

## 250 PAVEMENT REPAIRS

### ITEM 255 - PORTLAND CEMENT CONCRETE PAVEMENT REPLACEMENT

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**255.01 Description.** The work shall consist of *full depth* removal of existing pavement, sawing, correction of sub-base and subgrade, furnishing and placing dowels, tiebars and mesh where specified, and rigid pavement replacement in accordance with details shown in the plans or construction drawings. All work shall conform to the same specifications and requirements as prescribed in Items 452 and 499, except for the items specifically described under this section.

**255.02 Materials.** Materials shall conform to the following:

Concrete (Class C, S, MS, or FS).....	Item 499
Joint sealer.....	705.04
Preformed filler.....	705.03
Curing materials.....	705.07
Non-shrink, non-metallic grout.....	705.20
Welded steel wire fabric.....	709.10
Reinforcing steel.....	709.01
Dowel bars and basket assemblies.....	709.13

**255.03 Removal of Existing Pavement.** All repair areas will be located and marked by the Engineer prior to the start of work if not identified in the plans or construction drawings.

The existing rigid pavement shall be sawed full depth at the limits of the designated areas using a diamond saw blade. Concrete sawing and removal depths may be as much as 1 inch (25 mm) greater than indicated on the plans without additional payment. When there is an existing bituminous overlay, the full depth saw cut may be made through the overlay. At the option of the Contractor, an off-set saw cut may be

*made through the overlay and the overlay removed as necessary to provide clearance for the full depth saw cut through the rigid pavement. The Contractor may elect to make additional cuts to facilitate the removal of the pavement; however, only cuts designated on the plans or by the Engineer will be measured for payment.*

*Pavement in the repair area shall then be removed in a manner that shall not damage or undermine the pavement that is to remain in place. Loose debris left behind shall be removed by hand methods. Pavement removed shall be disposed of in accordance with Item 202.*

*If the adjacent pavement is damaged during the pavement sawing or removal, an additional full depth diamond saw cut shall be made the full width of the repair that will encompass the damaged pavement. This additional work shall be performed at no additional cost to the City.*

**255.04 Correction of Disturbed Subbase or Subgrade.** *Prior to placing the concrete for the rigid replacement, any subbase or subgrade material that is disturbed below the desired level of cleanout shall be removed and the patch area compacted to the satisfaction of the Engineer. The Contractor shall replace the removed subbase or subgrade material with concrete or approved material as part of the rigid replacement at no additional cost to the City. Removal of subbase for undercut replacement shall be an incidental item.*

**255.05 Placing Dowels and Tiebars.** *Dowels and tiebars shall only be used when specified. Dowel and tiebar holes shall be drilled with hydraulic or electric drills without spalling or damaging the existing concrete. All drilled holes shall be blown clean with compressed air and be dry and frost free prior to grouting the dowels or tie bars. Grout shall be pneumatically injected into the rear portion of the drilled holes. The Contractor shall use a nominal 1/16 inch (1 mm) thickness nylon or plastic washer of sufficient size to retain the grout within the drilled holes, as shown in the plan details. Sufficient grout shall be used to insure all voids are filled behind the washer and extruded through the weep hole. Dowels, and tie bars shall be inserted through the nylon or plastic washer while the washer is placed flush with the sawed edge of pavement and in alignment with the drilled hole such that grout is forced out the weep hole. The bars shall be held in proper alignment until the grout has hardened.*

**255.06 Placement of Portland Cement Concrete.** *The rigid replacement shall not be placed until the grout around the dowel or tie bar has hardened, when specified. The pavement shall be replaced with portland cement concrete in accordance with the provisions of 451.06. Forms shall be used at the shoulder. Each patch shall be cast in one continuous operation. The concrete shall be consolidated by use of an internal type vibrator. The concrete shall be internally consolidated around the perimeter of the patch. Vibrators shall be an approved mechanical spud type capable of visibly affecting the concrete for a distance of 12 inches (0.3 m) from the vibrator head.*

*Patches that are less than 12 feet (3.7m) in length shall be screeded longitudinally. For patches over 12 feet (3.7 m) in length, the screed shall be placed perpendicular to the centerline.*

*The Contractor shall test the surface of the plastic concrete for trueness and for being flush with the edges of the adjacent slabs by use of a 10 foot (3.0 m) straightedge. For patches 10 foot (3.0 m) or less in length, the straightedging shall be done by placing the straightedge parallel to the pavement centerline with the ends resting on the existing pavement and drawing the straightedge across the patch. The straightedge should be in contact with the existing pavement while drawing it across the patch. Any high or low areas exceeding 1/8 inch (3.2 mm) in 10 feet (3.0 m) shall be corrected. If any corrections are made, the surface shall be rechecked.*

*The surface of the concrete shall be textured similar to the surrounding pavement.*

*Curing shall be applied in accordance with 451.10.*

*Transverse joints between the rigid replacement and the existing rigid pavement shall be sawed or formed before the repair is opened to traffic. Any concrete or laitance above the performed expansion joint filler shall be removed. Both faces of the joint shall be thoroughly cleaned by abrasive blasting to the depth of the bottom of the proposed sealer. The joint cleaning operation shall be such that, when completed, the joint shall be dry and completely free of all dirt, dust, tar and bituminous material, curing compound, abrasive blasting material, discoloration and stain, as well as any and all other forms of contamination, leaving a clean, newly exposed concrete surface. The top of the freshly placed sealant shall be 1/4 inch (6.4 mm) ± 1/16 inch (1 mm) below the pavement surface. The shape factor (depth to width ratio) of the sealant shall be between one and two.*

**255.07 Wearing Course Replacement.** *Existing bituminous overlay removed shall be replaced with Item 301 or 402 in accordance with the plans. Item 407 tack coat shall be applied to the replacement surfaces, and shall be included in the cost of Items 301 or 402, unless specified. Bituminous material shall be measured and paid for in accordance with Items 301 or 402.*

*Prior to opening the rigid replacement to traffic, the shoulder shall be restored to the original line and grade using an aggregate or bituminous concrete in accordance with the plans or as approved by the Engineer. The low areas shall be filled and compacted flush with the surrounding shoulder. Materials removed from the shoulder shall be disposed of by the Contractor.*

**255.08 Opening to Traffic.** *The pavement replacement may be opened to traffic when the concrete has attained a modulus of rupture of 400 psi (2.8 MPa). When traffic is maintained in adjacent lanes, the Contractor shall schedule his work such that all repairs are completed within 48 hours of the pavement removal or as designated in the plans. Repairs 10 feet (3.0 m) or less in length shall be covered with a steel plate if they are left unfilled overnight. No repairs shall be left unfilled when work is suspended on*

*holidays or weekends. When the pavement has been removed and the Contractor is unable to complete the required rigid replacement within the time specified above, the excavation shall be filled with a bituminous mixture or other suitable temporary patch material with a durable surface as directed by the Engineer. The Contractor will be required to maintain the patches while they are in service. The cost of placing, maintaining, removing and disposing of the temporary patches will be at the Contractor's expense.*

**255.09 Method of Measurement.** *The quantity of full depth pavement removal and rigid replacement to be paid shall be the actual number of square yards (square meters) or cubic yards (cubic meters) concrete pavement, of the class specified, placed within the limits established by the Engineer. Accepted quantities will be paid for at the contract unit price per square yard (square meters) or cubic yard (cubic meters), which price and payment shall be full compensation for all pavement removal, subbase removal for undercut replacement, subbase and subgrade correction, rigid replacement, furnishing and placing dowels, tiebars and mesh, when specified, and restoration of shoulders.*

*The quantity of pavement sawing to be paid for shall be the number of linear feet of full depth saw cuts completed at locations designated by the Engineer.*

**255.10 Basis of Payment.** Payment for accepted quantities, completed in place, will be made at the contract price for:

<b>Item</b>	<b>Unit</b>	<b>Description</b>
255	Square Yard (Square Meter)	Portland Cement Concrete Pavement Replacement, Class __
255	Cubic Yard (Cubic Meter)	Portland Cement Concrete Pavement Replacement, Class __
255	Linear Foot (Meter)	Full Depth Pavement Sawing