL EXCAVATED FROM BELOW THE GROUNDWATER TABLE SHALL BE GIVEN PREFERENCE OVER STOCKPILED MATERIAL EXCAVATED FROM ABOVE THE GROUNDWATER TABLE FOR USE AS SELECT BACKFILL.</div></div><div><div>5.</div><div>EXCESS MATERIAL THAT DOES NOT MEET THE SPECIFIED GRADATION REQUIREMENTS AND/OR EXCAVATED MATERIAL IN EXCESS OF THAT REQUIRED FOR COMPLETING THE PROJECT SHALL BE REMOVED AND DISPOSED OF OFFSITE IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REQUIREMENTS.</div></div><div><div>6.</div><div>EXCESS MATERIAL, INCLUDING DEMOLITION DEBRIS, THAT IS VISIBLY OR OLFACTORY CONTAMINATED SHALL BE SEGREGATED AND STOCKPILED ON, AND COVERED WITH, 10 MIL PLASTIC TARPS AT THE SITE UNTIL TESTED BY THE CONTRACTOR. ONCE A SUITABLE DISPOSAL SITE IS IDENTIFIED, BASED ON THE RESULTS OF THE ANALYTICAL TESTING, THE CONTRACTOR SHALL IMMEDIATELY REMOVE AND DISPOSE OF THE CONTAMINATED MATERIAL.</div></div><div>TEMPORARY UTILITY SUPPORT AND TEMPORARY SUPPORT OF EXCAVATION SYSTEMS (AS REQUIRED)</div><div><div>1.</div><div>TEMPORARY UTILITY SUPPORT AND TEMPORARY SUPPORT OF EXCAVATION SYSTEMS SHALL BE INSTALLED AS REQUIRED TO PROTECT EXISTING UTILITIES, STRUCTURES, AND OTHER FACILITIES AT THE SITE WHICH COULD BE IMPACTED BY EXCAVATION ACTIVITIES.</div></div><div><div>2.</div><div>THE CONTRACTOR SHALL PROVIDE INSPECTION PRIOR TO AND DURING ITS OPERATIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FACILITIES WHICH MIGHT BE DISTURBED BY TEMPORARY UTILITY SUPPORT AND TEMPORARY SUPPORT OF EXCAVATION SYSTEM INSTALLATION.</div></div><div><div>3.</div><div>THE CONTRACTOR SHALL MONITOR AND CONTROL ITS CONSTRUCTION OPERATIONS TO PREVENT DAMAGE TO THE EXISTING ADJACENT UTILITIES, STRUCTURES, AND COMPLETED PORTIONS OF THE WORK.</div></div><div><div>4.</div><div>TEMPORARY UTILITY SUPPORT AND TEMPORARY SUPPORT OF EXCAVATION SYSTEMS SHALL BE REMOVED AS BACKFILLING IS DONE, AND REMOVAL SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO AVOID ANY DAMAGE TO THE PERMANENT STRUCTURE OR TO OTHER MEMBERS OF THE SYSTEMS. IMPACT LOADING ON THE PERMANENT STRUCTURE OR ON MEMBERS OF THE SYSTEM WILL NOT BE PERMITTED.</div></div><div>GENERAL EXECUTION NOTES</div><div><div>1.</div><div>IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT PROPOSED ACTIVITIES WITHIN THE SCOPE PROCEED IN A SMOOTH LOGICAL SEQUENCE AND IN A MANNER THAT WILL NOT CAUSE ANY DAMAGE TO OR CREATE EXCESSIVE STRESSES, LOADS, OR VIBRATIONS ON EXISTING OR PROPOSED STRUCTURES.</div></div><div><div>2.</div><div>THE CONTRACTOR SHALL PROVIDE ADEQUATE FENCING, BARRICADES, AND SIGNS TO ENSURE SAFETY.</div></div><div><div>3.</div><div>ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.</div></div><div><div>4.</div><div>THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A LEVEL AND STABLE SURFACE ON WHICH EQUIPMENT WILL OPERATE.</div></div><div><div>5.</div><div>THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING ITS OWN PICK/LIFT PROCEDURES INCLUDING, BUT NOT LIMITED TO SAFE PICKING RADII, LIFTING DEVICES, AND SLINGS.</div></div><div><div>6.</div><div>THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE WEIGHT OF EACH LIFT AND FOR ENSURING THE STABILITY OF EACH LIFT DURING ALL PHASES OF WORK.</div></div><div><div>7.</div><div>THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO LOCATE AND PROTECT EXISTING UTILITIES IN THE AREA AS REQUIRED. OVERHEAD POWER LINES ADJACENT TO WORK AREAS SHALL BE SHUT DOWN DURING OPERATIONS WHEN THE CONTRACTOR BELIEVES THEY MAY INTERFERE, OR ARE TOO CLOSE TO THE WORK. WHEN POWER LINES IN THE WORK AREA CAN NOT BE DEENERGIZED, THE CONTRACTOR SHALL MAINTAIN A SAFE DISTANCE AS DETERMINED BY OSHA. THE CONTRACTOR SHALL LOCATE, PROTECT, AND REPLACE (IF DISTURBED) UTILITIES WITHIN THE WORK ZONE AT NO ADDITIONAL EXPENSE TO THE CITY.</div></div><div><div>8.</div><div>THE CONTRACTOR SHALL BE AWARE THAT THE SLIDE GATE STRUCTURE IS AN ACTIVE COMBINED SANITARY AND STORM SYSTEM, AND QUALIFIES AS A CONFINED SPACE. AS SUCH, THERE MAY BE THE PRESENCE OF NOXIOUS AND COMBUSTIBLE GASES/FUMES, AND HIGH-VELOCITY WATER FLOWS THROUGH THE STRUCTURE AND THE SLIDE GATES. ACCORDINGLY, THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS, INCLUDING BUT NOT LIMITED TO PROVIDING POSITIVE PRESSURE FRESH AIR FLOW INTO THE STRUCTURE, EQUIPPING ITS STAFF WITH AIR-QUALITY METERS AND OTHER APPROPRIATE PPE, AND MONITORING THE WORKING CONDITIONS FOR THE SAFETY OF PERSONNEL AT ALL TIMES.</div></div><div><div>9.</div><div>BASED ON THE ABOVE, NO WELDING OR OTHER “HOT” WORK THAT COULD IGNITE COMBUSTIBLE GASES WILL BE ALLOWED WITHIN THE SLIDE GATE STRUCTURE.</div></div><div>HOLIDAY RESTRICTIONS</div><div>EASTER DAY - NO LANE CLOSURES ON THE HOLIDAY. MEMORIAL DAY - NO LANE CLOSURES FROM 13:00 FRIDAY BEFORE TO 00:00 TUESDAY AFTER THE HOLIDAY. INDEPENDENCE DAY - NO LANE CLOSURES FROM 13:00 DAY BEFORE UNTIL 00:00 THE DAY AFTER THE HOLIDAY. VICTORY DAY - NO LANE CLOSURES ON THE HOLIDAY. LABOR DAY - NO LANE CLOSURES FROM 13:00 DAY BEFORE UNTIL 00:00 THE DAY AFTER THE HOLIDAY</div></div></div></div></div></div></div></div></div></div></div></div></div></div></div>																			
<div><div><div><div>Tighe&Bond</div><div>70 Romano Vineyard Way, Ste 134 North Kingstown, RI 02852 (401) 438-3100</div></div></div></div>	DSGN	SAA	<div>No.</div>	<div>DATE</div>	<div>REVISIONS</div>	<div>BY</div>	<div>APVD</div>	<div>BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY</div>	<div></div>	<div>SLIDE GATE OPERATOR REPAIR FOX POINT HURRICANE BARRIER ALLENS AVENUE City of Providence, RI</div>	<div>GENERAL NOTES</div>								
	DR	SAA																	
	CHK	GJC																	
	APVD	JBR																	
										<div><div><div>BEN LEVESQUE</div><div></div><div>10/27/2022</div></div></div>									
										<div>SHEET 3 of 23</div>									
										<div>DWG No. G-03</div>									
										<div>DATE OCTOBER 2022</div>									
										<div>PROJ No. 25-5040-006</div>									



PLAN
SCALE: 1" = 10'

BEN LEVESQUE
No. 7864
REGISTERED PROFESSIONAL ENGINEER
10/27/2022 CIVIL

CHRISTOPHER GRANATINI
No. 94878
REGISTERED PROFESSIONAL ENGINEER
10/26/2022 CIVIL

Tighe & Bond
70 Romano Vineyard Way, Ste 134
North Kingstown, RI 02852
(401) 438-3100

DSGN	SAA
DR	SAA
CHK	GJC
APVD	JBR

No.	DATE
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REVISIONS

BY APVD

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY



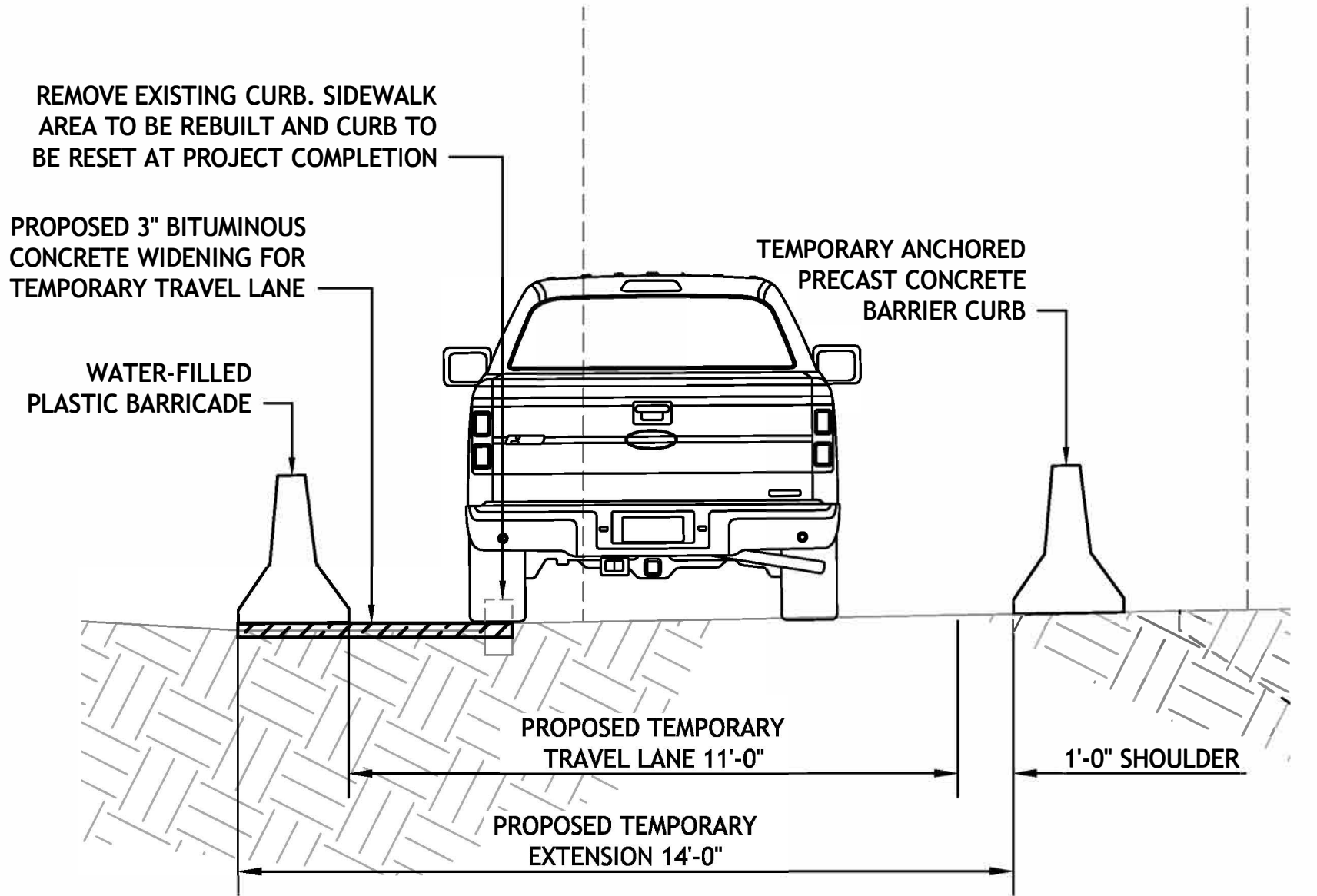
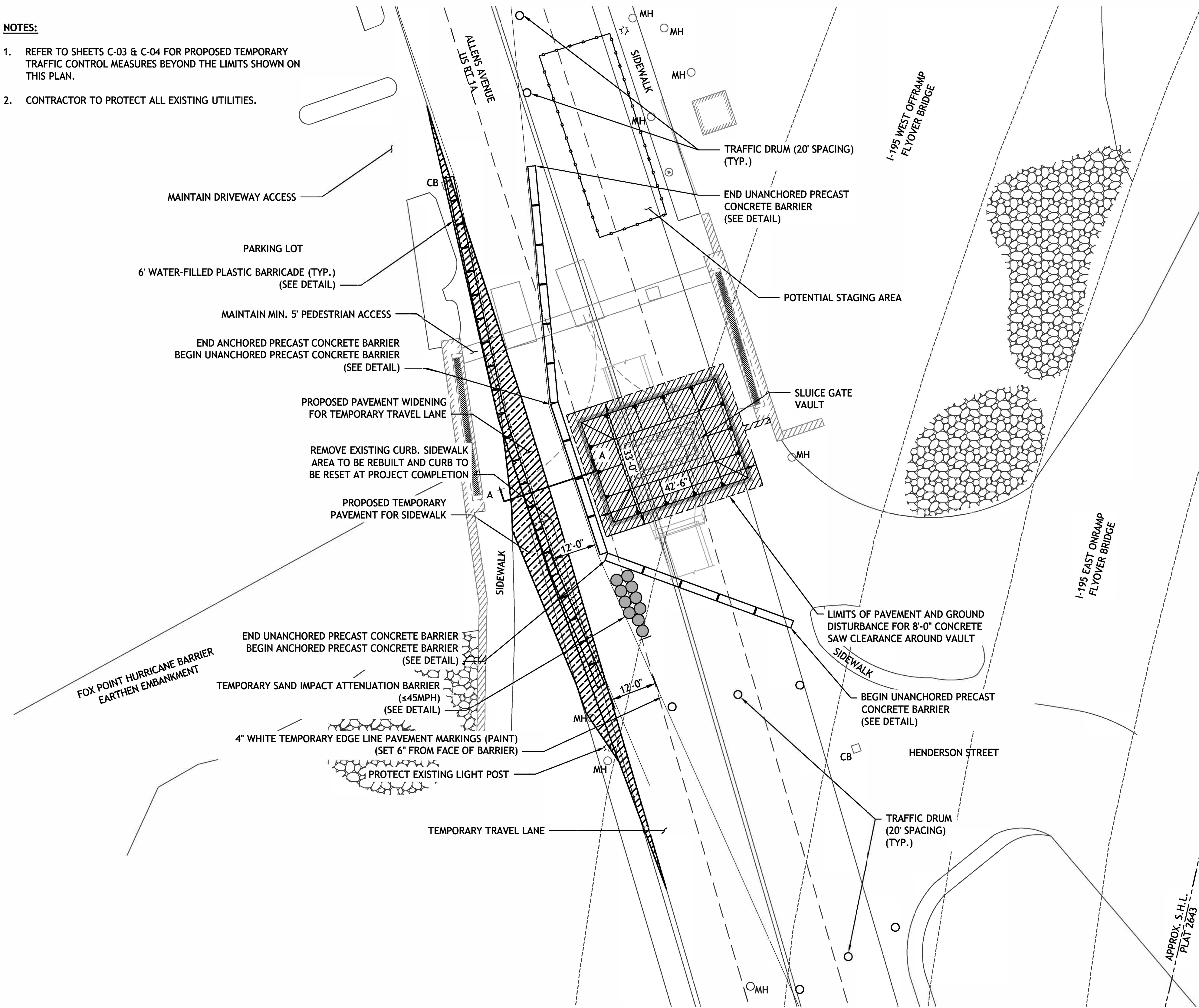
SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

OVERALL SITE PLAN

SHEET	4 of 23
DWG No.	C-01
DATE	OCTOBER 2022
PROJ No.	25-5040-006

NOTES:

- REFER TO SHEETS C-03 & C-04 FOR PROPOSED TEMPORARY TRAFFIC CONTROL MEASURES BEYOND THE LIMITS SHOWN ON THIS PLAN.
- CONTRACTOR TO PROTECT ALL EXISTING UTILITIES.



TRAVEL LANE SECTION A-A
SCALE: 3/8" = 1'-0"



PLAN
SCALE: 1" = 15'

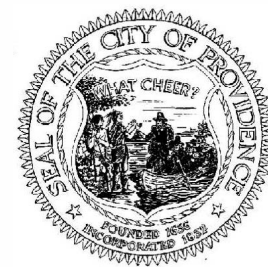


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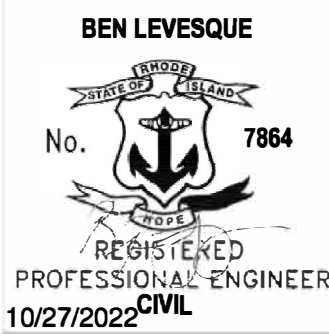
No.	DATE	REVISIONS	BY	APVD

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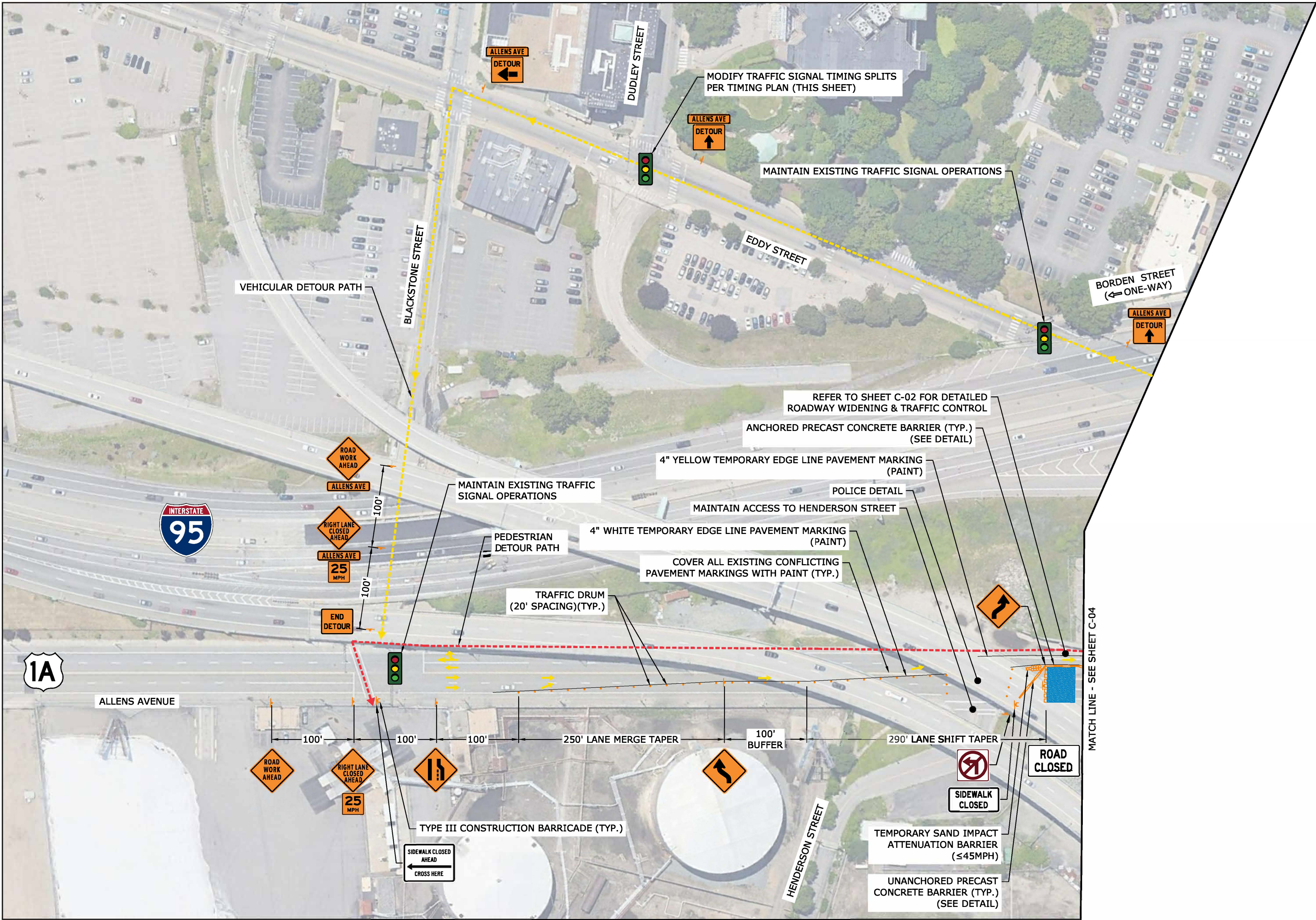
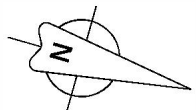
SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

**TEMPORARY TRAFFIC
MANAGEMENT PLAN - 1**



SHEET	5 of 23
DWG No.	C-02
DATE	OCTOBER 2022
PROJ No.	25-5040-006

PROPOSED TIMING PLAN						
LOCATION	PEAK PERIOD	PHASE 1	PHASE 2	PHASE 3	PHASE 4	CYCLE LENGTH
EDDY STREET AT DUDLEY STREET	PM	44	12	37	12	105



TEMPORARY TRAFFIC CONTROL LEGEND	
	ACTIVE WORK ZONE
	CONSTRUCTION SIGN
	TYPE III CONSTRUCTION BARRICADE
	TRAFFIC DRUM
	TEMPORARY PRECAST CONCRETE BARRIER CURB
	TEMPORARY IMPACT ATTENUATION SYSTEM
	TEMPORARY VARIABLE MESSAGE SIGN
	TEMPORARY 4\"/>
	TRAFFIC FLOW ARROW
	VEHICULAR DETOUR
	PEDESTRIAN DETOUR

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DSGN	SAA
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No.	DATE	REVISIONS	BY	APVD
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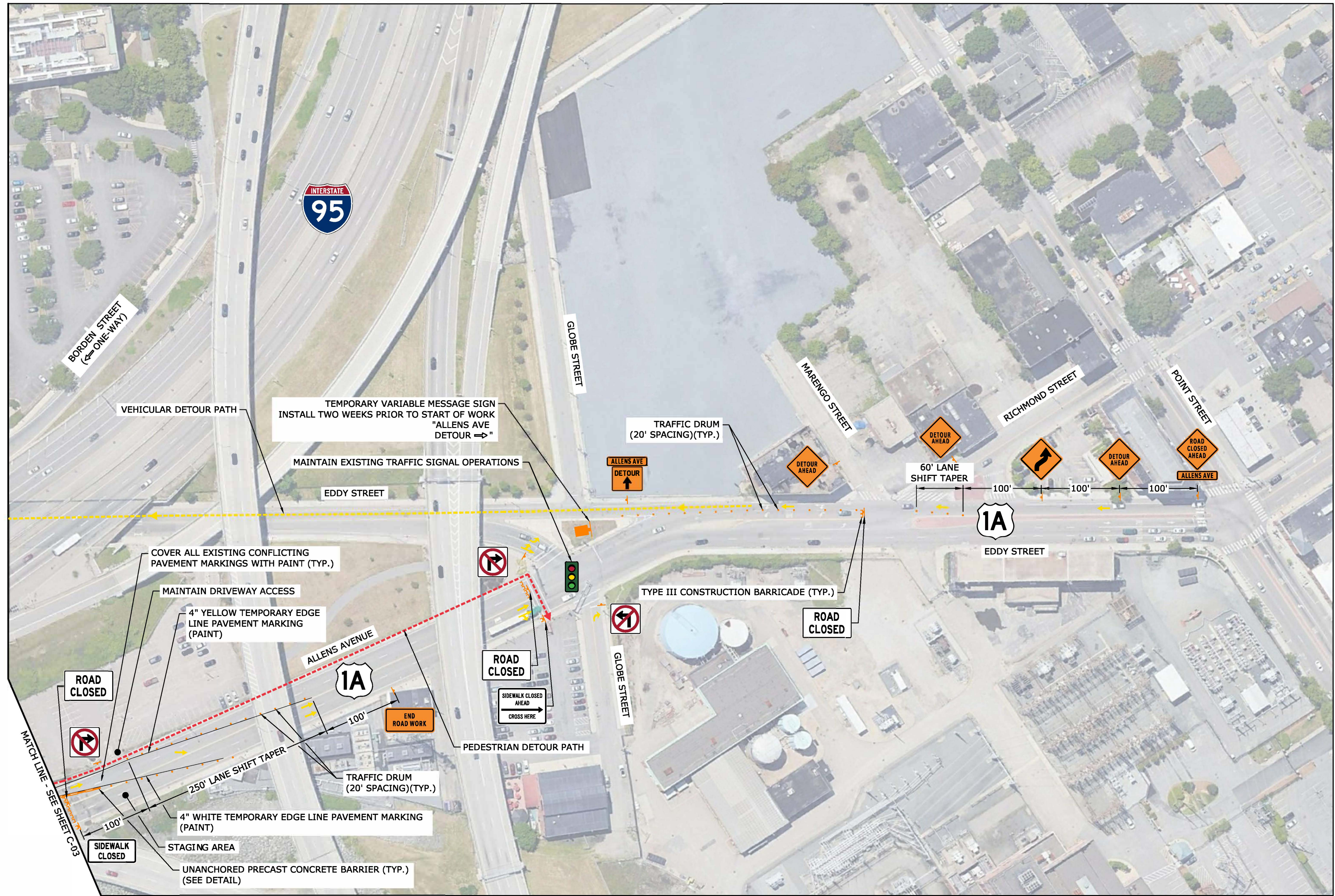
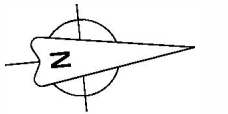
BAR IS ONE INCH ON ORIGINAL DRAWING.
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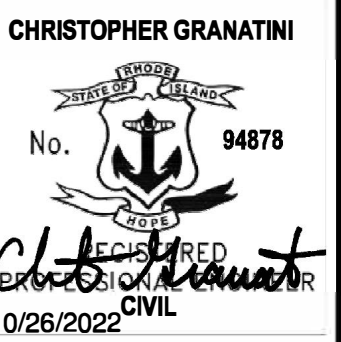
SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

**TEMPORARY TRAFFIC
MANAGEMENT PLAN - 2**

SHEET	6 of 23
DWG No.	C-03
DATE	OCTOBER 2022
PROJ No.	25-5040-006



TEMPORARY TRAFFIC CONTROL LEGEND	
	ACTIVE WORK ZONE
	CONSTRUCTION SIGN
	TYPE III CONSTRUCTION BARRICADE
	TRAFFIC DRUM
	TEMPORARY PRECAST CONCRETE BARRIER CURB
	TEMPORARY IMPACT ATTENUATION SYSTEM
	TEMPORARY VARIABLE MESSAGE SIGN
	TEMPORARY 4\"/>
	TRAFFIC FLOW ARROW
	VEHICULAR DETOUR
	PEDESTRIAN DETOUR

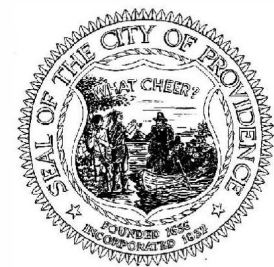


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North Kingstown, RI 02852
(401) 438-3100

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DR	SAA
CHK	GJC
APVD	JBR

No.	DATE	REVISIONS	BY	APVD
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FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

**TEMPORARY TRAFFIC
MANAGEMENT PLAN - 3**

SHEET	7 of 23
DWG No.	C-04
DATE	OCTOBER 2022
PROJ No.	25-5040-006

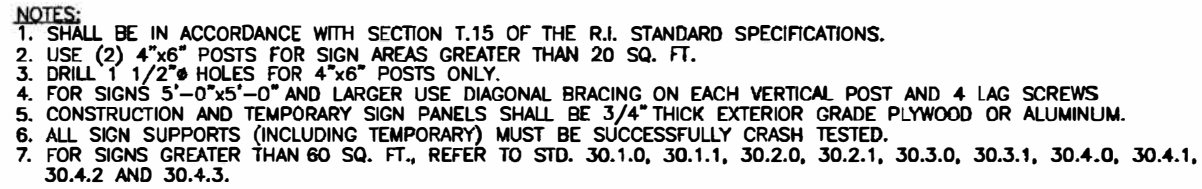
1. MAINTAIN AND PROTECT PEDESTRIAN TRAFFIC THROUGH THE WORK AREA. MAINTAIN PEDESTRIAN ROUTES, CROSSWALKS, AND CROSSINGS AS SHOWN.
2. CONSTRUCTION SIGN SHEETING SHALL BE FLUORESCENT ORANGE WITH BLACK LETTERING AND SYMBOLS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. SIGN SHEETING MATERIAL SHALL MEET THE MINIMUM RETROREFLECTIVITY REQUIREMENTS AS DEFINED IN THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. REPLACE SIGNS AS DIRECTED TO MAINTAIN MINIMUM REQUIREMENTS.
4. CONSTRUCTION SIGNS MUST BE PLACED ON EXISTING POLES OR ON POSTS IN NON-TRAVELLED AREAS. SPECIFIC APPROVAL BY THE CITY OF PROVIDENCE IS REQUIRED FOR ALL OTHER SIGN INSTALLATIONS.
5. SIGNS SHALL BE MOUNTED A MINIMUM OF 7' ABOVE THE SIDEWALK.
6. COORDINATE THE LOCATION OF CONSTRUCTION SIGNS WITH OTHER ACTIVE CONSTRUCTION ACTIVITY. DO NOT INSTALL DUPLICATE SIGNS WHERE EXISTING CONSTRUCTION SIGNS CURRENTLY EXIST.
7. CONSTRUCTION SIGN DIMENSIONS SHALL NOT EXCEED 30" UNLESS OTHERWISE NOTED.
8. ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
9. NO SIGNS OR PERMANENT PAVEMENT MARKINGS SHALL BE REMOVED WITHOUT SPECIFIC PERMISSION OF THE CITY OF PROVIDENCE.
10. MAINTAIN SIGNAGE APPROPRIATE FOR THE CURRENT TRAFFIC PATTERN AT ALL TIMES. SIGNS IN CONFLICT WITH THE EXISTING TRAFFIC PATTERN SHALL BE COVERED OR REMOVED. NO SIGNAGE SHALL BE PLACED THAT OBSTRUCTS EXISTING SIGNAGE, EXCEPT WHERE THE NEW SIGN INFORMATION SUPERSEDES THE EXISTING SIGNAGE AND IS REQUIRED TO ACCOMMODATE CONSTRUCTION ACTIVITIES.
11. ALL "ROAD WORK AHEAD" SIGNS INCLUDING SUPPLEMENTAL PLAQUES SHALL BE DISPLAYED AT ALL TIMES THROUGHOUT THE DURATION OF CONSTRUCTION.
12. ALL SIGNAGE REMOVED TO ACCOMMODATE CONSTRUCTION SHALL BE REPLACED TO THE SATISFACTION OF THE CITY OF PROVIDENCE AND/ OR RIDOT AT THE CONTRACTOR'S EXPENSE.
13. CONTRACTOR SHALL RESTORE PAVEMENT MARKINGS, IN A SUITABLE TRAFFIC PAINT, ON TEMPORARY PATCHES PRIOR TO REOPENING WORK ZONE TO TRAFFIC. PERMANENT REPAIRS MUST BE IMMEDIATELY PRE-MARKED WITH TABS IN THE COLOR OF THE REMOVED LINE AND FINAL PAVEMENT MARKINGS (IN A MATERIAL APPROVED BY THE CITY OF PROVIDENCE AND/ OR RIDOT) MUST BE APPLIED WITHIN 48 HOURS OF THE PERMANENT REPAIR.
14. TRAFFIC FLOW ARROWS SHOWN ON THE PLAN ARE ONLY INTENDED TO INDICATE LOCATIONS OF TRAVEL LANES AND ARE NOT TO BE INSTALLED AS PAVEMENT MARKINGS. SPECIFIC PAVEMENT MARKING INSTALLATIONS ARE CALLED OUT ON THE PLAN.
15. COORDINATE THE WORK WITH ADJACENT PROPERTY OWNERS. MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES UNLESS OTHER ACCOMMODATIONS ARE MADE WITH PROPERTY OWNERS IN ADVANCE OF THE WORK.



PRECAST CONCRETE BARRIER FOR TEMPORARY TRAFFIC CONTROL
NO SCALE



- PRECAST CONCRETE BARRIER FOR TEMPORARY TRAFFIC CONTROL**
NO SCALE



REVISIONS			RHODE ISLAND DEPARTMENT OF TRANSPORTATION		<div><div>R.I. STANDARD 24.3.0</div></div>
NO.	BY	DATE	CONSTRUCTION AND TEMPORARY SIGN MOUNTINGS (SIGNS UP TO 60 SQ. FT.)		
			<i>Jeanette Gault</i>	<i>Edward A. Roberts</i>	
			DESIGNER	CHECKED BY	
			TEMPORATION	TEMPORATION	
					JUNE 15, 1998
					DATE SET

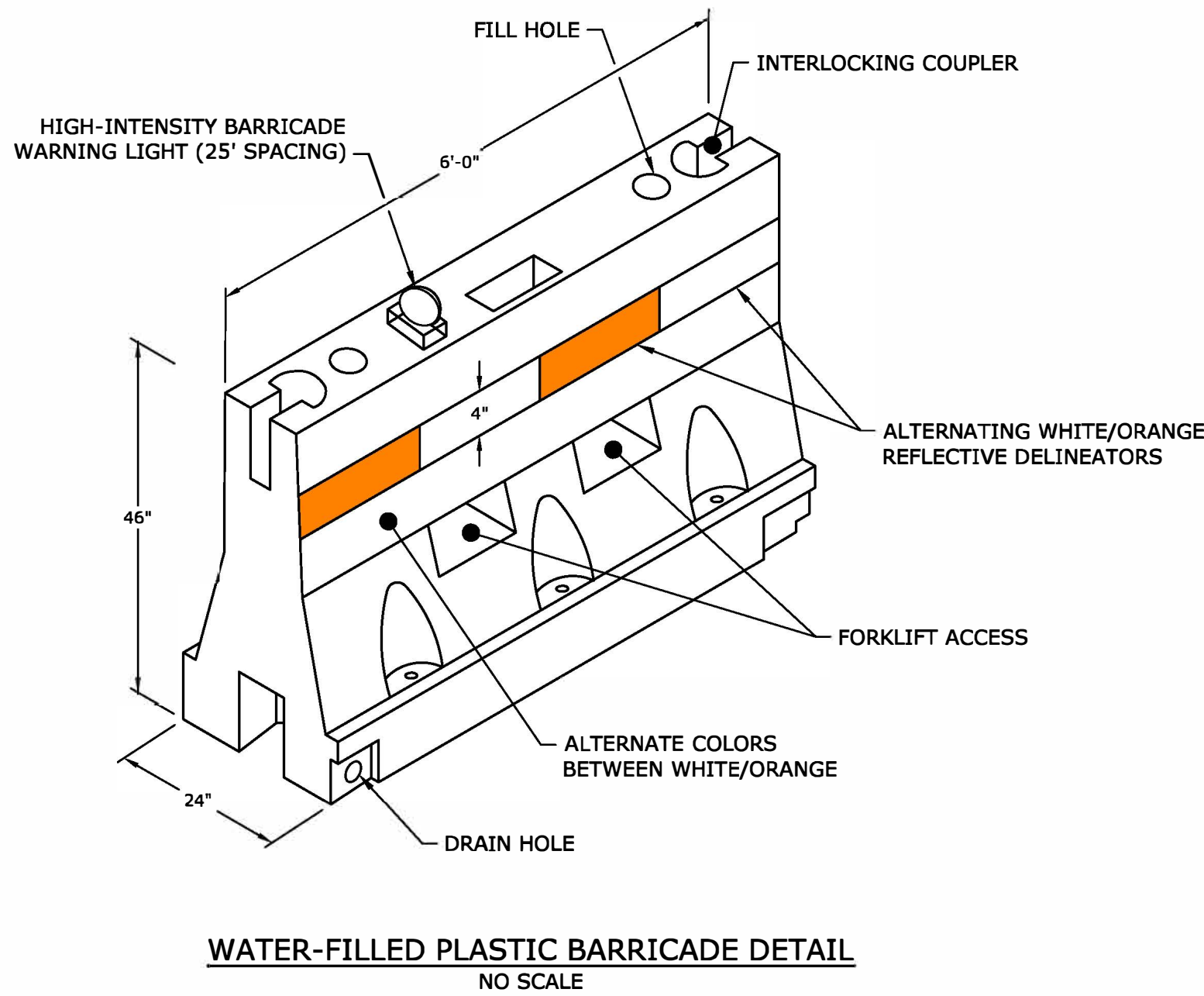
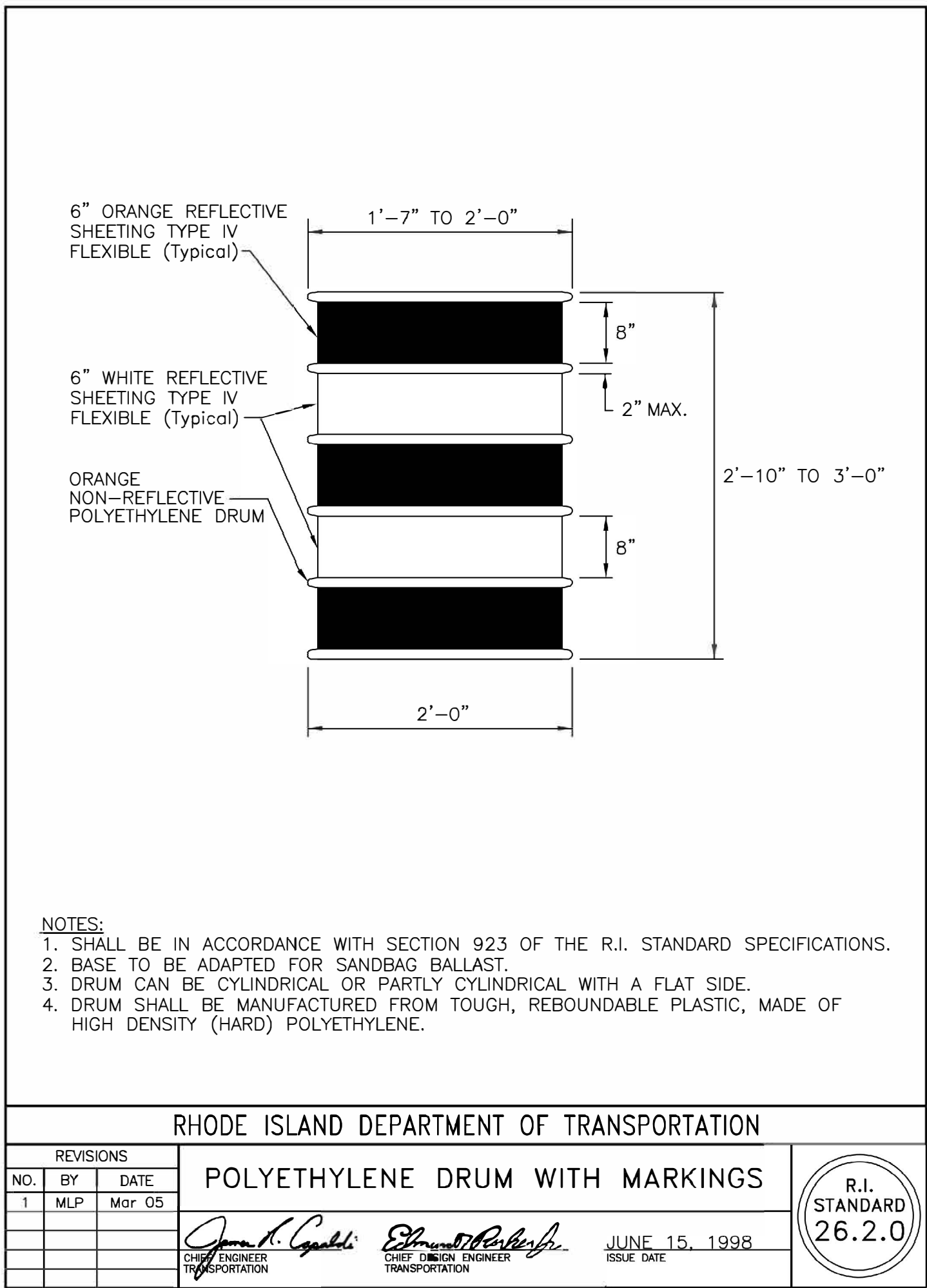
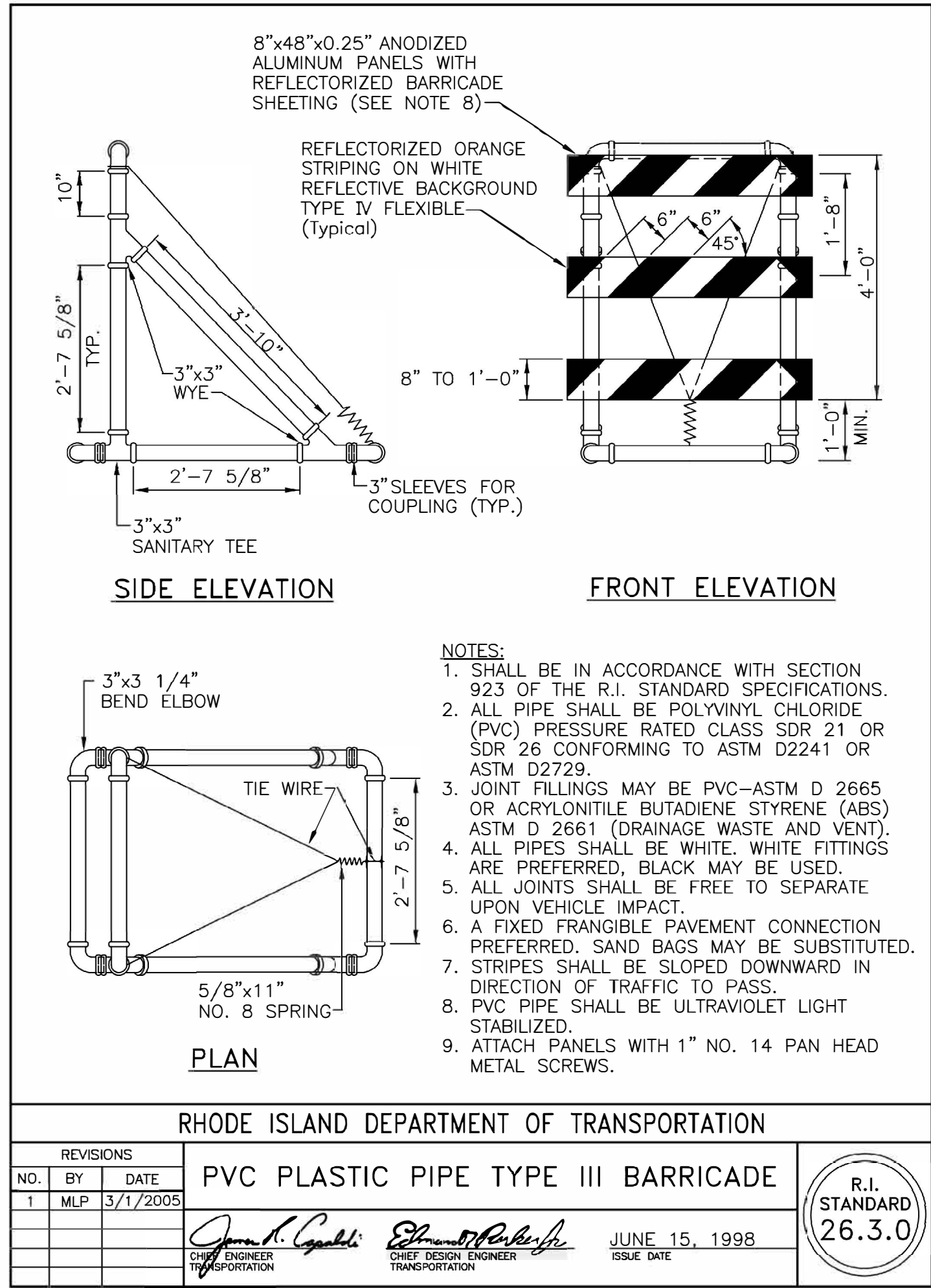
No.	DATE	REVISIONS	BY APVD

CHRISTOPHER GRANATINI

No. 94878

REGISTERED
PROFESSIONAL ENGINEER
CIVIL

10/26/2022



NO.

BY

DATE

REVISIONS

APPROVED

DESIGNED

DRAWN

CHECKED





INCHARGE





JUNE 15, 1988


ISSUE DATE

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

CONSTRUCTION SIGNS

SIGN NUMBER		* W21-4				W20-2				W20-3				W20-4			
LEGEND																	
(SEE NOTE 2)		(SEE NOTE 2)				(SEE NOTE 2)				(SEE NOTE 2)				(SEE NOTE 2)			
COLOR	BACKGROUND	ORANGE				ORANGE				ORANGE				ORANGE			
	COPY	BLACK				BLACK				BLACK				BLACK			
DIMENSION	WIDTH	30"	36"	48"	96"	30"	36"	48"	96"	30"	36"	48"	96"	30"	36"	48"	96"
	HEIGHT	30"	36"	48"	96"	30"	36"	48"	96"	30"	36"	48"	96"	30"	36"	48"	96"

SIGN NUMBER		W20-5 (R OR L)				W20-7				W20-7a				* G20-1			
LEGEND																	
(SEE NOTE 2)		(SEE NOTE 2)				(SEE NOTE 2)				(SEE NOTE 2)				(SEE NOTE 2)			
COLOR	BACKGROUND	ORANGE				ORANGE				ORANGE				ORANGE			
	COPY	BLACK				BLACK				BLACK				BLACK			
DIMENSION	WIDTH	30"	36"	48"	96"	30"	36"	48"	96"	30"	36"	48"	96"	60"			
	HEIGHT	30"	36"	48"	96"	30"	36"	48"	96"	30"	36"	48"	96"	24"			


SIGN NUMBER		* G20-2A			
LEGEND					
COLOR	BACKGROUND	ORANGE			
	COPY	BLACK			
DIMENSION	WIDTH	48"			
	HEIGHT	24"			

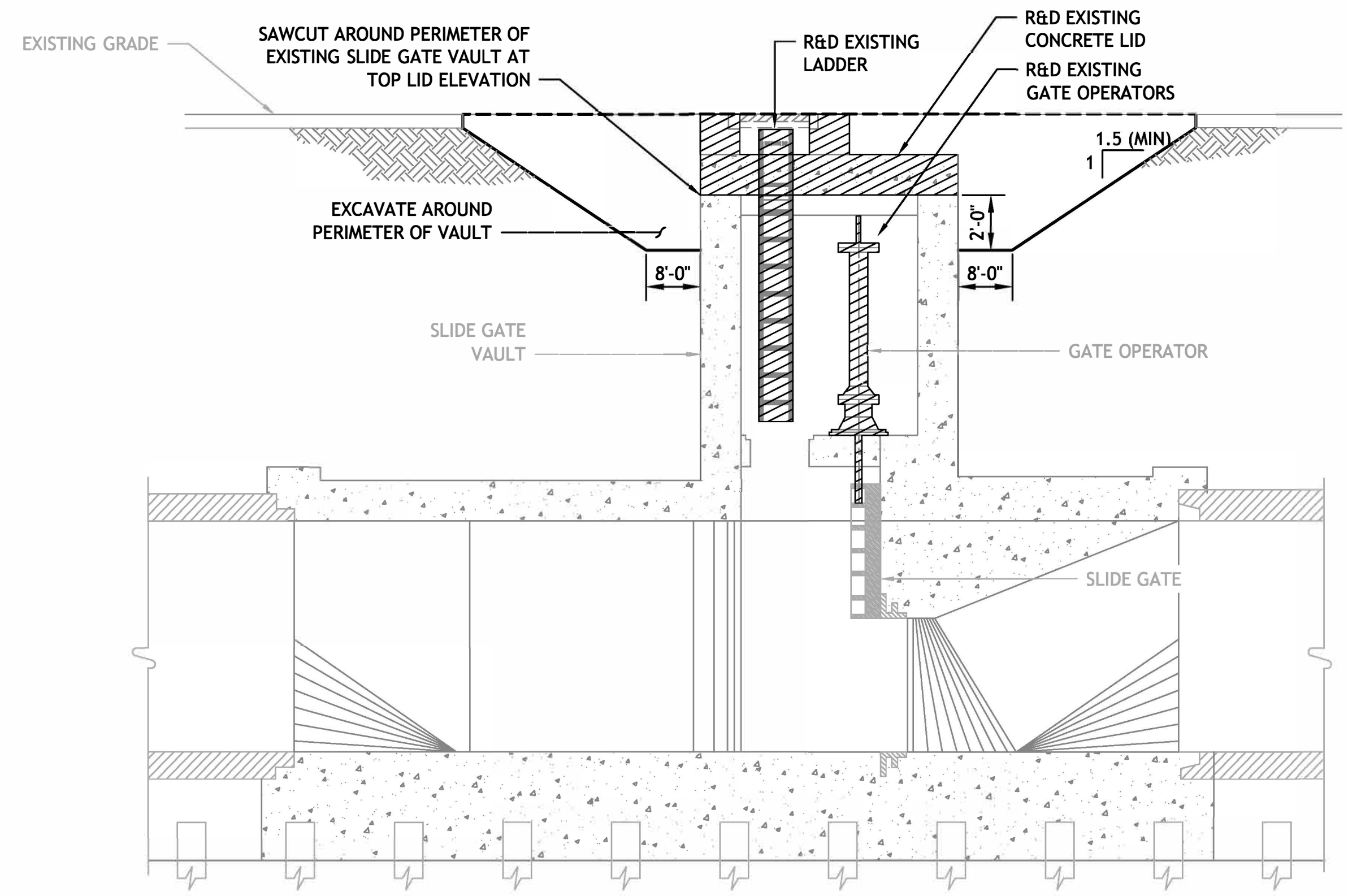
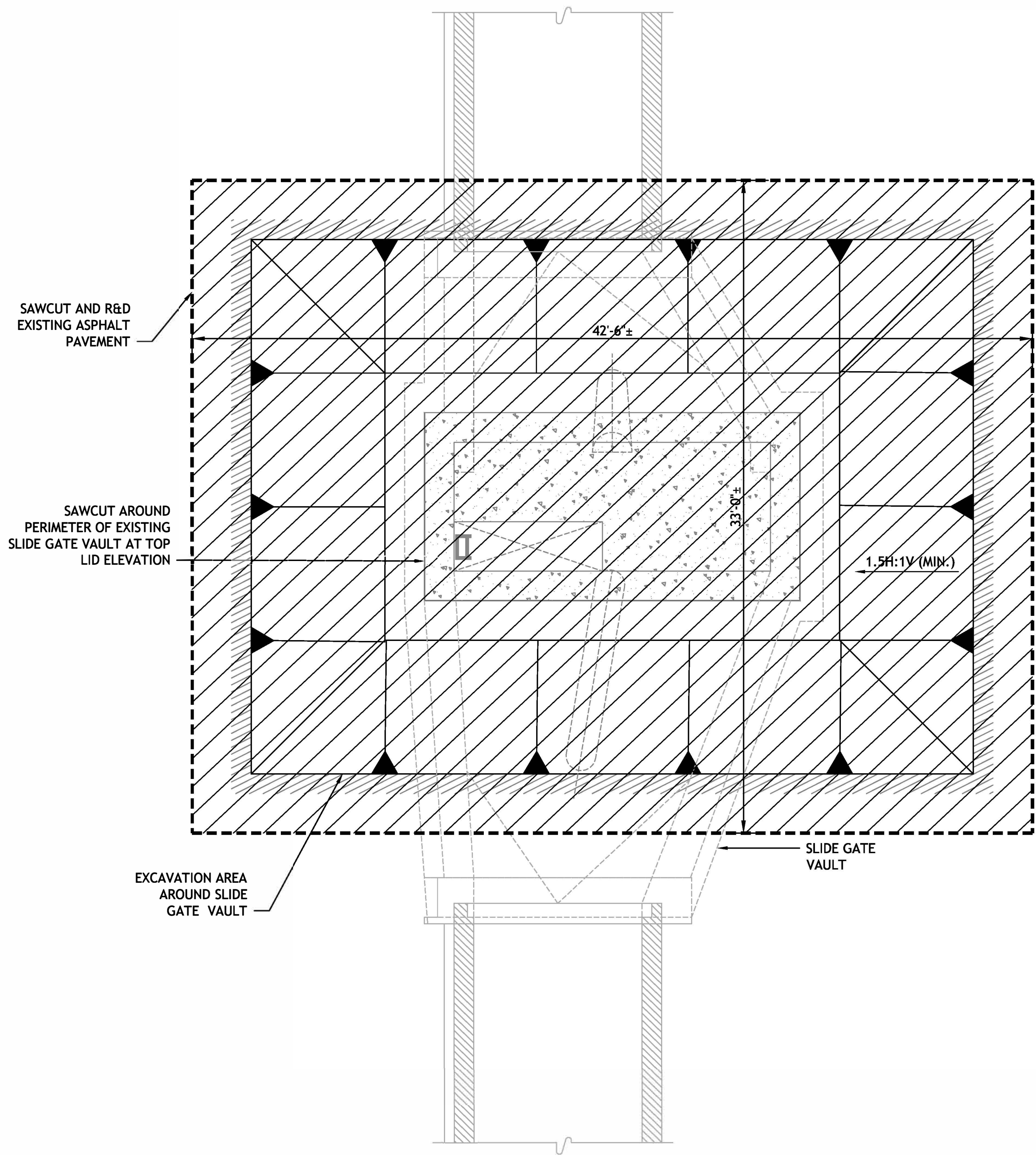
NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 922 OF THE R.I. STANDARD SPECIFICATIONS.
2. LEGEND ON W20-SERIES SHALL INDICATE DISTANCE AS FOLLOWS: 1500 FT 1/2 MILE
1000 FT 1 MILE
500 FT AHEAD

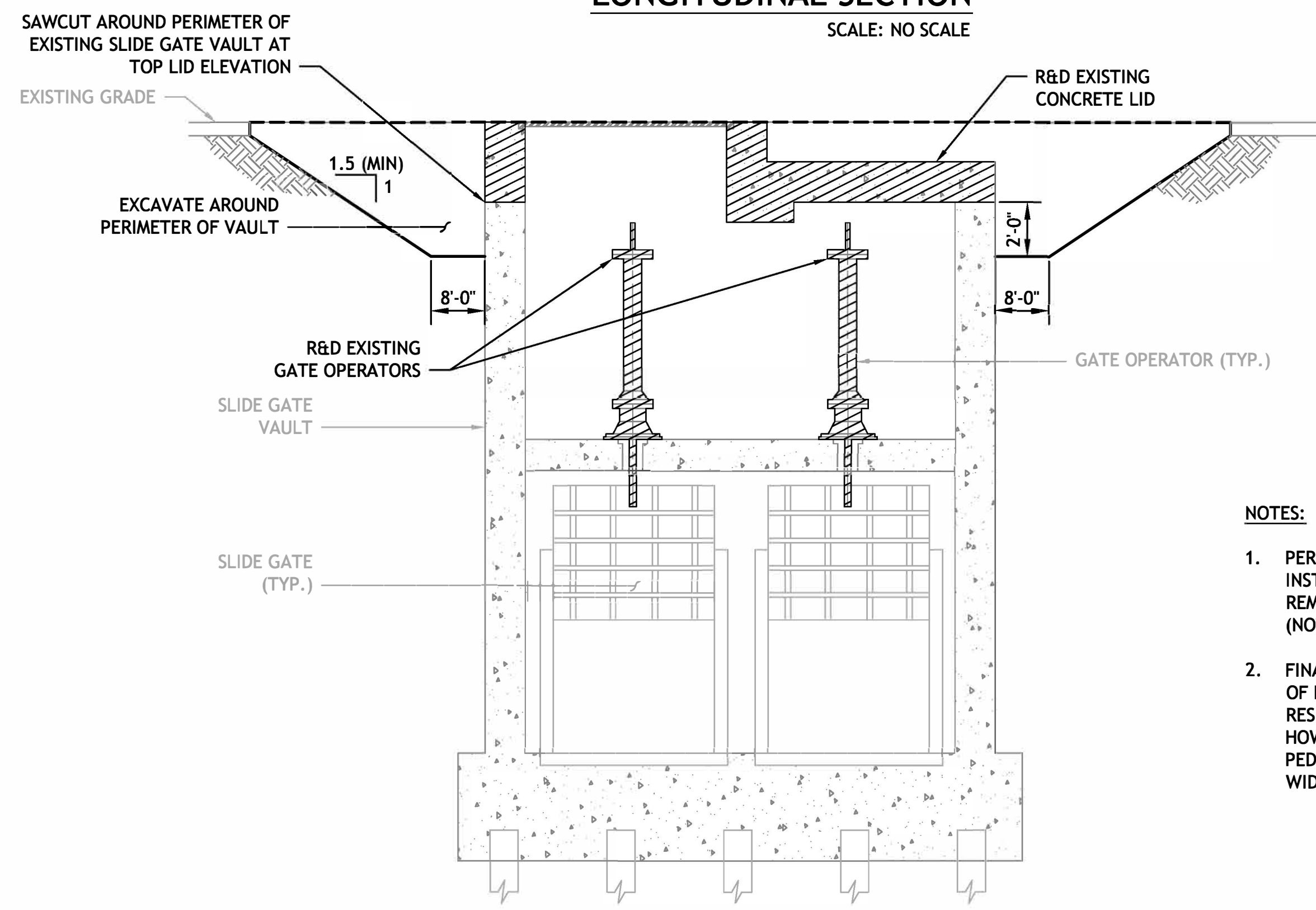
EXAMPLE: W20-2a = DETOUR 1500 FT

3. * DENOTES TYPE V GRADE SHEETING.
4. CONSTRUCTION SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH STD. 24.1.0, 24.2.0 OR 24.3.0.
5. FOR ADDITIONAL SIGNS SEE THE MUTCD.





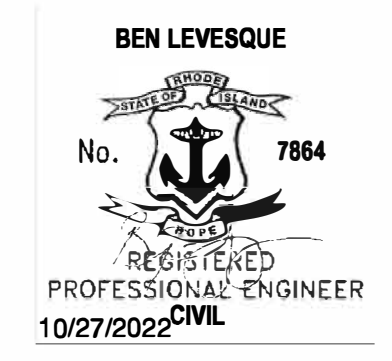
LONGITUDINAL SECTION
SCALE: NO SCALE



TRANSVERSE SECTION
SCALE: NO SCALE

NOTES:

1. PERMANENT INTERNAL BRACING SHALL BE INSTALLED PRIOR TO DEMOLITION AND REMOVAL OF EXISTING CONCRETE TOP LID (NOT SHOWN FOR CLARITY).
2. FINAL SLOPE GEOMETRY AND PROTECTION OF EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. HOWEVER, NORTH BOUND VEHICULAR AND PEDESTRIAN TRAFFIC ACCESS AT THE WIDTHS SHOWN MUST BE MAINTAINED.



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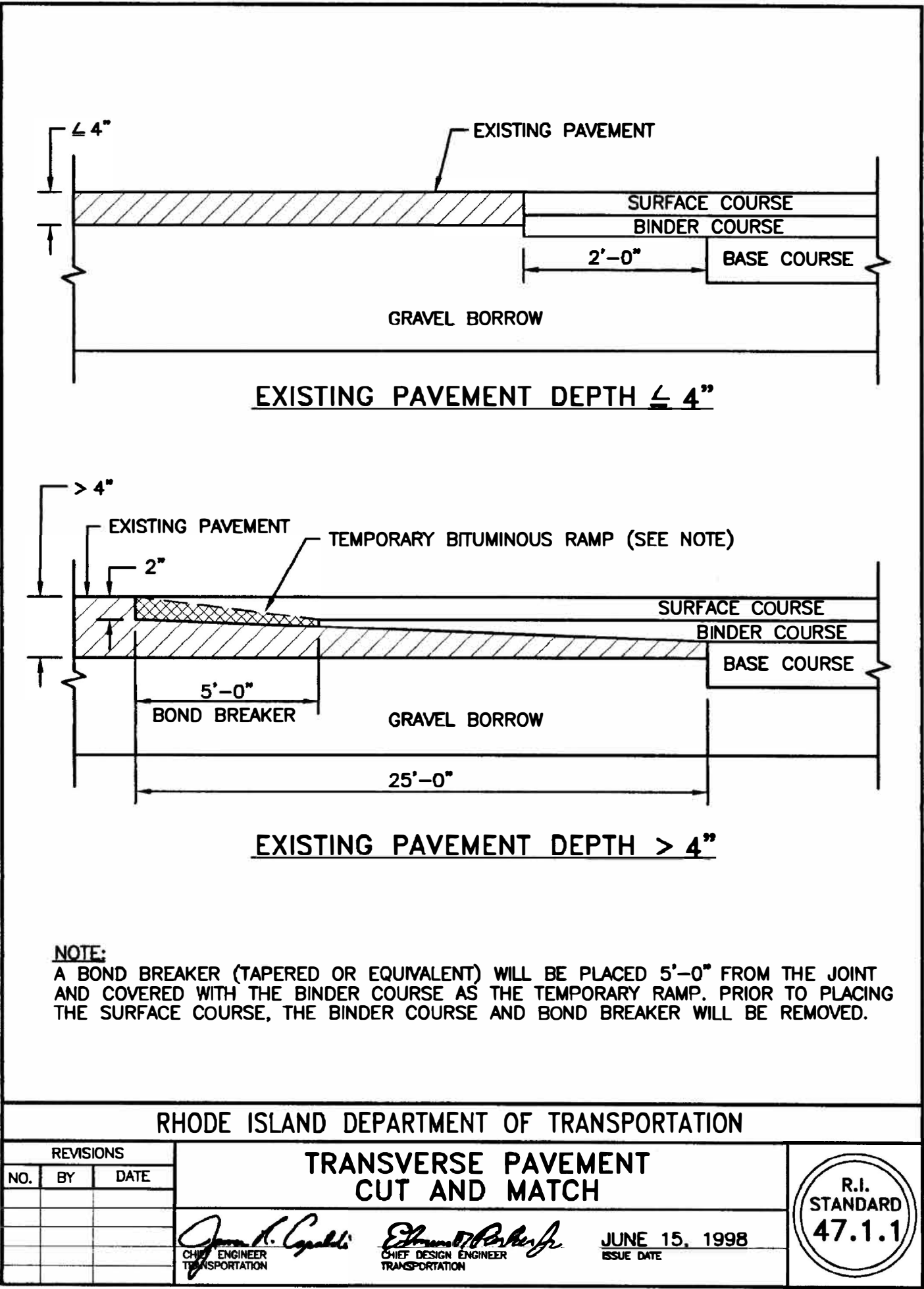
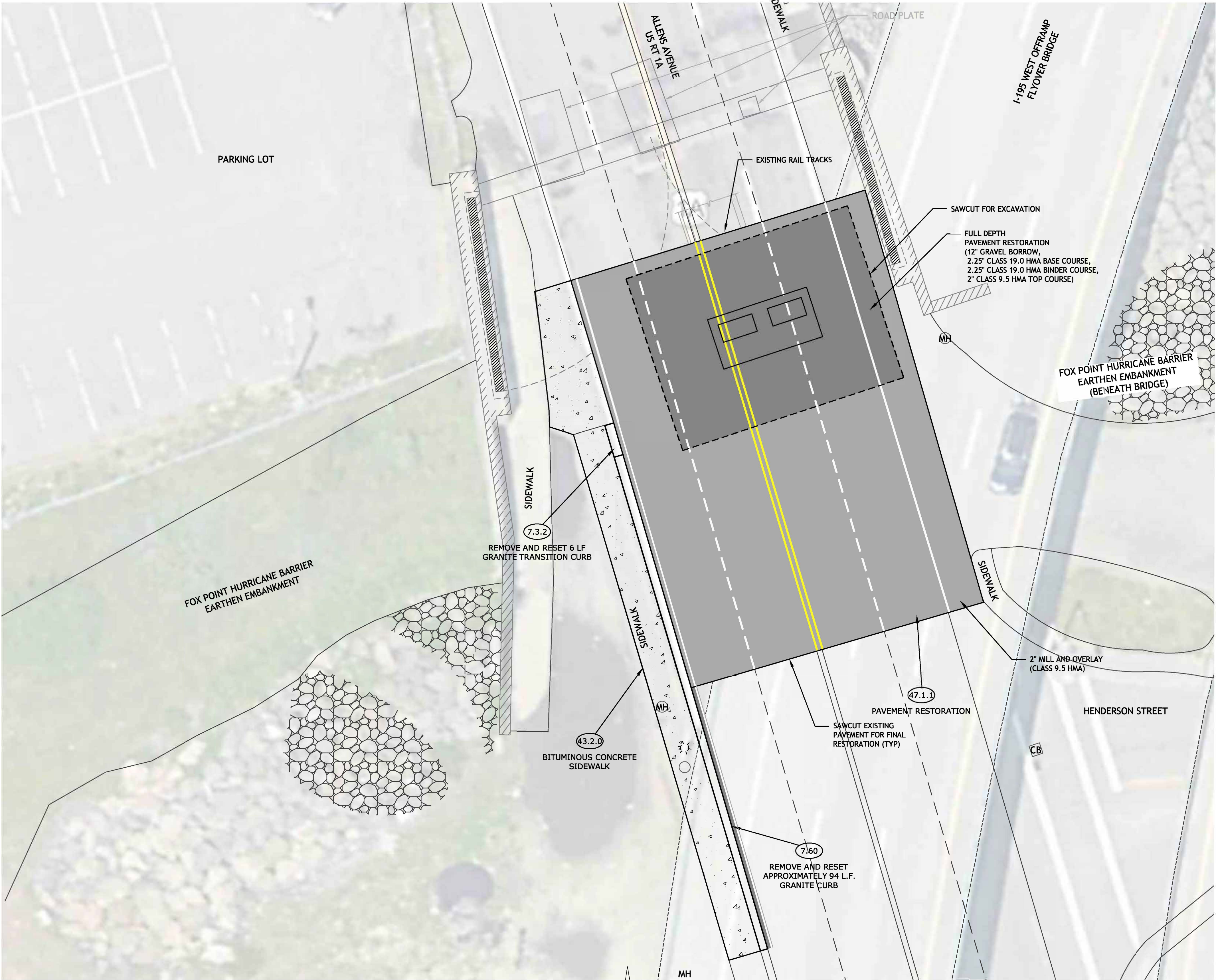
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SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

DEMOLITION AND REMOVAL PLAN AND SECTIONS

SHEET	10 of 23
DWG No.	C-07
DATE	OCTOBER 2022
PROJ No.	25-5040-006



- NOTES:
- PAVEMENT REPAIR SECTION SHALL MATCH EXISTING PAVEMENT CROSS SECTION AND CONFORM TO RIDOT STANARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTIONS 302 AND 401.
 - BASE AND BINDER COURSES SHALL BE CLASS 19.0 HMA AND INSTALLED IN EQUAL LIFTS OF MIN. 2.25".
 - SURFACE COURSE SHALL BE 2" CLASS 9.5 HMA.
 - GRAVEL BORROW SUBBASE COURSE SHALL BE MIN. 12" AND CONFORM TO RIDOT GRADATION REQUIREMENTS OUTLINED IN SECTION M.01.09.



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No.	DATE
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BY	APVD
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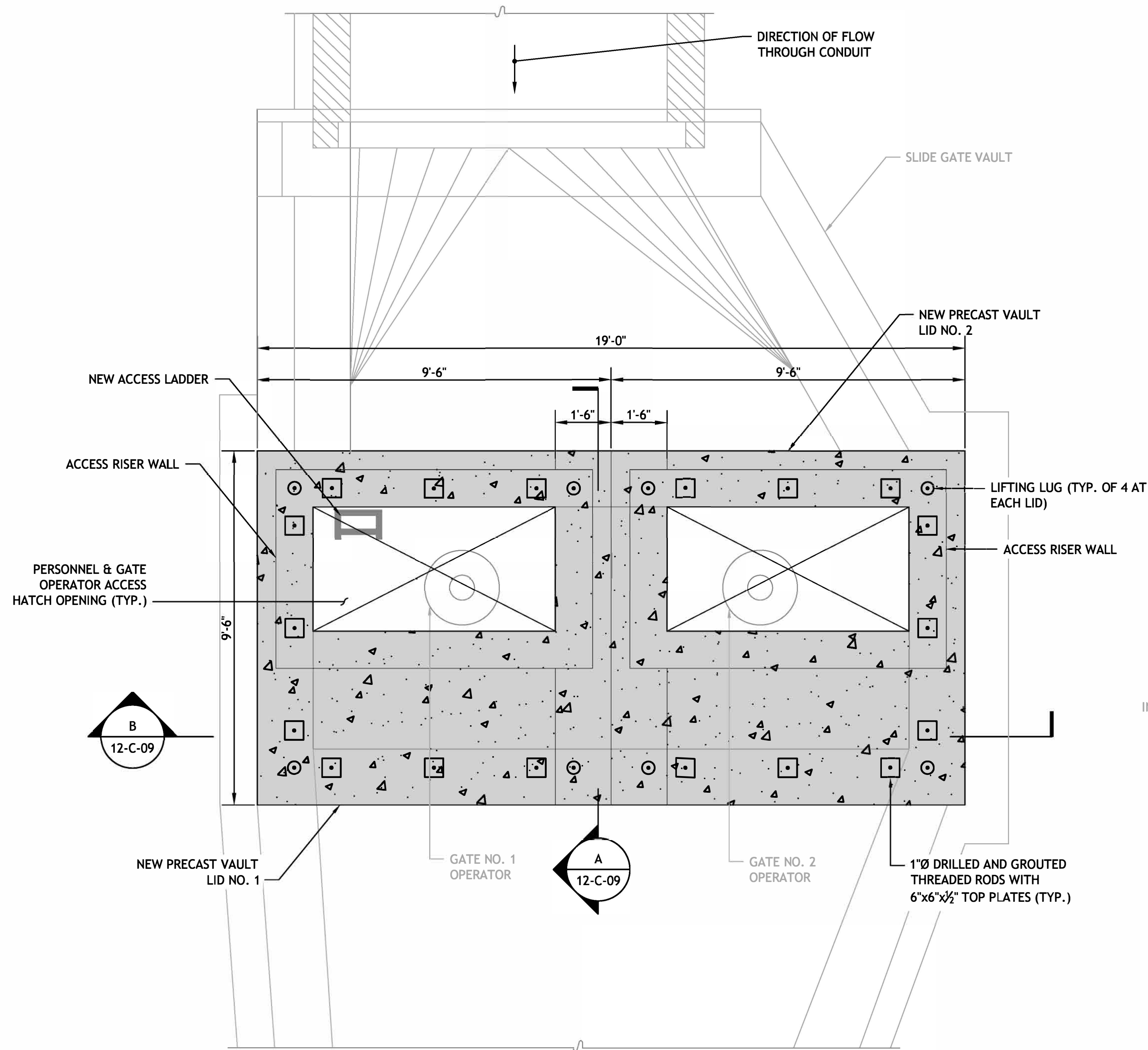
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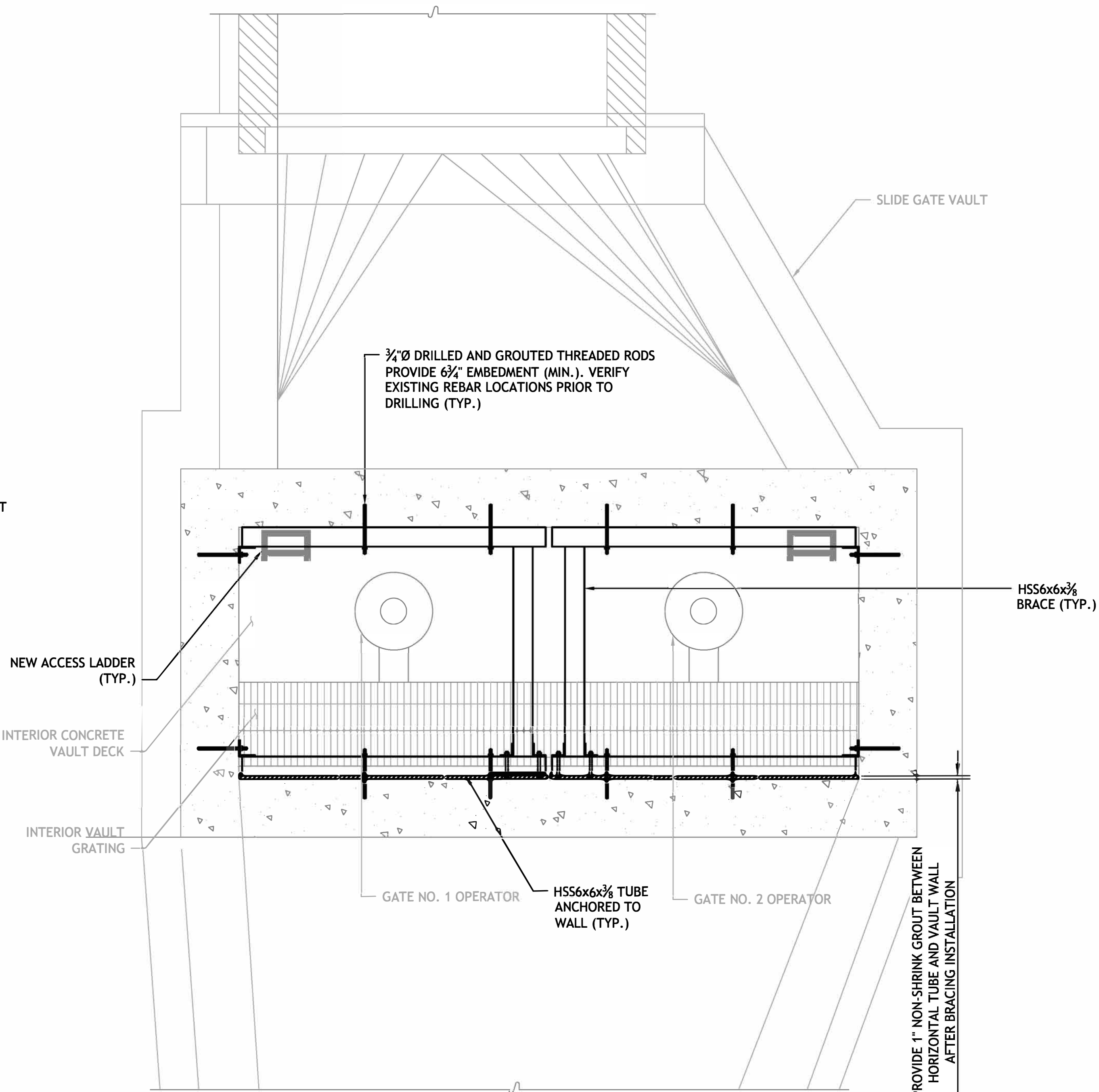
SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

RESTORATION PLAN

SHEET	11 of 23
DWG No.	C-08
DATE	OCTOBER 2022
PROJ No.	25-5040-006



VAULT LID PLAN
SCALE: 1/2" = 1'-0"



PERMANENT INTERIOR BRACING PLAN
SCALE: 1/2" = 1'-0"



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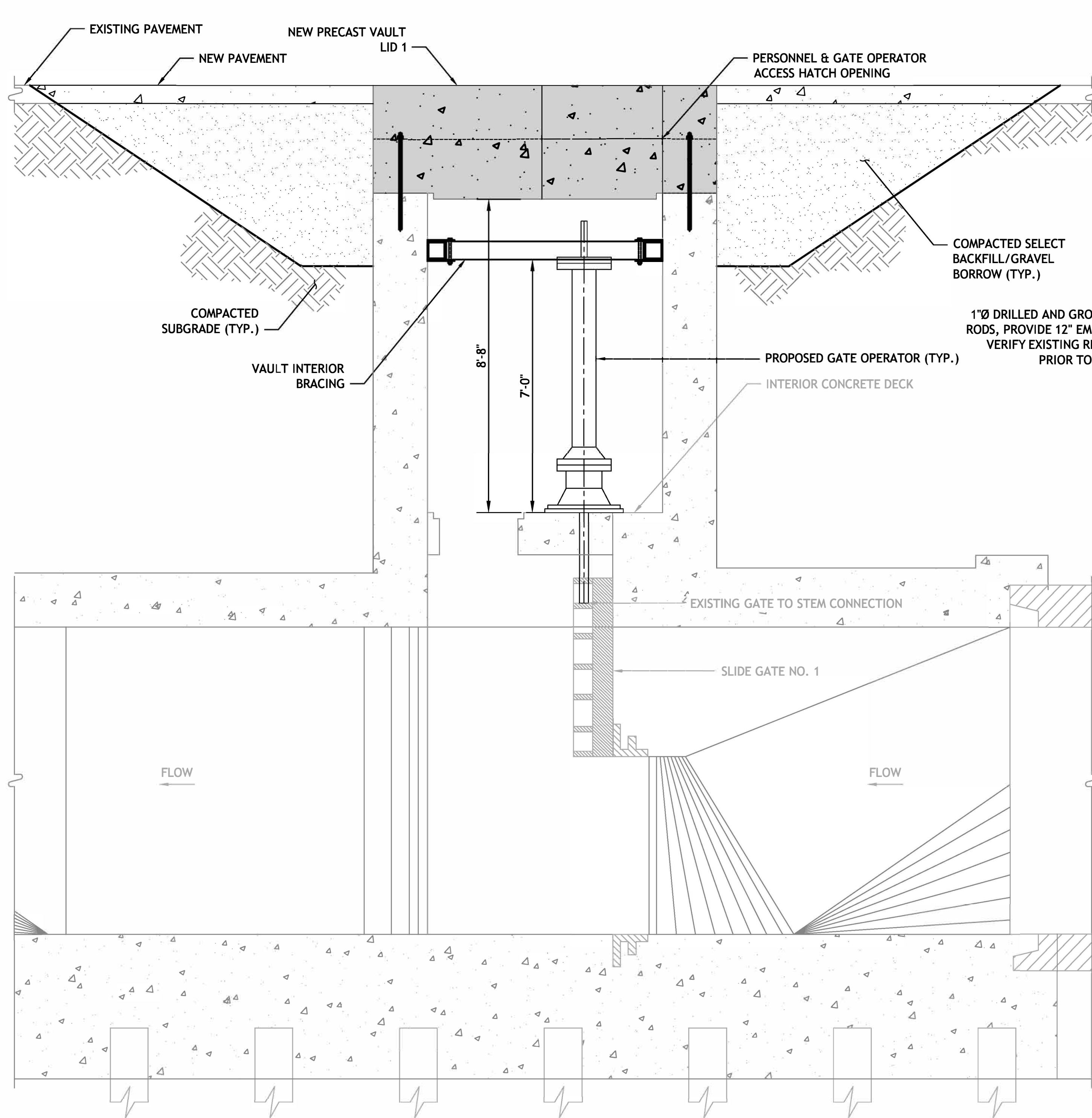


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FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

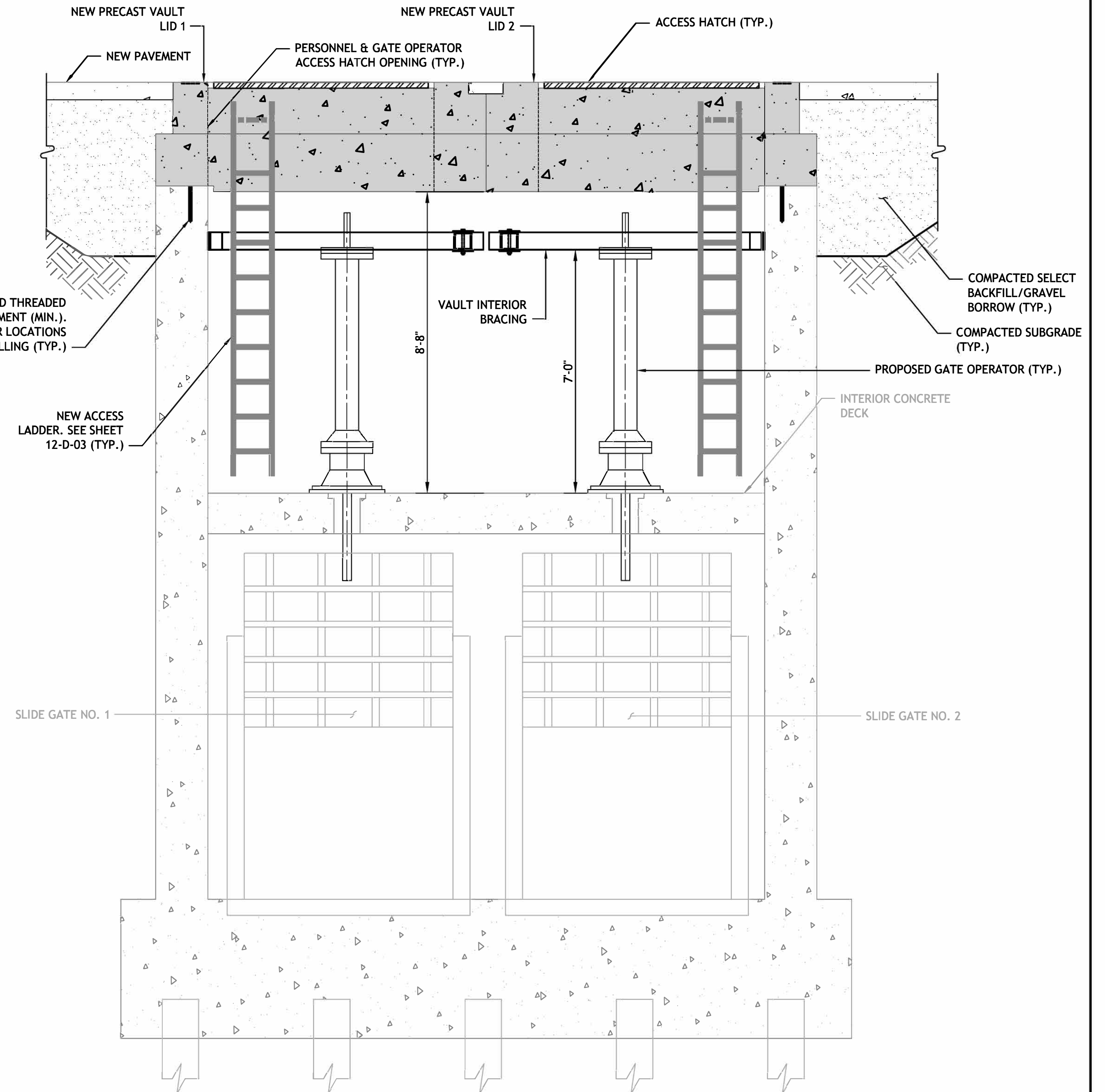
PROPOSED IMPROVEMENT PLAN

BEN LEVESQUE
No. 7864
REGISTERED PROFESSIONAL ENGINEER
10/27/2022 CIVIL

SHEET	12 of 23
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LONGITUDINAL SECTION A
SCALE: 1/2" = 1'-0" 11-C-08



TRANSVERSE SECTION B
SCALE: 1/2" = 1'-0" 11-C-08

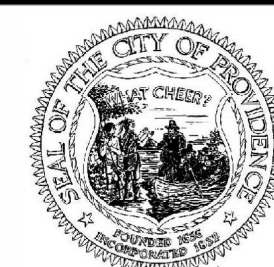
BEN LEVESQUE
No. 7864
REGISTERED
PROFESSIONAL ENGINEER
10/27/2022 CIVIL

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(401) 438-3100

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APVD	JBR

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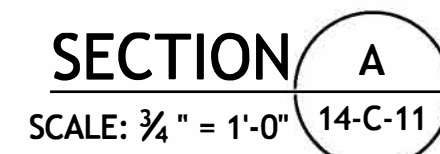
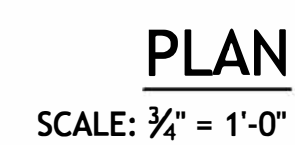
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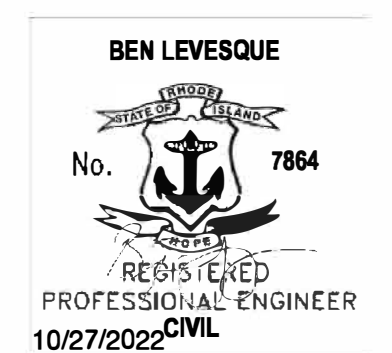
SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

PROPOSED IMPROVEMENT SECTIONS

SHEET	13 of 23
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- SUGGESTED DEMOLITION SEQUENCE
1. REMOVE EXISTING HYDRAULIC EQUIPMENT IN CLOUDED AREA
 2. INSTALL HALF OF NEW EQUIPMENT BEFORE REMOVING EXISTING SUPPLY AND RETURN PORTS
 3. REMOVE ONE PAIR OF SUPPLY AND RETURN PORTS AT A TIME TO ALLOW ONE GATE TO REMAIN OPERATIONAL
 4. REMOVE REMAINING EXISTING HYDRAULIC EQUIPMENT, INCLUDING SUPPLY AND RETURN LINES, UPON COMPLETION OF WORK ON FIRST GATE
 5. PLUG SUPPLY AND RETURN LINES WITH MORTAR AT EACH END (CONTROL HOUSE AND VAULT)

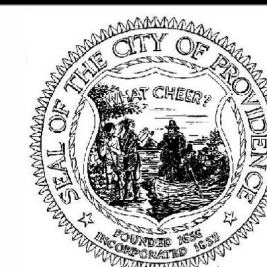


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CHK	GJC							
APVD	JBR							
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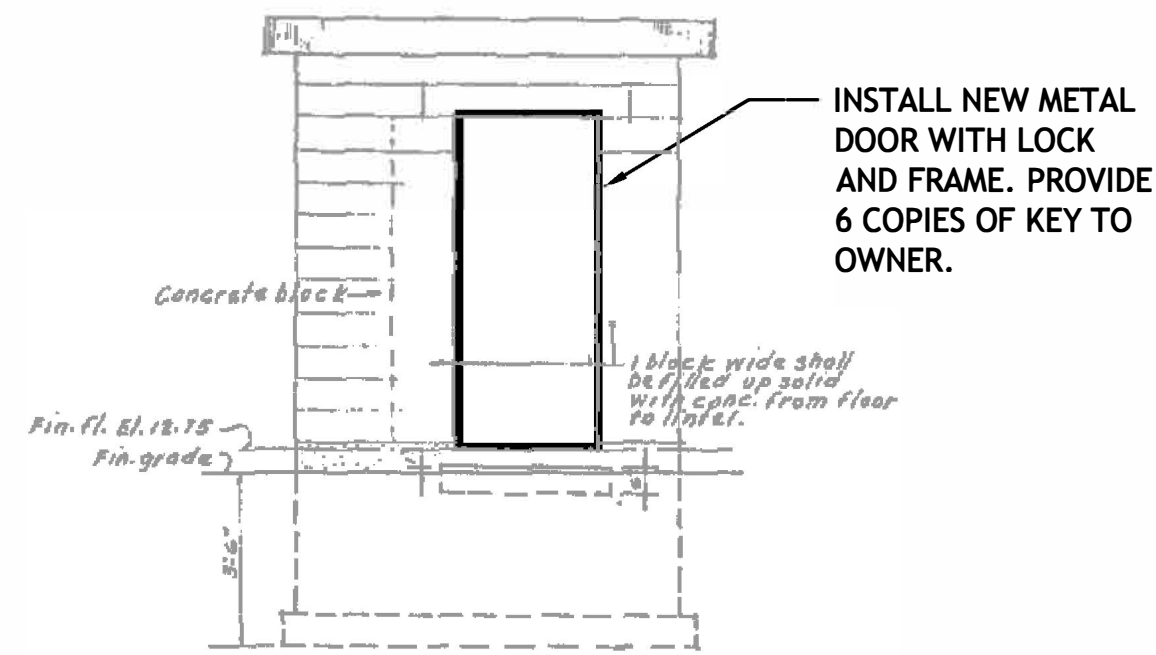
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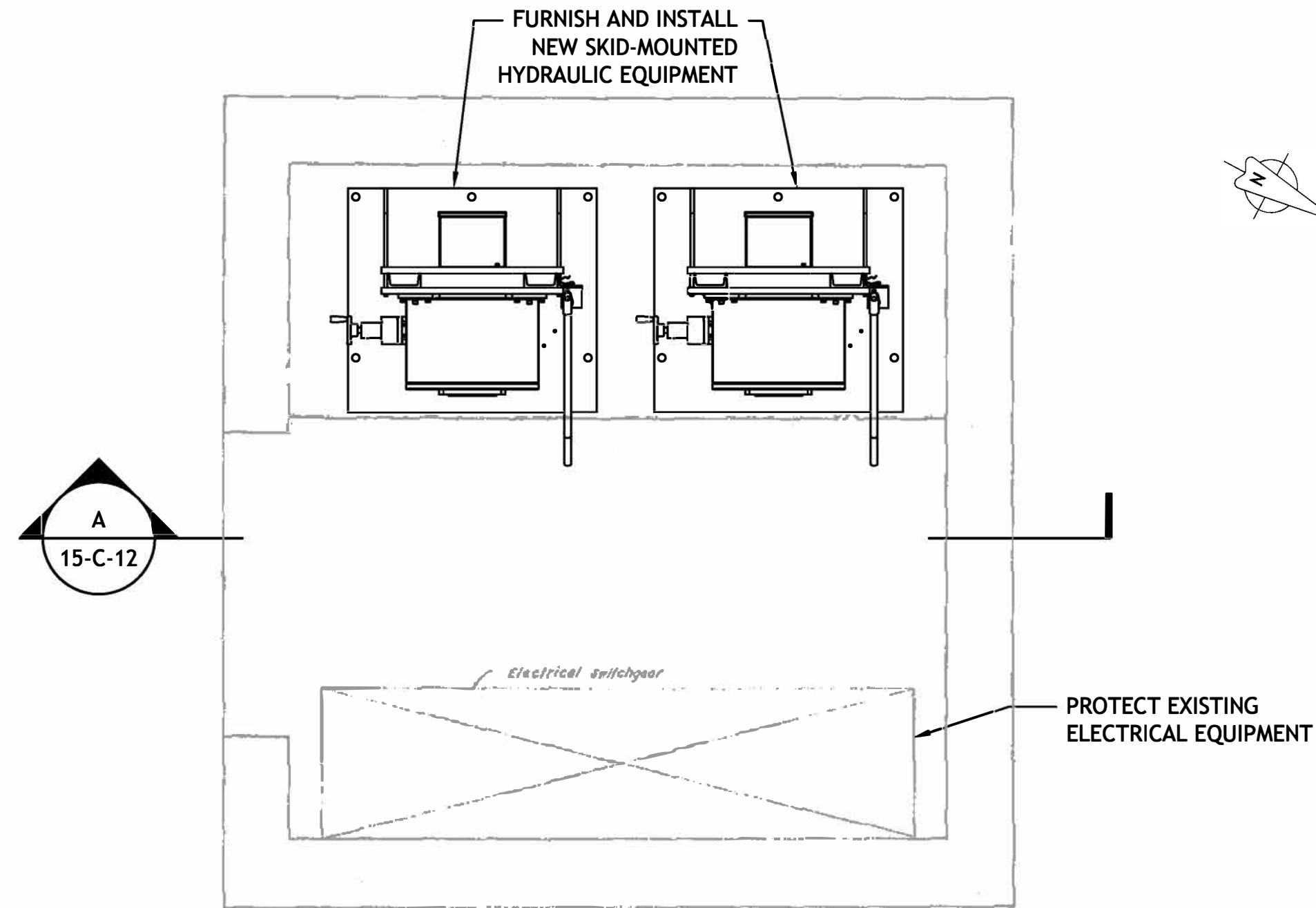
SLIDE GATE OPERATOR REPAIR
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ALLENS AVENUE
City of Providence, RI

CONTROL HOUSE DEMOLITION

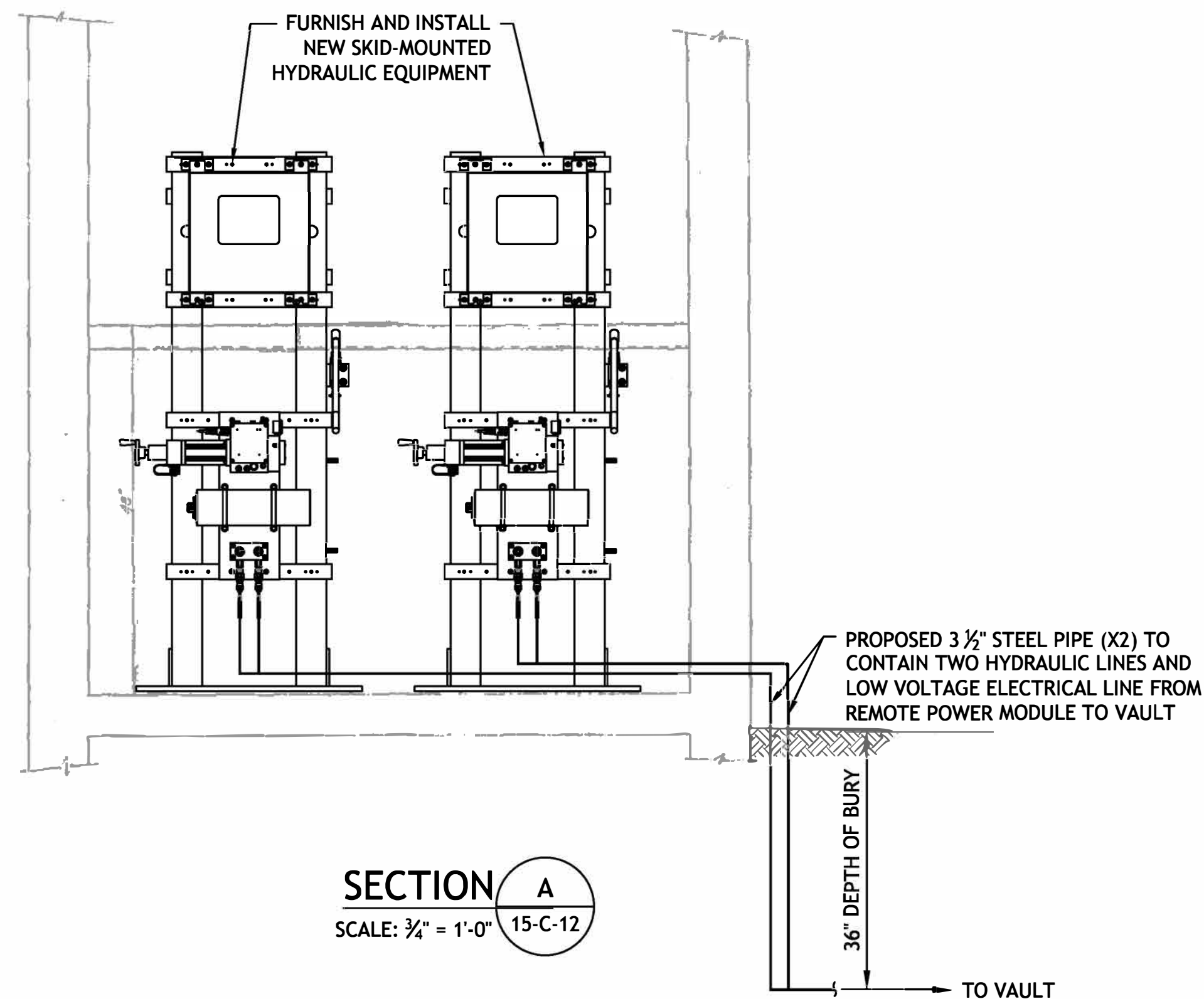
SHEET	15 of 23
DWG No.	C-12
DATE	OCTOBER 2022
PROJ No.	25-5040-006



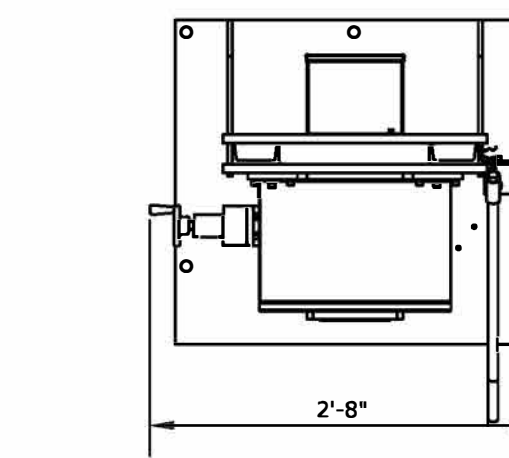
FRONT ELEVATION
SCALE: 1/4" = 1'-0"



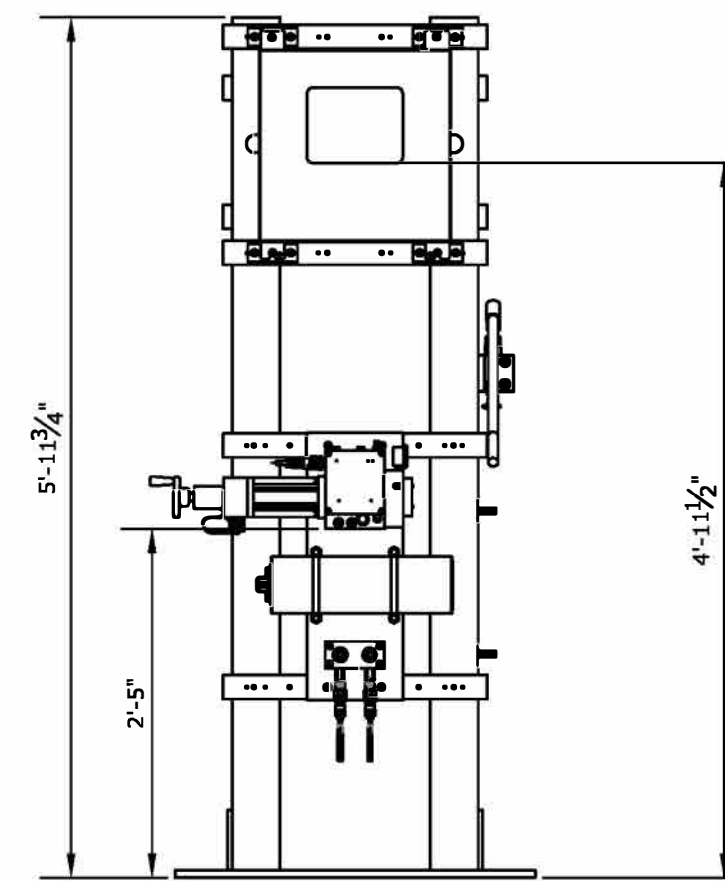
PLAN
SCALE: 3/4" = 1'-0"



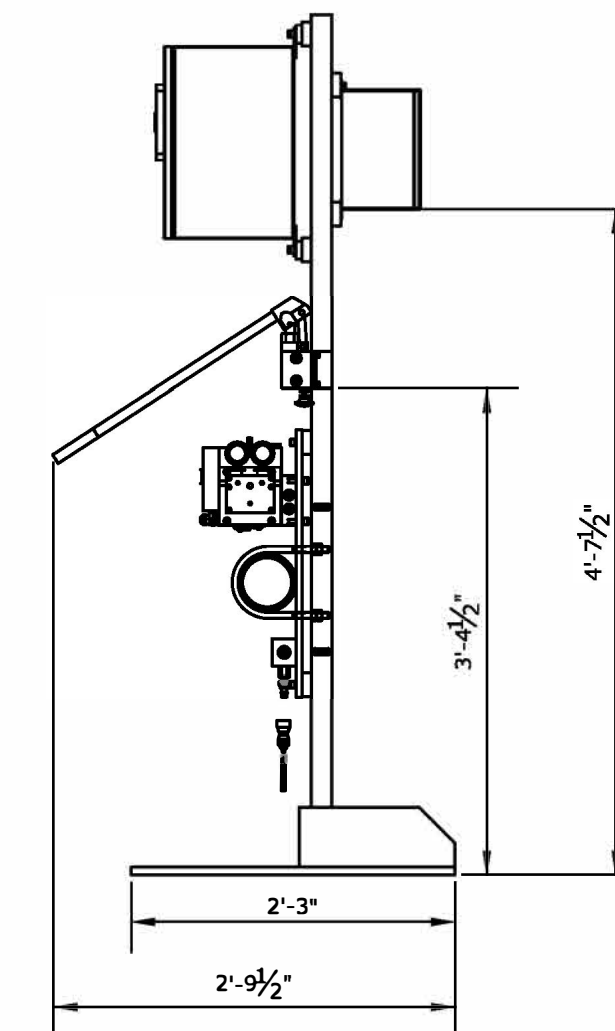
SECTION A
SCALE: 3/4" = 1'-0"



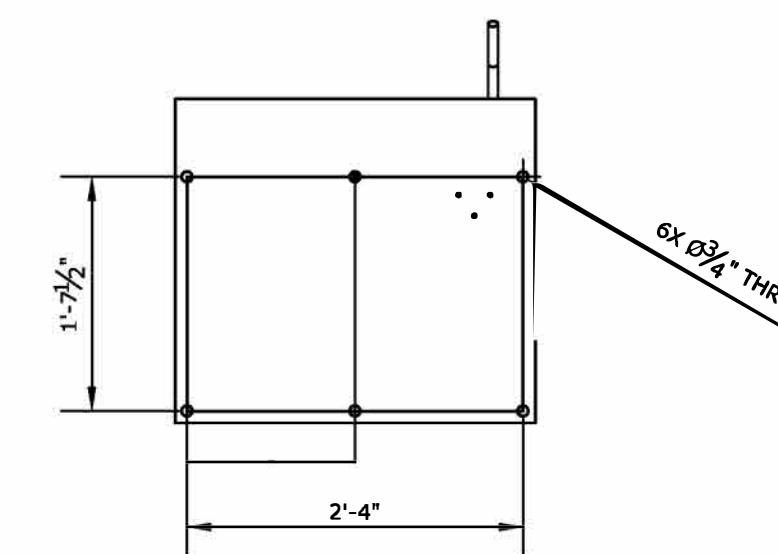
TOP VIEW



FRONT VIEW



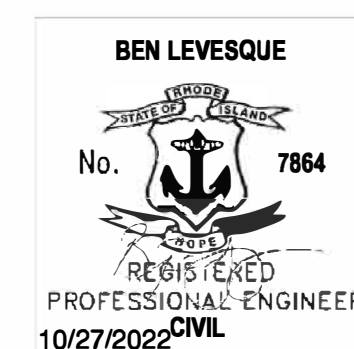
SIDE VIEW



BOTTOM VIEW

NOTE:
DIMENSIONS SHOWN ARE
BASED ON REXA MODEL NO.
X3L10000 SKID MOUNTED
MOTOR AND CONTROL
ENCLOSURE - DIMENSIONS
ARE SUBJECT TO CHANGE

**TYPICAL SKID MOUNTED
HYDRAULIC ACTUATOR POWER MODULE**
SCALE: 3/4" = 1'-0"

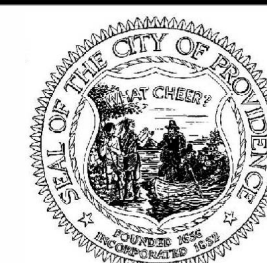


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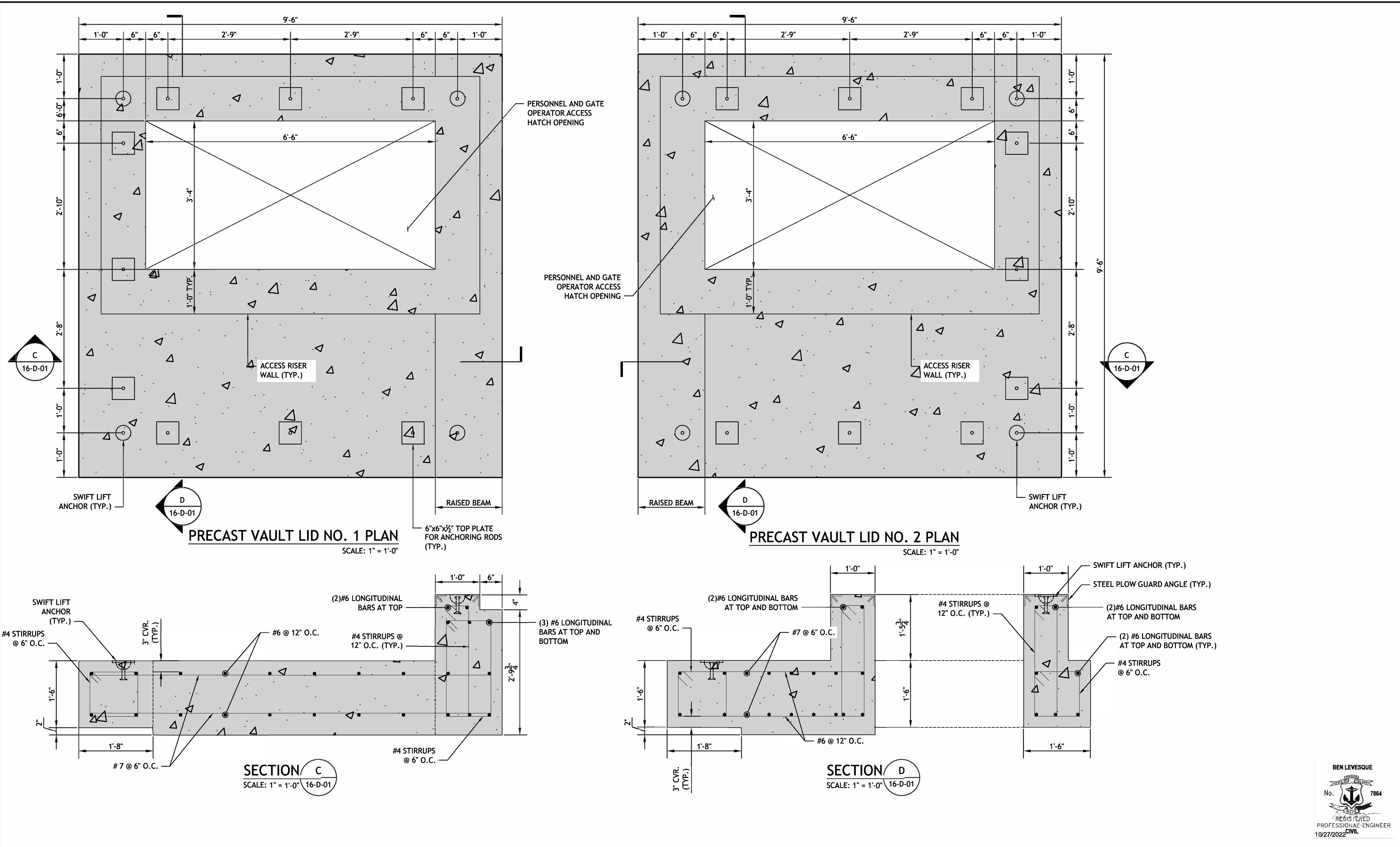
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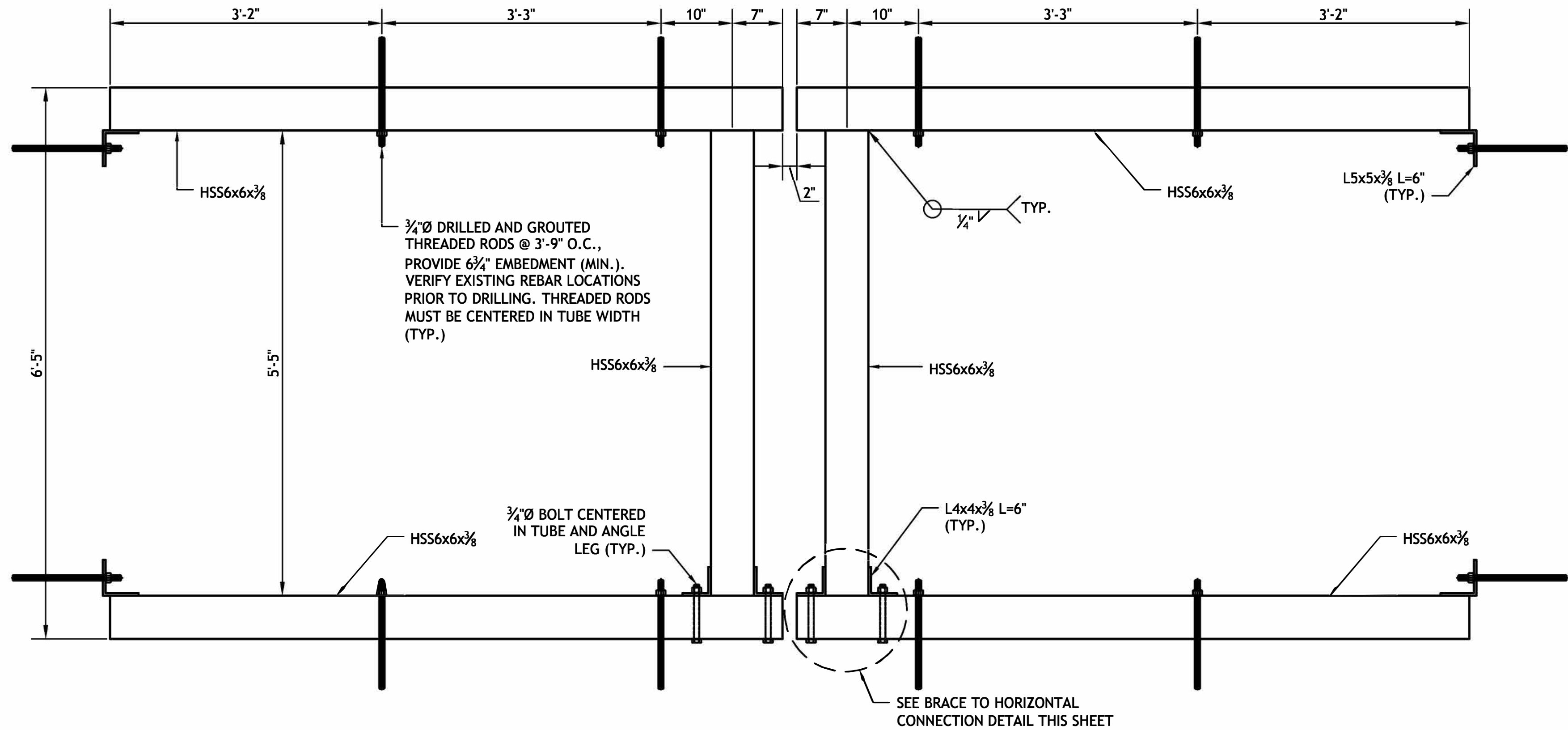


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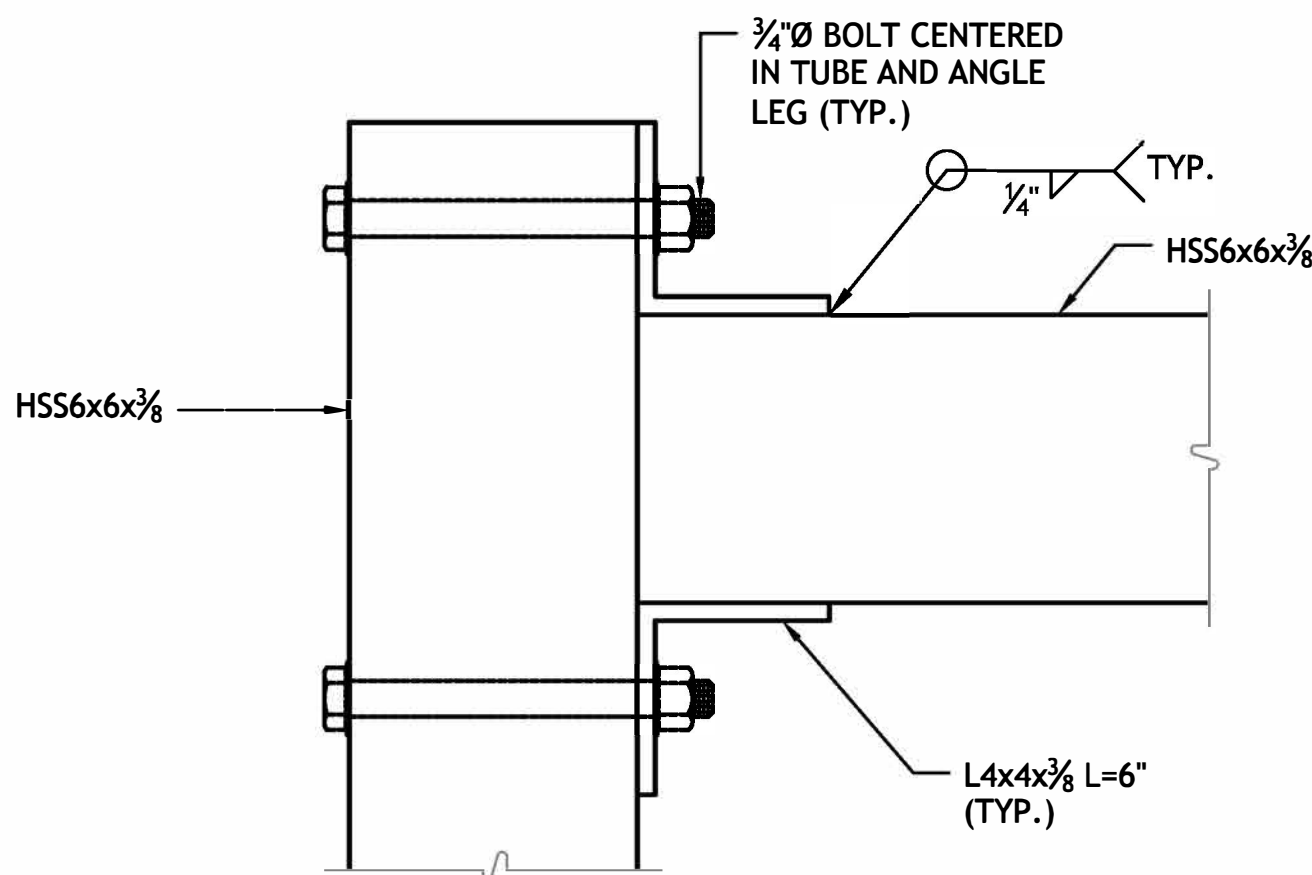
**CONTROL HOUSE
PROPOSED IMPROVEMENTS**

SHEET	16 of 23
DWG No.	C-13
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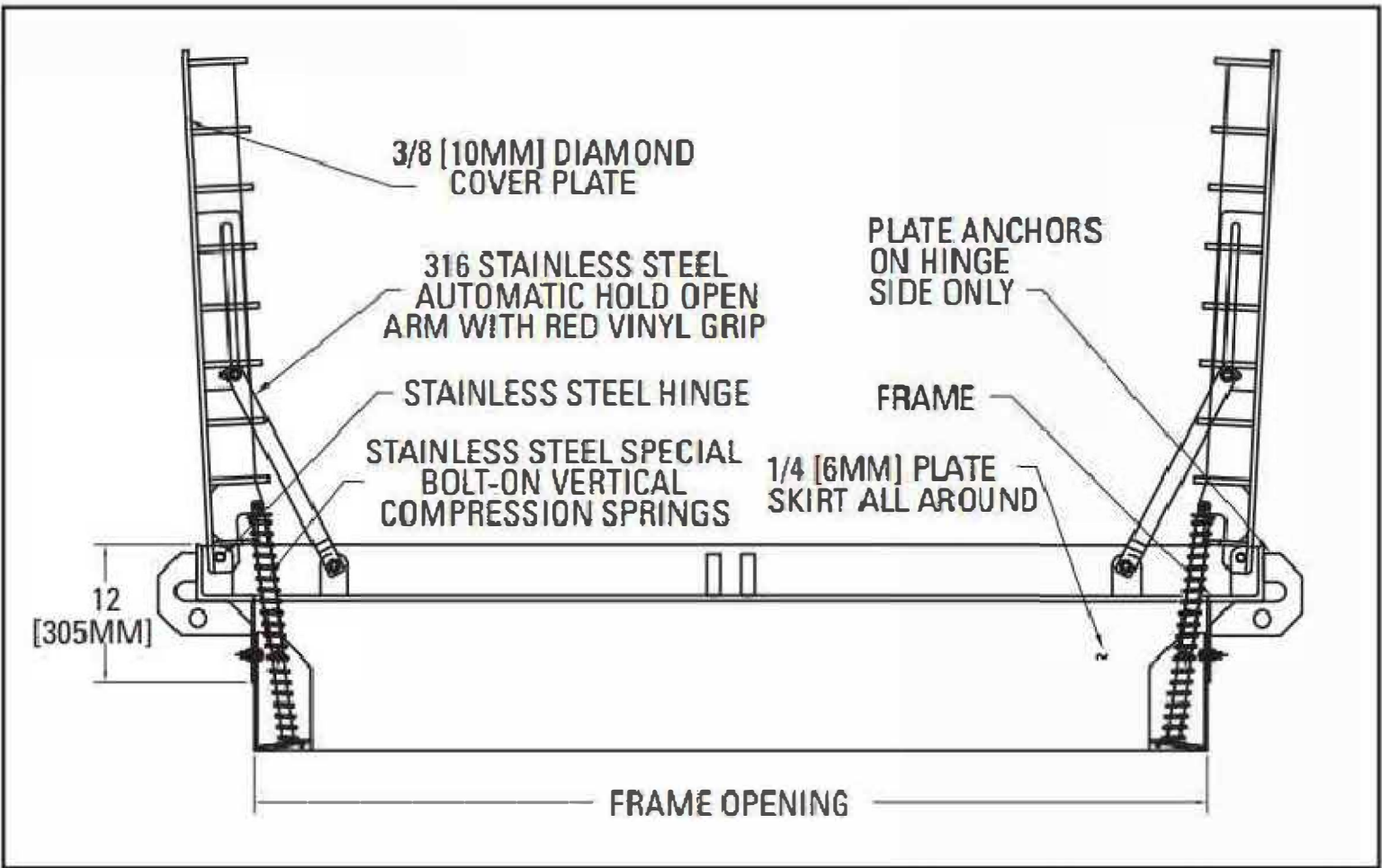




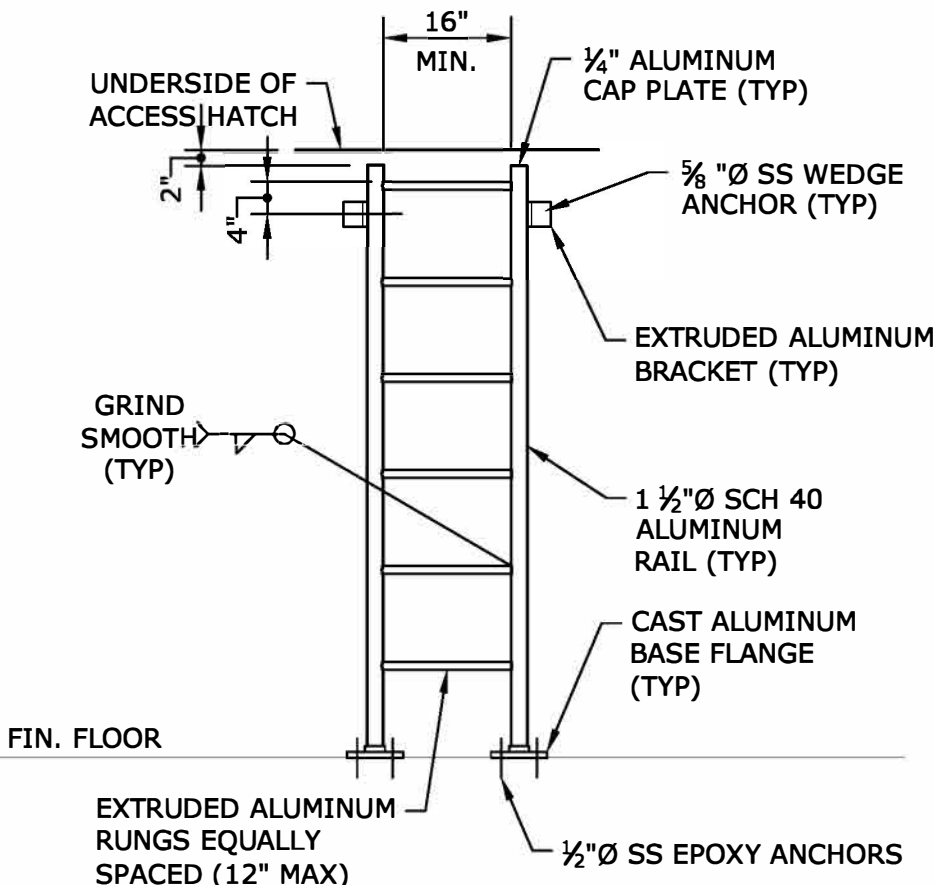
INTERNAL BRACING DETAIL
SCALE: 1/2" = 1'-0"



BRACE TO HORIZONTAL CONNECTION DETAIL
SCALE: 3" = 1'-0"



ACCESS HATCH DETAIL
SCALE: NTS



ACCESS LADDER DETAIL
SCALE: NTS

BEN LEVESQUE
No. 7864
REGISTERED
PROFESSIONAL ENGINEER
10/27/2022

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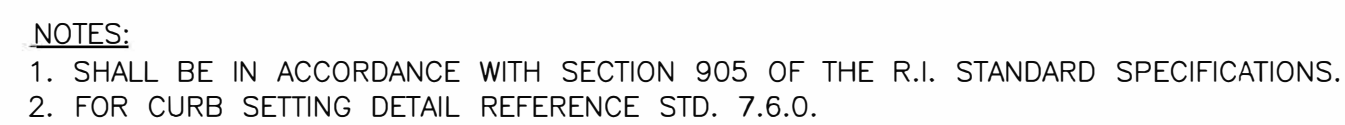
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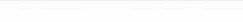


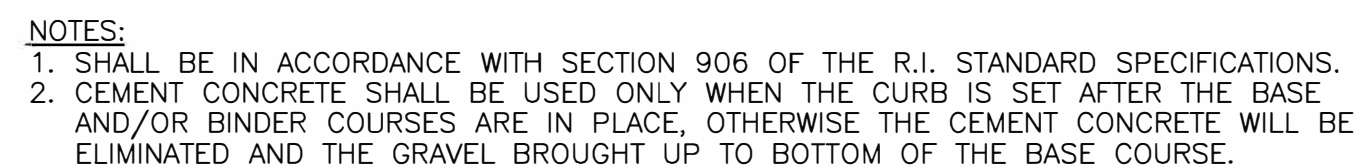
SLIDE GATE OPERATOR REPAIR
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City of Providence, RI



STRUCTURAL DETAILS - 2

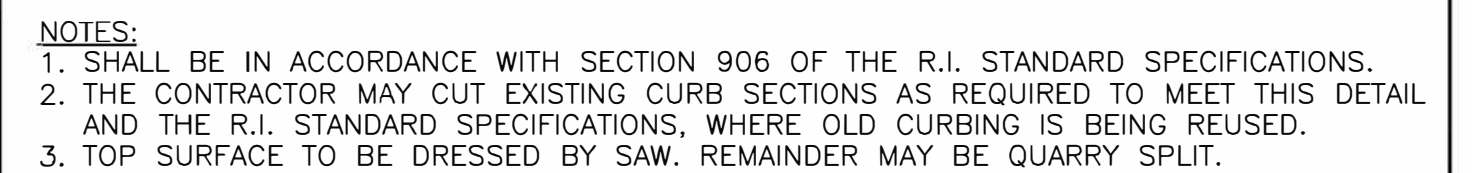
SHEET	18 of 23
DWG No.	D-02
DATE	OCTOBER 2022
PROJ No.	25-5040-006





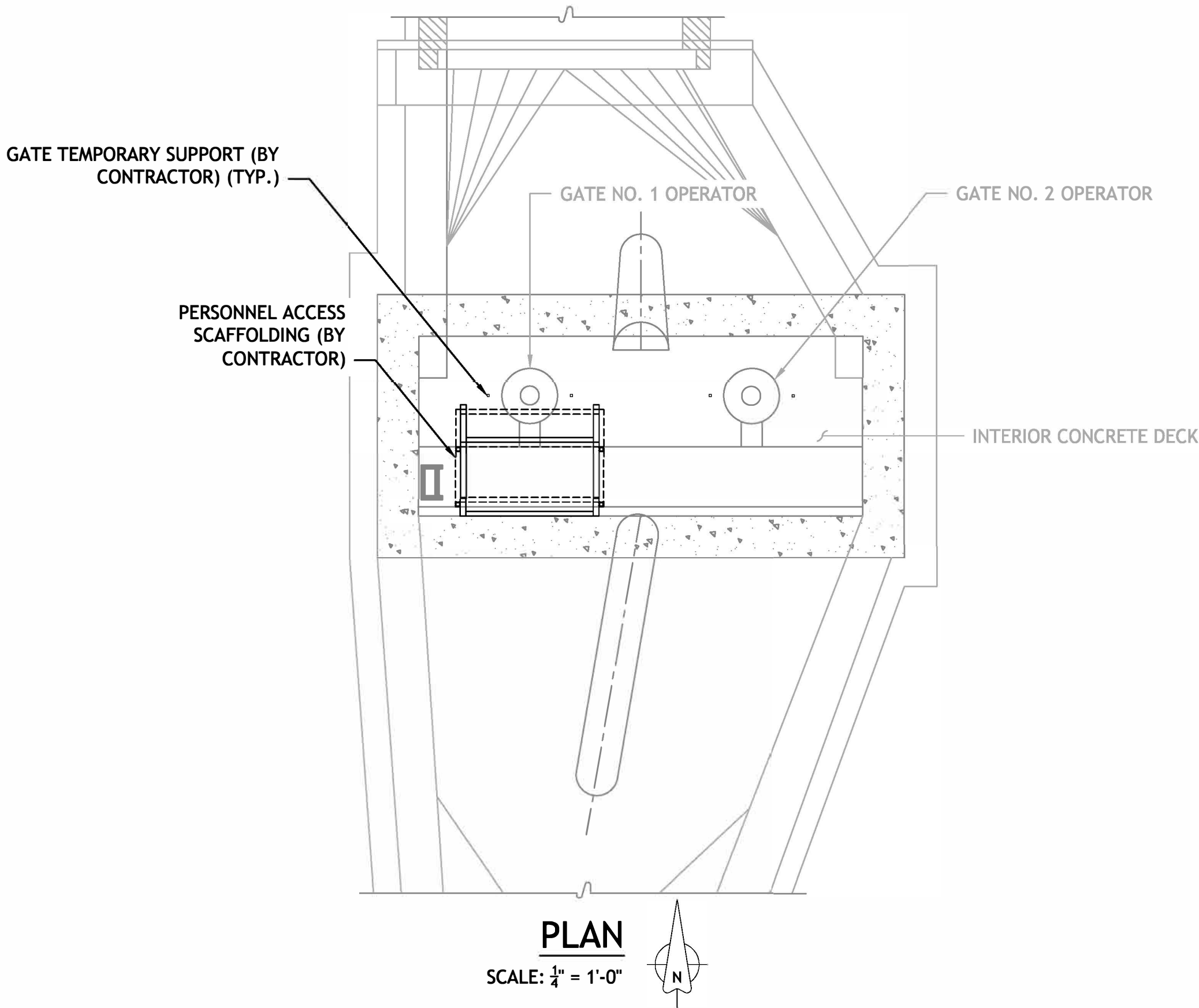
RHODE ISLAND DEPARTMENT OF TRANSPORTATION			
REVISONS		BITUMINOUS CONCRETE SIDEWALK	
NO.	BY DATE		
1	MLP 3/1/05		
2	MLP 06/01/10	 	JUNE 15 1998 ISSUE DATE
CHRIS ENGENDER TRANSPORTATION		ROBERT RIEDEL TRANSPORTATION	



RHODE ISLAND DEPARTMENT OF TRANSPORTATION								
<div> <div> REVISIONS </div> <table border="1"> <tr> <th>NO.</th> <th>BY</th> <th>DATE</th> </tr> <tr> <td>1</td> <td>MLP</td> <td>Mar 05</td> </tr> </table> </div> <div> <div>CURB SETTING DETAIL</div> <div>   </div> <div> <div> CHIEF PROJECT ENGINEER DEPARTMENT OF TRANSPORTATION </div> <div> CHIEF DESIGN ENGINEER TRANSPORTATION </div> <div> JUNE 15, 1998 ISSUE DATE </div> </div> <div> <div> R.I. STANDARD 7.6.0 </div> </div> </div>			NO.	BY	DATE	1	MLP	Mar 05
NO.	BY	DATE						
1	MLP	Mar 05						



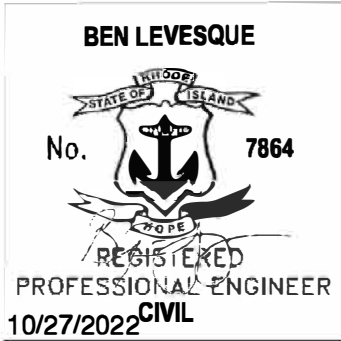
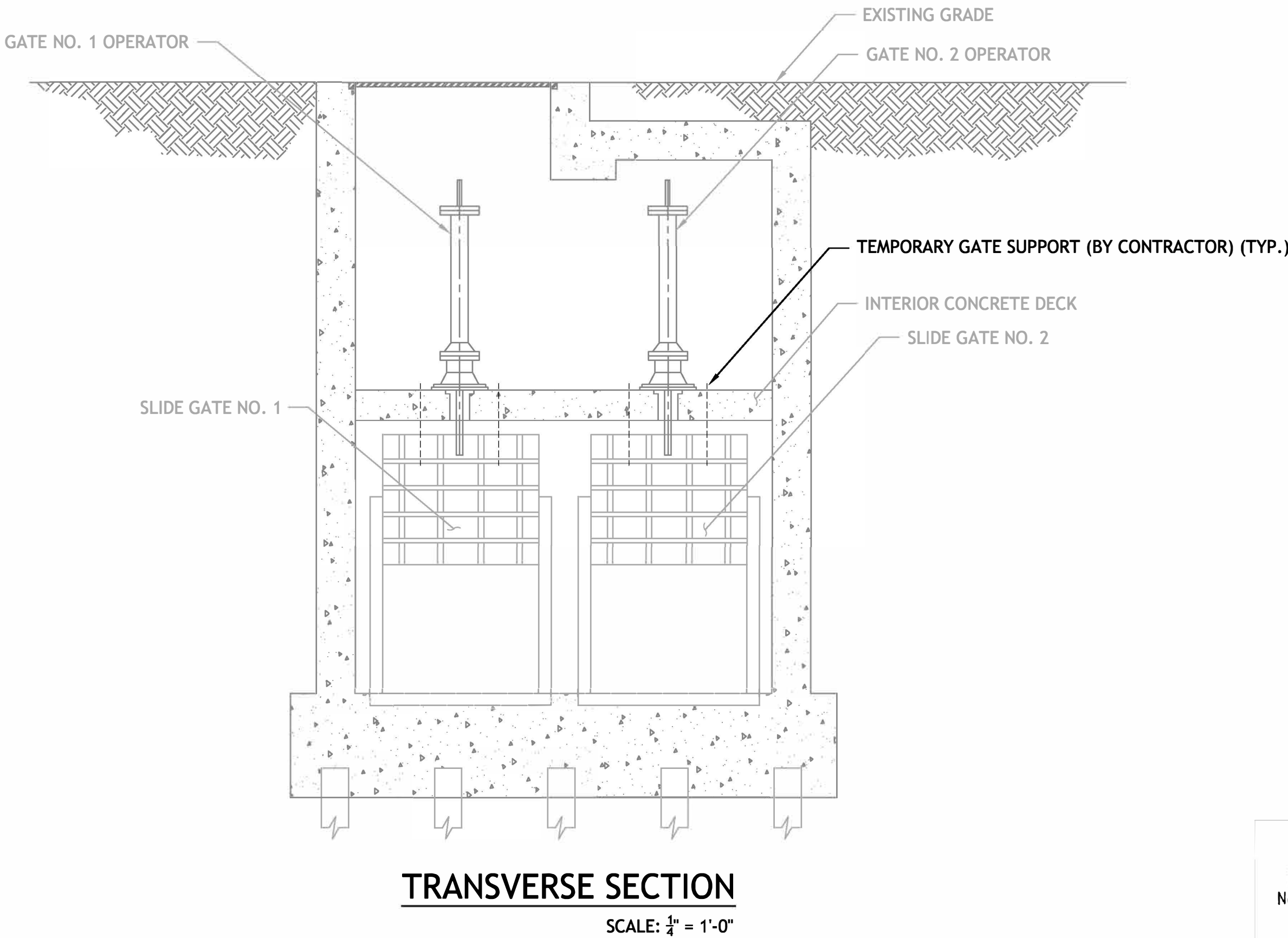
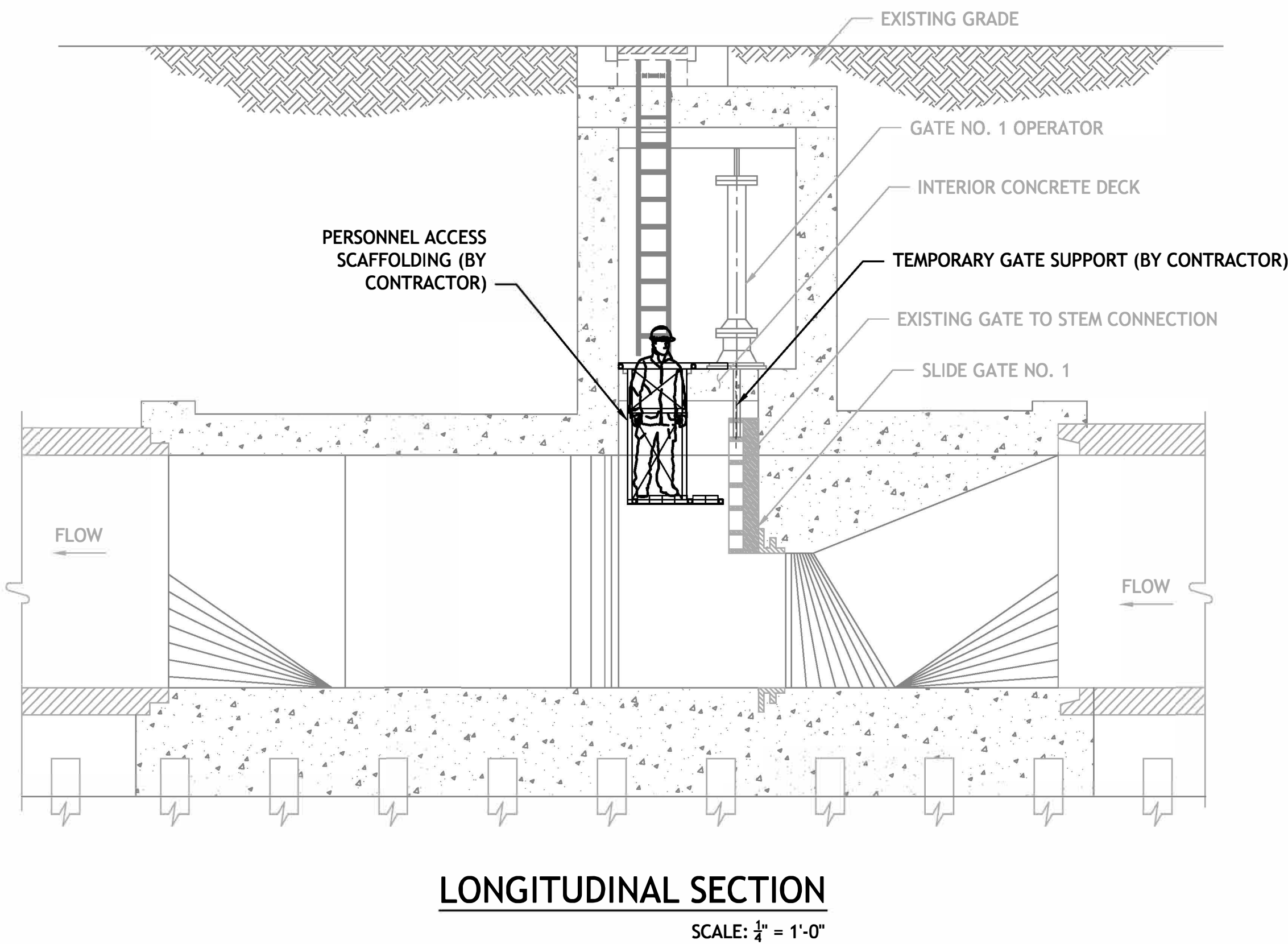
RHODE ISLAND DEPARTMENT OF TRANSPORTATION			
REVISIONS			
NO.	BY	DATE	<div>6'-0" GRANITE TRANSITION CURB</div> <div>   </div> <div> <div> <div>CHIEF ENGINEER</div> <div>TRANSPORTATION</div> </div> <div> <div>CHIEF DESIGN ENGINEER</div> <div>TRANSPORTATION</div> </div> </div> <div> <div>JUNE 15, 1998</div> <div>ISSUE DATE</div> </div> <div> <div>R.I. STANDARD</div> <div>7.3.2</div> </div>
1	MLP	Mar 2005	
2	MLP	Sep 2012	



SUGGESTED SEQUENCING NOTES:

ONCE CONTRACTOR HAS ALL MATERIALS AND EQUIPMENT ON SITE TO PERFORM THE PROPOSED VAULT WORK, THEY MAY PROCEED WITH THE DEMOLITION AND PERFORM THE WORK IN ACCORDANCE WITH THEIR SUBMITTED AND APPROVED SCHEDULE.

1. EXCAVATE AND INSTALL NEW CONDUITS FOR HYDRAULIC LINES
2. ASSEMBLE AND INSTALL PERSONNEL ACCESS SCAFFOLDING IN THE LOWER LEVEL OF THE VAULT AT GATE NO. 1.
3. INSTALL THE TEMPORARY GATE SUPPORT FOR GATE NO. 1.
4. RELIEVE THE GATE LOAD FROM THE EXISTING GATE STEM.
5. DETACH THE GATE STEM FROM THE GATE.
6. REPEAT PROCESS AT GATE NO. 2 UPON COMPLETION OF WORK ON GATE NO. 1. SEE SUGGESTED SEQUENCE NOTES ON SHEETS D-05 - D-07.



Tighe&Bond

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(401) 438-3100

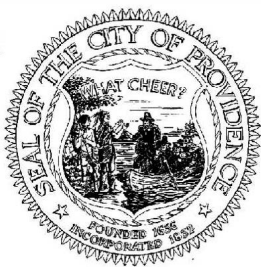
DSGN	SAA
DR	SAA
CHK	GJC
APVD	JBR

No.	DATE
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REVISIONS

BY	APVD
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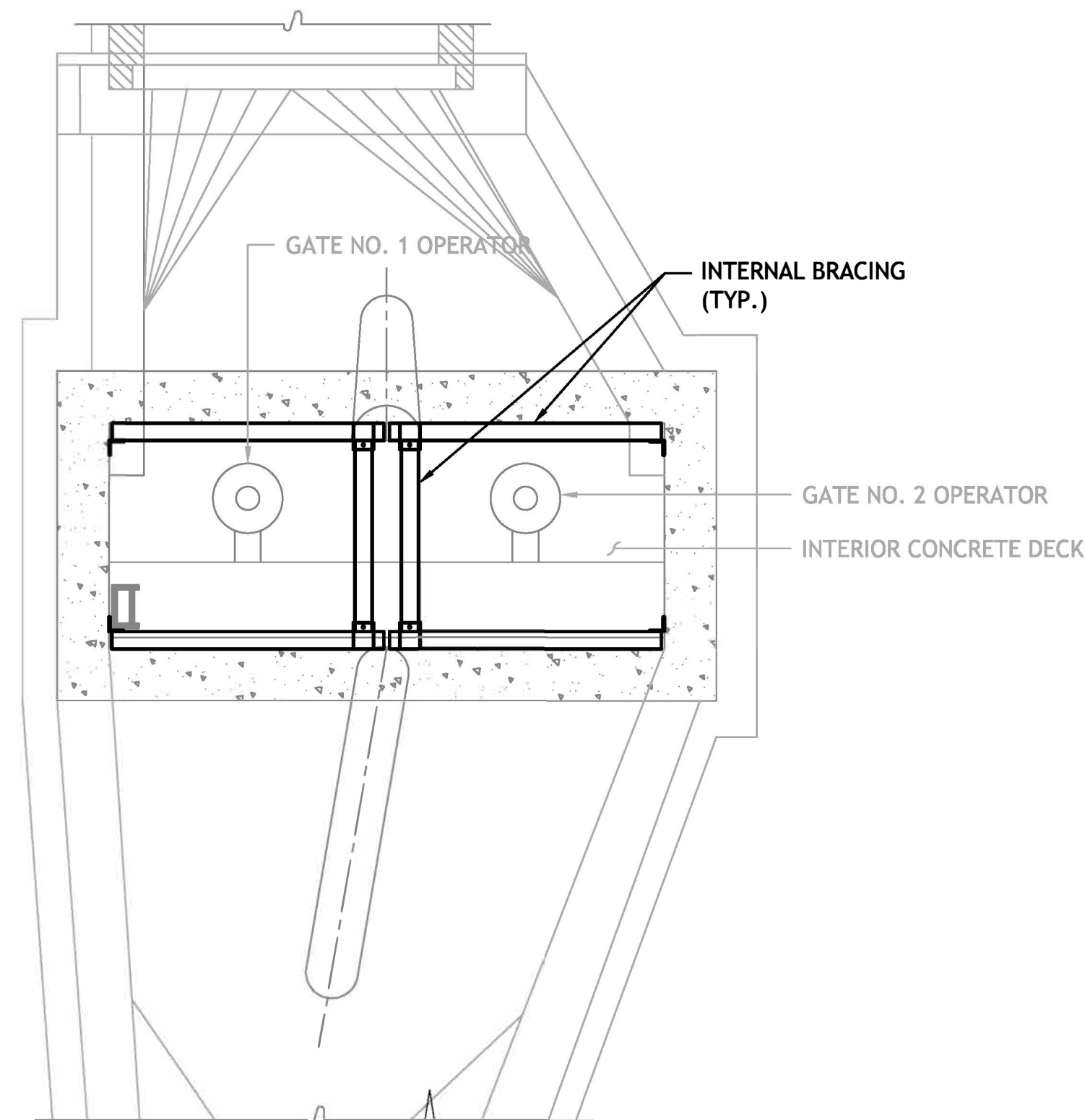
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY



SLIDE GATE OPERATOR REPAIR
FOX POINT HURRICANE BARRIER
ALLENS AVENUE
City of Providence, RI

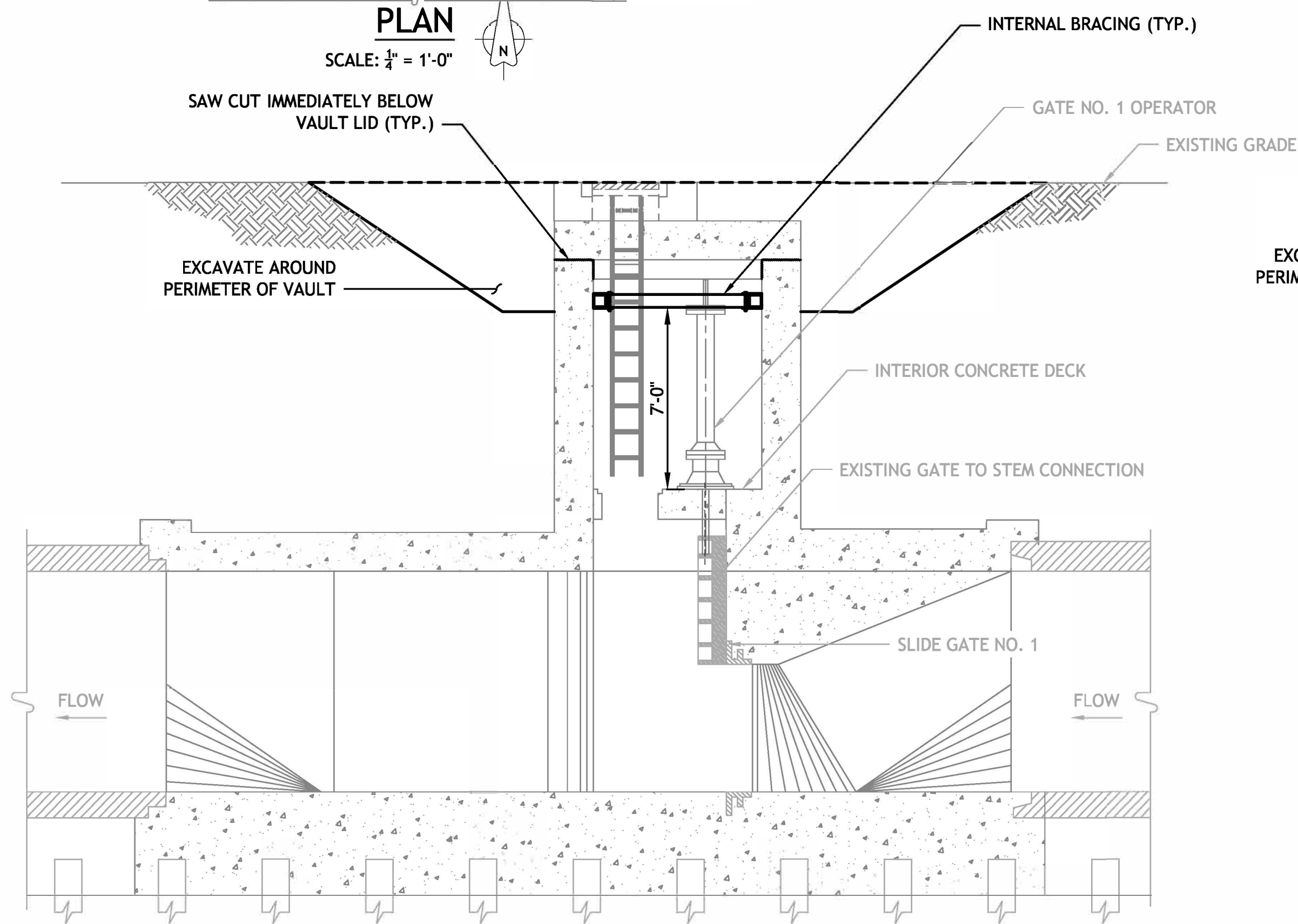
**SUGGESTED INSTALLATION
SEQUENCE DETAILS - 1**

SHEET	20 of 23
DWG No.	D-04
DATE	OCTOBER 2022
PROJ No.	25-5040-006



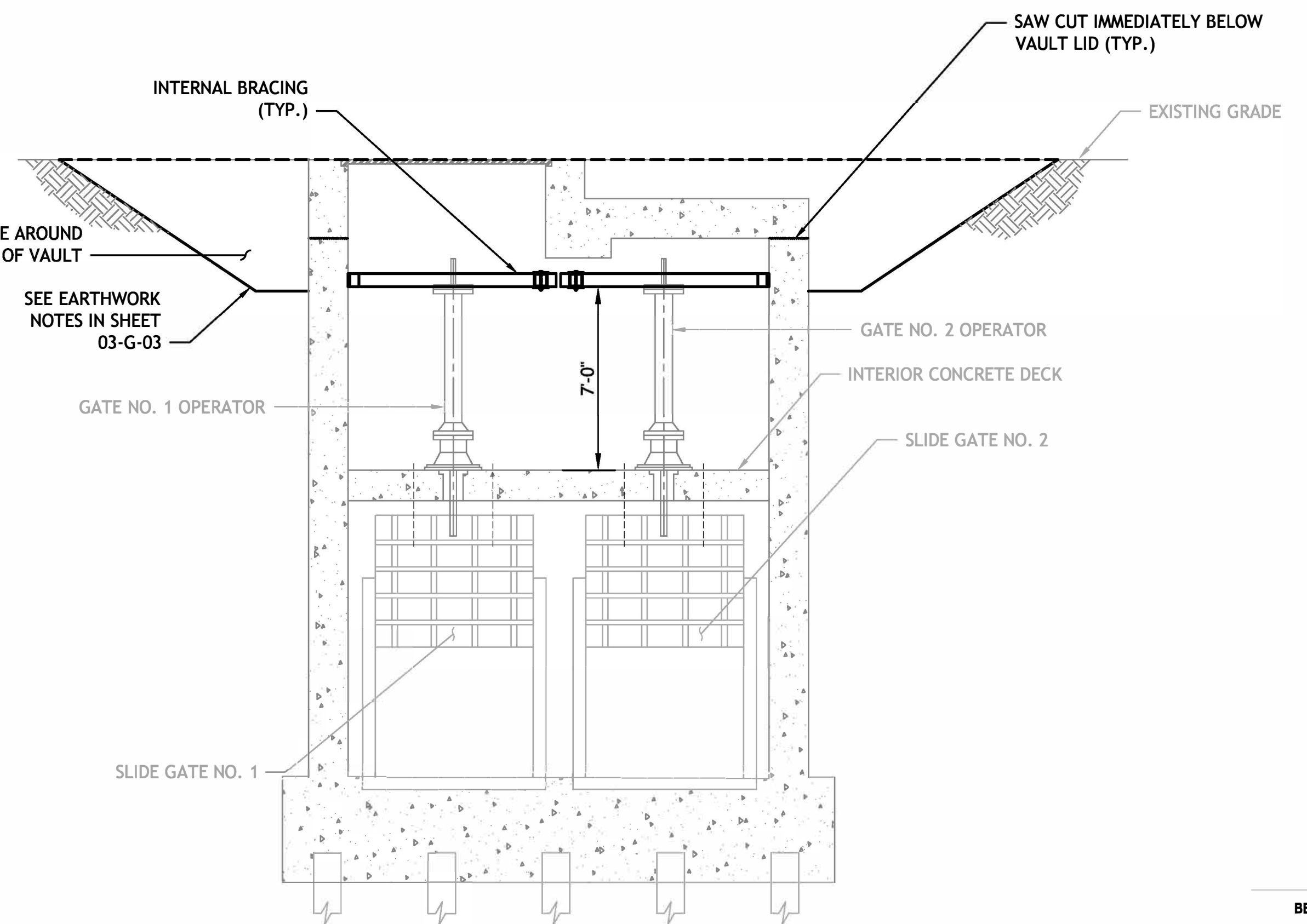
PLAN

SCALE: $\frac{1}{4}" = 1'-0"$



LONGITUDINAL SECTION

SCALE: $\frac{1}{4}" = 1'-0"$

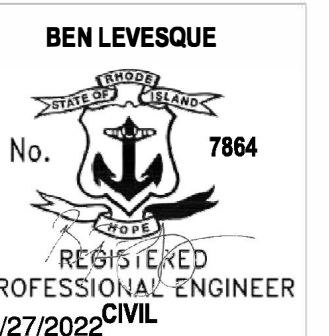


TRANSVERSE SECTION

SCALE: $\frac{1}{4}" = 1'-0"$

SUGGESTED SEQUENCING NOTES:

1. INSTALL THE PERMANENT INTERNAL BRACING WITHIN THE VAULT.
2. EXCAVATE AROUND THE PERIMETER OF THE VAULT TO ABOUT 2 FEET BELOW THE BOTTOM LEVEL OF THE VAULT LID.
3. SAW CUT IMMEDIATELY BELOW THE VAULT LID.

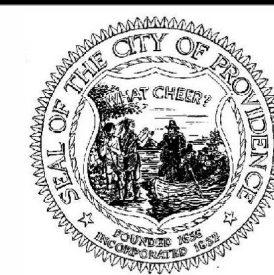


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No.	DATE	REVISIONS	BY	APVD

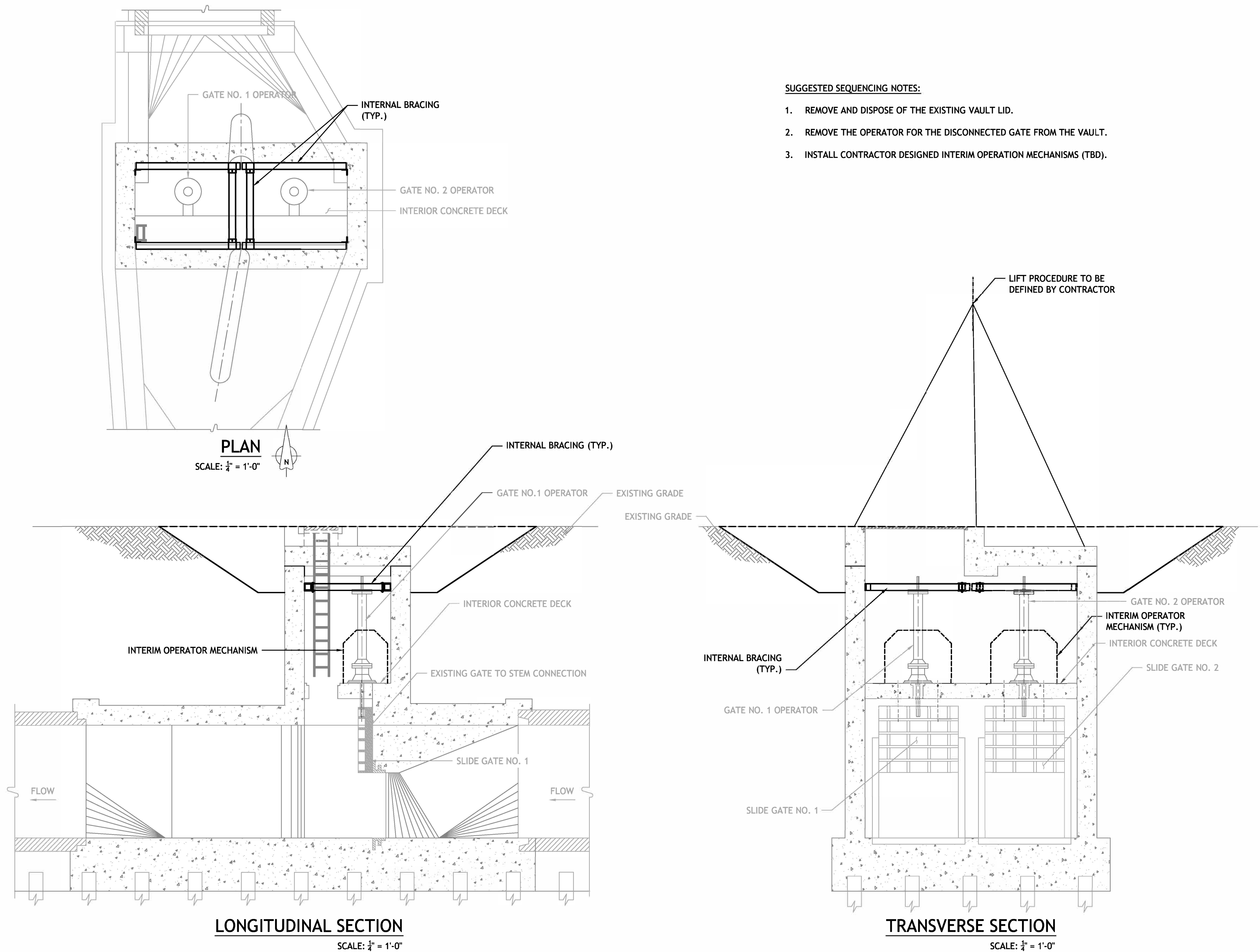
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**SUGGESTED INSTALLATION
SEQUENCE DETAILS - 2**

SHEET	21 of 23
DWG No.	D-05
DATE	OCTOBER 2022
PROJ No.	25-5040-006

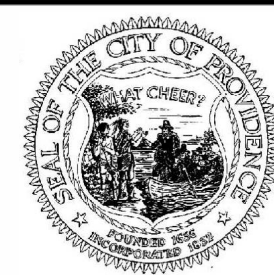


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No.	DATE	REVISIONS	BY	APVD

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**SUGGESTED INSTALLATION
SEQUENCE DETAILS - 3**

SHEET	22 of 23
DWG No.	D-06
DATE	OCTOBER 2022
PROJ No.	25-5040-006

