

PROJECT BID MANUAL
FOR
SCHUYLKILL BANKS SOUTH STREET
SHORELINE RESTORATION

PHILADELPHIA, PENNSYLVANIA

SCHUYLKILL RIVER DEVELOPMENT CORPORATION (SRDC)



SRDC PROJECT NO: SSSR – 001

SRDC

2401 Walnut Street, Suite 603
Philadelphia, PA – 19103



March 2025

BOWMAN CONSULTING GROUP

1224 Baltimore Pike, Suite 205
Chadds Ford, PA - 19317

Bowman

BOWMAN PROJECT: 270081

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INSTRUCTIONS TO BIDDERS

Schuylkill River Development Corporation (SRDC) is accepting bids for the **Schuylkill Banks Bulkhead South Street Shoreline Restoration Project (Project)**. Your company is invited to submit a Bid for this Project. No Pre-Bid Conference is planned for this project however, bidders are strongly encouraged to visit the site at low tide. Bidders may submit request for information (RFI) and coordinate with the Owner during the bid phase. Following is some relevant information related to this Bid:

1. **Project Location:** Schuylkill Banks Shoreline at and North of South Street Bridge along the East Bank of Schuylkill River, Philadelphia, PA
2. **Pre-Bid Conference:** None.
3. **SRDC Contact:** Joseph Syrnick
President & CEO
2401 Walnut Street, Suite 603
Philadelphia, PA 19103
Phone: 215 309 5523; Extn: 102
Email: Joseph.Syrnick@srdc.net
4. **Last Date of Bid Query:** April 8, 2025
5. **Bid Queries Submitted (via Email Only) To:** Joseph Syrnick
Email: Joseph.Syrnick@srdc.net
6. **Bid Due Date:** April 16, 2025 (by 4 pm)
7. **Bid Submitted (Mail, Hand Deliver, via Email) To:** Danielle Whitesel
Email: danielle.whitesel@srdc.net

GENERAL INSTRUCTIONS:

- **Pre-Bid Site Visit.** Contractors are advised and strongly encouraged to visit the project site before submitting bid for this project to review and assess the project scope, site conditions and limitations. It is recommended that the site visit be conducted at low tide. SRDC will be pleased to escort bidders on this site visit and answer any questions about the Project. To make arrangements for site visits, call Joseph Syrnick at 215.309.5523, Extension 102.

- **Bid Inquiries.** Any inquiries related to this bid shall be submitted in writing via email. Responses to all bid inquiries will be emailed to all bidders. It is the responsibility of bidders to provide their contact information to SRDC via email. SRDC will use this contact information to issue any addenda and responses to bid inquiries.
- **Bid Format.** The submitted bids shall be Lump Sum Bids. The Total Lump Sum Bid Amount is intended to cover all labor; material; equipment; site moving; handling; Contractor's Project Management & Supervision; taxes; and all expenses incidental to completing the work in a workmanlike manner. The Bid Form and Schedule of Quantities Sheets provided are to be completed by the bidders and submitted as part of the Bid submission in written form.
- **Bid Submission.** Bids may be submitted at SRDC office, 2401 Walnut Street, Suite 603, Philadelphia, PA 19103 as a hard copy (mailed or hand-delivered) or via email to danielle.whitesel@srdc.net. It is the Bidder's responsibility to assure delivery of the proper documents to SRDC by the prescribed deadline.
- **Bid Evaluation.** SRDC will evaluate the received bids and award the Contract to the lowest responsive and responsible bidder. SRDC reserves the right to reject any and all bids.
- **Bid Opening.** There will be no public bid opening.
- **Acceptance/Rejection of Bids.** SRDC reserves the right to accept or reject all bids. It is SRDC's intention to award a complete Project if the bid amounts fit within the Project Budget. Should the bids exceed budget SRDC may attempt to negotiate a reduced scope of work to fit within budget restrictions.
- **Addendums.** SRDC reserves the right to issue Addenda to the Contract Documents at any point during the bidding or construction periods to clarify, revise, or supersede information in the Specifications, Drawings, and or previously issued Addenda. Portions of the Addenda affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.

END OF SECTION

BID FORM

**Schuylkill Banks South Street Shoreline Restoration
at
Schuylkill Banks
Philadelphia, PA**

_____, 2025

Mr. Joseph R. Syrnick, PE, PLS
President & CEO
Schuylkill River Development Corporation
2401 Walnut Street, Suite 603
Philadelphia, PA 19103

Dear Mr. Syrnick:

The undersigned, _____, having familiarized himself/herself/themselves/itself with the local site conditions affecting the cost of the work and with the Contract Documents, including Bid Form, General Terms & Conditions, Schedule of Quantities, Scope of Work, and Drawings, etc., hereby proposes to perform everything required to be performed and to provide and furnish all labor, material, tools, equipment and all incidental and related work, complete, in accordance with all Contract Documents in a workmanlike manner, all of the work required to be performed under the above named contract, on or before the date specified in the Schedule submitted with the bid, for the following lump sum price:

BASE BID: Schuylkill Banks South Street Shoreline Restoration

\$ _____
Lump Sum Price in Words

\$ _____
Lump Sum Price in Figures

NOTE: Schuylkill River Development Corporation (SRDC) has attached a Schedule of Quantities and Total Bid Form. The Bidder must fully complete this form and submit it along with the Bid Form. These figures will be used as a basis for negotiation of additions or deletions of work.

PERFORMANCE OF WORK BY CONTRACTOR

I, the undersigned Contractor, shall perform, on the site and with my own organization, at least 60 percent of the total amount of work to be performed under this contract.

I shall perform the following work:

Percentages of work to be performed by my organization _____ %

Estimate cost of work to be performed by my organization \$ _____

It is understood that the right is reserved by **Schuylkill River Development Corporation** to reject any or all bids and to waive any informalities in the bids.

The undersigned will enter into and execute a contract based upon this proposal, without delay, upon notice of award of contract, and will not withdraw this bid.

If bid is by an individual or a partnership, form must be dated and signed here:

This _____ day of _____, 2025

Signature of Owner or Partner

Business Name of Bidder

Type or Print Name and Title

Address, Including Zip Code

Telephone Number

If bid is by a corporation, form must be dated and signed here by (a) President or Vice President, and, (b) Secretary, Assistant Secretary, Treasurer, and (c) a corporate seal affixed. If this form is not so signed, a duly certified corporate resolution authorizing form of execution used must be attached to bid.

CORPORATE SEAL

This _____ day of _____, 2025

Corporate or Business Name of Bidder

Address Including Zip Code

Signature of President or
Vice President

Signature of Secretary,
Assistant Secretary, Treasurer, or
Assistant Treasurer

Type or Print Name and Title

Type or Print Name and Title

Telephone Number

SCHEDULE OF QUANTITIES

**SCHEDULE OF QUANTITIES
BASE BID - OPTION 3 - FULL SCOPE**

Item No.	Approximate Quantity and Units	Description of Item & Written Unit Prices Bid	Material		Labor		Equipment		Unit Price		Total Price	
			Dollars	Ct	Dollars	Ct	Dollars	Ct	Dollars	Ct	Dollars	Ct
1	Lump Sum	Admin.; co-ord.; project mgmnt.; mob/demob; site moving; site clean up; safety training; install safety measures; site safety rep.; fire watch; follow all env. permit reqmnts including booms, turbidity barriers, sediment control device installation; make Submittals; Relocate/temp support interfering elements, as specified and install them back at original location; provide access to dock structures & equip. during const.; load, unload, transport & handle all mat'ls & equip.t; layout; Prof. Engg. services; side scan sonar if waterside equip. is used; address punchlist; develop & submit As-Built Dwgs..Any other item not included in Schd. of Qty.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	
2	Lump Sum	Perform landside survey using Surveyor registered in Commonwealth of Pennsylvania.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	
3	Lump Sum	Perform soundings in area of revetment.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	

**SCHEDULE OF QUANTITIES
BASE BID - OPTION 3 - FULL SCOPE**

Item No.	Approximate Quantity and Units	Description of Item & Written Unit Prices Bid	Material		Labor		Equipment		Unit Price		Total Price	
			Dollars	Ct	Dollars	Ct	Dollars	Ct	Dollars	Ct	Dollars	Ct
4	Lump Sum	Remove debris/objects within the footprint of revetment, prepare, and excavate for revetment toe. Dispose excavated material & debris offsite. Procure & install geotextile.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	
5	Lump Sum	Design, Procure and install helical piles at inshore end of revetment and at turtle stations.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	
6	Lump Sum	Procure and install rebar and formwork for turtle stations. Place concrete.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	
7	Lump Sum	Place AASHTO #57 stone in area of revetment.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	
8	Lump Sum	Place single hydrotex mattress. Fill w/ concrete and tie next hydrotex mattress to mattress filled with concrete. Continue until all mattresses are placed and filled with concrete.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	

**SCHEDULE OF QUANTITIES
BASE BID - OPTION 3 - FULL SCOPE**

Item No.	Approximate Quantity and Units	Description of Item & Written Unit Prices Bid	Material		Labor		Equipment		Unit Price		Total Price	
			Dollars	Ct	Dollars	Ct	Dollars	Ct	Dollars	Ct	Dollars	Ct
9	Lump Sum	Place R-7 rip-rap toe and upstream/downstream protectionprotection as shown on Bid Documents.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	
10	Lump Sum	Install flowable fill under Schuylkill River Trail as shown in Bid Document and anchor hydrotex mat to exist. concrete.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	
11	Lump Sum	Perform intermittent hydrographic and landside surveys.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	
12	Lump Sum	Perform final hydrographic and landside surveys.										
			\$		\$		\$		\$		\$	
13	Lump Sum	Procure and install wire rope and turtle station log as shown in Bid Drawings.										
		at										
		Lump Sum	\$		\$		\$		\$		\$	
Total of Items 1 Through 13:			\$		\$		\$		\$		\$	

NOTES: 1. The Total Cost of Items 1 through 13 shall equal the Fixed Price of the Base Bid for the Project.

SCHEDULE OF QUANTITIES

BASE BID - OPTION 3 - FULL SCOPE

2. These prices shall be used for additions and/or deletions in the scope of work.
3. Prices shall include labor, material, equipment, taxes, and all other services and expenses incidental to the Work, as defined in the Scope of Work, Section 01000.
4. Out of scope items shall be paid using Time & Material Rates or mutually agreed costs.

SCHEDULE OF QUANTITIES UNIT PRICES BID

Item No.	Approximate Quantity and Units	Description of Item & Written Unit Prices Bid	Material		Labor		Equipment		Unit Price	
			Dollars	Ct	Dollars	Ct	Dollars	Ct	Dollars	Ct
A.	1 CY	Procure and install additional cy of AASHTO #57 stone.								
		at								
		CY	\$		\$		\$		\$	
B.	1 CY	Procure and install additional cy of R7 stone.								
		at								
		CY	\$		\$		\$		\$	
C.	Each	Procure and install additional helical pile.								
		at								
		Each	\$		\$		\$		\$	
D.	1 CY	Procure and install additional CY of concrete.								
		at								
		CY	\$		\$		\$		\$	

SCHEDULE OF QUANTITIES UNIT PRICES BID

Item No.	Approximate Quantity and Units	Description of Item & Written Unit Prices Bid	Material		Labor		Equipment		Unit Price	
			Dollars	Ct	Dollars	Ct	Dollars	Ct	Dollars	Ct
E.	Each Day	Daily Standby Rate								
		at								
		Each	\$		\$		\$		\$	
F.	Each Hour	Hourly Standby Rate								
		at								
		Each	\$		\$		\$		\$	

NOTES:

1. These prices shall be used for additions and/or deletions in the scope of work.
2. Prices shall include labor, material, equipment, taxes, and all other services and expenses incidental to the Work, as defined in the Scope of Work 01000.
3. Out of scope items shall be paid using Time & Material Rates or mutually agreed costs.

TECHNICAL SPECIFICATIONS

SECTION 01000**SCOPE OF WORK****PART 1: GENERAL**

1.1 PURPOSE

- A. Schuylkill Banks Bulkhead (Bulkhead) is located along the eastern shore of the Schuylkill River in Philadelphia, Pennsylvania. See Figure 1 for the location of bulkhead and nearby landmarks. A public walking trail is located along the Bulkhead. The trail is maintained by Schuylkill River Development Corporation (SRDC or Owner) in cooperation with Philadelphia Parks and Recreation. A portion of the existing bulkhead has collapsed and voids have started to form at the trail. SRDC is soliciting bids to rehabilitate the existing bulkhead and stabilize the shoreline in this area (Work). Details of the scope of Work are contained in the Project Drawings and this Project Bid Manual, which together will become a part of the construction contract (Contract) between SRDC and the successful bidder.
- B. The Bulkhead locations to be repaired under this Contract are all on the East Bank of the River at the following:
- South Street Bridge.

1.2 RELATED SECTIONS

A. Submittal Procedures	Section 01330
B. Quality Requirements	Section 01400
C. Demolition	Section 02221
D. Steel Pipe Piles	Section 02460
E. Structural Steel & Metal Works	Section 05120
F. Paint & Coatings	Section 09900

PART 2: PRODUCTS

Not used.

PART 3: SUBMITTALS

- 3.1 Contractor shall prepare and provide Submittals identified in the Contract Documents, in accordance with Section 01330 (Submittal Procedures) of the Contract. Contractor shall also provide any and all additional Submittals and material samples requested by the Owner or their designated representative during construction. No additional compensation shall be made for providing these additional Submittals and samples.
- 3.2 The Bidders shall submit Welding Procedures, Procedure Qualification Records, and qualifications of their welders for all welding work to be performed on this project.
- 3.3 It is the Contractor's responsibility to make timely submittals. Contractor shall not initiate a construction activity prior to receiving ALL the submittals related to the activity, stamped as "Reviewed" or "Reviewed as Noted" by the Engineer, indicating an authorization to proceed with the construction activity. Delays arising due to the failure in making timely submittals shall be at Contractor's cost. Construction activities performed without authorization from the Engineer shall be rejected and shall be at the Contractor's risk and cost. Contractor shall remove and reconstruct unauthorized work at their own cost, as directed by the Engineer. The Contractor shall not be compensated for construction activities performed without approved Submittals in place.
- 3.4 Submittals shall be made to allow Engineer the duration of review period specified in the Bid Document. If no duration is specified in the Bid Document, allow minimum fifteen (15) working days for the review of submittals from the day of receipt of Submittal by the Engineer. Delays caused due to Submittals that do not allow the specified review period to the Engineer shall be at Contractor's expense. Submittals made after 4:00 PM local time, Monday through Thursday shall be considered as submitted on the following day. Submittals made after 12:00PM local time on a Friday shall be considered as submitted on the following Monday morning.
- 3.5 The Contractor shall submit a Submittal Log, documenting the list of submittals to be made during the project, prior to mobilization. The Contractor shall update this Submittal Log if additional submittals are required during construction.
- 3.6 All Submittals shall be reviewed, dated, and stamped as "Reviewed" by the Contractor, prior to submitting.
- 3.7 Submittals shall be transmitted electronically to the Owner and their designated representatives. Reviewed Submittals shall be returned to the Contractor, electronically.
- 3.8 Submit a two (2) week look-ahead schedule on Monday of each week to the Owner during the duration of construction work. Submit an Overall Project Construction Schedule prior to mobilization. Submit updated Overall Project Construction Schedule showing the status of each construction activity and projected completion date, during the first week of each month. The Contractor shall coordinate each work week with the Owner during the previous week.

- 3.9 At the end of construction work, submit As-Built Drawings in PDF format to the Owner.

PART 4: QUALITY ASSURANCE

- 4.1 The contractor shall adhere to the Quality Requirements specified in Section 01400 of the Contract.
- 4.2 All materials used on this Project shall be new and provided by the Contractor unless noted otherwise.
- 4.3 All steel fabrication work shall be performed in the shop using an AISC Certified Fabrication Shop. No field fabrication is permitted unless specifically authorized by the Engineer in writing.
- 4.4 All material specified to be coated shall be coated in shop, unless authorized by the Engineer or shown on the Contract Drawings otherwise. Only touch up of damaged coatings is allowed in the field.
- 4.5 All Work shall be performed in strict accordance with the Contract Drawings; Project Technical Specifications; specialty product manufacturer recommendations, latest edition of applicable Codes, Standards and Regulations; and Environmental Permits. Any discrepancy or conflict between these documents shall be brought to the attention of the Engineer for their direction, prior to proceeding with the related work.

PART 5: EXECUTION

5.1. GENERAL REQUIREMENTS

- A. Bids shall be based on supplying all necessary labor, material, and equipment for the successful completion of Work in a workmanlike manner within the Project Schedule. Yard work, storage, handling, mobilization, towing, transportation, site moving, project management, administration, supervision, taxes, duties, surcharge, expenses, and all other services incidental to the successful completion of Work shall be included in the Base Bid.
- B. The Bidders shall base their bid on working four (4), ten (10) hour days during a week (Work Week). Work week shall be Monday through Thursday. The Contractor may be allowed to work more than one shift each day and use multiple crews, if acceptable to the Owner. The number of shifts and number of crews working on this Project shall be identified in the Schedule submitted with the Bid.

- C. In their bid, the bidders shall identify the required laydown area and how the public access to the trail shall be maintained during construction. Equipment and material staging areas, including their dimensions shall be identified. All equipment and staged material, heavier than a pickup truck shall maintain a minimum clear distance of 35 ft. from the existing bulkhead. Staging area location, size and other requirements shall be discussed during the bid phase and prior to award.
- D. At the end of each Work Week, the Contractor shall secure all partially completed Work, clean the work site, secure the floating equipment, and stow equipment and materials to a safe staging area acceptable to the Owner. No additional compensation shall be made to the Contractor for these activities.
- E. Any exceptions, constructability issues, and/or proposed modifications to the design, detailing and technical specifications shall be clearly stated in the submitted Bid. No requests for modification to the design, detailing and technical specifications of the Bid Document will be accepted after the award of Work. Submission of bid without exceptions or request for modifications to the Bid Document shall imply that the bidder acknowledges that all Work, as specified in the Bid Document, is constructible and shall be performed in strict accordance with Contract Document with no exceptions.
- F. Along with their bid, the bidders shall provide lump sum daily and hourly rates for the planned construction crew. These rates shall include labor, equipment, overhead, taxes, and all other expenses incidental to the proper execution of Work. These lump sum standby rates shall apply in case of additional scope items or interruption to Work is caused by the actions of the Owner. The bidders shall also provide separate hourly billing rates for each labor classification and equipment, planned to be utilized on this Contract.
- G. If any dive operations are planned by the Contractor, a Dive Safety Plan, description of planned diving operations, diving equipment specifications, and qualifications of divers and dive supervisor shall be submitted to the Owner, by the Contractor, for review and approval, minimum one (1) week prior to initiating and dive work.
- H. Contractor shall begin work only after all necessary permits are received by the Owner, and no sooner than July 1, 2025. Contractor shall obtain all local permits including a Philadelphia Parks and Recreation (PPR) permit. There is no fee for the PPR permit and SRDC may assist the Contractor in obtaining this permit.
- I. During the bid phase the bidders shall field verify the location of all existing utilities, structures and other elements which may interfere with the execution of construction work. Contractor shall remove/temporarily relocate and support all these interfering elements, as required, unless specified otherwise in the Bid Document. Temporarily relocated elements will be located at their original position after the construction work is complete. Costs associated with these activities shall be included in the base bid. Damage to any existing element due to construction activities shall be repaired by the Contractor at no cost to the Owner. Information regarding the existing utilities can be obtained during the bid phase through site visits and by communicating with the

Owner. If the bidder requires the Owner to temporarily relocate any of these existing elements prior to their mobilization, such request shall be clearly stated in the submitted bid.

- J. The Contractor shall coordinate and inform SRDC of their planned construction activities for the next day.
- K. There is no access to this site via land, all equipment and supplies shall be brought from the waterside. Placement of concrete shall be done from pump truck on South Street Bridge. Contractor to include all cost for obtaining permits to place concrete from the bridge. Bidders shall coordinate with the Owner during Bid Phase.
- L. Load bearing capacity of existing bulkhead is not known. Operating and staging equipment heavier than a pickup truck within 35 feet of the Bulkhead is not permitted.
- M. Safety of all personnel and property in the Work area, during the entire duration of construction work, is the sole responsibility of the Contractor. Contractor shall take all necessary precautions for the safety of all personnel, property, and equipment in the Work area. Provide measures including but not limited to sheeting, shoring, temporary supports, barriers, signs, and lighting, as required.
- N. Contractor shall maintain a clean site at all times during the entire duration of construction. Construction materials, demolished materials, and debris shall not be staged at or near the trail. Ponding of water shall not be allowed at any time.
- O. All construction debris, cut-offs, and other refuse generated during the construction shall be disposed off-site, at a regulated facility by the Contractor, in accordance with applicable Federal, State and Local Regulations.
- P. All Contractor supplied/fabricated material shall be reviewed by the Contractor within three (3) days of delivery, at the location of delivery (Project Site or Contractor's yard). Material not conforming with the Contract Document or found to be unacceptable otherwise due to deficiencies and defects shall be rejected and renewed by the Contractor. Owner shall be informed of all defective and missing items and such items re-ordered, immediately. Delays due to not verifying the condition of delivered items shall be at Contractor's expense.
- Q. No utilities will be provided by the Owner. The contractor shall make their own arrangements for providing utilities and include these costs in the submitted Bid. This shall include but not be limited to electricity, water, air, and restroom facilities.
- R. The Contractor shall attend weekly progress meetings, if required by the Owner. A Contractor employee with the authority of making decisions will be present at each of these meetings.
- S. The restroom facilities are not available for construction workers. Bidders shall include the costs of providing and maintaining portable restrooms for their employees.

- T. It is the Bidders' responsibility to review personnel access and their employee parking procedures with the Owner during bid phase.
- U. The Contractor shall be solely responsible for coordinating and de-energizing electricity in the work area daily, during construction.
- V. The quantities of specified concrete product provided in the Contract Documents are intended for Bid purposes only. The Contractor shall be compensated only for the actual quantity of the concrete product placed at each repair location.
- W. SRDC intends to have Bowman act as its Engineer and Construction Manager on this project to answer RFI's, provide construction inspection and perform other related tasks. Bowman's project manager will be Duane Mace and he can be reached via email at dmace@bowman.com.
- X. SRDC will be utilizing grant funding on this project and will be required to abide by certain requirements as imposed by the grantors. The contractor will be responsible for abiding by these requirements that pertain to construction.

5.2. CONSTRUCTION SCOPE

5.2.1. GENERAL

- A. Perform site visit, within three (3) days of award to discuss the construction schedule, construction logistics, and Work Plan with the Owner. Discuss the proposed location of construction equipment, material staging area, and the Work Plan in general to allow continued access without interruption during construction. Discuss site access, employee parking, work permits, safety training, site safety, site security, and daily operations with the Owner. Provide equipment cutsheets and staging sketches for review at this meeting.
- B. Submit an updated overall project construction schedule to the Owner within three (3) days of the award of work.
- C. Prepare and provide all Submittals for review and approval by the Engineer, prior to mobilization.
- D. Procure all materials for the Project. Fabricate, coat, handle, and deliver all construction materials to the Project site, as needed.
- E. Perform initial hydrographic survey to determine existing riverbed (mudline) elevations in the footprint of proposed revetment. If it is planned to utilize floating equipment for construction work, perform hydrographic survey in areas where equipment access and

staging is planned. Existing mudline depths must be recorded at maximum 10 ft. interval at the toe of proposed revetment, directly in line with the elevations recorded along the shoreline to allow identifying and drawing the cross sectional profile thru the revetment. Reduce this interval to 5 ft if a grade elevation greater than 1 ft. is observed between two adjacent locations.

- F. Contractor shall perform a survey to provide the complete profile of existing shoreline within the project extents at South Street Bridge prior to mobilization. Contractor shall retain a Land Surveyor registered in the Commonwealth of Pennsylvania to perform this survey. The survey shall identify all features of the existing shoreline and provide enough information for the contractor to develop their cut and fill drawings for the stabilization of the shoreline. Survey elevations shall be presented relative to Mean Lower-Low Water (MLLW). Contractor shall provide a relationship between Mean Lower-Low Water (MLLW), Mean Low Water (MLW) and NAVD88. Submit survey results to the Engineer in CAD and PDF format within three (3) days of field survey work to allow modifications to the design layout and details, as necessary. Contractor shall not be paid additional compensation for these modifications.
- G. It should be noted that all elevations shown on Bid Drawings are not accurate and the actual elevations may vary significantly. The surveys performed by the Contractor shall be used to determine the final design and installation elevations and cross sections of the new riprap revetment. Contractor shall submit results of all hydrographic surveys and landside surveys in CAD format to the Engineer, within 48 hours of the completion of field work and allow the Engineer minimum five (5) working days to provide the final design and installation elevations and cross sections of the riprap revetment.
- H. Mobilize. For Pricing and Payment Schedule, the Mobilization item includes but is not limited to Administration; co-ordination; Project management; procuring materials; obtaining local permits; training; prepare & provide all Submittals; loading, unloading, handling & transporting all materials & equipment; installing safety measures; providing site safety representative and fire watch; relocating/temp supporting items to be relocated/temp supported; relocating interfering items; removing below water interfering obstructions, installing booms, barriers, turbidity barriers, sediment control device; layout; providing & maintaining access to dock structures & equipment during construction; site moving; site cleanup; addressing punchlist & field touch up coatings; developing & submitting As-Built Drawings; and any other item not included in the Pricing and Payment Schedule Form.
- I. In accordance with PA Act 287 contractor shall call Pennsylvania One Call (811) before any excavation begins.
- J. Remove all projecting tree trunks, timber logs, debris, and other object from the mudline and shoreline, which may damage the geotextile, within the footprint of proposed revetment. Cut and prepare existing shoreline, as required, for the placement of geotextile

and stone.

- K. Design and install helical piles, as specified in Bid Drawings. Contractor may use soil borings included in the Bid Document for helical pile design. Design of helical piles shall be performed by a Professional Engineer registered in the Commonwealth of Pennsylvania and retained by the Contractor. This Engineer shall have minimum ten (10) years of experience in designing helical piles. Submit calculations of helical pile design, and the criteria for field installation of helical piles to the Engineer for review and approval, minimum 3 weeks prior to the procurement of materials. The submitted helical pile design calculations and drawings shall be sealed and signed by this registered Professional Engineer.
- L. Form and pour the concrete anchors for the turtle anchor stations.
- M. Procure and place AASHTO #57 base stone as shown on Contract Documents.
- N. Install geotextile fabric with laps, as specified in bid document. Ballast with NCSA R-7 stone or use other means necessary to prevent floating of geotextile during construction.
- O. Design and install articulation block concrete mattress. Design of articulating block concrete mattress shall be performed by a manufacturer with minimum five (5) years' experience in the design and installation of articulation block concrete mattresses. Manufacturer shall provide calculations and shop drawings signed and sealed by a professional engineer registered in the Commonwealth of Pennsylvania. Alternate slopes of revetment will be entertained as part of manufacturer's design.
- P. Anchor mattresses to helical anchors as shown on Contract Documents.
- Q. Place mattresses as shown on Contract Documents and pump concrete into each mattress. Concrete shall have minimum compressive strength of 5,000 psi at 14 days. Mattresses shall be installed one at a time and filled with concrete before moving on to the next mattress. Concrete shall be pumped from South Street Bridge. Contractor shall obtain all necessary permits to place concrete pump on South Street Bridge.
- R. Once concrete has cured to 70% of design strength. Procure and place NCSA R-7 armor stone as shown on Contract Documents.
- S. Procure and place CLSM at inshore end of revetment as shown in Bid drawings. Finish with AASHTO #57 stone as shown on Contract Documents.
- T. Procure, coat and install floating turtle station anchors, wire ropes and logs.
- U. Perform intermittent landside and hydrographic surveys using registered surveyors, as specified in the Bid Document to allow calculation of the total volume of each type of stone

placed on site. Perform a final landside and hydrographic survey to determine the finished profile of revetment and to calculate final volume of placed stone. Note that stone quantities specified in Bid Document are for bid purposes only. The Contractor shall be paid for the actual quantity of stone placed on site, within the design footprint of revetment, and within the specified tolerances. No compensation shall be made to the Contractor for installing excess stone.

- V. Prepare and submit As-Built Drawings.
- W. Cleanup and demobilize.

END OF SECTION

SECTION 01330

SUBMITTAL PROCEDURES

PART 1: GENERAL

1.1 SCOPE

- A. The provisions of this section apply to the submittal of all information by the Contractor to the Owner/Owner designated representative.

1.2 RELATED SECTIONS

A.	Scope of Work	Section 01000
B.	Quality Requirements	Section 01400
C.	Earthwork	Section 02200
D.	Demolition	Section 02221
E.	Rip Rap Rock Lining	Section 02275
F.	HP Piles	Section 02461
G.	Concrete Formwork	Section 03100
H.	Reinforcing Steel	Section 03210
I.	Cast-in-Place Concrete	Section 03300
J.	Cold Weather Concreting	Section 03301
K.	Curing Concrete	Section 03390
L.	Mooring Bollard	Section 10551

PART 2: PRODUCTS

Not used.

PART 3: SUBMITTALS

- A. As specified in Related Sections and additional items requested by the Owner or their designated representative.

PART 4: QUALITY ASSURANCE

- A. Contractor shall stamp and sign each Submittal, certifying that the Contractor has reviewed, verified, and approved the submitted products, field dimensions, field fit, and impact on adjacent elements and the overall construction Work. Contractor stamp and signatures shall also imply that the Contractor certifies that the submitted information is in accordance with the requirements of the Contract Documents.

PART 5: EXECUTION

5.1. SUBMITTAL PROCEDURES

- A. It is the Contractor's responsibility to make timely Submittals. The Contractor shall not initiate a construction activity prior to receiving ALL the submittals, reviewed by the Engineer, related to the construction activity, indicating an authorization to proceed with the construction activity. Any construction activity performed without this authorization shall be at Contractor's risk and cost. Delays arising due to the failure in making timely submittals shall be at Contractor's cost. The Contractor shall not be compensated for construction activities performed without the authorization of the Owner or Owner designated representative. Submittals made after 4:00 PM EST, Monday thru Thursday shall be considered as submitted on the following day. Submittals made after 12.00PM EST on a Friday shall be considered as submitted on the following Monday morning.
- B. The Contractor shall submit a Submittal Log documenting the list of submittals to be made during the project, within two (2) weeks of award and prior to mobilization. Contractor shall update the Submittal Log and provide the updated Log with each submission of Submittals.
- C. Transmit each submittal with a letter of transmittal indicating the content of the submittal, quantity of submitted items and any special instructions.
- D. Submittals are to be sequentially numbered. Mark revised submittals with original number and sequential alphabetic suffix.
- E. On all submittals, identify the project name, contractor name, subcontractor name, supplier name, relevant drawing and detail numbers, and applicable specification section number, appropriate to the contents of the Submittals.

- F. On the Submittals, Contractor shall identify with highlighter and/or red ink variations from the Contract Documents and products or system limitations, which may alter or be detrimental to successful performance of completed Work. Contractor shall provide an estimated cost for any proposed alternates, if requested by the Owner.
- G. A total of five (5) copies of each submittal are to be issued for review. Upon review, the engineer will keep one copy, the owner will receive two copies and two copies will be returned to the Contractor. If more than two copies are required to be returned to the contractor, the contractor should submit the appropriate number of additional copies. Electronic Submittals may be acceptable, if agreed by the Owner.
- H. Schedule submittals to expedite Project and deliver to the Owner or Owner's designated representative.
- I. Unless specified otherwise in Contract Documents, allow a minimum of 15-working-day review period by the Owner or their designated representative for each Submittal, excluding delivery time to and from the Contractor.
- J. Allow space on Submittals for Contractor and Engineer review stamps.
- K. When submittals are revised for resubmission, identify changes made since previous submission.
- L. Distribute copies of reviewed submittals as appropriate. Report inability to comply with the Engineer's markups on the Submittals or any associated additional costs to comply with Engineer's markups, immediately.
- M. Submittals not requested will not be recognized or processed.
- N. No materials, supplies, equipment, or labor shall be ordered for an item until the Owner or Owner's designated representative has reviewed and returned the accepted Submittal.
- O. If drawings are included in the Submittal, the Contractor must comply with Owner's Drafting and Design Standards & Procedures.

5.2. SUBMITTAL DATA

- A. Product Data: Submit to the Owner or Owner designated representative, for the purpose of review and checking the conformance with information given and design concept expressed in Contract Documents.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project. Record this information in the submittal matrix.
- C. Contractor shall provide the Submittals required by the Contract Document and any other

information, including samples of materials, as requested by the Owner or Owner's designated representative.

END OF SECTION

SECTION 01400

QUALITY REQUIREMENTS

PART 1: GENERAL

1.1 SCOPE

- A. Quality control and control of installation.
- B. Tolerances.
- C. References.
- D. Examination.
- E. Operations.

1.2 RELATED SECTIONS

- | | | |
|----|-------------------------|---------------|
| A. | Scope of Work | Section 01000 |
| B. | Submittal Procedures | Section 01330 |
| C. | Earthwork | Section 02200 |
| D. | Demolition | Section 02221 |
| E. | Rip Rap Rock Lining | Section 02275 |
| F. | HP Piles | Section 02461 |
| G. | Concrete Formwork | Section 03100 |
| H. | Reinforcing Steel | Section 03210 |
| I. | Cast-in-Place Concrete | Section 03300 |
| J. | Cold Weather Concreting | Section 03301 |
| K. | Curing Concrete | Section 03390 |
| L. | Mooring Bollard | Section 10551 |

PART 2: PRODUCTS

Not used.

PART 3: SUBMITTALS

Not used.

PART 4: QUALITY ASSURANCE

As specified in related sections.

PART 5: EXECUTION

5.1. QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Prior to ordering any material, the Contractor is responsible for verifying all material quantities, quality of materials, field dimensions, proper field fit for existing conditions, and identifying and reporting interferences/obstructions which may prevent successful completion of work.
- B. Contractor shall monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of Contract specified quality.
- C. Contractor shall comply with manufacturers' instructions regarding storing, handling, staging, transportation, and application of their materials. Contractor shall strictly adhere to manufacturer recommended sequence of construction and limitations related to their product.
- D. When manufacturers' instructions conflict with Contract Documents, a request for clarification, minimum two (2) weeks prior to need, shall be submitted to the Engineer.
- E. If any portion of work cannot be completed as shown in Construction Documents due to interferences/obstructions or any other reason, the Contractor shall request alternates from the Engineer. Contractor shall not proceed with alternate construction method/details without receiving a written direction from the Engineer.
- F. Contractor shall have minimum of five (5) years of experience in performing work similar to the work specified in Contract Documents. Contractor shall use experienced and qualified employees to produce the Contract specified quality work.
- G. Secure temporary and permanent elements with positive anchorage devices, designed

and sized to withstand stresses, vibration, physical distortion, or disfigurement during the service life of the element. All temporary work shall be removed after the construction is complete, unless specifically authorized to be left in place by the Owner, in writing.

5.2. TOLERANCES

- A. Fabrication and installation tolerances shall be governed by the tolerances specified in applicable Codes, Standards, and Contract Documents. Monitor fabrication and installation tolerance control of products to produce acceptable work. Tolerances are non-additive.
- B. When tolerances mentioned in the Contract Document conflict with Codes and Standards, request a written clarification from the Engineer before proceeding.
- C. For items found to be installed or manufactured out of tolerance, the Contractor shall remove and install an acceptable replacement at no additional cost to the Owner.

5.3. REFERENCES

- A. Contractor shall maintain a copy of the most updated set of Contract Documents on site.
- B. For products or workmanship specified by Association, Trade, or other Consensus Standards, comply with the requirements of Standard, except when more rigid requirements are specified in the Contract or are required by applicable Codes.
- C. Contractor shall purchase and maintain a copy of all applicable Codes and Standards on site.
- D. When specified reference Standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- E. Neither the contractual relationships, duties, nor responsibilities of the parties to the Contract, shall be altered from the Contract Documents by mention or inference in reference documents. All changes, alterations and requirements of others shall be presented to the Engineer for review and approval, prior to proceeding.

5.4. EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for the Contract specified construction work. Beginning new construction activity shall imply acceptance of existing conditions for the successful completion of construction work, as specified in the Contract Documents.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.

5.5. OPERATIONS

- A. The Contractor shall submit a schedule of construction work to the Owner, prior to mobilization. Daily time sheets including men, equipment, and material received shall be presented at the conclusion of each working day for all work performed on a time and material basis.
- B. Construction and testing are to be scheduled to accommodate the facility operations. At no time shall the facility operations be delayed due to construction and testing activities. A safe work area must be maintained at all times. No ponding of water will be allowed near the work area.
- C. Regular Progress Meetings will be held to update the status of the Project. It is mandatory that the Contractor or Contractor's representative empowered to engage in Contract binding decisions, attend each meeting.
- D. The Contractor shall submit to the Owner and Engineer a copy of the updated work progress schedule for review and comments within 24 hours following each meeting.
- E. Continuous coordination with the Owner, Project Construction Inspector, Contractor's Sub-Contractors, and other Contractors on site is the responsibility of the Contractor. Failure to coordinate will not relieve the Contractor from his responsibilities.
- F. Submit safety plans for Owner's review and approval, prior to mobilization. If diving work is planned, submit a dive safety plan for Owner's review and approval, minimum three (3) weeks prior to initiating any diving work.

END OF SECTION

PART 4: QUALITY ASSURANCE

Not used.

PART 5: EXECUTION

5.1 PROTECTION

- A. The Contractor shall submit a safety plan, minimum two (2) weeks prior to the start of field operations.
- B. Take all necessary precautions for the safety and protection of employees and other personnel.
- C. Provide and daily maintain all safeguards, erosion & sediment control devices, barriers, fences, bridges, planking, shoring, danger and warning signs, flares, lights, and detours.
- D. Prior to any excavation, backfilling or construction operations, adequately protect by sheeting, shoring, or other means. All structures, paving, above and below grade utilities, piping, equipment, and other existing objects shall be protected from any damage.
- E. It is the Contractor's responsibility to design sheeting, shoring, sloping and benching system for the excavations in accordance with OSHA and other applicable safety regulations. Contractor shall retain an Engineer registered in the jurisdiction of the Project for the design of required sheeting and shoring.
- F. All falsework and temporary structural supports shall be designed by an Engineer registered in the jurisdiction of the Project, retained by the Contractor. Calculations and drawings shall be submitted to the Owner's designated representative for review, minimum two (2) weeks prior to the use, if requested by the Owner.
- G. It is the responsibility of the Contractor to work closely with the Owner and field locate existing utilities and sub-structures to avoid any damage to existing structures and utilities. Contractor shall notify all the utility companies and seek approval prior to initiating any excavation.
- H. Should any utility or service line be disrupted or otherwise damaged, arrange for the immediate restoration of the temporary service until substantial and proper corrective repairs and/or replacement can be made. Immediately inform the Owner and the utility company. Provide a written statement of the occurrence within 24 hours to the Owner.
- I. Where an existing utility, service, equipment, or facility is damaged, the same shall be repaired to its original condition at no cost to the Owner.

- J. Do not damage or disturb foundations, walls, grade beams, caps, piers, above and underground piping, conduit, and other constructions during construction operations. Any damage to existing structures shall be corrected by the Contractor at no expense to the Owner.

5.2. EXCAVATION

- A. **General Requirements:** Excavation shall include the removal of all types of materials encountered without exception. Excavated material approved for backfill may be stored at an approved convenient site for reuse. All excavation shall be made to the lines and grades indicated on the drawings or as specified herein.
- B. Upon reaching the required subgrade, all loose dirt and debris shall be removed from the excavation.
- C. After completion of excavation work, and prior to commencement of work on the structures, fill or backfill, the excavation shall be inspected by the Contractor to ensure that suitable foundation elevations have been reached and the surfaces have been properly prepared.
- D. **Shoring and Bracing:** The Contractor shall provide all shoring, bracing, and sheeting of excavations required to properly and safely complete the work as shown on the drawings and in accordance with current OSHA guidelines. Shoring, bracing, and sheeting shall be removed as the excavations are backfilled in a manner to prevent caving.
- E. **Bailing and Pumping:** The Contractor shall perform all bailing and pumping necessary to drain and keep all excavation, pits, trenches, foundations and the entire site free of water during the progress of the work. Methods and equipment for dewatering shall be as suitable for the conditions.
- F. Suitable precautions shall be taken to prevent any erosion from undercutting existing footings and slabs. Excavations shall be kept free from ponding until the permanent work is finished and the excavations have been completely backfilled.
- G. **Excavation for Structures:** Excavation shall extend a sufficient distance from walls, footings, and other structural members to allow for placing and removal of forms and inspection. Excavation for footing, slabs, and other structural members bearing on earth shall not be carried below the elevations indicated and shall be placed on undisturbed material.
- H. **Over-Excavation:** Over-excavation shall be corrected by placing and compacting suitable backfill material to a 95% modified proctor density or by placing lean concrete of a mix approved by the Owner. If excavations are erroneously carried deeper than elevations shown on Contract Drawings, or to a greater depth than that directed by the Engineer, the excess depth shall be filled at the expense of the Contractor.

- I. Extend excavation a sufficient distance from walls, footings and other structural members to allow for placing and removal of forms and inspection.
- J. Do not carry excavations below the elevations indicated for members bearing on the soil, unless directed by the Owner to do so.
- K. Allow Owner to inspect excavations before commencement of work on the structures, and prior to placing fill or backfill.
- L. When fill or other unsound soil conditions are found at the established elevation for the bottoms of footings or other bearing structures, carry the excavation down until suitable earth is reached, after the approval of the Owner. Adjustment of contract price will be made as outlined in the Contract Documents for such changes.
- M. Make excavations to such angles of repose as may be required by OSHA guidelines and to keep the base area of excavations free from sliding or falling debris, as required for the safety of personnel working within the excavation as permitted by prior consent of the Owner.
- N. All excavated material shall be tested, as required by the Contract documents.
- O. Dispose refuse material (construction debris, rubble, unused construction material, demolished material, etc.) offsite at a properly designated disposal site, unless specifically directed otherwise by the Owner in writing. Provide a written description of disposal site, the location within the disposal site and the permission of the dumpsite owner to deposit the materials. Refuse material shall be tested and disposed in accordance with Federal, State and Local Rules and Regulations by the Contractor.
- P. Do not stockpile backfill in any area which shall prevent the free runoff of surface water, or slope excavation to prevent free runoff, and provide embankments, as shall be required to prevent the entry of surface water into any excavation.
- Q. Keep the excavations free of standing or running water and provide all equipment and perform all work to permit the work to be carried on therein. Take care that removed water does not cause washing or injury to the work.

5.3 FINISH:

- A. All areas shall be finished to smooth compact surfaces to the lines and grades indicated on the drawings.
- B. Slopes: All slopes shall be finished accurately to a uniform slope, free from humps and hollows and shall conform to the cross sections shown on the drawings. Care shall be exercised to avoid loosening of material beyond the required slopes. The degree of finish to be required in such cases will be that ordinarily obtainable with blade graders or similar equipment. When necessary to obtain the specified results, hand finishing will be required.

- C. Shoulders, Ditches and Gutters: Shall be finished by means of hand shoveling raking and compacting.

5.4 INSPECTION AND APPROVAL:

- A. Earthwork shall be inspected and approved by the Owner or their designated representative.

END OF SECTION

SECTION 02221

DEMOLITION

PART 1: GENERAL

1.1. SCOPE

- A. This section includes demolition of concrete, steel, debris, and other miscellaneous items required for the work shown on contract drawings.

1.2 RELATED SECTIONS

- | | | |
|----|----------------------|---------------|
| A. | Scope of Work | Section 01000 |
| B. | Submittal Procedures | Section 01330 |
| C. | Quality Requirements | Section 01400 |
| D. | Earthwork | Section 02220 |

PART 2: PRODUCTS

Not used.

PART 3: SUBMITTALS

- A. Demolition Plan describing the means and methods of demolition.
- B. Safety Plan.
- C. Protection Plan describing the planned erosion & sediment controls, fencing, barriers, floating boom installation, and lighting, three (3) weeks prior to need.
- D. Location and letter from the disposal facility, confirming the acceptance of all debris and demolition material.

PART 4: QUALITY ASSURANCE

Not used.

PART 5: EXECUTION

5.1. RESPONSIBILITIES

A. Contractor Responsibilities

- a. Contractor shall supply all necessary labor and equipment to complete the Scope of Work within the Project Schedule.
- b. Inquire from the Owner, in writing, regarding the presence of liquids; vapors; combustibles, hazardous materials including asbestos and lead; electrical power and other energy sources, prior to mobilization.
- c. Contractor shall dually verify absence of liquids; vapors; combustibles; hazardous materials including asbestos and lead; deactivated all electrical power and other energy sources, prior to initiating any work. All systems identified for demolition must have the Owner and Contractor lock and tag per the Lock Out Tag Out procedure.
- d. Perform all demolition work safely and in accordance with all applicable Codes and Standards.
- e. The Contractor shall set aside all equipment and materials marked for salvage by the Owner. Salvage shall be set-aside at a location designated by the Owner or their designated representative. Damage to salvageable equipment and/or materials due to negligence on the part of the Contractor shall be reimbursed to the Owner on an agreed upon salvage value.
- f. If any material that is marked to be removed from Owner's property has scrap value, the Contractor shall apply corresponding credit to the Bid Price, unless specified otherwise in the Contract Documents.
- g. Contractor shall follow all relevant OSHA regulations and the safety requirements of the Owner.
- h. Contractor shall dispose all demolished material at a regulated disposal site approved by the Owner, in conformance with all applicable Federal, State, and Local laws and regulations.

5.2. EQUIPMENT

- A. Demolition equipment shall be mobilized, demobilized, and operated in the most expedient manner possible. Cutting torches, saws, shears, etc. are acceptable methods of demolition, unless noted otherwise in the Contract Documents.
- B. Demolition equipment shall be mobilized, demobilized, and operated in a manner that does not damage adjacent piping and equipment.

5.3. SITE WORK

- A. All demolition work shall be performed in a manner that causes no damage to the adjacent existing and new elements including structures, foundations, piping, equipment, utilities, etc.
- B. All demolished material and debris shall be removed from the Owner's property, unless specified otherwise in Contract Document.
- C. The Contractor shall maintain the site in a neat and orderly fashion at all times. Water ponding, scrap and trash shall not remain strewn throughout the work site.
- D. Contractor shall grade smooth all equipment ruts in the site prior to demobilizing.
- E. All depressions created during the demolition work shall be filled in by the Contractor using clean soil available at the site, unless specified otherwise by the Owner. The Contractor shall not level any embankments/raised grades without permission from the Owner.
- F. The Contractor shall be responsible for ensuring proper drainage at the site during construction. Construction activities shall not alter grades or impact the site drainage after the construction is complete, unless intentionally altered in the Contract Documents. Grades will be brought to the original elevation by the Contractor, prior to demobilization.
- G. Contractor shall install temporary structures like sheeting, shoring, piles, steel framing, soldier pile bulkhead, etc., as required, to execute all demolition work safely and without causing any damage to the existing and new structures, footings, piping, equipment, and utilities. These temporary structures shall be removed after the demolition work is complete, unless specifically authorized otherwise by the Owner.
- H. All structures, piping, equipment, utilities, fences, gates, guardrails, handrails, etc., temporarily relocated/supported by the Contractor during demolition work shall be installed at their original location, to the satisfaction of the Owner, unless specified otherwise in the Contract Documents.
- I. If the proposed demolition work is located within 100 linear feet of existing elements including structures, footings, piping, equipment, and utilities, the Contractor must utilize

means and methods of demolition which generate minimum vibrations. Contractor shall retain a vibration analysis and monitoring firm to determine safe PPV levels for the existing elements and monitor vibrations during the demolition activities to ensure that no damage is caused to the existing elements.

- J. If the demolition work is located near or over bulkheads, piles, footings, and other structures, utilities, piping, etc., or if the demolition equipment must utilize existing structures for access to the work area, During the bid phase, the Contractor must inquire from the Owner, in writing, regarding the load restrictions along the access route of the equipment and the work area. Load restrictions shall be confirmed by the Contractor prior to mobilizing. In the absence of this inquiry, the Contractor shall only utilize the equipment allowed by the Owner, at no additional cost to the Owner.
- K. Demolition of concrete shall be performed using saw cutting and wire cutting techniques. Jack hammering and similar higher vibration generating techniques are not permitted, unless specifically allowed in the Contract Document.
- L. No demolition activities shall be conducted within 100 feet of freshly placed concrete, until the concrete has achieved its' specified compressive strength or unless specifically authorized by the Engineer, in writing.

5.4. PROTECTION

- A. Protect existing above ground and underground utilities, structures, foundations, piping, and equipment during excavation and other demolition operations.
- B. Take all necessary precautions for the safety and protection of the facility employees, construction crew and other personnel. Install and maintain barriers, fence, planking, warning signs, and lighting at the demolition site, as necessary, during the construction.
- C. All work shall be performed in a manner that does not interfere with the facility daily operations. Contractor shall notify the Owner of his schedule a minimum of two (2) weeks before beginning the demolition work to allow the Owner to take appropriate measures.
- D. The Contractor shall field verify the location of all existing utilities using GPR and other applicable techniques and mark the finished grade in the appropriate utility color. If an interference with the existing utilities is expected during the work, such interference shall be notified to the Owner and the Engineer before the commencement of demolition.
- E. Interfering utilities shall be temporarily relocated by the Contractor, unless specifically noted otherwise on Contract Drawings. These utilities shall be re-installed at the original location after the completion of the construction work. Price to perform such work shall be included in the bid by the Contractor.

- F. Should any utility or service line be disrupted or otherwise damaged, Contractor shall arrange for immediate restoration of temporary service until substantial and proper corrective repairs and/or replacement can be made. Immediately inform the Owner, the Engineer, and the utility company. Provide a written statement of the occurrence within 24 hours to the Owner and the Engineer.
- G. Where an existing utility, service, equipment, or facility is damaged, the same shall be repaired to its original condition at no cost to the Owner.
- H. If specific details related to the demolition work, including the sequence of demolition work, are specified in the Contract Drawings, the Contractor shall perform the demolition work in strict conformance with the details specified in the Contract Documents. Demolition work shall also be performed in conformance with the Contractor's Submittals, approved by the Engineer.
- I. Contractor shall keep a record of all demolished structures, including information on the location, quantity, and state of all demolished material. Upon request, the Contractor shall submit drawings showing the location, orientation, condition, sequence, and method of demolition, including the extraction of existing piles.
- J. Contractor is solely responsible for the safety of personnel and terminal property during demolition operations.
- K. Dispose all debris, refuse, and demolished material offsite at a regulated disposal site, unless specifically directed otherwise by the Owner, in writing. Provide the location of disposal site and the letter of permission from the disposal site, allowing the Contractor to deposit the materials. All disposal of materials shall be in accordance with Federal, State and Local laws and regulations.
- L. Maintain records of all demolition activities and disposed material, in accordance with all Federal, State, and local laws and regulations.
- M. For demolition work near or on water, no material generated during excavations, demolition, and other construction activities shall be allowed to reach the water body. Contractor shall deploy and maintain a floating boom around the work area to catch any floating debris which accidentally becomes waterborne.

END OF SECTION

SECTION 02275

RIPRAP & ROCK LINING

PART 1: GENERAL

1.1 SCOPE

- A. This section includes all work necessary for the installation of riprap stone and the underlying geotextile fabric as indicated on the contract drawings.

1.2 MEASUREMENT AND PAYMENT

- A. Riprap Stone

- 1. General

Measurement and payment for all stone materials shall be performed on a per ton basis as placed. No payment will be made for excess thickness of stone material, nor for material required to replace subgrade material lost by rain-wash, wind erosion, over-excavation, or other means. Quantities will be computed to the nearest whole ton.

- 2. Truckload

- a. If stone is delivered by truck, each truck load shall be weighed to the nearest 0.10 ton and the final quantity rounded to the nearest whole ton. Rip-rap stone shall be measured for payment by weighing on approved scales before being placed in the work. Scales shall be of sufficient length to permit simultaneous weighing of all axle loads and shall have an accuracy within 0.2 percent (0.2%) throughout the range of the scales. The scale's accuracy shall conform to the applicable requirements of the *National Institute of Standards and Technology Handbook No. 44 for Specification Tolerances and Requirements for Commercial and Weighing Devices* (NIST HB 44) and shall be certified by an acceptable scales company representative and by an inspector of the State Inspection Bureau charged with scales inspection within the state in which the project is located prior to weighing any stone. A scale shall not be used for weighing a load totaling more than the nominal capacity marked on the scale by the manufacturer. Documentation shall be submitted certifying that the scales meet the requirements of the specification. Furnish the scales and weigh the stone in the presence of the Construction Inspector. Scales shall be checked and certified before hauling stone.
- b. The total weight of a single highway vehicle shall be weighed as a single draft and shall not be determined by adding together the results obtained by separately

weighing each end of such vehicle, except that weighing of a coupled combination may be determined without uncoupling under the following conditions:

1. The brakes are released.
 2. There is no tension or compression on the drawbar.
 3. The approaches are straight and in the same level plane as the scale platform.
 4. The approaches are paved at least fifty feet (50') in each direction with a seal coat or higher type surfacing.
 5. The approaches are of sufficient width and length to ensure level positioning of vehicles during the weighing operation.
- c. The print-out system shall print the following information on a triplicate ticket for each truckload:
1. Time
 2. Date
 3. Sequential ticket number (may be preprinted on ticket)
 4. Gross Weight
 5. Tare Weight (trucks shall be tare weighed at least twice daily)
 6. Net Weight
 7. Net accumulated job daily total
 8. Truck identification number
 9. Project Number
 10. Type of material
 11. Quarry location
 12. Contractor's name
 13. Scale operator's stamp or number
 14. Scale operator's signature or initials
- d. The system shall be so interlocked as to allow printing only when the scale has come to a complete rest. Ticket numbers do not have to be in sequential order; however, they must appear in a reasonable sequence. The Construction Inspector reserves the right to reject tickets grossly out of sequence.
- e. Weigh bills, including printouts, shall be certified by the signature of the scale operator, which shall attest that the information shown on the weigh bill is correct and is the weight(s) observed on the scale at the time of weighing. Each weigh bill shall also be certified by the supplier attesting that the entire load was properly placed in the truck and shall show the time and date of weighing and the time and date of unloading. Each truck shall be plainly marked by a distinctive number, letter, or name, which shall not be changed or given to any other truck during the contract period. The Owner reserves the right to periodically inspect the weighing operations at the scales.

3. Barge or Vessel

a. Gauges

If stone is delivered by vessel or barge, the carrier shall, prior to use in connection with this work, be fitted by the Contractor at his own expense with gauges or such other facilities for determining displacement as may be required by, or be satisfactory to, the Engineer. Carriers which owing to their model or other cause cannot be accurately gauged for displacement shall not be used on this work. Gauges shall be graduated to the tenth of a foot, or to another suitable unit approved by the Engineer. They shall be six (6) in number and shall be located as follows: Two (2) near each end on opposite sides, and two (2) at midship on opposite sides. The gauges shall be attached solidly to the hull, and wherever practicable, shall be located inside the hull. If located inside the hull, provisions shall be made for the free passage of the outside water to a vertical tube and for the ready measurement of the depth of the water within the tube. If located outside on wood hulls, the gauges shall be protected by solid fenders or be recessed into the planking, or if on steel hulls, the gauge marks may be placed directly on the plates and identified by punch marks. Gauges shall be so placed that their zeros are below water when the carrier is in its normal trim, light and free from water. The installation of the gauges shall be subject to the approval of the Engineer. The Engineer shall be notified a minimum of ten (10) workdays prior to installation of gauges.

b. Gauging Tables

To facilitate the determination of the weight of each load, a gauging table for each carrier employed shall be prepared by an accredited agent satisfactory to the Engineer. The gauging table shall show the cargo weight, in tons of 2,000 pounds, for each unit of measurement of the draft. If the lines of the carrier are such that the cubic feet of displacement for each measured unit of draft can be accurately calculated, the gauging table shall be based upon the data, using 62.4 pounds as the weight of one cubic foot (1 cf) of water. If the lines of the carrier to be gauged are such as to render impracticable the preparation of the gauging table by the above-described method, the weight for each unit of draft shall be determined by measurement of displacement by actually loading stone of known weight and the weight thus obtained shall be entered in the table for use in subsequent gauging. If alterations are made in any carrier which will affect the accuracy of the gauging table after it has been prepared, or if otherwise deemed necessary at any time by the Engineer, the carrier shall be re-measured, and a new gauging table prepared.

c. Reading of Draft Gauges

Readings to determine the draft will be taken before and after unloading, and the difference in tonnage thus found. The difference between loaded & unloaded

displacements will be used to determine the net weight for payment. The draft shall be determined from the average of all six (6) readings, weighting the readings of the middle gauges at double those of the end gauges.

$$\text{Average draft} = (G1 + G2 + 2*G3 + 2*G4 + G5 + G6) / 8$$

The Construction Inspector shall be present at all draft gauge readings. Rejected stone and unacceptable material shall be left aboard the barge until after the final readings have been taken.

d. Uniform Loading

The carrier shall be so loaded as to cause uniform submergence. The increase in draft on the middle gauges as a result of the load shall not differ by more than 0.5 feet from each side, and that between any bow gauges and any stern gauges shall not differ more than 1.5 feet from each other. If such is not the case, the Contractor shall trim the carrier by shifting the stone until this limit is reached before the stone will be accepted. However, if the carriers proposed to be used by the Contractor are so built that they cannot be loaded as prescribed and can be calibrated accurately for displacement under varying loads; another method of determination of displacement as may be used if approved by the Engineer.

e. Readings in Still Water

All measurements for determining gauging table data and for load depths shall be made in still water as close to the work as is possible. The Contractor is required to place the carriers where such measurements can be accurately made.

f. Leaks

All carriers used in transporting stone shall be free of leaks such as would render accurate gauging difficult. Facilities for inspecting the hold of each carrier to determine whether leakage is occurring shall be provided. Each carrier shall also be provided with adequate pumping facilities, and the carrier shall be pumped dry before each gauging before unloading, and limbers shall be kept open so that any water in the vessel will flow freely to the pump suction.

g. Variations During Unloading Operations

Lightening by pumping or by transfer of crews or supplies will not be permitted while stone is being discharged. Should any lightening become necessary, the unloading of stone shall be suspended, and the load marks shall be taken in such manner as to insure against loss from this cause.

h. Carrier Designations

Each carrier shall be plainly marked by a distinctive number, letter, or name, which shall not be changed or given to any other carrier during the contract period.

i. Verification of Measurements

The readings, calculations, and other data from which the gauging table and the tonnage are determined will be open to verification by the Contractor and shall be subject to the approval of the Engineer. The Contractor is invited to be present in person or to be represented by an authorized agent during the measuring of carriers. When the displacements of the carriers are determined or redetermined, a record of allowed displacement for quantity determination will be sent to the Contractor. If the Contractor protests within five (5) days, the carrier will be remeasured, and the Contractor must be present in person or be represented by an accredited agent so that correct measurements can be agreed upon. The Contractor will be given the weight of each load as it is determined. Failure to protest within five (5) days will be taken as equivalent to expressing satisfaction with the measurements and weight of stone determined by the Construction Inspector.

4. Determination of Excess Stone

All stone outside the limits and tolerances of the cross sections of the structure, except variations so minor as not to be measurable, will be deducted from the quantity of new stone for which payment is to be made. The weight of excess stone will be determined from the cross sections obtained by the method provided for in paragraph Sections 1.2.A.5, 1.2.A.6, and Section 5.5 on the basis that the cubic feet of volume (including voids) for each type of stone, as listed in Table 1.2.A.4 is equal to one ton for the bulk specific gravity and percentage of voids shown. If the bulk specific gravity of the stone furnished or the percentage of voids is other than as listed below, the cubic feet of volume equaling one ton shall be recomputed as described in paragraph Section 1.2.A.6.

Should any excess stone be disclosed above the tolerance line as defined in Section 5.6, its volume will be computed by the average end area method, based upon the cross section in the following manner. The average end area of excess stone above the tolerance line for two (2) successive cross sections, multiplied by the distance between the cross sections will be accepted as the volume. The Contractor will not be required to remove such excess stone and deductions for the weights thereof will be made from Contract payments for new stone. In addition to the above, stone which has been delivered to the site and has been lost, wasted, or otherwise not properly incorporated into the final required work shall be deducted from the quantity for which payment is to be made.

TABLE 1.2.A.4		
WEIGHT-TO-VOLUME CONVERSION PROPERTIES		
NCSA No.	Specific Gravity (SSD)*	% Voids
R-3	2.5	30 %
R-4	2.5	30 %
R-5	2.5	30 %
R-6	2.5	30 %
R-7	2.5	30 %
R-8	2.5	30 %
AASHTO No.	Specific Gravity (SSD)*	% Voids
3	2.5	30 %
57	2.5	30 %

*SSD = Saturated Surface Dry

5. Surveys

Volume of placed stone shall be determine using surveys. Conduct Surveys in accordance with Section 5.5. All survey work and measurements required for the determination of volume computations for stone materials shall be performed by Contractor’s surveyors registered in the State/Commonwealth of Project location and in the presence of Owner’s Construction Inspector. Notify the Construction Inspector not less than three (3) days in advance of each survey. Surveys Determination of quantities will be made by the Construction Inspector and having once been made, will not reopen, except on evidence of collusion, fraud, or obvious error. Stone quantity computations shall be verified using the weights of new stone as determined from carrier displacement or certified scale weight tickets.

6. Revision of Bidding Schedule Quantities

- a. The estimated quantities of stone listed in the Contract Drawings were computed on the basis of stone having a percentage of voids and a bulk specific gravity as listed in Table 1.2.A.4, based on water having a unit weight of 62.4 pounds per cubic foot. When the bulk specific gravity (SSD) of the stone to be used in the work is other than that described above, the estimated quantities will be revised by multiplying them by the fraction which results when the bulk specific gravity (SSD) of the stone furnished is divided by the value described above for each respective stone gradation. Revision for the percentage of voids will likewise be made. The

Construction Inspector will issue a modification to the Contract. The revised quantities will then be the quantities from which the allowable fifteen percent (15%) variation in estimated quantity, for payment purposes, will be determined as defined in the Contract.

b. Geotextile

Measurement and payment for geotextile fabric shall be performed on a per square-foot (sf) basis as installed. Payment will be made only for the net area of geotextile installed, and this quantity shall not include any additional material for overlap of the individual pieces.

PART 2: PRODUCTS

2.1 RIP-RAP STONE

- A. Rip-rap stone shall be sized and graded in accordance with National Crushed Stone Association (NCSA) regulations.

TABLE 2.1. A			
NCSA RIP-RAP PARTICLE SIZE DISTRIBUTION			
NCSA Size No.	Percent Passing (Square Openings)		
	100%	15-50%	0-15%
R-3	6 in	3 in	2 in
R-4	12 in	6 in	3 in
R-5	18 in	9 in	4 in
R-6	24 in	12 in	6 in
R-7	30 in	18 in	12 in
R-8	42 in	24 in	15 in
AASHTO CRUSHED STONE PARTICLE SIZE DISTRIBUTION			
AASHTO No.	Percent Passing (Square Openings)		
	100%	25-60%	0-15%
3	2.5 in	1.5 in	1.0 in
57	1.5 in	0.5 in	0.2 in

- B. The stone shall be free from structural defects
- C. The stone shall be clean and free from any foreign substances such as soil, shale, and organic materials.

- D. The stone shall be hard and angular shaped rock with neither width nor thickness less than one-third its length.
- E. The stone shall have a minimum bulk-saturated, but surface-dry specific gravity of 2.5 (unit weight of 156 pcf).
- F. The stone shall have an absorption of 2% or less in accordance with ASTM C127.

2.2 GEOTEXTILE FABRIC

- A. The fabric shall consist of long chain polymeric filaments or yarns such as polyethylene, polyamide, polyvinylidene-chloride, polypropylene, or polyester formed into a stable network.
- B. The fabric shall be inert to commonly encountered construction chemicals and substances.
- C. The contractor is responsible for installing the fabric and keeping the fabric in place, above and below water, by using securing pins or other appropriate methods.
- D. The geotextile shall meet the requirements summarized in Table 2.2.D

TABLE 2.2. D GEOTEXTILE PHYSICAL REQUIREMENTS		
Property	Test Method	Requirements
Grab Tensile Strength	ASTM D4632	270 lbs.
Grab Tensile Elongation	ASTM D4632	15-50%
Burst Strength	ASTM D3786	430 psi
Puncture	ASTM 4833	100 lbs.
Trapezoid Tear Strength	ASTM D4533	100 lbs.
Apparent Opening Size Sieve No.	ASTM D4751	> No. 50 sieve
Permeability, K	ASTM D4491	$K_{fabric} \geq 10 K_{soil}$
Seam Strength	ASTM D4632	240 lbs.
Ultraviolet Resistance Strength Retention	ASTM 4355	70% @ 150 hrs.

PART 3: SUBMITTALS

3.1 Submit the following for approval:

- A. Stone Source

The Contractor shall submit the source for stone materials for approval prior to procurement of the materials. The right is reserved to reject materials from certain localized areas, zones, strata, or channels when such materials are deemed unsuitable for stone by the Engineer or Construction Inspector. The Construction Inspector also reserves the right to reject individual units of produced specified materials in stockpiles at the quarry when such materials are determined to be unsuitable.

B. Testing Agency

The Contractor shall submit a copy of the documents, provided by the Materials Testing Center (MTC) at CEWES, that validates that the laboratory to be used for testing can perform the required tests. The individual tests shall be listed for which the validation covers along with the date of the inspection.

C. Stone Testing

The Contractor shall submit the results for testing of the stone materials as indicated in Table 3.1.C. Samples representative of the quarry shall be taken randomly by a quarry representative under the supervision of the Construction Inspector.

TABLE 3.1.C TESTING OF STONE MATERIALS			
Description	Requirements	Designation	Frequency
Gradation Curves	Table 2.1. A	ASTM D5519	Prior to Delivery
Petrographic Examination	see stone description	ASTM C295	Prior to Delivery
Density	≥ 155 pcf (SSD)*	ASTM C127-88	Prior to Delivery
Absorption	≤ 2%	ASTM C127-88	Prior to Delivery
Soundness: (Sodium Sulfate)	≤ 5% (one cycle) ≤ 12% (five cycles)	ASTM C88-90	Prior to Delivery
Soundness: (Magnesium)	≤ 8% (one cycle) ≤ 18% (five cycles)	ASTM C88-90	Prior to Delivery
Abrasion	≤ 45%	ASTM C535	Prior to Delivery

*SSD = Saturated Surface Dry

D. Weigh Scale Certification

The Contractor shall submit a copy of the certification from the regulation agency attesting to the scale's accuracy.

E. Stone Shipment

1. Truck

a. Certified Weight Scale Tickets

The Contractor shall submit a copy of each certified weight scale ticket within three (3) days after weighing.

2. Barge or Vessel

a. Barge/Vessel Freshwater Displacement table

The Contractor shall submit a barge/vessel freshwater displacement table for each barge/vessel to be used for transporting stone during the duration of the work not less than ten (10) days prior to unloading the stone from any barge/vessel. Each table submitted shall show the name and/or number of the barge/vessel owner, the name of the fabricator, and the certification and date of certification of the person or firm preparing the table. Furnish with the barge/vessel displacement tables a drawing or sketch of each barge/vessel, dimensioned in sufficient detail to permit checking of the tables. The drawings shall show, as a minimum, the length, width, depth, and dimensions of the rake(s). Each such table shall have its accuracy certified by a person or firm, other than the Contractor, customarily performing this service. Each table submitted shall contain, in parallel columns, the freeboard of the barge/vessel in feet and inches from zero to the full depth of the barge/vessel and the corresponding gross displacement to the nearest ton.

F. Geotextile Material Data

The Contractor shall submit manufacturer's product and test data for the geotextile fabric prior to procurement.

G. Surveys

The Contractor shall conduct surveys in accordance with Section 5.5. The surveys shall be submitted to the Engineer for approval prior to placement of any further stone in that vicinity.

PART 4: QUALITY ASSURANCE

4.1 REFERENCE

- A. Comply with the provisions specified in the latest revision of the following codes and standards and specifications, including all supplements and addenda:
 - 1. International Building Code.
 - 2. Occupational Safety and Health Administration (OSHA) – As required by the state and federal regulations.
 - 3. National Crushed Stone Association (NCSA)
 - 4. Standard Specifications for Road and Bridge Construction of the State where the Project is located.

- B. Comply with the provisions specified in the latest revision of the following ASTM standards, including all supplements and addenda:
 - 1. ASTM D 4992 – Evaluation of Rock to Be Used for Erosion Control
 - 2. ASTM D 5312 – Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions.
 - 3. ASTM D 5313 – Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions.
 - 4. ASTM D 5519 – Particle Size Analysis of Natural and Man-Made Riprap Materials

- C. The more stringent provisions shall govern where provisions of pertinent Codes and Standards conflict with these specifications or conflict with one another.

PART 5: EXECUTION

5.1 PROTECTION

- A. Take all necessary precautions for the safety and protection of employees and the public, with specific consideration of neighbors.

- B. Provide and daily maintain all safeguards, barriers, fences, bridges, planking, shoring, danger and warning signs, flares, lights, and detours.

- C. Prior to any stone placement or construction operations, adequately protect all structures, paving, utilities, and other existing objects from damage. If any damage to existing structures occurs as a result of construction operations, it shall be repaired by the Contractor at no additional cost to the Owner.

5.2 RIP-RAP STONE

- A. Stone shall be placed by equipment suitable for handling materials of the size specified.
- B. Do not damage or disturb any structures, underground piping, conduit, and other facilities during construction operations. Any damage to existing structures shall be identified and corrected by the Contractor at no expense to the Owner.
- C. Do not place any stone material around any new concrete until fourteen (14) days after concrete is cast.
- D. Stone shall be placed from the toe upwards in a manner that minimizes voids within the placed material and provides an even distribution of pieces.
- E. Place the full course thickness in one operation in a manner to prevent segregation and to avoid displacement of the underlying material. Placing of rock in layers by dumping into chutes or by similar methods likely to cause segregation or geotextile damage will not be permitted.
- F. The stone shall be placed in the locations and thicknesses shown on the Contract Drawings. Rearrange individual stones, as necessary, to achieve the indicated grading and to insure uniform distribution.
- G. The Contractor shall place the stone using methods that do not damage or displace the underlying geotextile fabric.
- H. Above Water Placement
 - No stones shall be dropped from a height of more than three feet (3 ft), and rocks larger than two feet (2 ft) in dimension shall not be dropped directly on the fabric from heights greater than one foot (1 ft).
- I. Under Water Placement
 - Stones may be dropped from the surface of the water where water depths exceed five feet (5 ft).
- J. The Contractor must keep the waterway free of any surplus stone material and construction debris. The Contractor shall remove and dispose of offsite any said materials prior to demobilization.

5.3 GEOTEXTILE

- A. Geotextile fabric shall be placed in a manner as to avoid any wrinkles or folds within the material. Lay the fabric flat on the ground surface without stretching and to avoid puncturing or tearing the fabric.
- B. The end of the geotextile fabric shall be embedded within the toe and head of the stone material as indicated on the Contract Drawings.
- C. Adjacent pieces of geotextile fabric shall be overlapped with each other a minimum distance of three feet (3 ft). Offset adjacent roll ends a minimum of five feet (5 ft) when lapped. The Contractor may sew the fabric seams in lieu of overlapping.
- D. The Contractor shall be responsible to secure the geotextile in its proper location, both above and below water, by using securing pins, proper overlap directionality and any other methods as required. Any fabric that is displaced from its proper location and alignment shall be realigned or replaced.
- E. During shipment and storage, protect the fabric from direct sunlight, ultra-violet rays, temperatures greater than 140° F, mud, dust, dirt, and debris.
- F. Geotextiles will be rejected at the time of installation if any defects, deterioration, or damage is evident.
- G. No traffic or construction equipment will be permitted on the fabric.
- H. Do not allow the fabric to be exposed for more than two (2) weeks prior to covering with stone.

5.4 FINISH:

- A. All areas shall be finished to smooth compact surfaces to the lines and grades indicated on the drawings.
- B. All slopes shall be finished accurately to a uniform slope, free from humps and hollows and shall conform to the cross sections shown on the drawings. Care shall be exercised to avoid loosening of material beyond the required slopes.

5.5 SURVEYS

- A. Hydrographic, landside, and other surveys suitable for the field conditions shall be performed by the Contractor to determine the volume of placed stone. Surveys shall be performed after excavation, during the placement of each type of stone, after completing the placement of each type of stone, and to determine the finished profile of the riprap. Determination of excess volume computations for stone materials shall be made using these surveys. Leaving smaller stone for prolonged period of time in water may result in washing away of stone. Contractor shall perform surveys at frequency that will not allow

significant washing away of stone. Frequency of surveys shall be determined in coordination with the Owner during the bid phase. All survey work and measurements required for the determination of volume computations for stone materials shall be performed by surveyors registered in the State of Project and in the presence of Owner's Construction Inspector. Notify the Construction Inspector not less than three (3) days in advance of each survey. Cross sections perpendicular to the axis of the structure will be developed at twenty-foot (20 ft) intervals. Elevations and soundings shall be taken on lines twenty feet (20 ft) apart measuring along the structure reference line, with the readings at one-foot (1 ft) intervals and at breaks in the grade along the line. Additional cross sections, elevations, and soundings may be taken if determined necessary by the Construction Inspector or Engineer. Contractor shall submit the results of all surveys in CAD format to the Engineer, after each survey. Determination of stone quantities will be made by the Construction Inspector and having once been made, will not reopen, except on evidence of collusion, fraud, or obvious error. Prior to performing any survey work, coordinate all operations with the Construction Inspector so that excess volume surveys will be performed at the appropriate time. Stone quantity computations shall be based entirely upon weights of new stone as determined from carrier displacement or certified scale weight tickets.

- B. No further stone may be placed until the survey results are approved by the Contracting Officer. If the survey reveals grades that are out of tolerance or otherwise unacceptable, the Contractor shall perform the necessary grading adjustments and perform an additional hydrographic survey for the local areas of concern at no additional cost to the Owner.

5.6 TOLERANCES:

- A. The range for tolerances for dimensions and slopes indicated for finished stone and excavation surfaces on the Contract Drawings shall be bounded on the top by a line that is parallel to the indicated slope and that is six inches (6 inches) above the slope measured perpendicularly and on the bottom by the stone slope as indicated on the Contract Drawings.
- B. The tolerance for all dimensions indicated in the Contract Drawings shall be +6 / -0 inches.
- C. Tolerances are not additive.
- D. The contractor shall add/remove stone/earth as necessary such that final slopes and dimensions are within the tolerances specified above.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1: GENERAL

1.1. SCOPE

- A. Provisions of this section apply to furnishing and placing all cast-in-place or in-situ cement concrete indicated on the Drawings or otherwise required for proper completion of the Work.
- B. This section does not include pre-cast, post-tensioned or pre-stressed concrete work.

1.2. RELATED WORK DESCRIBED ELSEWHERE

- | | | |
|----|-------------------------|---------------|
| A. | Scope of Work | Section 01000 |
| B. | Submittal Procedures | Section 01330 |
| C. | Quality Requirements | Section 01400 |
| D. | Concrete Formwork | Section 03100 |
| E. | Reinforcing Steel | Section 03210 |
| F. | Cold Weather Concreting | Section 03301 |
| G. | Curing Concrete | Section 03390 |

PART 2: PRODUCTS

2.1. MATERIALS

- A. ASTM C 150, Portland Cement - Type II or Type I/II except as modified herein. The blended cement shall consist of a mixture of ASTM C 150 cement Type II or Type I/II, fly ash or other pozzolans conforming to ASTM C 618, slag conforming to ASTM C 989; and silica fume conforming to ASTM C1240. The pozzolan or fly ash content shall not exceed 25% by weight of the total cementitious material. Slag content shall not exceed 50% of total cementitious material and silica fume content shall not exceed 10% of total cementitious material. The total of fly ash or other pozzolans, slag and silica fume shall not exceed 50% of total cementitious material. The total of fly ash or other pozzolans and silica fume shall not exceed 35% of total cementitious material, as specified in Table

4.2.2.8 of ACI 301. Use one manufacturer for each type of cement, fly ash and pozzolan, slag and silica fume.

- B. Admixtures - When required or permitted, use admixtures conforming to the following specifications:
 - 1. Air Entraining - ASTM C260
 - 2. Water Reducing, Retarding and Accelerating - ASTM C494.
 - 3. Fly Ash and Pozzolan - ASTM C618, Type N, F, or C, except that the maximum allowable loss on ignition shall be 6% for Type N and F. Add with cement.
 - 4. Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing, and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days, unless stated otherwise in the contract documents.
- C. Water - Conform to the requirements specified in ASTM C1602.
- D. Aggregates – Maximum nominal size of aggregate shall be maximum 1 inch and minimum 3/8 inch and conform to the requirements specified in ASTM C33. Regard fine and coarse aggregates as separate ingredients. Conform to the appropriate grading requirements for each size of coarse aggregate, as well as the combination of sizes when two or more are used.
- E. Curing Materials
 - 1. Waterproof Sheets - Conform to the requirements specified in ASTM C171.
 - 2. Liquid Membrane - Forming Compounds - Conform to the requirements specified in ASTM C309.
- F. Expansion Joint Filler - Conform to the requirements specified in ASTM D1751.

PART 3: SUBMITTALS

- 3.1 The Contractor shall submit the following for approval in accordance with Section 01330:
 - A. Submit shop drawings of proposed construction three (3) weeks prior to fabrication of reinforcement. Shop drawings shall contain the following:
 - 1. Meet requirements of applicable portions of “Details and Detailing of Concrete Reinforcement” by ACI 315, latest edition.

2. Show bending, assembly, splicing, sizes, bar lengths, and marking of bars. Indicate bar spacing by dimension.
 3. Show reinforcing with necessary details in elevations, sections and plans. Locate sleeves, holes, accessories, and anchors by dimensions.
 4. Furnish prints of approved shop drawings to trades that have items to be embedded in or connected to concrete work.
- B. Submit a plan showing the location and details of proposed construction joints two (2) weeks prior to fabrication of reinforcement.
- C. The Contractor shall provide rebar supports in the form of bar chairs or concrete blocks, in accordance with ACI. Submit the rebar support details with rebar detail Submittal.
- D. Submit data on proposed concrete admixtures thirty (30) days before concrete placement.
- E. Submit Samples of materials as requested by the Engineer, including names, sources, and descriptions.
- F. Submit a brief plan stating the proposed method of pouring concrete, providing details on site access for delivery trucks, staging area, means of conveyance, washout locations, and proposed curing procedures thirty (30) days before concrete placement.
- G. Submit proposed concrete mix design and supporting laboratory test reports for concrete materials and mix design test for approval thirty (30) days before concrete placement. Provide materials certificates and lieu of materials laboratory test reports. Materials certificates shall be signed by the manufacturer and Contractor, certifying that each material item complies with, or exceeds specified requirements. At least one set of specimens will be taken on each separate structural placement for each day, regardless of the volume of concrete placed.
- H. Submit results of strength tests for samples taken at site within three (3) days after test is completed. Test samples shall be taken not less than once a day, nor less than three (3) for each 150 cubic yards of concrete. If Contractor proposes to strip formwork prior to when the concrete has achieved full compressive strength, additional test samples shall be taken by the Contractor, as required, to validate that the placed concrete has achieved a minimum of seventy (70) percent (%) of the minimum specified design compressive strength, subject to the satisfaction of the Engineer prior to the removal of formwork. Additional sampling and testing shall be at no cost to the Owner. Test specimens shall be taken and cured in accordance with ASTM C31 and tested in accordance with ASTM C39.
- 3.2 The Contractor's concrete supplier shall provide a statement that the fine and coarse aggregates to be used in the concrete mix conform to the requirements of ASTM C 33 for non-reactivity to Alkalies in cement and/or conform to the requirements of ASTM C 150 for low-alkali cement.

PART 4: QUALITY ASSURANCE

4.1 REFERENCES

- A. Comply with the provisions specified in the latest revision of the following ASTM standards, including all supplements and addenda:
1. A934 - Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
 2. C31 - Standard Method of Making and Curing Concrete Test Specimens in the Field
 3. C33 - Standard Specification for Concrete Aggregates.
 4. C39 - Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens.
 5. C94 - Standard Specification for Ready-Mixed Concrete
 6. C138 - Standard Method of Test for Unit Weight, Yield, and Air Content (Gravi-metric) of Concrete.
 7. C143 - Standard Method of Test for Slump of Portland Cement Concrete.
 8. C150 – Portland Cement.
 9. C171 - Standard Specification for Sheet Materials for Curing Concrete.
 10. C172 - Standard Method of Sampling Fresh Concrete.
 11. C173 - Standard Method of Test for Air Content of Freshly Mixed Concrete by the Volumetric Method.
 12. C192 - Standard Method of Making and Curing Concrete Test Specimens in the Laboratory.
 13. C231 - Standard Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method.
 14. C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
 15. C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 16. C330 - Standard Specification for Air Entraining Admixtures for Concrete.

17. C494 - Standard Specification for Chemical Admixtures for Concrete.
 18. C618 - Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolans for Use in Portland Cement Concrete.
 19. C685 - Specifications for Concrete Made by Volumetric Batching and Continuous Mixing.
 20. C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.
 21. C1602 - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
 22. D1751 - Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
 23. E329 - Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.
- B. Comply with the provisions specified in the latest revision of the following publications of the American Concrete Institute:
1. Committee 212 Report - Guide for Use of Admixtures in Concrete.
 2. ACI 214 - Recommended Practice for Evaluation of Strength Test Results of Concrete.
 3. ACI 301 – Specifications for Structural Concrete.
 4. ACI 302 - Recommended Practice for Concrete Floor and Slab Construction.
 5. Committee 303 Report - Guide to Cast-In-Place Architectural Concrete Practice, 1974.
 6. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
 7. Committee 304 Report - Placing Concrete by Pumping Methods.
 8. Committee 305 Report - Hot Weather Concreting.
 9. Committee 306 Report - Cold Weather Concreting.
 10. ACI 308 - Recommended Practice for Curing Concrete.
 11. ACI 309 - Recommended Practice for Consolidation of Concrete

12. ACI 318 - Building Code Requirements for Reinforced Concrete.
 13. ACI 347 – Guide to Formwork for Concrete.
 14. SP-19 - Cement and Concrete Terminology (Report of ACI Committee 116).
- C. Comply with the provisions specified in the following:
1. Concrete Plant Manufacturers Bureau: "Concrete Plant Mixer Standards of the Plant Mixer Manufacturers Division", 1970.
 2. National Ready Mixed Concrete Association: Check List for Certification of Ready Mixed Concrete Production Facilities, 1967.
 3. American Association of State Highway and Transportation Officials, "Standard Specification for Transportation Materials and Methods of Sampling and Testing". (AASHTO T260-78).

PART 5: EXECUTION

5.1. HANDLING

- A. Storage
1. Store cement in weathertight buildings, bins or silos which will exclude moisture and contaminants.
 2. Arrange and utilize aggregate stockpiles in a manner to avoid excessive segregation and to prevent contamination with other materials or with other sizes of like aggregates. To ensure that this condition is met, perform any test for determining conformance to requirements for cleanness and grading on samples taken from the aggregates at the point of batching. Do not use frozen or partially frozen aggregates.
 3. Allow stockpiles of natural or manufactured sand to drain to insure a relatively uniform moisture content throughout the stockpile.
 4. To prevent excessive variations in moisture content, allow pre-dampened aggregates to remain in the stockpiles for a minimum of 12 hours before use.
 5. Store admixtures in such a manner as to avoid contamination, evaporation or damage. For those used in the form of suspensions or non-stable solutions, provide agitating equipment to assure thorough distribution of the ingredients. Protect liquid admixtures from freezing and from temperature changes which would adversely affect their characteristics.

5.2. CONCRETE MIX

- A. General - Concrete for all parts of the work shall be of the specified quality capable of being placed without segregation and, when hardened, of developing all characteristics required by these specifications.
- B. Strength – The minimum compressive strength of concrete, **as measured at 14-day shall be 5,000 psi**, unless indicated otherwise in Contract Drawings. If the concrete is being installed under water or in cold weather, the specified strength refers to the strength of concrete when cured in conditions identical to the site conditions. Additional samples will be collected and cured underwater or under cold weather curing process, on site, in conditions identical to the placed concrete.
- C. Durability
 - 1. Concrete shall be air-entrained and shall conform to the air content limits of the Table 4.2.2.7.b.1 of ACI 301-10 as measured by ASTM C231 or ASTM C 138.
 - 2. Concrete of normal weight shall have a water-cement ratio not exceeding 0.45.
 - 3. For all concrete in which aluminum or galvanized metal is to be embedded, demonstrate by tests that the mixing water of the concrete, including that contributed by the aggregates and admixture used, will not contain a deleterious amount of chloride ion.
- D. Slump
 - 1. Except as specified for floors, proportion and produce concrete to have a slump of 4 in. or less if consolidation is to be by vibration, and 5 in. or less if consolidation is to be by methods other than vibration. A tolerance of up to 1 in. above the indicated maximum shall be allowed for individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit. Concrete of lower than usual slump may be used provided it is properly placed and consolidated. The slump shall be determined by ASTM C 143.
 - 2. If concrete slabs are used, proportion and produce concrete to have a slump of 3 inches or less.
 - 3. A slump of 6 to 9 inches shall be used for tremie concrete.
- E. Aggregate Size - The nominal maximum size of the aggregate shall be 1 inch, nor more than one-fifth of the narrowest dimension between sides of forms, one-third of the depth of slabs, or three-fourths of the minimum clear spacing between reinforcing bars.
- F. Admixtures

1. Except for air-entraining admixtures, do not use admixtures unless specifically approved by the Engineer.
2. When its use is allowed by the Engineer, the amount of calcium chloride shall not exceed 2 percent by weight of cement. Determine the amount of calcium chloride by the method described in AASHTO T260-78.
3. When their use is permitted, use all admixtures in accordance with the manufacturer's instructions except as otherwise specified herein.
4. All concrete placed using tremie method shall contain adequate dosage of silica fume.

G. Proportions

1. Proportion the ingredients so as to produce a mixture which will work readily into the corners and angles of the forms and around reinforcement by the methods of placing and consolidation employed on the work, but without permitting the materials to segregate or excessive free water to collect on the surface.
2. Use of the proposed mixture proportions shall be subject to approval by the Engineer based on their demonstrated ability to produce concrete meeting all requirements of the specifications. Determine ability to produce the required average strength based on the strength test record of 30 or more tests made during the past year which will permit establishing, directly or by interpolation, the water-cement ratio corresponding to the required average strength.
3. Required average strength. Where the production facility has a control record, based on at least 30 consecutive strength tests of a similar mix or mixes obtained within the past year representing similar materials and conditions to those expected, the average strength used as the basis for selecting proportions shall exceed the specified minimum design compressive strength, by at least:
 - 400 psi if the standard deviation is less than 300 psi.
 - 550 psi if the standard deviation is 300 to 400 psi.
 - 700 psi if the standard deviation is 400 to 500 psi.
 - 900 psi if the standard deviation is 500 to 600 psi.

If the standard deviation exceeds 600 psi or if a suitable record of strength test performance is not available, select proportions to produce an average strength of at least 1200 psi greater than the specified minimum design strength.

The strength test history used to determine standard deviation will be considered to comply with the above requirement for 30 consecutive strength tests if the tests represent either a group of 30 consecutive batches of the same class of concrete or the statistical average for two groups totaling 30 or more batches. The tests used in establishing the standard deviation shall represent concrete produced for a specified strength or strengths within 1000 psi of that required for the proposed work; changes in materials and proportions within the population of background tests shall not have been more closely restricted than will be the case for the proposed work.

5.3. PRODUCTION OF CONCRETE

- A. Contractor to submit concrete mix design, with ample time for review to Engineer prior to commencing pours.
- B. Batch mix and transport ready-mixed concrete in accordance with ASTM C94, except as otherwise specified herein. Plant equipment and facilities shall conform the "Check List for Certification of Ready Mixed Concrete Production Facilities" of the National Ready Mixed Concrete Association.
- C. Batch and mix concrete produced by on-site volumetric batching and continuous mixing in accordance with and conforming to all requirements of ASTM C 685.
- D. Charge air-entraining admixtures, calcium chloride, and other chemical admixtures into the mixer as solutions and measure by means of an approved mechanical dispensing device. Consider the liquid a part of the mixing water. Admixtures that cannot be added in solution may be weighed or may be measured by volume if so, recommended by the manufacturer.
- E. If two or more admixtures are used in the concrete, add them separately to avoid possible interaction that might interfere with the efficiency of either admixture or adversely affect the concrete.
- F. Complete the addition of retarding admixtures within 1 minute after addition of water to the cement has been completed, or prior to the beginning of the last three-quarters of the required mixing, whichever occurs first.
- G. Mix concrete only in quantities for immediate use. Do not re-tamper concrete which has partially set.
- H. When concrete arrives at the project site with slump below that suitable for placing, as indicated by the specifications, addition of water on site is not permitted.
- I. Cold Weather
 - 1. Comply with the applicable requirements of "Cold Weather Concreting", ACI 306.

2. Do not place concrete if temperature is below 40 degrees F, except with specific approval, and then be prepared to provide heat to maintain concrete temperature as recommended by ACI 306.
3. Heat, or other approved means, shall be provided to maintain the concrete temperature within the ranges specified in the latest edition of ACI 306 until the concrete has achieved a minimum compressive strength of 3,500 psi.

J. Hot Weather

1. Comply with the applicable requirements of "Hot Weather Concreting", ACI 305.
2. Cool the ingredients before mixing.
3. Flake ice or well-crushed ice of a size that will melt completely during mixing may be substituted for all or part of the mixing water if, due to high temperature, low slump, flash set or cold joints are encountered.
4. Reduce concrete temperatures to prevent rapid evaporation of water in hot weather.

5.4. PREPARATION BEFORE PLACING

- A. Verify site conditions.
- B. Verify requirements for concrete cover over reinforcement.
- C. Verify that anchors, seats, plates, sleeves, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.
- D. Remove hardened concrete and foreign materials from the inner surfaces of the conveying equipment.
- E. Complete the formwork and remove snow, ice, frost, water, dirt or other foreign materials.
- F. Place all sleeves, inserts, anchors and embedded items including reinforcing bars. Approved bar chairs shall be used where required to vertically position reinforcing bars. The use of large aggregate or brick will not be permitted to provide clearance between the formwork and reinforcing steel.
- G. Notify Engineer 48 hours before starting to place concrete in any unit of the structure in order to permit proper inspection of forms and reinforcement by the Engineer.
- H. Give ample notice and opportunity to all other Contractors whose work is related to or supported by the concrete to furnish embedded items before the concrete is placed.

1. Provide the electrical Contractor ample notice and opportunity to attach grounding conductors to the structure.
- I. Sprinkle semiporous subgrades sufficiently to eliminate suction, and seal porous subgrades in a manner approved by the Engineer.
- J. Do not place concrete on frozen ground or fill material, or on subgrades containing frost.

5.5. CONVEYING

- A. Convey concrete from the mixer to the place of final deposit as rapidly as practicable by methods which will prevent segregation or loss of ingredients and in a manner, which will assure that the required quality of the concrete is maintained.
- B. Use conveying equipment which is approved by the Engineer and of a size and design such that detectable setting of the concrete does not occur before adjacent concrete is placed.
- C. Clean conveying equipment at the end of each operation or workday.
- D. For truck mixers, agitators and non-agitating units, conform to the applicable requirements of ASTM C94.
- E. For belt conveyors, use units which are horizontal or at a slope which will not cause excessive segregation or loss of ingredients. Protect concrete against undue drying or rise in temperature. Use an arrangement approved by the Engineer at the discharge end to prevent apparent segregations. Do not allow mortar to adhere to the return length of the belt. Discharge long runs into a hopper or through a baffle.
- F. For chutes, use metal or metal lined equipment having a slope not exceeding 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontals. Chutes more than 20 ft. long and chutes not meeting the slope requirements may be used provided they discharge into a hopper before distribution.
- G. For pumping or pneumatic conveying, use equipment of suitable kind with adequate pumping capacity. Control pneumatic placement so that segregation is not apparent in the discharged concrete. The loss of slump in pumping or pneumatic conveying equipment shall not exceed 2 in. Do not convey concrete through pipe made of aluminum or aluminum alloy.
- H. The Contractor shall perform slump tests for the first delivery truck of concrete at the location of the truck, before pumping and at the location of final placement at the end of the pumping line to ensure that the loss of slump is less than 2 inches. Trucks with larger slump loss shall be rejected. Testing of additional trucks at both the pumping source and final placement locations may be required by the Engineer at no additional cost to the Owner. Entrained air shall also be tested at the pumping source and final placement locations to ensure that the loss of air-entrainment is within acceptable limits

- I. If pumpable concrete is planned, the concrete shall be directly pumped to the structure with no intermediate transfer points.
- J. For pumping concrete, the Contractor shall ensure that pump and pipeline washout-blowout procedures are performed safely and cleanly to prevent personnel injury and to prevent concrete contact with river water or other natural environments.

5.6. PLACING CONCRETE

- A. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints, are not disturbed during concrete placement.
- B. Deposit concrete continuously, or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, locate construction joints as shown on the drawings or as approved by the Engineer.
- C. Deposit concrete at such a rate that the concrete which is being integrated with fresh concrete is still plastic.
- D. Do not deposit concrete which has partially hardened or has been contaminated by foreign materials.
- E. Remove temporary spreaders in forms when the concrete placing has reached an elevation rendering their service unnecessary. They may remain embedded in the concrete only if made of metal or concrete, and if prior approval has been obtained from the Engineer.
- F. Do not begin placing of concrete in supported elements until the concrete previously placed in columns and walls is no longer plastic and has been in place at least two hours.
- G. Deposit concrete directly to its final position without re-handling or interruption to the concrete flow. Do not subject the concrete to any procedure which will cause segregation.
 - 1. Do not allow concrete to drop free more than four feet. Where greater drops are required use a tremie or "elephant's trunk". Control the discharge of such devices so that the concrete can effectively be compacted in horizontal layers not more than 12 inches thick. Space the devices such that excessive segregation does not occur.
- H. Consolidate all concrete by vibration, spading, rodding, or forking so that the concrete is thoroughly worked around the reinforcement, around embedded items, and into corners of forms, eliminating all air or stone pockets which may cause honeycombing, pitting, or planes of weakness. Use international vibrators of the largest size and the most powerful that can be properly used in the work, as described in Table 5.1.4 of ACI309. They shall be operated by competent workmen. Do not use vibrators to transport concrete within

forms. Insert vibrators and withdraw at points approximately 18 in. apart. At each insertion, the duration shall be sufficient to consolidate the concrete but not sufficient to cause segregation, generally from 5 to 15 seconds. Keep a spare vibrator on the job site during all concrete placing operations. Where the concrete is to have an as-cast finish, bring a full surface of mortar against the form by the vibration process, supplemented if necessary, by spading to work the coarse aggregate back from the formed surface.

- I. Unless protection, satisfactory to the Engineer is provided, concrete shall not be placed during rain, sleet, or snow.
- J. Do not allow rainwater to increase the mixing water or damage the surface finish.
- K. When the temperature of the surrounding air is expected to be below 40F during placing or within 24 hours thereafter, the temperature of the plastic concrete, as placed, shall be no lower than 55 F for sections less than 12 inches in any dimension nor 50 F for any other sections.
- L. The temperature of the concrete as placed shall not be so high as to cause difficulty from loss of slump, flash set, or cold joints and should not exceed 90F. When the temperature of the concrete exceeds 90 F, use precautionary measures approved by the Engineer. When the temperature of the steel is greater than 120 F, spray steel forms and reinforcement with water just prior to placing the concrete.
- M. When required or permitted, deposit concrete under water using tremie method and in such a way that the fresh concrete enters the mass of previously placed concrete from within, causing water to be displaced with minimum disturbance at the surface of the concrete.

A tremie pipe (8 to 12 inches in diameter) shall be used to deposit the concrete. The tremie pipe shall be watertight. No water shall be allowed to enter the tremie pipe. The tremie pipe shall be sealed at the mouth using an Engineer approved method and lowered to the base of the formwork and filled with concrete. The tremie shall be raised no more than 6 inches off the bottom to break the seal and initiate the flow of concrete. The end of the tremie pipe shall remain embedded in the fresh concrete from 3 to 5 feet, at all times after pouring is started. The tremie pipe shall be lifted slowly to avoid disturbance to the concrete. Concrete placement shall be continuous.

The tremie pipe must remain fixed horizontally while concrete is flowing. Horizontal movement of tremie pipe will damage the surface of concrete already in place and is not permitted. Horizontal distribution of the concrete shall be accomplished by halting concrete placement, moving the pipe, reestablishing the seal and resuming placement. A tremie pipe injection point spacing of 2 to 3 times the depth of concrete shall be used.

- O. In areas with drains, pitch surfaces uniformly to drain at 1/8 inch per foot, unless specified otherwise.

5.7. CONSTRUCTION JOINTS

- A. Make construction joints only as shown on the Drawings, or as approved by the Engineer.
- B. Locate joints not shown on the Drawings only as approved by the Engineer. Locate those joints as least to impair the strength of the structure. In general, locate construction joints near the middle of the spans of slabs, beams and girders. Locate joints in walls and columns at the underside of floors, slabs, beams or girders and at the tops of footings or floor slabs. Place beams, girders, brackets, column capitals, haunches and drop panels at the same time as slabs. Make joints perpendicular to the main reinforcement.
- C. Continue reinforcement across joints unless shown otherwise on the drawings.
- D. Provide keys and inclined dowels as directed by the Engineer.
- E. For all transverse and longitudinal construction joints, provide a keyway 2 inches deep by 4 inches wide with a rubber dumbbell-type waterstop.
- F. Clean the surface of concrete at all joints and remove all laitance before placing adjoining concrete.
- G. Immediately before new concrete is placed, all construction joints shall be wetted and standing water removed.
- H. Obtain bond by one of the following methods:
 - 1. The use of an approved adhesive. Prepare and apply adhesive to joints receiving an adhesive in accordance with the manufacturer's recommendations.
 - 2. The use of an approved chemical retarder which delays but does not prevent setting of the surface mortar. Remove mortar within 24 hours after placing to produce a clean exposed aggregate bonding surface. Prepare surfaces of joints to be treated in accordance with the manufacturer's recommendations.
 - 3. Roughening the surface of the concrete in an approved manner which will expose the aggregate uniformly and will not leave laitance, loosened particles of aggregate or damaged concrete at the surface.
 - 4. Dampen (but do not saturate) the hardened concrete of construction joints and of joints between footings and walls or columns, between walls or columns and beams or floors they support, joints in unexposed walls and all others not mentioned below immediately prior to placing of fresh concrete.
 - 5. For horizontal construction joints in exposed work; horizontal construction joints in the middle of beams, girders, joists and slabs; and horizontal construction joints in work designed to contain liquids, dampen (but do not saturate) the hardened concrete and thoroughly cover the joint with a coat of cement grout of similar

proportions to the mortar in the concrete. Place the fresh concrete before the grout has attained its initial set.

5.8. EMBEDDED ITEMS

- A. Expansion Joints - Do not extend reinforcement or other embedded metal items bonded to the concrete (except dowels in slabs bonded on only one side of joints) continuously through any expansion joint.
- B. Position expansion joint material, waterstops and other embedded items accurately, and support them against displacement. Fill voids in sleeves, inserts and anchor slots temporarily with readily removable material to prevent the entry of concrete into the voids.

5.9. SLABS

- A. Set edge forms and intermediate screed strips accurately to produce the designated elevations and contours of the finished surface and construct them sufficiently strong to support vibrating screeds or roller pipe screeds if the nature of the finish specified requires the use of such equipment. Align the concrete surface to the contours of screed strips using strike-off templates or approved compacting type screeds.
- B. Carefully coordinate mixing and placing with finishing. Do not place concrete on the subgrade or forms more rapidly than it can be spread, straightened, and darried or bull floated. These operations must be performed before bleeding water has an opportunity to collect on the surface.
- C. To obtain good surfaces and avoid cold joints, plan the size of finishing crews with due regard for the effects of concrete temperature and atmospheric conditions on the rate of hardening of the concrete.
- D. If saw-cut joints are required or permitted, time cutting properly with the set of the concrete: start cutting as soon as the concrete has hardened sufficiently to prevent aggregates being dislodged by the saw, and complete before shrinkage stresses become sufficient to produce cracking.
- E. Thoroughly consolidate concrete in slabs. Use internal vibration in beams and girders of framed slabs and along the bulkheads of slabs on grade. Obtain consolidation of slabs with vibrating screeds, roller pipe screeds, internal vibrators, or other approved means.

5.10. FINISHES

- A. Provide the following finishes as applicable and in accordance with ACI 301 unless specified otherwise herein or shown otherwise on the Drawings:
 - 1. Smooth Form Finish - for all formed concrete surfaces.
 - 2. Broom or Belt Finish - for sidewalks, driveways, ramps and exterior platforms.

3. Provide smooth form finish where type of finish is not certain from above.
- B. Smooth Form Finish - Use form facing materials which produce a smooth, hard, uniform texture on the concrete. It may be plywood, tempered concrete-form-grade hardboard, metal, plastic, paper, or other approved material capable of producing the desired finish. The arrangement of the facing material shall be orderly and symmetrical, with the number of seams kept to the practical minimum. Support it with studs or other backing capable of preventing excessive deflection. Do not use material with raised grain, torn surfaces, worn edges, patches, dents, or other defects which will impair the texture of the concrete surface. Patch tie holes and defects. Completely remove all fins.
 - C. Broom or Belt Finish - First, float finish the surface as described above. Do not trowel. Give the surface a coarse transverse scored texture by drawing a broom or burlap belt across the surface.

5.11. TOLERANCES

- A. Tolerance in finished elevation shall be $\frac{1}{4}$ inch per 100 feet of length. This tolerance is non-additive.
- B. Produce formed surfaces which result in concrete outlines within the tolerances of applicable standards.
- C. Depressions in slabs between high spots shall not be greater than $\frac{3}{16}$ in. below a 10 ft. long straightedge.

5.12. CURING

- A. Beginning immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury, and maintain the concrete with minimal moisture loss at a relatively constant temperature for the period necessary for hydration of the cement and hardening of the concrete.
- B. For concrete surfaces not in contact with forms, apply one of the following procedures immediately after completion of placement and finishing:
 1. Ponding or continuous sprinkling.
 2. Application of absorptive mats or fabric kept continuously wet.
 3. Application of sand kept continuously wet.
 4. Continuous application of steam (not exceeding 150F) or mist spray.
 5. Application of waterproof sheet materials conforming to ASTM C171.

6. River water and other non-potable water sources shall not be acceptable for use in curing.
 7. Application of a curing compound conforming to ASTM C309. Apply the compound in accordance with the recommendations of the manufacturer immediately after any water sheen which may develop after finishing has disappeared from the concrete surface. Do not use on any surface against which additional concrete or other material is to be bonded unless it is proved that the curing compound will not prevent bond, or unless positive measures are taken to remove it completely from areas to receive bonded applications. Minimize moisture loss from surfaces placed against wooden forms or metal forms exposed to heating by the sun by keeping the forms wet until they can be safely removed. After form removal, cure the concrete for at least seven days.
- C. Cold Weather - When the mean daily outdoor temperature is less than 40 F, maintain the temperature of the concrete between the ranges stated in the latest edition of ACI 306 for minimum seven (7) days or until the concrete has achieved a minimum compressive strength of 3,500 psi. Make arrangements for heating, covering, insulating, or housing the concrete work in advance of placement and maintain the required temperature without injury due to concentration of heat. Do not use combustion heaters during the first 24 hours unless precautions are taken to prevent exposure of the concrete to exhaust gases which contain carbon dioxide.
 - D. Hot Weather - When necessary, make provision for windbreaks, shading, fog spraying, sprinkling, ponding, or wet covering with a light-colored material in advance of placement, and take such protective measures as quickly as concrete hardening and finishing operations will allow.
 - E. Rate of Temperature Change - Keep changes in temperature of the air immediately adjacent to the concrete during and immediately following the curing period as uniform as possible and do not exceed 5 F in any 1 hour or 50 F in any 24-hour period.
 - F. During the curing period, protect the concrete from damaging mechanical disturbances, such as load stresses, heavy shock, and excessive vibration. Protect all finished concrete surfaces from damage by construction equipment, materials, or methods, by application of curing procedures, and by rain or running water. Do not load self-supporting structures in such a way as to overstress the concrete.
 - G. Proper curing methods shall be maintained, including curing methods for side faces once forms are stripped, for a minimum of seven (7) days.
 - H. No external loads shall be applied to the concrete until seven (7) days after concrete is cast.
 - I. No piles shall be driven or vibrated within fifty feet (50 ft) of new concrete until seven (7) days after concrete is cast.

5.13. REPAIR OF SURFACE DEFECTS

- A. Repair surface defects, including tie holes immediately after form removal.
- B. Remove all honeycombed and other defective concrete down to sound concrete. If chipping is necessary, form the edges perpendicular to the surface or slightly undercut. No feathered edges will be permitted. Dampen the area to be patched and an area at least 6 in. wide surrounding it to prevent absorption of water from the patching mortar. Prepare a bonding grout using a mix of approximately 1 part cement to 1 part fine sand passing a No. 30 mesh sieve, mixed to the consistency of thick cream, and then well brushed into the surface.
- C. Make the patching mixture of the same materials and of approximately the same proportions as used for the concrete, except that the coarse aggregate shall be omitted, and the mortar shall consist of not more than 1-part cement to 2 1/2 parts sand by damp loose volume. Substitute white portland cement for a part of the gray portland cement on exposed concrete in order to produce a color matching the color of the surrounding concrete as determined by a trial patch. Use no more mixing water than necessary for handling and placing. Mix the patching mortar in advance and allow it to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.
- D. After surface water has evaporated from the area to be patched, brush the bond coat well into the surface. When the bond coat begins to lose the water sheen, apply the premixed patching mortar. Consolidate the mortar.
- E. After cleaning and thoroughly dampening the tie holes, fill them solid with patching mortar.
- F. If permitted or required, proprietary compounds for adhesion or as patching ingredients may be used in lieu of or in addition to the foregoing patching procedures. Use such compounds in accordance with the manufacturer's recommendations.

5.14. TESTING

- A. Concrete materials and operations will be tested and inspected as the work progresses. Failure to detect any defective work or material shall not in any way prevent later rejection when such defect is discovered, nor shall it obligate the Engineer for final acceptance.
- B. Additional testing and inspection required by failure to meet specification requirements or by changes in materials or proportions requested by the Contractor shall be paid for by the Contractor.
- C. Testing of concrete for mix design purposes shall be paid for by the Contractor.
- D. All testing agencies shall meet the requirements of ASTM E 329.

- E. Contractor shall engage an independent field and laboratory testing agency to perform all test required by the Contract Documents.
- F. Concrete test cylinders (6"x12" or 4"x8" cylinders) shall be collected for every 75 or less cubic yards of concrete placed. Minimum three (3) additional test cylinder will be collected for concrete installed during cold weather and/or for concrete placed underwater. These cylinders shall be field cured on job site under conditions identical to the concrete they represent.
- G. To facilitate testing and inspection,
 - 1. Furnish any necessary labor to assist the designated testing agency in obtaining and handling samples at the project or other sources of materials.
 - 2. Advise the designated testing agency sufficiently in advance of operations to allow for completion of quality tests and for the assignment of personnel.
 - 3. Provide and maintain for the sole use of the testing agency adequate facilities for safe storage and proper curing of concrete test specimens on the project site for the first 24 hours as required by ASTM C 31.
- H. For each strength test, the air content, temperature, and slump of the concrete sample will be measured. Slump tests shall be made in accordance with ASTM C-143. These tests may be performed more frequently and may be on every arriving delivery truck prior to allowing placement, at the Engineers discretion.
- I. Representatives of the testing agency will inspect, sample and test the materials and the production of concrete as required by the Engineer. When it appears that any material furnished or work performed by the Contractor fails to fulfill specification requirements, the testing agency will report such deficiency to the Engineer and the Contractor.
- J. The testing agency will report all test and inspection results to the Engineer and Contractor immediately after they are performed. All test reports will include the exact location in the work at which the batch represented by a test was deposited. Reports of strength tests will include detailed information on storage and curing of specimens prior to testing.
- K. The testing agency and its representatives are not authorized to revoke, alter, relax, enlarge or release any requirement of the contract documents, nor to approve or accept any portion of the work.
- L. All concrete testing, whether properties testing or cylinder sampling, shall be conducted on concrete at the point of placement. The Contractor shall take all necessary measures to efficiently and safely allow the representative of the testing agency to take samples at the point of placement. No additional compensation will be allowed to accommodate this requirement.

- M. All cylinders will be made and cured in accordance with ASTM C-31 and tested in accordance with ASTM C-39. Curing of concrete cylinders shall be performed in conditions identical to the field conditions. Cylinders from underwater concrete shall be cured on-site, under water, near the concrete placed in field. The strength of concrete is considered satisfactory if, every average of two (2) – 6x12 cylinders or average of three (3) – 4x8 cylinders consecutive strength tests equals or exceeds the specified compressive strength f'_c , and no strength test result falls below f'_c by more than 500 psi when f'_c is 5000 psi or less, or by more than $0.10f'_c$ when f'_c is more than 5000 psi. These criteria also apply to accelerated strength testing. If one concrete specimen shows evidence of improper sampling, molding, or testing, it will be discarded, and the remaining two strengths averaged. Should more than one specimen show any of the above defects, the resulting average will be discarded.
- N. If total quantity of a given class of concrete is less than 50 cubic yards., strength tests may be waived at the Engineer's discretion.

5.15. EVALUATION AND ACCEPTANCE

- A. Test results for standard molded and standard cured test cylinders will be evaluated separately for each portion of the structure.
- B. The strength level of the concrete will be considered satisfactory so long as the averages of all sets of three consecutive strength test results equal or exceed the specified strength, and no individual strength test result falls below the specified strength by more than 500 psi.
- C. Completed concrete work which meets all applicable requirements will be accepted without qualification.
- D. Completed concrete work which fails to meet one or more requirements, but which has been repaired to bring into compliance will be accepted without qualification.
- E. Completed concrete work which fails to meet one or more requirements, and which cannot be brought into compliance as determined by the Engineer may be accepted or rejected. Remove and replace (at Contractor's expense) all concrete work rejected by the Engineer.
- F. Formed surfaces resulting in concrete outlines smaller than permitted by the allowable tolerances shall be considered potentially deficient in strength and subject to the requirements stated below for concrete of deficient strength.
- G. Formed surfaces resulting in concrete outlines larger than permitted by the allowable tolerances may be rejected and the excess material shall be subject to removal. If removal of the excess material is permitted, it shall be accomplished in such a manner as to maintain the strength of the section and to meet all other applicable requirements of function and appearance.

- H. Concrete members cast in the wrong location may be rejected if the strength, appearance or function of the structure is adversely affected or misplaced items interfere with other construction.
- I. Inaccurately formed concrete surfaces exceeding the limits of applicable standards and which are exposed to view, may be rejected and shall be repaired or removed and replaced if required.
- J. Finished slabs exceeding the tolerances of this section may be repaired if strength, durability or appearance is not adversely affected. High spots may be removed with a terrazzo grinder, low spots filled with a patching compound or other remedial measures performed as permitted.
- K. Concrete with defects which adversely affect the appearance of the specified finish must be repaired. If, in the opinion of the Engineer, the defects cannot be repaired, the concrete may be either accepted or rejected by the Owner. In case of rejection, Contractor shall demolish the rejected concrete and reinstall at their own cost.
- L. Concrete not exposed to view is not subject to rejection for defective appearance, except in those cases where concrete finish is specified.
- M. The strength of the structure in place will be considered potentially deficient if it fails to comply with any requirements which control the strength of the structure, including but not necessarily limited to the following conditions.
 - 1. Low concrete strength.
 - 2. Reinforcing steel size, quantity, strength, position, or arrangement at variance with the requirements of the contract drawings.
 - 3. Concrete which differs from the required dimensions or location in such a manner as to reduce the strength.
 - 4. Curing less than that specified.
 - 5. Inadequate protection of concrete from extremes of temperature during early stages of hardening and strength development.
 - 6. Mechanical injury, construction fires, accidents or premature removal of formwork likely to result in deficient strength.
 - 7. Poor workmanship likely to result in deficient strength.
- N. Structural analysis and/or additional testing may be required when the strength of the structure is considered potentially deficient.
- O. Core tests may be required when the strength of the concrete in place is considered potentially deficient.

- P. If core tests are inconclusive or impractical to obtain or if structural analysis does not confirm the safety of the structure, load tests may be required, and their results evaluated in accordance with Chapter 27 of ACI 318.

- Q. Concrete work judged inadequate by structural analysis or by results of a load test shall be reinforced with additional construction if so, directed by the Engineer or shall be replaced at the Contractor's expense.

END OF SECTION

SECTION 03301

COLD WEATHER CONCRETE

PART 1: GENERAL

1.1. SCOPE

- A. This Standard Specification covers requirements for cold weather concreting and protection of concrete from freezing during the specified protection period.
- B. The provision of this Standard Specification shall govern unless otherwise specified in the Contract Documents.

1.2. RELATED SECTIONS

- | | |
|---------------------------|---------------|
| A. Scope of Work | Section 01000 |
| B. Submittal Procedures | Section 01330 |
| C. Quality Requirements | Section 01400 |
| D. Reinforcing Steel | Section 03210 |
| E. Cast-in Place Concrete | Section 03300 |
| F. Curing Concrete | Section 03390 |

PART 2: PRODUCTS

2.1. MATERIALS

- A. Scheduling protection materials - All materials and equipment required for protection shall be available at the project site before cold weather concreting.
- B. Concrete – Concrete shall be air entrained as specified in the latest edition of ACI 301.

PART 3: SUBMITTALS

3.1 DETAILED PROCEDURES

- A. Submit detailed procedures for the production, transportation, placement, protection, curing, and temperature monitoring of concrete during cold weather at least four (4) weeks prior to concreting. In the submittal, include procedures to be implemented upon abrupt changes in weather conditions or equipment failures. Do not begin concrete placement until these procedures have been reviewed and accepted by the Engineer.

PART 4: QUALITY ASSURANCE

4.1 REFERENCES

- A. Comply with the provisions specified in the latest revision of the following ASTM standards, including all supplements and addenda:
 - 1. C31 - Standard Method of Making and Curing Concrete Test Specimens in the Field
 - 2. C150 – Standard Specification for Portland Cement.
 - 3. C494 - Standard Specification for Chemical Admixtures for Concrete.
 - 4. C803 - Standard Test Method for Penetration Resistance of Hardened Concrete
 - 5. C873 – Standard Test Method for Compressive Strength of Concrete Cylinders Cast in Place in Cylindrical Molds
 - 6. C900 - Standard Test Method for Pullout Strength of Hardened Concrete
- B. Comply with the provisions of the latest revision of the following publications of the American Concrete Institute and these specifications, whichever is more stringent:
 - 1. ACI 301 – Specifications for Structural Concrete for Buildings.
 - 2. ACI 306 – Guide to Cold Weather Concreting

PART 5: EXECUTION

5.1. PREPARATION BEFORE CONCRETING

- A. Remove all snow, ice, and frost from the surfaces, including reinforcement, against which the concrete is to be placed. Before beginning concrete placement, thaw the subgrade to the depth specified in the Contract Documents. Do not place concrete around massive embedments identified in the Contract Documents unless such embedments are at a temperature above freezing.

5.2. CONCRETE TEMPERATURE

- A. Placement Temperature- The minimum temperature of concrete immediately after placement shall be as specified in Column 2 of Table 5.2.1. The temperature of concrete as placed shall not exceed the values shown in Column 2 of Table 3.2.1 by more than 20 F.

Table 1: Concrete Temperature

(1)	(2)	(3)
Least dimension of section (in.)	Minimum temperature of concrete as placed and maintained during the protection period (F)	Maximum gradual decrease in surface temperature during any 24 h after end of protection (F)
Less than 12	55	50
12 to less than 36	50	40
36 to 72	45	30
Greater than 72	40	20

- B. Protection Temperature – Unless otherwise specified, the minimum temperature of concrete during the protection period shall be as shown in Column 2 of Table 5.2.1. Temperatures specified to be maintained during the protection period shall be those measured at the concrete surface, whether the surface is in contact with formwork, insulation, or air. Measure the temperature with a surface temperature measuring device having an accuracy of 2^o F. As a minimum, measure the temperature of concrete surface at mid- point of each edge, all corners, and at the center of concrete structure for each placement, two (2) times during a period of 24 hours, at regular time intervals.
- C. Termination of Protection-The maximum decrease in temperature measured at the surface of the concrete in a 24-hour period shall not exceed the values shown in Column 3 of Table 3.2.1. Do not exceed these limits until the surface temperature of the concrete is within 20 F of the ambient or surrounding temperatures. When the surface temperature of the concrete is within 20 F of the ambient or surrounding temperature, all protection may be removed. In no case shall the protection be terminated until the concrete has achieved a minimum compressive strength of 3,500 psi.

5.3. CURING OF CONCRETE

- A. Prevent concrete from drying during the required curing period. If water curing is used, terminate use at least 24 hr. before any anticipated exposure of the concrete to freezing temperatures.

5.4. PROTECTION OF CONCRETE

- A. Combustion heaters- Vent flue gases from combustion heating units to the outside of the enclosure.
- B. Overheating and drying - Place and direct heaters and ducts to avoid areas of overheating or drying of the concrete surface.

- C. Maximum air temperature - During the protection period, do not expose the concrete surface to air having a temperature more than 20 F above the values shown in Column 2 of Table 5.2.1, unless higher values are required by an accepted curing method.
- D. Protection against freezing - Cure and protect concrete against damage from freezing for a minimum period of 3 days, unless otherwise specified. Maintain the surface temperature of the concrete during that period in accordance with Column 2 of Table 3.2.1, unless otherwise specified. The protection period may be reduced to minimum 2 days if use of one or more of the following to alter the concrete mixture is accepted:
- Type III portland cement meeting the requirements of ASTM C 150
 - A strength accelerating admixture meeting the requirements of ASTM C 494
 - 100 lb./yd³ of additional cement

Under no circumstances shall the cold weather protection be terminated until the concrete has achieved a minimum compressive strength of 3,500 psi.

During periods not defined as cold weather, but when freezing temperatures may occur, protect concrete surfaces against freezing for the first 24 hr. after placing.

- E. Protection for structural safety- If the concrete strength is required for structural safety, extend the duration of the protection period to ensure the necessary strength development. The strength required for formwork removal, for reshoring, or for continued construction shall be as specified in the Contract Documents for each type of structural member. Verify whether the required strength has been attained by using one or more of the following methods:
- ASTM C 31 (use procedures in section titled "Curing for Determining Form Removal Time or When a Structure May be Put into Service")
 - ASTM C 803
 - ASTM C 873
 - ASTM C 9001. Provide the electrical Contractor ample notice and opportunity to attach grounding conductors to the structure.

A correlation with cylinder strength, using the specific concrete intended for construction, is required for ASTM test methods C 803 and C 900.

- F. Protection deficiency - If the temperature requirements during the specified protection period are not met but the concrete was prevented from freezing, continue protection until twice the deficiency of protection in degree-hours is made up. Deficient degree-hours may be determined by multiplying the average deficiency in temperature by the number of hours the temperature was below the values shown in Column 2 of Table 5.2.1. Sprinkle semi-porous subgrades sufficiently to eliminate suction, and seal porous subgrades in a manner approved by the Engineer.

END OF SECTION

GENERAL TERMS &
CONDITIONS

GENERAL TERMS & CONDITIONS

<u>NO.</u>	<u>DESCRIPTION</u>
1.01	Definitions
1.02	Intent of Contract Documents
1.03	Project Schedule
1.04	Performance of Work
1.05	Contractor's Insurance
1.06	Assumption of Risk
1.07	Indemnification
1.08	Sub-Contracts
1.09	Owner's Right to Occupy
1.10	Owner's Right to Terminate Contract
1.11	Changes in Drawings and Specifications
1.12	Dispute Resolution
1.13	Materials and Workmanship
1.14	Project Administration and Inspection
1.15	Progress Meetings
1.16	Project Site Access & Parking
1.17	Access to Schuylkill Banks Trail & Greenway
1.18	Use of Job Site
1.19	Temporary Light, Power, Water, Heat and Compressed Air
1.20	Temporary Toilet Facilities
1.21	Debris Removal
1.22	Grounding of Portable Electrical Tools
1.23	Moving Materials
1.24	Cleaning
1.25	Safety Rules
1.26	Project Site Security
1.27	Measurements
1.28	Cutting and Fitting
1.29	Protection of Work and Property
1.30	Damage and Repairing
1.31	Contract Provisions
1.32	Payment and Retainage
1.33	Payment Withheld
1.34	Liens
1.35	Contractor Modified Procedures
1.36	Closeout Procedures
1.37	Codes, Standards and Regulations
1.38	Project Submittals
1.39	Guarantee
1.40	Schedule Delays

1.01 DEFINITIONS

- A) The term "Work" shall include all construction work and other services and expenses incidental to executing the construction work specified in Contract Documents in a workman like manner.
- B) The term "Contract Documents" consist of the Bid Proposal, Project Bid Manual, and Bid Drawings and Specifications, including all modifications thereof incorporated in the Documents before their execution. These form the Contract.
- C) The term "Owner" shall mean the Schuylkill River Development Corporation (SRDC).
- D) The term "Contractor" shall mean person, firm or corporation named in the Agreement who will execute the construction work.
- E) The term "Subcontractor" includes only those having a direct contract with the Contractor and it includes one who furnishes materials worked to a special design according to the Drawings or Specifications for this work but does not include one who merely furnishes material not so worked.
- F) The law of the place of building shall govern the construction of this Contract.

1.02 INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary, and what is called for by anyone shall be as binding as if called for by all. The intention of the Contract Documents is to include in the Contract Price the cost of all labor and materials, scaffolds, rigging, water, fuel, tools, plant equipment, light, transportation, and all other services and expense as may be necessary for and properly incidental to the proper execution and completion of the work unless distinctly specified otherwise.

The intent of this Contract Documents is that the work to be done by the Contractor under this contract shall be neat, finished, full, and complete in every detail and ready for use and operation for the purpose for which it is intended, and the Contractor shall furnish all labor, tools, implement, materials, machinery and equipment necessary to so complete the project for his lump sum price, unless specifically stated as being furnished by the Owner.

All incidental, minor and miscellaneous items, cutting, fitting, patching work, and materials not specified or shown which are necessary to complete the work in the Contract, and which the Owner shall judge to be so included, shall be done and furnished by the Contractor without extra charge.

Bidders should thoroughly familiarize themselves with this intent before submitting proposals, and any failure to do so will not relieve them from furnishing all labor and material required to complete the Contract without additional cost to the Owner.

All work is to be performed to the approval of the Owner or their designated representatives, and no partial or final payments will be made without such approval.

1.03 PROJECT SCHEDULE

Construction work will begin once all necessary work permits are obtained, but no sooner than July 1, 2025. **Along with their bid, the bidders shall submit a Work Schedule showing the planned duration and progress of construction activities at each repair location.**

1.04 PERFORMANCE OF WORK

The Prime Contractor is required to perform at least 60% of the work with his/her own forces.

1.05 CONTRACTOR'S INSURANCE

The Contractor shall not commence work under this Contract until he has obtained all insurance required by the Contract Documents and such insurance has been approved by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved. Unless otherwise provided in the Contract Documents, the Contractor shall provide insurance as follows:

A) Comprehensive/Commercial General Liability And Property Damage Insurance	\$1,000,000 per occurrence \$2,000,000 aggregate
B) Automobile Liability Insurance	\$1,000,000 per occurrence
C) Workman's Compensation Insurance & USL&H	Statutory Limits
D) Pollution Liability Coverage	\$1,000,000
E) Maritime Employers Liability (Jones Act)	\$1,000,000

Insurance Notes:

- Liability coverage must be on an "Occurrence Basis" and not a "Claim Made Basis".
- The project location must be indicated on the certificate of Insurance.
- Cancellation period must state "30 – days' prior written notice will be given to certificate holder prior to cancellation, non-renewal or reduction below the limits indicated."
- The issuing agent must sign the certificate.
- The Schuylkill River Development Corporation, the Commonwealth Finance Authority, the Commonwealth of Pennsylvania, PennDOT, City of Philadelphia, and Bowman Consulting Group must be named as additional insureds.
- A copy of the certificate of insurance must be provided to the Schuylkill River Development Corporation, 2401 Walnut Street, Suite 603, Philadelphia, PA – 9103 prior to starting work. It does not need to be provided with the bid.

1.06 ASSUMPTION OF RISK

The Contractor represents that he has had an opportunity to examine and has carefully examined all the Specifications, Drawings, and Directions in connection with the work; that he has fully acquainted himself with the actual elevations, visible obstructions or known obstructions above and below the surface, access restrictions, and all other conditions relevant to the Work, the site of the Work, and its surroundings; and is fully aware of any variances between the actual conditions relevant to the Work and the same as shown or represented in said Drawings and Directions, as far as such variances can be determined by an inspection of the site; that he has made all investigations essential to a full understanding of the difficulties which may be encountered in performing the Work, and that anything in any of said Documents or in any representations, statements or information made or furnished by the Owner notwithstanding, the Contractor will, regardless of any such conditions relevant to the Work, the site of the Work or its surroundings, complete the Work for the compensation agreed upon (except in the case of changes in the Work by Owner, and conditions at the site that cannot reasonably be determined, in connection with which the Contractor will be paid as provided in the Article regarding changes) and assume full and complete responsibility therefore and risk in connection therewith. In addition thereto, the Contractor represents that he has special qualifications for doing the Work and will complete said Work to the complete satisfaction of the Owner.

1.07 INDEMNIFICATION

The Contractor shall hold the Commonwealth of Pennsylvania (Commonwealth), the City of Philadelphia (City), the Schuylkill River Development Corporation (SRDC), PennDOT, the Commonwealth Finance Authority (CFA) and Bowman Consulting Group (Bowman) harmless from and indemnify the Commonwealth, City, SRDC, and Bowman against any and all claims, liabilities, demands, and actions based upon or arising out of any activities performed by the Contractor, its employees, agents, assigns, officers, or subcontractors under this Contract and shall defend any and all actions brought against any or all of the above named entities based upon any such claims or demands.

1.08 SUBCONTRACTS

The Contractor shall not sublet or subcontract any work to be performed or any materials to be furnished in the performance of the Contract without the written consent of the Owner. If the Contractor shall sublet or subcontract any part of the Contract, the Contractor shall be as fully responsible to the Owner for the acts and omissions of his Subcontractor and of the persons directly or indirectly employed by his Subcontractor, as he is for the acts and omissions of persons directly employed by himself.

1.09 OWNER'S RIGHT TO OCCUPY

The Owner reserves the right to occupy any portion of the project before it has been entirely completed, with the distinct understanding that such occupancy shall in no way constitute acceptance of the work in whole or any part thereof, or of any work performed under the Contract.

1.10 OWNER'S RIGHT TO TERMINATE CONTRACT

The Owner may, by written notice, cancel this Contract at any time, and in such event, shall pay the Contractor reimbursable costs incurred up to the date of cancellation, and that part of the fixed price represented by the work done to the time of cancellation, and no other cancellation charges.

1.11 CHANGES IN DRAWINGS AND SPECIFICATIONS

The Owner reserves the right to make any changes in the Drawings and Specifications, should any be found desirable previous to commencing or during the progress of the Work, without in any other respect or particular invalidating the original provision of the Contract.

1.12 DISPUTE RESOLUTION

- a. Negotiations. The parties shall promptly attempt in good faith to resolve by negotiations any dispute or claim arising out of or relating to this Agreement ("Dispute"). If a Dispute should arise between the parties, Senior Executives of each party, empowered to settle the dispute ("Senior Executives"), shall meet or confer by telephone, as they agree, at least once and shall attempt to resolve the matter. Such meeting or teleconference shall take place within ten (10) days of a written request therefore by either Party at a mutually agreed time, and subsequent meetings or teleconferences may be held in an effort to resolve the Dispute.
- b. Mediation. In the event that the Dispute is not settled between the Senior Executives within ten (10) days from the initial meeting or teleconference of the Senior Executives, then if both Parties agree the Dispute may be referred to mediation under the Commercial Mediation Rules of the American Arbitration Association or to some other alternative dispute resolution association acceptable to both Parties, before resorting to legal action. If the Mediation is unsuccessful, the Mediator shall issue a letter to both parties so stating.
- c. Litigation. If, and only if the conditions in subparagraphs (a) and (b) above have been met, and the mediation is held, but is unsuccessful as determined by the Mediator, then in that event either party may pursue any other remedies that may be available to it by law.
- d. Exclusive Procedures. The procedures specified in this Section 1.12 shall be the sole and exclusive procedures for the resolution of Disputes between the parties arising out of or relating to this Agreement; provided that either party shall be entitled to seek injunctive relief in a court of appropriate jurisdiction without resorting to such procedures, subject, however to the ability of the party seeking such relief to demonstrate that they are likely to suffer immediate, substantial and irreparable harm. Each of the parties hereby consents to the service of process by registered mail or overnight courier at its address set forth in this Agreement and agrees that its consent to service of process by such methods are made for the express benefit of the other party.
- e. Parties to Continue Performance. While the procedures set forth above are being followed, the parties shall continue to perform their respective obligations under this Agreement.

1.13 MATERIALS AND WORKMANSHIP

Unless otherwise specifically stipulated in the Specifications, all workmanship shall be of the best quality and all equipment, materials, and articles incorporated in the work under the Contract, shall be new and of the best grade of their respective kinds for the purpose. The Contractor shall, if required, furnish evidence as to kind and quality of materials.

Should any dispute arise as to the quality and fitness of workmanship, equipment, materials, or articles, the decisions shall rest strictly with the Owner, and shall be based upon the requirements of this Contract, and what is usual and customary in the execution of other work shall in no way enter into any consideration or decision whatsoever.

The Contractor shall at all times enforce discipline and good order among his employees and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him. The Owner may require the Contractor to dismiss from the work such employees as either of them deem incompetent, careless or insubordinate.

1.14 PROJECT ADMINISTRATION AND INSPECTION

The Contractor shall provide the services of a competent Superintendent approved by the Owner, from the beginning of the work to the date of final completion of the Contract. The Owner reserves the right to require the substitution of another Superintendent if said Superintendent should, in the judgment of the Owner, prove unsatisfactory.

The Superintendent shall be in charge of the Work at all times and shall be provided with such assistants by the Contractor, as are necessary to properly conduct the individual elements of construction work. The Superintendent shall represent the Contractor and all directions, instructions, or notices given to the Superintendent by the Owner shall be as binding as if given to the Contractor.

SRDC will provide project inspection using its own forces and/or the services of a Construction Manager/Inspector. The Owner's inspection is for the purpose of reviewing that the work is being properly executed and while the Construction Manager/Inspector is instructed to give the Contractor all desired assistance in interpreting the Drawings, Specifications and otherwise, such assistance shall not relieve the Contractor from any responsibility of the Work.

The Owner shall, at all times, have access to the Work wherever it is in preparation or in progress, and the Contractor shall provide proper facilities for such access and for inspection.

The Owner shall have the right to reject materials and workmanship which are defective or not in accordance with the drawings and require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the Owner. Where tests or inspection are required by the Owner or their designated representative, all tests shall be performed in accordance with the current standard methods of the American Society for Testing Materials governing the materials tested.

1.15 PROGRESS MEETINGS

It is anticipated that there will be at least one on-site job meeting every two (2) weeks to review up-coming work. The Contractor must have responsible representation at these meetings. If deemed necessary, meetings of the representatives will be held in the office of SRDC, for the purpose of furthering and coordinating the progress of the work, and the issuing of instructions by the Owner. Where representatives fail in attendance or in executing the orders given them, they shall, on request of the Owner be dismissed from the work within twelve hours from the time of such request and other representatives who are satisfactory to the Owner shall be immediately substituted.

1.16 PROJECT SITE ACCESS & PARKING

Contractor may access the Work area via water or via land. Access to the Work area via land is limited due to the location of Work area between Schuylkill River and CSX Railroad tracks. Access via land will be through Schuylkill Trail from Martin Luther King Drive or if absolutely necessary, through the railroad grade crossings at Locust Street and Race Street. The gates at the railroad crossings are locked at all times and are often blocked by parked trains making access across the tracks impossible. Access across railroad crossing will require daily coordination with SRDC and accompaniment of SRDC staff or its designated representative. If access via land is planned, bidder must factor in these restricted access conditions in their bid. No additional compensation shall be made to the Contractor due to delays arising from landside access restrictions.

The Contractor will be required to obtain a Philadelphia Parks and Recreation (PPR) permit. This permit does not require a fee and SRDC will offer to assist the Contractor in obtaining this permit.

The Contractor will not be allowed to park employee vehicles on site and will need to make alternate arrangements for the employee parking in the vicinity of the site. No parking of vehicles on the existing trail will be permitted at any time. Worker access will be available on foot via available public access points. Due to limited site access, legitimate and necessary work vehicles may be allowed to be left on site overnight or at other times when work is not in progress. Vehicles left on site will be at Contractor's own risk.

Access to concrete truck may not be available at all repair locations. In addition, the presence of rail tracks may delay access to concrete truck. The bidders must discuss their concreting plans with the Owner during the bid phase to verify feasibility.

1.17 ACCESS TO SCHUYLKILL BANKS TRAIL & GREENWAY

Except when expressly authorized by SRDC, the Contractor must keep the main trail open for trail users during the entire duration of construction work and exercise caution so as to not create unsafe conditions for users. To protect trail users and the worksite, the Contractor shall install temporary fencing, barriers, signs, lighting, etc., as required, at their own cost. The extent of such fencing must be kept to a minimum and be approved by SRDC or their designated representative, prior to installation. Trail and trail user protection is considered incidental to this Contract.

1.18 USE OF JOB SITE

The Contractor shall confine his equipment, apparatus, the storage of materials, and operations of his workmen to limits indicated by law, ordinances, permits, or directions of the Owner, and shall not unnecessarily encumber the premises with his materials. Contractor shall take full responsibility for usage, storage, and securing all equipment and materials at the premises.

1.19 TEMPORARY LIGHT, POWER, WATER, HEAT, AND COMPRESSED AIR

No utilities shall be provided by the Owner. The Contractor shall provide their own utilities including but not limited to temporary lighting, power, water, heat and compressed air. If temporary heat is required, the Contractor shall use portable unit heaters of a non-hazardous nature -- no open or "barrel" type salamanders will be allowed.

1.20 TEMPORARY TOILET FACILITIES

Each Contractor shall make his own arrangements for providing temporary toilet facilities for both his and his Subcontractor's workmen, which are employed on the project.

All such toilet facilities shall meet the requirements of the Health Authorities having jurisdiction, shall be kept clean and in sanitary condition at all times, and shall be removed from the Owner's property when directed.

1.21 DEBRIS REMOVAL

All existing materials which are demolished or otherwise removed in accordance with the drawings and specifications and not relocated in the construction shall become the property of the Contractor and shall be disposed of, off-site by the Contractor, in accordance with all applicable Federal, State and Local Regulations.

1.22 GROUNDING OF PORTABLE ELECTRICAL TOOLS

All electrical tools such as drills, power wrenches, grinders, etc., shall be grounded using a three-wire cable. One wire shall be fastened to the frame of the power tool which shall be equipped with a three-prong plug. One prong will go to ground through the three-pole receptacle.

If only two-wire receptacles are being used, the ground wire must be grounded to conduit, existing steel or other suitable ground with an approved cable clamp. The ground shall be continuous from the tool frame to grounding media used.

Only extension cords in good condition will be permitted on the job.

1.23 MOVING MATERIALS

If it becomes necessary at any time during the execution of the work to move materials or equipment which have been temporarily placed or stored, the Contractor or Subcontractor furnishing said materials shall, when so directed by the Owner, move them or cause them to be moved without additional charge.

1.24 CLEANING

The Contractor shall at all times keep the Owner's premises clean of rubbish generated by the Contractor's operations. At the completion of Work, Contractor shall remove all the rubbish, tools, equipment, temporary work, and surplus materials from the premises and shall leave the Work area clean and ready for use.

1.25 SAFETY RULES

The following rules and regulations will govern Contractor and Contractor's Personnel while on Owner's premises:

- A) All Contractor's vehicles will observe the traffic rules and regulations when operating on the Owner's property.
 - 1) Speed limit 7 MPH except as noted.
 - 2) Watch for and avoid pedestrians and bicyclists.
 - 3) Observe all traffic signs.
 - 4) Drive with extreme caution at all times, using flashers.
- B) Passenger cars, pick-up trucks and trucks are not allowed except those permitted by the Owner.
- C) All Work shall be performed in accordance with applicable safety Codes, Standards and Regulations including OSHA Regulations.
- D) Contractor's personnel will confine themselves to the location in which they are working.
- E) The Contractor will protect the Owner's personnel and public from injury by erecting warning signs, lighting, fence and barricades when and where warranted.
- F) Extension cords, arc welding lines, air and gas hose will be coiled outside of the work area before leaving the job site for the night. Extension cords will be unplugged when not in use. Air and gas cylinders will be shut off and the lines purged before leaving job site. Contractor is solely responsible for security of all equipment left on the job site.
- G) When flame producing equipment is used, the following minimum precautionary measures will be taken to prevent damage to the Owner's property:
 - 1) SRDC personnel will be advised in advance when flame producing equipment is to be used.
 - 2) Proper size and type extinguishers will be furnished by the Contractor and will be located so as to be readily available in case of emergency.
 - 3) At least one man will be furnished by the Contractor as a fire watch. The only duty of the fire watch will be to stand by while flame producing equipment is being used, and to extinguish sparks and fire, if necessary.

4) Fire retardant tarps only will be used. Fire retardant cloth will be used to catch sparks when welding and burning.

1.26 PROJECT SITE SECURITY

The Contractor is responsible for securing the work area at the conclusion of each work-day. This is to protect the public from an unsafe construction area and to secure and protect the Contractor's work, equipment and materials. Contractor may elect to furnish continuous watchmen on site. If the Contractor determines that watchmen are required to safeguard the work area and materials, the Contractor shall bear the cost of the watchmen and shall be included in the bid. The Contractor and their subcontractors shall provide protection for their tools, equipment and materials and shall assume all responsibility for the same.

1.27 MEASUREMENTS

Before ordering material or performing work, the Contractor shall verify all measurements as may be required for the proper fitting of his work to other adjoining work. He shall be responsible for the correctness of his figures and shall satisfactorily correct, without extra charge to the Owner, any of his work which does not fit, furnishing new work if required for the purpose.

No extra charge will be allowed on account of minor differences between actual dimensions and measurements indicated on the Drawings.

1.28 CUTTING AND FITTING

The Contractor shall do all cutting and fitting of his work and of other work that may be required to make the several parts come together properly and to fit his work to existing conditions as shown on or reasonably implied by the Drawings. He shall properly complete and finish up his work to accommodate existing conditions, as directed by the Owner or their designated representatives.

1.29 PROTECTION OF WORK AND PROPERTY

The Contractor shall continuously maintain adequate protection for all Work from damage and shall protect the Owner's property from damage or loss arising in connection with the Contract. He shall make good any such damage or loss, except such as may be directly due to errors in the Contract Documents or caused by agents or employees of the Owner. He shall adequately protect adjacent property as provided by law and the Contract Documents.

The Contractor shall take all necessary precautions for the safety of employees on the Work, and shall comply with all applicable provisions of Federal, State, and Local safety laws and building codes to prevent accident or injury to persons on, about, or adjacent to the premises where the work is being performed. He shall erect and properly maintain at all times, as required by conditions and progress of the Work, all necessary safeguards for the protection of workmen and the public, shall post danger signs warning against the hazards created by such features of construction as protruding nails, holes, scaffolding, pits, excavations, staged material, staged equipment, and falling materials; and he shall designate a responsible member of his organization on the Work whose duty shall be the prevention of accidents.

In an emergency affecting the safety of life or of the Work or of adjoining property, the Contractor, without special instruction or authorization from the Owner, is hereby permitted to act at his discretion to prevent such threatened loss or injury.

1.30 DAMAGE AND REPAIRING

The Contractor is responsible for any damage to the existing facilities and/or surfaces resulting from his or his sub-contractor's work. The Contractor shall properly repair or remove and replace damaged facilities as directed by the Owner at no cost to the Owner. Existing facilities include, but are not limited to, the Schuylkill Bulkhead Trail, the Schuylkill Banks greenway, existing bulkhead and existing bridge pier structure and their footings.

1.31 CONTRACT PROVISIONS

As this work is covered, in part, by grant funding, there are provisions/requirements that must be adhered to during the course Work. These provisions will become part of the Contract. Copies of these requirements are attached and include the following:

The Special Provisions include the following:

Appendix – A: Pennsylvania Prevailing Wage Rates. (Project No. 24-10389)

Appendix – B: Contractor Responsibility and Offset Provisions

Appendix – C: Contractor Integrity Provisions

Appendix – D: Nondiscrimination/Sexual Harassment Clause

Appendix – E: Right to Know Law

Appendix – F: Public Works Employment Verification Form

Appendix – G: Provisions Concerning the Americans with Disabilities Act.

Appendix – H: Workers Protection and Investment

For the purposes of these provisions, the term GRANTEE shall be understood to mean CONTRACTOR; the term DEPARTMENT or COMMONWEALTH shall be understood to mean SRDC.

The Contractor shall also comply with the Federal Occupational Safety & Health Act of 1970 (O.S.H.A) and Pennsylvania Act 287, as amended by Act 181 of 2006.

1.32 PAYMENT AND RETAINAGE

The construction Contract will be with SRDC for a Lump Sum Bid amount. Refer to the Schedule of Quantities included in the Bid Manual. Invoices based upon work completed by pay item shall be submitted to SRDC once in two (2) weeks. Invoices should use the same format at the Schedule of Quantities sheet, listing the percentage of work that has been completed by pay item, up to the date of invoice. Assuming that the work is proceeding satisfactorily, and invoice is accurate, invoices will be paid within sixty (60) days.

Bidders shall note that 10% of each invoice amount will be held by SRDC as retainage. The retained amount (10% of the Contract total) will be released upon completion and final acceptance of the Contract Work.

1.33 PAYMENTS WITHHELD

Payments otherwise due the Contractor may be withheld by the Owner on account of:

- A) Unsatisfactory progress of the work or defective materials or workmanship which in the judgment of the Owner is sufficiently serious to justify such withholding.
- B) Claims filed or evidence which in the Owner's opinion indicates probable filing of claims.
- C) Failure of the Contractor to make payments promptly to Subcontractor or to make payments for labor or such materials as are purchased by the Contractor.
- D) When the Owner is of the opinion that the percentage of payment requested exceeds the percentage of completion.

In the event any payments otherwise due are withheld as a result of any of the foregoing, the Owner will notify the Contractor of the cause or causes for withholding same. If said cause or causes are removed by the Contractor within seven (7) days after receipt of such notice, the Owner will promptly pay the Contractor the amount so withheld. If said cause or causes are not removed by the Contractor within seven (7) days after receipt of such notice, the Owner may take whatever action he may deem necessary to remove said cause or causes and charge the cost thereof against any unpaid balance due the Contractor, and in the event the cost thereof exceeds such balance, the Contractor and its sureties shall be liable for such excess.

The Owner shall have the right to withhold from certification any item or portion of Contractor's request for payment which he deems unjustified or excessive and certify the remainder for payment.

1.34 LIENS

The Contractor agrees to deliver the premises free and clear of liens arising on account of any labor performed or materials furnished by or for the Contractor under the Contract.

Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the Owner a complete release of all liens arising out of the Contract or receipt in full in lieu thereof and, if required in either case, an affidavit that all labor, materials and Subcontract work performed and used on the job has been paid for in full; but the Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner, to indemnify him against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to Owner all monies that the latter may be compelled to pay in discharging such a lien, including all costs and reasonable attorney's fees.

1.35 CONTRACTOR MODIFIED PROCEDURES

A. Change Order Procedure

If a change in the design of any portion of the Work or the requirements of the Project Bid Manual is deemed necessary by SRDC, SRDC may order an alteration to, or a change in, the Work covered by the Contract Documents, and the Contractor shall comply with such orders. If such changes increase the cost of the work to the Contractor, SRDC may allow additional compensation. If such changes reduce the cost of the Work to the Contractor, SRDC may deduct the amount of the diminution. No consequential loss or profit due to reduction in the scope of work will be allowed to the Contractor, but the Contractor may be entitled to an extension of time if the condition warrants it. No changes shall be made except upon an approved Change Order Form, signed and executed by the Contractor and SRDC authorizing the change and fixing the method of compensation or deduction. This section specifies administrative and procedural requirements for handling and processing Change Order.

The execution of a change order (increase or decrease) will require a proposal from the Contractor on company letterhead. Such proposal will include a complete description of the change and schedule impact and a complete cost breakdown including such items as Labor, Materials, Equipment, Crew Composition, Sub-contractor costs, and associated Insurance and Bonding costs (if applicable). The proposal is to be submitted to SRDC President. Upon review and approval by SRDC Project Team, a signed Change Order Form will be forwarded to the Contractor for final execution.

B. Contractor's Responsibility to Inform

Communications, either verbal or written, between SRDC or its Designated Representatives and the Contractor, Subcontractors, or other parties involved, during the normal course of administration of the Contract, does not in any way constitute acceptance of a Change Order or direction to modify the Contract unless said communication is in the form of written Change Order or Construction Change Directive as specified herein.

Communication from SRDC or its Designated Representative including, but not limited to the following, does not constitute approval of a Change Order:

1. Submittal review including submittals returned with notations and corrections;
2. Site observation, conservation and reports;
3. Participation in pre-construction, pre-installation, progress or other meeting;
4. Clarification sketches or drawings.

It is the responsibility of the Contractor to inform SRDC that any communication has, in the Contractor's opinion, caused reason to modify the Contract. The Contractor shall not undertake work which, in his opinion, requires a Change Order without completing procedures outlined herein.

Work done without completing Change Order procedures is entirely at the Contractor's own risk, even if the Contractor believes that communications from SRDC or its Design Professional contain instructions to do work outside of the Contract scope.

SRDC and its Designated Representative will not willfully instruct work to be done that differs from the Contract except through Change Order procedures contained herein.

C. Minor Changes in the Work

Supplemental instruction, not involving an adjustment to the Contract Sum or Contract Time, may be issued in writing by SRDC.

D. Force Account

When SRDC and Contractor are not in total agreement on the terms of a Change Order Proposal, SRDC may issue a Construction Change Directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. The Construction Change Directive will contain a complete description of the change in the Work.

Documentation – Maintain detailed records on a time and material basis of work required by the Construction Change Directive. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1. Contractor's documentation will not, by itself, establish the final cost.
2. SRDC reserves the right to determine the value of the change in Work per the requirements of this Section and Section I.11.

E. Determination of Cost

For Change Orders or Force Account, the Contractor shall be limited to the following mark-ups for material, labor, and equipment:

- Materials - maximum of 10% of actual material cost.
- Labor – hourly rates provided with the Bid will be used.
- Equipment - maximum of 3% of actual cost.

Note: Contractors are advised that these mark-ups may be different from allowances permitted by other contracting agencies.

1.36 CLOSEOUT PROCEDURES

When the Work is considered complete and ready for final inspection. SRDC will make a final inspection and note any deficiencies. Contractor shall take immediate steps to remedy the stated deficiencies and notify SRDC when all work is completed. Once SRDC agrees that the project is 100% complete, the Contractor shall submit Underwriter's Certificate, As-Built Drawings, Release of Liens and Warranties, etc. SRDC will process final payment once SRDC is satisfied with final submissions, as described in Sections 1.32 and 1.33.

1.37 CODES, STANDARDS AND REGULATIONS

The Contractor is responsible for adhering to all applicable Codes, Standards and Regulations related to the Work under this Contract. It is not the intent of the Contract Documents to conflict with any Codes, Standards and Regulation. Report any conflicts to the Design Engineer for clarifications.

Standards: The following Standards and policies cover this Contract:

- For products or workmanship specified by association, trade or Federal Standards, comply with the requirements of the Standard, except when more rigid requirements are specified or are required by applicable Codes or intended use.
- The referenced Standards shall 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.
- In the absence of specific instructions in the specifications, materials, products, equipment, and their installation shall conform to the applicable Codes, Standards and Regulations specified herein.
- The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or interference otherwise in any referenced document.
- Dates of Codes, standards and Regulations specified shall be the latest date prior to the date of issue of this Project Bid Manual, except where prior to the date of issue of the Project Bid Manual modified or otherwise directed by the applicable Codes and their supplements and amendments adopted by the Code authorities having jurisdiction.
- Each entity engaged in construction of the Project shall be familiar with industry Standards applicable to its construction activity. If unfamiliar, obtain copies and review with all workers. Obtain copies of Standards when required by individual specification sections. Maintain copy at jobs site until Substantial Completion.

1.38 PROJECT SUBMITTALS

The Contractor must provide an electronic copy of each Submittal to SRDC and its designated representative. It is the Contractor's responsibility to make timely Submittals. The Contractor shall not initiate a construction activity prior to receiving ALL Submittals related to the construction activity, reviewed by the Owner's Design Engineer, indicating an authorization to proceed with the construction activity. Any construction activity performed without this authorization shall be at Contractor's risk and cost. Delays arising due to the failure in making timely Submittals shall be at Contractor's cost. The Contractor shall not be compensated for construction activities performed without the authorization of the Engineer.

1.39 GUARANTEE

The Contractor shall furnish written guarantee of all the Work to be performed under this Contract against defects in materials or workmanship for a period of one (1) year from date of final acceptance of the completed Work by the Owner. Contractor shall, within a reasonable time after receipt of written notice thereof, make good any defects in materials or workmanship which may develop during said one (1) year period and any damage to other work caused by such defects or the repairing of same, at his own expense and without cost to the Owner.

1.40 SCHEDULE DELAYS

Should the original schedule or intended time of completion be subject to delay for any reason within Contractor's control, such delay shall not be construed as cause for claim for additional compensation to the Contractor for additional supervision, overhead, equipment rental, winter heating, etc.

1.41 BONDING REQUIREMENTS. Contractor shall provide the following bond amounts:

- A. **Bid Bond:** a bid bond in the amount of 10% of the base bid amount is to be provided with the bid submission.
- B. **Performance Bond and Labor & Material Payment Bonds:** Each bond must be in the amount of 100% of the contract award price.
- C. **Maintenance Bond** must cover a period of one year following completion of the project and should be in an amount of at least 10% of contract price.

END OF SECTION

BID
DRAWINGS

CERTIFICATION

Schuylkill Banks South Street Shoreline Restoration

SRDC Project No: SSSR-001

CERTIFICATION

This certifies that I/We understand that this Project is being funded with State funding and as such has a number of special provisions that need to be met. These provisions entail additional requirements, administrative and otherwise, including additional reporting procedures, that may not be in other non-State funded projects and which may involve additional costs to satisfy. These costs, if any, are considered incidental to the bid.

The Special Provisions include the following:

- Appendix –A: Pennsylvania Prevailing Wage Rates
- Appendix –B: Contractor Responsibility
- Appendix –C: Grantee/Contractor Integrity Provisions
- Appendix –D: Nondiscrimination/Sexual Harassment Clause
- Appendix –E: Right to Know Law
- Appendix –F: Public Works Employment Verification Form
- Appendix –G: Americans with Disabilities Act
- Appendix –H: Workers Protection and Investment

I/We have read and understand the special Provisions contained in this Bid proposal and understand that they are an important component of this project. We have considered them and included them in our bid.

_____ Signature

_____ Printed Name

_____ Company Name

Appendix A – Pennsylvania Prevailing Wage Act

The contract with the Contractor is subject to the provisions, duties, obligations, remedies, and penalties of the Pennsylvania Prevailing Wage Act., 43 P.S. 165-1 et seq., which is incorporated herein by reference as if fully set forth herein. The general prevailing minimum wage rates, as determined by the Secretary of Labor and Industry, shall be paid for each craft or classification of all workers needed to perform this Contract during the term hereof for the locality in which the work is to be performed.

The Pennsylvania Labor and Industry Project Serial Number for this Project is **24-10389**.

Note: Certified payroll forms must be submitted for all employees using Commonwealth of Pennsylvania forms.

**APPENDIX B
CONTRACTOR RESPONSIBILITY AND OFFSET**

CONTRACTOR RESPONSIBILITY

1. **Definition.** For the purpose of these provisions, the term "Contractor" means as any person, including, but not limited to, a bidder, offeror, loan recipient, grantee or lessor, who has furnished or performed or seeks to furnish or perform, goods, supplies, services, leased space, construction or other activity, under a contract, grant, lease, purchase order or reimbursement agreement with the Commonwealth. The term also includes a permittee, licensee, or any agency, political subdivision, instrumentality, public authority, or other public entity in the Commonwealth.
2. **Contractor Representations.**
 - a. The Contractor represents for itself and its subgrantees, contractors, and subcontractors required to be disclosed or approved by the Commonwealth, that as of the date of its execution of this agreement, that neither the Contractor, nor any of its subgrantees, contractors, and subcontractors, are under suspension or debarment by the Commonwealth or any governmental entity, instrumentality, or authority and, if the Contractor cannot make this representation, the Contractor shall submit, along with the agreement, a written explanation of why the certification cannot be made.
 - b. The Contractor represents that, as of the date of its execution of this agreement, it has no tax liabilities or other Commonwealth obligations, or has filed a timely administrative or judicial appeal, if any liabilities or obligations exist, or is subject to a duly approved deferred payment plan if any liabilities exist.
3. **Notification.** The Contractor shall notify the Commonwealth if, at any time during the term of the agreement, it becomes delinquent in the payment of taxes, or other Commonwealth obligations, or if it or, to the best of its knowledge, any of its subgrantees, contractors, or subcontractors are suspended or debarred by the Commonwealth, the federal government, or any other state or governmental entity. The Contractor shall provide this notification within 15 days of the date of suspension or debarment.
4. **Default.** The Contractor's failure to notify the Commonwealth of its suspension or debarment by the Commonwealth, any other state, or the federal government constitutes an event of default of the agreement with the Commonwealth.
5. **Reimbursement.** The Contractor shall reimburse the Commonwealth for the reasonable costs of investigation incurred by the Office of State Inspector General for investigations of the Contractor's compliance with the terms of this agreement or any other agreement between the Contractor and the Commonwealth that results in the suspension or debarment of the Contractor. These costs include, but are not limited to, salaries of investigators, including overtime; travel and lodging expenses; and expert witness and documentary fees. The Contractor shall not be responsible for investigative costs for investigations that do not result in the Contractor's suspension or debarment.
6. **Suspension and Debarment List.** The Contractor may obtain a current list of suspended and debarred Commonwealth contractors by visiting the eMarketplace website at <https://www.emarketplace.state.pa.us> and clicking the Debarment list tab.

OFFSET

The Commonwealth may set off the amount of any state tax liability or other obligation of the Grantee, or its subsidiaries, owed to the Commonwealth against any payments due the Grantee under any contract between the Commonwealth and Grantee.

APPENDIX C GRANTEE INTEGRITY

1. **Definitions.** For purposes of these Grantee Integrity Provisions, the following definitions apply:

a. "Affiliate" means two or more entities where (a) a parent entity owns more than 50% of the voting stock of each of the entities; (b) a common shareholder or group of shareholders owns more than 50% of the voting stock of each of the entities; or (c) the entities have a common proprietor or general partner.

b. "Grantee" means the individual or entity, that has entered into this agreement with the Commonwealth.

c. "Grantee Related Parties" means any Affiliates of the Grantee and the Grantee's executive officers, Pennsylvania officers and directors, or owners of five percent or more interest in the Grantee.

d. "Financial Interest" means ownership of more than a five percent interest in any business or holding a position as an officer, director, trustee, partner, employee, or holding any position of management.

e. "Gratuity" means tendering, giving, or providing anything of more than nominal monetary value including, but not limited to, cash, travel, entertainment, gifts, meals, lodging, loans, subscriptions, advances, deposits of money, services, employment, or contracts of any kind. The exceptions set forth in the [url], as may be amended, 4 Pa. Code §7.153(b), apply.

f. "Non-Solicitation Award Process" means a method of awarding grants based on predetermined criteria, without the solicitation of grant applications.

2. **Representations and Warranties.**

a. **Grantee Representation and Warranties.** The Grantee represents, to the best of its knowledge and belief, and warrants that within the last five years neither the Grantee nor Grantee Related Parties have:

- I. been indicted or convicted of a crime involving moral turpitude or business honesty or integrity in any jurisdiction;
- II. been suspended, debarred, or otherwise disqualified from entering into any contract with any governmental agency;
- III. had any business license or professional license suspended or revoked;
- IV. had any sanction or finding of fact imposed as a result of a judicial or administrative proceeding related to fraud, extortion, bribery, bid rigging, embezzlement, misrepresentation or anti-trust; and
- V. been, and are not currently, the subject of a criminal investigation by any federal, state, or local prosecuting or investigative agency or civil anti-trust investigation by any federal, state, or local prosecuting or investigative agency.

b. **Grantee Explanation.** If the Grantee cannot make the representations and warranties set forth above at the time of its submission of its grant application or if the agreement is awarded pursuant to a Non-Solicitation Award Process at the time of the execution of the agreement, the Grantee shall submit a written explanation outlining the reasons why it cannot make those representations and warranties. The Commonwealth may, based on its evaluation of the explanation provided, determine whether it is in the Commonwealth's best interest to execute the agreement.

c. **Further Representations.** By submitting any bills, invoices, or requests for payment pursuant to the agreement, the Grantee further represents that it has not violated any of these Grantee Integrity Provisions during the term of the agreement.

d. **Notice.** The Grantee shall immediately notify the Commonwealth, in writing, if at any time during the term of the agreement it becomes aware of any event that would cause the Grantee's certification or explanation to change. The Grantee acknowledges that the Commonwealth may, in its sole discretion, terminate the agreement for cause if it learns that any of the certifications made in these Grantee Integrity Provisions are currently false or misleading due to intervening factual circumstances or were false or misleading or should have been known to be false or misleading when entering into the agreement.

3. **Grantee Responsibilities.** During the term of this agreement, the Grantee shall:

- a. maintain the highest standards of honesty and integrity.
- b. take no action in violation of any applicable laws, regulations, or other requirements applicable to the Grantee that govern Commonwealth contracting or grant administration.
- c. establish and implement a written business integrity policy that includes, at a minimum, the requirements of these Grantee Integrity Provisions as they relate to the Grantee's activity with the Commonwealth and Commonwealth employees and ensure that its employees comply with the policy.
- d. not accept, agree to give, offer, confer, agree to confer, or promise to confer, directly or indirectly, any gratuity or pecuniary benefit to any person, or to influence or attempt to influence any person in violation of any federal or state law, regulation, executive order, statement of policy, management directive, or bulletin applicable to the award of grants or the administration of this agreement.
- e. not have a financial interest in any other subgrantee, contractor, subcontractor, or supplier providing services, labor, or material under this agreement, unless the financial interest is disclosed to the Commonwealth in writing and the Commonwealth consents to Grantee's financial interest. The Grantee must disclose the financial interest to the Commonwealth at the time of submission of its grant application, or if a Non-Solicitation Award Process is used, no later than the date the Grantee signs the agreement. The Commonwealth shall be deemed to have consented if the required disclosure is received and all of the required Commonwealth signatures are affixed.
- f. comply with the requirements of the Lobbying Disclosure Act (65 Pa.C.S. § 13A01 et seq.) regardless of the method of award.
- g. comply with the requirements of Section 1641 of the Pennsylvania Election Code (25 P.S. § 3260a) if this agreement was awarded pursuant to a Non-Solicitation Award Process.
- h. immediately notify the Commonwealth or the Office of the State Inspector General, in writing, when the Grantee has reason to believe that any breach of ethical standards as set forth in law, the Governor's Code of Conduct, or these Grantee Integrity Provisions has occurred or may occur, including, but not limited to, contact by a Commonwealth officer or employee, which, if acted upon, would violate the ethical standards.

4. **Investigations.** If a State Inspector General investigation is initiated, the Grantee shall:

- a. reimburse the Commonwealth for the reasonable costs of investigation incurred by the Office of the State Inspector General for investigations of the Grantee's compliance with the terms of this or any other agreement between the Grantee and the Commonwealth that results in the suspension or debarment of the Grantee. The Grantee shall not be responsible for investigative costs for investigations that do not result in the Grantee's suspension or debarment.
- b. cooperate with the Office of the State Inspector General in its investigation of any alleged Commonwealth agency or employee breach of ethical standards and any alleged Grantee non-compliance with these Grantee Integrity Provisions and make identified Grantee employees and volunteers available for interviews at reasonable times and places.
- c. upon the inquiry or request of an Inspector General, provide, or if appropriate, make promptly available for inspection or copying, any information of any type or form deemed relevant by the Office of the State Inspector General to Grantee's integrity and compliance with these provisions. This information may include, but is not be limited to, the Grantee's business or financial records, documents or files of any type or form that refer to or concern this agreement.

5. **Termination.** For violation of any of these Grantee Integrity Provisions, the Commonwealth may terminate this agreement and any other contract with the Grantee, claim liquidated damages in an amount equal to the value of anything received in breach of these Grantee Integrity provisions, claim damages for all additional costs and expenses incurred in obtaining another grantee to complete performance under this agreement, and debar and suspend the Grantee from doing business with the Commonwealth. These rights and remedies are cumulative, and the use or non-use of any one does not preclude the use of all or any other. These rights and remedies are in addition to those the

Commonwealth may have under law, statute, regulation, or otherwise.

6. **Subcontracts.** The Grantee shall include these Grantee Integrity Provisions in its subgrant agreements, contracts, and subcontracts with all subgrantees, contractors, and subcontractors providing goods or services under this agreement. The incorporation of this provision in the Grantee's subgrant agreements, contracts, and subcontracts shall not create privity of contract between the Commonwealth and any subgrantee, contractor, or subcontractor, and no third-party beneficiaries are created by the inclusion of these provisions. If the Grantee becomes aware of a subgrantee's, contractor's, or subcontractor's violation of these provision, the Grantee shall use its best efforts to ensure their compliance with these provisions.

**APPENDIX D
NONDISCRIMINATION/SEXUAL HARASSMENT CLAUSE**

- 1. Representations.** The Grantee represents that it is presently in compliance with and will remain in compliance with all applicable federal, state, and local laws, regulations, and policies relating to nondiscrimination and sexual harassment for the term of the agreement. The Grantee shall, upon request and within the time periods requested by the Commonwealth, furnish all necessary employment documents and records, including EEO-1 reports, and permit access to its books, records, and accounts by the Commonwealth for the purpose of ascertaining compliance with provisions of this Nondiscrimination/Sexual Harassment Clause.
- 2. Nondiscrimination/Sexual Harassment Obligations.** The Grantee shall not:

 - a. in any manner discriminate in the hiring of any employee(s) for the performance of the activities required under this agreement or any subgrant agreement, contract, or subcontract, by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of the Pennsylvania Human Relations Act ("PHRA") and applicable federal laws, against any citizen of this Commonwealth who is qualified and available to perform the work to which the employment relates.
 - b. in any manner discriminate by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of the PHRA and applicable federal laws, against or intimidate any of its employees.
 - c. in any manner discriminate by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of the PHRA and applicable federal laws, in the provision of services under this agreement or any subgrant agreement, contract, or subcontract.
 - d. in any manner discriminate by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of PHRA and applicable federal laws, against any subgrantee, contractor, subcontractor, or supplier who is qualified to perform the work to which this agreement relates.
 - e. in any manner discriminate against employees by reason of participation in or decision to refrain from participating in labor activities protected under the Public Employee Relations Act, Pennsylvania Labor Relations Act, or National Labor Relations Act, as applicable, and to the extent determined by entities charged with the Acts' enforcement and shall comply with any provision of law establishing organizations as employees' exclusive representatives.
- 3. Establishment of Grantee Policy.** The Grantee shall establish and maintain a written nondiscrimination and sexual harassment policy that complies with the applicable law and these Nondiscrimination/Sexual Harassment provisions and shall inform its employees in writing of the policy. The policy must contain a provision that states that sexual harassment will not be tolerated and employees who practice it will be disciplined. For the entire period of this agreement, the Grantee shall: (1) post its written nondiscrimination and sexual harassment policy or these Nondiscrimination/Sexual Harassment provisions conspicuously in easily accessible and well-lit places customarily frequented by employees at or near where the grant activities are performed; or (2) provide electronic notice of the policy or this clause to its employees not less than annually.
- 4. Notification of Violations.** The Grantee's obligations pursuant to these provisions are ongoing from the effective date and through the termination date of the agreement. Accordingly, the Grantee shall notify the Commonwealth if, at any time during the term of this agreement, it becomes aware of any actions or occurrences that would result in violation of these provisions.
- 5. Cancellation or Termination of Agreement.** The Commonwealth may cancel or terminate this agreement and all money due or to become due under this agreement may be forfeited for a violation of the terms and conditions of these Nondiscrimination/Sexual Harassment provisions. In addition, the granting agency may proceed with debarment or suspension and may place the Grantee in the Contractor Responsibility File.
- 6. Subgrant Agreements, Contracts, and Subcontracts.** The Grantee shall include these Nondiscrimination/Sexual Harassment provisions in its subgrant agreements, contracts, and subcontracts with all subgrantees, contractors, and subcontractors providing goods or services under this agreement. The incorporation of these provisions in the Grantor's subgrants, contracts, or subcontracts does not create privity of contract between the Commonwealth and any subgrantee, contractor, or subcontractor, and no third-party beneficiaries are created by those provisions. If the Grantee becomes aware of a subgrantee's, contractor's, or subcontractor's violation of these provisions, the Grantee shall use its best

efforts to ensure the subgrantee's, contractor's, or subcontractor's compliance with these provisions.

**APPENDIX E
RIGHT-TO-KNOW LAW**

1. **Applicability.** The Pennsylvania Right-to-Know Law, 65 P.S. §§ 67.101-3104, (“RTKL”) applies to this agreement.
2. **Grantee Assistance.** If the Commonwealth needs the Grantee's assistance in any matter arising out of the RTKL related to this agreement, the Commonwealth shall notify the Grantee that it requires the Grantee's assistance, and the Grantee shall provide to the Commonwealth:
 - a. access to, and copies of, any document or information in the Grantee's possession (Requested Information) arising out of this agreement that the Commonwealth reasonably believes is a public record under the RTKL, within ten calendar days after receipt of written notification; and
 - b. any other assistance as the Commonwealth may reasonably request, in order to comply with the RTKL with respect to this agreement.
3. **Trade Secret or Confidential Proprietary Information.** If the Grantee considers the Requested Information to include a Trade Secret or Confidential Proprietary Information, as those terms are defined by the RTKL, or other information that the Grantee considers exempt from production under the RTKL, the Grantee shall notify the Commonwealth and provide, within seven calendar days of receipt of the written notice a written statement, signed by a representative of the Grantee, that explains why the requested material is exempt from public disclosure under the RTKL. If the Commonwealth determines that the Requested Information is clearly not exempt from disclosure, the Grantee shall provide the Requested Information to the Commonwealth within five business days of receipt of written notice of the Commonwealth's determination.
4. **Reimbursement**
 - a. **Commonwealth Reimbursement.** If the Grantee fails to provide the Requested Information and the Commonwealth is ordered to produce the Requested Information, the Grantee shall reimburse the Commonwealth for any damages, penalties, or costs that the Commonwealth may incur as a result of the Grantee's failure, including any statutory damages assessed against the Commonwealth.
 - b. **Grantee Reimbursement.** The Commonwealth will reimburse the Grantee for any costs that the Grantee incurs as a direct result of complying with these provisions only to the extent allowed under the fee schedule established by the Office of Open Records or as otherwise provided by the RTKL.
5. **Challenges of Commonwealth Release.** The Grantee may file a legal challenge to any Commonwealth decision to release a record to the public with the Office of Open Records, or in the Pennsylvania Courts, however, the Grantee shall reimburse the Commonwealth for any legal expenses incurred by the Commonwealth as a result of the challenge, including any damages, penalties or costs that the Commonwealth may incur as a result of the Grantee's legal challenge, regardless of the outcome.
6. **Waiver.** As between the parties, the Grantee waives all rights or remedies that may be available to it as a result of the Commonwealth's disclosure of Requested Information pursuant to the RTKL.
7. **Survival.** The Grantee's obligations contained in this Section survive the termination or expiration of this agreement.

Appendix F



Commonwealth of Pennsylvania
Public Works Employment Verification Form

Public Works Employment Verification Office
Department of General Services
Bureau of Procurement 6th floor, Forum Place 555 Walnut Street
Harrisburg, PA 17101-1914
717-346-8115
ra-gsgseverify.pa.gov

Instructions: Complete and return the form to the contracting Public Body prior to the award of the contract.

Business or Organization Name (Employer) _____

Address _____

City _____ State _____ Zip Code _____

Check One:

Contractor

Subcontractor

Contracting Public Body _____

Contract/Project No. _____

Project Description _____

Project Location _____

Date enrolled in E-Verify _____

As a contractor/subcontractor for the above referenced public works contract, I hereby affirm that as of the above date, our company is in compliance with the Public Works Employment Verification Act ('the Act') through utilization of the federal E-Verify Program (EVP) operated by the United States Department of Homeland Security. To the best of my/our knowledge, all employees hired post January 1, 2013 are authorized to work in the United States.

It is also agreed to that all public works contractors/subcontractors will utilize the federal EVP to verify the employment eligibility of each new hire within five (5) business days of the employee start date throughout the duration of the public works contract. Documentation confirming the use of the federal EVP upon each new hire shall be maintained in the event of an investigation or audit.

I, _____, authorized representative of the company above, attest that the information contained in this verification form is true and correct and understand that the submission of false or misleading information in connection with the above verification shall be subject to sanctions provided by law.

Authorized Representative Signature

Date of Signature

**APPENDIX G
AMERICANS WITH DISABILITIES ACT**

1. **No Exclusion.** Pursuant to the Americans with Disabilities Act, 42 U.S. Code ? 12101, et seq., no qualified individual with a disability may, on the basis of the disability, be excluded from participation in this agreement or from activities provided for under this agreement.
2. **Compliance.** For all goods and services provided pursuant to this agreement, the Grantee shall comply with Title II of the Americans with Disabilities Act, the "General Prohibitions Against Discrimination? set forth in 28 C. F. R. 35.130, and all other regulations promulgated under Title II of the Americans with Disabilities Act that apply to state and local governments.
3. **Indemnification.** The Grantee shall indemnify the Commonwealth against all third-party claims, suits, demands, losses, damages, costs, and expenses, including without limitation, litigation expenses, attorneys' fees, and liabilities, arising out of or in connection with the Grantee's failure or its employee's or agent's failure to comply with the provisions of paragraph a, as determined by the Commonwealth in its sole discretion.

**APPENDIX H
WORKER PROTECTION AND INVESTMENT**

The Grantee shall comply with all applicable Pennsylvania state labor laws and worker safety laws including, but not limited to, the following:

1. Construction Workplace Misclassification Act;
2. Employment of Minors Child Labor Act;
3. Minimum Wage Act;
4. Prevailing Wage Act;
5. Equal Pay Law;
6. Employer to Pay Employment Medical Examination Fee Act;
7. Seasonal Farm Labor Act;
8. Wage Payment and Collection Law;
9. Industrial Homework Law;
10. Construction Industry Employee Verification Act;
11. Act 102: Prohibition on Excessive Overtime in Healthcare;
12. Apprenticeship and Training Act; and
13. Inspection of Employment Records Law.