



Town of Simsbury

933 HOPMEADOW STREET

SIMSBURY, CONNECTICUT 06070

Engineering Department

DATE: October 6, 2023

RE: BID NO. 23-03
Rehabilitation of Bridge No. 03984 (Flower Bridge)
Simsbury, Connecticut

NOTE

This **Addendum No. 1** includes the Pre-Bid Meeting Sign-in Sheet, Responses to Questions, and clarifications, revisions, and additions to the Invitation for Bid, Bid Form, and listed Special Provisions and Drawings.

Clarifications and General Information

- A. The Sign-In Sheet from the mandatory pre-bid meeting is attached to this addendum for record.
- B. Aerial Drone Photographs have been provided for information only and are attached to this Addendum as Appendix B.

Responses to Questions:

Q1: Are the bollards to be cleaned and painted, if so what color?

R1: The bollards at the limit of the cul-de-sac were recently installed and are not part of this project. Any incidental damage to these bollards will require an in-kind replacement at no cost to the Town.

Q2: Are the railings at the approaches to be removed, cleaned, and painted in the shop or cleaned and painted in place?

R2: The railings at the approaches are to be removed, cleaned, and painted to match the color of the railings on the bridge.

PROJECT MANUAL

Invitation to Bid

ITB-1 Remove page 1 and replace with the attached page.

The last paragraph, second sentence has been deleted in its entirety; this sentence is associated with CHRO compliance, which is not required as a part of this project.

~~*"This contract is subject to state contract compliance requirements, including non-discrimination statutes."*~~

Bid Proposal

Remove and replace in its entirety with attached pages 1 through 13.

Table of Contents of Special Provisions

GENERAL Remove page 2 and replace with the attached page.

SPECIAL PROVISIONS

ITEM #0521003A - BEARING REPLACEMENT WITH ELASTOMERIC BEARING PADS

Remove page 2 and replace with the attached page.

Revise first paragraph on page 2 to read as follows:

"After bearings are in proper position, install non-shrink grout pad to provide full full bearing for the elastomer."

ITEM #0603050A – REPAIR DEFECTIVE WELDS

Note This is a two-page Special Provision.

Page 2 was inadvertently inserted after Special Provision for Item #0603081A Structural Steel Repairs (Site No. 1).

ITEM #0603061A – STRUCTURAL STEEL (SITE NO. 1)

NEW SPECIAL PROVISION. Insert the attached new Special Provision.

ITEM #0603923A – ABRASIVE BLAST CLEANING AND FIELD PAINTING OF STRUCTURE (SITE NO.1)

Note The Item No of the footer for this Special Provision should be revised to "ITEM 0603923A-" instead of "ITEM 0974000A".

ITEM #0603061A – Timber Deck

Remove page 1 and replace with the attached page.

Under Description, add the following paragraph:

"This item shall also include the decking joint system located at each end of the bridge as indicated on the drawings."

ITEM #0701051A – MOLDED FRP DECKING FOR BRIDGE

Note Delete this Section in its entirety.

ITEM #0701052A – PULTRUDED FRP DECKING FOR PEDESTRIAN BRIDGE

NEW SPECIAL PROVISION. Insert the attached new Special Provision.

ITEM #0921003A – REMOVE AND RESET BRICK PAVERS

NEW SPECIAL PROVISION. Insert the attached new Special Provision.

ITEM #0950035A – REMOVE AND RESET IRRIGATION SYSTEM

NEW SPECIAL PROVISION. Insert the attached new Special Provision.

ITEM #0952101A – MODIFY PLANTER

NEW SPECIAL PROVISION. Insert the attached new Special Provision.

ITEM #0969060A – CONSTRUCTION FIELD OFFICE, SMALL

Note The Item No of the footer for this Special Provision should be revised to "ITEM 0969060A-" instead of "ITEM 0974001A".

DRAWINGS

Drawings with revisions are attached and include the following:

PLA-1	CONSTRUCTION AREA PLAN	REV. 1
S-1	GENERAL PLAN AND ELEVATION	REV. 1
S-3	WEST ABUTMENT MODIFICATIONS	REV. 1
S-12	BRIDGE DECK PLAN AND DETAILS (BASE BID)	REV. 1
S-13	BRIDGE DECK PLAN AND DETAILS (ALTERNATE NO. 1)	REV. 1
S-14	BRIDGE RAIL MODIFICATION	REV. 1
S-15	PROTECTION OF EXISTING MISCELLANEOUS BRIDGE ACCESSORIES	REV. 1
S-16	PLANTER HANGER SUPPORT SYSTEM	REV. 1

END of ADDENDUM NO. 1.

PRE-BID MEETING (Mandatory)

Tuesday, October 3, 2023

11:00 A.M.

[illegible]

**INVITATION TO BID
TOWN OF SIMSBURY
(EQUAL OPPORTUNITY EMPLOYER)**

**BID NO. 23-03
Rehabilitation of Bridge No. 03984 (Flower Bridge)
Old Bridge Road over Farmington River
Simsbury, Connecticut**

Sealed bids endorsed "Rehabilitation of Bridge No. 03984 (Flower Bridge), Old Bridge Road over Farmington River, Simsbury, Connecticut" will be received at the office of the Finance Department, 933 Hopmeadow St., Simsbury, Connecticut until Tuesday, October 17, 2023, at 2:00 p.m. (EST) at which time they will be opened in public by the Director of Finance. Bids received after the time set for the opening will be rejected.

This project includes repairing existing steel bridge members, abrasive blast cleaning and painting of steel bridge members, removing and disposing of existing timber decking and 9-inch nailer, removing existing bridge rail and reinstalling (with attachments) to existing steel floor beams, constructing new decking system on existing steel floor beams, jacking of existing steel bridge, modifying existing concrete abutments, excavation and backfilling as required to modify abutments, and installing new elastomeric bearings. Miscellaneous elements include removing and reinstalling decorative string lighting system, removing and restoring miscellaneous historic plaques, protecting in place existing electrical system, and modifying hanging system of existing planters.

A mandatory Pre-Bid Site Visit will be held at the project site on October 3, 2023 at 11:00 a.m. local time. All attendees for the pre-bid meeting will meet in the parking lot of the Drake Hill Flower Bridge at Old Bridge Road, Simsbury, CT.

Documents can be obtained from ARC Document Solutions | CT, 17 Talcott Notch Road, Farmington, CT 06032, office 860.677.8817. fax 860.677.6504. Bid documents can be viewed from an online plan room prior to placing an order from the following website: <http://www.e-arc.com/location/farmington> at Planrooms/Order from PlanWell. Documents will be available beginning on September 25, 2023 and can be viewed in the Public Planroom. Bidders must call ARC Document Solutions | CT to order a hard copy of the documents prior to pick up or to request delivery.

The Town of Simsbury is an Affirmative Action/Equal Opportunity Employer. MBE's, WBE's and SBE's are encouraged to apply.

BID PROPOSAL

To: Office of the Finance Director
Town of Simsbury
933 Hopmeadow Street
Simsbury, CT 06070

Proposal of:

Contractor Name: _____

Street Address: _____

City, State, Zip Code _____

The undersigned further declares that he has carefully examined the site of the work, the information for bidders, specifications, drawings and form of contract and will contract to provide all necessary tools, apparatus and implements, freight, cartage and expense, and to do all work and furnish all the materials necessary to construct the proposed work named on the title page in the manner and upon the conditions specified, and upon the terms which follow herein.

But it is understood and agreed that the prices bid for unit quantities of work in the following items shall control in any contract awarded hereon; that the quantities used are approximate only, being estimated solely for use in comparing bids; and that the following products obtained by multiplying the unit prices bid by the estimated quantities, and the total of those prices are inserted only for the purpose of checking this proposal and for the convenience of the bidder. In the case of error or discrepancies, unit prices govern and written words take precedence over figures.

No bids may be withdrawn for a period of 90 days after the opening of bids without the approval and written consent of the Finance Director. If no award has been made within 90 days after the opening of bids, the bid may be withdrawn upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bond.

And the undersigned agrees to furnish satisfactory performance and payment bonds with surety, and to execute and deliver, within five days after the notice of the award, a formal contract with the Town of Simsbury for the fulfillment of this proposal; and it is agreed, in case of failure or neglect on the part of the undersigned to do so, the Town may determine that the bidder has abandoned the contract and thereupon the proposal and acceptance shall be null and void, and at the Town's option the amount of the bond or check accompanying the proposal shall be forfeited to the Town of Simsbury, or shall be returned to the bidder in whole or in part.

The undersigned further declares that the bidder is:

- a. A CORPORATION organized under the laws of the State of having its principal office at

The principal officers of said corporation with their respective titles and address are as follows:

- b. A LLC organized under the laws of the State of having its principal office at

The principal officers of said corporation with their respective titles and address are as follows:

- c. A PARTNERSHIP consisting of the following individuals (with their addresses).

- d. An INDIVIDUAL, by the name of _____ and doing business as

The bidder is required to state below what work of a similar character to that included in the proposed contract he has done and give reference that will enable the Town to judge his experience, skill and business standing.

The bidder is required to give a brief description of the plan and general methods proposed for carrying on the work indicating there in whether the plan and equipment are owned or to be hired by the bidder.

BID PRICES

INSTRUCTIONS: Bidder is to write his bid price in words in the blank spaces provided at the end of the description.

The Bidder is advised that the description is only a summary. The lump sum bid shall include all of the items as specified in detail in the contract document.

In case of discrepancies between amounts shown in words and amount shown in figures, BIDDER agrees that amounts shown in words will govern.

BID SCHEDULE

BIDDER'S NAME:

PROPOSAL NUMBER:

BID NO. 23-03

Rehabilitation of Bridge No. 03984 (Flower Bridge)
Old Bridge Road over Farmington River
Simsbury, Connecticut

BASE BID			
ITEM NO.	ITEM DESCRIPTION AND UNIT COST	ESTIMATED QUANTITY	TOTAL COST (\$)
002095A	LEAD COMPLIANCE FOR ABRASIVE BLAST CLEANING AND MISCELLANEOUS TASKS _____ Dollars and _____ Cents	1 LS	\$ _____
0100000A	PROTECTION OF EXISTING BRIDGE ACCESSORIES _____ Dollars and _____ Cents	1 LS	\$ _____

BASE BID			
ITEM NO.	ITEM DESCRIPTION AND UNIT COST	ESTIMATED QUANTITY	TOTAL COST (\$)
0201451A	TEMPORARY PROTECTIVE FENCE _____ Dollars and _____ Cents	204 LF	\$ _____
0203000	STRUCTURE EXCAVATION - EARTH (COMPLETE) _____ Dollars and _____ Cents	5 CY	\$ _____
0216000	<u>PERVIOUS STRUCTURE BACKFILL</u> _____ Dollars and _____ Cents	5 CY	\$ _____
0503023A	REMOVAL OF EXISTING TIMBER DECK _____ Dollars and _____ Cents	1 LS	\$ _____
0503887A	JACKING OF EXISTING SUPERSTRUCTURE (SITE NO. 1) _____ Dollars and _____ Cents	1 LS	\$ _____
05221003A	BEARING REPLACEMENT WITH ELASTOMERIC BEARING PADS _____ Dollars and _____ Cents	4 EA	\$ _____

BASE BID			
ITEM NO.	ITEM DESCRIPTION AND UNIT COST	ESTIMATED QUANTITY	TOTAL COST (\$)
0601733.40	CLASS PCCC03340 _____ Dollars and _____ Cents	<u>5</u> CY	\$ _____
0602030	DEFORMED STEEL BARS - GALVANIZED _____ Dollars and _____ Cents	<u>985</u> LB	\$ _____
0603050A	REPAIR DEFECTIVE WELDS _____ Dollars and _____ Cents	<u>150</u> LF	\$ _____
0603081A	STRUCTURAL STEEL REPAIRS (SITE NO. 1) _____ Dollars and _____ Cents	55 CWT	\$ _____
0603222A	DISPOSAL OF LEAD DEBRIS FROM ABRASIVE BLAST CLEANING _____ Dollars and _____ Cents	5 TON	\$ _____
0603434A	REPLACE PIN NUT _____ Dollars and _____ Cents	2 EA	\$ _____

BASE BID			
ITEM NO.	ITEM DESCRIPTION AND UNIT COST	ESTIMATED QUANTITY	TOTAL COST (\$)
0603551A	MODIFY EXISTING STRUCTURAL STEEL (SITE NO. 1) _____ Dollars and _____ Cents	1 LS	\$ _____
0603563A	CLASS 1 CONTAINMENT AND COLLECTION OF SURFACE PREPARATION DEBRIS (SITE NO. 1) _____ Dollars and _____ Cents	1 LS	\$ _____
0603659A	REPLACE RIVETS WITH HIGH STRENGTH BOLTS _____ Dollars and _____ Cents	100 EA	\$ _____
0603861A	TEMPORARY SUPPORT SYSTEM _____ Dollars and _____ Cents	1 LS	\$ _____
0603923A	ABRASIVE BLAST CLEANING AND FIELD PAINTING OF STRUCTURE (SITE NO.1) _____ Dollars and _____ Cents	1 LS	\$ _____
0609001	REPOINTED MASONRY _____ Dollars and _____ Cents	100 SY	\$ _____

BASE BID			
ITEM NO.	ITEM DESCRIPTION AND UNIT COST	ESTIMATED QUANTITY	TOTAL COST (\$)
0610001A	DRILLING HOLES AND BONDING ANCHORS _____ Dollars and _____ Cents	8 EA	\$ _____
0610002A	DRILLING HOLES AND BONDING DOWELS _____ Dollars and _____ Cents	180 EA	\$ _____
0701052A	<u>PULTRUDED FRP DECKING FOR PEDESTRIAN BRIDGE</u> _____ Dollars and _____ Cents <u>DECK MANUFACTURER</u> _____	2,750 SF	\$ _____
<u>0708001</u>	<u>DAMPPROOFING</u> _____ Dollars and _____ Cents	<u>5</u> SY	\$ _____
0904987A	REMOVE AND RESET METAL BRIDGE RAIL _____ Dollars and _____ Cents	461 LF	\$ _____
<u>0921003A</u>	<u>REMOVE AND RESET BRICK PAVERS</u> _____ Dollars and _____ Cents	<u>114 SF</u>	\$ _____

BASE BID			
ITEM NO.	ITEM DESCRIPTION AND UNIT COST	ESTIMATED QUANTITY	TOTAL COST (\$)
0950035A	REMOVE AND RESET IRRIGATION SYSTEM _____ Dollars and _____ Cents	1 LS	\$ _____
<u>0952101A</u>	<u>MODIFY PLANTER</u> _____ Dollars and _____ Cents	1 LS	\$ _____
0969060A	CONSTRUCTION FIELD OFFICE, SMALL _____ Dollars and _____ Cents	8 MONTH	\$ _____
0974001A	REMOVAL OF EXISTING MASONRY _____ Dollars and _____ Cents	2 CY	\$ _____
0975004a	MOBILIZATION AND PROJECT CLOSEOUT _____ Dollars and _____ Cents	1 LS	\$ _____
0976002A	BARRICADE WARNING LIGHTS – HIGH INTENSITY _____ Dollars and _____ Cents	244 DAY	\$ _____

BASE BID			
ITEM NO.	ITEM DESCRIPTION AND UNIT COST	ESTIMATED QUANTITY	TOTAL COST (\$)
0976003	CONSTRUCTION BARRICDE TYPE III _____ Dollars and _____ Cents	3 EA	\$ _____
1220027	CONSTRUCTION SIGNS _____ Dollars and _____ Cents	15 SF	\$ _____

BASE BID TOTAL

Pursuant to and in full compliance with the solicitation, the undersigned bidder, having visited the site or property if applicable, and having thoroughly examined each and every document comprising the solicitation, including any addenda, hereby offers and agrees as follows:

To provide the products and/or services specified in, and upon the terms and conditions of, the solicitation for the total sum of

_____/100 Dollars
(write out in words)

(\$ _____).

ALTERNATE 1			
ITEM NO.	ITEM DESCRIPTION AND UNIT COST	ESTIMATED QUANTITY	TOTAL COST (\$)
	BASE BID TOTAL _____ Dollars and _____ Cents		\$ _____ _____
0701052A	DEDUCT BASE BID PRICE <u>PULTRUDED FRP DECKING FOR PEDESTRIAN BRIDGE</u> _____ Dollars and _____ Cents	2,750 SF	- \$ _____ _____
0603061A	ADD STRUCTURAL STEEL (SITE NO. 1) _____ Dollars and _____ Cents	1 LS	+ \$ _____ _____
0701052A	ADD TIMBER DECK _____ Dollars and _____ Cents	2,750 SF	+\$ _____ _____

ALTERNATE 1 TOTAL

Pursuant to and in full compliance with the solicitation, the undersigned bidder, having visited the site or property if applicable, and having thoroughly examined each and every document comprising the solicitation, including any addenda, hereby offers and agrees as follows:

To provide the products and/or services specified in, and upon the terms and conditions of, the solicitation for the total sum of

_____/100 Dollars
(write out in words)

(\$_____).

The following addenda for this contract were received:

<u>Addendum Number</u>	<u>Date</u>
_____	_____
_____	_____
_____	_____

Dated at _____, _____
(Town) (State)

This _____ day of _____, 2023

Signed _____
(Bidder)

By: _____

Business Address:

NOTE:

Bidder is reminded that in addition to completing and signing the above proposal and bid form, he/she shall also complete and return with the bid:

- Bid Security
- Non-Collusion Affidavit
- Legal Status Form
- Statement of Bidder's Qualifications
- Code of Ethics Form
- Simsbury Hold Harmless and Indemnification Agreement
- Non-Discrimination Certificate/Affidavit

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#0020905A – LEAD COMPLIANCE FOR ABRASIVE BLAST CLEANING AND MISCELLANEOUS TASKS

#0100000A – PROTECTION OF EXISTING BRIDGE ACCESSORIES

#0201451A – TEMPORARY PROTECTIVE FENCE

#0503023A – REMOVAL OF EXISTING TIMBER DECK

#0503887A – JACKING OF EXISTING SUPERSTRUCTURE (SITE NO. 1)

#0521003A – BEARING REPLACEMENT WITH ELASTOMERIC BEARING PADS

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#0603923A – ABRASIVE BLAST CLEANING AND FIELD PAINTING OF STRUCTURE (SITE NO. 1)

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#0952101A – MODIFY PLANTER

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APPENDIX A COATING CONDITION ASSESSMENT of the DRAKE HILL ROAD BRIDGE

Prepared by KTA-TATOR, Inc. July 21, 2017

APPENDIX B OLD BRIDGE ROAD - AERIAL DRONE PHOTOS January 2023

Robison Imagery, East Granby, CT

NOTICE TO CONTRACTOR – STANDARD SPECIFICATIONS

Whenever and wherever "ConnDOT Form 818," "Form 818," "Standard Specifications" are referenced herein, this shall mean and refer to the "State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818, 2020, as merged with Supplemental Specifications dated July 2023."

After bearings are in proper position, install non-shrink grout pad to provide ~~full~~ full bearing for the elastomer.

Method of Measurement:

This work will be measured for payment by the number of elastomeric bearing pads installed complete and accepted in place.

Basis of Payment:

This work will be paid for at the contract unit price each for “Bearing Replacement with Elastomeric Bearing Pads” complete in place, which price shall include removing the existing bearing assemblies and sole plates, preparing bearing surfaces, furnishing and installing new elastomeric bearing assemblies, installation of grout pads and all necessary materials, tools, equipment and labor incidental thereto.

This item shall also include the furnishing and installation of sole plates, bearing plates, and restraining plates, and field touch-up painting of the steel after field welding of the restraining plates.

For the removal of existing welds, there shall be no measurement or separate payment for the cost of removing lead paint.

Jacking of the existing superstructure shall be paid for under the item “Jacking of Existing Superstructure (Site No. 1).”

Pay Item

Pay Unit

Bearing Replacement with Elastomeric Bearing Pads

EA.

END OF SECTION

ITEM # 0603061A – STRUCTURAL STEEL (SITE NO. 1)

Work under this item shall conform to the requirements of Section 6.03 of the Standard Specifications amended as follows:

6.03.01 – Description: *Add the following*

Work under this Item shall consist of installing welded cover plates to the top flanges of the existing floorbeams in order to accommodate the installation of a timber deck, and is included under Alternate 1.

END OF SECTION

ITEM #0701051A—TIMBER DECK

Description:

Work under this Item shall consist of furnishing and installing timber deck planks in accordance with the drawings and these specifications.

This item shall also include the decking joint system located at each end of the bridge as indicated on the drawings.

Materials:

Timber decking shall comply with the following requirements:

- A. General: Comply with DOC PS 20 and with grading rules of lumber grading agencies certified by ALSC's Board of Review as applicable.
 - 1. Factory mark each item of timber with grade stamp of grading agency.
- B. Timber Species and Grade: Southern yellow pine, Select Structural, NeLMA, NLGA, SPIB, WCLIB, or WWPB.
- C. Wood Texture: Rough Sawn
- D. Apply preservative treatment after all cutting and fabrication.
- E. Preservative Treatment: Comply with American Wood Protection Associations Standard U1 08.
 - 1. Service Condition for Use Category: UC4B.

Fasteners:

Dome headed timber bolts: ASTM A307A.

Hex Nuts: ASTM A563-A

Washers: ASTM F844

Fasteners shall be galvanized in accordance with ASTM F2329.

Construction Methods: Prepare layout for deck planks to achieve a staggered joint pattern lengthwise along bridge deck. Precut all planks for proper fit prior to applying preservative treatment. Locate joints over existing floorbeams. Fasten timber planks to each floorbeam using two bolts per plank. Do not field cut timber planks to fit.

ITEM #0701052A - PULTRUDED FRP DECKING FOR PEDESTRIAN BRIDGE

Description:

This item shall include pultruded fiber reinforced polymer (FRP) decking constructed in the locations and the dimensions and details shown on the Plans or as ordered by the Engineer, and in accordance with the design and performance requirements for the project including design and detailing of the FRP decking, applicable testing, fabrication and finishing of the FRP decking, transportation, and, if required, installation support during construction, and these specifications.

This item shall also include the decking joint system located at each end of the bridge as indicated on the drawings.

The project design utilizes details from:

Creative Pultrusions Inc.
214 Industrial Lane, Alum Bank, PA 15521
888-274-7855

Other systems may be proposed, but must meet all conditions of this specification and be approved by the Engineer.

References

A. AASHTO

1. LRFD Guide Specifications for the Design of Pedestrian Bridges, 2009.
2. Guide Specifications for the Design of FRP Pedestrian Bridges, 1st Edition, 2008.

B. ASCE

1. Pre-Standard for Load & Resistance Factor Design (LRFD) of Pultruded Fiber Reinforced Polymer (FRP) Structures, 2010.

Submittals

- A. Manufacturer's Qualifications: Submit proof of manufacturer's qualifications. Manufacturer shall hold an ISO 9001:2015 certificate for the manufacture and design of FRP structural profiles. In addition, the manufacturer of the FRP decking shall have an established acceptable performance history with FRP decking for bridges for a minimum of 10 years with a minimum of 10 separate applications.

- B. Non-Slip Overlay Product Data and Qualifications: Submit manufacturer's product data, including technical data sheets, installation instructions, and performance history of overlay on FRP decking.
- C. Shop Drawings: Submit shop fabrication drawings of the FRP decking with shop applied polymer aggregate overlay for review and approval. The following information shall be included as a minimum:
 - 1. Cross-sectional and overall dimensions of all FRP components, including details regarding FRP connections.
 - 2. Calculation of weight (pounds per square foot) of FRP deck assembly with wearing surface.
 - 3. Show limits of any top coating materials.
- D. Design Calculations: Prepare and submit design calculations meeting specified design criteria, and prepared and stamped by a professional engineer licensed in the State of Connecticut.
- E. Decking Manufacturing Plan: Submit the manufacturer's plan that details the manufacture of FRP pedestrian decking. At a minimum, the plan shall include the following:
 - 1. Materials: Provide details on properties to be used in the FRP manufacturing process.
 - 2. Shop Assembly: Provide assembly details for shop-assembled components
 - 3. Non-slip Overlay: Provide manufacturer's technical data and installation instructions for wearing surface.
- F. Installation Guide: Submit installation guide that details procedures for the storage, moving, lifting, and installation of the FRP decking including details for connecting the FRP decking to the bridge superstructure.
- G. Safety Data Sheets (SDS): Submit SDS for all materials and products used in the field in the installation of the FRP decking.
- H. Samples: Submit one (1) - 12" by 12" square sample of the overlay system applied to the fiberglass substrate. The samples shall include the proposed color and surface texture.
- I. Test Reports: Submit test reports of flexure testing for the proposed FRP decking.
- J. Quality Control Plan: Submit, prior to starting construction a quality control (QC) plan for approval by the Owner or Engineer addressing all activities and processes required to control the quality of the materials and installation. Include in the QC plan procedures for tracking and verifying the quality of all FRP constituent materials, inspection of all prepared surfaces prior to installation of the FRP system and of completed work, fabrication and number of quality control test samples and procedures for repair of defective work.

FRP Deck Design Criteria

- A. Unless noted otherwise on the drawings, FRP decking shall be designed to meet the requirements of this section.
- B. FRP decking shall be designed as non-composite with supporting members. FRP planking may be designed as simply-supported or continuous to reflect support conditions.
- C. Loading Criteria: FRP decking shall be designed to resist the following three load cases. These load cases are not to be combined.
1. Uniform pedestrian loading = 90 psf.
 2. Uplift load = 30 psf.
 3. Maintenance vehicle loading = H-10.
- D. Deflection criteria: FRP deck panels shall be designed to limit deflection under live load. Calculate deflections assuming simple spans with no continuity over the deck floor beams. Maximum deflections shall not exceed values given below with the span (L) measured from the center-to-center of deck support beams.

Location	Pedestrian Live Load	Vehicle Live Load
Between Supports	L/500	L/300
Cantilevered Edges	L/300	L/240

- E. FRP Design Values: FRP material design values shall be calculated by applying environmental retention factors to the characteristic moduli and stresses/strains. Design calculations shall report the environmental retention factors used in the design.
- F. Allowable Stresses: FRP decking shall be designed for the following allowable stresses:
1. Flexure Criteria: Unless otherwise approved by the Engineer, the maximum allowable bending strain in the FRP decking shall be limited to 25% of design strain to failure under service loads.
 2. Shear Criteria: Unless otherwise approved by the Engineer, the maximum allowable shear stress in the FRP decking shall be limited to 25% of design strain to failure under service loads.

Delivery, Storage, Handling And Disposal

- A. FRP decking shall be shipped, stored, handled, and installed in such a manner as to not degrade quality, serviceability, or appearance.

- B. Store FRP decking and all other materials off of the ground on wooden pallets or on a flat, clean surface under cover, and in a dry location. Protect from dust, physical damage, rain, water, freezing or excessive heat, foreign matter or other conditions until ready for use.
- C. Deliver materials used in the installation of the FRP decking to Project site in Manufacturer's original, factory-sealed, unopened containers, with label intact identifying the Manufacturer, brand name, system component name and identification number and production date.
- D. Comply with Manufacturer's written instructions for conditions for minimum and maximum temperature requirements and other conditions for storage.

Warranty

- A. FRP decking manufacturer shall issue a twelve (12) month warranty against defects in workmanship and materials from the date of acceptance of FRP pedestrian decking.

Materials:

- A. Approved Decking: SuperDeck GR250 (1525 Series) FRP Plank. **Identify proposed alternate in Bid Form.**
- B. FRP decking shall be fabricated using commercial grade E-glass fibers and reinforcing fabrics and standard polyester resin with fire retardant additives.
- C. Adhesives. If required, to close out decking edges or other modifications, shall be in accordance with manufacturer's recommendations.
- D. Non-Slip Overlay
 1. Overlay shall be a non-skid, polyurethane and methyl methacrylate system with quartz aggregate that is shop applied to the top surface of the FRP. Epoxy overlays are not allowed and will be rejected.
 2. The overlay shall be applied to the FRP decking in the manufacturer's facility prior to shipping.
 3. The color of the overlay shall be uniform and to extent possible mimic an unstained weathered wood appearance.
 4. The texture of the overlay shall be appropriate for pedestrian traffic.
- E. Connection Hardware
 1. The FRP pedestrian decking shall be connected to the support beams with 304 stainless steel clips that capture the support beams.

Properties

- A. FRP Decking Physical Properties: The FRP decking shall meet the following physical properties:

Physical Property	Requirement	ASTM
Color	Gray	
Flame Spread	Class A	E84
Flammability Characteristics	V-0 rating (self-extinguishing)	UL94

- B. FRP Decking Mechanical Property: FRP design mechanical properties shall be calculated by reducing the characteristic values obtained in accordance with ASTM D7290 by the appropriate environmental reduction factors.

Mechanical Property	Minimum Requirement	ASTM
Full Section Modulus of Elasticity	3,500 ksi	Full-scale
Full Section Flexural Strength	30,000 psi	Full-scale
Full Section In-Plane Shear Strength	10,000 psi	Full-scale

- C. Minimum Environmental Retention Factors: FRP characteristic properties shall be reduced to account for the effects of environmental exposure.

Property	Strength/Strain	Modulus
Tension	0.75	0.90
Compression	0.75	0.90
Shear	0.75	0.90

- D. Non-Slip Overlay Properties: The shop-applied non-slip overlay shall meet or exceed the following properties:

Property	Requirement	ASTM
Coefficient of Friction (dry)	> 0.80	ASTM C1028
Coefficient of Friction (wet)	> 0.80	ASTM C1028

FRP Decking Testing

- A. *Flexure Stiffness:* Apply a concentrated load of 1,000 lbf to a single 24" wide FRP plank at mid-span of a 10' span. Maximum deflection shall be less than 0.3125".
- B. *Flexure Strength:* Apply a concentrated load of 13,000 lbf to a single 24" wide FRP plank at mid-span of a 10' span. FRP plank shall be able support load without failure.

Manufacturing

- A. Dimensional Requirements: FRP planking shall meet the minimum visual requirements outlined in ASTM D4385.
- B. Visual Requirements: FRP planking shall conform to the dimensional requirements as specified in ASTM D3917.
- C. Quality Control: Manufacturer shall inspect the FRP planking as outlined in their ISO 9001:2015 requirements to the extent that the products meet or exceed the minimum structural, visual, dimensional and workmanship requirements referenced in this specification.
- D. Documentation: Assemble and maintain project documentation for the FRP decking project as follows:
 - 1. Design data and calculations.
 - 2. Shop drawings.
 - 3. Manufacturing quality control records including material traceability and dimensional results.
 - 4. Installation instructions.

Construction Methods:

Inspection

- A. The Installer/Erector shall examine substrates, supports, and conditions under which this work is to be performed and notify Engineer, in writing, of conditions detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected. Beginning of installation means Installer accepts substrates and conditions.
- B. Provide necessary pathways, scaffoldings and other means of access to install the FRP decking.
- C. Provide all necessary equipment in clean and operating condition and in sufficient quantities to ensure continuous and uninterrupted installation.

Field Support

- A. FRP decking manufacturer shall provide a qualified technical representative for up to three days to facilitate the installation procedure as an advisor.

Installation

- A. Provide setting diagrams, templates, instructions and directions as shown on the drawings or as required for installation.
- B. All units specified herein shall be installed in accordance with the manufacturer's instructions and as shown on the shop drawings or as directed by the manufacturer. Touch up or seal any damaged surfaces or edges of FRP decking before installation.
- C. Accessories: Install clips, hangers, and other accessories required for erection of FRP units to supporting members and back-up materials.
- D. Anchor units in final position by bolting or as otherwise designed. Remove temporary shims, wedges, and spacers as soon as possible after anchoring is completed. At bolted connections use lock washers or other acceptable means to prevent loosening of nuts.
- E. Joint Sealant shall be as approved by the decking manufacturer.
 - 1. All decking butt joints shall be located over floor beams. Apply sealant to all butt joints.
 - 2. Longitudinal joints located over floor beams shall include sealant. Apply sealant within 6 inches on each side of floor beam centerline.
 - 3. All joint sealants shall be installed by an applicator trained and approved by the joint sealant manufacturer.

Field Quality Control

- A. Conduct inspections, perform testing, and make repairs or replace unsatisfactory FRP decking panels as required.
- B. In addition to above, in-place FRP decking may be rejected for any one of the following reasons:
 - 1. Exceeding the specified installation tolerances.
 - 2. Irreparable damage during construction operations.
 - 3. Non-compliance with acceptance criteria listed herein.

General Acceptance Criteria

- A. Units shall meet specifications. No structural deficiencies, cracks, loose inserts or anchors, exposed steel, or other defects shall be permitted.
- B. Appearance Acceptance Criteria: When viewed at a distance of 10 ft. in natural daylight, exposed surfaces shall be uniform in color, texture, and finish shall be within the range of approved samples when compared side by side. Panel edges and details of decoration shall be clear, well defined and true to line within specified alignment tolerances.

Following is a list of finish defects which are unacceptable and cause for rejection of panels:

1. Ragged or irregular edges outside manufacturer's approved acceptance criteria.
 2. Non-uniformity of textures or color.
 3. Foreign material embedded in the face.
 4. Visible repairs.
 5. Visible cracks.
- C. FRP decking shall be reviewed for compliance with specifications in two stages as follows:
1. Units will be inspected after delivery to site.
 2. Units will be inspected after installation and final cleaning.
- D. Repair or replace units as directed by the Engineer.

Cleaning

- A. At the completion of the work all labels shall be removed and the units shall be cleaned and left free of blemishes.

Method of Measurement:

This work will be measured for payment by the square feet of deck area, installed complete and accepted in place.

Basis of Payment:

This work will be paid for at the contract unit price per Square Foot for "Pultruded FRP Decking for Pedestrian Bridge" complete in place, which price shall include all material, decking joint systems, storage costs, disposal of unused materials and waste, transportation costs, labor, equipment, fasteners, and other necessary items required for completing the work. No separate payment will be made for plates, bolts or other hardware necessary to complete the work.

Pay Item

Pay Unit

Pultruded FRP Decking for Pedestrian Bridge

S.F.

END OF SECTION

ITEM #0921003A-REMOVE AND RESET BRICK PAVERS

Description:

Work under this Item includes removing and resetting existing brick paver system, and Belgian block curbing with mortar bed system, to allow for excavation required for the reconstruction of existing abutment backwall. The work shall be completed within the indicated limits, and in accordance with the details shown on the drawings.

Materials:

Brick Paver System

Geotextile shall conform with the requirements of Article M.08.01-19.

Processed Aggregate Base shall conform with the requirements of Article M.05.01, except that coarse aggregate shall not include reclaimed miscellaneous aggregate.

Sand Setting Bed shall conform to ASTM C144 and shall consist of clean grains of quartz or other hard, durable rock, free of any soils, organics or other deleterious materials. Maximum particle size shall be 1/4" and no greater than 10% shall pass the No. 200 sieve.

Polymeric Sand Joint Filler shall be "Techniseal Nextgel – High Performance 2 Polymeric Sand," as manufactured by Techniseal, Quebec, Canada, or approved equal. Color shall be compatible with existing pavers.

Belgian Block Curbing System

Mortar bedding material shall conform with the requirements of Article M.11.04.

Construction Methods:

Paver and Curbing Removal

Removal in a manner that does not cause damage to existing pavers and curbing. Mark location of each paver for future reinstallation. Carefully remove and clean Belgian block from its existing mortar bed. Stockpile and cover all materials.

Subgrade Material Placement:

Install geotextile in accordance with manufacturer's instructions on a prepared subgrade.

Place and compact Processed Aggregate Base to the depths shown on the drawings and details. Do not place material containing frozen materials, snow or ice. Do not place material over frozen ground. Do not place material if at risk of freezing.

Protect adjacent improvements during installation. Repair damage at no additional cost to the Owner.

Compaction shall be performed using approved vibratory compaction equipment consisting of a walk-behind vibratory drum roller or other equivalent equipment sufficient to provide a firm, stable subgrade and achieve the required compaction. Place all material in-the-dry on stable, undisturbed subgrades.

The dry density of each layer of processed aggregate base after compaction shall not be less than 95% of the maximum dry density for that material when determined by the Contractor in accordance with AASHTO T 180 and measured in-place with ASTM D6938 or other methods approved by the Engineer. The Contractor shall perform in-place density testing at a sufficient frequency to ensure that the specified results are continuously met. The Contractor shall submit complete field density testing and inspection records to the Engineer.

Paver and Belgian Block Installation

Place paver setting bed material and compact to required depth. Do not allow pedestrian or vehicular (equipment) traffic on setting bed before paving unit installation begins. Place pavers at their original location. Pavers are to be tightly butted with a maximum 1/8 inch joint. Where backwall modifications required cutting of existing pavers, saw-cut existing components to form a clean, straight edge. Replace any damaged pavers with new material to match existing.

Use a suitable vibrator to settle paver units into bedding material to the required final elevation profile.

Fill joints with joint filler material and vibrate in place. Add filler as necessary until joint is completely filled. Remove excess by sweeping pavement surface clean.

Set Belgian blocks on mortar beds as per the details shown on the drawings.

Method of Measurement: This item will be measured for payment by the number of square feet of brick pavers, removed, stored, reinstalled, and accepted.

Basis of Payment: This work will be paid for at the contract unit price per square foot for "Remove and Reset Brick Pavers" complete in place and accepted by the Engineer. This price shall include all removal, stockpiling, and resetting of existing pavers and Belgian block curbing, including installation of Geotextile, Processed Aggregate Base, Sand Setting Bed, Polymeric Sand Joint Filler, mortar setting bed, along with all materials, equipment, tools and labor incidental thereto.

Pay Item

Pay Unit

Remove and Reset Brick Pavers

s.f

END OF SECTION

ITEM NO. 0950035A REMOVE AND RESET IRRIGATION SYSTEM

Description: Work under this item shall consist of identifying and locating all features of the existing bridge mounted planter irrigation system, temporarily removing and storing existing system, and re-installing system after completion of bridge repairs.

Work also includes replacing existing PVC piping with new PVC piping.

Materials:

Replacement PVC Piping shall have adequate pressure rating for its intended use, and shall comply with:

ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)

or

ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120

Solvent cement for polyvinyl chloride plastic pipe and fitting shall be compatible with proposed pipe.

Hanger and brackets shall be of corrosion resistant materials and shall have adequate strength to support existing piping system.

Construction Methods:

System removal and reinstallation shall be reviewed and completed by qualified licensed personnel with experience in installation of irrigation systems and connections to existing water systems. Comply with the requirements of state and local codes.

Prior to beginning construction, identify and locate all features of the existing irrigation system attached to the bridge and within the adjacent garden. Submit sketches showing location and layout of all system features. Remove and properly store in a secure, dry location all irrigation system components until ready for re-installation after bridge repairs are completed and the bridge has been repainted.

Provide working drawings showing proposed system layout and means of attachment to the structure. Attachment systems shall not cause damage to the existing structural members, and shall be approved by the Engineer.

Schedule site meeting with Engineer and Owner to review proposed system installation and routing of piping. Irrigation system locations shall be agreed upon with the Town prior to beginning installation.

Replace existing PVC piping with new piping of the same diameter. Replace any other irrigation system components that are damaged or broken. Reinstall irrigation system so that piping is not visible from the bridge deck whenever possible. When installing piping and conduits within the truss chord or between double structural channels, secure these items to the rear face of the member.

Install all irrigation system piping in a neat, workman-like manner and properly secured to the structure. Provide adequate supports to prevent sagging of piping system.

Pressure test system after installation is complete to ensure all joints and fittings are adequately connected. Replace/repair any defective components.

Method of Measurement:

This work shall not be measured for payment but shall be paid at the contract lump sum price.

Basis of Payment:

This work shall be paid for at the contract lump sum price for "Remove and Reset Irrigation System", complete and accepted, which price shall include all materials, tools; equipment, and labor incidental thereto.

Pay Item

Pay Unit

Remove and Reset Irrigation System

LS

END OF SECTION

ITEM NO. 0952101A MODIFY PLANTER

Description: Work under this item shall include modifying the existing hanging planter support system for thirty-two (32) existing planters as shown on the drawings and as directed by the Engineer. Work will include modifying the steel truss vertical members to accommodate the installation of cable winches for each planter, and installing new steel cabling system for each hanging planter.

Materials:

Steel: Conform to the requirements of AASHTO M270, Grade 50 T2.

High strength bolts shall conform to ASTM F3125 Grade A325 Type 1 and shall have round heads.

Nuts shall conform to ASTM A563, Grade C.

Washers shall conform to ASTM A436.

Winch shall be weather resistant standard reel loop drive system with worm gear, zinc plated hardware and powder coated finish. Reel shall automatically stop turning whenever cranking is stopped, locking load in place. Minimum load capacity shall be 1,500 lbs. Provide two removable long shepherd's hooks for use by the Owner.

Acceptable Winch System: Dutton-Lainson WG1500LD Worm Gear Winch with Loop Drive and Standard Reel, as manufactured by:

Dutton-Lainson Company
1601 W. 2nd Street
Hastings, NE 68901
855-321-7724

Steel cables shall comply with Federal Specification RR-W-410E Wire Rope and Strand Type VI, small cord, Class 3, 7x19, 302/304 stainless steel, with a minimum breaking strength of 6,400 lbs. Nominal Diameter: 1/4".

Miscellaneous Cable Hardware: Type 302/304 Stainless Steel.

Construction Methods:

Submittals

Submit Shop Drawings for steel modifications and planter support system assembly in accordance with Article 1.05.02.

Provide product data for winch, steel cable and accessories.

Shop Fabrication of Steel Plates

Unless otherwise shown on the plans or indicated in the Special Provisions, structural steel shall be fabricated in accordance with the AASHTO Standard Specifications for Highway Bridges 17th Edition, amended as follows:

Prior to shipment to the project, each individual piece of structural steel shall be stamped or marked in a clear and permanent fashion by a representative of the fabricators' Quality Control (QC) Department to indicate complete final inspection by the fabricator and conformance to the project specifications for that piece. The stamp or mark must be dated. A Materials Certificate in accordance with Article 1.06.07 may be used in lieu of individual stamps or markings, for all material in a single shipment. The Materials Certificate must list each piece within the shipment and accompany the shipment to the project site.

Following delivery to the project site, the Engineer will perform a visual inspection of all material to verify shipping documents, fabricator markings, and that there was no damage to the material or coatings during transportation and handling.

The Engineer is not responsible for approving or accepting any fabricated materials prior to final erection and assembly at the project site.

Marking: Each plate or angle shall be identified with an erection mark corresponding with the location where the plate will be installed. Identification marks shall be impressed into the member with a low stress stamp in a location in accordance with standard industry practice.

Shipping, Handling and Storage: The Contractor shall make all arrangements necessary to properly load, transport, unload, handle and store all material. The Contractor shall furnish to the Engineer copies of all shipping statements. The weight of the individual members shall be shown on the statements. All material shall be unloaded promptly upon delivery. The Contractor shall be responsible for any demurrage charges. Damage to any material during transportation, improper storage, faulty erection, or undocumented fabrication errors may be cause for rejection of said material at the project site. All costs associated with any corrective action will be borne by the Contractor.

Removal of Existing Steel

Existing steel lacing bars shall be removed at locations required for installation of new steel plates. Remove existing rivets by methods that do not damage steel components that are to remain.

Installation of Steel Plates

Plates shall be installed as shown on the plans. The plates shall be carefully handled so they will not be bent or otherwise damaged.

Hammering that injures or distorts new or existing members is not permitted.

Bolting

Bolting shall be done in conformance with Article 6.03.03 – Construction Methods of the Standard Specifications, Paragraph f - High Strength Bolted Connections. Round headed bolts shall be installed so that the nut is preferably hidden from view.

At the time of assembly, all fraying surfaces shall be free of scale, except tight mill scale, and shall be free of dirt or other foreign material. Burrs or other irregularities that prevent solid seating of the adjoining surfaces shall be removed.

Winch and Cable Installation

Install winch and cable system in accordance with manufacturer's instructions.

Method of Measurement:

This work shall not be measured for payment but shall be paid at the contract lump sum price.

Basis of Payment:

This work shall be paid for at the contract lump sum price for "Modify Planter", complete and accepted, which price shall include all materials, tools; equipment, and labor incidental thereto.

Pay Item

Pay Unit

Modify Planter

LS

END OF SECTION