

PROJECT MANUAL

MAIDFORD RIVER RESTORATION AND FLOOD IMPROVEMENTS MIDDLETOWN, RHODE ISLAND



THE NATURE CONSERVANCY PROVIDENCE, RHODE ISLAND

JANUARY 2018



317 Iron Horse Way, Suite 204
Providence, RI 02908

Project No. 20140870.E10

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JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

LIST OF DRAWINGS

<u>SHEET NO.</u>	<u>SHEET TITLE</u>
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CN-001	GENERAL NOTES AND LEDGEND
CS-101	DEMOLITION AND PROPOSED CONDITIONS PLAN
S-01	CULVERT PLAN, ELEVATION, AND SECTION
S-02	STRUCTUAL DETAILS
CD-501	CONSTRUCTION DETAILS
CD-502	DETAILS

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JANUARY 2018

MAIDFORD RIVER RESTORATION AND
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MIDDLETOWN, RI

BIDDING DOCUMENTS

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The Nature Conservancy (TNC)
159 Waterman Street
Providence, RI 02906

INVITATION TO BID

Sealed bids for the Maidford River Restoration and Flood Improvements will be received at the office of The Nature Conservancy at 159 Waterman Street, Providence, RI, 02906 until 2:00 P.M., March 1, 2018 at which time the bids will be publicly opened and read. Bids received after the time set for the opening will be rejected and remain unopened.

The Project Manual for bidders will be available on February 8, 2018 on The Nature Conservancy's website at <https://www.nature.org/rhodeisland>.

A mandatory Pre-Bid Conference will be held at 10:00 A.M. on February 15, 2018 at the Sauchest Point Visitor Center. A site walkover will be conducted immediately following the conference to review the Work, address questions, and view the project site and access/staging area.

Bidders shall submit bids in a sealed envelope on the required forms and in the manner indicated. The envelope shall be marked on the front with "Bid for the Maidford River Restoration and Flood Improvements" and the bidder's name. Bids transmitted by facsimile will not be accepted.

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

The successful bidder will be required to furnish a Performance Bond and Labor and Materials Payment Bond (AIA Document A311), each in the amount of 100% of the contract price.

The right is reserved to reject any or all, or any part of any or all, bids when such action is deemed in the best interest of TNC. TNC reserves the right to waive any informalities or to reject any or all bids. All bids shall remain open for sixty (60) days after the date of bid opening. TNC will select the bidder that is most advantageous for this project based on qualifications, construction approach and bid price.

Ten percent (10%) of the dollar value of the work performed shall be performed by a Minority, Disadvantaged, or Woman Owned Business Enterprise certified by the Rhode Island Department of Administration (DOA).

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INFORMATION TO BIDDERS
THE NATURE CONSERVANCY

1. PROJECT/BID STRUCTURE AND COORDINATION

Work under these contracts to replace culverts under Third Beach Road within the Sachuest Point National Wildlife Refuge (the "site") is being completed as a project administered by The Nature Conservancy (TNC) with funding and technical support from the U.S. Fish & Wildlife Service under the Narragansett Bay Watershed Restoration Fund Grant Program administered by the State of Rhode Island Department of Environmental Management (RIDEM).

2. MANDATORY PRE-BID CONFERENCE

A mandatory Pre-Bid Conference will be held at the site, as indicated on the Invitation to Bid.

3. EVALUATION OF BIDS:

Basis of bid award will be to the Bidder determined by TNC that is most advantageous for this project based on qualifications, construction approach and bid price. Because of the environmental sensitivity of the site and schedule to complete this project, lowest bid price will not be justification for award. Any irregularities in a bid submittal can be waived by TNC.

4. RECEIPT AND OPENING OF BIDS:

Sealed Proposals for the Maidford River Restoration and Flood Improvements addressed to The Nature Conservancy, 159 Waterman Street, Providence, RI 02906, will be received until 2:00 P.M., March 1, 2018 after which time they will be publicly opened and read at TNC's office. The outside of the sealed envelope shall note the Bidder's name, and be marked "**Bid for the Maidford River Restoration and Flood Improvements.**"

5. SUBMISSION OF BIDS:

- TNC will determine when the specified time has arrived to receive bids and no bid thereafter will be considered.
- Bidders shall submit the completed Bid Form and required Bid Security in the amount of 10% of the value of the Base Bid.
- Any bidder may withdraw its bid by written request at any time prior to the advertised time for opening. Telephone bids, faxed bids, amendments or withdrawals will not be accepted.
- Unless otherwise specified, no bid may be withdrawn for a period of sixty (60) days from the time of bid opening.
- Negligence on the part of the bidder in preparing the bid confers no rights for the withdrawal of the bid after it has been opened.

- Proposals received prior to the time of opening will be securely kept, unopened. No responsibility will be attached to an officer or person for the premature opening of a proposal not properly addressed and identified.
- Any deviation from the Specifications **MUST BE NOTED IN WRITING AND ATTACHED AS PART OF THE BID PROPOSAL**. The bidder shall indicate how the bid will deviate from Specifications.
- Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

6. BID SECURITY:

- A Bid must be accompanied by Bid security made payable to Owner in an amount of 10 percent of Bidder's Total Base Bid price and in the form of a certified check or bank money order or a Bid bond (on the form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and insurance and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security and insurance within 15 days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

7. BID ALTERNATES

Bidders shall include the cost for bid alternates. TNC will decide at the time of Bid Award whether to include the bid alternate in the final contract.

8. NEGOTIATION OF FINAL CONTRACT PRICE

The plans and specifications that are included in this Project Manual may be updated between this Bid and the execution of an Agreement with the selected Contractor. The design may be updated based on comments received from regulatory agencies and the design is finalized. Time is of the essence. Because of the need to have the road accessible before May 25, 2018 in order to access local beaches and other coastal resources, this Bid is based on a preliminary design to allow the bidding process to start in time for substantial completion by May 25, 2018. If the design is updated after the Bid is received, TNC will negotiate a Final Contract Price with the selected Bidder. If TNC cannot reach a suitable negotiated Final Contract Price with the selected Bidder, they will return the Bid Security and begin negotiations with the next Bidder deemed most advantageous for TNC.

9. PROPOSED CONSTRUCTION ASSUMPTIONS AND CONTROL OF WATER PLAN SUMMARY

Bidders shall include in their Bids a narrative description of any assumptions made in preparing their Bid and plans for control of water. The completeness of this narrative description will be considered in determining the successful bidder. There is no separate pre-prepared form for this submittal. Bidders shall include this summary on their letterhead.

10. QUALIFICATION OF BIDDERS:

TNC may make such investigations, as it deems necessary to determine the qualifications and ability of the bidder to perform the Work. The bidder shall furnish TNC with all such information and data for the purpose as may be requested. A Qualifications Form as included in these bid documents shall be completed and submitted as part of the Bid.

11. ADDENDA AND INTERPRETATIONS:

No interpretation on the meaning of the Plans, Specifications or other Contract Document will be made to any bidder orally. Every request for such interpretations should be in writing, emailed to Kenneth Sullenger at ksullenger@fando.com. To be given consideration, questions must be received no later than 3:00 P.M. February 16, 2018. Questions shall not be submitted by phone or in person.

Any and all interpretations, and supplemental instructions which, if issued, will be emailed directly to those bidders present at the Pre-Bid Conference by, February 21, 2018. Failure of bidder to inspect any such addendum or interpretations shall not relieve any bidder from obligation under his bid as submitted. All addenda so issued shall become part of the Bid Package and Contract Document.

12. DELIVERY OF BIDS:

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

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

- b. Bidders must comply with all municipal, state and federal laws in conducting the project.
- c. The Contractor shall furnish a performance bond, upon conditional award of the contract, at 100% of the contract price, conditioned upon faithful performance of the contract. A Labor and Materials Bond (Payment Bond), at full contract value, is required upon conditional award of the contract. All surety companies must be listed with The Department of the Treasury, Fiscal Services, Circular 570, (Latest Revision published by the Federal Register).
- d. Bidders shall meet the established goal of not less than ten percent [10%] of the contract bid price be performed by a Minority, Disadvantaged, or Woman Owned Business Enterprise certified by the Rhode Island Department of Administration (DOA). A copy of the certification and contract value of the work to be completed by the Minority, Disadvantaged, or Woman Owned Business Enterprise must be submitted as part of the Bid.

13. QUALIFICATION OF BIDDERS:

The Owner may make such investigations, as it deems necessary to determine the qualifications and ability of the bidder to perform the Work. The bidder shall furnish the Owner with all such information and data for the purpose as may be requested.

14. DELIVERY OF BIDS:

No extra charges for delivery, handling or other services will be honored. Only inside delivery and set-up, where required, will be accepted. Tailgate deliveries will be refused. All claims for damage in transit shall be the responsibility of the successful bidder. The Owner will not make payment on damaged goods, they must be replaced or adjustments made at the option of the Owner. The Owner is only represented by the Town Manager in these matters and said Town Manager shall be the only entity to negotiate any settlements. Deliveries must be made during normal working hours.

15. MBE PARTICIPATION DELIVERY OF BIDS:

Bidders shall ensure that ten percent (10%) of the dollar value of the work performed against contracts for construction exceeding \$5,000 shall be performed by a Minority, Disadvantaged, or Woman Owned Business Enterprise certified by the Department of Administration (DOA); or the bidder shall obtain a waiver of this requirement from DOA. A copy of the certification and Rhode Island MBE Utilization Plan must be submitted by the Bidder as part of their Bid.

16. OTHER REQUIREMENTS:

- a. Bidders shall recognize and agree to Project milestone and completion dates and provisions for liquidated damages specified in the Project Manual.
- b. Bidders must comply with all municipal, state and federal laws in conducting the project.
- c. In accordance with Rhode Island General Law 37-13-7, contracts in excess of \$1,000.00 shall require compensation based on prevailing wages for construction, alteration and/or repair, painting &

decorating. The rates are available from the Rhode Island Department of Labor at (401) 462-8539 or 462-8541, or access on the web: www.access.gpo.gov/davisbacon/allstates.html for the State forms.

- d. In accordance with Rhode Island General Law 37-13-14, bidders for public works/public building contracts in excess of \$5,000 shall furnish a performance bond, upon conditional award of the contract, at 100% of the contract price, conditioned upon faithful performance of the contract. A Labor and Materials Bond (Payment Bond), at full contract value, is required upon conditional award of the contract. All surety companies must be listed with The Department of the Treasury, Fiscal Services, Circular 570, (Latest Revision published by the Federal Register).
- e. Owner is exempt from state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Bid.

17. PREPARATION OF BID

- a. All blanks on the Bid Form and required forms listed on the Bid Form shall be completed by printing in ink or by typewriter and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each Bid item listed therein.
- b. In addition to the lump sum bid process, several add/deduct prices shall be provided for specific items of work. These add/deduct prices shall apply if specified quantities of work vary from what is presented on the bid form. For purposes of preparing costs for lump sum bid price items, Bidders shall assume the quantities stipulated for add/deduct items on the bid form.

18. SIGNING OF AGREEMENT

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

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SECTION 00411 - BID FORM

CONTRACT IDENTIFICATION:

Maidford River Restoration and Flood Improvements
Middletown, RI

ARTICLE 1 – BID RECIPIENT

1.1 This Bid shall be submitted to:

The Nature Conservancy – Rhode Island (TNC)
159 Waterman Street
Providence, RI 02906

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

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.1 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 calendar days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of TNC.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.1 In submitting this Bid, Bidder represents that:

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

Addendum No.	Addendum Date
_____	_____
_____	_____

B. Bidder attended the mandatory Pre-Bid Conference, has examined the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, State and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all:

1. Reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface structures.
 - E. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
 - F. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
 - G. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
 - H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
 - I. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 – FURTHER REPRESENTATIONS

4.1 Bidder further represents that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over TNC.

ARTICLE 5 – BASIS OF BID

5.1 Bidder will complete the Work in accordance with the Contract Documents for the following lump sum and unit bid prices:

- A. The following lump sum bid prices form the project's base contract price that shall include all labor and materials required to complete all of the work in this Project Manual with the exception of the work described as bid alternates.

LUMP SUM BID ITEMS

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

B. The following lump sum alternate bid price will be added to or subtracted from the project's lump sum base contract price if authorized by TNC. The Bidder shall signify that the amount shall be subtracted from the Base Bid by placing the Bid Alternate value in parentheses (for example, (\$XXXXX.XX)). Otherwise, the Bid Alternate value will be added to the Base Bid if authorized by TNC.

LUMP SUM ALTERNATE BID ITEMS

ALT. LUMP SUM BID ITEM NO.	LUMP SUM BASE BID PRICE IN WORDS	LUMP SUM BASE BID PRICE IN FIGURES
ALT-1	PROVIDE WOOD GUIDERAIL IN PLACE OF METAL BEAM GUIDERAIL	
		\$ _____
	(Lump Sum)	
ALT-2	PROVIDE 3" SEWER FORCE MAIN CLEANOUT CHAMBER WITH AIR RELEASE/VACUUM VALVE	
		\$ _____
	(Lump Sum)	
ALT-3	PROVIDE CARRIER PIPE AND SPACERS UNDER CULVERT FOR SEWER FORCE MAIN	
		\$ _____
	(Lump Sum)	

C. The following add/deduct unit bid prices are for add/deduct purposes only in variance from the stated estimated quantities, the costs for which shall be included in the Base Bid.

1. Payment under add/deduct unit bid items listed below would only be made for the quantity of work completed and accepted in variance to the indicated quantities, respectively.
2. Any such work in variance to the respective base quantities will only be approved and accepted by the Engineer under written authorization of respective variance quantities prior to completion of the work items. Actual quantities will be measured

and verified in the field by the Engineer. As such, respective base quantities shown below are for bidder's reference in preparing the Base Bid lump sum price referenced above.

3. METHOD OF MEASUREMENT

- a. Gravel Borrow will be measured by the number of cubic yards based on measured volume in-place and compacted in accordance with the Specifications, Drawings and/or directed by the Engineer.
- b. Crushed Stone will be measured by the number of cubic yards based on measured volume in-place and compacted in accordance with the Specifications, Drawings and/or directed by the Engineer.

4. BASIS OF PAYMENT

- a. The accepted quantity of gravel borrow will be paid for at the contract add/deduct unit price per cubic yard. The price so-stated constitutes full and complete compensation for all labor, materials, equipment, including but not limited to stockpiling, hauling, placing, compaction, trimming, fine grading, and all other incidentals required to furnish the work, complete and accepted by the engineer.
- b. The accepted quantity of crushed stone will be paid for at the contract add/deduct unit price per cubic yard. The price so-stated constitutes full and complete compensation for all labor, materials, equipment, including but not limited to stockpiling, hauling, placing, compaction, and all other incidentals required to furnish the work, complete and accepted by the engineer.

ADD / DEDUCT UNIT BID ITEMS

ADD/ DEDUCT UNIT BID ITEM NO.	BASE QUANTITY IN LUMP SUM BID	ADD/DEDUCT UNIT BID PRICE IN WORDS	ADD/DEDUCT UNIT BID PRICE IN FIGURES
AD-1	600 CY	GRAVEL BORROW – COMPACTED IN PLACE _____ (per Cubic Yard)	\$ _____
AD-2	100 CY	CRUSHED STONE – COMPACTED IN PLACE _____ (per Cubic Yard)	\$ _____

ARTICLE 6 – TIME OF COMPLETION

- 6.1 Bidder agrees that the Work shall be substantially complete within 75 calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions.
- A. Within the 75 calendar day substantial completion period, the selected Contractor shall be limited to 30 calendar days on-site to reach substantial completion. The on-site times shall begin when the Contractor begins work on-site and end when the Work is substantially complete.
- 6.2 Bidder agrees that work will be completed and ready for final payment of the lump sum bid price items in accordance with Paragraph 14.07.B of the General Conditions within 105 calendar days after the date when the Contract Times commence to run.
- B. Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.1 The following completed documents are attached to and made a condition of this Bid:
- A. Required Bid security in the form of Bid Bond (00431).
- B. Non-Collusion Affidavit of Bidder (00455).
- C. Qualifications of Bidder (00451).

- D. State of Rhode Island MBE Utilization Plan
- E. Copy of Subcontractor's MBE Certification
- F. Proposed Construction Assumptions and Control of Water Plan Summary

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

9.1 This Bid submitted by:

If Bidder is:

AN INDIVIDUAL

Name (typed or printed): _____

By: _____

(SEAL)

(Individual's signature)

Doing business as: _____

Business address: _____

Phone No.: _____ FAX No.: _____

A PARTNERSHIP

Partnership Name: _____

(SEAL)

By: _____

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

Name (typed or printed): _____

Business address: _____

Phone No.: _____ FAX No.: _____

A CORPORATION

Corporation Name: _____

(SEAL)

State of Incorporation: _____

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

By: _____

(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____

(Signature of Corporate Secretary)

Business address: _____

Phone No.: _____ FAX No.: _____

Date of Qualification to do business is _____.

A JOINT VENTURE

Joint Venturer Name: _____

(SEAL)

By: _____

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

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Joint Venturer Name: _____

(SEAL)

By: _____

(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

Phone No.: _____ FAX No.: _____

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

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

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

BID BOND

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

BIDDER (Name and Address):

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

TNC (Name and Address):

BID

Bid Due Date:

Project (Brief Description Including Location):

BOND

Bond Number:

Date (Not later than Bid due date):

Penal sum

(Words)

(Figures)

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

BIDDER

SURETY

Bidder's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature and Title

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

Attest: _____
Signature and Title

Attest: _____
Signature and Title

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

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to TNC upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Surety's liability.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by TNC) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1. TNC accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by TNC) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by TNC, or
 - 3.3. TNC fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from TNC, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by TNC and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 60 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

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NON-COLLUSION AFFIDAVIT OF BIDDER

State of: _____

County of: _____, SS)

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

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

, the Bidder that has submitted the attached Bid:

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

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

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

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

Signed: _____

Title: _____

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

Notary Public: _____

My Commission expires _____, 20 ____

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QUALIFICATIONS OF BIDDER FORM

Bidder's Name: _____

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

Bidder Company Background

1. Indicate how many years has the corporation been in business as a general contractor.

_____ years.

2. Provide the corporation name and identification number as a registered with the RI Office of the Secretary of State.

_____.

3. Has this corporation ever failed to complete work; if so, state where and why.

4. Has the corporation ever performed work under the direction of a Consulting Engineer or a Registered Architect? If so, list up to three such firms giving the name of the firm, its city/state, telephone number, name of the project manager and the name of the project. (List most recent projects)

3. Has this corporation ever been assessed a fine as a result of Occupational Health and Safety Violations (OSHA) or otherwise been subject to enforcement action by OSHA within the last five (5) years?

Previous Experience Similar to this Bid

Provide written descriptions of at least 5 and no more than 10 previous culvert construction, culvert repair or replacement, or stormdrain improvements within public ROW projects with similar comparable effort including precast concrete and associated control of water and similar dollar value. Project descriptions shall include the following:

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

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

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

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

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

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

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

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

5. Project Name: _____
Project Location: _____

Brief Scope of Work: _____

Date Completed: _____

Approximate Dollar Value: _____

Owner's Representative: _____

Owner's Telephone: _____

List of Subcontractors

1. Name: _____

Address: _____

Contact Person: _____ Phone: _____

MBE/WBE/DBE _____ Value of Work Assigned _____

Work Efforts by Subcontractor for this Bid: _____

2. Name: _____

Address: _____

Contact Person: _____ Phone: _____

MBE/WBE/DBE _____ Value of Work Assigned _____

Work Efforts by Subcontractor for this Bid: _____

3. Name: _____

Address: _____

Contact Person: _____ Phone: _____

MBE/WBE/DBE _____ Value of Work Assigned _____

Work Efforts by Subcontractor for this Bid: _____

Bank Reference:

Name: _____

Address: _____

Contact: _____

Phone: _____

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Office of Diversity, Equity and Opportunity (ODEO)
MBE Compliance Office
1 Capitol Hill, 3rd Floor
Providence, RI 02908

(401) 574-8670
www.mbe.ri.gov

Pursuant to RIGL 37-14.1 as well as the regulations promulgated thereto, the MBE Compliance Office requires that you complete the following table. Please note that these figures will be verified with the MBEs identified. If there are outstanding issues, such as retainage or a dispute, please indicate and attach supporting documentation for same. Also note that copies of invoice and cancelled checks for payment to all MBE subcontractors and suppliers are required.

Contractor/Vendor Name:

Project Name & Location:

Original Prime Contract Amount: \$ _____ Current Prime Contract Amount: \$ _____ % Complete: _____

MBE/WBE Subcontractor	Original Contract Amount	Change Orders	Revised Contract Value	% Completed To Date	Amount Paid To Date	Amount Due	Retainage %	Retainage Amount	Explanation

I declare, under penalty of perjury, that the information provided in this verification form and supporting documents is true and correct.

Signature

Date

Printed Name

Notary Certificate:

Sworn before me this _____ day of _____, 20____.

Notary Signature

Commission Expires

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

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**State of Rhode Island and Providence Plantations
Office of Diversity, Equity and Opportunity (ODEO)
Minority Business Enterprise Compliance Office
Minority Business Enterprise Utilization Plan**

Company Name: _____

Representative's Name who administers MBE Program: _____

Street Address: _____

City, State, Zip: _____ Telephone: _____

Email: _____ Project Location: _____

Bid or Project #: _____ Date Bid Opened: _____

Description of Work: _____

Contract Value: _____ MBE % Assigned: _____

Total # of All Subcontractors/Suppliers used: _____ # of MBE Subcontractors/Suppliers used: _____

List All Subcontractors/Suppliers/Consultants/Independent Contractors – Total Dollar Amounts – Scope of Work:

Subcontractor / Supplier	Dollar Award	Scope/Description of Work	RI Certified M/WBE Yes/No

Please note that all MBE/WBE firms must be certified by the RI MBE Compliance Office, and that MBE/WBE firms must self-perform 100% of the work with their own forces or subcontract to another RI certified MBE/WBE in order to receive participation credit. Vendors may count 60% of expenditures for materials and supplies obtained from an MBE certified as a regular dealer/supplier, and 100% of such expenditures obtained from an MBE/WBE certified as a manufacturer. For firms certified as a broker, you may receive MBE participation credit only for the fees and commissions charged for the procurement of the good and materials, but not the cost of the materials themselves.

The above referenced contract will not be released until this plan has been approved by the Director of the Department of Administration or its designee.

For assistance and advice in identifying MBE/WBE firms, please call the Minority Business Enterprise Compliance Office at (401) 574-8670. The directory of all certified MBE firms is also located at www.mbe.ri.gov.

Signature of Authorized Agent of Business: _____ Date: _____

Send Completed Form to:
Dorinda Keene, Assistant Administrator - MBE
Office of Diversity, Equity and Opportunity (ODEO)
Minority Business Enterprise Compliance Office
One Capitol Hill, 3rd Floor
Providence, RI 02908
Phone: (401) 574-8670
Dorinda.Keene@doa.ri.gov

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

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(FOR DUPLEX PRINTING PURPOSES)

The Nature Conservancy

CONFLICT OF INTEREST DISCLOSURE FORM

It is the policy of The Nature Conservancy ("TNC") to identify actual, potential or perceived conflicts of interest in any situation in which TNC has a significant business interest. To assist TNC in complying with this policy, we request that all individuals and/or organizations that will be involved in a proposed transaction with TNC complete this form.

TRANSACTION

For Real Estate transactions, describe the property, its size and the type of deal (e.g., purchase or sale, gift, fee, easement, or other).

For all other transactions, describe the type of agreement (e.g., service contract, grant, etc.).

MAIDFORD RIVER RESTORATION AND FLOOD IMPROVEMENTS

Total dollar value of transaction: \$ _____

[For cashless barter transactions, provide the value of the benefits being provided each party.]

PARTIES

Please check the box to indicate the type of party for which this form is being completed, list all individuals and/or organizations that will be involved in this transaction, then complete the applicable section that follows. An "organization" includes a for profit corporation, partnership, trust, estate, joint venture, limited liability corporation, professional corporation or unincorporated entity of any kind, a foundation, public board, commission, and a 501(c)(3) or other charitable organization.

- Individuals (list all, then complete Section 1): _____
For Profit Organizations (list all, then complete Section 2): _____
Not for Profit Organizations (list all, then complete Section 3): _____

Note: Please refer to the attached list of TNC key employees and current and prior members of TNC's Board of Directors when completing the rest of this form.

1. INDIVIDUALS:

Please check all that apply and attach an explanation for any "Yes" answers.

Table with 3 columns: Question, Yes, No. Rows include questions about being a TNC key employee, TNC employee, contributions to TNC, and family members.

2. FOR PROFIT ORGANIZATIONS:

Please check all that apply and attach an explanation for any “Yes” answers.

	Yes	No
a. Has the organization made total aggregate contributions to TNC (i) U.S. 5 million or more during the current fiscal year (July 1 – June 30), or (ii) U.S. \$25 million or more, cumulatively, during the current fiscal year and the prior four fiscal years?		
b. Now or at the time of the proposed transaction, does or will any Substantial Contributor (as defined in 1.c.); TNC employee (includes former TNC employee who left within the last 12 months); member of TNC’s Board of Directors or key employees (see list attached); or TNC Chapter Trustee or Advisory Council member (includes former ones who served within the last 12 months) , individually or collectively with other such persons (including Family Members of such persons; see Section 1(d) above for definition of Family Members), own more than 35% of the stock or value of the organization (directly or indirectly), or have the legal or <i>de facto</i> power to exercise a controlling influence over the organization’s management or policies , e.g., as an officer, key management employee, board member or partner?		
c. Now, or at the time of the proposed transaction, have or will any members of TNC’s current Executive Team or Board of Directors (see attached list) serve as: <ul style="list-style-type: none"> • an officer, director, trustee, key employee, or partner; or • if the entity is a limited liability corporation, a member; or • if the entity is a professional corporation, a shareholder? 		

3. NON PROFIT ORGANIZATIONS

Please check all that apply and attach an explanation for any “Yes” Answers.

	Yes	No
a. Now or at the time of the proposed transaction, have or will any Substantial Contributor (as defined in 1.c.); TNC employee (includes former TNC employee who left within the last 12 months); member of TNC’s Board of Directors or key employees (see list attached); Chapter Trustee or Advisory Council member (includes former ones who served within the last 12 months) , or Family Members of any of these, individually or collectively, have the ability to control management of the entity? See Section 1(d) above for definition of Family Members.		

Individuals who in the current fiscal year (FY18) are or during the preceding five fiscal years have been a Conservancy “key employee” or a member of the Board of Directors:

Key Employees

Current Executive Team

Kacky Andrews
Jim Asp
Justin Adams
David Banks
Charles Bedford
Giulio Boccaletti
Mark Burget
Maria Damanaki
William Ginn
Santiago Gowland
Wisla Heneghan
Joe Keenan
Marianne Kleiberg
Brian McPeek
Pascal Mittermaier
Hugh Possingham
Glenn Prickett
Aurelio Ramos
Lynn Scarlett
Heather Tallis
Mark Tercek
Michael Tetreault
Peter Wheeler
Janine Wilkin
Heather Wishik

Other/Former Key Employees

Karen Berky
Rebecca Bowen
John Cook
Mario D’Amico
Addison Dana
Steve Howell
Peter Kareiva
Michelle Lakly
Robert McKim
Catherine Nardone
Karen Poiani
Lois Quam
Geof Rochester

SIGNATURES

The undersigned certifies that the information in the disclosure form is true and correct to the best of his/her knowledge.

Signatures for Organizations:

Name of Organization: _____

Signature: _____

Printed name of person: _____

Title: _____

Date: _____

Angela Sosdian
Michael Sweeney
Philip Tabas

Current Board of Directors (FY ‘18)

Shona L. Brown
Gretchen C. Daily
Laurence Fink
Joseph H. Gleberman
William Frist
Calestous Juma
Jane Lubchenco
Jack Ma
Claudia Madrazo
Craig McCaw
Thomas J. Meredith
Ana M. Parma
Stephen Polasky
James E. Rogers
Vincent Ryan
Rajiv Shah
Brenda Shapiro
Mark Tercek
Thomas J. Tierney
Moses Tsang
Frances A. Ulmer
P. Roy Vagelos
Margaret C. Whitman
Ying Wu

Prior Board Members (FYs ‘13-‘17)

Teresa Beck
David Blood
Gordon Crawford
Steven A. Denning
Jeremy Grantham
Frank E. Loy
Thomas Middleton
James C. Morgan
Roberto Hernández Ramirez
Muneer A. Satter
Shirley Young

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FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

CONTRACTING DOCUMENTS

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

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(FOR DUPLEX PRINTING PURPOSES)

**AGREEMENT
BETWEEN THE NATURE CONSERVANCY (TNC)
AND
CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is by and between

The Nature Conservancy (TNC)

and

(Contractor).

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

ARTICLE 1 - WORK

- 1.1 Contractor shall complete all Work as specified or indicated in the Contract Documents for the project entitled Maidford River Restoration and Flood Improvements, Middletown, RI.

ARTICLE 2 - ENGINEER

- 2.1 The Project has been designed by Fuss & O'Neill, Inc. (Engineer), who is to act as TNC's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 3 - CONTRACT TIMES

3.1 Time of the Essence

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

3.2 Days to Achieve Substantial Completion and Final Payment

- A. The Work will be substantially completed within 60 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment of lump sum bid prices items in accordance with Paragraph 14.07 of the General Conditions within 105 days after the date when the Contract Times commence to run and no later than May 25, 2018.

1. Within the 60 calendar day substantial completion period, the selected Contractor shall be limited to 30 calendar days on-site to reach substantial completion. The on-site times shall begin when the Contractor begins work on-site and end when the Work is substantially complete.

3.3 Liquidated Damages

- A. Contractor and TNC recognize that time is of the essence of this Agreement and that TNC will suffer financial loss if the Work is not completed within the times specified in Paragraph 3.2 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by TNC if the Work is not completed on time. Accordingly, instead of requiring any such proof, TNC and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay TNC \$ 500 for each day that expires after the time specified in Paragraph 3.2 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by TNC, Contractor shall pay TNC \$ 500 for each day that expires after the time specified in Paragraph 3.2 above for completion and

readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 4 - CONTRACT PRICE

- 4.1 TNC shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraph below:
- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an Exhibit ____.
 - B. The Contract Price shall be _____

_____ (\$ _____), subject to additions and deductions as provided in the Contract Documents and stated on the Contractor's Bid Form.

ARTICLE 5 - PAYMENT PROCEDURES

5.1 Submittal and Processing of Payments

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

5.2 Progress Payments; Retainage

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

5.3 Final Payment

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

ARTICLE 6 – CONTRACTOR’S REPRESENTATIONS

6.1 In order to induce TNC to enter into this Agreement, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all federal, State, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in Paragraph 4.06 of the General Conditions.
- E. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.
- F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 7 - CONTRACT DOCUMENTS

7.1 Contents

- A. The Contract Documents consist of the following:
1. This Agreement (pages 1 to 6, inclusive).
 2. Performance bond (pages 1 to 3, inclusive).
 3. Payment bond (pages 1 to 2, inclusive).
 4. General Conditions (pages i to 36, inclusive).
 5. Supplementary Conditions (pages 1 to 11 inclusive).
 6. Specifications as listed in the Table of Contents of the Project Manual.
 7. Drawings consisting of the sheets listed in the List of Drawings of this Project Manual.
 8. Addenda (numbers to inclusive).
 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages to inclusive).
 - b. Documentation submitted by Contractor prior to Notice of Award (pages to , inclusive).
 - c. Exhibit A as listed in the Table of Contents of the Project Manual.
 10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed (pages to , inclusive).
 - b. Work Change Directives.
 - c. Change Order(s).
- B. The documents listed in Paragraph 7.1.A above are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 8 - MISCELLANEOUS

8.1 Terms

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

8.2 Assignment of Contract

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

8.3 Successors and Assigns

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

8.4 Severability

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

8.6 Other Provisions

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

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

OWNER:

CONTRACTOR:

The Nature Conservancy

By: _____

By: _____

Title: _____

Title: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: _____

Attest : _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

License No.: _____

(If Owner is a corporation, attach evidence of authority

(Where applicable)

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

Agent for service or process: _____

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

PERFORMANCE BOND

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

CONTRACTOR (Name and Address):

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

OWNER The Nature Conservancy (TNC)
159 Waterman Street, Providence, RI, 02906

CONTRACT

Date:

Amount:

Description (Name and Location): Maidford River Restoration and Flood Improvements between Sachuest Point Rd and Third Beach Road, Middletown, RI

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

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

Attest:

Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title:

EJCDC No. C-610 (2002 Edition)

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

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.
2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.
3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
 - 3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
 - 3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and
 - 3.3. Owner has agreed to pay the Balance of the Contract Price to:
 1. Surety in accordance with the terms of the Contract;
 2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.
4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:
 - 4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
 - 4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
 - 4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
 2. Deny liability in whole or in part and notify Owner citing reasons therefor.
5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
 - 6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;
 - 6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and

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

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

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

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

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

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

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

12. Definitions.

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

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

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

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

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

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(FOR DUPLEX PRINTING PURPOSES)

PAYMENT BOND

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

CONTRACTOR (Name and Address):

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

OWNER The Nature Conservancy (TNC)
 159 Waterman Street, Providence, RI, 02906

CONTRACT

Date:
Amount:
Description : Maidford River Restoration and Flood Improvements

BOND

Bond Number:
Date (Not earlier than Contract Date):
Amount:
Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)
Name and Title:

SURETY

Surety's Name and Corporate Seal (Seal)

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

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

Attest: _____
Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)
Name and Title:

SURETY

Surety's Name and Corporate Seal (Seal)

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

Attest: _____
Signature and Title:

EJCDC No. C-615 (2002 Edition)

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

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
 - 6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2. Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

- 15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



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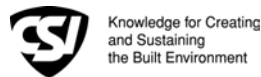
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Construction Specifications Institute

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

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

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

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

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

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

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

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

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

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

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

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

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the

terms of the Contract. A demand for money or services by a third party is not a Claim.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

30. *PCBs*--Polychlorinated biphenyls.

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

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

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

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

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of

1954 (42 USC Section 2011 et seq.) as amended from time to time.

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

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

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

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

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

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

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

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

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

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

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

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

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

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

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

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

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

1.02 *Terminology*

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

B. *Intent of Certain Terms or Adjectives*

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

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

C. *Day*

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

D. *Defective*

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

a. does not conform to the Contract Documents, or

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

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

E. *Furnish, Install, Perform, Provide*

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

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

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

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

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

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

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

2.02 *Copies of Documents*

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

2.03 *Commencement of Contract Times; Notice to Proceed*

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

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified

in the General Requirements), Contractor shall submit to Engineer for timely review:

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

2. a preliminary Schedule of Submittals; and

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

2.06 *Preconstruction Conference*

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

2.07 *Initial Acceptance of Schedules*

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

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

2. Contractor’s Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

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

3.01 *Intent*

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

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

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

3.02 *Reference Standards*

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

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

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

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

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

Engineer before proceeding with any Work affected thereby.

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

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

B. Resolving Discrepancies

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

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

3.04 *Amending and Supplementing Contract Documents*

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

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

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

3.05 *Reuse of Documents*

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

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

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

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

3.06 *Electronic Data*

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

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

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

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

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

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

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

4.02 *Subsurface and Physical Conditions*

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

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

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

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

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

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

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

4.03 *Differing Subsurface or Physical Conditions*

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

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

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

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

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

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

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

C. Possible Price and Times Adjustments

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

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

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

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

a. Contractor knew of the existence of such conditions at the time Contractor made a final

commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

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

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

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

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

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

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

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

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

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

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

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

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy

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

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

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

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

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

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

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a

reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes

due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

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

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

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

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

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's

other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

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

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

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

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

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

b. by any other person for any other reason;

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

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

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

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

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

3. include completed operations insurance;

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

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

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

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

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

5.05 *Owner's Liability Insurance*

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

5.06 *Property Insurance*

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

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

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the

following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

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

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

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

6. include testing and startup; and

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

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

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

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

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

5.07 *Waiver of Rights*

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

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

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

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

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

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

5.08 *Receipt and Application of Insurance Proceeds*

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

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

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

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

coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

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

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

6.02 *Labor; Working Hours*

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

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

6.03 *Services, Materials, and Equipment*

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

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

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

6.04 *Progress Schedule*

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

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

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

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

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

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

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

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

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

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

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

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

2. Substitute Items

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

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

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

1) shall certify that the proposed substitute item will:

- a) perform adequately the functions and achieve the results called for by the general design,
- b) be similar in substance to that specified, and
- c) be suited to the same use as that specified;

2) will state:

- a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;
- b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
- c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

- a) all variations of the proposed substitute item from that specified, and
- b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is

equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

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

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

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

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

6.06 *Concerning Subcontractors, Suppliers, and Others*

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

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract

Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

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

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

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

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

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

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and

damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

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

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

6.08 *Permits*

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

6.09 *Laws and Regulations*

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

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses,

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

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

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

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

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

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

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

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

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

6.12 *Record Documents*

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

6.13 *Safety and Protection*

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

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

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

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

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

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

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

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

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

1. Shop Drawings

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

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

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

a. Submit number of Samples specified in the Specifications.

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

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

C. Submittal Procedures

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

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

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

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

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

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

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

D. *Engineer's Review*

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

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

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

E. *Resubmittal Procedures*

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

6.18 *Continuing the Work*

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

6.19 *Contractor's General Warranty and Guarantee*

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

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

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

2. normal wear and tear under normal usage.

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

1. observations by Engineer;

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

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

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

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

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

7. any correction of defective Work by Owner.

6.20 *Indemnification*

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

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of

them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

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

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

6.21 *Delegation of Professional Design Services*

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

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

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

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

Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

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

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

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

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

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

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

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

7.03 *Legal Relationships*

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

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

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

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

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

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

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

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

9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

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

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

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

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

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

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

9.07 *Determinations for Unit Price Work*

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

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

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

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

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

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

9.09 *Limitations on Engineer's Authority and Responsibilities*

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

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

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

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

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

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

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

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

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

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

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

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed

sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

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

10.04 *Notification to Surety*

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

10.05 *Claims*

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

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

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

1. deny the Claim in whole or in part,

2. approve the Claim, or

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

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

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

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

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

11.01 *Cost of the Work*

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

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

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

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

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

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

5. Supplemental costs including the following:

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

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

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

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

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

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and

expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

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

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

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

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

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

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

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

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

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

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

D. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain

records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

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

B. Cash Allowances

1. Contractor agrees that:

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

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

C. Contingency Allowance

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

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

11.03 Unit Price Work

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

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

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

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

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

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

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

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

12.01 *Change of Contract Price*

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

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

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

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

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

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

1. a mutually acceptable fixed fee; or

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

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

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

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

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

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

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

12.02 *Change of Contract Times*

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

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

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

due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

13.01 *Notice of Defects*

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

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent

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

13.03 *Tests and Inspections*

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

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

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

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

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

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

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

13.04 *Uncovering Work*

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

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

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

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

dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

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

13.07 *Correction Period*

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

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

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

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

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

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

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

correction or removal and replacement has been satisfactorily completed.

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

13.08 *Acceptance of Defective Work*

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

13.09 *Owner May Correct Defective Work*

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

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

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

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

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

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

14.02 *Progress Payments*

A. Applications for Payments

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

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments

received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

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

B. Review of Applications

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

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
- b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and
- c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

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

- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
- b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor

Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

- a. to supervise, direct, or control the Work, or
- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
- c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
- d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
- e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

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

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

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

D. Reduction in Payment

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

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling Owner to a set-off against the amount recommended; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

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

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

14.03 *Contractor's Warranty of Title*

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

14.04 *Substantial Completion*

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

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

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or

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

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

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

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

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

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. Application for Payment

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

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

- a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;
- b. consent of the surety, if any, to final payment;
- c. a list of all Claims against Owner that Contractor believes are unsettled; and

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

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

B. *Engineer's Review of Application and Acceptance*

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

C. Payment Becomes Due

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

14.08 *Final Completion Delayed*

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

consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

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

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

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

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

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

15.02 *Owner May Terminate for Cause*

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

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

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

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

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

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

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

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

3. complete the Work as Owner may deem expedient.

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

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

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

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

15.03 *Owner May Terminate For Convenience*

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

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

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

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

4. reasonable expenses directly attributable to termination.

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

15.04 *Contractor May Stop Work or Terminate*

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

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

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

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

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

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

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

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

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

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

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If

the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

SECTION 00800 - SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-700, 2002 Edition) and other provisions of the Contract Documents as indicated below. Special TNC Provisions attached to this manual as Exhibit A are also part of these Supplementary Conditions and amend or supplement the Standard General Conditions. The Special TNC Provisions shall prevail in cases of discrepancy.

All provisions which are not so amended or supplemented remain in full force and effect. The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

SC-1.01 *Defined Terms*

A. Add the following new paragraph immediately after paragraph 1.01.A.19:

“A. Engineer’s Consultant – An individual or entity having a contract with Engineer to furnish services as Engineer’s independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

1. Engineer’s Consultants are identified as follows:

c. National Land Surveyors-Developers”

A. Delete Paragraph 1.01.A.29 in its entirety and insert the following in its place:

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

B. Add the following new paragraph immediately after paragraph 1.01.A.34:

“ 35. *Property Owner*--The individual or entity upon which the contract work will or may occur as depicted on the Contract Drawings. The Property Owners for this project are as listed below:

a. U.S. Fish and Wildlife Service, United States of America

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

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

ARTICLE 2 - PRELIMINARY MATTERS

SC-2.02 *Copies of Documents*

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

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

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.03 *Reporting and Resolving Discrepancies*

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

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

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

SC-4.02 *Subsurface and Physical Conditions*

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

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

1. Base mapping that is incorporated as part of the Drawings.

D. Copies of reports and drawings itemized in SC-4.02.C that are not included with Bidding Documents may be examined at the offices of Fuss & O’Neill, located at 317 Iron Horse Way, Suite 204, Providence, Rhode Island, 02908 during regular business hours. These reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Contractor may rely as identified and established above are incorporated therein by reference. Contractor is not entitled to rely upon other information and data utilized by Engineer and Engineer’s Consultants in the preparation of Drawings and Specifications.”

ARTICLE 5 - BONDS AND INSURANCE

SC-5.03 *Certificates of Insurance*

A. Add the following new Paragraphs immediately after Paragraph 5.03.B:

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

D. By requiring such insurance and insurance limits herein, Owner does not represent that coverage and limits will necessarily be adequate to protect Contractor, and such coverage and limits shall not be deemed as a limitation on Contractor’s liability under the indemnities granted to Owner in the Contract Documents.”

SC-5.04 *Contractor's Liability Insurance*

A. Add the following new Paragraphs immediately after Paragraph 5.04.B.7.a:

“C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than what is specified by the Special TNC Provisions or greater where required by Laws and Regulations.”

8. Subcontractors' Insurance Requirements: Contractor shall ensure that each of its subcontractors shall, prior to commencement of any work on the Project, procure and thereafter maintain at all times during their performance of any such work, insurance equivalent to the amounts set forth above. In addition, Contractor shall ensure that each subcontractor complies with the following provisions and requirements:

- a. Each subcontractor's insurance policies required herein shall expressly provide, by endorsement or otherwise, that such insurance is primary to and shall not require or permit contribution from any insurance procured by TNC;
- b. Each subcontractor's insurance policies required herein shall expressly provide, by endorsement or otherwise, that each of such subcontractor's insurers waive any and all subrogation rights that such insurers may have against TNC;
- c. Each subcontractor shall agree in writing that any deductibles, retentions, co-pays, or other charges applicable to the insurance policies required herein shall be paid for, satisfied by, and at the sole cost of each such subcontractor, and that TNC shall not be obligated to pay any such deductibles, retentions, co-pays, or other charges;
- d. To the extent that any subcontractor does not comply with the requirements set forth herein, Contractor shall defend, indemnify, and hold harmless TNC against all claims, suits, losses, liabilities, and damages resulting therefrom; and
- e. Each subcontractor shall comply with the requirements of Section 9 below to the same extent as Contractor.

9. Other Insurance Requirements:

- a. In the event Contractor fails to procure or maintain any required insurance or fails to satisfy a deductible for any of the insurance policies specified above or in the General Conditions and/or Supplemental Conditions, TNC may, at its election, without waiving any other rights TNC has under this Agreement or under applicable law, secure and maintain such insurance or satisfy any unsatisfied portion of the deductible at Contractor's sole cost, which cost TNC may elect to offset against any monies owed Contractor.
- b. Coverage under each of the insurance policies specified above shall be primary to, and not contributory with, any insurance procured or carried by TNC.
- c. Each of the insurance policies specified above shall be issued by insurance companies authorized to do business in each state in which the Project is located (in whole or in party) or in which any work or services on the Project is performed.
- d. Contractor's compliance with the foregoing insurance requirements shall be evidenced by both (i) Certificates of Insurance and (ii) related policy endorsements signed by an authorized representative of

the insurance company, delivered to TNC prior to commencement of any work or services by Contractor. Contractor shall not be entitled to any payment until TNC receives all such documentation.

e. All insurance Contractor is required to provide under this Agreement shall provide for an unqualified period of notice to TNC of not less than thirty (30) days in the event of cancellation, non-renewal or material reduction in coverage, and of not less than ten (10) days in the event of cancellation for non-payment of premiums.

f. Upon TNC's request, Contractor shall promptly provide TNC with complete copies of any and all insurance policies, certificates, endorsements, and other insurance information relating to the insurance required above.

g. In the event Contractor fails to procure or maintain any of the required insurance above, TNC may, without waiving any other rights TNC has under this Agreement or under applicable law, secure and maintain such insurance at Contractor's sole cost, which cost TNC may elect to offset against any monies owned Contractor.

10. Additional Insureds:

- a. The Nature Conservancy
- b. Fuss & O'Neill

SC-5.06 *Property Insurance*

A. Delete Paragraph 5.06.A - E in its entirety:

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

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

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

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

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

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

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

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

SC-6.06 Concerning Subcontractors, Suppliers, and Others

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

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

SC-6.10 Taxes

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

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

SC-6.12 Record Documents

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

"B. Final payment will not be made to Contractor unless Record Document requirements are met."

SC-6.20 Indemnification

A. Replace Paragraph 6.20.A with the following:

"The work to be performed under this Contract shall be performed entirely at the Contractor's risk. To the maximum extent permitted by law, the Contractor shall defend, indemnify, and hold harmless TNC, its affiliates and successors, and their respective officers, directors, employees, and agents, from and against any and all Liabilities arising out of death, personal injury, property damage, trespass, nuisance, environmental or natural resource injury or contamination, and any other liability, damage, or loss, arising out of or by reason of any act, error, omission, breach of this Agreement, violations of any easement or other agreement or authorization granting access, violations of any law, regulation, permit, or authorization, statutory liability, strict liability, or willful misconduct of the Contractor, its contractors, subcontractors, and consultants of any tier, and its or their employees, representatives, and agents, except to the extent such Liabilities are the result of the willful misconduct or gross negligence of the Owner, its affiliates and successors, or their respective officers, directors, and employees. Each of the foregoing indemnitees shall have the right to control its own defense of any of the foregoing matters through legal counsel of its own choosing, the expense of which shall be borne by the Contractor. As used in this paragraph, the term "Liabilities" means any and all actions,

lawsuits, claims, liabilities, losses, demands, damages, penalties, and expenses (including without limitation attorneys' fees, consultants' and experts' fees, and court costs), of any kind or nature, including without limitation indirect, incidental, and consequential liabilities, losses, damages, penalties and expenses."

ARTICLE 7 – OTHER WORK AT THE SITE

SC-7.03 *Legal Relationships*

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

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

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

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

ARTICLE 8 – OWNER'S RESPONSIBILITIES

SC-8.11 *Evidence of Financial Arrangements*

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

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

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

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

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

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

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

SC-11.01 *Cost of the Work*

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

11.01.B.1.

SC-11.04 *Rental Rates*

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

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

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

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

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

2. For machinery, trucks or equipment, which the Contractor must obtain by rental, the Contractor shall inform the Engineer of its need to rent the equipment and of the rental rate for that equipment prior to using it on the Work. If that use and rate are acceptable to the Engineer, the Contractor shall be paid the actual rental for the equipment, provided that rate does not exceed the rental rate set forth in the Rental Rate Blue Book, including all Rate Adjustment Tables and amendments. The Contractor shall provide the Engineer with a copy of the paid receipt for the rental expense incurred.

3. The estimated operating cost per hour will apply only to the actual time the equipment is operating. Operators will be paid as stated hereinbefore for labor except for certain trucks listed in the Rental Rate Blue Book as to which trucks said Rental Rate Blue Book indicates that the cost of the operators is included in the pertinent rates.

4. For equipment which is already on the Project, OWNER will pay the applicable hourly, weekly or monthly rates, as applicable, for the actual time the equipment is assigned to the Cost-Plus Work. The period of assignment for each piece of equipment shall start when the equipment commences to be used for the Work ordered by the Engineer, and shall continue until the time which the Engineer designates for termination of that work.

5. For equipment which has to be brought to the Project exclusively for use on Cost-Plus Work, Owner will pay all loading and unloading costs and all transportation costs to and from the Project Site; provided, however, the cost of return transportation from the Project Site shall not exceed that of moving the equipment to that Site. If such a piece of equipment is self-propelled, and is driven to the Project Site under its own power, then the Owner will pay only operating costs and labor costs for the transportation to and from the Project Site. The Owner will not pay for loading, unloading, and transportation costs, however, if the equipment is used for other than cost-plus work while on the Project Site, with the exceptions stated herein.

6. The Owner will pay the applicable rental rate for a minimum of 8 hours in each 24 hour day, excluding Saturdays, Sundays, and legal holidays during which the Contractor does no work. The daily usage period shall start at the time the Contractor begins to use the equipment for cost-plus work and when the equipment is released by the Engineer from use for such work. The Owner will make payment to the Contractor at the applicable hourly rate for the actual time the equipment is being used for cost-plus work in excess of the minimum 8 hours per day. If, however, certain pieces of equipment remain idle during any day or portion of a day within such a rental period, the Owner will pay for those periods at 50 percent of the applicable rate (exclusive of operating costs) set forth in the Rental Rate Blue Book.

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

- a. The daily rate per hour shall apply when the equipment is specifically assigned to the Work by the Engineer for a period of 7 consecutive calendar days or less.

- b. The weekly rate per hour shall apply when the assigned time exceeds 7 consecutive calendar days but does not exceed 21 consecutive calendar days.
- c. The monthly rate per hour shall apply when the assigned time exceeds 21 consecutive calendar days.

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

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

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

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

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

SC-13.03 *Tests and Inspections*

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

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

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02 *Progress Payments*

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

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

SC-14.07 *Final Payment*

SUPPLEMENTARY CONDITIONS

00800 - 9

Includes recommendations from
EJCDC C-800 Guide to the Preparation of Supplementary Conditions
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A. Add the following new sentence at the beginning of Paragraph 14.07.A.2:

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

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

END OF SECTION

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

DIVISION 1

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

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(FOR DUPLEX PRINTING PURPOSES)

SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. This Section includes a general summary of the Work and is not intended to be all-inclusive.
- B. Project Identification: Project includes but is not limited to the replacement of culverts under Third Beach Road on the Maidford River.
 - 1. Project Location: Third Beach Road within the Sachuest Point National Wildlife Refuge
 - 2. Project Sponsor and Contract Owner: The Nature Conservancy (TNC)
 - 3. Property Owners: United States Fish & Wildlife Service (USFW)a
- C. Engineer Identification: The Contract Documents, dated January 2018 were prepared for the Project by Fuss & O'Neill, Inc, Providence, RI.

- 1.3 This work consists of removal of existing culverts under Third Beach Road, construction of twin 4'x4' precast box culverts and associated wingwalls, relocating impacted water and sewer utilities, and restoring the roadway including installation of guardrail. Work under this project generally consists of, but is not limited to, installing/maintaining/removing temporary water control measures, saw cutting and excavating the existing roadway, demolishing and removing existing concrete culverts, relocating water and sewer utilities, placing suitable fill, installing precast box culverts and wingwalls, backfilling and restoring roadway to previous cross section, installing weir boards, and performing marsh restoration within limits of disturbance.

1.4 CONTRACT

- A. Project will be constructed under a General Construction Contract.

1.5 SUBMITTALS

- A. Submit the following schedules in accordance with Paragraph 3.2 of this Section:
 - 1. Construction schedule

2. Schedule of submittals/shop drawings

1.6 USE OF PREMISES

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

1.7 SPECIFICATION FORMATS AND CONVENTIONS

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

1.8 DIG SAFE

- A. Contact Dig Safe at 1-888-344-7233 at least 72 hours prior to the start of construction (excluding weekends and holidays), to mark out the utility locations.

1.9 ACCESS TO SITE

- A. Minimize damage to access routes, and restore damaged areas to their original condition or better.

- B. Acquire necessary permits, authorizations and approvals for working in, on or from property, rights-of-way or easements not owned or otherwise secured by the Owner from respective site property owners. The Contractor shall secure access rights of his own for such work and access where necessary and not obtained by the Owner.
- C. Remove and restore to original condition walls, fences, structures, utility lines, poles, guy wires, anchors, and other features and improvements required to be relocated for construction of the Work. Costs for such activity shall be borne by the Contractor. Notify the Engineer, Owner, and utilities of intended modification or disruption to their property prior to the start of construction and cooperate with them in the scheduling and performance of its operations.
- D. If the Contractor, by direct negotiation and bargain with any land owner, lessee or tenant, has secured any right to use more space or greater privileges in the space provided by the Owner for purposes incidental to the performance of the Contract, he shall, upon request of the Engineer, furnish to the Engineer proper evidence that such additional rights have been properly secured and assurance that no damage to or claim upon the Owner or Engineer will arise there from. Neither the Owner nor the Engineer shall be liable in any way for any expense incurred by the Contractor in securing any such right to use additional property.
- E. The Contractor shall be responsible for and reimburse the Owner and others for any and all losses, damage or expense which the Owner or those others may suffer, either directly or indirectly or through any claims of any person or party, for any trespass outside the spaces and rights of way provided by the Owner to the Contractor or any violation or disregard of the terms and conditions established for the use or occupancy of those rights or for negligence in the exercise of those rights.
 - 1. The Owner may retain or deduct from any sum or sums due or to become due to the Contractor such amount or amounts as may be proper to insure the Owner against loss or expense by reason of the failure of the Contractor to observe the limits and conditions of the rights-of-way, rights-of-access, easements, etc., provided by the Owner.

1.10 WORK HOURS

- A. Schedule activities on Monday through Friday, 7:00 AM to 5:00 PM. Should access to the Site at other times be necessary, make arrangements with the Owner.

1.11 SITE CONDITIONS

- A. The underground utilities and structures at the site have been located primarily from information furnished by others and the locations as depicted on the Drawings are considered approximate as to size and location. There may be additional underground utilities and structures that are not shown on the Drawings, and it shall be the responsibility of the Contractor to locate all existing utilities and structures and to

protect same from damage or harm. Restore utilities interfered with or damaged, at the expense of the Contractor, and to the satisfaction of its Owner.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE AND PHASING

- A. Construction phasing requirements contained in the Drawings must be adhered to in the Contractor's detailed construction schedule submitted to the Engineer, including installation of erosion and sedimentation controls, installation of temporary cofferdams and water conveyances, and removal of such cofferdams and conveyances.
- B. Deviation from Contractor's schedule will require the Contractor to submit notification of such change in schedule to the Engineer at least seven (7) days prior to the subject change. Such notification shall be accompanied by a revised project schedule and phasing drawing

3.2 ADMINISTRATIVE SUBMITTALS

- A. Do not commence portion of the Work requiring a submission until submission has been accepted by the Engineer.
- B. In addition to the submittals required by the various Technical Specifications, provide the following submittals within 10 days after the effective date of the Agreement:
 - 1. Schedule of Construction. Submit a proposed schedule of construction (schedule of operations) to the Engineer.
 - a. Provide a bar-chart-type or Gantt-chart-type schedule that clearly indicates the start date and duration of specific construction activities. The Contractor shall not work on Saturday, Sunday, or Holidays without approval of the Engineer. Portions of the Work to be performed by subcontractors or utilities shall be clearly indicated as such.
 - b. Incorporate the erosion control and control of water construction phasing provisions into the construction schedule.

- c. Prepare scaled drawing clearly showing proposed construction corresponding to construction schedule.
- d. No work shall be started until the schedule of construction is reviewed and approved by the Engineer.
- e. Contract completion date shall not be changed by submission of a schedule, unless specifically authorized by Change Order approved by the Owner.

2. Schedule of Submittals/Shop Drawings. The Contractor shall submit his proposed schedule of submittals to the Engineer.

3.3 PROJECT MEETINGS

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

3.4 REGULATORY COMPLIANCE

- A. All equipment operators and workers performing work at the proposed location shall hold the appropriate State of Rhode Island and/or Federal law licenses for their responsibilities.
- B. Contractor shall provide a 'Competent Person', as defined by the US Department of Labor Occupational Safety & Health Administration (OSHA), for the location of the proposed work.
- C. Contractor and all subcontractor and vendors working at the site shall have an OSHA ten (10) hour construction safety program for their on-site employees.
- D. All required licenses and/or certificates for work being performed shall be copied and supplied to the Engineering Division prior to beginning work by each contractor, subcontractor or vendor employee conducting work at the site. All required licenses and/or certificates for work being performed shall be in the possession of the person(s) while performing the work.

The Contractor shall be solely responsible to conduct their operations in a manner that meets all local, state and federal regulations including RIDEM, USEPA, OSHA, USFWS and labor and equipment licensing requirements.

END OF SECTION

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SECTION 01150 - COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations with organizations, agencies, owners, and other contractor's work forces.

1.2 WORK BY OTHERS

- A. The Contractor shall have no claim or claims against the Owner, Engineer, or other parties due to delays or other reasons caused by the work of Others or failure to coordinate its own work.

1.3 GENERAL COORDINATION

- A. Coordinate the Work with Authorities having jurisdiction within the work area.

1.4 COORDINATION WITH UTILITIES

- A. Contact "Call Before You Dig" at 1-888-344-7233 a minimum of three full business days prior to excavation. Coordinate the Work with utilities located in the work area.
 - 1. If above or below ground utilities are damaged during the course of the Work, immediately notify the appropriate utility companies of the incident.

- B. Coordinate utility work and with the local authorities.

- 1. Contact Information

- a. Engineering Department: Warren Hall – (401) 846-2119

1.5 COORDINATION WITH LOCAL AUTHORITIES

- A. Report the location and duration of road closing or traffic detour to the various Town and State Authorities, including the Public Works, Police, Fire, and Emergency Services a minimum of 2 business days prior to roadway construction activities.

- 1. Contact Information

- a. United States Fish and Wildlife Service: Charlie Vandemoer – (401) 213-4401
 - b. Department of Public Works: Thomas O'Loughlin – (401) 846-2119
 - c. Engineering Department: Warren Hall – (401) 846-2119
 - d. Police Department: Chief Anthony M. Pesare – (401) 846-1144

- e. Fire and Emergency Department: Chief Ron Doire – (401) 846-1031

1.6 PERMITS

- A. Obtain required permits, and insurance required in connection with such permits.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01250 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 FIELD ORDER

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

1.4 PROPOSAL REQUESTS

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

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

1.5 CHANGE ORDER PROCEDURES

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

1.6 WORK CHANGE DIRECTIVE

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 ATTACHED FORMS

1. Proposal Request.
2. Field Order (EJCDC Form C-942).
3. Work Change Directive (EJCDC Form C-940).
4. Change Order (EJCDC Form C-941).

END OF SECTION

PROPOSAL REQUEST

Proposal Request No. _____

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

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

Description:

Attachments: (List documents supporting description)

By: _____

ENGINEER

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Attachments:

Engineer:

Receipt Acknowledged by (Contractor):

Date:

Copy to Owner

Work Change Directive

No. _____

Date of Issuance: _____ Effective Date: _____

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

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

Item No.	Description

Attachments (list documents supporting change):

Purpose for Work Change Directive:

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

Estimated change in Contract Price and Contract Times:

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

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

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

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Change Order

No. _____

Date of Issuance: _____ Effective Date: _____

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

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

Description:

Attachments: (List documents supporting change):

CHANGE IN CONTRACT PRICE:

Original Contract Price:

\$ _____

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

\$ _____

Contract Price prior to this Change Order:

\$ _____

[Increase] [Decrease] of this Change Order:

\$ _____

Contract Price incorporating this Change

\$ _____

CHANGE IN CONTRACT TIMES:

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

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

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

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

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

RECOMMENDED:

ACCEPTED:

ACCEPTED:

By: _____
Engineer (Authorized Signature)

By: _____
Owner (Authorized Signature)

By: _____
Contractor (Authorized Signature)

Date: _____

Date: _____

Date: _____

Approved by Funding Agency (if _____

Date: _____

Change Order Instructions

A. GENERAL INFORMATION

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

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

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

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

B. COMPLETING THE CHANGE ORDER FORM

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

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

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

SECTION 01290 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.1 SUMMARY

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

1.2 SCHEDULE OF VALUES

Coordination: Coordinate preparation of the Schedule of Values for Bid items with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals/Shop Drawings Schedule.
 2. Submit three copies of the Schedule of Values to Engineer 10 days after effective date of Agreement. No payment will be made to Contractor before Schedule of Values has been submitted and accepted by Engineer.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Engineer.
 - c. Engineer's project number: 20140870.E10
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Change Orders (numbers) that affect value.
 - d. Dollar value.

- 1) Percentage of the Contract Price to nearest one-hundredth percent, adjusted to total 100 percent.
3. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Price.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
6. Where items are not broken down sufficiently to accurately determine the value of Work completed, Engineer will estimate the value of the Work completed and deduct a conservative value that will allow TNC to easily complete the Work with the unpaid balance.
 - a. When the required detail in the Schedule of Values is not provided by the Contractor, the Contractor agrees to accept the Engineer's determination.
7. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
8. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Work Change Directives result in a change in the Contract Sum.

1.3 SCHEDULE OF PAYMENTS

- A. Coordination: Coordinate preparation of the Schedule of Payments with preparation of Contractor's Construction Schedule and Schedule of Values.
 1. Such schedule shall be broken down by monthly pay period through Project completion and reflect items listed in the Schedule of Values.
 2. Submit three copies of the Schedule of Payments to Engineer 10 days after effective date of Agreement.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
 1. Initial/Monthly Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

- B. Payment Application Times: The date for each progress payment is the 15th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days before the date for each progress payment.
- C. Payment Application Forms: AIA Document G 702 in addition to a form to be transmitted after the bid is awarded.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Work Change Directives issued before last day of construction period covered by application.
 3. Itemized data and format provided on continuation sheets shall include schedules, line items, values as stipulated in the Schedule of Values as accepted by Owner.
 - a. Continuation sheets shall include a total list of all scheduled component items of work with item number and scheduled dollar value for each item. Dollar values to be included in each column for each scheduled line item when Work has been performed or products stored. Round off values to nearest dollar or as may be specified for Schedule of Values.
 - b. List each Change Order executed prior to date of submission at end of continuation sheets. List by Change Order number and description as to original component item of Work.
- E. Transmittal: Submit five (5) signed and notarized original copies of each Application for Payment to Engineer
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
 2. Submit Applications to Engineer by means ensuring receipt within 24 hours.
 3. Product Ownership: All Work covered by Progress Payments shall, at the time of payment, become the property of TNC
- F. Ownership: All Work covered by Progress Payments shall, at the time of payment, become the property of TNC
- G. Processing: With each Application for Payment the Contractor shall certify such Application for Payment represents a just estimate of costs reimbursable to Contractor under terms of the Contract and shall certify there are no Mechanic's or Materialmen's Liens outstanding at the date of that Application for Payment, that all due and payable bills with respect to the Work have been paid to date or shall be paid from the proceeds of that Application for Payment, that there is no known basis for the filing of any Mechanic's or Materialmen's Lien against the Surety in connection with the Work, that Waivers and Bills Paid Affidavit forms from all Subcontractors and Materialmen have been, or will be, obtained in the form agreeable to TNC, and that amount of the contract remaining to be expended is sufficient to complete the project.

H. Waivers and Mechanics Liens

1. Monthly Applications for Payment shall include Waivers of Mechanic's Liens and Claims for all Work included in the period of construction covered by the Application for Payment and the previous month's Application. Waivers of Liens and Claims from Subcontractors or Subcontractors and suppliers shall include the period of construction covered by the Application for Payment, the total amount paid prior to and including the previous month's Application.
2. Partial Waivers of Liens shall be submitted on each item of work for the amount requested, prior to deduction for retainage, for each item.
3. Contractor shall submit final or full Waivers of Liens and Claims for completed items of work shown on the monthly Application for Payment.
4. Owner reserves the right to designate which entities involved in the Work must submit Waivers of Liens.
5. The Contractor's final Application for Payment shall be submitted with, or preceded by final Waivers from every entity involved with the performance of work, supplying of materials or the providing of professional services covered by the Application who could lawfully be entitled to a Lien.
6. Waivers of Liens shall be provided on forms, and executed in a manner acceptable to TNC.

I. Initial/Monthly Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following, which shall be updated for Monthly Applications for Payment, as applicable:

1. List of subcontractors with current DBE certification forms, as applicable.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final), updated monthly.
4. Schedule of unit prices.
5. Submittals Schedule (preliminary if not final).
6. Name of Contractor Superintendent.
7. Copies of building permits.
8. Copies of authorizations and licenses from governing authorities for performance of work.
9. Any material stored off site must carry additional insurance (All Risk Ryder) stating Owner as insured. All material is to be inspected by Engineer personnel before billing can be approved. Bill of Sale and receipts for items being billed at cost only are required and 25% retainage will be held for off-site stored materials. Paperwork must accompany request two weeks prior to billing to insure adequate time to schedule inspection.
10. Contractor's Health and Safety Plan (HASP).
11. Certificates of insurance and insurance policies.

J. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. Submit Warranties and maintenance agreements, as applicable.
 3. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- K. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Completion of items specified by the Engineer for correction after Substantial Completion.
 3. Required Project Records including permit drawings, as constructed drawings both on hard copy and in electronic format.
 4. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 5. Updated final statement, accounting for final changes to the Contract Sum.
 6. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 7. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 8. AIA Document G707, "Consent of Surety to Final Payment."
 9. List of unsettled claims, if any.
 10. Evidence that claims have been settled, if any.
 11. Final, liquidated damages settlement statement, if any.
 12. Removal of all temporary facilities and services
 13. Removal of all surplus materials, rubbish, and similar elements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

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SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 DEFINITIONS

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

1.3 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Engineer for Contractor's use in preparing submittals, unless requested to by the contractor.
- B. Method of Transmitting Submittals: Electronic transmission of submittals, will be allowed. A distribution list will be agreed upon at the Pre-Construction meeting.
- C. Clarity: Provide neat, clean and legible printed materials that can be easily reproduced by normal photocopying or blueprinting process. Illegible submittals will be returned unreviewed.
- D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- E. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal.
 - 1. Initial Review: Allow 7 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.

2. Concurrent Review: Where concurrent review of submittals by Engineer's consultants, the Owner, or other parties is required, allow 30 days for initial review of each submittal.
 3. If intermediate submittal is necessary, process it in same manner as initial submittal.
 4. Allow 7 calendar days for processing each resubmittal.
 5. No extension of the Contract Time or claims for delay will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- F. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Engineer.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Engineer.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier including name and telephone number of contact.
 - g. Name of manufacturer including name and telephone number of contact.
 - h. Unique identifier, including revision number.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Other necessary identification.
- G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals. Provide list or narrative of deviations on Submittal Transmittal form.
- H. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Engineer.
 2. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
- I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals, without review received from sources other than Contractor.
1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Engineer on previous

- submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
 3. Transmittal Form: Use sample form at end of Section.
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.
- 1.4 QUALITY ASSURANCE
- A. Where "Standard Specifications" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, Revision 2004" and all amendments.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
1. Number of Copies: Submit one electronic copy of each submittal, unless otherwise indicated. Mark up and retain one returned copy as a Record Document.
 - a. Submit a preliminary single copy of each submittal where selection of options, color, pattern, texture, or similar characteristics is required. Engineer will return submittal with options selected.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Printed performance curves.
 - g. Operational range diagrams.

- h. Mill reports.
 - i. Standard product operating and maintenance manuals.
 - j. Compliance with recognized trade association standards.
 - k. Compliance with recognized testing agency standards.
 - l. Application of testing agency labels and seals.
 - m. Notation of coordination requirements.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
- 1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Shopwork manufacturing instructions.
 - f. Templates and patterns.
 - g. Schedules.
 - h. Design calculations.
 - i. Compliance with specified standards.
 - j. Notation of coordination requirements.
 - k. Notation of dimensions established by field measurement.
 - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
- D. Samples: Prepare physical units of materials or products, including the following:
- 1. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Include cost and wearing capability of each color and pattern.
 - 2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - 3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Engineer's sample where so indicated. Attach label on unexposed side that includes the following:
 - a. Generic description of Sample including type, quality or grade designation.

- b. Product name or name of manufacturer.
 - c. Sample source.
 - d. Name of Project.
 - e. Name of Contractor or subcontractor.
4. Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, provide the following:
 - a. Size limitations.
 - b. Compliance with recognized standards.
 - c. Availability.
 - d. Delivery time.
 5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
 - a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least two sets of paired units that show approximate limits of the variations.
 - b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, detail's of assembly, connections, operation, and similar construction characteristics.
 6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise not designated as TNC's property, are the property of Contractor.
- E. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location.
- F. Delegated-Design Submittal: Comply with requirements in Division 1 Section "Quality Requirements."
- G. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."
- B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of engineers and TNCs, and other information specified.
- C. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- D. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- E. Material or Product Certificates: Prepare written statements on manufacturer's letterhead certifying that material or product complies with requirements. Use attached sample Material Certificate, or provide certificate that includes the following information.
1. Project to which material is consigned.
 2. Name of contractor receiving material.
 3. Item number and description of material.
 4. Quantity of material represented by the certificate.
 5. Means of identifying consignment including label, marking, or lot number.
 6. Date and method of shipment.
 7. Signature of Supplier's authorized agent.
 8. Notarization of certificate.
- F. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- G. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- H. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

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

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

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

3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and submittal transmittal and will return them without action.
 - 1. Engineer may elect not to review partial or incomplete submittals and will return such submittals with no action taken.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
 - 1. Furnish as Submitted: Submittal appears to conform to Contract Documents and Contractor may proceed with ordering and installation.
 - 2. Furnish as Noted: Same as "Furnish as Submitted" accept that the Contractor must comply with modifications or notes added to the submittal by the Engineer.
 - 3. Rejected: Submittal must be revised and resubmitted.
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION

SUBMITTAL TRANSMITTAL

Date: _____

To: Fuss & O'Neill, Inc.
317 Iron Horse Way; Suite 204
Providence, RI 02908
ATTN: **Kenneth Sullenger, P.E.**

From:

PROJECT: _____

SUBMITTAL NO.: _____
(List Section No., Article No., Paragraph)

(Revision: 1st, 2nd, 3rd, etc.)

Transmitted herewith for review and comment are the following:

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

MANUFACTURER / SUPPLIER

Name: _____
Address: _____
Telephone No.: _____ Facsimile No.: _____
For Additional Information, Contact _____
E-mail Address: _____

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

BY:

Signature: _____

Title: _____

-- SAMPLE --

MATERIALS CERTIFICATE

-- SAMPLE --

(Submit on Manufacturer's letterhead)

WE HEREBY CERTIFY THAT

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

FURNISHED TO

(Name of Contractor)

(Prime or Subcontractor)

FOR USE ON

(Project Name)

OWNER

(Project Owner)

IDENTIFIED BY:

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

SHIPPED VIA:

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

SHIPPED ON:

DELIVERED ON: _____

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

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

(Name of Manufacturer)

(Authorized Representative's Signature)

(Title)

-- SAMPLE --

EQUIPMENT RECORD SHEET

-- SAMPLE --

PROJECT: _____

SUBMITTAL NO.: _____
(list Section No., Article No.,
and Paragraph)

(Revision: 1st, 2nd, 3rd, etc.)

EQUIPMENT MANUFACTURER

SERVICE REPRESENTATIVE

TYPE _____

Motor Mfr. _____

MODEL NO. _____

Motor Size _____

SERIAL NO. _____

Volts _____ Amps _____

CAPACITY _____ at _____

Phase _____ Cycles _____ RPS _____

SPECIAL NOTES AND REMARKS:

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(FOR DUPLEX PRINTING PURPOSES)

SECTION 01332 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
 - 3. Final completion construction photographs.
- B. Related Sections:
 - 1. Division 1 Section "Closeout Procedures" for submitting photographic documentation as project record documents at Project closeout.
 - 2. Division 2 Section "Earthwork" for photographic documentation before construction operations commence.

1.3 INFORMATIONAL SUBMITTALS

- A. Construction Photographs: Submit electronic copies of digital construction photographs weekly.
 - 1. Digital photographs shall be submitted with a transcript with the following information:
 - a. Date photograph taken
 - b. Description of image in photograph

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.
 - 1. Camera shall be capable of imprinting a date time stamp in the photograph.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

- A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
1. Date and Time: Include date and time in file name for each image.
 2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Engineer.
- C. Preconstruction Photographs: Before commencement of excavation and demolition activities, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points
1. Take a minimum of 20 photographs to show existing conditions adjacent to property before starting the Work.
 2. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Periodic Construction Photographs: Take a minimum of 20 photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.
- E. Final Completion Construction Photographs: Take a minimum of 20 color photographs after date of Substantial Completion for submission as project record documents.

END OF SECTION

SECTION 01410 - TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 SUMMARY

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

1.2 REQUIREMENTS

- A. The Contractor shall pay all charges of the Testing Laboratory. Employment of Testing Laboratory shall in no way relieve Contractor of his obligation to perform work in accordance with Contract.
- B. The Contractor will select and employ an Independent Testing Laboratory, approved by the Engineer and holding current certification with the State of Rhode Island, prior to the commencement of the Work, to perform soil testing services as well as other field testing services required by the Contract Documents. Laboratories shall also meet qualifications listed in Division 2 Sections for the types of testing to be conducted.

1.3 SUBMITTALS

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

PART 2 - PRODUCTS

- A. Not used.

PART 3 - EXECUTION

3.1 LABORATORY DUTIES

- A. Demonstrate expertise in providing services as specified in the Contract Documents.
- B. Test the samples submitted by Contractor.
- C. Cooperate with Owner and Contractors; provide qualified personnel promptly on notice. Perform specified inspections, sampling and testing of materials and methods of construction; ascertain compliance with requirements of Contract Documents.
- D. The Testing Laboratory shall perform specified inspections, sampling, testing of materials and methods of construction as described in the Contract Documents.
- E. The Testing Laboratory shall promptly notify the Engineer of observed irregularities or deficiencies of work or products and shall perform additional testing as required. The Testing Laboratory shall promptly submit two (2) copies of written reports for each test and inspection to the Engineer and one copy to the Contractor. Each report shall include:

1. Date issued.
 2. Project title and number.
 3. Testing laboratory name, address, and telephone number.
 4. Name and signature of field and/or laboratory inspector.
 5. Date, time, and location of sampling or inspection.
 6. Record of temperature and weather conditions.
 7. Date of test.
 8. Identification of products and Specification Section.
 9. Location of sample or test in the Project. Sample locations shall be shown on site plan sketch.
 10. Type of inspection or test.
 11. Results of test and compliance with Contract Documents.
 12. Interpretation of test results.
- F. The Testing Laboratory shall not be authorized to release, revoke, alter or enlarge upon any requirements of the Contract Documents and Laboratory shall not approve or accept any portion of the Work that does not conform to these Specifications.
- G. Laboratory may not assume any duties of the Contractor; and the Laboratory has no authority to stop work.

3.2 CONTRACTOR'S RESPONSIBILITY

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

END OF SECTION

SECTION 01420 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

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

1.3 INDUSTRY STANDARDS

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

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

DEM	Rhode Island Department of Environmental Management Residential Direct Exposure Criteria according to the most recent <i>Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases</i> .	(401) 222-4700
DOD	Department of Defense Specifications and Standards Available from Defense Automated Printing Service www.astimage.daps.dla.mil/online	(215) 697-6257
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Defense Automated Printing Service www.astimage.daps.dla.mil/online	(215) 697-6257
	Available from General Services Administration www.fss.gsa.gov/pub/fed-specs.cfm	(202) 619-8925
	Available from National Institute of Building Sciences www.nibs.org	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MILSPEC	Military Specification and Standards Available from Defense Automated Printing Service www.astimage.daps.dla.mil/online	(215) 697-6257
RCRA	Resource Conservation Recovery Act	
SPN	"Standardized Plant Names," latest edition, by the American Joint Committee on Horticultural Nomenclature.	
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-5434

1.4 ABBREVIATIONS AND ACRONYMS

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

REFERENCES

AA	Aluminum Association, Inc. (The) www.aluminum.org	(202) 862-5100
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AAN	American Association of Nurserymen (See ANLA)	
AASHTO	American Association of State Highway and Transportation Officials www.aashto.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	American Concrete Institute/ACI International www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AFPA	American Forest & Paper Association (See AF&PA)	
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association www.hardboard.org	(847) 934-8800

REFERENCES

AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America www.alca.org	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANLA	American Nursery & Landscape Association (Formerly: AAN - American Association of Nurserymen) www.anla.org	(202) 789-2900
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOAC	Association of Official Agricultural Chemists	(800) 379-2622
AOSA	Association of Official Seed Analysts www.aosaseed.com	(505) 522-1437
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(941) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800

ASCA	Architectural Spray Coaters Association www.ascassoc.com	(609) 848-6120
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (212) 591-7722
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9585
AWCI	AWCI International (Association of the Wall and Ceiling Industries International) www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (See WCMA)	
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(817) 326-6300
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583

REFERENCES

CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
FM	Factory Mutual System (See FMG)	
FMG	FM Global (Formerly: FM - Factory Mutual System) www.fmglobal.com	(401) 275-3000
GRI	Geosynthetic Research Institute www.drexel.edu/gri	(215) 895-2343
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NFPA	National Fire Protection Association www.nfpa.org	(800) 344-3555 (617) 770-3000
NLGA	National Lumber Grades Authority www.nlga.org/	(604) 524-2393
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
RFCI	Resilient Floor Covering Institute www.rfci.com	Contact by mail only
RIS	Redwood Inspection Service www.calredwood.org	(888) 225-7339 (415) 382-0662
SAE	SAE International www.sae.org	(724) 776-4841
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331

REFERENCES

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

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

BOCA	BOCA International, Inc. www.bocai.org	(708) 799-2300
CABO	Council of American Building Officials (See ICC)	
IAPMO	International Association of Plumbing and Mechanical Officials (The) www.iapmo.org	(909) 595-8449
ICBO	International Conference of Building Officials www.icbo.org	(800) 284-4406 (562) 699-0541
ICC	International Code Council, Inc. (Formerly: CABO - Council of American Building Officials) www.intlcode.org	(703) 931-4533
SBCCI	Southern Building Code Congress International, Inc. www.sbcci.org	(205) 591-1853

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

EPA	Environmental Protection Agency www.epa.gov	(202) 260-2090
GSA	General Services Administration www.gsa.gov	(202) 708-5082
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
NCHRP	National Cooperative Highway Research Program (See TRB)	
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
TRB	Transportation Research Board www.nas.edu/trb	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

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

CRMC	Coastal Resources Management Council www.crmc.state.ri.us/	(401) 783-3370
RIDEM	Rhode Island Department of Environmental Management www.dem.ri.gov/	(401) 222-6800 (401) 222-3070
RIDOT	Rhode Island Department of Transportation www.dot.state.ri.us/	(401) 222-2450

FUSS & O'NEILL, INC.
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JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

UMASS University of Massachusetts
UMASS Extension (Amherst)
www.umass.edu/

(413) 545-2311

URI University of Rhode Island
www.uri.edu

(401) 874-1000

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

REFERENCES

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SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, traffic control, and security and protection facilities.

- B. Support facilities include, but are not limited to, the following:

1. Waste disposal facilities.
2. Construction aids and miscellaneous services and facilities.

- C. Temporary utilities include, but are not limited to, the following:

1. Drainage.
2. Water.
3. Electric power service.
4. Lighting.
5. Telephone service.

- D. Traffic controls include, but are not limited to, the following:

1. Barricades, signs, and temporary lighting to inform the general public of hazards during construction of the Work.
2. Relocating, maintaining and removing traffic control items.

- E. Security and protection facilities include, but are not limited to, the following:

1. Barricades, warning signs, and lights.
2. Temporary construction fencing.
3. First aid.

1.3 USE CHARGES

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

1. Occupants of Project.
2. Engineer.

3. Testing agencies.
4. Personnel of authorities having jurisdiction.

- B. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site.

1.4 QUALITY ASSURANCE

- A. Where "Standard Specifications" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Roads and Bridge Construction, Amended 2013" and issued supplements.
- B. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- C. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- D. Comply with all applicable code, laws and regulations.
- E. MUTCD: Manual for Uniform Traffic Control Devices, 2003 edition including all revisions.

1.5 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
1. Keep temporary services and facilities clean and neat.
 2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Engineer. Provide materials suitable for use intended and meet the minimum requirements noted below as needed to complete the Work.

2.2 EQUIPMENT

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

- C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

2.3 TRAFFIC CONTROL DEVICES

- A. Traffic Drums: Standard Specifications, Section 923.02 and the MUTCD Section 6F.62.
- B. Traffic Cones: Standard Specifications, Section 923.02 and the MUTCD Section 6F.59.
- C. Construction Barricades: Standard Specifications, Section 926.02 and the MUTCD Section 6F.63.
- D. Signage: Standard Specifications, Section 922 and Section T.15 and the MUTCD Section 2B.58.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

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

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate local authorities and/or utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to Project site where Owner's property or easements cannot be used for that purpose.
- B. Water Service: Water service is not available at the site. Contractor is responsible to provide their own water as needed to complete the project.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.

- D. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.
 - 1. Install exterior-yard site lighting that will provide adequate illumination for construction operations, traffic conditions, and signage visibility when the Work is being performed.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Locate storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access within Project Limits in location agreed upon by the Property Owner.
 - 2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines in location agreed upon by the Property Owner. Comply with NFPA 241.
 - 3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Property Owner.
- B. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
 - 1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during construction.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. All work within public roads shall conform to Town and/or RIDOT's Standard Specifications.
 - 2. Coordinate with federal and local authorities for closing of sections of streets within the work area. Do not barricade streets without prior approval of local authorities. Keep closings to as brief a period as possible. Provide a minimum 24-hour notice of street closings to abutters and local police and fire departments.
 - 3. Furnish, erect, maintain, move and dismantle barricades, warning signs, lights, and traffic control items as necessary, to protect the Work and provide for public safety, as required by the Owner or Engineer, and in accordance with the requirements of Section 937.03 of the Standard Specifications.
 - a. Traffic Drums: Place traffic drums in accordance with Standard Specification, Section 923.03.
 - b. Traffic Cones: Provide traffic cones in sufficient number to adequately control traffic on roadways during construction and in accordance with Standard Specification, Section 923.03. Replace damaged traffic cones.

c. Construction Barricades: Standard Specification, Section 926.03.

B. Barricades, Warning Signs, and Lights: Comply with the Standard Specifications for Roads and Bridges, Section 923 and the MUTCD Section 6F.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

C. Termination and Removal: Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION

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(FOR DUPLEX PRINTING PURPOSES)

SECTION 01572 – TEMPORARY EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes furnishing, placing, and maintaining erosion and sedimentation control measures as shown on the Drawings, as directed by the Engineer, and where necessary to reduce sediment content of runoff. Measures include the following:
 - 1. Biodegradable Compost Filter Socks.
 - 2. Filter Fabric.
 - 3. Dewatering bags.

1.3 SUBMITTALS

- A. Product Data
 - 1. Biodegradable Compost Filter Socks
 - 2. Filter fabric
 - 3. Dewatering bags

1.4 QUALITY ASSURANCE

- A. Where “Standard Specifications” is used, it shall mean “State of Rhode Island Department of Transportation Standard Specifications for Roads and Bridge Construction, Revision of 2004” and issued supplements.
- B. Sedimentation and erosion control measures shall be installed and maintained in accordance with the “Soil Erosion and Sediment Control Handbook” by the Rhode Island Department of Environmental Management and USDA Soil Conservation Service.

1.5 DEFINITIONS

- A. Control System – single or group of practices that prevent detachment and interrupt the transport of soil by rainfall, stormwater runoff, melting snow or ice.

PART 2 - PRODUCTS

2.1 BIODEGRADABLE COMPOST FILTER SOCK

- A. Biodegradable Filter Sock Material: Shall be in accordance with AASHTO Designation MP 9-06 (2007 or latest revision).
- B. Compost Filter Material: Shall be in accordance with AASHTO Designation MP 9-06 (2007 or latest revision). Compost material shall also meet all applicable Federal and State Regulations.
- C. Posts
 - 1. Hardwood Stakes: 1-inch by 1-inch at ten (10) foot intervals on center, and of a length that shall project into the soil one (1) foot leaving three (3) to four (4) inches protruding above the filter sock.

2.2 FILTER FABRIC

- A. Comply with Subsection 206.02.2 of the Standard Specifications.

2.3 DEWATERING BAG

- A. Filter Bag (Silt Bag): Manufactured non-woven geotextile fabric bag, sewn with high-strength thread, with a spout to accommodate a 4-inch discharge hose (maximum), and attached straps.
 - 1. Available Product and Manufacturer:
 - a. Dirtbag® by ACF Environmental, Richmond, VA.
 - b. Dandy Dewatering Bag by Dandy Products, Inc., Dublin, OH.
 - c. Or equal.

- B. Non-woven Geotextile Fabric:

Properties	Test Method	Units
Grab Tensile Strength	ASTM D4632	250 lbs
Puncture	ASTM D4833	165 lbs.
Flow Rate	ASTM D4491	70 Gal/Min/Sq. Ft.
Permitivity	ASTM D4491	1.3 sec-1
Mullen Burst	ASTM D3786	550 psi.
UV Resistance	ASTM D4355	70 percent
Apparent Opening Size	ASTM D4751	#40 US Sieve
Percent Retained		100 percent

PART 3 - EXECUTION

3.1 GENERAL

- A. Minimize environmental damage during construction. Prevent exposure of fuel, oil, lubricants, other fluids, and construction debris.

- B. Install erosion and sediment control measures prior to clearing, demolition or construction.
- C. Implement and maintain the erosion and sediment control notes on the Contract Drawings. Inform parties engaged on the construction site of the requirements and objectives of the plan.
- D. Construct erosion and sediment control measures in accordance with the Rhode Island Department of Environmental Management Wetlands Permit.
 - 1. Attend a preconstruction meeting with the Engineer, to review permit conditions and construction methods.
 - 2. Provide additional sedimentation and erosion controls if deemed necessary by the Engineer, Towns, or State to address field conditions.
 - 3. Inspect site weekly and prior to any anticipated rain event. Ensure that erosion controls are properly maintained and functioning.
 - 4. Supply a 24-hour contact name and number as part of the erosion control plan.
- E. Install additional control measures, if deemed necessary by the permitting agencies, Towns, or Engineer.
- F. Remove and dispose of sediment from control structures.
- G. Control dust and wind erosion. Control dust to prevent a hazard to traffic on adjacent roadways. Dust control includes, but is not limited to, sprinkling of water, uniform application of calcium chloride, mulch and/or crushed stone on exposed soils and haul roads.
- H. Within 7 days of completing slope construction, stabilize slopes with vegetation or matting to minimize exposure.
- I. Do not discharge directly into wetlands or watercourses where dewatering is necessary. Utilize methods and devices as permitted by authorities having jurisdiction and appropriate regulations to minimize and retain suspended solids including pumping water into a temporary sedimentation bowl, providing surge protection at inlet and outlet of pumps, floating pump intake.
 - 1. If pumping operation results in turbidity problems, stop pumping until means of controlling turbidity are determined and implemented.
- J. Cut Areas
 - 1. Establish an erosion control line of biodegradable compost filter sock at toe of slope in cut areas and slope stabilization with mulch or grass within 30 days of start of cut operations.
- K. Fill Areas
 - 1. Establish an erosion control line (biodegradable compost filter sock) as shown on the Drawings prior to beginning fill installation.
 - 2. Initiate slope stabilization with mulch or grass within 30 days of start of fill installation.
- L. Within 7 days of completing slope construction, stabilize slopes with vegetation or matting to minimize exposure.

M. Stockpiles

1. Side Slopes: 2:1 maximum.
2. Surround stockpiles by silt fence or hay bales.
3. Stabilize stockpiles left bare for more than 15 days with temporary vegetation or mulch.

N. Final Grading

1. If final grading is delayed for more than 30 days after land disturbances cease, stabilize soils with temporary vegetation or mulch.

3.2 CONTROL SYSTEM

A. Biodegradable Compost Filter Sock

1. Install filter sock at location as shown on the Drawings or where directed by the Engineer.

3.3 MAINTENANCE

A. Biodegradable Compost Filter Sock Maintenance

1. Inspect control system immediately after each rainfall and daily during prolonged rainfall. Make repairs immediately.
2. Remove and dispose of accumulated sediments when sediment reaches approximately one-third the height of the control system, or when directed by the Engineer.
3. Replace control system promptly if fabric decomposes or system becomes ineffective prior to the expected usable life.
4. Maintain or replace system until no longer necessary for the intended purpose.

B. Dewatering Bag Maintenance

1. Maintain in good condition throughout construction period.

C. Construction Access

1. Maintain in good condition throughout construction period.
2. Sweep adjacent roadways daily to remove tracked material from pavement.

3.4 REMOVAL

- A. Remove and dispose of control systems after area stabilizes with new growth or as directed by the Engineer.

END OF SECTION

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. All survey work for the project shall be shall be performed to meet Class II accuracy standards, as established in the Procedural and Technical Standards for the Practice of Land Surveying in the State of Rhode Island and Providence Plantations, effective April 1, 1994.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site Work, investigate

and verify the existence and location of underground utilities and other construction affecting the Work.

- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 3. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

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

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer prior to proceeding with the Work.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines, grades, and elsewhere as needed to locate each element of Project.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Check the location, level and plumb, of every major element as the Work progresses.
 - 4. Notify Engineer when deviations from required grades, lines, and levels exceed allowable tolerances.

5. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Lines and Levels: Locate and lay out control lines and levels for modifications and structures. Transfer survey markings and elevations for use with control lines and levels.
- D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Engineer.

3.4 FIELD ENGINEERING

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

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

- B. Comply with manufacturers' written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
- F. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- G. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

- A. Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
- B. Maintain Project site free of waste materials and debris.
- C. Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
- D. Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- F. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
 - 1. Thoroughly clean surfaces before applying paint or other finishing materials.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

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

3.9 CORRECTION OF THE WORK

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

END OF SECTION

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SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 SUBSTANTIAL COMPLETION

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

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."

2. Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will notify Contractor of construction that must be completed or corrected before final payment will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
- 1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)
- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
- 1.6 RECORD DOCUMENTS
- A. General: Do not use Record Documents for construction purposes. Protect Record Documents from deterioration and loss. Provide access to Record Documents for Engineer's reference during normal working hours.
- B. Prepare and submit Record Documents in accordance with Division 1 Section "Record Documents."

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and federal, State, and local environmental and antipollution regulations.
- B. Cleaning:
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean areas disturbed by construction activities of rubbish, surplus soil, waste material, litter, and other foreign substances.

- b. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Leave Project clean.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury stumps, debris or excess materials brought to the site on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.
- D. If the Contractor fails to clean up, the Owner may do so and the cost thereof will be charged to the Contractor.

END OF SECTION

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SECTION 01781 - RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit 1 set of marked-up Record Prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal: Submit 3 sets of marked-up Record Prints. Engineer will initial and date each and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Engineer will return prints for organizing into sets, printing, binding, and final submittal.
 - b. Final Submittal: Submit 3 sets of marked-up Record Prints. Print each Drawing, whether or not changes and additional information were recorded.
 - c. Final Submittal: Submit 3 sets of marked-up Record Prints printed from record plots. Plot and print each Drawing, whether or not changes and additional information were recorded.
 - 1) Electronic Media: CD-ROM
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.
 - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in the manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Locations of grade control structures
 - d. Changes made by Change Order or Construction Change Directive.
 - e. Changes made following Engineer's written orders.
 - f. Details not on the original Contract Drawings.
 - g. Field records for variable and concealed conditions.
 - h. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Drawings: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Engineer.
1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
 2. Refer instances of uncertainty to Engineer for resolution.

3. The Engineer will furnish Contractor one set of the Contract Drawings for use in recording information.
- C. Format: Identify and date each Record Drawing; include the designation "RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "RECORD DRAWINGS."
 - d. Name of Engineer.
 - e. Name of Contractor.
- D. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Engineer determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
 2. Consult with Engineer for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 3. Note related Change Orders, Record Drawings, and Product Data where applicable.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Drawings, and Product Data where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Record Document purposes. Post changes and modifications to Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples apart from the Contract Documents used for construction. Do not use Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Record Documents for Engineer's reference during normal working hours.

END OF SECTION

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

DIVISION 2

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

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SECTION 02230 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

1. Removing existing vegetation.
2. Clearing and grubbing.
3. Stripping and stockpiling topsoil.
4. Removing above- and below-grade site improvements.
5. Removing existing concrete culverts and end sections.
6. Selective demolition of site utilities
7. Temporary erosion- and sedimentation-control measures.
8. Removal of Pavement
9. Protect existing site improvements and utilities to remain within and along the limits of disturbance / contract limit lines

1.3 DEFINITIONS

- A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.
- D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

- E. Site Improvements: Miscellaneous structures and site elements including but not limited to structures, walls, pavement, storm drains, fences, railings, poles, and wires.

1.4 MATERIAL OWNERSHIP

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

1.5 SUBMITTALS

- A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
 - 1. Use sufficiently detailed photographs or videotape.
- B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 QUALITY ASSURANCE

- A. Where "Standard Specification" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction," 2013 Amendment.

1.7 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify Dig Safe System for area where Project is located before site clearing.
- C. Do not commence site clearing operations until temporary erosion and sedimentation control are in place.
- D. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

- E. Protect-In-Place Existing Site Improvements: Support and protect in place existing site improvements to be preserved in place or to remain within the Project Limits including disturbed areas within right-of-ways. Restore items damaged by the Contractor, at a minimum, to the condition in which the item was found immediately before beginning the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 2 Section "Earthwork."
 - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 EXISTING UTILITIES

- A. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Engineer not less than **two** days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Engineer's written permission.
- B. Excavate for and remove underground utilities indicated to be removed.
- C. Removal of underground utilities is included in Division 2 Sections.

3.3 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.4 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to depths encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
 1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
 1. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.5 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
 2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.6 PAVEMENT REMOVAL

- A. Sawcut edge of pavement to be removed.
- B. Remove all pavement and base materials.

3.7 RESTORATION

- A. Repair or restore existing site improvements and vegetation to remain, which is damaged by construction operations, to existing condition or better as determined by the Engineer, at no additional cost to the Owner.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

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

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SECTION 02240 – CONTROL OF WATER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Construct Water Control System in phases as required to bypass flows around active work areas.
- B. Control of water shall assure the overall safety of the site, project personnel and equipment, constructed improvements, work in progress and downstream properties, which may be affected by sudden releases of flood flows. This could include bringing manpower, equipment and materials to the site as necessary to prevent damage or failure resulting from significant rainfall.
- C. The Contractor shall be solely responsible for controlling water in the project area. Alternative methods are acceptable only with acceptance by the Engineer.
- D. The amount of runoff resulting from significant rainfall events vary depending on numerous factors including, but not limited to, the following:
 - 1. The degree of saturation of the soils in the watershed which will be affected by the amount of recent rainfall which has fallen;
 - 2. The amount of snow cover in the watershed which could melt with rainfall and add to stream flows;
 - 3. The amount of water in upstream impoundments prior to any rainfall event;
 - 4. The response time of the watershed which depends on the amount of impervious cover, the size and the amount of storage available within the watershed; and
 - 5. The impact of the bypass methods on downstream areas.

1.3 QUALITY ASSURANCE

- A. Where “Standard Specification” is used, it shall mean “State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction,” 2013 Amendment.

1.4 SUBMITTALS

- A. Submittals For Information
 - 1. Shop Drawings: Include plans, sections, and details of Water Control System and accessory items, locations of discharge lines; and means of water bypass and discharge.
 - 2. Water Control Plan
 - a. Method for dewatering including installation and removal of cofferdam(s)
 - b. Materials for construction of cofferdam(s)

- c. Location of cofferdam(s)
 - d. Method(s) for monitoring downstream turbidity
 - e. Detailed sequence and schedule of operations for preparation, installation, operation, maintenance and controlled removal
 - f. Methods and materials for water conveyances (pipes, conduits, inlet screens/bars, channels, pumps, siphons)
 - g. Calculations for sizing of water conveyances
 - h. Emergency plan including list of emergency contact personnel and 24-hour contact number(s)
- B. Submit field-required modifications of Water Control Plan to Engineer, prior to actual construction/implementation of modifications.
- C. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by cofferdamming/water bypass operations.
- D. Material Certificates: Indicating compliance with requirements indicated. Prepare separate reports for each type and application off-site soil/rock materials.
- E. Product Data: Cutsheets, product literature, specifications sheets or other detailed information indicating product sizing, performance characteristics, loading capacities, anchoring requirements, care and maintenance requirements, and other information relative to materials of construction and methods of operation for all products and materials incorporated into cofferdamming and water bypass systems.

1.5 PERFORMANCE REQUIREMENTS

A. General

1. Design, furnish, install, monitor, and maintain cofferdam(s) and water bypass conveyances (Water Control System) capable of supporting and resisting hydrostatic pressures and flood flows.
 - a. Furnish, install, test, operate, monitor, and maintain Water Control System of sufficient scope, size, and capacity to adequately divert water around active project work areas.
 - 1) Cofferdam shall be composed of inert materials that can be discretely removed from the river channel upon completion of construction without leaving associated materials in the channel to intermingle with natural stream bed materials, or be washed downstream.
 - b. Continuously monitor and maintain Water Control System material, equipment and operations to minimize suspension of sediment or other soil materials in the river, minimize erosion of channel beds and riverbanks, and protect adjacent structures, features, and properties to remain undisturbed.
 - c. Remove Water Control System in a controlled fashion when no longer required for construction.

- d. Provide professional engineering services needed to assume engineering responsibility, including preparation of Shop Drawings and a comprehensive engineering analysis by a qualified professional engineer.
 2. Install Water Control System without damaging existing structures, dam, other adjacent properties, structures and features.
 3. Design, construct and maintain Water Control System to prevent danger to persons and other living resources and damage by debris including trees, branches and other debris.
 - a. Debris entrained by the cofferdam or conveyances shall be removed and disposed off-site promptly.
 4. Include controls to protect living resources adjacent to the site and in the downstream watercourse.
- B. Water Control Flows for Design of Water Control Systems and Conveyances
1. Contractor is responsible for providing adequate water control capacity and may determine that larger capacity culverts, or siphons or pumps are required to adequately dewater the work areas and protect the improvements and other properties. Contractor shall propose what they will need to adequately control water for the construction process.
- C. Flood Water Control Measures:
1. Have materials and measures readily available for rapid implementation upon the threat or occurrence of flood water flow in excess of Normal Water Control flows. Protect erodible areas from erosion and protect components of the bridge and building to remain.
 2. Alternative water control methods will be considered, providing proposed methods conform to applicable local, state and federal codes; will not require an extension of contract time; and will not result in increase of construction costs.
 - a. The Engineer is not obligated to accept alternative methods and may impose additional requirements as condition of acceptance.
- D. Contractor may allow limited water flows in the areas of work, provided the magnitude of flows and character of channel bottom does not endanger site workers, equipment or materials and does not pollute or otherwise cause an increase in turbidity in the downstream watercourse as compared to concurrent turbidity levels in the upstream watercourse.
- a. Contractor shall not place any equipment into the river channel. All equipment shall be equipment with spill control materials (e.g., booms, dry absorbent) that can be deployed immediately in the event of a release of such materials.

2. If the Owner determines that Contractor's activities are resulting in an excessive increase of turbidity, the Contractor shall suspend work causing such conditions and adjust operations, equipment, materials, activities or locations as required to reduce turbidity levels to acceptable levels.
3. The Owner shall be solely responsible for evaluating and determining what constitutes an excessive increase of turbidity levels in the watercourse. Such means may include use of real-time turbidity monitoring equipment to evaluate upstream and downstream levels.

PART 2 - PRODUCTS – Not Used.

PART 3 - EXECUTION

3.1 GENERAL

- A. The Contractor shall take actions necessary to assure the safety and protection of the construction area and downstream areas during any periods of significant rainfall. This shall include bringing manpower, equipment and materials to the site necessary to resist damage or failure as a result of a significant rainfall. The Contractor may need to man the job site 24 hours a day during such events to assure timely response to problems which may develop.
- B. Do not begin work within work areas until Water Control System materials and equipment are in place and operating as intended such that water levels in active work areas have been lowered to achieve water depths that do not cause excessive sedimentation or otherwise endanger site workers, equipment, constructed features, or adjacent properties, structures and features.

3.2 PREPARATION

- A. Investigate and verify existing conditions at the site.
- B. Evaluate type of protective facility, appurtenances, and measures required for development of Water Control Plan.

3.3 PROTECTION

- A. Since water level is dependent on the flow in the contributing watershed, water level can be expected to vary. The potential for major flood events is always a possibility. Ensure safety of road and downstream areas.
 1. Monitor dewatering systems continuously and provide additional measures as needed to control resulting increases in water surface elevations and water flows, and to convey flood flows to downstream channel reaches, without damage or risk of failure to the Water Control System.
 2. Provide additional erosion control measures or other modifications or reinforcement of the system to manage resulting increases in water surface elevations and water flows without damage or risk of failure to the site and constructed channel modifications, temporary cofferdam and water conveyances, materials/equipment, adjacent properties and existing structures and features, adjacent wetland resources and adjacent roadway.
- B. Maintain personnel and equipment on-site during periods of heavy rainfall, flood watches, flashflood watches and flood warnings to mitigate potential damage during flood events.

- C. Protect structures from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by cofferdamming and water bypass operations.
- D. Promptly repair damages to adjacent areas caused by Water Control System activities.

3.4 INSTALLATION

- A. Install temporary cofferdam(s) in accordance with the approved Water Control Plan.
- B. Water Bypass:
 - 1. Provide erosion and sedimentation controls to minimize sediment transport or other increase of turbidity in the downstream watercourse.
 - 2. Provide additional materials, equipment and manpower, as required, to resist damage to or failure of temporary water control measures and the dam.

3.5 MAINTENANCE

- A. Monitor water control system daily. Promptly correct seepage, breakage, or other evidence of movement to ensure that temporary cofferdam(s) and water bypass conveyances remain stable and functioning as intended.
- B. Provide additional materials, equipment and manpower, as required, to resist damage to or failure of temporary water conveyance measures existing and proposed features.

3.6 DRAWDOWN AND REMOVAL

- A. Upon completion of all work in the river channel, completely remove temporary cofferdam(s) and water bypass conveyances in a controlled manner to drawdown upriver water levels in a controlled manner and at a rate not to cause erosion, damage to improvements or damage to existing structures to remain.
- B. Monitor upgradient riverbanks as drawdown proceeds to identify riverbank sections where excessive shear stress or internal pore water pressures against/within existing sediment are resulting in excessive release of sediment to the downstream watercourse.
 - 1. Suspend or reduce drawdown rate as required to limit release of sediment from upgradient riverbanks to downstream watercourse, minimizing increases on downstream watercourse turbidity and preventing sedimentation of downgradient watercourse and fringe wetland systems.

3.7 EMERGENCY NOTIFICATION

- A. In the event that significant flood flows endanger the site, adjacent properties, structures or downstream areas, the Contractor shall immediately notify the Owner and the Middletown, RI Police Department.

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SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

1. Preparing subgrades.
2. Excavating and backfilling.
3. Gravel borrow.
4. Crushed stone.
5. Riprap and filter stone.
6. Geogrid.
7. Non-woven Geotextile

- B. Related Sections:

1. Division 2 Section "Site Clearing" for site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.

1.3 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

- B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

- C. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

- D. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

E. Fill: Soil materials used to raise existing grades.

F. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. that cannot be removed by onsite rock excavating equipment.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

H. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

I. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 PERFORMANCE REQUIREMENTS

A. All erosion controls shall be in place in accordance with Section 1, Temporary Erosion and Sedimentation Controls prior to any work in this specification being initiated.

B. Comply with all applicable permit requirements.

1.5 SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

1. Warning tapes.

B. Samples: For each non-woven geotextile and geogrid, 12 by 12 inches minimum

C. Qualification Data: For qualified testing agency.

D. Material Certificates:

1. Geogrid
2. Non-Woven Geotextile

E. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.
2. All Fill Materials
 - a. Gradation analysis according to ASTM D 6913, prior to delivery to the site and one per 500 CY delivered.
 - b. For each fill material type, and for each variation within material type (to be determined by the Engineer), laboratory compaction test results according to ASTM D 1557, prior to delivery to the site and one per 1,000 CY delivered.

F. Field Test Data Reports:

1. Compaction tests results shall be submitted demonstrating compliance with the compaction requirements of Part 3 of this Section.

G. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earth moving operations. Submit before earth moving begins.

1.6 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.

B. Soil Testing and Inspection Service

1. Soil tests as required to determine compliance with this Specification shall be provided by the Contractor.
2. In areas where compaction is not found to comply with Contract Documents, fill material shall be recompacted or removed and replaced with material specified densities and moisture contents. Corrected areas shall be retested at no additional cost to the Owner.
3. The Contractor shall maintain sufficient reference points to provide vertical and horizontal locations of soil tests.

C. Where "Standard Specification" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction," 2013 Amendment.

1.7 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify Dig Safe System for area where Project is located before beginning earth moving operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487 or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 or a combination of these groups.
 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Gravel Borrow:
 1. Gravel Borrow as indicated in the Contract Documents can be sourced from reclaimed material within the project limits or consist of bank run/ processed gravel:
 - a. Reclaimed materials shall conform to Section M.01.02.2 gradation requirements meeting Section M.01.09, Table 1, Column 1B of the Standard Specifications
 - b. Bank run/processed gravel shall conform to Section M1.0.02.1 with gradation requirements meeting Section M.01.09, Table 1, Column 1A of the Standard Specifications.
- E. Crushed Stone: Crushed stone as indicated in the contract documents shall conform to the gradation requirements meeting Section M.01.09, Table 1, Column 2 of the Standard Specifications.
- F. Riprap: All riprap shall be sound, tough, durable and angular rock, free from decomposed stones or other defect that impairs its durability shall have a minimum density of 160 pounds per cubic foot; and shall conform to the quality requirements of Subsection M.10.03 of the Standard Specifications. The stone shall be well-graded and conform to the size requirements for Modified NSA No. R-3 riprap as specified within Section M.10.03.2.
 1. Filter stone shall conform to the requirements of Section M.10.03.1 of The Standard Specifications and conform to size requirements for Modified NSA No. FS-2 stone.

2.2 AUXILIARY MATERIALS

- A. Non-Woven Geotextile: Non-woven geotextile shall be a non-woven geotextile included in the RIDOT Approved Materials List and shall conform to all applicable sections of the Standard Specifications.
- B. Geogrid:
 - 1. TriAx® TX140 Geogrid or approved equal. Tensar International Corporation, 2500 Northwinds Partway, Suite 200, Alpharetta, Georgia, 3009, Phone (800)-TENSAR-1

2.3 ACCESSORIES

- A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
 - 1. Red: Electric.
 - 2. Yellow: Gas, oil, steam, and dangerous materials.
 - 3. Orange: Telephone and other communications.
 - 4. Blue: Water systems.
 - 5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.
- B. Locate and acknowledge existing underground and aboveground utilities and structures in areas of work. If structures and utilities are to remain in place, provide adequate means of support and protection during earthwork operations. Should uncharted structures, piping or utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
- C. Protect and maintain erosion and sedimentation controls during earth moving operations.
- D. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
- B. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.4 SUBGRADE PREPARATION

- A. Prior to fill placement, the subgrade should be compact, dry, and free from debris, ice, and snow. Fill placement will not be allowed over frozen subgrade.
- B. Proof-roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.
 - 1. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Engineer, and replace with compacted gravel borrow as directed.
- C. Subgrade preparation should be followed immediately by fill placement, or the intended construction. Deterioration of the subgrade between excavation and initial fill placement shall be the responsibility of the Contractor and shall be repaired at the Contractor's expense.
- D. All subgrades must be inspected by the Engineer prior to fill placement. Sufficient time must be given to the Engineer to inspect and perform any necessary tests on the subgrade.
- E. If in the opinion of the Engineer, the subgrade becomes disturbed, the material shall be recompacted if conditions permit, or excavated and replaced with compacted suitable material as ordered by the Engineer.

3.5 NON-WOVEN GEOTEXTILE INSTALLATION

- A. Place non-woven geotextile promptly according to manufacturer's written instructions. Broom or roll the non-woven geotextile smooth and free of wrinkles and folds. Overlap longitudinal joints and transverse joints 30 inches.
 - 1. Protect the non-woven geotextile from damage and place crushed stone overlay the same day.
 - 2. Protect the non-woven geotextile from damage and place top layer of non-woven geotextile prior to the installation of the precast concrete wingwall footing.
- B. The contractor shall not cover the non-woven geotextile until it has been inspected by the Engineer for proper installation and damage.

3.6 GEOGRID INSTALLATION

- A. Geogrid shall be installed according to the manufacturer's instructions.
 - 1. Overlap longitudinal and transverse joints according to the manufacturer's instructions.
- B. Geogrid shall be placed as indicated on the Contract Drawings, and free of folds or wrinkles.

3.7 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.8 GRADING

- A. Grading shall be performed to the original lines, grades, and contours at the site or as indicated on the Contract Drawings.
- B. Accuracy of subgrade surfaces shall be within one-tenth (0.10') foot of elevations shown. Variation from proposed subgrade shall be within the tolerance described above or below the limit, however, not consistently in one direction.
- C. Existing topsoil, sediment, organic matter, and any material deemed suitable as subgrade shall be removed and stockpiled for reuse. Debris and any unsuitable materials shall be removed and disposed by the Contractor off-site as directed by Engineer.

3.9 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
 - 2. Surveying locations of underground utilities for Record Documents.
 - 3. Testing and inspecting underground utilities.
 - 4. Removing concrete formwork.
 - 5. Removing trash and debris.
 - 6. Removing temporary shoring and bracing, and sheeting.

3.10 FILL PLACEMENT

- A. Delivery and compaction of fill material shall be made during the presence of the Engineer's representative and shall be subject to his approval. This inspection by no means absolves the Contractor from responsibility to properly compact the fill as specified.
- B. Fill shall be placed in a continuous manner. Deterioration of fill surfaces due to freezing and thawing, precipitation, excessive drying, etc. shall be repaired by and at the expense of the Contractor to the satisfaction of the Engineer prior to placement of additional fill materials.
- C. Maximum loose lift thickness of fill during placement is not to exceed 8 inches, unless otherwise noted.
 - 1. Fill against new or existing structures shall be compacted with hand compaction equipment (ie, plate compactor).
 - 2. Not more than 4 in loose depth for material compacted by hand-operated tampers
- D. All fill shall be placed "in the dry." The fill areas shall be graded to drain and provide a smooth surface which will readily shed water.
- E. Fill placement shall not be allowed on top of frozen ground or during weather conditions which do not allow for proper moisture and density controls.
- F. Temporary dewatering structures (sumps, berms, ditches, etc) are to be removed in their entirety and backfilled under dry conditions. Temporary sumps are to be backfilled promptly after removing the pumps or any associated drainage material to reduce the potential for disturbance from the phreatic surface.

3.11 SOIL MOISTURE CONTROL

- A. Where soil material must be moistened before compaction, uniformly apply water to layer of soil material to prevent free water appearing on surface during or subsequent to compaction operations.
- B. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.
- C. If fill is too wet, the Contractor shall use approved methods and equipment to assist the drying of the fill until suitable for compaction. If fill is too dry, the Contractor shall provide approved means to add moisture to the fill until suitable for compaction.
- D. Jetting, flooding, or other similar method of compaction will not be allowed.

3.12 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

3.13 FILL PLACEMENT UNDER BITUMINOUS CONCRETE PAVING

- A. Under pavements place gravel borrow course on prepared subgrade or final backfill and as follows:
 - 1. Compact gravel borrow course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557, Method D.
 - a. Place material to indicated thickness within 3/4 inch, plus or minus.
 - 2. Shape gravel borrow to required crown elevations and cross-slope grades.
 - 3. When thickness of compacted gravel borrow course is 8 inches or less, place materials in a single layer.
 - 4. When thickness of compacted gravel borrow course exceeds 8 inches, place materials in equal layers, with no layer more than 8 inches thick or less than 4 inches thick when compacted.
 - 5. Apply additional material after initial spreading and compacting of gravel borrow course, if Engineer determines additional material is necessary. Shape, wet and compact gravel borrow course. Correct, or remove and replace areas of segregated

coarse or fine material with well-graded material, as directed by the Engineer.
Continue compacting and wetting until voids are filled.

3.14 FILL COMPACTION CRITERIA

- A. Fill that is too wet for proper compaction shall be disced, harrowed, or otherwise dried to a proper moisture content for compaction to the required density.
- B. Fill that is too dry for proper compaction shall receive water uniformly applied over the surface of the loose layer. Sufficient water shall be added to allow for compaction to the required density.
- C. The Engineer's presence does not include supervision or direction of the actual work by the Contractor, his employees, or agents. Neither the presence of the Engineer nor any observations and testing performed by him shall excuse the Contractor from defects discovered in his work.
- D. The degree of compaction shall be based on a maximum dry density as determined by ASTM Specification D 1557. The degree of compaction required, unless otherwise noted on the Plans or directed and approved by the Engineer, shall be as follows:
 - 1. Gravel Borrow- a minimum of 95 percent of maximum dry density as determined by the Modified Proctor Test.
- E. Compaction of all fill against new and existing structures shall be performed using hand-operated compaction equipment to minimize the potential for damage to structures.
- F. Compaction tests will be performed at a frequency of one per 1,000 square feet of lift, or one per lift if lift is less than 1,000 square feet.
- G. When testing agency reports indicate fill or backfill has not achieved the degree of compaction specified, recompact and retest until specified compaction is obtained.

3.15 FIELD QUALITY CONTROL

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

- D. The Engineer's presence does not include supervision or direction of the actual work by the Contractor, his employees, or agents. Neither the presence of the Engineer nor any observations and testing performed by him shall excuse the Contractor from defects discovered in his work.

3.16 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.17 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.
- B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Engineer.
 - 1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION

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SECTION 02510 - WATER DISTRIBUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes water-distribution piping and related components.

1.3 DEFINITIONS

- A. PVC: Polyvinyl chloride plastic.

1.4 SUBMITTALS

- A. Product Data and Material Certificates of Compliance: For each type of product indicated including the following:
 - 1. Piping, fittings, and structures.
 - 2. Accessories.
- B. Shop Drawings: For layout of piping, fittings, and structures.
- C. As-Built Drawings
- D. Field quality-control test reports.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with City of Newport standards for potable-water-service piping, including materials, installation, testing, and disinfection.
- B. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- C. NSF Compliance:
 - 1. Comply with NSF 14 for plastic potable-water-service piping.
 - 2. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
- B. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.
- C. Protect flanges, fittings, and specialties from moisture and dirt.
- D. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.7 PROJECT CONDITIONS

- A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted.

1.8 COORDINATION

- A. Coordinate work with utility owner.

PART 2 - PRODUCTS

2.1 PVC PIPE AND FITTINGS

- A. PVC, Schedule 40 Pipe: ASTM D 1785.
 - 1. PVC, Schedule 40 Socket Fittings: ASTM D 2466.
- B. PVC, Schedule 80 Pipe: ASTM D 1785.
 - 1. PVC, Schedule 80 Socket Fittings: ASTM D 2467.
 - 2. PVC, Schedule 80 Threaded Fittings: ASTM D 2464.
- C. PVC, AWWA Pipe: AWWA C900, Class 150, with bell end with gasket, and with spigot end.
 - 1. PVC Molded Fittings: AWWA C907, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
 - 2. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
 - a. Gaskets: AWWA C111, rubber.

3. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
 - a. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

2.2 12-INCH STEEL CARRIER PIPE

A. Steel Pipe

1. Smooth walled steel pipe with minimum yield strength of 36,000 psi (ASTM A1011 Grade 36).
2. Minimum wall thickness: 1/2 inch.
3. Joints: Fully welded around circumference of pipe with complete penetration weld.
 - a. Weld of sufficient strength to withstand forces at pipe joints without any distortion of pipes.
4. Exterior Coating: Standard bituminous asphalt coating approximately 2 mils thick.
5. Approved Manufactures
 - a. Pipeline Seal and Insulator Inc.
 - b. Advanced Products & System, Model SI.
 - c. Or equal (Minimum 5 years of fabricating casing spacers in the United States).

B. Casing End Seals

1. Approved Manufacturers:
 - a. Advanced Products & Systems, Model AC.
 - b. Pipeline Seal & Insulator, Inc., Model S or C.
 - c. Maloney Technical Products, MULTIFLEX End Seal.
 - d. Or equal.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS

- A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications.
- B. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.
- C. Do not use flanges or unions for underground piping.

3.2 PIPING INSTALLATION

- A. Bury piping with depth of cover over top as indicated on the Contract Documents.
- B. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps, and other supports.

3.3 JOINT CONSTRUCTION

3.4 ANCHORAGE INSTALLATION

- A. Anchorage, General: Install water-distribution piping with restrained joints. Anchorages and restrained-joint types that may be used include the following:
 - 1. Concrete thrust blocks.
 - 2. Pipe clamps and tie rods.
- B. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:
 - 1. Gasketed-Joint, Ductile-Iron, Water-Service Piping: According to AWWA C600.
 - 2. Gasketed-Joint, PVC Water-Service Piping: According to AWWA M23.

3.5 FIELD QUALITY CONTROL

- A. The water main is subject to pressure and leakage tests. The testing shall be conducted in accordance with AWWA C600, Section 5, except that 0 leakage is allowed.
- B. Piping Tests: Conduct piping tests before joints are covered and after concrete thrust blocks have hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.
- C. Hydrostatic Tests: Test at not less than one-and-one-half times working pressure for two hours.
 - 1. Increase pressure in 50-psig increments and inspect each joint between increments. Hold at test pressure for 1 hour; decrease to 0 psig. Slowly increase again to test pressure and hold for 1 more hour. Remake leaking joints with new materials and repeat test until there is no leakage.
- D. Prepare reports of testing activities.

3.6 IDENTIFICATION

- A. Install continuous underground warning tape during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping. Underground warning tapes are specified in Division 2 Section "Earthwork."

3.7 CLEANING

- A. Clean and disinfect water-distribution piping as follows:
 - 1. The water main shall be disinfected after cleaning by chlorination. Chlorination shall be done in accordance with AWWA C651.
 - a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
 - b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine; isolate and allow to stand for 3 hours.
 - c. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.
 - d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedure if biological examination shows evidence of contamination.
- B. Following the chlorination period, all treated water shall be flushed from the lines and replaced with water from the distribution system. All treated water flushed from the lines shall be dechlorinated. Discharge to sanitary sewers is not allowed. Sodium bisulfite shall be applied in a manner and of sufficient quantity to properly dechlorinate the water prior to discharge in accordance with AWWA C651.
- C. Prepare reports of purging and disinfecting activities.

3.8 PIPING INSPECTION AND FINAL ACCEPTANCE

- A. Contact Joe Roque at the Newport Water Department at (401) 845-5609 to coordinate inspections at least three working days prior to the project date and/or for final inspection upon completion. Inspection of all installations shall be conducted to ensure compliance with all applicable City of Newport Technical Specifications and Standards. Newport Water Department personnel shall be given full access to the project at all times for inspection or observation of construction of the water main in progress as deemed necessary by Newport Water Department.
- B. Prior to final acceptance of the project by the Newport Water Department, a complete set of As-Built Drawings must be submitted, reviewed and approved. As-Built Drawings at a minimum shall be:

1. Stamped and signed by a Professional Engineer and/or land surveyor registered in the State of Rhode Island.
 2. Compile and accurately show the limits of all properties, easements, roads and rights-of-way for the project.
 3. Measured horizontal and vertical locations of the above and below grade water main, valves, fittings, services, and appurtenances, referenced to permanent surface improvements, above grade permanent structures, and/or permanent visible and accessible features of the installation.
 4. Three point measured swing ties from permanent surface improvements, above grade permanent structures and/or visible and accessible features of the installation to identify all bends, services and end caps.
 5. Detail of water main tap connection and all utility crossings.
- C. Prior to final acceptance of the project by the Newport Water Department, the contractor shall provide the following to the Department of Utilities:
1. Daily inspection report (weather conditions, individuals onsite, work accomplished, and other information customarily included in inspection reports);
 2. Photographs of the main being installed, which must include the mainline connection prior to covering;
 3. List of all materials used, their source, and the dates delivered to the site; and
 4. Product specification sheets.

END OF SECTION

SECTION 02530 - SANITARY SEWER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Sanitary sewer piping and appurtenances for force main system.
 - 2. BID-ALT - Force main sewer cleanout pipe and structures
 - 3. BID-ALT - Force main air-release/vacuum valve and structures
 - 4. BID-ALT - Sanitary sewer manholes
 - 5. BID-ALT – Steel carrier pipe
- B. Transition couplings for connecting to existing PVC force main.

1.3 DEFINITIONS

- A. HDPE: High density polyethylene.
- B. PVC: Polyvinyl chloride plastic.

1.4 SUBMITTALS

- A. Product Certification: Pipe, fittings, gaskets, couplings, and miscellaneous appurtenances.
 - 1. Manufacturer shall demonstrate successful product experience of 5 years or more for HDPE pipe and fittings.
- B. Product Data and Material Certificates of Compliance: For the following:
 - 1. Submit manufacturer's catalog cuts, specifications and installation instructions, for pipe and coupling systems.
 - 2. Piping QC/QA inspections and testing recommendation from the manufacturer.
 - 3. Pipe, valves, and fittings.
- C. Shop Drawings: For layout of piping, fittings, and structures.
 - 1. BID-ALT - Precast concrete manholes, including frames and covers.

- D. Field quality-control reports.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with all material, installation, and testing/disinfection requirements from jurisdictions having authority.
- B. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- C. All piping, fittings and appurtenances shall be new, clean, and in accordance with material specifications. Damaged or unspecified materials are not acceptable.
- D. Horizontal Separation from Water Mains: 10 feet minimum.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.
- B. Protect flanges, fittings, and specialties from moisture and dirt.
- C. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.
- D. The CONTRACTOR shall be responsible for the safe storage of material on the site, and shall prevent damage until such materials have been incorporated in the work.

1.7 PROJECT CONDITIONS

- A. Interruption of Existing Sanitary Sewerage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

PART 2 - PRODUCTS

2.1 FORCE MAIN PIPE

- A. High Density Polyethylene (HDPE) Pipe and Fittings
 - 1. Pipe 1 Inch or Greater in Diameter: AWWA C901 and AWWA C906.
 - 2. Material: ASTM D3350, Grade 3408 or greater.
 - a. All pipe and fittings shall be resin compatible.

- b. Pipe shall contain no recycled compound except that generated in the manufacturer's own production plant from resin of the same specification and from the same raw material supplier.
3. SDR 11, minimum pressure class of 160 psi.
4. Pipe Service Identification: Co-extruded green stripes. Stripes painted on will not be acceptable.
5. Molded PE Fittings: ASTM D3261 for butt-fusion type, made to match IPS outer dimensions. Sections to be joined by thermal butt fusion shall be of the same type, grade, and class of polyethylene compound and supplied from the same raw material supplier

2.2 PRESSURE-TYPE PIPE COUPLINGS

- A. Metal, bolted, sleeve-type, reducing or transition coupling, for joining underground pressure piping. Include 150-psig minimum pressure rating and ends of same sizes as piping to be joined.
- B. Gasket Material: Natural or synthetic rubber.
- C. Metal Component Finish: Corrosion-resistant coating or material.

2.3 **BID-ALT** - FORCEMAIN AIR RELEASE/VACUUM VALVE CHAMBER WITH CLEANOUT

- A. Pipe and Fittings:
 1. Ductile Iron: ANSI/AWWA A21.10/C110, Class 53, 250 psi, flanged.
 - a. Inside Lining: ANSI/AWWA A21.4/C104, cement mortar with double lining.
 - b. Exterior Coating: Standard bituminous coating approximately 1 mil thick.
 2. HDPE Mechanical Joint Adapter: AWWA C906.
- B. Gate Valve: AWWA C515, resilient wedge, ductile iron valve fully-encapsulated in synthetic rubber, capable of drip-tight shut-off with flanged end.
 1. Working Pressure: 160 psi. (min)
 2. Opening: Hand-operated; left-turn open (LTO).
 3. Available Manufacturers: Clow, Waterous, or approved equal.
- C. Valve Box: Cast iron base, slide-type extension sections, and adjustable slide-type top section designed for 5 feet of cover above top of pipe.
 1. Diameter: 5-inch minimum.
 2. Cover: Cast iron, drop type, with "SEWER" cast on top.

3. Furnish one tee-handle wrench.
- D. Air Release/Vacuum Valves: AWWA C512, single-body configuration, direct-acting, float-operated, hydromechanical device with large orifice to automatically release accumulated air or to admit air during filling or draining of piping.
 1. Connections: Thread connections, or flanged, ANSI Standard.
 2. Body for 2" Air Release Valve: Reinforced Nylon
 3. All inner metal parts: Stainless steel SAE 316
 4. Connection Size: 2-inch
 5. Operating Pressure: 150 psi
 6. Self Cleaning Mechanism
 7. Models and Manufacturers
 - a. A.R.I. USA Inc. 559-269-9653, A.R.I. Model D-025.
 - b. Or approved equal.
- E. Quick Disconnect: Stainless steel cam and groove, size as indicated.
- F. Eccentric Plug Valve: AWWA C517, full port valve to allow unrestricted flow, manually actuated with handwheel.
 1. Maximum Working Pressure: 175 psi.
 2. Valve Body and Cover: ASTM A126 cast iron.
 3. Plug: One-piece construction, ASTM A536 ductile iron.
 - a. Coating: Elastomer facing.
 4. Shaft Bearings: Self-lubricating Type 316 stainless steel.
 5. Connections: Flanged.
 6. Opening: Hand-operated; left-turn open (LTO).
 7. Models and Manufacturers
 - a. Series 5800R (Flanged) as manufactured by Val-Matic® Valve & Mfg. Corporation, Elmhurst, IL. USA.
 - b. Cam-Seal plug valve by GA Industries, LLC
 - c. Or approved equal.

2.4 **BID-ALT** - FORCEMAIN CLEANOUT

- A. Pipe and Fittings:
 1. Ductile Iron: ANSI/AWWA A21.10/C110, Class 53, 250 psi, flanged.

- a. Inside Lining: ANSI/AWWA A21.4/C104, cement mortar with double lining.
- b. Exterior Coating: Standard bituminous coating approximately 1 mil thick.
2. HDPE Pipe and Fittings: AWWA C906.
 - a. Material: ASTM D 3350, Grade 3408 or greater.
 - b. Minimum Pressure Class: 160 psi.
3. HDPE Mechanical Joint Adapter Flange: AWWA C906.
- B. Wedge Gate Valve: AWWA C515, resilient wedge, ductile iron valve fully-encapsulated in synthetic rubber, capable of drip-tight shut-off.
 1. Working Pressure: 160 psi. (min)
 2. Mechanical Joint Ends: ANSI/AWWA C111/A21.11.
 3. Opening: Hand-operated; left-turn open (LTO).
 4. Available Manufacturers: Clow, Waterous, or approved equal.
- C. Eccentric Plug Valve (4 Inch): AWWA C517, full port valve to allow unrestricted flow, manually actuated with handwheel.
 1. Maximum Working Pressure: 175 psi.
 2. Valve Body and Cover: ASTM A126 cast iron.
 3. Plug: One-piece construction, ASTM A536 ductile iron.
 - a. Coating: Elastomer facing.
 4. Shaft Bearings: Self-lubricating Type 316 stainless steel.
 5. Connections: Flanged.
 6. Opening: Hand-operated; left-turn open (LTO).
 7. Models and Manufacturers
 - a. Series 5800R (Flanged) as manufactured by Val-Matic® Valve & Mfg. Corporation, Elmhurst, IL. USA.
 - b. Cam-Seal plug valve by GA Industries, LLC
 - c. Or approved equal.

2.5 **BID-ALT** - PRECAST CONCRETE MANHOLES

- A. Manholes: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for C-443 rubber gasketed joints.
 1. Base: Monolithic combination base and riser section. Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.

- Fabricate pipe openings and sleeves to accommodate outside diameter of pipe to be connected.
2. Riser Sections: Lengths to provide depth indicated.
 3. Top Section: Eccentric-cone type, unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches diameter of grade rings.
 4. Grade Rings: Reinforced-concrete rings, of 6- to 9-inch total thickness, that match diameter of frame and cover.
 5. Steps: Manufactured from deformed, 1/2-inch steel reinforcement rod complying with ASTM A 615/A 615M and encased in polypropylene complying with ASTM D 4101. Include pattern designed to prevent lateral slippage off step. Cast into sidewalls with steps at 12- to 16-inch intervals.
 - a. M.A. Industries, Model PS-2-PF-SL;
 - b. Press Seal Gasket, Model 14850;
 - c. Or equal.
 6. Waterproofing: BASF Corporation Hydrocide 700B

B. MANHOLE ACCESSORIES

1. Flexible Annular Space Filler: Manufactured by KOR-N-SEAL, Interpace Corp., or approved equal.
2. Frames and Covers:
 - a. ASTM A 48, Class 35B, gray cast-iron. Include diamond design with "NEWTOWN SEWER DPW 2016" lettering 3-inches high cast into cover. Cover shall be flow seal type and have two non-penetrating pick holes. Cover shall also include an Advanced Carbon System Manhole Odor Eliminator insert with carbon cartridge suitable for H20 traffic loads.
 - 1) All Areas: Standard manhole frame and cover.
 - 2) Manufacturers:
 - a) LeBaron Foundry, LA328
 - b) Campbell Foundry, Patten No. 1012B
 - c) Or approved equal.

C. PROTECTIVE COATINGS

1. Description: Environmentally-safe crystalline waterproof coating; factory or field applied to the following surfaces:
 - a. Concrete Manholes and Structures: On exterior surface.
 - b. Available Manufacturers: Bay Oil; Xypex, ICS Penetron International Ltd., or approved equal.

2.6 **BID-ALT** - 8-INCH STEEL CARRIER PIPE

A. Steel Pipe

1. Smooth walled steel pipe with minimum yield strength of 36,000 psi (ASTM A1011 Grade 36).
2. Minimum wall thickness: 1/2 inch.
3. Joints: Fully welded around circumference of pipe with complete penetration weld.
 - a. Weld of sufficient strength to withstand forces at pipe joints without any distortion of pipes.
4. Exterior Coating: Standard bituminous asphalt coating approximately 2 mils thick.

B. Casing Spacers

1. Fusion bond assembled carbon steel bands, risers, and studs with PVC or Epoxy 14 to 20 mils thick.
2. Treat and coat stainless steel metal surfaces and welds in order to reduce chemical reactivity of its surface.
3. Bands and Riser
 - a. Minimum 2 pieces, stainless steel plate: ASTM A666 Type 304, or hot rolled, pickled carbon steel with a minimum yield strength of 30,000 psi and coat as specified herein.
 - b. Band: Minimum thickness: 14 gage for carrier pipes up to 12 inches diameter and 12 gage for more than 12 inches.
4. Runners
 - a. High density molecular polyethylene or polymer reinforced fiberglass with DURO Hardness A of 80 and minimum dielectric strength of 500 volts per mil with sufficient compressive and shear strengths.
 - b. Attach to risers with bolts or welded studs.
 - c. Fill bolt holes with silicone caulk.
5. Spacer Band: Line with minimum dielectric strength of 450 volts per mil.
6. Approved Manufactures
 - a. Pipeline Seal and Insulator Inc.
 - b. Advanced Products & System, Model SI.
 - c. Or equal (Minimum 5 years of fabricating casing spacers in the United States).

C. Casing End Seals

1. Approved Manufacturers:

- a. Advanced Products & Systems, Model AC.
- b. Pipeline Seal & Insulator, Inc., Model S or C.
- c. Maloney Technical Products, MULTIFLEX End Seal.
- d. Or equal.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground sanitary sewer piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.
- B. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for using lubricants, cements, and other installation requirements.
- C. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.
- D. Install force-main, pressure piping according to the following:
 1. The length of open trench required for fused pipe sections shall be such that bending and lowering the pipe into the ditch does not exceed the manufacturer's maximum recommended bend radius and result in kinking.
 2. Trench bottom must support the pressure pipe smoothly and be free of ridges, hollows, and lumps.
 3. Install piping with restrained joints at tee fittings and at horizontal and vertical changes in direction.
 - a. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place concrete supports or anchors.
 - b. Use only one type of restraint throughout the Work.
 4. Install HDPE force main piping according to ASTM D2774
- E. Install and support pipes and fittings with bedding material. Do not use saddles, blocking or stones as pipe supports. After each pipe has been properly bedded, enough pipe bedding shall be placed between the pipe and the sides of the trench and thoroughly compacted to hold the pipe in correct alignment. Holes provided for jointing shall be filled with pipe bedding and compacted. Then pipe bedding shall be placed and compacted to complete the pipe bedding, as indicated on the drawings.

- F. Clear interior of piping and manholes of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed. Place plug in end of incomplete piping at end of day and when work stops.

3.2 PIPE JOINT CONSTRUCTION

- A. Force Main Sewer Butt Fusion: HDPE shall be joined by butt fusion method, having a completely uniform and monolithic pipe interior according to the fusion joining procedures as instructed by the manufacturer.
 - 1. Each individual performing fusion joining shall have experience in the use of the fusion process
 - 2. Beads shall be uniform on both sides of the joint, with no wrinkles or discontinuities. Beads shall be bent back in several positions and confirm there is no evidence of splitting. Any bead that is seen to split shall be cut from the pipeline and remade.
 - 3. De-beading the internal bead is required for piping larger than 3 inches in diameter, and shall be removed after the manufacturer's recommended cooling time using a suitable de-beading tool. The bead removal shall not induce any slits, gauges or defeats in the pipe wall.
 - 4. Join piping made of different materials or dimensions with couplings made for this application. Use couplings that are compatible with and that fit both system materials and dimensions.

3.3 **BID-ALT** - MANHOLE/STRUCTURE INSTALLATION

- A. General: Install structures true and plumb, complete with appurtenances and accessories indicated.
 - 1. Set structure base level on 8 inch minimum bedding material.
 - 2. Align structure steps.
 - 3. Clean joint surfaces and assemble sections before connecting pipe to structures.
- B. Install gaskets in accordance with manufacturer's recommendations. After assembly of all sections is completed, the joints shall be pointed with mortar on both inside and outside surfaces of structures. Point inside and outside joints with mortar. Close lifting holes with plastic plugs and non-shrink grout.
- C. Annular Space: Fill space between sewer pipe and manhole on inner side of flexible pipe to manhole joint with flexible annular space filler.
- D. Frames and Covers. Shall be set with the tops conforming to the finished grade. Set frame in full bed of mortar. Cover bottom flange of frame with a thick, smooth-surfaced ring of mortar that extends to outside edge of masonry. Slope mortar ring to shed water away from frame. The space between the bottom ring and masonry shall be made water tight.

1. Set tops of frames and covers flush with finished surface of structures that occur in pavements and lawns. Set tops 2 inches above finished grade of turf, unless otherwise indicated.
2. At unpaved locations (except for lawns), surround frame and masonry with concrete anchor ring as indicated.

E. Frame Adjustment. Adjust frames with collars, masonry units or bricks.

1. Maximum Adjustment Height: 12 inches.
2. For adjustments greater than 12 inches, install riser section for structure.

F. Install piping, valves, and appurtenances as indicated.

1. Install flanged piping and valves.
2. Install transition couplings for adapting ductile iron piping to PE piping with flange adaptors.

3.4 IDENTIFICATION

A. Materials and their installation are specified in Division 2 Section "Earthwork." Arrange for installation of green warning tapes directly over piping and at outside edges of underground manholes.

1. Use detectable warning tape over ferrous piping.
2. Use detectable warning tape over nonferrous piping and over edges of underground manholes.

3.5 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate report for each system inspection.
2. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
 4. Reinspect and repeat procedure until results are satisfactory.
- B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.
1. Perform hydrostatic test after thrust blocks, supports, and anchors have hardened. Test according to ASTM D 2774, Section 11 "Pressure Testing" with the following clarifications and qualifications:
 - a. Perform testing after backfilling or partially backfilling pipeline or sections thereof. Identify in writing to Engineer, lengths of pipeline to be tested and level of backfill, before proceeding with testing.
 - b. Test Force Main at a pressure not less than one and one-half times maximum system operating pressure, but not less than 130 psig. Maintain test pressure for a minimum of 2 hour with no more than 5 psi variation during test period.
 - c. Do not exceed test pressure, and pipe design limits.
- C. Leaks and loss in test pressure constitute defects that must be repaired.
- D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.
- 3.6 CLEANING
- A. Clean dirt and superfluous material from interior of piping.

END OF SECTION

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SECTION 02741 - BITUMINOUS CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Bituminous concrete paving.
 - 2. Bituminous concrete treatments.
 - 3. Separation Fabric.
 - 4. Pavement Repair Membrane at joints between new and existing pavement.
- B. Related Sections:
 - 1. Division 2 Section "Earthwork" for gravel borrow subbase and base courses.

1.3 DEFINITION

- A. RIDOT: Rhode Island Department of Transportation

1.4 SYSTEM DESCRIPTION

- A. Provide bituminous concrete paving according to materials, workmanship, and other applicable requirements of standard specifications of RIDOT.
- B. Where "Standard Specification" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction," 2013 Amendment.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
 - 1. Job-Mix Designs: For each job mix proposed for the Work, signed by the supplier.
- B. Samples: For each separation fabric, 12 by 12 inches minimum.
- C. Qualification Data: For bituminous concrete supplier.

- D. Material Certificates:
 - 1. For each paving material, from manufacturer.
 - 2. Pavement Repair Membrane.

E. Material Test Reports: For each paving material.

1.6 QUALITY ASSURANCE

- A. Supplier Qualifications: A qualified supplier registered with and approved by RIDOT.
- B. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of Section 401 of the RIDOT Standard Specifications for asphalt paving work.

1.7 DELIVERY, STORAGE, AND HANDLING

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

1.8 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 BITUMINOUS CONCRTE MATERIALS

- A. Bituminous Concrete Materials: Section M.03 of RIDOT Standard Specification.
- B. Tack Coat: AASHTO M 140 Grade SS-1 or SS-1H, emulsified asphalt or AASHTO M 208 Grade CSS-1 or CSS-1H, cationic emulsified asphalt, slow setting, diluted in half with water conforming to Section 403 of the Standard Specifications.
- C. Water: Potable.

2.2 AUXILIARY MATERIALS

- A. Separation Fabric: Fabric included in the RIDOT Approved Materials List and shall confirm to all applicable sections of the Standard Specifications.
- B. Pavement Repair Membrane:
 - 1. Petrotac® Pavement Repair Membrane or approved equal. Propex Operating Company, LLC, Chattanooga, Tennessee, 37419, USA, Phone (800) 621-1273.
 - a. Polypropylene, staple fiber, needlepunched nonwoven fabric.
 - b. Coated with rubberized asphalt adhesive on the bottom.
 - c. Top-coated with an asphalt tack coat.
 - d. A release sheet, which is removed just prior to placement, shall cover the adhesive.
 - e. Resistant to ultraviolet degradation.
 - f. Minimum Average Roll Values:

Property	Test Method	Units	Property Requirement
Strip Tensile ¹	ASTM D 882	N/m (lb/in)	8760 (50)
Puncture Resistance	ASTM E 154	N (lb)	890 (200)
Permeance	ASTM E 96 Method B	Perms	0.05 (max)
Pliability ²	ASTM D 146	N/A	No cracks in fabric or rubberized asphalt

¹ Using 12 in/min test speed and 1” distance initial distance between grips.

² Using 180° bend on 1/4” mandrel at -25° F.

2.3 MIXES

- A. Bituminous Concrete: Dense, hot-laid, bituminous concrete plant mixes approved by authorities having jurisdiction and complying with the following requirements:
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
 - 2. Base Course: HMA Class 19

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that subgrade is dry and in suitable condition to begin paving.
- B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - 1. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Engineer, and replace with compacted gravel borrow base course as directed.
- C. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
 - 1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.
- B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.
- C. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.06 to 0.10 gal./sq. yd. at full depth sawcut location.
 - 1. Vertical surfaces of existing pavements and all structures to be in contact with the bituminous mixture shall be given a thick, even coating of bituminous material
 - 2. Allow tack coat to cure undisturbed before applying bituminous concrete paving.
 - 3. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.3 SEPERATION FABRIC INSTALLATION

- A. Place paving geotextile promptly according to manufacturer's written instructions. Broom or roll fabric smooth and free of wrinkles and folds. Overlap longitudinal joints and transverse joints 30 inches.
 - 1. Protect separation fabric from traffic and other damage and place bituminous concrete paving overlay the same day.
- B. The contractor shall not cover the fabric until it has been inspected by the Engineer for proper installation and damage.

3.4 PAVEMENT REPAIR MEMBRANE INSTALLATION

- A. Place Pavement Repair Membrane per manufacturer's written instructions.

3.5 BITUMINOUS CONCRETE PLACING

- A. Machine place bituminous concrete on prepared surface, spread uniformly, and strike off. Place bituminous concrete mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Place bituminous concrete base course in number of lifts and thicknesses indicated.
 - 2. Place bituminous concrete surface course in a minimum of two lifts.
 - 3. Spread mix at minimum temperature of 250 deg F.
 - 4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with bituminous concrete to prevent segregation of mix; use suitable hand tools to smooth surface.

3.6 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 - 1. Clean contact surfaces and apply tack coat to joints.
 - 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
 - 3. Offset transverse joints, in successive courses, a minimum of 24 inches.
 - 4. Compact joints as soon as bituminous concrete will bear roller weight without excessive displacement.
 - 5. Compact bituminous concrete at joints to a density within 2 percent of specified course density.

3.7 COMPACTION

- A. General: Begin compaction as soon as placed paving material will bear roller weight without excessive displacement. Compact in accordance with the Standard Specifications.
 - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Compaction: Compact until bituminous concrete course has been uniformly compacted to the following density:

1. Average Density: 95 percent of reference maximum theoretical density according to AASHTO T 209, but not less than 92 percent nor greater than 97 percent.
- C. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- D. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- E. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, bituminous concrete. Compact with vibratory compactor to specified density and surface smoothness.
- F. Protection: After final compaction, do not permit vehicular traffic on pavement until it has cooled and hardened.
- G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.8 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 1. Plus 1/4 inch, no minus.
- B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 1. 1/8 inch.

3.9 FIELD QUALITY CONTROL

- A. Field Inspection: Owner shall engage a qualified testing agency to perform tests and inspections.
- B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- D. Remove and replace or install additional bituminous concrete where engineer determines that construction methods or materials do not comply with specified requirements.

3.10 DISPOSAL

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

END OF SECTION

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SECTION 02845 – METAL BEAM GUIDERAIL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes steel rail elements fastened to posts and terminal ends as indicated.
 - 1. Posts: Rustic weathering steel.
 - 2. Rails: Rustic weathering steel.
 - 3. System: Steel Beam Guiderail.
- B. Related Sections include the following:
 - 1. Division 2 Section "Earthwork" for excavation, filling, and rough grading.

1.3 SUBMITTALS

- A. Material and Product Certificates: For each type of material required for a complete rail system.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Where referenced, comply with the following.
 - 1. Where "Standard Specification" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction," 2013 Amendment.

PART 2 - PRODUCTS

2.1 HIGHWAY GUIDE SYSTEM

- A. Steel Posts: Standard Specification Subsection, M.08.07.2 with weathering finish.
- B. Rail Element and Terminal Sections: AASHTO M180 Class A; Type 4
- C. Guiderail Hardware: Standard Specification Subsection M.08.08.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install highway guide rail system in accordance with the following and Standard Specification Section 901 Steel Beam Guiderail.
- B. Post Installation
 - 1. Set posts plumb and in alignment with the rail or rail treatments.
 - 2. Drive steel posts. Protect posts and galvanized surfaces from damage during driving operations.
 - 3. Remove rock or boulders when encountered in driving. Excavate a hole of sufficient size to remove rock. After removal, backfill hole and compact with suitable material. Resume driving the post into compacted backfill.
- C. Block Outs, Brackets, Rub Rails, and Rail Elements. Erect elements to produce a smooth continuous rail. Lap terminal connectors, rubrails, and rail elements in direction of traffic.
- D. Anchorages, Channels, Terminal Sections and Fittings. Install as indicated.
 - 1. Backfill anchorage excavations with suitable material and compact in 6-inch layers.
- E. Furnish extra length posts at transition areas or where field conditions warrant to maintain indicated embedment depth.

3.2 WELDING

- A. Weld steel plates and posts according to the applicable requirements of American Welding Society Specifications for Welded Highway and Railway Bridges as supplemented and revised by the following:
 - 1. Engineer will perform visual inspection of welds.
 - 2. Correct welds found unacceptable by the Engineer.

3.3 CLEAN UP

- A. Remove and dispose of surplus and unsuitable backfill material immediately after completion of installation.

END OF SECTION

SECTION 02846 – BID ALTERNATE - WOOD RAIL BARRIER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes furnishing, fabricating and erecting all wood rail barrier components and associated hardware, including rails and posts
- B. Related Sections include the following:
 - 1. Division 2 Section "Earthwork" for excavation, filling, and rough grading.

1.3 SUBMITTALS

- A. Material and Product Certificates: For each type of material required for a complete rail system.

1.4 QUALITY ASSURANCE

- A. Where "Standard Specification" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction," 2013 Amendment.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. All timber materials shall be handled with reasonable care to avoid breaking the material or the preservative treatment envelope.
 - 1. Handling using cant dogs, hooks, or penetrating surface with tools shall not be permitted.
 - 2. It is recommended that all treated timber that cannot be hand-carried be handled with ropes of fabric slings.
- B. Timber and lumber material shall be neatly stacked in dry, level areas that are free of weeds, rubbish, and combustible materials.
- C. Timber and lumber material shall also be stacked in a manner that will prevent long timbers from sagging, twisting or warping.
 - 1. The bottom layer of stacked material shall be at least 8 inches above ground level.

2. The stacked timber and lumber shall be protected from weather.
- D. Any surplus material remaining after the completed installation shall be removed and legally disposed of by the Contractor.

PART 2 - PRODUCTS

2.1 WOOD RAIL BARRIER

- A. Posts and Rail:
1. Timber items shall be pressure treated sawn structural lumber, either spruce or fir
 2. Conform to the requirements of AASHTO M168; Standard Specifications for Wood Products, and the applicable requirements of Subsections M.08.04 and M.11.01 of the Standard Specifications.
 3. All wood shall be clearly marked with the official grading information.
 4. All wood shall conform to the Standard Specifications Section M.08.
- B. Guide rail hardware shall conform to the applicable requirements of subsection M.08.08 of the Standard Specifications.

2.2 MISCELLANEOUS ELEMENTS

- A. Crushed Stone shall conform to the requirements of Subsection M.01.09, Table I, Column II, of the Standard Specifications.

PART 3 - EXECUTION

3.1 GENERAL

- A. The Contractor shall field verify all dimensions, and layouts which may affect his fabrication and erection work.
- B. The posts shall be set in holes dug in thoroughly compacted soil and the bottom of the hole shall be thoroughly rammed so that the posts will have a stable foundation. Install crushed stone to a depth of 6 inches and compact.
- C. Post Installation
1. Set posts plumb and in alignment with the rail or rail treatments.
 2. Set wood posts in holes. Backfill holes with suitable material and compact.
 3. Remove rock or boulders when encountered in driving. Excavate a hole of sufficient size to remove rock. After removal, backfill hole and compact with suitable material. Resume driving the post into compacted backfill.

- D. The guide rail shall be mounted on the post as shown on the contract drawings utilizing galvanized bolts to anchor the rail to the posts. The rail members shall be accurately cut so as to provide even bearings over entire surface of joints. No shimming of any kind will be allowed in making joints nor will open joints be accepted. All exposed edges of member will be chamfered.

3.2 CLEAN UP

- A. Remove and dispose of surplus and unsuitable backfill material immediately after completion of installation.

END OF SECTION

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SECTION 02920 - LAWNS AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Providing and grading topsoil.
 - 2. Sand soil mix.
 - 3. Seeding.
 - 4. General Site Restoration
- B. Related Sections include the following:
 - 1. Division 1 Section "Erosion and Sedimentation Control" for temporary seeding and control measures.
 - 2. Division 2 Section "Site Clearing" for topsoil stripping and stockpiling.
 - 3. Division 2 Section "Earthwork" for excavation, filling and backfilling, and rough grading.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of topsoil.
- B. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath topsoil.

1.4 SUBMITTALS

- A. Topsoil: Product data demonstrating compliance with organic content requirements including certified test report as required under M.18.01 Standard Specifications.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
 - 1. Certification of each seed mixture for identifying source, including name and telephone number of supplier.

2. Supplier's instructions for placement and maintenance.
- C. Sand Soil Mix: A textural analysis is required to ensure the soil media meets the specifications. Prior to installation, at least one sample of the mix shall be obtained and tested. The test shall consist of both the standard soil test for pH, phosphorus, and potassium and additional tests of organic matter, and soluble salts.
1. The soil mix shall be meet the following criteria:
 - a. pH range: 5.5 – 7.5
 - b. Magnesium: Minimum of 32 ppm
 - c. Phosphorus P2O5: Not to exceed 69 ppm
 - d. Potassium K2O: Minimum of 78 ppm
 - e. Soluble Salts: Not to exceed 500 ppm

1.5 QUALITY ASSURANCE

- A. Where "Standard Specification" is used, it shall mean "State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction," 2013 Amendment.

1.6 DELIVERY, STORAGE, AND HANDLING

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

1.7 WARRANTY

- A. Special Warranty: Warrant seeding for one year from date of Substantial Completion, against defects including death and unsatisfactory growth.

1.8 SCHEDULING

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
1. Spring Planting: April 1 to May 15
 2. Fall Planting: August 15 to September 30.
- B. Weather Limitations: Proceed with seeding only when existing and forecasted weather conditions permit seeding to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to individual manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 TOPSOIL

- A. Topsoil shall meet the requirements of Section L.01.01.02 and M.18.02 of the Standard Specifications.
1. On-site organic material removed during site clearing shall be used for topsoil on this project. All on-site material shall be reused as topsoil on the project site, no topsoil shall be exported from the site. No off-site borrow will be accepted in lieu of on-site topsoil.
 2. Imported topsoil required to supplement existing topsoil shall not be manufactured and shall comply with Subsection M.18.01 of the Standard Specifications. and have a minimum organic content of 10%. Topsoil shall also be free of any debris, roots or stone greater than 1" in diameter.

2.2 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances, and M.18.10.1 of the Standard Specifications.
- B. Seed Species:
1. New England Coastal Salt Tolerant Grass Mix manufactured by New England Wetland Plants, Inc. or approved equal.

<u>Botanical Name</u>	<u>Common Name</u>
Elymus canadensis	Canada Wild Rye
Bouteloua curtipendula	Side Oats Grama
Festuca rubra	Creeping Red Fescue
Andropogon gerardii	Big Bluestem
Sorghastrum nutans	Indian Grass
Panicum virgatum	Switch Grass
Sporobolus cryptandrus	Sand Dropseed
Eragrostis trichodes	Sand Lovegrass

2.3 SAND SOIL MIX

- A. The sand soil mix shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than 2 inches. No other materials or substances may be mixed or dumped within the soil that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The soil should be free of noxious weeds. The practice of culling

deleterious or out of specification material after placement and/or grading in-place will not be allowed.

- B. Composition shall consist of the following mixture of sand soil mix sand and compost having an approximate 80% volume content of sand soil mix sand and an approximate 20% by volume of well-aged, well-aerated, leaf compost (or approved equivalent):
- 50-60% sand;
 - 20-30% topsoil; and
 - 20-30% compost.
- C. The compost shall conform to the requirements of Section M.18.03 of the Standard Specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

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

3.3 PLACEMENT

- A. Topsoil
1. Meet requirements of L.01.03.1 of the Standard Specifications.
 2. Spread topsoil where shown on the drawings to meet finish grades after light rolling and natural settlement. Do not spread if topsoil or subgrade is frozen, muddy, or excessively wet.
 - a. Moisten prepared areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

- b. Restore areas if eroded or otherwise disturbed after final restoration and before seeding.
- 3. Spread Lime and Fertilizer at rates determined by testing or at a minimum those required under L.02.03.3 and L.02.03.4 for Type 1 seeding for native grass seeding areas.

3.4 SEEDING

- A. Apply seed and mulch in accordance with Section L.02.03 of the Standard Specifications and in accordance with supplier's instructions. The rate of application shall be 40 pounds per acre in spring or 50 pounds per acre for fall seeding.
- B. Where the seed bed has become compacted, it shall be scarified to a depth of five inches prior to fine raking. Seeding will not be permitted on areas where the seed bed has not been properly prepared or where the soil is compacted.
- C. Maintain all seed beds and grass as required under L.02.03.7 or in accordance with supplier's instructions including watering, mowing and reseeding any areas which fail to show a satisfactory growth.

3.5 SAND SOIL MIX

- A. Prior to the placement of sand soil mix the Contractor shall prepare the surface to receive the sand soil mix. Sand soil mix shall be placed on surfaces which are true to the lines, grades and cross-sections shown on the Plans or established by the Engineer.
- B. Sand soil mix shall be placed and spread to a thickness of 4 inches unless indicated otherwise on the Contract Documents.
- C. After shaping and grading, all trucks and other equipment not required to perform seeding, mulching or mowing operations shall be excluded from the sand soil mixed areas.
- D. All sand soil mixed areas shall be seeded no more than two weeks after spreading the sand soil mix. Refer to applicable sections of these specifications and Section L.02; SEEDING, of the Standard Specifications, for dates and other requirements.
- E. Sand soil mixed areas shall be maintained, free from erosion until acceptance of the project.

3.6 CLEANUP, PROTECTION, AND REPAIR

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

1. Where seeded areas have been compacted or young plants damaged, rework soil to a suitable seedbed, reseed and reblanket with full amounts of the specified materials.
- C. Remove erosion-control measures after grass establishment period.

END OF SECTION

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

DIVISION 3

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

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SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies cast-in-place concrete, including reinforcement, concrete materials, mix design, placement procedures, and finishes. This includes the following:
 - 1. Cast-in-place closure pour between the two boxes
- B. Related Sections:
 - 1. Division 2 Section "Earthwork" for fill under cast-in-place concrete.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product and Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
 - 1. For each type of manufactured material and product indicated.
 - 2. Cementitious materials and aggregates.
 - 3. Steel reinforcement and reinforcement accessories.
 - 4. Admixtures.
 - 5. Curing materials.

1.5 QUALITY ASSURANCE

- A. Comply with ACI 301, "Specification for Structural Concrete," including the following, unless modified by the requirements of the Contract Documents.
 - 1. General requirements, including submittals, quality assurance, acceptance of structure, and protection of in-place concrete.
 - 2. Formwork and form accessories.
 - 3. Steel reinforcement and supports.

4. Concrete mixtures.
5. Handling, placing, and constructing concrete.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORMWORK

- A. Furnish formwork and form accessories according to ACI 301.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Types I or II or Type I/II.
- B. Normal-Weight Aggregate: ASTM C 33, uniformly graded, not exceeding 1-1/2-inch nominal size.
- C. Water: Potable and complying with ASTM C 94.

2.4 ADMIXTURES

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures. Do not use admixtures containing calcium chloride.
- B. Air-Entraining Admixture: ASTM C 260.
- C. Water-Reducing Admixture: ASTM C 494, Type A.
- D. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.

2.5 CONCRETE MIXTURES, GENERAL

- A. Comply with ACI 301 requirements for concrete mixtures.

- B. Prepare design mixes, proportioned according to ACI 301, for normal-weight concrete determined by either laboratory trial mix or field test data bases, as follows:
 - 1. Compressive Strength (28 Days): 3000 psi.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content of 6.0 percent within a tolerance of plus 1.0 or minus 1.5 percent.

2.6 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with ASTM C 94.
- B. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
 - 1. Class A, 1/8 inch.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces.
 - 1. Do not use rust-stained steel form-facing material.
- F. Chamfer exterior corners and edges of permanently exposed concrete.
- G. Clean forms and adjacent surfaces to receive concrete.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.4 JOINTS

- A. Construction Joints: Locate and install so as not to impair strength or appearance of concrete, at locations indicated or as approved by Engineer.
- B. Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - 1. Extend joint fillers full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

3.5 CONCRETE PLACEMENT

- A. Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.
- B. Do not add water to concrete during delivery, at Project site, or during placement.
- C. Consolidate concrete with mechanical vibrating equipment.
- D. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.
- E. Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.

1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Screed slab surfaces with a straightedge and strike off to correct elevations.
 2. Slope surfaces uniformly to drains where required.
 3. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- G. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
- H. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.6 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Completely remove fins and other projections.

1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.
2. Do not apply rubbed finish to smooth-formed finish.
3. Apply the following rubbed finish, defined in ACI 301, to smooth-formed finished concrete.
 - a. Smooth-rubbed finish.

- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 FINISHING UNFORMED SURFACES

- A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on the surface.
 1. Do not further disturb surfaces before starting finishing operations.
- C. Float Finish: Apply float finish to surfaces indicated, to surfaces to receive trowel finish.
- D. Trowel Finish: Apply a hard trowel finish to non-formed surfaces exposed to view.

3.8 TOLERANCES

- A. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

3.9 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection, and follow recommendations in ACI 305R for hot-weather protection during curing.
- B. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.
- C. Curing Methods: Cure formed and unformed concrete for at least seven days by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement. Tests will be performed according to ACI 301.
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.

3.11 REPAIRS

- A. Remove and replace concrete that does not comply with requirements in this Section.

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SECTION 03410 - PRECAST CONCRETE CULVERTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes plant-precast concrete units, including the following:
 1. Box culvert.
 2. Wingwalls
 3. Headwalls
 4. Return walls
 5. Cutoff walls
 6. Concrete footings
 7. Grouted dowels.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide precast concrete units and connections capable of withstanding design loads within limits and under conditions indicated.

1.4 SUBMITTALS

- A. Product Data: For precast concrete box section.
- B. Shop Drawings: Detail fabrication and installation of precast concrete units. Indicate locations, plans and profiles, dimensions, shapes, cross sections, openings, joint details, inverts, and types of reinforcement, including size, spacing and concrete cover.
 1. Detail special sections, as needed.
 2. Detail loose and cast-in hardware, inserts, connections, and joints, including accessories.
 3. Indicate handling devices, and lifting and supporting points.
 4. Comprehensive engineering analysis signed and sealed by the qualified professional engineer responsible for its preparation.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of engineers/architects and owners, and other information specified.

- D. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
1. Concrete materials.
 2. Reinforcing materials.
 3. Admixtures.
 4. Concrete mixes.
 5. Gaskets.
 6. Grout.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed precast concrete work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Fabricator Qualifications: A firm that complies with the following requirements and is experienced in manufacturing precast concrete units similar to those indicated for this Project and with a record of successful in-service performance.
1. Assumes responsibility for engineering precast concrete units to comply with performance requirements. This responsibility includes preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
 2. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of precast concrete that are similar to those indicated for this Project in material, design, and extent.
 3. Participates in PCI's Plant Certification program and is designated a PCI-certified plant for Groups B and C.
 4. Has sufficient production capacity to produce required units without delaying the Work.
- C. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
- D. Design Standards: Comply with ACI 318 (ACI 318M) and the design recommendations of ASTM C1433 (ASTM C1433M) and PCI MNL 120, "PCI Design Handbook--Precast and Prestressed Concrete."
- E. Quality-Control Standard: For manufacturing procedures and testing requirements, quality-control recommendations, and dimensional tolerances for types of units required, comply with PCI MNL 116, "Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products."

- F. Product Options: Drawings indicate size, profiles, and dimensional requirements of precast concrete units and are based on the specific types of units indicated. Other fabricators' precast concrete units complying with requirements may be considered.

1.6 Delivery, Storage, And Handling

- A. Deliver precast structural concrete units to Project site in such quantities and at such times to ensure continuity of installation. Store units at Project site to prevent cracking, distorting, warping, staining, or other physical damage, and so markings are visible.
- B. Lift and support units only at designated lifting and supporting points as shown on Shop Drawings.

1.7 SEQUENCING

- A. Furnish anchorage items to be embedded in other construction without delaying the Work. Provide setting diagrams, templates, instructions, and directions, as required, for installation.

PART 2 - PRODUCTS

2.1 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M or ASTM A 934/A 934M, as follows:
 - 1. Steel Reinforcement: ASTM A 615/A 615M, Grade 60 (Grade 420)] deformed.
- C. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- D. Epoxy-Coated-Steel Welded Wire Fabric: ASTM A 884/A 884M, Class A coated, plain.
- E. Supports: Manufacturer's bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place according to CRSI's "Manual of Standard Practice," PCI MNL 116, and as follows:
 - 1. For uncoated reinforcement, use all plastic bar supports.

2.2 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I, Type II, or Type III, of same type, brand, and source.

- B. Normal-Weight Aggregates: Except as modified by PCI MNL 116, ASTM C 33.
 - 1. Fine Aggregate: Natural sand.
 - 2. Coarse Aggregate: Well-graded crushed stone, 3/4 inch maximum.
- C. Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 116.
- D. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
- E. Water-Reducing Admixture: ASTM C 494, Type A.
- F. Retarding Admixture: ASTM C 494, Type B.
- G. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
- H. High-Range, Water-Reducing Admixture: ASTM C 494, Type F or Type G.
- I. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
- J. Plasticizing Admixture: ASTM C 1017.

2.3 GROUT

- A. Cementitious Non-Shrink Grout: ASTM C1107, premixed, non-metallic, and non-staining, conforming to the following:
 - 1. Minimum Compressive Strength: 4,000 psi
 - 2. Maximum Water/Cement Ratio: 0.45 by weight
 - 3. Expansion: 4 percent maximum when tested in accordance with ASTM C827

2.4 CONCRETE MIXES

- A. Prepare design mixes for each type of concrete required.
- B. Design mixes may be prepared by a qualified independent testing agency or by qualified precast plant personnel at precast concrete fabricator's option.
- C. Limit water-soluble chloride ions to the maximum percentage by weight of cement permitted by ACI 318 (ACI 318M).
- D. Normal-Weight Concrete: Proportion mixes by either laboratory trial batch or field test data methods according to ACI 211.1, with materials to be used on Project, to provide normal-weight concrete with the following properties:
 - 1. Compressive Strength (28 Days): 5000 psi (34.5 MPa).
 - 2. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content of 4 to 7 percent.

- E. Other Admixtures: Use water-reducing, high-range water-reducing, water-reducing and accelerating, or water-reducing and retarding admixtures according to manufacturer's written instructions.
- F. Concrete Mix Adjustments: Concrete mix design adjustments may be proposed if characteristics of materials, Project conditions, weather, test results, or other circumstances warrant.

2.5 JOINTS

- A. Butyl Rubber Gaskets: ASTM D 2000 – M1AA 507, 607, 710
- B. Neoprene Gaskets: ASTM C433.

2.6 FABRICATION

- A. Units: Monolithically precast units. ASTM C1433 (ASTM C1433M).
 - 1. Dimensions: As indicated.
 - 2. Joints: Watertight.
 - 3. Ends of Units: Male and female ends for each unit.
 - a. Joint Overlap: 6 inches (152 mm) minimum.
 - b. Gasket: Factory-installed 1-inch gasket at male end.
- B. Formwork: Accurately construct forms, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes. Maintain formwork to provide completed precast concrete units of shapes, lines, and dimensions indicated, within fabrication tolerances.
 - 1. Coat surfaces of forms with bond-breaking compound before reinforcement is placed. Provide commercial-formula, form-coating compounds that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces requiring bond or adhesion. Apply in compliance with manufacturer's written instructions.
- C. Cast-in openings larger than 10 inches (250 mm) in diameter or 10 inches (250 mm) square according to Shop Drawings. Smaller holes may be field cut by trades requiring them, as approved by Engineer.
- D. Reinforcement: Comply with recommendations in CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
 - 1. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete.
 - 2. Accurately position, support, and secure reinforcement against displacement by formwork, construction, or concrete-placement operations. Locate and support reinforcement by metal chairs, runners, bolsters, spacers, and hangers, as required.
 - 3. Place reinforcement to obtain at least the minimum coverage for concrete protection. Arrange, space, and securely tie bars and bar supports to hold

- reinforcement in position while placing concrete. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
4. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
- E. Mix concrete according to PCI MNL 116 and requirements in this Section. After concrete batching, no additional water may be added.
- F. Place concrete in a continuous operation to prevent seams or planes of weakness from forming in precast concrete units. Comply with requirements in PCI MNL 116 for measuring, mixing, transporting, and placing concrete.
1. Slump: Between 5- and 8-inches.
- G. Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items. Use equipment and procedures complying with PCI MNL 116.
- H. Comply with ACI 306.1 procedures for cold-weather concrete placement.
- I. Comply with ACI 305R recommendations for hot-weather concrete placement.
- J. Identify pickup points of precast concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint casting date on each precast concrete unit on a surface that will not show in finished structure.
- K. Cure concrete, according to requirements in PCI MNL 116.
- L. Product Tolerances: Fabricate precast concrete units straight and true to size and shape with exposed edges and corners precise and true so each finished unit complies with PCI MNL 116 product tolerances and the following:
1. Internal and External Unit Dimensions: Plus or minus 1/2-inch.
 2. Slab and Wall thickness: Minus 1/4-inch.
 3. Length of Unit: Plus or minus 1/2-inch.
- M. Finish formed surfaces of precast concrete as indicated for each type of unit, and as follows:
1. Standard Finish: Normal plant-run finish produced in forms that impart a smooth finish to concrete. Small surface holes caused by air bubbles, normal color variations, form joint marks, and minor chips and spalls will be tolerated. Major or unsightly imperfections, honeycombs, or structural defects are not permitted.
- N. Screed finish unformed surfaces. Strike off and consolidate concrete with vibrating screeds to a uniform finish. Hand screed at projections.

2.7 SOURCE QUALITY CONTROL

- A. Quality-Control Testing: Test and inspect precast concrete according to PCI MNL 116 requirements.
- B. Strength of precast concrete units will be considered deficient if units fail to comply with PCI MNL 116 requirements, including the following:
1. Units fail to comply with compressive-strength test requirements.
 2. Reinforcement of units do not comply with fabrication requirements.
 3. Concrete curing and protection of units against extremes in temperature fail to comply with requirements.
 4. Units are damaged during handling and erecting.
- C. Testing: If there is evidence that the strength of precast concrete units may be deficient or may not comply with PCI MNL 116 requirements, Owner will employ an independent testing agency to obtain, prepare, and test cores drilled from hardened concrete to determine compressive strength according to ASTM C 42.
1. A minimum of three representative cores will be taken from units of suspect strength, from locations directed by Engineer.
 2. Cores will be tested, after immersion in water, in a wet condition per ACI 301 if units will be wet under service conditions.
 3. Cores will be tested in an air-dry condition per ACI 301 if units will be dry under service conditions.
 4. Strength of concrete for each series of 3 cores will be considered satisfactory if the average compressive strength is equal to at least 85 percent of the 28-day design compressive strength and no single core is less than 75 percent of the 28-day design compressive strength.
 5. Test results will be made in writing on the same day that tests are performed, with copies to Engineer, Contractor, and precast concrete fabricator. Test reports will include the following:
 - a. Project identification name and number.
 - b. Date when tests were performed.
 - c. Name of precast concrete fabricator.
 - d. Name of concrete testing agency.
 - e. Identification letter, name, and type of precast concrete unit or units represented by core tests; design compressive strength; type of break; compressive strength at break, corrected for length-diameter ratio; and direction of applied load to core in relation to horizontal plane of concrete as placed.
- D. Patching: If core test results are satisfactory and precast concrete units comply with requirements, clean and dampen core holes and solidly fill with precast concrete mix that has no coarse aggregate, and finish to match adjacent precast concrete surfaces.

- E. Hydrostatic Test: Connect a minimum of two sections per the designated field orientation. Attach end slabs, fill interior with water to a minimum of one third of volume, and apply 10 psi for 30 minutes without leakage or drop in pressure.
 - 1. After successful completion of initial test, open one-side of joint 3/4-inch, without leakage or drop in pressure.
 - 2. Do not ship units until achieving successful test results.
- F. Dimensional Tolerances: Units with dimensions smaller or larger than required and not complying with tolerance limits may be subject to additional testing.
 - 1. Precast concrete units with dimensions larger than required will be rejected if the appearance or function of the structure is adversely affected or if larger dimensions interfere with other construction. Repair or remove and replace rejected units, as required, to comply with construction conditions.
- G. Defective Work: Precast concrete units that do not comply with requirements, including strength, pressure test, manufacturing tolerances, and finishes, are unacceptable. Replace with precast concrete units that comply with requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation tolerances, true and level bearing surfaces, and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install precast concrete units in accordance with manufacturer's written instructions.
- B. Keep excavations dry during installation of units.
- C. Lay sections to proper grade and alignment to provide continuous inverts and to insure a watertight joint.
- D. Remove and reinstall misaligned units, or units with improperly closed joints.
- E. Replace units damaged by improper storing, transportation or handling at no additional cost.

3.3 MEMBRANE WATERPROOFING FOR BURIED STRUCTURES

- A. This work shall consist of furnishing and applying a self adhesive membrane waterproofing system to the top slab and sidewalls, or portions thereof, for the precast concrete culvert.

- B. Materials. The material used in the waterproofing system shall consist of a cold-applied, self-adhering membrane incorporating a woven or non-woven polypropylene mesh or fiberglass reinforcement with release film on one side. The sheet membrane shall have the following physical properties:
- C. Physical Properties
1. Thickness ASTM D 1777 60 mils (1.500 mm) min.
 2. Width 36 inches (914 mm) min.
 3. Pliability [180° bend over 1/4 inch (6 mm) mandrel @ -25 °F (-32 °C)] ASTM D 146 No Effect
 4. Elongation ASTM D 412 (Die C) 300% min
 5. Puncture Resistance-Membrane ASTM E 154 40 lb (18 kg) min.
 6. Permeance (Grains/ft²/hr/in Hg) ASTM E 96, Method B 0.1 max.
 7. Water Absorption (% by Weight) ASTM D 570 0.2 max.
 8. Adhesion to concrete ASTM D 903 5.0 lb/in (89 g/mm) min.
- D. Certification: Prior to approval and use of the material the Contractor shall submit, to the Engineer, a notarized certification by an independent test laboratory stating that the materials conform to the requirements of these specifications. The certification shall include or have attached specific results of tests performed on the material supplied. The Engineer may at his option require samples of any material for testing. Materials may be accepted on certification but are subject to control and/or approval by subsequent testing.
- E. Construction. The areas requiring waterproofing shall be prepared and the waterproofing installed in accordance with the manufacturer's instructions. Surfaces to be waterproofed shall be smooth and free from projections which might damage the waterproofing membrane.
- F. Projections or depressions on the surface on which the membrane is to be applied that may cause damage to the membrane shall be removed or filled as directed by the Engineer. The surface shall be power washed and cleaned of dust, dirt, grease, and loose particles, and shall be dry before the waterproofing is applied.
- G. The installation of the sheet membrane shall be such that all joints are shingled to shed water by commencing from the lowest elevation of the buried structure's top slab and progress towards the highest elevation. The membrane strips shall be overlapped a minimum of 2 ½ inches (64 mm). The membrane shall be smooth and free of wrinkles and there shall be no depressions in horizontal surfaces of the finished waterproofing.
- H. Sealing bands at joints between precast segments shall be installed prior to the sheet membrane being applied. Where the waterproofing membrane and sealing band overlap, the installation shall be planned such that water will not be trapped or directed underneath the membrane or sealing band.

- I. Care shall be taken to protect and to prevent damage to the membrane surface prior to and during backfilling operations. The sheet membrane shall be removed as required for the installation of slab mounted guardrails and other appurtenances. After the installation is complete, the sheet membrane shall be repaired and sealed against water intrusion according to the manufacturer's instructions and to the satisfaction of the Engineer.

3.4 DOWELED CONNECTIONS

- A. Drill dowel hole to indicated depth and diameter.
 1. Immediately inform the Engineer if reinforcement or other obstructions are encountered during drilling of dowel hole in concrete.
- B. Clean hole of drillings, debris and freestanding water. Saturate horizontal holes with water; then remove excess water before grouting operation.
- C. Install dowels, accurately located, to elevations required.
 1. Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- D. Mix and place grout in accordance with manufacturer's recommendations including setting time.
 1. Do not retemper grout mix that has begun to stiffen.
 2. Insure full grout coverage to design length of dowel.

END OF SECTION

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20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

DIVISION 5

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

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SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 Related Documents

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

1.2 SUMMARY

A. Section Includes:

1. Steel framing and supports for applications where framing and supports are not specified in other Sections.
2. Weir Board Storage Bracket
3. Miscellaneous steel trim including steel angle corner guards and steel edging at weir board slots

B. RELATED REQUIREMENTS:

1. Section 03 30 00 "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, slotted-channel inserts, wedge-type inserts, and other items cast into concrete.
2. Section 35 50 01 "Aluminum Stop Log Specification" for installing aluminum stop logs.

1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: Show fabrication and installation details. Provide Shop Drawings for the following:
 - 1. Weir Board Storage Brackets

1.5 INFORMATIONAL SUBMITTALS

- A. Mill Certificates: Signed by stainless-steel manufacturers, certifying that products furnished comply with requirements.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

2.2 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- C. All plates, angles and channels not otherwise specified shall consist of 6061-T6 Aluminum

2.3 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use.
 - 1. Provide stainless-steel fasteners for fastening stainless steel, aluminum and galvanized steel items.
- B. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593; with hex nuts, ASTM F 594; and, where indicated, flat washers; Alloy Group 1 (A1).

- C. Anchor Bolts: Provide Type 304 Stainless Steel anchors with stainless steel nuts and washers, of dimensions indicated.
- D. Washers: Separate dissimilar metals (aluminum/stainless/galvanized steel) with the use of ASTM D4066 flat nylon washers.
- A. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
 - 1. Material for Exterior Locations and Where Stainless Steel is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.4 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- C. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- D. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 4000 psi (20 MPa).

2.5 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work. Install steel framing and supports for Bilco door per manufacturer's specifications and SECTION 083100 FLOOR ACCESS DOORS (BILCO TYPE JD-AL).
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
1. Fabricate units from slotted channel framing where indicated.
 2. Furnish inserts for units installed after concrete is placed.

2.7 Weir Board Storage Brackets

- A. Fabricate storage brackets from steel angles and plates of sizes indicated and for attachment to concrete framing. Provide horizontally slotted holes to receive 3/4-inch bolts, spaced not more than 6 inches from ends and 24 inches o.c., unless otherwise indicated.
1. Provide mitered and welded units at corners.
 2. Provide open joints in shelf angles at expansion and control joints. Make open joint approximately 2 inches (50 mm) larger than expansion or control joint.
- B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and concrete.

- C. Furnish wedge-type concrete inserts, complete with fasteners, to attach shelf angles to cast-in-place concrete.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
 - 1. Install steel framing and supports for Bilco door per manufacturer's specifications SECTION 083100 FLOOR ACCESS DOORS (BILCO TYPE JD-AL).
- B. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.

1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installing Bearing and Leveling Plates" Article.

3.3 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

2.6 WEIR BOARD STORAGE BRACKET

- A. Storage brackets, as shown on the Contract Drawings, shall be provided to house stop logs while they are not in use.
- B. Storage brackets shall be constructed of aluminum and shall be mounted as noted on the Contract Drawings.

END OF SECTION

SECTION 05501 - ALUMINUM STOP LOGS

PART 1 GENERAL

1.1 Related Documents

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

1.2 Summary

- A. This section includes the following:
 1. Stop logs
 2. Seals
 3. Lifter

1.3 Submittals

- B. Provide the following information to confirm compliance with the specification.
 1. Product Data including complete description of all materials including the material thickness of all structural components of the stop logs, guide frames and stop log lifter. This includes:
 - a. Maximum bending stress and deflection of the stop logs under the maximum design head.
 - b. The location of the company headquarters and the location of the principal manufacturing facility. Provide the name of the company that manufactures the equipment if the supplier.
 2. Shop Drawings showing all details of construction, details required for installation, dimensions and anchor bolt locations.

1.4 Scope of Work

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required to install and ready for operation aluminum stop logs, guide frames and stop log lifters as shown on the Contract Drawings and as specified herein.

PART 2 PRODUCTS

2.1 General

- A. The specification is based on the Series 509-511 Aluminum Stop Log as manufactured by Whipps, Inc. of Athol, Massachusetts or approved equal.
- B. Stop log assemblies shall be as specified herein and have the characteristics and dimensions shown on the Contract Drawings.

- C. Leakage shall not exceed 0.05 gpm/ft of wetted seal perimeter.
- D. The stop logs shall be provided with a continuous resilient seal along the bottom and both sides. The guide frames shall not incorporate seals.
- E. Stop logs shall be of the height as shown in the Contract Drawings and they shall be designed to function properly when stacked in any order.
- F. Stop logs shall be designed to drop into place under their own weight without any downward pressure necessary. Stacking stop plates are not acceptable in lieu of stop logs.
- G. All structural components of the stop logs shall be fabricated of aluminum and shall have adequate strength to prevent distortion during normal handling, during installation and while in service.
- H. All structural components of the guide frames shall be fabricated of aluminum and shall have adequate strength to prevent distortion during normal handling, during installation and while in service.
- I. All welds shall be performed by welders with AWS certification.
- J. Finish: Mill finish on aluminum and stainless steel. All aluminum in contact with concrete shall be shop coated with a heavy coat of bitumastic paint. Welds on aluminum shall be cleaned to provide a uniform finish.
- K. Materials:

Components

Frame Guides and Invert
Stop Logs
Lip Seal

Anchor Studs, Fasteners and Nuts

Materials

6061-T6 Aluminum
6061-T6 Aluminum
Urethane, EPDM or Neoprene
ASTM D-2000
Stainless Steel, Type 316, ASTM A276

2.2 Frame Guides

- A. The frame guides or grooves and invert member shall be constructed of extruded aluminum with a minimum thickness of 1/4-inch.
 - 1. Frame design shall allow for embedded mounting or mounting directly to a wall with stainless steel anchor bolts and grout. Mounting style shall be as shown on the Contract Drawings.
 - 2. An invert member shall be provided across the bottom of the guides. The invert member shall be of the flushbottom type.
 - 3. Frame mounted seals are not acceptable.
 - 4. Frame shall be installed in accordance with manufacturer's requirements.

2.3 Stop Logs

- A. The stop logs shall be constructed of extruded aluminum shapes with a minimum thickness of 5/16-inch.
 - 1. Each stop log shall be six (6) inches tall unless otherwise indicated on the Contract Drawings.
 - 2. Maximum bending stress shall not exceed 7600 psi at the maximum operating head.
 - 3. Adequate drainage shall be provided for each stop log.
 - 4. Two slots shall be provided in the top of each stop log for removal and installation via the stop log lifter.
 - 5. Each stop log shall be outfitted with an identification tag indicating the manufacturer, width of the opening and maximum head rating at a minimum. Additional tags shall be included on each stop log that indicate "dry side" and "wet side". Tags shall be welded to each log.

2.4 Seals

- A. Each stop log shall be outfitted with a continuous resilient lip seal along the bottom and both sides to restrict leakage in accordance with the requirements listed in this specification.
 - 1. The continuous lip seal shall be constructed of urethane or rubber and shall be mechanically retained to the stop log.
 - 2. The lip seal shall be activated by a combination of the weight of the stop log and the differential water pressure, which pushes the seal against the inside of the groove assembly.
 - 3. Stop logs that utilize rubber "J" seals or "P" seals are not acceptable.

2.5 Lifter

- A. One stop log lifter shall be provided for each different guide frame width.
 - 1. The lifter shall be constructed of aluminum and shall be outfitted with UHMW guide bars and stainless steel fasteners.
 - 2. The lifter shall be provided with lifting hooks designed to engage the slots in the top of the stop logs. A lanyard release will be incorporated into the design.
 - 3. The lifter shall be capable of installing and removing all stop logs of the same width whether they are installed or at the operating floor level.

2.7 Anchor Bolts

- A. Anchor bolts shall be provided by the stop log manufacturer for mounting the guide frames and storage racks.
 - 1. Quantity and location shall be determined by the stop log manufacturer.
 - 2. If epoxy type anchor bolts are provided, the stop log manufacturer shall provide the studs and nuts.
 - 3. Anchor bolts shall have a minimum diameter of 1/2-inch.

PART 3 EXECUTION

3.1 Installation

- A. Installation of the stop logs, guide frames and appurtenances shall be done in a workmanlike manner. It shall be the responsibility of the Contractor to handle, store and install the equipment specified in this Section in strict accordance with the manufacturer's recommendations.
- B. The Contractor shall review the installation drawings and installation instruction prior to installing the guide frames.
- C. The guide frames shall be installed in a true vertical plane, square and plumb.
- D. The Contractor shall fill the void in between the guide frames and the wall with non-shrink grout as shown on the installation drawing and in accordance with the manufacturer's recommendations.

3.2 Field Testing

- A. After installation, all stop logs shall be field tested in the presence of the Engineer and Owner to ensure that all items of equipment are in full compliance with this Section. The stop logs shall be inserted into the guide frames to confirm that they operate in accordance with the specification. Each stop log assembly shall be water tested by the Contractor, at the discretion of the Engineer and Owner, to confirm that leakage does not exceed the specified allowable leakage. Adjust until proper operation is achieved

END OF SECTION

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
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EXHIBIT A

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
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MIDDLETOWN, RI

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**EXHIBIT A
TO
AGREEMENT BETWEEN
THE NATURE CONSERVANCY
AND
XXXXXX**

The Nature Conservancy Supplemental Contract Terms and Conditions

- 1. Conflict of Interest Determination.** Contractor represents that to the best of its knowledge the information it has provided on TNC's Disclosure Form, now or up to two years prior to the commencement date of this Contract, is true and correct.
- 2. Independent Contractor.** The parties intend this Contract to create an independent contractor-client relationship and Contractor is solely responsible for the conduct and control of the Services and fulfilling its duties and obligations under this Contract. Contractor is not an agent or employee of TNC, and no joint venture or principal-agent relationship exists. Contractor and its employees, if applicable, are not entitled to any of the benefits that TNC provides for its employees. Neither TNC nor Contractor will have any right, power, or authority by virtue of this Contract to create any obligation, express or implied, on behalf of the other.
- 3. Performance of Work.** Contractor represents that it is qualified and willing to perform the Services in accordance with the highest standards of Contractor's profession or craft. Contractor will not be paid for any Services found by TNC to be unsatisfactory.
- 4. Assignment; Subcontract.** Contractor must not assign this Contract or subcontract any portion of the Services without TNC's prior written consent, which may be withheld in TNC's sole discretion.
- 5. Termination; Remedies.** TNC may terminate this Contract at any time, in its sole discretion, upon two (2) weeks' notice to Contractor. Should this occur, Contractor must cease all work immediately upon receipt of the termination notice and TNC will pay Contractor for the Services that have been satisfactorily completed, as determined by TNC, as of the termination date. In addition, if Contractor defaults in the performance of any duty, obligation, or covenant under this Contract, whether for circumstances within or beyond Contractor's control, or if TNC determines at any time that the Services cannot be performed in accordance with applicable law and/or TNC's policies and standard operating procedures, then TNC may immediately terminate this Contract by notice to Contractor. Should termination occur as a result of Contractor's default, TNC may, without limiting any other remedies available to it under applicable law, recover damages from Contractor resulting from Contractor's default and may offset any amounts payable to Contractor against such damages. TNC will pay to Contractor any remaining balance of such payable amounts.
- 6. Liability; Indemnification; Insurance.** Contractor acknowledges and agrees that it is performing the Services entirely at its own risk, and agrees to indemnify, defend, and hold TNC and its directors, officers, employees and agents harmless from and against any and all liabilities, demands, damages, claims, losses, costs, or expenses, including reasonable attorneys' fees, to the extent that they arise out of or result, directly or indirectly, from the negligence, misconduct, breach of warranty, representation, or covenant, or any act or omission by Contractor or any of its employees or agents (including any permitted subcontractors) in performing the Services. Contractor's indemnity and defense obligations under this Contract will survive the expiration of this Contract with respect to any matters that occurred, or rights that accrued, prior to such expiration. Contractor must also carry, throughout the term of this Contract, one or more insurance policies providing: (a) workers' compensation insurance, as and to the extent required by applicable law; (b) commercial liability insurance written on an occurrence basis, with a liability limit of at least \$2,000,000 per occurrence; (c) motor vehicle liability insurance, covering all owned and non-owned vehicles used in performing the Services, with a liability limit of at least \$500,000 per occurrence; and (d) if Contractor is providing consulting services, professional liability insurance written on a claims made basis. Contractor's policy(ies) must be primary insurance to any other valid and

collectible insurance available to TNC with respect to any claim arising out Contractor's performance of the Services. If requested by TNC, Contractor must have TNC named as an additional insured on Contractor's commercial liability insurance policy on a primary, non-contributory basis and provide TNC with evidence that the required coverage is in effect before any work under the Contract commences.

7. Use of TNC Name and Logo. Contractor must not use TNC's name, logo or other intellectual property in any manner, whether in conjunction with the Services or otherwise, except (a) to the extent reasonably necessary in order to perform the Services; (b) in order to deliver invoices or other notices to TNC; and (c) if and to the extent otherwise explicitly stated in this Contract.

8. Confidential Information. In performing the Services, Contractor might have access to materials, data, strategies, trade secrets, proprietary information, systems, or other information relating to TNC and its programs that are intended for internal use only. Contractor must not, without TNC's prior written consent, use, publish, or divulge any such information to any person, firm, or corporation, or use it in any advertising or promotion regarding Contractor or Contractor's services, unless required to do so by law or by a court of competent jurisdiction or if such information becomes part of the public domain. Contractor must return to TNC promptly upon completion of the Services any and all TNC confidential information Contractor has in its possession.

9. Taxes. Contractor is responsible for filing and paying its own taxes and for complying with the requirements of any applicable tax laws. TNC will not withhold or pay on behalf of Contractor or any of its employees any U.S. Federal, state, or local income tax or payroll tax of any kind.

10. Compliance with Laws. Contractor represents, warrants and agrees as follows, wherever applicable to the performance of the Services: (a) Contractor can lawfully work in the United States; (b) Contractor will obtain, at its own expense (except to the extent otherwise explicitly stated in this Contract) any permits or licenses required to perform the Services; and (c) Contractor will comply with all statutes, laws, ordinances, rules, regulations, court orders, and other governmental requirements of the United States, the state(s) in which the Services are performed (and the state in which the TNC Business Unit set forth on the first page of this Contract is located, if different), and any other U.S. jurisdiction(s) in which Contractor is organized or authorized to do business. Contractor must not take any actions that might cause TNC to be in violation of any such laws.

11. Binding Effect; Amendments. This Contract will become binding when signed by both parties. This Contract supersedes all prior or contemporaneous communications and negotiations, both oral and written, and constitutes the entire agreement between the parties relating to the activities described in this Contract. No amendment will be effective except in writing signed by both parties.

12. Governing Law; Forum. This Contract and claims relating to this Contract, whether based on contract, tort, or other law, will be interpreted, construed and governed by the laws of the State of Rhode Island, and such other U.S. laws as are applicable. In the event of any litigation over the interpretation or application of any of the terms or provisions of this Contract, the parties agree that litigation will be conducted in Rhode Island.

13. Joint and Several Liability. If two or more persons or entities are identified as Contractor in this Contract, their obligations under this Contract are and will be joint and several.

14. Counterparts; Facsimile Signatures. This Contract may be executed in one or more counterparts, each of which will be deemed an original and all of which, taken together, constitute the complete Contract. Facsimile or scanned signatures on this Contract and any related documents, and digital or electronic signatures where authorized under applicable law, will be fully binding for all purposes under this Contract, although any documents that are to be recorded must be executed by both parties with original signatures (and delivered promptly to the party responsible for recording).

15. Compliance with Anti-Terrorism Laws. Contractor must not use any funds received under this Contract in violation of any applicable antiterrorist financing and asset control laws, regulations, rules and executive orders,

including the USA Patriot Act of 2001 and Executive Order 13224. 16. **U.S. Government Laws and Regulations.** Contractor acknowledges that this Contract will be funded in whole or in part with government funds and that Contractor must comply with the “U.S. Government Laws and Regulations” provisions attached to this Exhibit A as “Attachment 1”.

Attachment 1 to Exhibit A
U.S. Government Laws and Regulations

U.S. GOVERNMENT LAWS AND REGULATIONS. The Contractor understands that this Contract will be funded by U.S. Government funding and that the Contractor shall be responsible for ensuring that all work/travel is carried out in compliance with any pertinent regulations and laws including but not limited to those listed below.

A. RECORD RETENTION. Financial records, supporting documents, statistical records, and all other records pertinent to this Contract shall be retained by the Contractor for a period of three years from the date of submission of the final expenditure report. If any litigation, claim, or audit is started before the expiration of the three-year period, the records shall be retained until all litigation, claims, or audit findings involving the records have been resolved.

B. ACCESS TO RECORDS. The Conservancy, the U.S. Federal entity providing the funding from which this Contract will be paid, the Comptroller General of the United States, or any of their duly authorized representatives, shall have the right of timely and unrestricted access to any books, documents, papers, and other records of the Contractor that are pertinent to the Contract for the purpose of making audits, examinations, excerpts, copies, and transcriptions. The rights of access in this paragraph are not limited to the required retention period, but shall last as long as records are retained.

C. DEBARMENT CERTIFICATION. The Contractor certifies, by signature on this Contract, that the Contractor is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any U.S. Federal department or agency. Where the Contractor is unable to certify to this statement, the Contractor shall attach an explanation to this Contract, and, at the Conservancy's option, this Contract shall become null and void.

D. CONTRACTOR LIABILITY. The Contractor assumes sole responsibility for reimbursement to the Conservancy or the U.S. Federal Government, whichever is appropriate, of a sum of money equivalent to the amount of any expenditures disallowed should the funding agency or any authorized agency rule, through audit exception or some other appropriate means, that expenditures from funds allocated to the Contractor were not made in compliance with applicable cost principles and regulations of the funding agency, or the provisions of this Contract.

E. ENERGY EFFICIENCY. The Contractor must comply with mandatory standards and policies relating to energy efficiency which are contained in the relevant state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S. 6201).

F. EQUAL EMPLOYMENT OPPORTUNITY. The Contractor must comply with E.O. 11246, "Equal Employment Opportunity," as amended by E.O. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity" and as supplemented by regulations at 41 C.F.R. Part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

G. BYRD RULE ANTI-LOBBYING AMENDMENT. The Contractor certifies, to the best of the Contractor's knowledge and belief that:

1. No U.S. Federal appropriated funds have been paid or will be paid, by the Contractor or on behalf of the Contractor, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any U.S. Federal contract, the making of any U.S. Federal grant, the making of any U.S. Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any U.S. Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than U.S. Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection the underlying U.S. Federal award, the Contractor shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The Contractor shall require that the language of this certification be included in the award documents for all subawards/subcontracts under this Contract and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered

into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

H. CLEAN AIR ACT. The Contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251 et seq.)

[End of Exhibit C]

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

EXHIBIT B

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

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FUSS & O'NEILL

317 Iron Horse Way, Suite 204, Providence, RI 02908

BORING LOG

Project: Maidford River Restoration

Location: Middletown, RI

Boring ID: B-1

Sheet 1 of 2

Project No.: 20140870.E10

Contractor: Soil Ex
 Operator: Timmy Florice
 F&O Rep.: Derek Newhall/Celicia Boyden
 Drilling Method: HSA
 Sampling Method: Split Spoon (2" OD)
 Hammer Wt.: 140 lbs Hammer Fall (in.): 30
 Boring Location: See Plan Set
 Ground Elevation: 6'
 Date Start: 12/12/17 Date Finish: 12/12/17

Water Level Measurements

Date	Ref. Pt.	Depth	Time
12/12/2017		5.71'	9:00 am
Time & Date of Completion: 12/12/17 @ 10:00 am			

Depth (ft)	Sample No.	Sample Depth (ft)	Rec/ Pen	Blows/ 6"	Sample Description	Strata Change	USCS Class.	Remarks	
0	S-1	0.5-2.5	16/24	24-36-54-55	V. Dense, tan, coarse GRAVEL, fine to coarse Sand, trace Silt. Moist.	Asphalt	AS FL	1,2	
1						Fill			
2	S-2	2.5-4.5	17-24	33-31-17-17	Dense, grey, fine SAND, little coarse Gravel, trace Silt. Dry.			FL	3
3									
4									
5	S-3	5-7	24/11	3-7-4-6	M. Dense, Dark grey, fine SAND, some coarse Gravel, trace Silt, trace Organics. Wet.	Fine Sand	SP		
6									
7	S-4	7-9	24/15	4-9-9-7	M. Dense, Dark gray, fine SAND, little coarse Gravel, trace Silt. Wet.			SP	
8									
9									
10	S-5	10-12	24/14	1-2-2-2	V. Loose, Dark brown-grey fine SAND, trace Silt, trace Gravel, trace Organics. Wet.			SP	
11									
12	S-6A	12-13	24/19	2-3-8-12	M. Dense, Brown, fine SAND, trace Silt, trace Gravel, trace Organics. Wet.			SP	
13	S-6B				M. Dense, Dark gray, fine SAND, trace Silt, trace Gravel. Wet.			SP	
14									
15	S-7	15-17	24/14	4-7-8-11	M. Dense, Dark grey, fine SAND, trace Silt, trace Gravel. Wet.		SP		

MINOR CONSTITUENT PROPORTIONS:
 Trace 0 to 10% Some 20 to 35%
 Little 10 to 20% And 35 to 50%

BLOWS/FT DENSITY (GRANULAR SOILS)

V. Loose	0-4	Dense	30-50
Loose	4-10	V. Dense	>50
M. Dense	10-30		

REMARKS:
Hammer type: Autohammer
 1. Asphalt is about 5" thick.
 2. Filter fabric layer under asphalt.
 3. Moist at bottom of spoon



FUSS & O'NEILL

317 Iron Horse Way, Suite 204, Providence, RI 02908

BORING LOG

Project: Maidford River Restoration

Location: Middletown, RI

Boring ID: B-1

Sheet 2 of 2

Project No.: 20140870.E10

Contractor: Soil Ex
 Operator: Timmy Florice
 F&O Rep.: Derek Newhall/Cecilia Boyden
 Drilling Method: HSA
 Sampling Method: Split Spoon (2" OD)
 Hammer Wt.: 140 lbs Hammer Fall (in.): 30
 Boring Location: See Plan Set
 Ground Elevation: 6'
 Date Start: 12/12/17 Date Finish: 12/12/17

Water Level Measurements

Date	Ref. Pt.	Depth	Time
12/12/2017		5.71'	9:00 am
Time & Date of Completion: 12/12/17 @ 10:00 am			

Depth (ft)	Sample No.	Sample Depth (ft)	Rec/ Pen	Blows/ 6"	Sample Description	Strata Change	USCS Class.	Remarks	
16									
17									
18									
19									
20	S-8	20-22	24/15	4-8-3-4	M. Dense, Dark brown/grey, fine SAND, trace Silt, trace organics trace Gravel. Wet.	Fine Sand	SP	4	
21									
22									
23									
24									
25	S-9	25-27	24/12	10-11-12-11	M. Dense, Grey, SILT, little fine Gravel, trace Sand. Wet.	Silt	ML		
26									
27									
28									
29									
30	S-10	30-32	24/4	3-5-7-6	M. Dense, Grey, SILT, little fine Gravel, trace Sand. Wet.			ML	
31									
32					End of Exploration @ 32'				

MINOR CONSTITUENT PROPORTIONS:
 Trace 0 to 10% Some 20 to 35%
 Little 10 to 20% And 35 to 50%

BLOWS/FT DENSITY (GRANULAR SOILS)

V. Loose	0-4	Dense	30-50
Loose	4-10	V. Dense	>50
M. Dense	10-30		

REMARKS:
 Hammer type: Autohammer
 4. Organics at 2-5" from bottom of spoon.



FUSS & O'NEILL

317 Iron Horse Way, Suite 204, Providence, RI 02908

BORING LOG

Project: Maidford River Restoration

Location: Middletown, RI

Boring ID: B-2

Sheet 1 of 2

Project No.: 20140870.E10

Contractor: SoilEx Corp.
 Operator: Tim Florice
 F&O Rep.: Derek Newhall/ Celicia Boyden
 Drilling Method: HSA
 Sampling Method: Split Spoon (2" OD)
 Hammer Wt.: 140 lbs Hammer Fall (in.): 30
 Boring Location: See Plan Set
 Ground Elevation: 6'
 Date Start: 12/12/17 Date Finish: 12/12/17

Water Level Measurements

Date	Ref. Pt.	Depth	Time
12/12/2017	Ground	5.7'	12:30
Time & Date of Completion: 12/12/2017 @ 1:30			

Depth (ft)	Sample No.	Sample Depth (ft)	Rec/ Pen	Blows/ 6"	Sample Description	Strata Change	USCS Class.	Remarks
0	S-1	6"-2.5'	24/17	20-11-52-60	V. Dense, grey/red, fine to coarse SAND, some fine Gravel, trace Silt. Dry.	Asphalt	AS FL	1
1						Fill	FL	
2	S-2A	2.5-3.5	24/9	49-37-18-17	V. Dense, grey/red, fine to coarse SAND, some fine Gravel, trace Silt. Dry.		FL	
3	S-2B	3.5-4.5			V. Dense, dark brown, fine to coarse SAND, little coarse Gravel, trace Silt. Dry.			
4								
5	S-3	5-7	24/12	5-5-5-4	Loose, brown/black, fine to coarse SAND, little fine Gravel, trace Organics, trace Silt. Wet.	Sand	SW	2
6								
7	S-4	7-9	12/24	4-5-8-7	M. Dense, grey, fine to medium SAND, trace Silt, trace Gravel. Wet.		SW	
8								
9								
10	S-5	10-12	24/10	1-3-4-4	Loose, Brown, fine to medium SAND, some fine Gravel, little Silt. Wet.	Sand and Gravel	SW-GW	
11								
12	S-6	12-14	24/22	2-7-10-14	M. Dense, Grey, fine SAND, little Silt, trace Gravel. Wet.	Sand	SM	
13								
14								
15	S-7	15-17	24/20	7-11-17-44	M. Dense, Grey, fine SAND, little Silt, trace Gravel. Wet.		SM	3

MINOR CONSTITUENT PROPORTIONS:
 Trace 0 to 10% Some 20 to 35%
 Little 10 to 20% And 35 to 50%

BLOWS/FT DENSITY (GRANULAR SOILS)

V. Loose	0-4	Dense	30-50
Loose	4-10	V. Dense	>50
M. Dense	10-30		

REMARKS:
Hammer type: Autohammer
 1. 5" Asphalt
 2. Bottom 1" of spoon is medium Sand; organics above Sand.
 3. 14.5"-15" hit rocks with auger head.



FUSS & O'NEILL

317 Iron Horse Way, Suite 204, Providence, RI 02908

BORING LOG

Project: Maidford River Restoration

Location: Middletown, RI

Boring ID: B-2

Sheet 2 of 2

Project No.: 20140870.E10

Contractor: SoilEx Corp.
 Operator: Timmy Florice
 F&O Rep.: Derek Newall/Celicia Boyden
 Drilling Method: HSA
 Sampling Method: Split Spoon (2" OD)
 Hammer Wt.: 140 lbs Hammer Fall (in.): 30
 Boring Location: See Plan Set
 Ground Elevation: 6'
 Date Start: 12/12/17 Date Finish: 12/12/17

Water Level Measurements

Date	Ref. Pt.	Depth	Time
12/12/2017	Ground	5.7'	12:30
Time & Date of Completion: 12/12/2017 @ 1:30			

Depth (ft)	Sample No.	Sample Depth (ft)	Rec/ Pen	Blows/ 6"	Sample Description	Strata Change	USCS Class.	Remarks
16								
17								
18						Sand		4
19								
20	S-8	20-22	24/12	5-12-12-7	M. Dense, Grey SILT, trace medium Sand, trace Gravel. Wet.		ML	5
21								
22								
23								
24								
25	S-9	20-25	24/8	4-9-7-6	M. Dense, Grey SILT, little fine Gravel, trace fine Sand. Wet.	Silt	ML	
26								
27								
28								
29								
30	S-10	30-32	24/16	5-2-2-3	V. Loose, Grey SILT, little fine Gravel, trace fine Sand. Wet.		ML	
31								
32					End of Exploration @ 32'			

MINOR CONSTITUENT PROPORTIONS:
 Trace 0 to 10% Some 20 to 35%
 Little 10 to 20% And 35 to 50%

BLOWS/FT DENSITY (GRANULAR SOILS)

V. Loose	0-4	Dense	30-50
Loose	4-10	V. Dense	>50
M. Dense	10-30		

REMARKS:
Hammer type: Autohammer
 4. Hit gravel with the auger head at 18'.
 5. Bottom 0"-9" of spoon is Silt, top 3" of spoon is mixed with organics.

LABORATORY TESTING DATA SHEET

Matthew J. Kober

Project Name Maidford River Restoration
 Project No. 201408070.E10
 Project Manager Derek Newhall

Location Middletown, RI
 Assigned By Derek Newhall
 Report Date 12.26.17

Reviewed By _____
 Date Revised 12.29.17

Boring/ Test Pit No.	Sample No.	Depth ft.	Laboratory No.	Identification Tests						Corrosivity					Laboratory Log and Soil Description	
				Water Content %	LL %	PL %	Gravel %	Sand %	Fines (<#200) %	pH	Org. %	Sulfate (mg/kg)	Chloride (mg/kg)	Resistivity (Mohms-cm)		GTL Resist
B-1	S-2	2.5-4.5	17-S-2057				11.6	86.2	2.2							Grey poorly graded sand (SP)
B-1	S-5	10-12	17-S-2058				0.7	96.1	3.2		0.7					Dark Grey poorly graded sand (SP)
B-2	S-5	10-12	17-S-2059				24.8	62.3	12.9							Brown silty sand with gravel (SM)



195 Frances Avenue
 Cranston, RI 02910
 401-467-6454

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.8	1.8	1.6	7.7	76.9	2.2	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1.5"	100.0		
1"	90.2		
0.75"	90.2		
0.5"	90.2		
0.375"	89.1		
#4	88.4		
#10	86.8		
#20	83.8		
#40	79.1		
#60	54.1		
#100	6.5		
#200	2.2		

Material Description

Grey poorly graded sand (SP)

Atterberg Limits (ASTM D 4318)

PL= NP LL= NV PI= NP

Classification

USCS (D 2487)= SP AASHTO (M 145)= A-3

Coefficients

D₉₀= 12.0170 D₈₅= 1.2663 D₆₀= 0.2696
D₅₀= 0.2386 D₃₀= 0.1953 D₁₅= 0.1673
D₁₀= 0.1575 C_u= 1.71 C_c= 0.90

Remarks

Date Received: 12.21.17 Date Tested: 12.26.17

Tested By: RR / JAL

Checked By: Matthew Colman P.E.

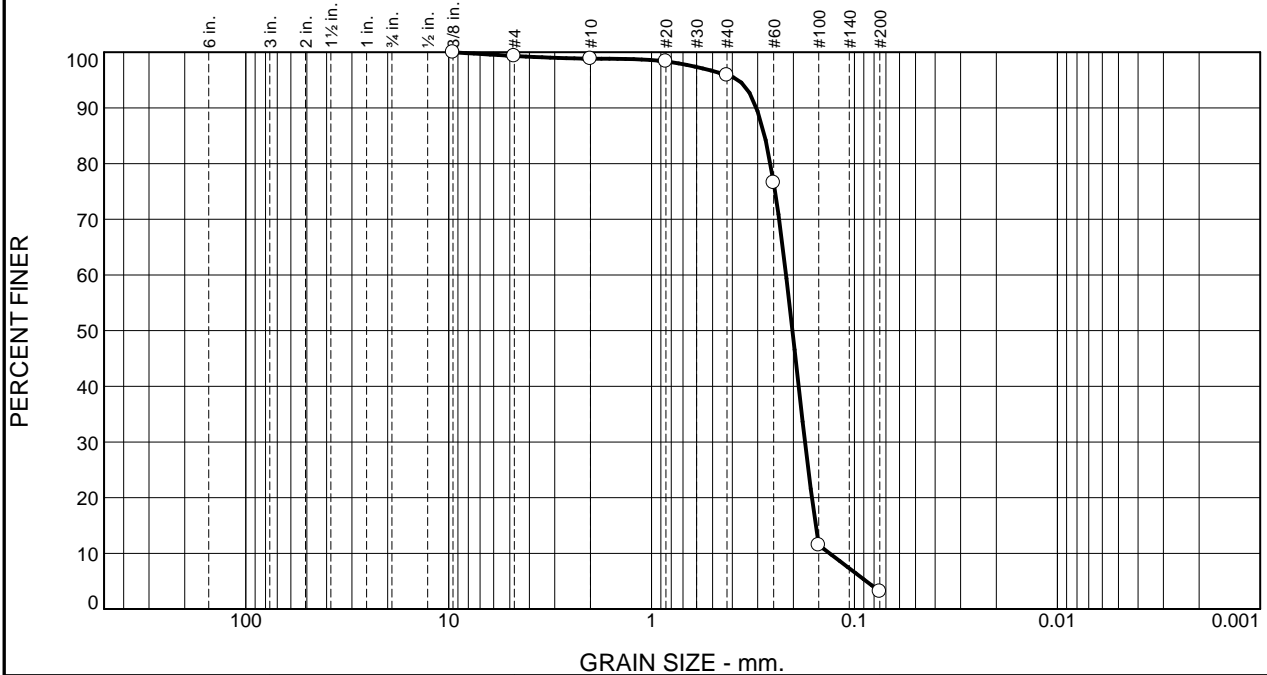
Title: Laboratory Manager

* (no specification provided)

Source of Sample: Borings Depth: 2.5-4.5' Date Sampled: 12.12.17
Sample Number: B-1 / S-2

Thielsch Engineering Inc. Cranston, RI	Client: Fuss and O'Neill Project: Maidford River Restoration Project Middletown, MA Project No: 20140870.E10
Figure 17-S-2057	

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.4	3.0	92.7	3.2	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.375"	100.0		
#4	99.3		
#10	98.9		
#20	98.3		
#40	95.9		
#60	76.6		
#100	11.5		
#200	3.2		

* (no specification provided)

Material Description

Dark Grey poorly graded sand (SP)

Atterberg Limits (ASTM D 4318)

PL= NP LL= NV PI= NP

Classification

USCS (D 2487)= SP AASHTO (M 145)= A-3

Coefficients

D₉₀= 0.3041 D₈₅= 0.2771 D₆₀= 0.2174
D₅₀= 0.2022 D₃₀= 0.1754 D₁₅= 0.1553
D₁₀= 0.1325 C_u= 1.64 C_c= 1.07

Remarks

Sample contained trace organic matter.

Date Received: 12.21.17 Date Tested: 12.26.17

Tested By: RR / JAL

Checked By: Matthew Colman P.E.

Title: Laboratory Manager

Source of Sample: Borings
Sample Number: B-1 / S-5

Depth: 10-12'

Date Sampled: 12.12.17

Thielsch Engineering Inc.

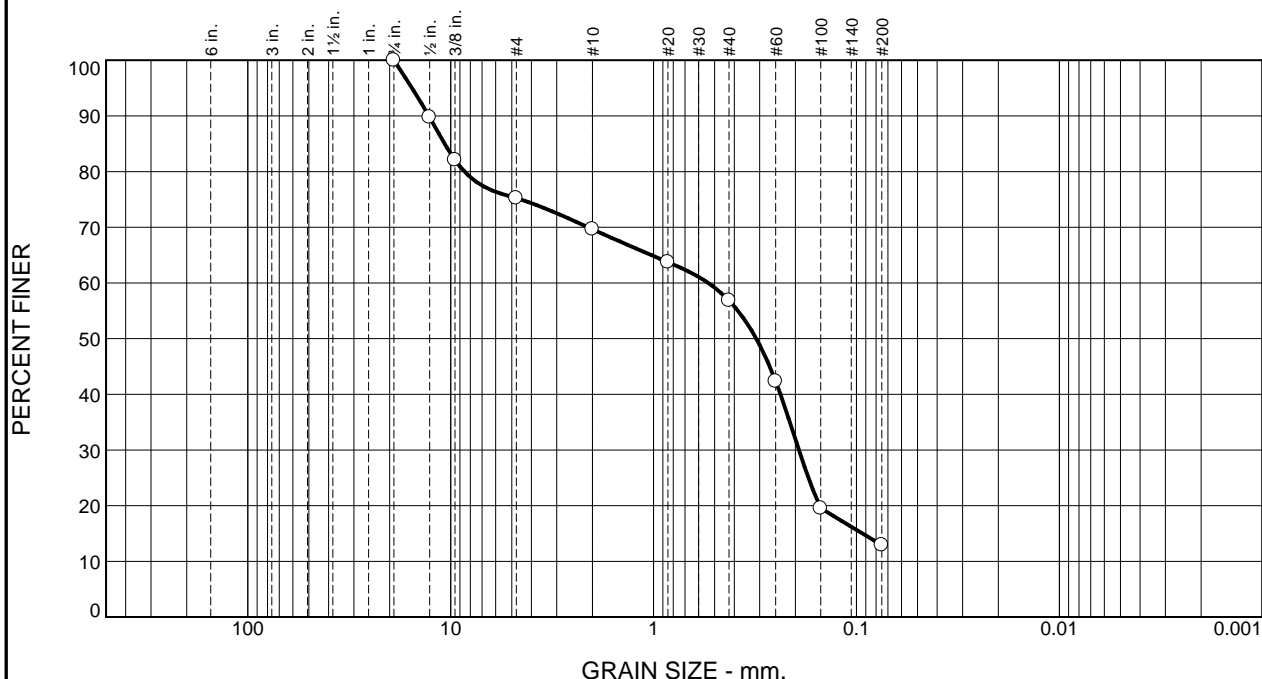
Cranston, RI

Client: Fuss and O'Neill
Project: Maidford River Restoration Project
Middletown, MA

Project No: 20140870.E10

Figure 17-S-2058

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	24.8	5.6	12.8	43.9	12.9	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
0.5"	89.8		
0.375"	82.1		
#4	75.2		
#10	69.6		
#20	63.7		
#40	56.8		
#60	42.3		
#100	19.5		
#200	12.9		

* (no specification provided)

Material Description

Brown silty sand with gravel (SM)

Atterberg Limits (ASTM D 4318)

PL= NP LL= NV PI= NP

Classification

USCS (D 2487)= SM AASHTO (M 145)= A-2-4(0)

Coefficients

D₉₀= 12.8114 D₈₅= 10.7115 D₆₀= 0.5374
D₅₀= 0.3115 D₃₀= 0.1922 D₁₅= 0.0934
D₁₀= C_u= C_c=

Remarks

Date Received: 12.21.17 Date Tested: 12.26.17

Tested By: RR / JAL

Checked By: Matthew Colman P.E.

Title: Laboratory Manager

Source of Sample: Borings
Sample Number: B-2 / S-5

Depth: 10-12'

Date Sampled: 12.12.17

Thielsch Engineering Inc.

Cranston, RI

Client: Fuss and O'Neill
Project: Maidford River Restoration Project
Middletown, MA

Project No: 20140870.E10

Figure 17-S-2059

FUSS & O'NEILL, INC.
20140870.E10
JANUARY 2018

MAIDFORD RIVER RESTORATION AND
FLOOD IMPROVEMENTS
MIDDLETOWN, RI

EXHIBIT C

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FLOOD IMPROVEMENTS
MIDDLETOWN, RI

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State of Rhode Island and Providence Plantations
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, RI 02879-1900

(401) 783-3370
Fax (401) 783-2069

January 25, 2018

Mr. Charles E. Vandemoer
US Fish and Wildlife Service
RI National Wildlife Complex
50 Bend Road
Charlestown, RI 02813

FEDERAL CONSISTENCY DETERMINATION

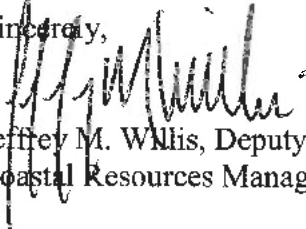
RE: CRMC File No. 2018-01-029 – Maidford Salt Marsh Restoration Project Final Restoration Phase consisting of: Replace undersized culverts on the “Connector Road” to facilitate drainage and tidal exchange at the Sachuest Point National Wildlife Refuge and expand area of invasive species (Phragmites) control. Landowner authorization and applicable State (RIDEM) and Federal (ACOE) permits to be obtained prior to work.

Dear Mr. Vandemoer:

In accordance with Title 15 of the code of Federal Regulations, Part 930, subpart C (Consistency for Federal Activities) and review of the submitted project narrative entitled: **“Sachuest Point National Wildlife Refuge, Maidford Salt Marsh Restoration Program – Final Phase, January, 2018”**, along with the United States Department of the Interior, Fish and Wildlife Service Federal Consistency Determination Request Letter dated January 19, 2018 and the submitted culvert replacement plans; the Coastal Resources Management Council hereby concurs with the determination that the referenced project is consistent with the Federally approved Rhode Island Coastal Resources Management Council Program and applicable regulations therein.

Please contact this office upon project initiation or if you have any questions regarding this project.

Sincerely,



Jeffrey M. Willis, Deputy Director
Coastal Resources Management Council

/lat

cc: Taylor Bell, ACOE
Neal Personeus, RIDEM
Dave Reis, CRMC

MAIDFORD RIVER RESTORATION AND FLOOD IMPROVEMENTS

THIRD BEACH ROAD · MIDDLETOWN · RHODE ISLAND

THIRD BEACH ROAD CULVERT REPLACEMENT

FEBRUARY 2018

PREPARED FOR
RHODE ISLAND NATURE CONSERVANCY
159 WATERMAN STREET
PROVIDENCE, RI 02906



PREPARED BY

FUSS & O'NEILL

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

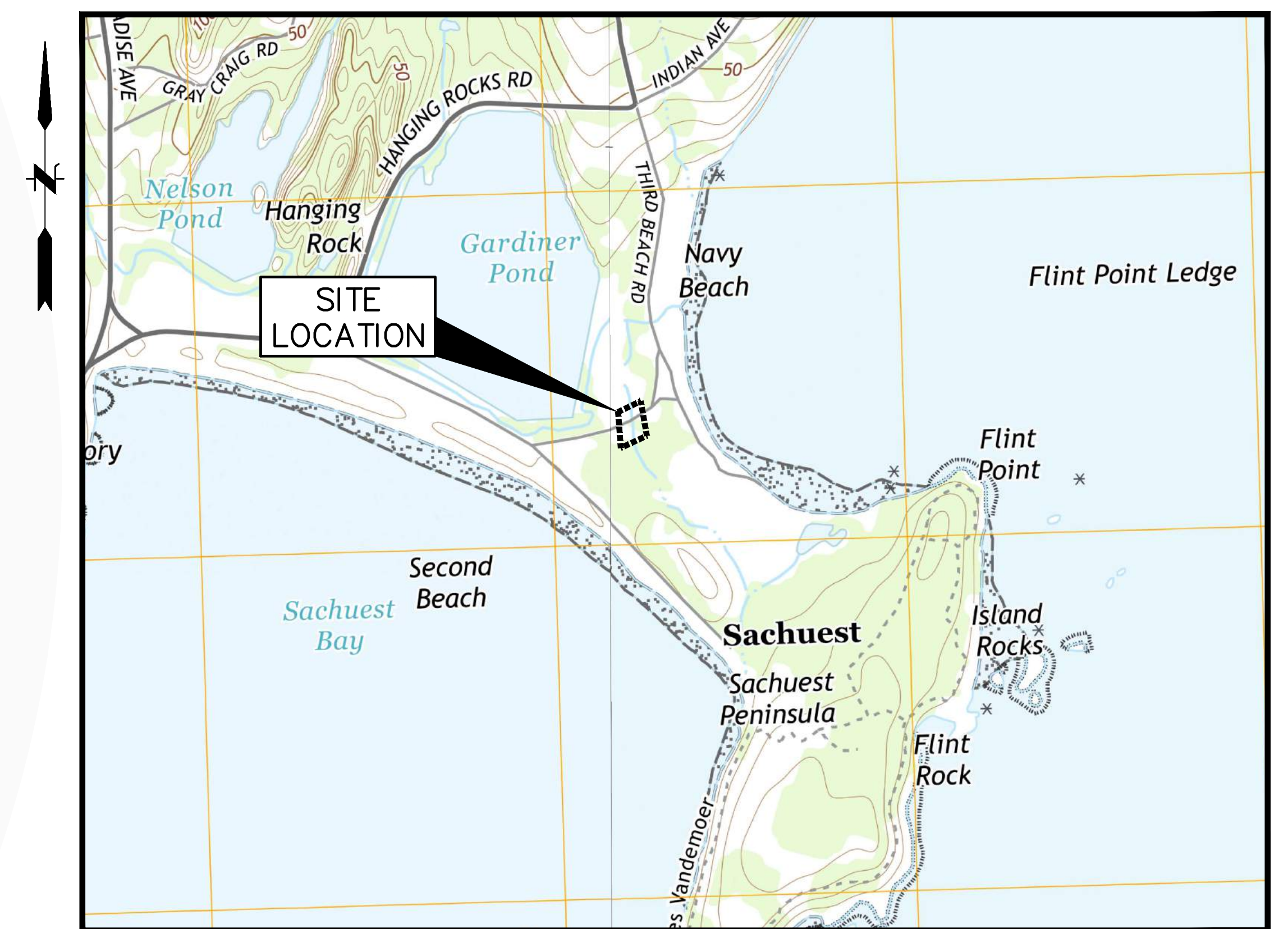


SHEET INDEX

SHEET No.	SHEET TITLE
GI-001	COVER SHEET
CN-001	GENERAL NOTES
CS-101	DEMOLITION AND PROPOSED CONDITIONS PLAN
S-01	CULVERT PLAN, ELEVATION, AND SECTION
S-02	STRUCTURAL DETAILS
CD-501	CONSTRUCTION DETAILS
CD-502	DETAILS

PROJECT TEAM

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



LOCATION MAP

SCALE: 1" = 1000'

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PROJ. No.: 20140870.E10
DATE: FEBRUARY 2018

GI-001

GENERAL NOTES

1. EXISTING CONDITIONS:
 - A. **SURVEY:**
EXISTING CONDITIONS ARE BASED ON A SURVEY PERFORMED BY NORBERT A. THERIEN, NO. 1739 PLS, LAND SURVEYOR, NATIONAL LAND SURVEYORS 42 HAMLET AVE., WOONSOCKET, R.I. (401) 769-7779 IN DECEMBER 2017.

TOPOGRAPHIC VERTICAL DATUM - NAVD 88.
HORIZONTAL DATUM - RHODE ISLAND STATE PLAN COORDINATE SYSTEM NAD 83.
 - B. **WETLAND:**
WETLAND FLAGS FIELD LOCATED BY NATURAL RESOURCES INC. IN AUGUST 2015 AS SHOWN ON THIRD BEACH ROAD PROJECT - PHASE 1 PLAN SET BY FUSS & O'NEILL, INC.
 - C. **FLOOD ZONE:**
THE PROJECT AREA LIES WITHIN THE COASTAL FLOOD ZONE WITH VELOCITY HAZARD IN ACCORDANCE WITH FLOOD INSURANCE RATE MAP (FIRM) PANEL NO. 440050201J FOR NEWPORT COUNTY, RHODE ISLAND (EFFECTIVE 9/4/2013).
 - D. **UTILITIES:**
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY AND HAVE NOT YET BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR IS TO CONTACT "DIG SAFE" AT 1-888-344-7233, 72-HOURS PRIOR, EXCLUDING WEEKENDS AND HOLIDAYS, TO ANY EXCAVATION PERFORMED ON SITE.
4. **RESTORATION NOTE:**
RESTORE DISTURBED, OFF-ROADWAY AREAS WITHIN THE PROJECT'S LIMIT OF DISTURBANCE WITH 4" OF SAND SOIL MIX & NEW ENGLAND COASTAL SALT TOLERANT GRASS AS DETICATED ON THE CONTRACT DOCUMENTS.
5. **UTILITY INSTALLATION NOTES:**
 - 5.1. DURING EXCAVATION AND PRIOR TO INSTALLATION OF THE CULVERT REPLACEMENT STRUCTURE, THE CONTRACTOR SHALL VERIFY THE ACTUAL DEPTH AND LOCATION OF UTILITY MAINS AND SERVICES AT LOCATIONS WHERE THE PROPOSED CULVERT WILL CROSS SUCH MAINS AND SERVICES OR BE INSTALLED WITHIN CLOSE PROXIMITY. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IN THE EVENT OF POTENTIAL CONFLICTS PRIOR TO INSTALLING STORMWATER MANAGEMENT PRACTICES.
 - 5.2. ONLY UTILITY MAINS AND SERVICES WITHIN VICINITY OF PROPOSED CULVERT REPLACEMENT AREA ARE SHOWN IN THE PROFILE FOR CLARITY PURPOSES.
 - 5.3. THE REMOVAL AND REPLACEMENT OF THE EXISTING WATER LINE AND FORCE SEWER MAIN SHALL BE COORDINATED WITH THE UTILITY OWNER.
6. **TRAFFIC CONTROL:**
ALL TRAFFIC CONTROL (INCLUDING TEMPORARY CONSTRUCTION SIGNAGE, PERMANENT SIGNAGE, AND LANE/ROAD CLOSURES) SHALL CONFORM TO THE LATEST EDITION OF THE RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE LATEST EDITION OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
7. **UTILITY PROTECTION, SUPPORT, REPLACEMENT, OR INTERRUPTION:**
 - **WATER:** THE CONTRACTOR SHALL COORDINATE THE PROTECTION AND SUPPORT, REPLACEMENT, OR INTERRUPTION TO WATER MAINS WITHIN EXCAVATIONS IN THE RIGHT-OF-WAY WITH THE TOWN OF MIDDLETOWN ENGINEERING DEPARTMENT. ANY REPAIR OR REPLACEMENT OF WATER MAINS SHALL BE IN ACCORDANCE WITH THE DEPARTMENT'S RULES AND REGULATIONS. ANY EXISTING WATER MAINS TO REMAIN SHALL BE SUFFICIENTLY PROTECTED AND SUPPORTED DURING CONSTRUCTION.
 - **SEWER:** THE CONTRACTOR SHALL COORDINATE THE PROTECTION AND SUPPORT, REPLACEMENT, OR INTERRUPTION TO SEWER MAINS WITHIN EXCAVATIONS IN THE RIGHT-OF-WAY WITH THE TOWN OF MIDDLETOWN ENGINEERING DEPARTMENT. ANY REPAIR OR REPLACEMENT OF WATER MAINS SHALL BE IN ACCORDANCE WITH THE DEPARTMENT'S RULES AND REGULATIONS. ANY EXISTING SEWER MAINS TO REMAIN SHALL BE SUFFICIENTLY PROTECTED AND SUPPORTED DURING CONSTRUCTION.
 - THE CONTRACTOR SHALL NOTIFY UTILITY OWNER, IN WRITING, AT LEAST SEVEN (7) BUSINESS DAYS PRIOR TO ANY INCONVENIENCE OR DISRUPTION OF SERVICES AS A RESULT OF CONSTRUCTION.

EROSION CONTROL NOTES

1. NO UNDISTURBED AREAS SHALL BE CLEARED OF EXISTING VEGETATION AFTER OCTOBER 15 OF ANY CALENDAR YEAR OR DURING ANY PERIOD OF FULL OR LIMITED WINTER SHUTDOWN. ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15 OF ANY CALENDAR YEAR SHALL BE SEEDED OR PROTECTED BY THAT DATE. ANY SUCH AREAS THAT DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION, AS DETERMINED BY THE RESIDENT ENGINEER OR ENVIRONMENTAL INSPECTOR, BY NOVEMBER 15 OF ANY CALENDAR YEAR, MUST BE STABILIZED THROUGH THE USE OF EROSION CONTROL MATTING, IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK. IF WORK CONTINUES WITHIN ANY OF THESE AREAS DURING THE PERIOD FROM OCTOBER 15 THROUGH APRIL 15, CARE MUST BE TAKEN TO ENSURE THAT ONLY THE AREA REQUIRED FOR THAT DAY'S WORK IS EXPOSED, AND ALL ERODIBLE SOIL MUST BE RE-STABILIZED WITHIN 5 WORKING DAYS. ANY WORK TO CORRECT PROBLEMS RESULTING FROM FAILURE TO COMPLY WITH THIS PROVISION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THERE WILL BE NO SEPARATE PAYMENT FOR THIS PROVISION. IT SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OPERATIONS. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.
2. STOCKPILES OF MATERIAL SHALL NOT BE LOCATED WITHIN REGULATED WETLANDS OR REGULATORY SETBACKS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES OF ERODABLE MATERIAL SHALL ALSO BE SEEDED AND RINGED WITH BIODEGRADABLE FILTER SOCKS TO STABILIZE.
3. EROSION CONTROL BLANKET SHALL BE USED TO STABILIZE TOP SOIL ON ALL SLOPES ADJACENT TO WETLANDS AND WETLAND PERIMETERS.
4. SEEDING ON ALL SLOPES SHALL CONSIST OF THE FOLLOWING APPLICATIONS UNLESS CHANGED IN THE CONTRACT.
 - a. NEW ENGLAND COASTAL SALT TOLERANT HYDROSEED GRASS MIX
 - b. EROSION CONTROL BLANKET
5. UNVEGETATED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR PERIODS IN EXCESS OF 2 WEEKS OR THROUGH THE INACTIVE WINTER SEASON.
6. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL THROUGHOUT THE WORK AREA.
7. THE TOE OF ANY FILL SLOPE IS TO REMAIN AT LEAST 1' INSIDE OF ALL EROSION CONTROLS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COVER ANY PORTION OF THE EROSION CONTROL MEASURES WITH MATERIAL. ANY MATERIAL THAT IS PLACED ON ANY EROSION CONTROLS BY THE CONTRACTOR, OR ANY AGENT OF THE CONTRACTOR, SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR, AND ANY NECESSARY REPAIRS TO THE EROSION CONTROLS ACCOMPLISHED.
8. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT THOSE AREAS INDICATED ON THE PLANS. CLEARING MAY OCCUR PRIOR TO INSTALLATION OF SUCH CONTROLS, HOWEVER NO GRUBBING, GRADING, FILLING, OR OTHER SOIL DISTURBANCE SHALL OCCUR PRIOR TO INSTALLATION. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS.
9. ALL EROSION CONTROL DEVICES (BIODEGRADABLE FILTER SOCKS, ETC.) SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING CAN HELP TO MINIMIZE EROSION. TEMPORARY SEED WILL CONFORM TO R.I.D.O.T. STANDARD TEMPORARY SEED MIX.
10. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE TO THE CLIENT.
11. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE SPECIFIED IN THE PROJECT SPECIFICATIONS.
12. ADDITIONAL EROSION CONTROLS, SHALL BE INSTALLED AS DIRECTED BY THE RESIDENT ENGINEER. THESE ADDITIONAL ITEMS WILL BE PAID AT THE UNIT PRICE FOR THAT BID ITEM.

GENERAL CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL VERIFY THE PROPOSED LAYOUT WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. THE CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS OR DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH WORK.
2. CONTRACTOR SHALL COORDINATE WITH NATIONAL LAND SURVEYORS, 42 HAMLET AVE., WOONSOCKET, R.I. (401) 769-7779 FOR THE LOCATION OF BENCH MARKS AND SURVEY CONTROL POINTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, BONDS, ETC. AND OTHER APPROVAL RELATED ITEMS WITH THE TOWN OF MIDDLETOWN. NO CONSTRUCTION SHALL COMMENCE UNTIL SUCH PERMITS HAVE BEEN SECURED.
4. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF IMPROVEMENTS FOR THIS PROJECT SHALL CONFORM TO THE CURRENT CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE TOWN OF MIDDLETOWN AND THE STATE OF RHODE ISLAND DEPARTMENT OF TRANSPORTATION (R.I.D.O.T.) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, INCLUDING REVISIONS AND ALL CURRENT ADDENDA, AND THE RHODE ISLAND STANDARD DETAILS. THESE DOCUMENTS ARE MADE A PART HEREOF, AS IF ATTACHED HERETO.
5. DEVIATIONS OR CHANGES FROM THESE PLANS WILL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER/OWNER.
6. THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE ANY EXISTING UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF NECESSARY. THE EXISTENCE AND/OR LOCATION OF UTILITIES SHOWN ON THESE PLANS MAY BE ONLY APPROXIMATELY CORRECT AND THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN HEREON AND ANY OTHER EXISTING UTILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT HIS/HER EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST THREE WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING, WITH MATCHING MATERIALS, ANY PAVEMENT, WALKS, CURBS, ETC. THAT MUST BE CUT OR THAT ARE DAMAGED DURING CONSTRUCTION.
9. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE.
10. THE CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE TOWN AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM "THE SOLE NEGLIGENCE OF THE TOWN OR THE ENGINEER."
11. THE CONTRACTOR SHALL RESTORE DISTURBED AREAS TO ORIGINAL CONDITION. AREAS DAMAGED DURING CONSTRUCTION SHALL BE RESEEDED, OR OTHERWISE RESTORED TO THEIR ORIGINAL STATE. EXISTING VEGETATION SHALL BE RETAINED WHEREVER FEASIBLE.
12. ALL EXCESS EXCAVATED MATERIALS, EXCESS FILL, EXCESS CONSTRUCTION MATERIALS, AND DEBRIS SHALL BE REMOVED FROM THE SITE AND SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS.
13. ANY DAMAGE TO EXISTING PAVEMENT, BRIDGES, CONDUIT, FENCES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE TOWN.
14. THE CONTRACTOR SHALL PLACE ALL EQUIPMENT AND MATERIAL AS FAR AWAY AS POSSIBLE FROM THE EDGE OF THE TRAVEL LANE SO AS NOT TO CAUSE A SAFETY HAZARD, IN ACCORDANCE WITH SECTION 106.06 OF THE R.I.D.O.T. STANDARD SPECIFICATION, LATEST EDITION.
15. ASPHALT EMULSION TACK COAT SHALL BE ON ANY NEW COURSE WHICH HAS BEEN OPEN TO TRAFFIC, OR ANY NEW COURSE WHICH HAS BEEN EXPOSED FOR MORE THAN 3 DAYS, AND/OR AS DIRECTED BY THE ENGINEER. IT SHALL ALSO BE APPLIED TO VERTICAL PAVEMENT FACES BETWEEN ADJOINING PAVEMENT SECTIONS. ALL APPLICATIONS ON BOTH HORIZONTAL AND VERTICAL SURFACES.
16. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND PLACING, AT HIS OWN EXPENSE, RESTORING IN KIND IN AREAS WHICH ARE OUTSIDE OF THE PROJECT'S AREAS OF DISTURBANCE AND WHICH ARE IMPACTED BY CONSTRUCTION OPERATIONS INCLUDING THOSE AREAS WHERE VEHICLES, EQUIPMENT AND MATERIALS ARE STORED WITH THE PERMISSION OF THE ENGINEER.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ROADWAYS FREE OF DEBRIS RESULTING FROM THEIR CONSTRUCTION OPERATIONS. ALL DEBRIS SHALL BE REMOVED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.
18. NO FUEL STORAGE, VEHICLE REFUELING, OR EQUIPMENT STORAGE SHALL TAKE PLACE IN DESIGNATED WETLANDS, NOR WITHIN 100' OF ANY WATER BODY. THIS REQUIREMENT SHALL NOT SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAW, ORDINANCE, RULE OR REGULATION THAT APPLIES TO THE SAME, UNLESS THIS REQUIREMENT IS MORE STRINGENT THAN SAID LAW, ORDINANCE, RULE OR REGULATION.
19. THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS STATED IN THE ENVIRONMENTAL APPROVALS ISSUED FOR THE PROJECT FROM THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM), AND/OR THE ARMY CORPS OF ENGINEERS (ACOE), AND/OR THE COASTAL RESOURCES MANAGEMENT COUNCIL (CRMC). COPIES OF EACH OF THESE PERMITS ARE INCLUDED IN THE CS PAGES OF THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH THESE CONDITIONS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEM(S).
20. HOT MIX ASPHALT PAVEMENTS SHALL MEET REQUIREMENTS OF PART 400 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, INCLUDING REVISIONS AND ALL CURRENT ADDENDA.
21. ALL SURFACED AREAS OR DISTURBED AREAS NOT SPECIFIED ON THE PLANS SHALL RECEIVE 4 INCHES OF SAND SOIL MIX, NEW ENGLAND COASTAL SALT WATER TOLERANT GRASS MIX, MULCH, AND BE WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
22. ALL TOPSOIL REFERENCES SHALL BE A SAND SOIL MIX AS SPECIFIED IN THE CONTRACT DOCUMENTS.

SPILL PREVENTION AND RESPONSE PROCEDURE

1. ANY INADVERTENT OR DELIBERATE DISCHARGE OF WASTE OIL OR ANY OTHER POLLUTANT TO THE STORMWATER DISPOSAL SYSTEM REQUIRES IMMEDIATE NOTIFICATION TO THE RIDEM OIL POLLUTION CONTROL PROGRAM AT (401) 277-2284, AS PER THE OIL POLLUTION CONTROL REGULATIONS. DURING NON-WORKING HOURS, NOTIFICATION OF SPILLS CAN BE MADE TO THE RIDEM DIVISION OF ENFORCEMENT AT (401) 222-3070 (THE 24-HOUR EMERGENCY RESPONSE PHONE NUMBER).
2. ANY INCIDENT OF GROUNDWATER CONTAMINATION RESULTING FROM THE IMPROPER DISCHARGE OF POLLUTANTS TO THE STORMWATER DISPOSAL SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AS WELL AS ANY OTHER PARTIES THAT THE RIDEM DETERMINES TO BE RESPONSIBLE FOR THE CONTAMINATION. PURSUANT TO STATE LAWS AND REGULATIONS, THE RIDEM MAY REQUIRE THE PROPERTY CONTRACTOR AND OTHER RESPONSIBLE PARTIES TO REMEDIATE ANY INCIDENTS THAT MAY ADVERSELY IMPACT GROUNDWATER QUALITY.
3. THE CONTRACTOR WILL CREATE A MAINTENANCE LOG, SHOWING THE DATE, TIME, NAME OF INSPECTOR, INSPECTION COMMENTS, AND ANY ACTIONS TAKEN BASED ON THE ABOVE REFERENCE SCHEDULE.

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

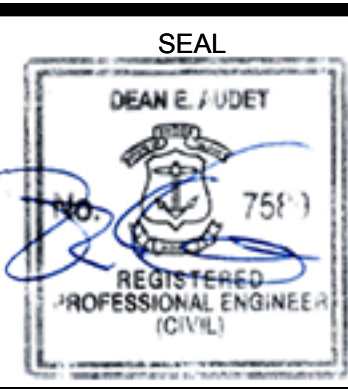
1. ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS, CHANNELIZING DEVICES, ETC., SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
2. ALL SIGN MOUNTINGS FOR TEMPORARY AND CONSTRUCTION SIGNS SHALL BE IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
3. THE CONTRACTOR SHALL COVER ALL EXISTING AND/OR TEMPORARY SIGNS THAT ARE NOT RELEVANT TO THE TRAFFIC CONTROL REQUIRED DURING ANY PARTICULAR STAGE OF THE CONTRACT.
4. ADVANCE FLAGPERSON SIGNS (W20-7A) SHALL BE USED IN ADVANCE OF ANY POINT AT WHICH A FLAGPERSON OR A PLAGE OFFICER HAS BEEN STATIONED TO CONTROL TRAFFIC. WHEN NEEDED, AN APPROPRIATE DISTANCE MESSAGE MAY BE DISPLAYED ON A SUPPLEMENTAL PLATE (24"x18") BELOW THE FLAGPERSON SYMBOL SIGN. THE SIGN SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE FLAGPERSON IS NOT AT THE STATION.
5. POLYETHYLENE DRUMS SHALL BE UTILIZED AS A CHANNELIZING DEVICE WHEN A TRAFFIC CONTROL SET-UP IS TO REMAIN BEYOND WORKING HOURS WHEN NO WORKERS ARE PRESENT. CONES SHALL BE UTILIZED WHEN A TRAFFIC CONTROL SET-UP IS TO REMAIN ONLY DURING WORKING HOURS AND IS SUBSEQUENTLY BROKEN DOWN AT THE END OF THE WORKDAY.
6. THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED ON THE TRAVEL LANES OR SHOULDERS. THEY MAY BE PARKED IN AREAS APPROVED BY THE OWNER.
7. TEMPORARY CONSTRUCTION SIGNS AND OTHER TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC, AND SHALL BE REMOVED AS SOON AS PRACTICAL WHEN THEY ARE NO LONGER APPROPRIATE.
8. THE INTENDED VEHICLE PATHS THROUGH EACH WORK ZONE SHALL BE CLEARLY MARKED AT ALL TIMES. TEMPORARY PAVEMENT MARKINGS SHALL BE INSTALLED BEFORE THE END OF THE WORK SHIFT ON NEW ROADWAY SURFACES THAT WILL BE OPENED TO TRAFFIC AT THE END OF THE SHIFT.

UTILITY NOTES

1. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS USING THE BEST AVAILABLE INFORMATION AND ARE APPROXIMATE.
2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING DRAINAGE AND UTILITIES BOTH UNDERGROUND AND OVERHEAD BEFORE EXCAVATION BEGINS IN ACCORDANCE WITH THE "DIG SAFE LAW" ENACTED BY R.I. LEGISLATURE BILL NO. 795-291, WHICH BECAME EFFECTIVE JULY 1, 1979 AND BY CONTACTING THE INDIVIDUAL UTILITY COMPANIES. EXCAVATION SHALL BE IN ACCORDANCE WITH ALL STATUTES, ORDINANCES, RULES AND REGULATIONS OF ANY APPLICABLE CITY, TOWN, STATE OR FEDERAL AGENCY. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE DIG SAFE PROGRAM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES AND ENSURE THAT ALL UTILITIES HAVE BEEN MARKED PRIOR TO COMMENCING THEIR WORK. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANY, SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE STATE.
3. THE WATER MAIN IS SUBJECT TO PRESSURE AND LEAKAGE TESTS. IN GENERAL THE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH AWWA C600, SECTION 5, EXCEPT THAT 0 LEAKAGE IS ALLOWED. FOR PIPING INSTALLATION GREATER THAN 1,000 FEET, TESTING SHALL BE ACCOMPLISHED IN SECTIONS NO GREATER THAN 1,000 FEET.
4. THE WATER MAIN SHALL BE DISINFECTED AFTER CLEANING BY CHLORINATION. CHLORINATION SHALL BE DONE IN ACCORDANCE WITH AWWA C651.
5. FOLLOWING THE CHLORINATION PERIOD, ALL TREATED WATER SHALL BE FLUSHED FROM THE LINES AND REPLACED WITH WATER FROM THE DISTRIBUTION SYSTEM. ALL TREATED WATER FLUSHED FROM THE LINES SHALL BE DECHLORINATED. DISCHARGE TO SANITARY SEWERS IS NOT ALLOWED. SODIUM BISULFITE SHALL BE APPLIED IN A MANNER AND OF SUFFICIENT QUANTITY TO PROPERLY DECHLORINATE THE WATER PRIOR TO DISCHARGE IN ACCORDANCE WITH AWWA C651.
6. BACTERIOLOGICAL SAMPLING AND TESTING SHALL BE COMPLETED IN ACCORDANCE WITH AWWA C651 FOR THE RELOCATED MAIN. SAMPLING SHALL BE ACCOMPLISHED WITH STERILE BOTTLES TREATED WITH SODIUM THIOSULFATE. WATER MUST SIT IN THE MAIN FOR AT LEAST 24 HOURS PRIOR TO TAKING A SAMPLE. IN THE EVENT THAT BACTERIOLOGICAL ANALYSES ARE NOT SATISFACTORY, INCLUDING BACKGROUND BACTERIA LEVELS, RECHLORINATION AND SAMPLING OF THE WATER MAIN WILL BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
7. CONTACT JOE ROQUE AT THE NEWPORT WATER DIVISION (NWD) AT (401) 845-5609 TO COORDINATE INSPECTIONS AT LEAST THREE WORKING DAYS PRIOR TO THE PROJECT DATE AND/OR FINAL INSPECTION UPON COMPLETION. INSPECTION OF ALL INSTALLATIONS SHALL BE CONDUCTED TO ENSURE COMPLIANCE WITH ALL APPLICABLE CITY OF NEWPORT TECHNICAL SPECIFICATIONS AND STANDARDS. NWD PERSONNEL SHALL BE GIVEN FULL ACCESS TO THE PROJECT AT ALL TIMES FOR INSPECTION AND OBSERVATION OF CONSTRUCTION OF THE WATER MAIN IN PROGRESS AS DEEMED NECESSARY BY NWD. FAILURE TO CONSTRUCT THE NEW EXTENSION OF THE SYSTEM AS PER THEIR APPROVAL WILL CAUSE IMMEDIATE CESSATION OF ALL CONSTRUCTION WORK.

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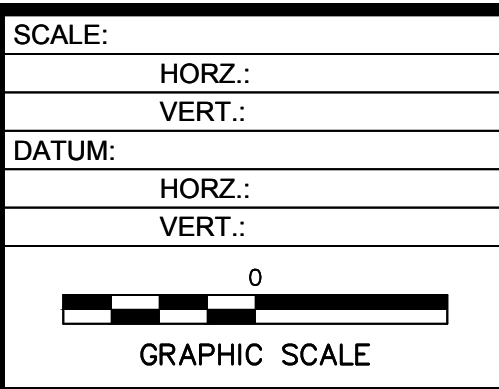
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FUSS & O'NEILL

317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
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THE NATURE CONSERVENCY - RHODE ISLAND

GENERAL NOTES

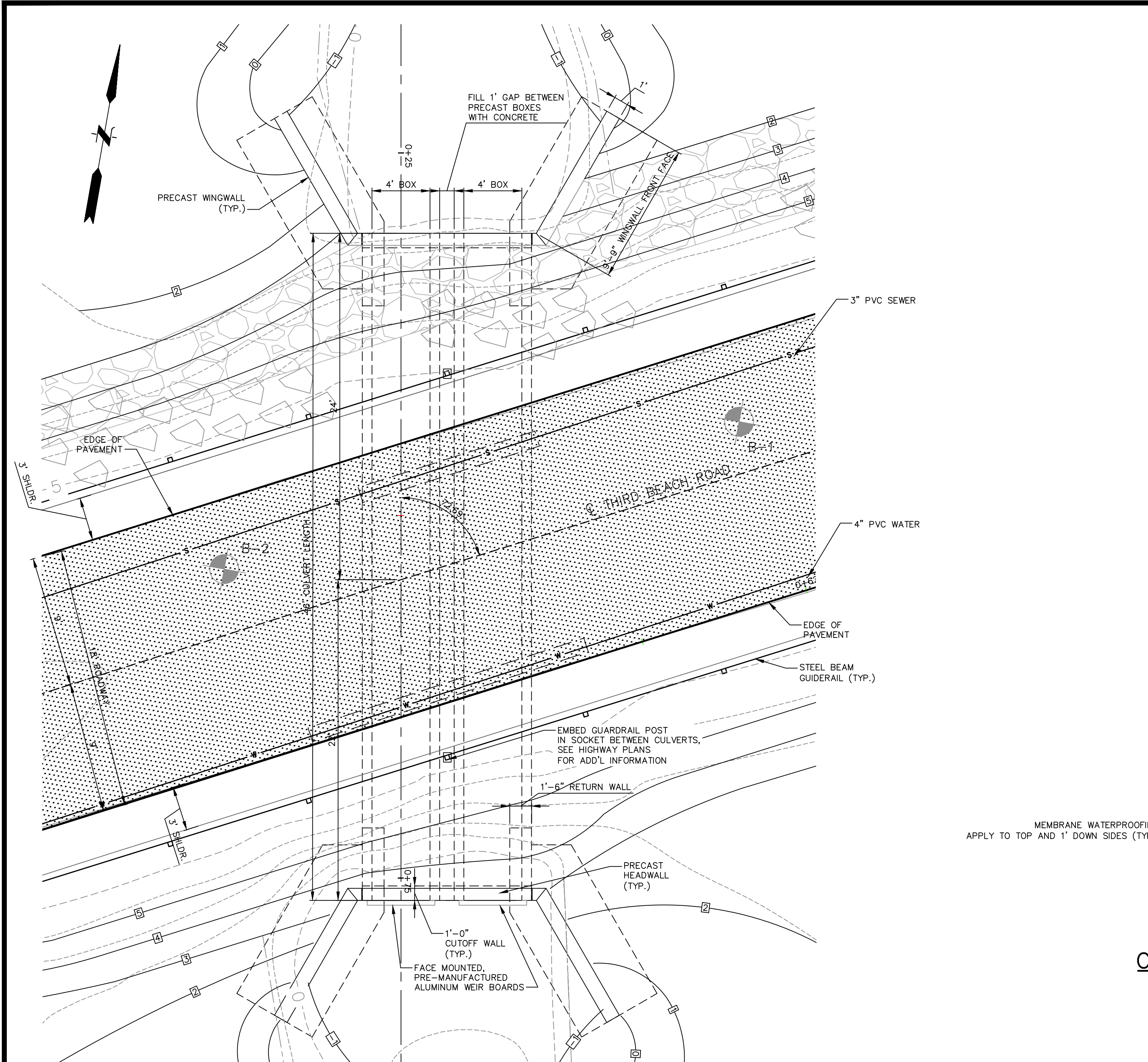
MIDDLETOWN RHODE ISLAND

MADFORD RIVER RESTORATION PROJECT

PROJ. No.: 20140870.E10
DATE: FEBRUARY 2018

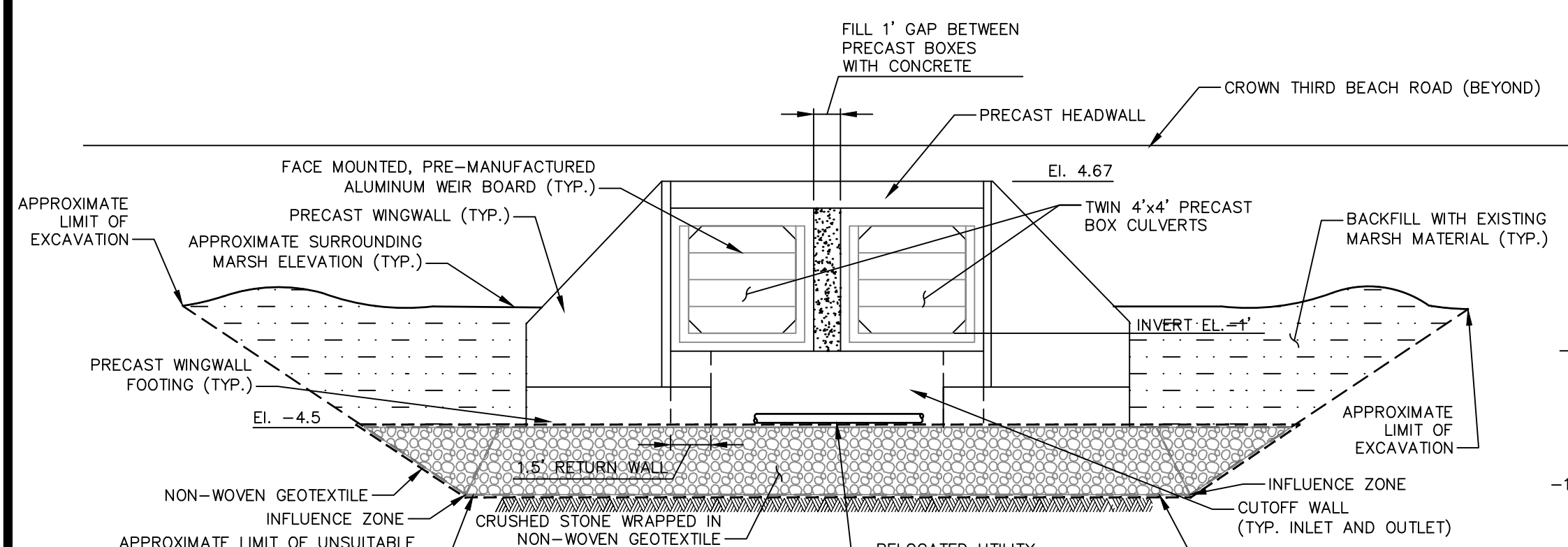
CN-001

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 MS VIEW: LAYER STATE:



CULVERT PLAN

SCALE: 1" = 5'



CULVERT OUTLET ELEVATION

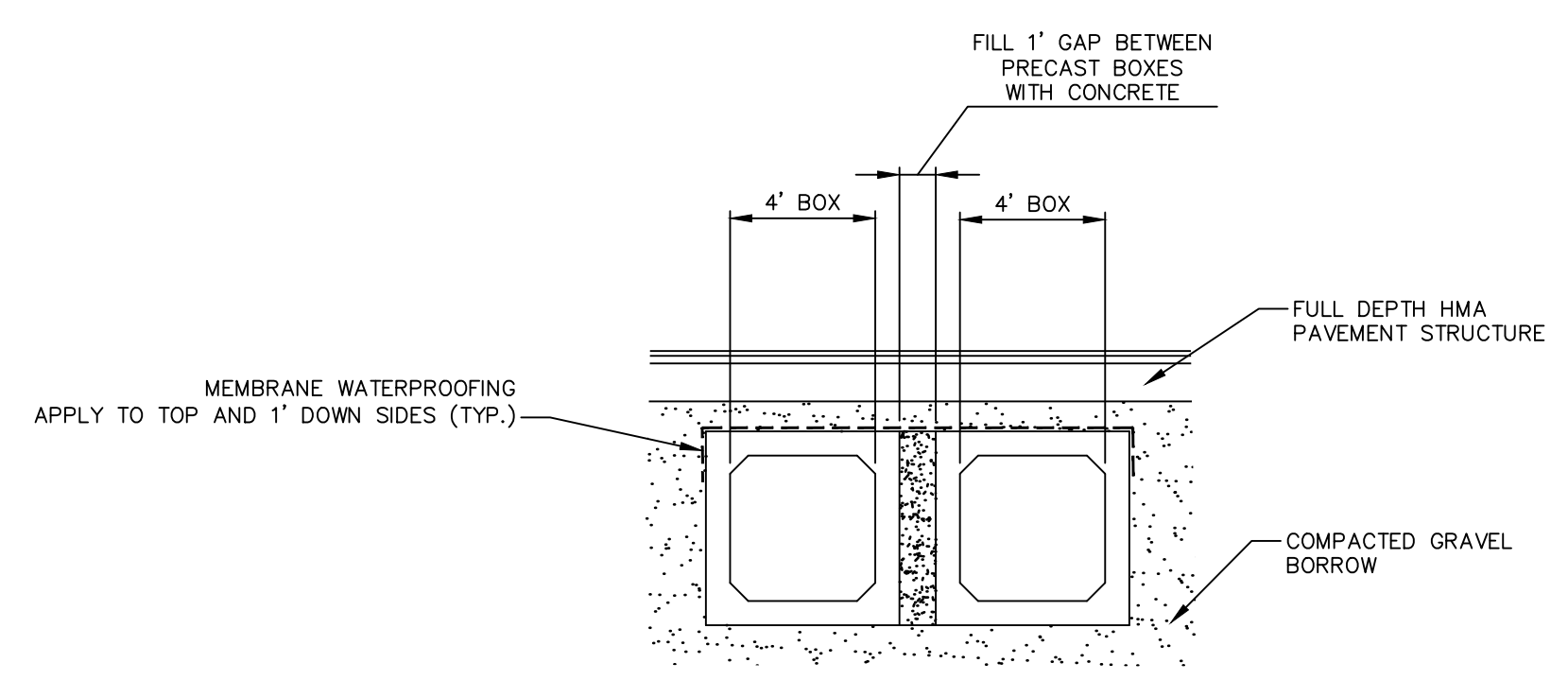
SCALE: 1" = 5'

GENERAL STRUCTURAL NOTES:

1. THE WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED IN ACCORDANCE WITH THE STRUCTURAL REQUIREMENTS OF THE RHODE ISLAND STATE BUILDING CODE, INCLUDING THE INTERNATIONAL BUILDING CODE, EXCEPT AS AMENDED, ALTERED OR DELETED BY THE ADDITIONAL PROVISIONS IN THE RHODE ISLAND SUPPLEMENT.
2. ALL STRUCTURAL WORK SHOWN OR SPECIFIED ON THESE DRAWINGS IS SUBJECT TO REVIEW BY THE STRUCTURAL ENGINEER OF RECORD. ASPECTS OF THE WORK FOUND NOT IN CONFORMANCE WITH THE STRUCTURAL DOCUMENTS SHALL BE CORRECTED AS DIRECTED BY THE ENGINEER.
3. THE TERM 'BEYOND' USED IN SECTION VIEWS OF STRUCTURAL ELEMENTS INDICATES THAT SAID ELEMENT IS NOT IN THE LINE OF THE SECTION CUT; HOWEVER, IT PROVIDES A GREATER UNDERSTANDING OF THE STRUCTURE.
4. THE CONTRACTOR SHALL DESIGN, MANUFACTURE AND CONSTRUCT PRECAST BOX CULVERT IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR "PRECAST CONCRETE BOX CULVERT" AND THE INSIDE DIMENSIONS, LENGTH AND DETAILS SHOWN ON THESE PLANS.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF PRECAST CONCRETE AND STEEL FABRICATIONS FOR REVIEW BEFORE PROCEEDING WITH WORK. THE CONTRACTOR SHALL CHECK ALL DIMENSIONS AND ACCEPT FULL RESPONSIBILITY FOR DIMENSIONAL CORRECTNESS. SHOP DRAWINGS SHALL BEAR THE REVIEW AND APPROVAL STAMP OF THE CONTRACTOR, IN ACCORDANCE WITH THE GENERAL CONDITIONS.
6. STRUCTURAL PLANS SHALL NOT BE REPRODUCED IN WHOLE OR IN PART FOR USE AS SHOP DRAWINGS OR ERECTION PLANS. THERE WILL BE NO RELAXATION OF THIS RESTRICTION FOR ANY TRADE.

FOUNDATION NOTES:

1. ALL EARTHWORK STRUCTURE FOUNDATIONS SHOWN ON CONTRACT DOCUMENTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE DETAILS SHOWN ON THE PLANS, THESE NOTES, AND THE SPECIFICATIONS.
2. THE WINGWALL FOUNDATIONS HAVE BEEN DESIGNED TO REST ON INORGANIC, SOIL HAVING A PRESUMPTIVE LOAD BEARING VALUE OF 4,000 PSF.
3. SIZES AND LOCATIONS OF ALL REQUIRED SLAB, FOUNDATION, AND WALL PENETRATIONS FOR ALL TRADES SUCH AS PIPING SLEEVES SHALL BE COORDINATED BY THE CONTRACTOR WITH OTHER TRADES.
4. ALL FILL AND BACKFILL FOR FOOTINGS, SLABS, AND WALLS SHALL CONFORM TO THE SPECIFICATIONS AND DETAILS PROVIDED IN THE PLANS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, OPERATING AND MAINTAINING ALL EQUIPMENT NECESSARY TO DEWATER SITE EXCAVATIONS.

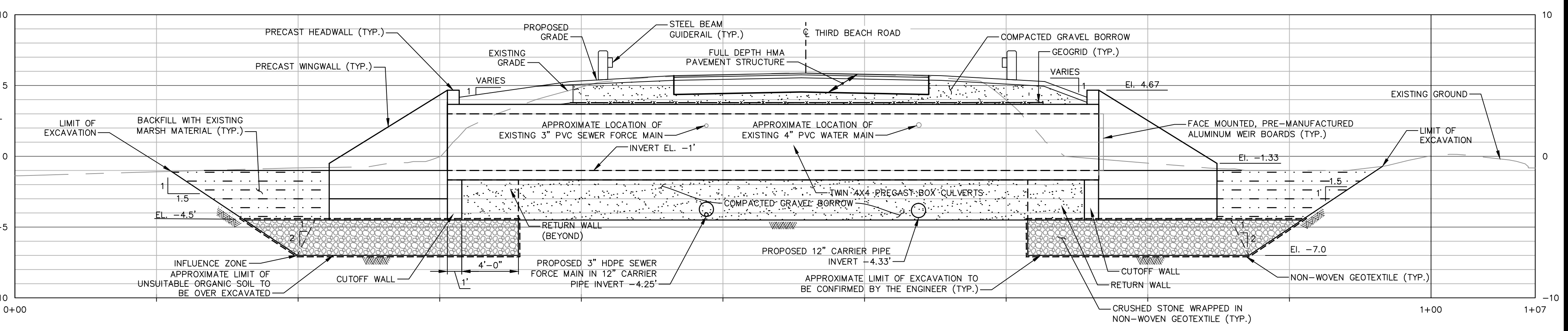


CULVERT SECTION UNDER ROADWAY

SCALE: 1" = 5'

CONCRETE NOTES:

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 AND BE DETAILED IN ACCORDANCE WITH ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
3. REBARS SHALL HAVE A MINIMUM CONCRETE COVER AS FOLLOWS:
 CONCRETE DEPOSITED AGAINST GROUND.....3 IN.
 CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
 FOR BARS #5 AND LARGER.....2 IN.
 FOR BARS SMALLER THAN #5.....1 1/2 IN.
4. ALL REINFORCING BARS SHALL BE CONTINUOUS AND LAPPED A MINIMUM OF 48 BAR DIAMETERS AT ALL SPLICES, CORNERS, AND INTERSECTIONS UNLESS NOTED OTHERWISE.
5. ALL REINFORCEMENT SHALL BE SECURELY TIED IN ITS PROPOSED LOCATION PRIOR TO AND DURING PLACEMENT OF CONCRETE USING APPROVED CHAIRS, SPACERS AND TIE WIRE AS REQUIRED. NO BARS SHALL BE CUT OR OMITTED IN THE FIELD WITHOUT THE APPROVAL OF THE ENGINEER.
6. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185, WITH A MINIMUM YIELD STRENGTH OF 75 KSI, LAP EDGES AND ENDS OF FABRIC SHEETS A MINIMUM OF ONE MESH SPACING PLUS 2 INCHES, AND WIRE TOGETHER. ALTERNATIVELY, SLABS-ON-GRADE MAY BE REINFORCED WITH FIBER REINFORCEMENT, SUCH AS FIBERMESH, APPLIED AT A DOSAGE RATE OF NO LESS THAN 1.5 LBS/CU YD.
7. CONCRETE PROTECTION FOR REINFORCEMENT SHALL IN ALL CASES BE AT LEAST EQUAL TO THE DIAMETER OF THE BAR EXCEPT FOR CONCRETE SLABS.
8. ALL PRECAST CONCRETE SHALL BE NORMAL WEIGHT CONCRETE AND SHALL DEVELOP A COMPRESSIVE STRENGTH OF 5,000 PSI IN 28 DAYS, UNLESS OTHERWISE NOTED. CONCRETE SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 3/4 INCH, A MINIMUM CEMENT CONTENT OF 560 LBS/CU YD., AND A MAXIMUM SLUMP OF 4 INCHES.
9. ALL FOOTINGS SHALL BE CENTERED BELOW THE MEMBERS WHICH THEY SUPPORT UNLESS SHOWN OTHERWISE.
10. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4 INCH CHAMFER UNLESS NOTED OTHERWISE.
11. ALL CONCRETE EXPOSED TO THE WEATHER SHALL BE AIR-ENTRAINED.
12. SIZES AND LOCATIONS OF ALL REQUIRED EMBEDDED ITEMS FOR ALL TRADES SUCH AS ANCHOR BOLTS, PIPING SLEEVES, HOLDOWN ANCHORS, ETC., SHALL BE COORDINATED BY THE CONTRACTOR WITH OTHER TRADES.
13. CONSTRUCTION JOINTS SHALL BE DETAILED AND LOCATED ON SHOP DRAWINGS AND APPROVED BY THE ENGINEER. UNLESS SHOWN OTHERWISE, CONSTRUCTION JOINTS ARE TO BE KEYPED AND PROVIDE FOR CONTINUITY OF REINFORCING STEEL. CONSTRUCTION JOINTS ARE TO BE LOCATED WHERE CONSTRUCTION OPERATIONS ARE SUSPENDED FOR 30 MINUTES OR MORE.
14. CONSTRUCTION JOINTS IN WALLS SHALL BE LOCATED AT THE CONVENIENCE OF THE CONTRACTOR MID-WAY BETWEEN BUTTRESSES, BUT NOT LESS THAN 4'-0" FROM ANY OPENING, EXCEPT WHERE SPECIFICALLY SHOWN ON PLAN OR APPROVED BY THE ENGINEER. IN NO EVENT SHALL A STRAIGHT RUN LONGER THAN 80'-0" BE PLACED WITHOUT A JOINT.
15. NO HORIZONTAL CONSTRUCTION JOINTS ARE PERMITTED IN WALLS, OTHER THAN SHOWN IN DETAILS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LIMITING POURS TO MINIMIZE SHRINKAGE CRACKING. IN GENERAL, WALLS SHALL NOT BE POURED IN CONTINUOUS LENGTHS EXCEEDING 30 FEET WITHOUT CONTRACTION (CONTROL) JOINTS. THE LOCATION AND CONFIGURATION OF JOINTS EXPOSED TO VIEW SHALL BE COORDINATED WITH THE ARCHITECT. CONTRACTION JOINTS IN SLAB-ON-GRADE SHOULD NOT EXCEED 20 FEET IN ANY DIRECTION. TYPICAL CONTRACTION JOINT PATTERNS ARE INDICATED ON FOUNDATION PLANS.
17. IF SHALLOW FOUNDATION WALLS, EXTENDED PLATFORMS, ETC. ARE POURED SEPARATELY FROM THE MAIN FOUNDATION WALLS, PROVIDE 2 1/2 INCH DEEP KEY (FULL AREA) AND DOWEL ALL REINFORCEMENT.



CULVERT SECTION ALONG MAIDFORD RIVER BASELINE

SCALE: 1" = 5'

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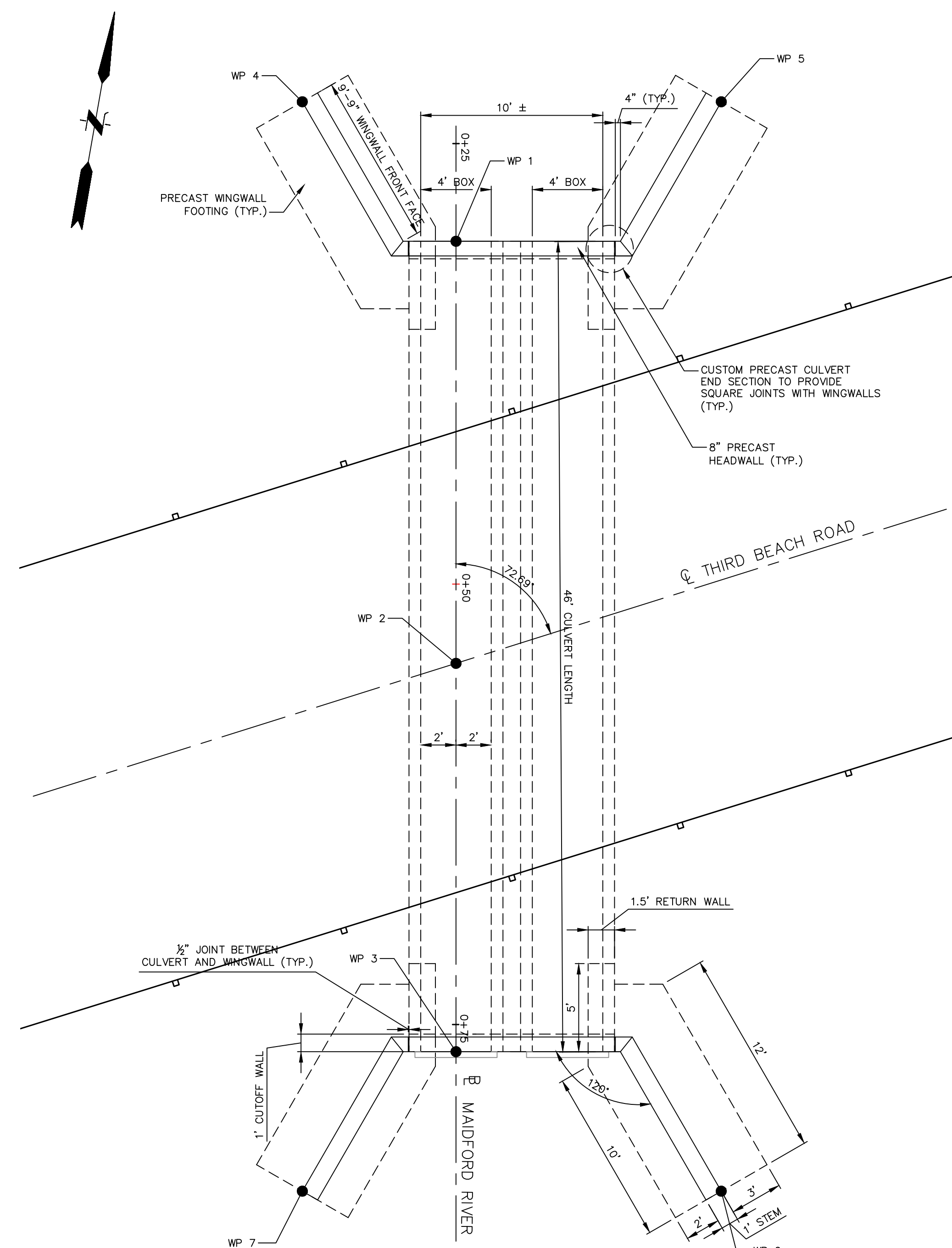
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THE NATURE CONSERVENCY - RHODE ISLAND
CULVERT PLAN, ELEVATION AND SECTION
 MAIDFORD RIVER RESTORATION PROJECT
 MIDDLETOWN RHODE ISLAND

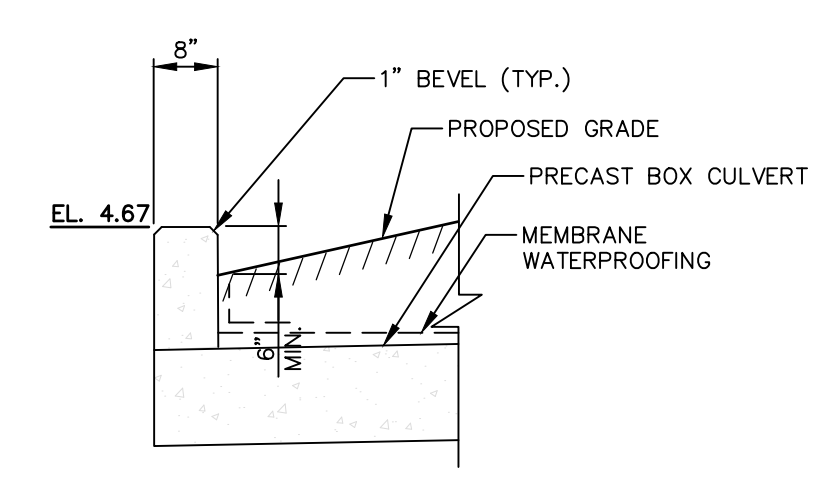
PROJ. No.: 20140870E10
 DATE: FEBRUARY 2018
S-01

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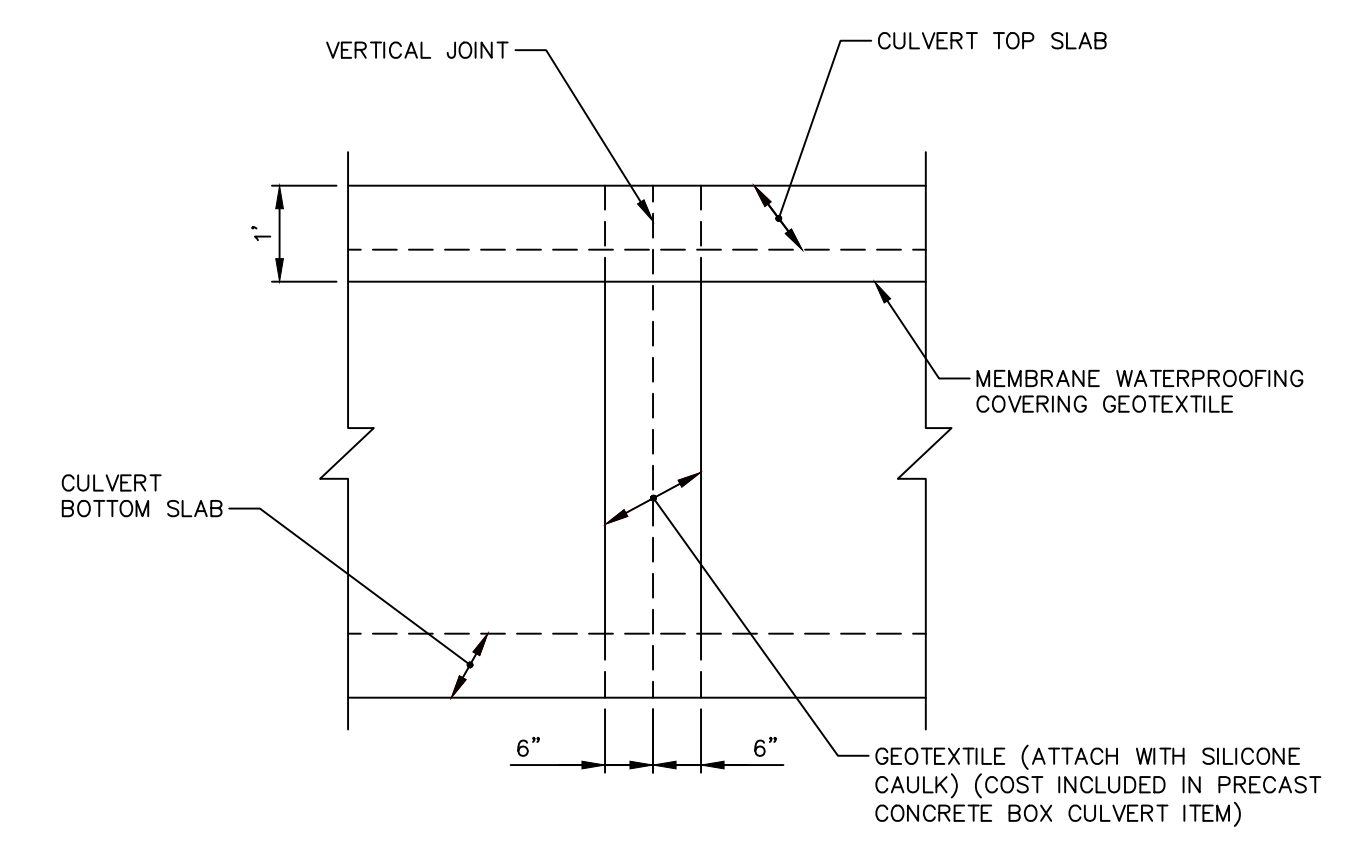


LAYOUT PLAN
SCALE: 1" = 5'

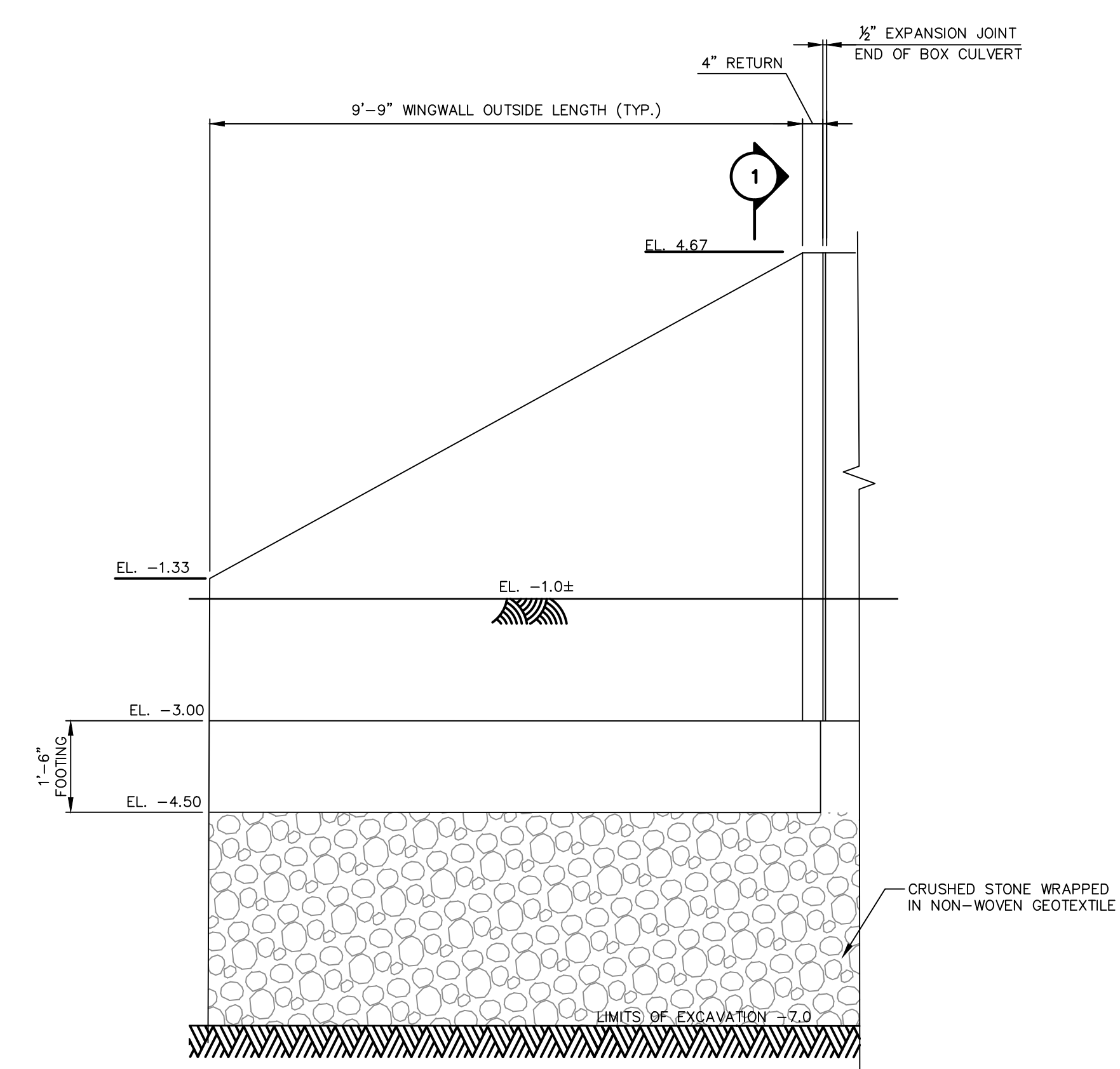
WORKING POINTS		
	NORTH	EAST
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WP 2	147,485.71	396,805.17
WP 3	147,463.96	396,809.17
WP 4	147,515.41	396,790.82
WP 5	147,519.71	396,814.21
WP 6	147,454.60	396,802.03
WP 7	147,458.90	396,825.41



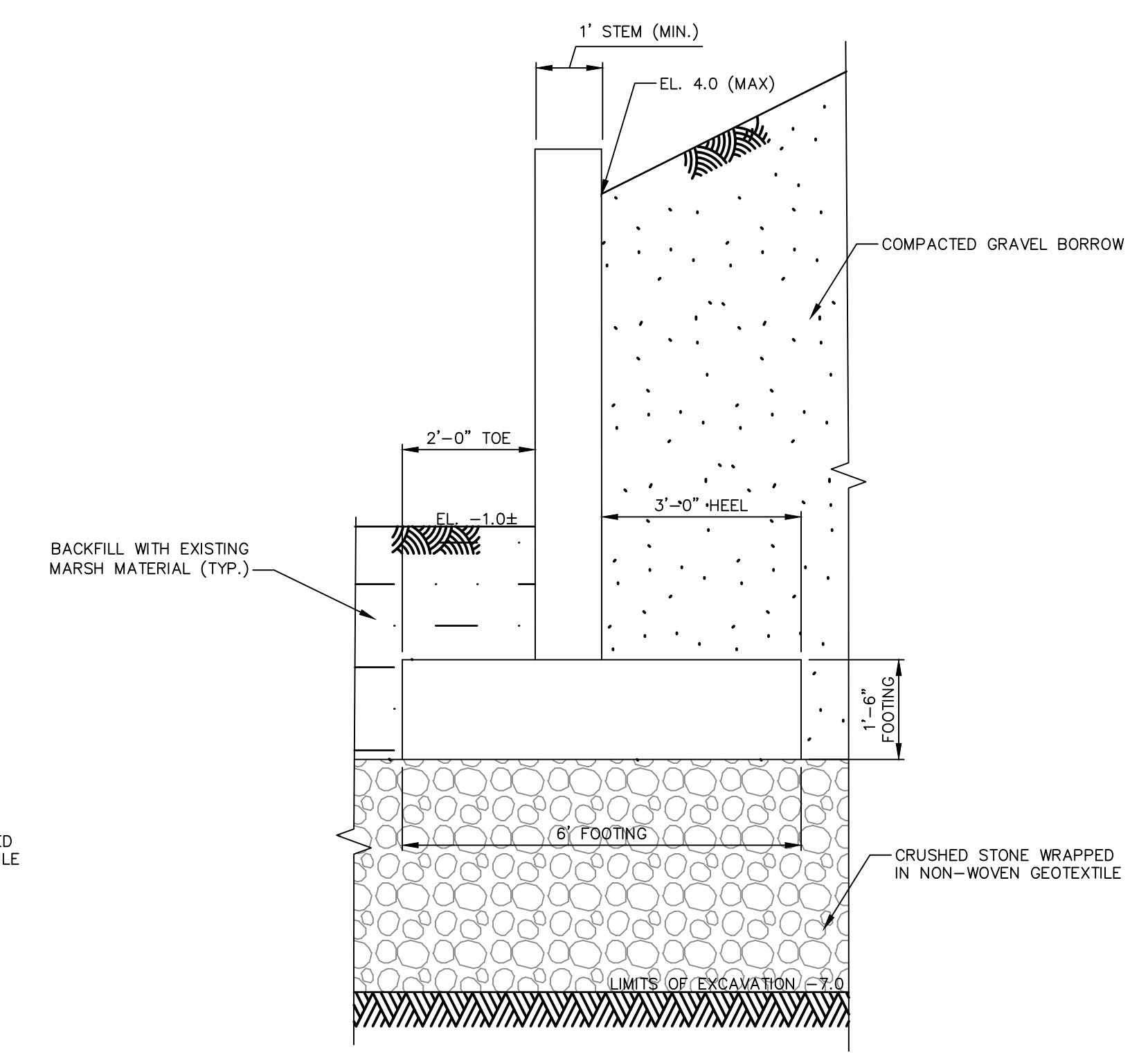
HEADWALL DETAIL
SCALE: 1/2" = 1'



CULVERT JOINT DETAIL
SCALE: 1/2" = 1'



TYPICAL WINGWALL ELEVATION
SCALE: 1/2" = 1'

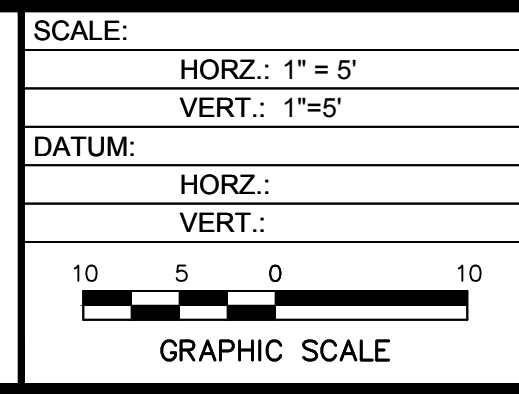


1 TYPICAL WINGWALL SECTION
SCALE: 1/2" = 1'

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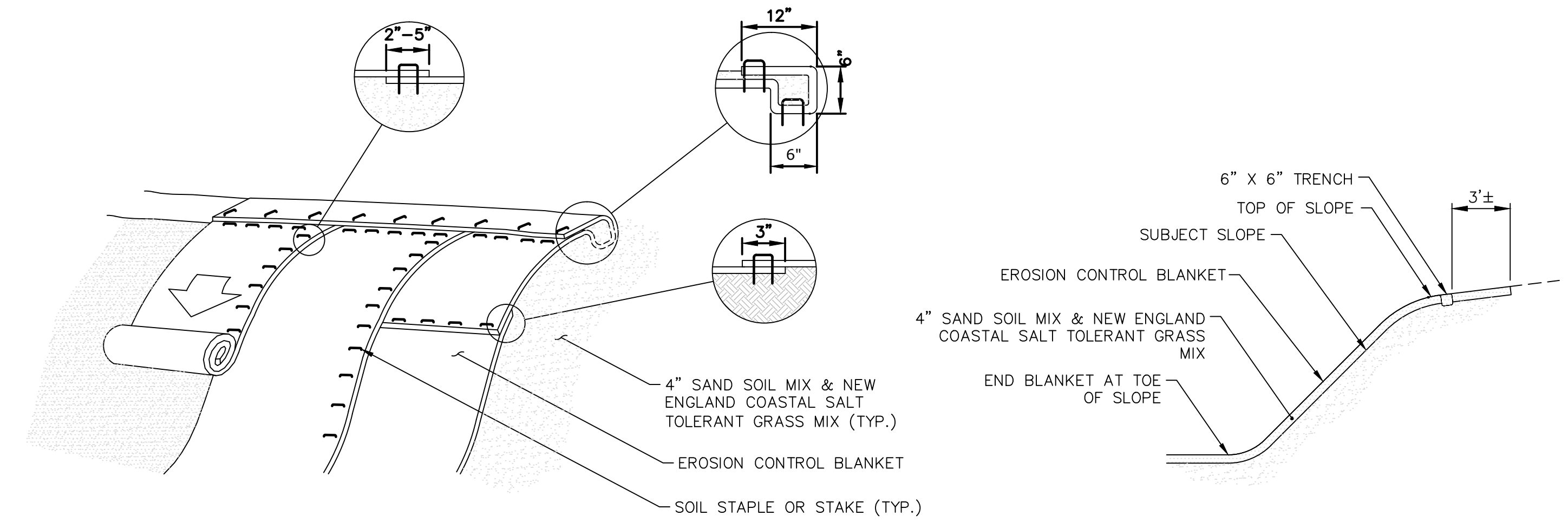
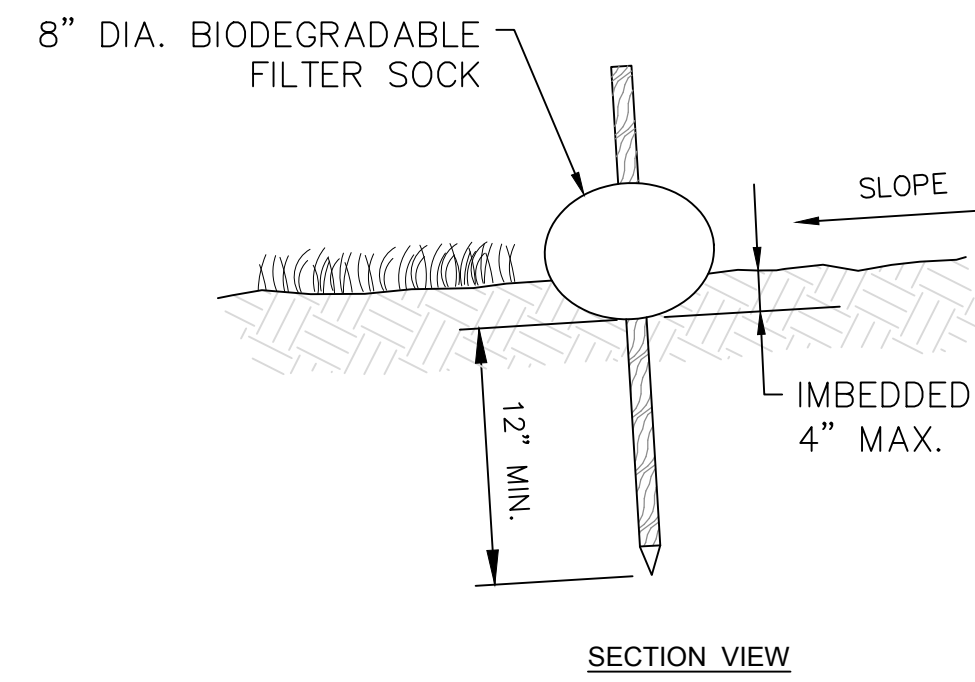
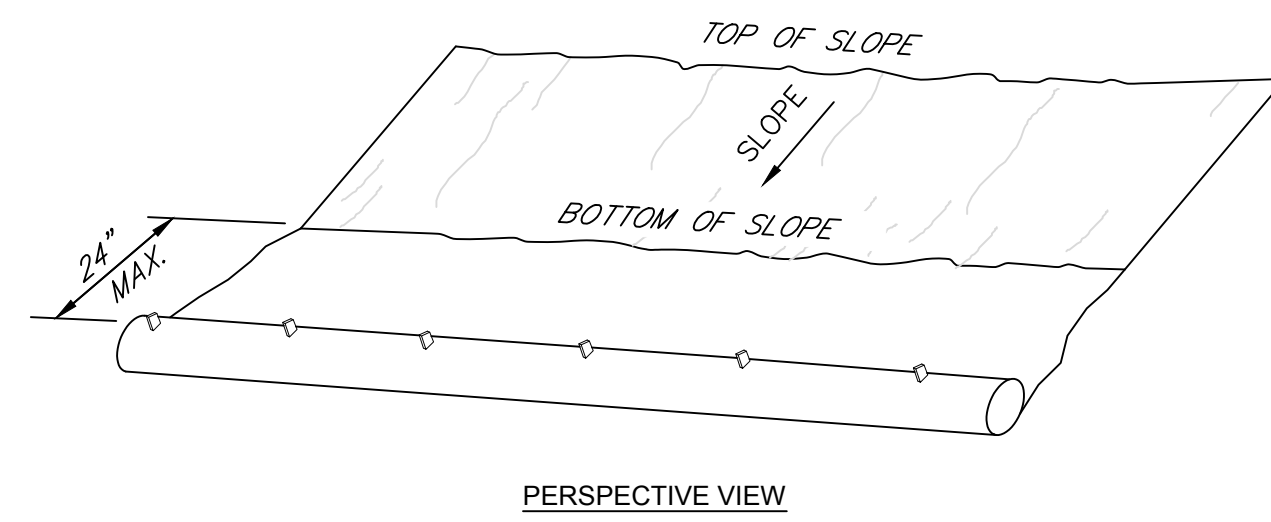
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THE NATURE CONSERVENCY - RHODE ISLAND
 STRUCTURAL DETAILS
 MAIDFORD RIVER RESTORATION PROJECT
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.E10
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S-02



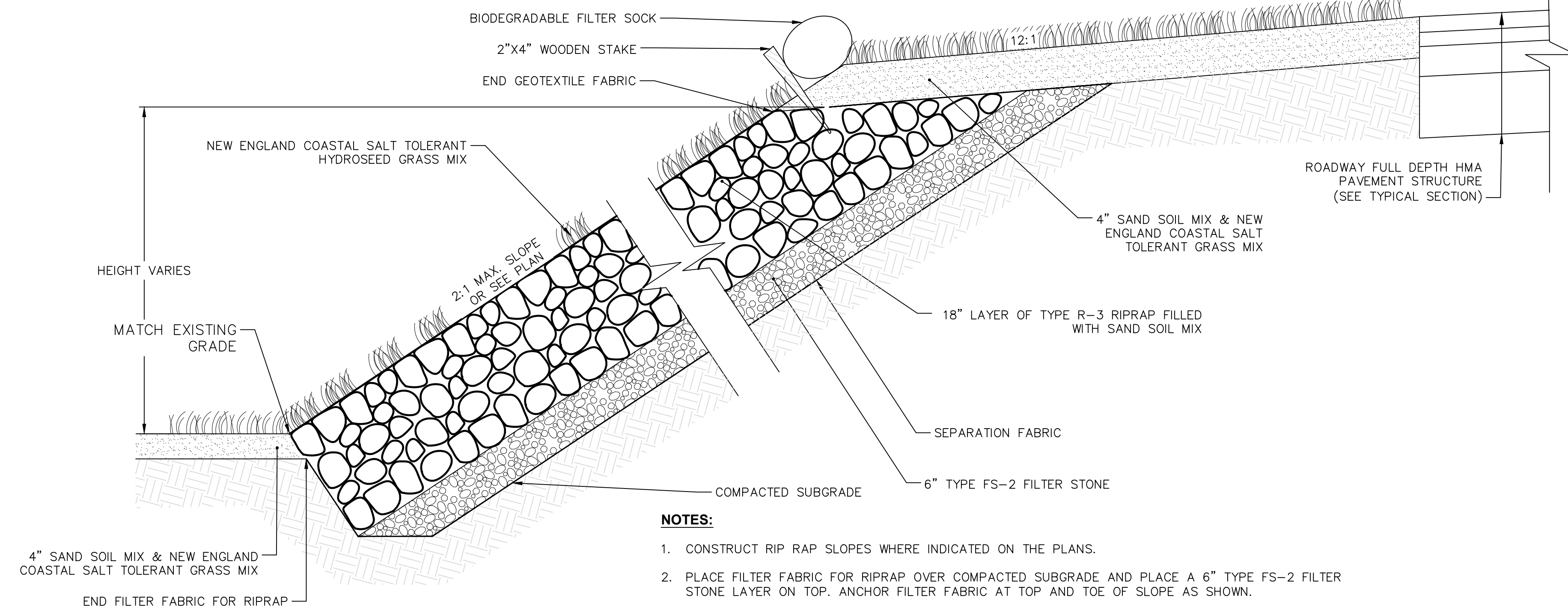
NOTES:

- 8-INCH DIAMETER FILTER SOCKS SHALL BE INSTALLED WHERE INDICATED ON THE CONTRACT DRAWINGS AND SHALL BE CONSTRUCTED OF 100% BIODEGRADABLE MATERIAL. A ROW OF FILTER SOCKS (WEIGHTED DOWN AND NOT STAKED) SHALL ALSO BE INSTALLED AROUND ANY SOIL STOCKPILE AREAS UTILIZED BY THE CONTRACTOR DURING CONSTRUCTION.
- FILTER SOCKS SHALL BE TRENCHED APPROXIMATELY 4 INCHES AND STAKED SUCH THAT FILTER SOCKS DIRECTLY CONTACT SOIL AND PRECLUDE UNDERMINING OR BLOWOUTS. THE TRENCH SHALL BE APPROXIMATELY 9 INCHES WIDE. UNLESS SHOWN OTHERWISE, STAKES SHALL BE DRIVEN THROUGH THE CENTER OF THE COIR ROLL AT A SPACING OF 3-4 FEET ON CENTER AND NO GREATER THAN 6" FROM THE EACH END OF THE FILTER SOCKS. STAKES SHALL BE 1"x1" WOODEN STAKES WITH A LENGTH OF 18-24 INCHES. COMPACT SOIL EXCAVATED TO CREATE TRENCH ON UPHILL SIDE.
- ENDS OF ADJACENT FILTER SOCKS SHALL BE TIGHTLY BUTTED OR OVERLAPPED SO THAT NO OPENING EXISTS FOR WATER TO PASS THROUGH. FILTER SOCKS SHALL BE FREE OF DAMAGE OR DEFECTS WHEN DELIVERED TO THE SHIPPER. NO VEHICLES SHALL BE DRIVEN OVER FILTER SOCKS.

BIODEGRADABLE FILTER SOCK DETAIL
NOT TO SCALE

EROSION CONTROL BLANKET NOTES:

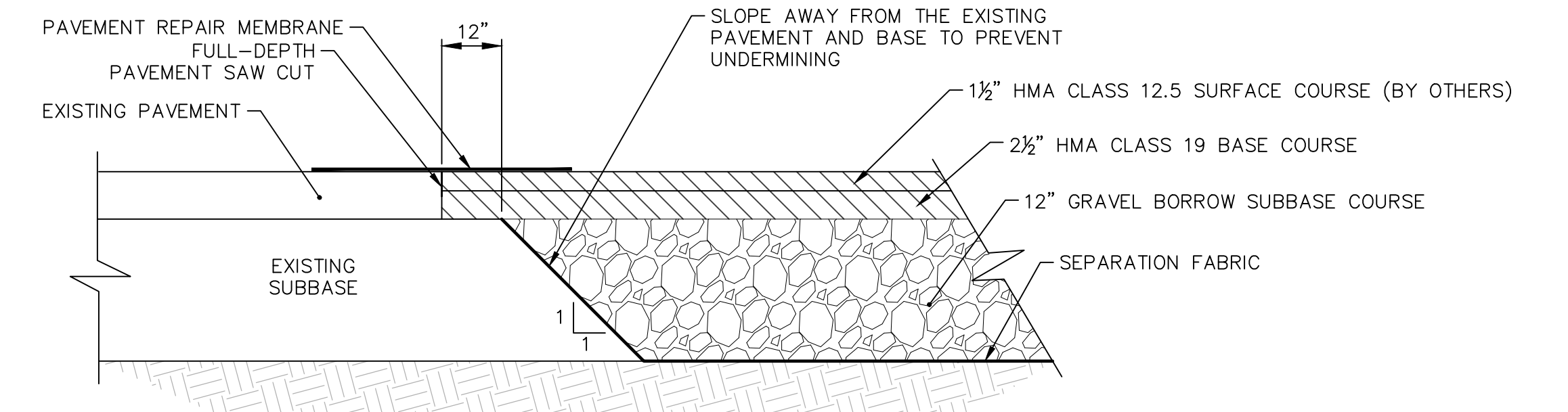
- PREPARE TOPSOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL BLANKETS DOWN SLOPE, HORIZONTALLY ACROSS FOR DITCH SIDE SLOPES. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES IN APPROPRIATE LOCATIONS AS SPECIFIED BY THE MANUFACTURER.
- THE EDGES OF PARALLEL BLANKET MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. CONSECUTIVE HORIZONTAL BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.
- INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
- IN LOOSE SOIL CONDITIONS THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.



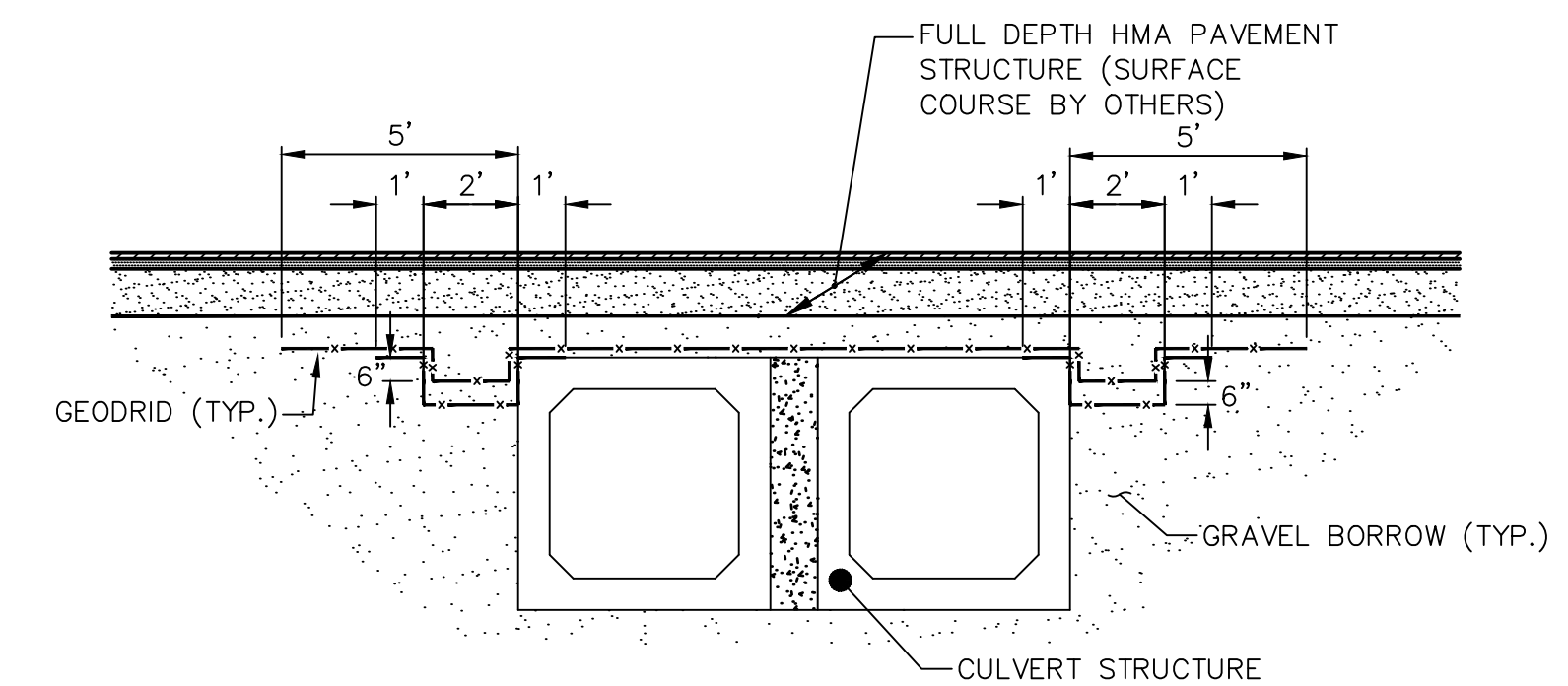
NOTES:

- CONSTRUCT RIP RAP SLOPES WHERE INDICATED ON THE PLANS.
- PLACE FILTER FABRIC FOR RIPRAP OVER COMPACTED SUBGRADE AND PLACE A 6" TYPE FS-2 FILTER STONE LAYER ON TOP. ANCHOR FILTER FABRIC AT TOP AND TOE OF SLOPE AS SHOWN.

RIP RAP SLOPE TREATMENT DETAIL
NOT TO SCALE



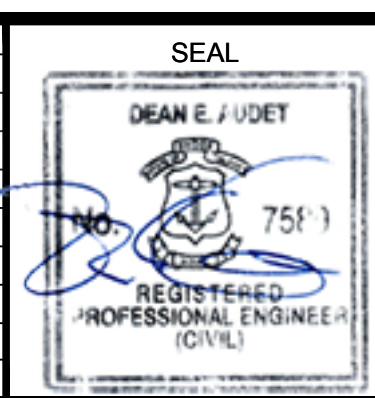
PAVEMENT TRANSITION DETAIL
NOT TO SCALE



GEOGRID DETAIL
NOT TO SCALE

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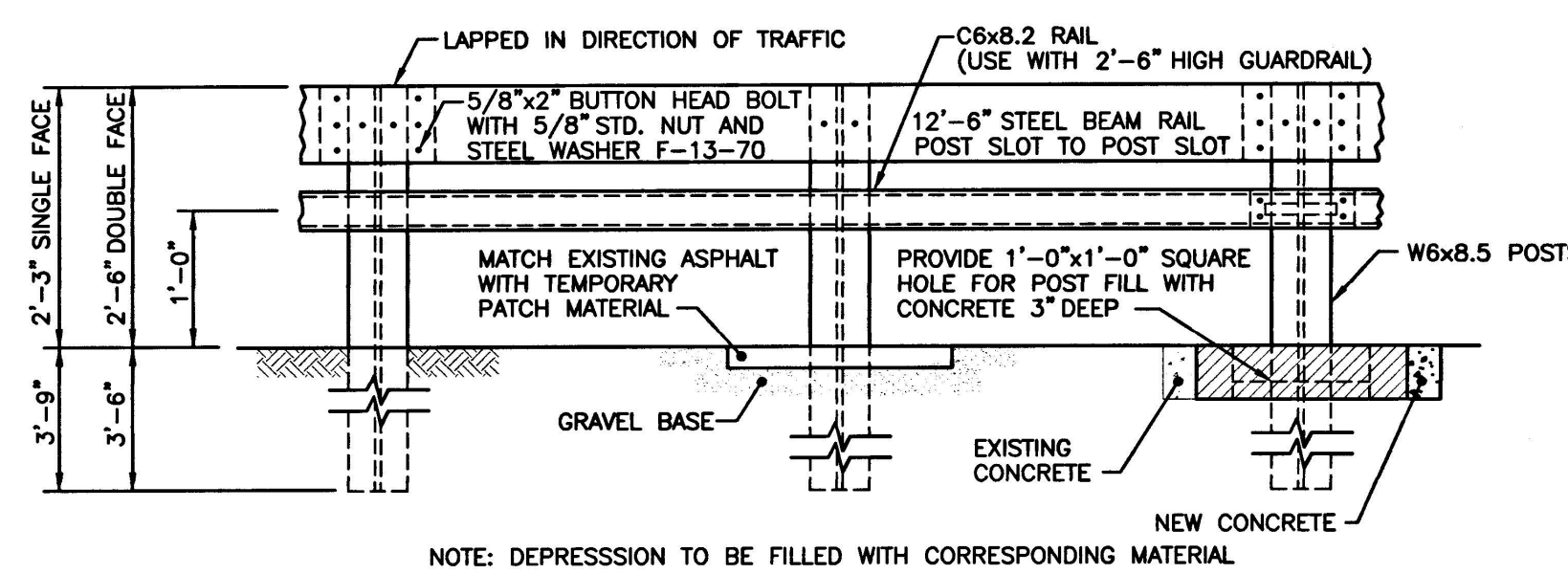
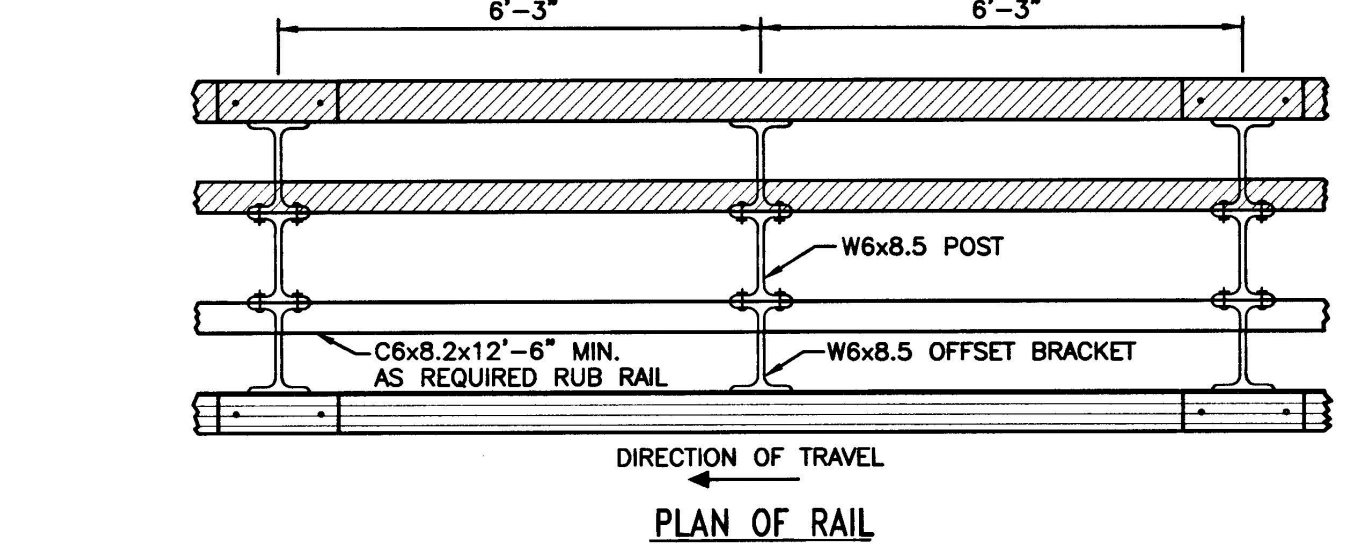
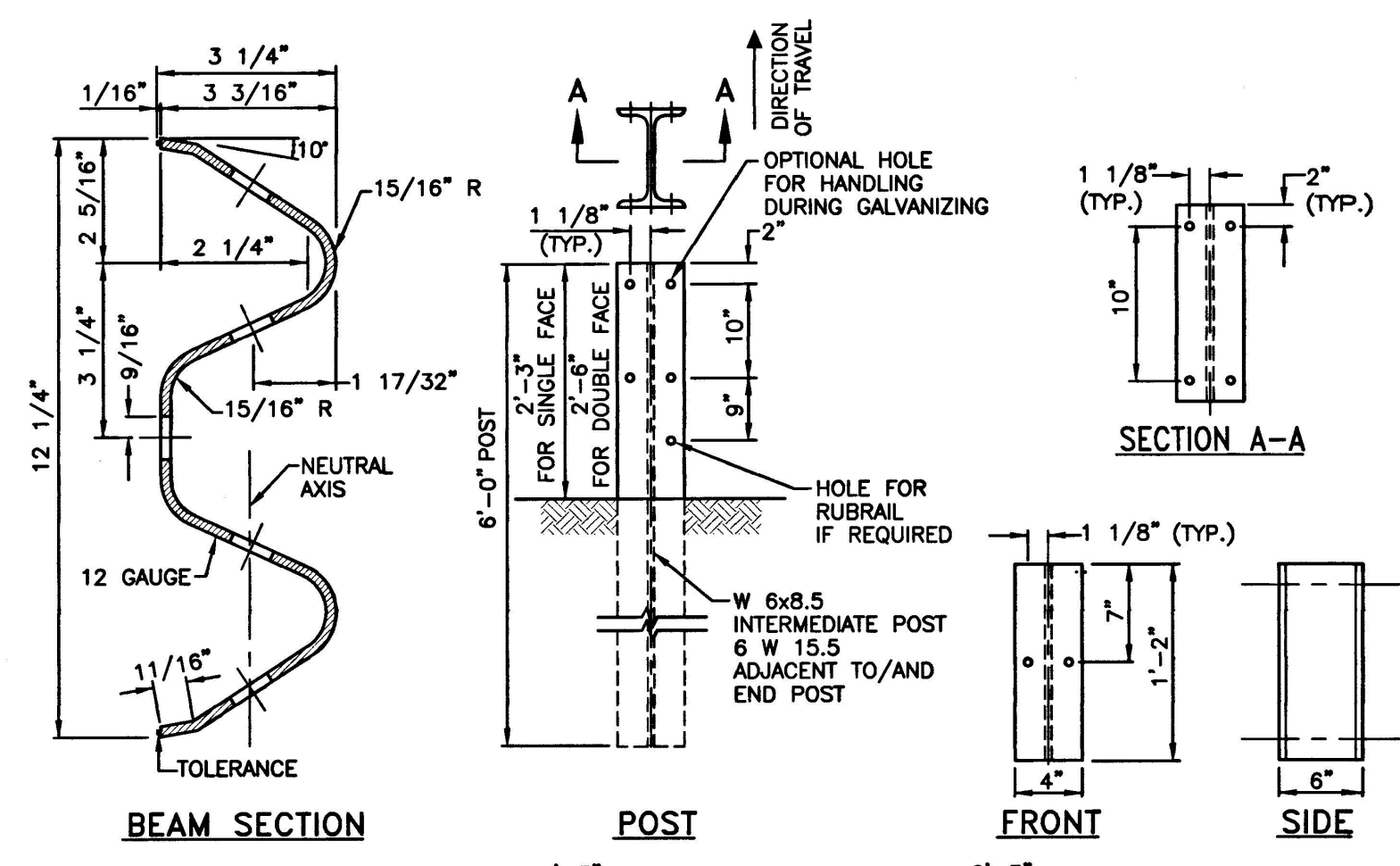
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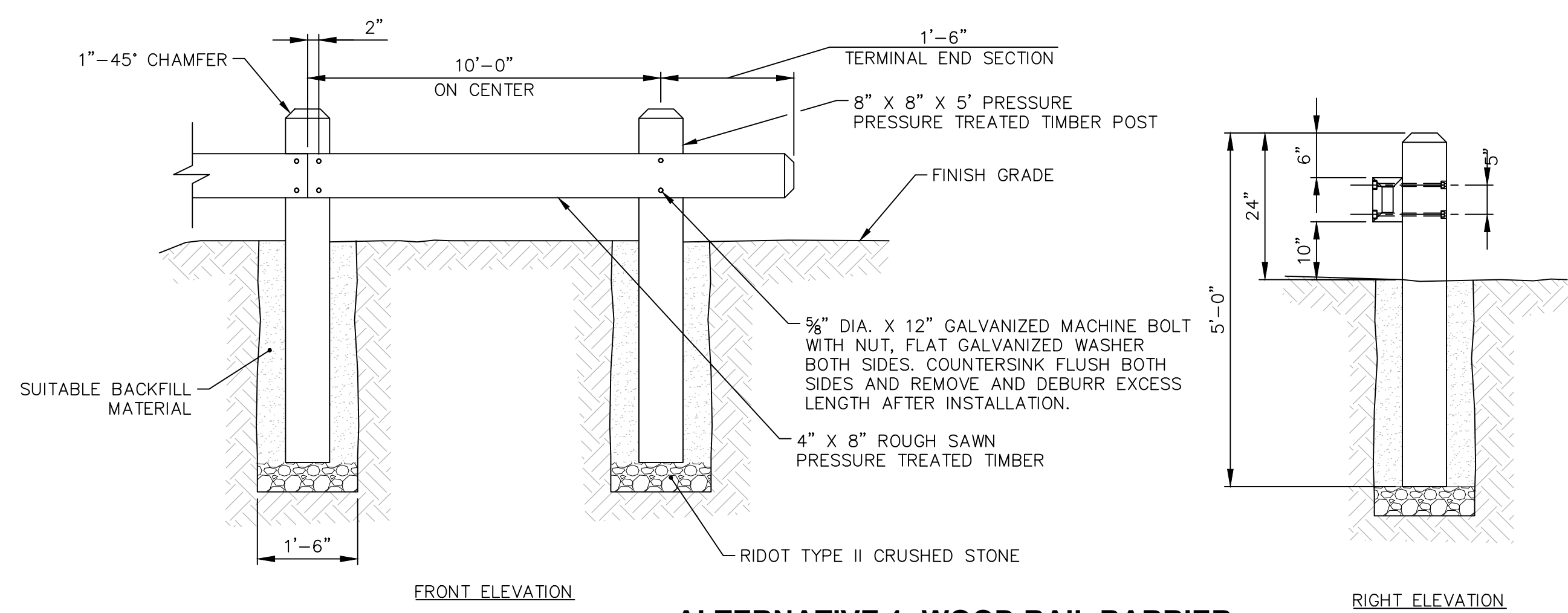
THE NATURE CONSERVENCY - RHODE ISLAND
 CONSTRUCTION DETAILS
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 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.E10
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CD-501

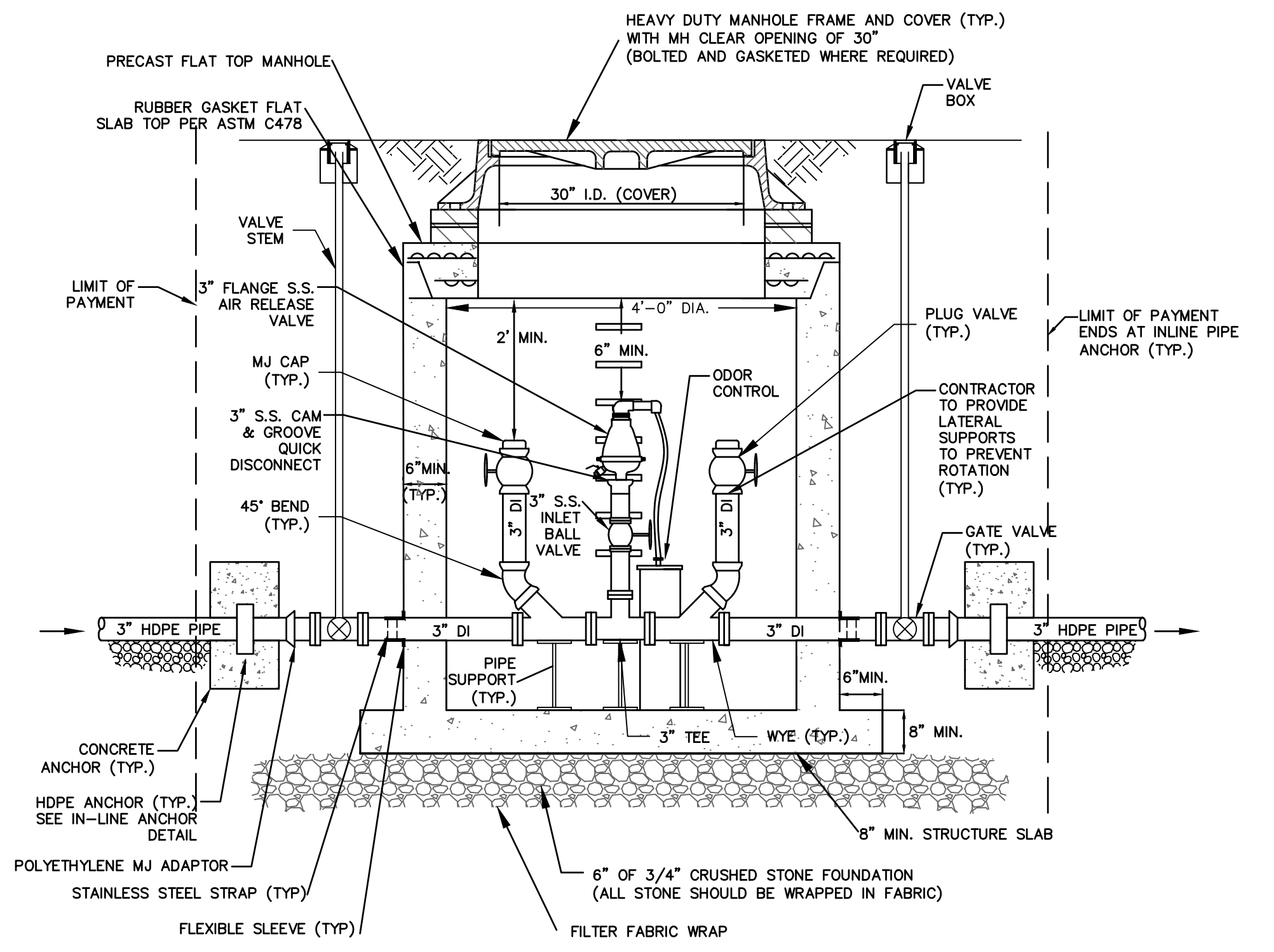


- NOTES:**
1. SHALL BE IN ACCORDANCE WITH SECTION 901 OF THE R.I. STANDARD SPECIFICATIONS.
 2. POST AND OFFSET BRACKET TO BE FABRICATED FROM 6"x4" 8 1/2 LBS/FT. STEEL "H" SECTIONS.
 3. POST AND BRACKET BOLT HOLES TO BE OVAL UNLESS OTHERWISE SPECIFIED.
 4. ALL HOLES IN OFFSET BRACKETS SHALL BE 13/16".

STEEL BEAM GUIDERAIL DETAIL
NOT TO SCALE



ALTERNATIVE 1: WOOD RAIL BARRIER
NOT TO SCALE



CLEANOUT CHAMBER W/ AIR RELEASE/VACUUM VALVE
(BID ALTERNATE)
N.T.S.

NOTE:
ALL PIPING, EXCEPT AS NOTED, TO BE DUCTILE IRON CONNECTED WITH RESTRAINED MECHANICAL JOINTS AND STAINLESS STEEL BOLTS.

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