



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

VIA WEBSITE POSTING

April 8, 2020

Contract No. T201707404.01
Federal Aid Project No.BHN-N060(20)
Rehabilitation of Bridges 1-810, 1-811, 1-812, 1-813 on I-495
New Castle County

Ladies and Gentlemen:

Enclosed is Addendum No. 2 for the referenced contract consisting of the following:

1. The Bid Proposal Cover, revised, to be substituted for the same page of the Proposal.
2. Five (5) pages, Special Provision, 760501- Deep Cut Hydrodemolition, pages 52 through 56, revised, to be substituted for same pages in the Proposal..
3. One (1) page, Special Provision, 801501 - Maintenance of Railroad Traffic (NS), page 80R, revised, to be substituted for the same page in the Proposal.

Please note the revisions listed above and submit your bid based upon this information.

Sincerely,

~signature on file~

Connie Ivins
Competitively Bid Contracts Coordinator
Delaware Department of Transportation

STATE OF DELAWARE



DEPARTMENT OF TRANSPORTATION

BID PROPOSAL

for

CONTRACT T201707404.01

FEDERAL AID PROJECT NO. BHN-N060(20)

CFDA NO. 20.205

REHABILITATION OF BRIDGES 1-810, 1-811,
1-812, 1-813 ON I-495

NEW CASTLE COUNTY

ADVERTISEMENT DATE: March 23, 2020

COMPLETION TIME: 763564 - SPECIAL BIDDING PROCEDURES

SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
DELAWARE DEPARTMENT OF TRANSPORTATION
AUGUST 2016

Bids will be received in the Bidder's Room at the Delaware Department of Transportation's Administration Building, 800 Bay Road, Dover, Delaware prior to 2:00 P.M. local time April 14, 2020

~~760500 - TOTAL SURFACE HYDRODEMOLITION~~
760501 - DEEP CUT HYDRODEMOLITION

Description:

This Work consists of surface preparation of the specified existing bridge decks using the hydrodemolition method to provide a highly rough and bondable surface ~~including select removal of all unsound concrete~~ in the structural bridge deck prior to the placement of the proposed ~~Class D Concrete Latex-Modified Concrete (LMC) overlay~~. ~~Work~~ This item of work shall also include water control, shielding, all removal and disposal of concrete and debris, additional trim work, cleaning and other preparatory work at each bridge site to prepare individual bridge decks for the placement and finishing of the ~~Class D Concrete LMC overlay~~, and all work as indicated on the Plans, in accordance with these Special Provisions, and as directed by the Engineer.

~~Deck cores and an impact echo survey were taken in from November 2014 through February 2015 on all project bridges. The coring report and the results of the impact echo survey are included as part of the Contract Documents and are available upon request.~~

Materials:

Not applicable.

Construction Methods:

A. Environmental Compliance

Prior to the start of any work, the Contractor shall submit an Environmental Compliance Plan (ECP) to the Engineer for review and approval. The ECP shall follow all Federal, State, and Local environmental laws and regulations. The ECP shall include specific details of the Contractor's plan for containment, filtering, and disposal of water, slurry, and other debris, including all best management practices (BMPs) that the Contractor plans to utilize to prevent environmental pollution and protect the waters of the State. All drains, joints, and other locations where discharge water could exit the deck shall be blocked to direct runoff to a central collection and filtering location, as designed by the Contractor. When runoff can be dispersed adjacent to the bridge, BMPs shall be utilized to contain and filter the slurry to prevent the discharge of slurry or other contaminants.

~~B. Pavement Milling~~

~~1. Prior to milling, the depth of the deck reinforcing steel shall be verified in the field. The original thickness of the existing LMC overlay shall be milled to a depth as shown on the Plans using a pavement milling machine in accordance with Subsection 760.03.01 and capable of accurately and automatically establishing profile grades. The entire existing LMC overlay thickness shall be removed including additional depth into the original deck slab as shown on the Plans. Areas adjacent to scuppers or joints (or other locations inaccessible to the milling machine such as the temporary PCC safety barriers for MOT) shall be hand chipped using pneumatic hammers no heavier than the nominal 35-pound class operating at no more than a 45-degree angle from the horizontal. When removing LMC overlay having a variable thickness within a section of the deck, the Contractor shall provide a uniform transition as shown on the Plans. If pavement milling results in the snagging of reinforcing steel, the operation shall be stopped immediately, and the depth of removal adjusted. Damaged or dislodged reinforcing steel resulting from Contractor negligence during the operation shall be repaired or replaced at the Contractor's expense. All construction debris, wearing surface material, or residual materials from the pavement milling process shall be completely removed from the bridge deck prior to the commencement of hydrodemolition.~~

~~2. Following pavement milling of the deck, and prior to hydrodemolition, the Engineer will visually inspect and perform a sounding test on all existing deck repairs in accordance with Item 628502 - Removal of Existing Deck Repairs.~~

~~C. Total Surface Hydrodemolition~~

~~1. Work shall consist of providing a highly rough and bondable surface including select removal of all unsound concrete in the structural bridge deck during the initial pass of the hydrodemolition equipment. Work shall include the removal and disposal of all concrete and debris as created by the process and includes shielding, deck washing, water control, and any other incidental concrete removal that may be required to prepare the deck for the placement of the LMC overlay.~~

~~2. A 'highly rough and bondable surface' is defined as a surface having a 1" amplitude between the peaks and valleys after the hydrodemolition is complete and as shown on the Plans.~~

~~D.B. Deep Cut Hydrodemolition~~

~~1. Work This work shall consist of providing a deep cut of the existing deck to the limits shown on the Plans. The minimum amount of removal shall extend from the bottom of the top layer of transverse reinforcement plus an additional 1" amplitude below the that layer of existing deck reinforcement as show on the Plans and shall include providing a highly rough and bondable surface as well as select removal of all unsound concrete in the structural bridge deck in this region during the initial pass of the hydrodemolition equipment. Work The Work shall include the removal and disposal of all concrete and debris as created by the process and includes shielding, deck washing, water control, and any other incidental concrete removal that may be required to prepare the deck for the placement of new deck concrete.~~

~~2. A 'highly rough and bondable surface' is defined as noted in Subsection C.2 above.~~

~~E.C. Hydrodemolition Equipment~~

~~1. The hydrodemolition equipment shall consist of a water supply system, a high-pressure water pumping system, and a demolition type unit. The demolition unit shall be a robotic, computerized, and self-propelled unit, utilizing a high-pressure water jet stream that can remove concrete to the desired depths specified with a single pass of the unit, including the selective removal of all unsound concrete. It shall also be capable of cleaning rust and concrete particles from all exposed reinforcing steel. The resulting concrete surface profile shall be one that is highly rough and bondable. All water used in conjunction with the hydrodemolition process shall be potable water, except that stream or lake water may be used if properly filtered prior to use.~~

~~2. Only individuals who have experience on bridge deck overlay construction projects of comparable type within the past five (5) years shall operate the hydrodemolition equipment.~~

~~3. The demolition unit shall provide shielding to ensure containment of all dislodged concrete within the removal area to protect the traveling public, adjacent properties, and work crews from flying debris on, adjacent to, and/or below the work site.~~

~~F.D. Vacuum Clean-up Equipment~~

~~The vacuum equipment shall be equipped with fugitive dust control devices that can remove wet and dry debris, along with standing water, in the same pass.~~

~~G.E. Water Control Plan~~

~~1. Prior to the beginning of hydrodemolition, the Contractor shall prepare and submit a water control plan to the Engineer for the control and filtering of all water discharged by the operation. All scuppers, joints, and other locations where discharge water could exit the deck shall be blocked (e.g., drainage openings in temporary PCC safety barriers), to direct runoff to a central collection and filtering location, as designed by the Contractor. The Contractor shall be responsible for compliance with all environmental laws and regulations regarding the discharge of runoff water into the environment. Specific information shall be provided by the Contractor detailing the method of water and debris collection, filtering, treatment, and legal disposal.~~

~~2. The Contractor is responsible for the disposal of all concrete and debris, and securing any applicable permits which may be required.~~

~~H.F. Removal Requirements~~

~~Removal requirements beyond the use of hydrodemolition equipment shall be in accordance with Subsection applicable portions of Section 628.03(F) and Item 628502—Removal of Existing Deck Repairs as specified,~~

except that only pneumatic hammers no heavier than the nominal 35-pound class will be allowed, operating at no more than a 45-degree angle from the horizontal, and in areas that are inaccessible to hydrodemolition equipment, ~~or in previously patched or debonded concrete areas that require removal.~~

~~F~~.G. Equipment Calibration

1. The robotic hydrodemolition equipment shall be calibrated on a representative sample of sound deck concrete, as directed by the Engineer, to demonstrate the ability to cut to the desired depth, as indicated on the Plans. The minimum allowable water pressure shall be 13,000 psi and the maximum water pressure shall not exceed 20,000 psi. The minimum water usage shall be 20 gallons per minute. The calibration shall accomplish the desired surface roughness, profile, and cutting depth as indicated on the Plans. ~~The equipment shall then be moved to an area of deteriorated deck, as directed by the Engineer, to demonstrate the ability to remove all unsound material. The equipment shall selectively remove all unsound concrete, avoid the removal of unnecessary sound concrete, and provide a highly rough and bondable surface. Calibration is~~ Calibration shall be required on each bridge, or when different equipment is brought to the site for use.

2. Upon approval by the Engineer that the equipment settings do selectively remove ~~all unsound concrete to the desired depths~~ and provide a highly rough and bondable surface, the calibration will be approved, and the settings recorded. If the equipment does not demonstrate the ability to produce the desired result, as determined by the Engineer, the equipment shall be removed from the project and the Contractor shall provide other equipment for calibration. No additional contract time or compensation will be allowed for the mobilization of different equipment to the work site. ~~The operating parameters shall be recorded as follows:~~

~~The operating parameters shall be recorded as follows:~~

Water Pressure Gauge, PSI
Machine Staging Control (Step), IN
Nozzle Size, IN
Nozzle Type
Nozzle Travel Speed, FPS
Water Usage Rate, GPM

~~F~~.H. Operational Requirements

Upon approval of the calibration, the Contractor shall perform ~~total surface hydrodemolition or~~ deep cut hydrodemolition over the entire top surface of the bridge deck within the limits specified on the Plans with a single pass of the unit. The calibration and production settings shall be maintained and provided in writing to the Engineer. The settings shall be maintained throughout the operation, unless the desired results are not being attained, in which case re-calibration shall be performed. The quality of the cut shall be verified in the field for every 30 linear feet of cutting path per construction ~~phase stage (i.e., Stages 2, 3A, and 3B)~~. The Engineer may require re-calibration if the appropriate cut and profile as specified on the Plans is not being met. The Contractor shall take steps to prevent damage to existing reinforcing steel. All equipment shall be operated in a manner that does not damage the ~~slab deck~~, reinforcing steel or superstructure components to remain. Any damage caused by the Contractor's equipment or negligence shall be repaired at the Contractor's expense. The operator shall minimize the overlap of the individual hydrodemolition passes to limit the amount of sound concrete removal. When the hydrodemolition process is taking place above an area of concern, the Contractor shall take measures to protect that area from hydro blasting through the deck, falling debris, water runoff, or any other action that the Engineer considers a risk to public safety or a risk of property damage. An area of concern shall include, but not be limited to, vehicular traffic, pedestrian traffic, parking areas, basketball courts, parks, private property, railroad property, or any other area of concern as determined by the Engineer. Only those vehicles directly required to perform the hydrodemolition work and clean-up, or corresponding ~~overlay deck~~ construction equipment, shall be allowed on the bridge deck. Contamination of the deck by construction equipment or any other source shall be prevented.

~~K~~.I. Removal of Slurry and Debris

The Contractor shall clean up the slurry and rubble from the hydrodemolition operations in a timely manner, and before it dries on the deck and reinforcing steel. Vacuum clean up shall follow as closely as possible behind the hydrodemolition process. The deck shall then be blown dry to remove excess water. Following the cleaning, the surface shall be free of all debris, loose material, slurry, or cement paste.

~~L.J.~~ Reinforcing Steel

Any reinforcing steel damaged by the Contractor's operation shall be replaced at no additional cost ~~to the Department~~. Replacement may include the removal of additional concrete to adequately anchor reinforcing steel to the appropriate lap splice length. Where the bond between exposed reinforcing steel and sound concrete has not been compromised as determined by the Engineer, the clearance requirement around existing reinforcing steel will be waived. Partially exposed reinforcing steel is acceptable if, as determined by the Engineer, the bond between exposed reinforcing steel and sound concrete has not been compromised.

~~M.~~ Sounding

~~After the initial pass of hydrodemolition and appropriate cleaning, sounding will be done after the deck is clean, dry and frost free. Any unsound deck concrete that remains shall be removed at the Contractor's expense with the use of pneumatic hammers, except that only pneumatic hammers no heavier than the nominal 35-pound class will be allowed, operating at no more than a 45-degree angle from the horizontal.~~
~~N. Removal of Remaining Unsound Material~~

~~Where existing patches have debonded, or previous unsound overlay material is found below the top mat of reinforcing steel, that material shall be removed with the use of pneumatic hammers or hydrodemolition, except that only pneumatic hammers no heavier than the nominal 35-pound class will be allowed, operating at no more than a 45-degree angle from the horizontal.~~

~~O.~~ Full Depth Repair

~~Work shall consist of localized full depth removal and replacement of the bridge deck in the required areas as shown on the Plans or as determined in the field. Predetermined areas of full depth repair may be performed prior to or after hydrodemolition as additional areas may require full depth repair following hydrodemolition as directed by the Engineer. Full depth deck repair shall be completed in accordance with Subsection 628.03(F) except that the concrete deck repair material used for the full depth repairs shall be placed to an elevation that is approximately one-half of the original deck thickness as shown on the Plans.~~

~~P.K.~~ Final Cleaning Prior to Placement of New ~~LMC Overlay Class D Concrete~~

After completion of hydrodemolition and associated clean-up of debris, but not more than 24 hours prior to placement of the ~~overlay Class D Concrete~~, the entire deck surface shall be thoroughly cleaned by either abrasive blasting or high-pressure water blasting (7,500 psi minimum). All horizontal and vertical surfaces to which the ~~overlay Class D Concrete~~ is to bond, including exposed reinforcing steel, shall be blasted clean. Upon cleaning, the deck surface shall be thoroughly saturated to the point that the surface does not dry out, and any excess water removed with compressed air. Clean polyethylene sheeting shall then be used to cover the deck completely until the ~~overlay concrete~~ is poured. If the deck ~~dries is allowed to dry~~ out, it shall be re-blasted at ~~no additional cost to the Department the Contractor's expense~~.

~~Q.L.~~ ~~LMC Overlay Class D Concrete~~ Surface Requirements with Hydrodemolition

1. Installation of the ~~LMC overlay Class D Concrete~~ shall be in conformance with applicable portions of ~~Section 625 – Concrete Overlays. The overlay shall not be placed on areas of full depth concrete deck repairs until the repair material has reached a minimum of 3,000 psi strength Section 610 - Concrete Structures.~~ Where hydrodemolition has left variable depth areas below the plan elevation of the ~~overlay deck concrete~~, the entire area shall be poured monolithically with the ~~overlay deck~~ material. Any standing water on the deck shall be removed prior to placement of concrete overlay material. Hand vibrators shall be used in areas where concrete is being placed around reinforcement, deeper areas within the pour, and along scuppers, parapets, transverse joints, and construction joints.

~~2. See applicable portions of Subsection 625.03(A) for more details regarding surface preparation, materials, equipment, and other details related to the LMC overlay surface installation.~~

Method of Measurement:

~~A. Total Surface Hydrodemolition of the bridge deck will be measured by the square yard to the limits shown on the Plans.~~

~~B. Deep Cut Hydrodemolition of the bridge deck will be measured by the square yard to the limits shown on the Plans.~~

~~C. Pavement Milling, Deck Repair Full Depth, Removal of Existing Deck Repairs, and Additional Latex-Modified Concrete for Partial Deck Repairs will be measured in accordance with their respective items.~~

Basis of Payment:

A. ~~Total Surface Deep Cut~~ Hydrodemolition of the bridge deck will be paid for at the Contract Unit Price per square yard for Item ~~760500—Total Surface 760504 - Deep Cut~~ Hydrodemolition, regardless of the number of passes of the equipment. The cost for all equipment, labor and materials necessary to perform the work, including blocking scuppers and roadway joints, initial equipment calibration, any re-calibration, filtering of discharge water, equipment shielding, hand chipping along inaccessible areas, ~~removal of remaining unsound concrete, deck washing, and clean-up, collection and disposal of all debris, slurry, and water produced by the operation, will be incidental to the cost of Total Surface Hydrodemolition, along with any other incidental work necessary to complete this item. Payment for preparation and submittal of the ECP and the water control plan, including its implementation, will not be paid but will be incidental to the Total Surface Hydrodemolition item.~~

~~B. Deep Cut Hydrodemolition of the bridge deck will be paid for at the Contract Unit Price per square yard for Item 760501—Deep Cut Hydrodemolition, regardless of the number of passes of the equipment. The cost for all equipment, labor and materials necessary to perform the work, including blocking scuppers and roadway joints, initial equipment calibration, any re-calibration, filtering of discharge water, equipment shielding, hand chipping along inaccessible areas, removal of remaining unsound concrete, deck washing, and clean-up, collection and disposal of all debris, slurry, and water produced by the operation, will be incidental to the cost of Deep Cut Hydrodemolition, along with any other incidental work necessary to complete this item. Payment for preparation and submittal of the ECP and water control plan, including its implementation, will not be paid but will be incidental to the Deep Cut Hydrodemolition item.~~

~~C. Pavement Milling, Deck Repair Full Depth, Removal of Existing Deck Repairs, and Additional Latex-Modified Concrete for Partial Deck Repairs will be paid for under their respective items.~~

6/28/2019 05/08/2019

the satisfaction of the Railroad Engineer and the Engineer.

XVIII. PAYMENT FOR COST OF COMPLIANCE:

- a. The payment for the item shall be made for at the Contract unit price per Lump Sum bid for "Maintenance of Railroad Traffic (NS)", which price and payment shall constitute full compensation for maintaining Railroad traffic during the life of the project; submission of drawings and procedures to the Railroad; for all incidental costs imposed by the Railroad on the Contractor in accordance with the terms and conditions set in these Specifications; meeting all insurance requirements as described herein; for any cost incidental to or arising from the need to meet any or all requirements outlined, herein; for all materials, labor, tools, equipment, and incidentals necessary to complete the work.
- b. Payment for the Railroad Protective Liability Insurance requirements and all other required Insurance not normally held in force by the contractor shall be made under this Item. All other Insurances (such as, but not limited to, auto, etc.) required for this Contract shall be considered incidental to the Contract.

XIX. PROJECT INFORMATION:

- a. The following information shall be shown on all correspondence with the Railroad:
 - i. Date: January 16, 2018 N/A
 - ii. NS File No.: CX1114876 BR0026357
 - iii. NS Milepost: WO-.75 WO-0.45
 - iv. Sponsor's Project No.: T201500509 T201707404

NOTE:

1. As stated above in this specification, the DelDOT will pay the Railroad directly for protective services required for this project. Should deviation from the sequence of construction plan by the Contractor result in additional costs for protective services than the method and sequence of construction originally shown in the Plans, then that additional cost shall be deducted from monies due the Contractor unless prior permission was obtained from DelDOT to revise the original method.
2. The Contractor's attention is drawn to the section that reads, in part:

"However, if the Contractor works within distances that violate instructions given by the Railroad's authorized representative or performs work that has not been scheduled with the Railroad's authorized representative, a flagman or flagmen may be required full time until the project has been completed."
3. If such "full time" flagging requirements are imposed by the Railroad because of the Contractor's negligence or willful disregard of Railroad requirements, the Contractor will be held responsible for extra cost involved. Time charges for flagging services provided, but not needed for legitimate pursuit of construction will be recorded and charges for such flagging time will be deducted from monies due the Contractor.