

(Revised 1/18/19)

January 1, 2021

Sheet 1 of 4

**SPECIAL PROVISION****REGARDING****BRIDGE DECK PREPARATION, REPAIR, AND CONCRETE OVERLAY****USING HYDRODEMOLITION**

Description: This work shall consist of the removal of bridge deck concrete using hydrodemolition equipment as preparation for bridge deck repairs and concrete overlay. Rotomilling of the existing concrete deck prior to hydrodemolition will be allowed to a depth specified on the Plans. All work shall be performed in accordance with the details shown on the plans or as directed by the Engineer.

Equipment and Materials. The hydrodemolition equipment shall be a self-propelled machine that utilizes a high pressure water jet stream capable of removing concrete to the depths shown on the plans or as directed by the Engineer and be capable of removing rust and concrete particles from reinforcing steel. Pneumatic hammers, 35 pound class maximum, may be used in areas that are inaccessible or inconvenient to the self-propelled machine such as, but not limited to, areas not to exceed one foot away from curbs or parapets.

The concrete used to perform the deck repairs and overlay shall meet the requirements of the Standard Specifications for Class "D" or Class "DS" concrete.

Construction Requirements. Prior to the commencement of the removal operation, the hydrodemolition equipment shall be calibrated on an area of sound concrete approximately (2 ft x 5 ft) as directed by the Engineer. The cost of the calibration procedure shall be included in the unit price bid for hydrodemolition. The Engineer shall verify the following settings:

1. Water pressure.
2. Machine staging control (step).
3. Nozzle size.
4. Nozzle speed (travel).

During the calibration, any or all of the above settings may be adjusted in order to achieve removal in accordance with the requirements of the plans. When the designated depth of removal is attained, the settings shall be recorded and maintained throughout the

removal operation unless otherwise directed by the Engineer. The depth of removal shall be verified periodically and, if necessary, the equipment re-calibrated to insure the plans depth of removal.

After the hydrodemolition is completed, the deck shall be inspected (by sounding) to insure that all partial depth deteriorated concrete has been removed. Should deteriorated concrete be found, the Contractor shall remove the areas of deteriorated concrete by additional passes of the hydrodemolition equipment or jackhammers. No additional payment will be made for removal of these areas.

The Contractor shall provide shielding, as necessary, to insure containment of all dislodged concrete within the removal area in order to protect the traveling public from flying debris both on and under the work site.

Waste water from the hydrodemolition process shall be controlled and filtered to produce visibly clear water prior to releasing it to the surrounding environment. Sediment basins at the end of or outside of the structure shall be used if further filtration is required to produce visibly clear water. Bridge deck drains shall be plugged during the hydrodemolition process. The release of wastewater and solids generated by full depth hydrodemolition shall be minimized.

Cleaning of the bridge deck shall be performed with a vacuum system capable of removing wet debris and water. The deck shall then be blown dry with air to remove excess water and residual debris. Cleaning shall be done before debris and water are allowed to dry on the deck surface. All exposed reinforcing steel which is left unsupported by the hydrodemolition process shall be adequately supported and protected from bending by vacuum trucks or any other equipment. All reinforcing steel damaged or dislodged by these operations shall be replaced with epoxy coated bars of the same size at the expense of the Contractor.

When full depth repair is specified on plans, only those areas marked in the field by the Engineer as full depth repair will be paid for as full depth repair. Other areas where hydrodemolition equipment blows through the deck shall be the responsibility of the Contractor and will not be paid for as full depth repair.

Bridge deck repairs and concrete overlay shall be made as soon as practicable following removal by hydrodemolition and the subsequent cleaning of the deck as mentioned above. Traffic shall not be permitted on the bridge deck until curing time has elapsed in accordance with the Standard Specifications.

Method of Measurement. Hydrodemolition shall be measured by the square yard of the total deck area regardless of depth.

Full depth repair shall be measured by the square yards of deck surface area repaired.

Class D or DS Concrete (Repair) shall be measured by the cubic yard. The number of cubic yards will be determined by deducting the theoretical quantity of class D concrete (overlay) from the number of cubic yards actually used as determined from invoices or conversion from batch weights then multiplying by a factor of 0.96 to allow for waste.

Class D or DS Concrete (Overlay) shall be measured by the cubic yard based on the theoretical quantity required for the overlay shown in the plans.

Basis of Payment. The accepted quantity of hydrodemolition will be paid for at the contract unit price per square yard, which price will be full compensation for all materials, equipment and labor necessary to remove and dispose of all concrete and other debris to the depth shown on the plans or as directed by the Engineer. This item shall also include all rotomilling, vacuuming, shielding, containment and filtration of waste water, additional jackhammering and all other aspects of work necessary to prepare the deck for repair and concrete overlay.

The accepted quantity of Bridge Deck Repairs (Full Depth) will be paid for at the contract unit price per square yard, which price will be full compensation for full depth concrete removal including all materials, equipment and labor necessary to remove and dispose of all concrete and other debris as directed by the Engineer. This item shall also include any rotomilling, hydrodemolition, vacuuming, shielding, containment, additional jackhammering and all other aspects of work including forming and form removal necessary to prepare the deck for repair. Only those areas marked in the field by the Bridge Inspection and Repair Office as full depth repair will be paid under item 604-10.30.

The accepted quantity of Class D or DS Concrete (Overlay) will be paid for at the contract unit price per cubic yard, which price will be full compensation for the placement and finishing of the concrete in accordance with the Standard Specifications and for any tools, labor, equipment or incidentals necessary for such placement.

The accepted quantity of Class D or DS Concrete (Repair) will be paid for at the invoice price (including sales tax) of the concrete per cubic yard plus 15%.

Payment will be made under:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
604-10.20	Hydrodemolition	Square Yard
604-10.30	Bridge Deck Repairs (Full Depth)	Square Yard
604-10.85	Class D Concrete (Overlay)	Cubic Yard
604-10.86	Class D Concrete (Repairs)	Cubic Yard
604-10.97	Class DS Concrete (Overlay)	Cubic Yard
604-10.98	Class DS Concrete (Repairs)	Cubic Yard