ITEM 255 FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT

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255.01 Description. This work consists of full depth removal of existing pavement; removing subbase where specified; compacting the subgrade; furnishing and placing dowels, tiebars, and mesh where specified; placing, consolidating, finishing, and curing new PCC to the level of the existing PCC pavement; and restoring affected shoulders.

255.02 Materials. Furnish materials conforming to:

Concrete, Class C, S, FS, or MS	499
Curing materials, Type 2	705.07
Non-shrink non-metallic grout	705.20
Reinforcing steel	709.00
Preformed elastomeric joint sealer	705.11
Tiebar steel, epoxy coated	709.00
Dowel bars and basket assemblies	705.01 or 709.13
Expansion shield anchors Type A	712.01

Use epoxy coated Hook bolt, Wiggle bolt, and Coupling.

Select and furnish grout from the Qualified Product List issued by the Laboratory that firmly anchors the dowel or tiebar within 30 minutes.

255.03 Removal of Existing Pavement. The Engineer will locate and mark all areas for repair before the start of diamond sawing. Provide the Engineer with aerosol spray paint to outline those areas for repair.

Saw cut the existing rigid pavement to the full depth at the limits of the area designated by the Engineer using a diamond saw blade. Where there is an existing asphalt concrete overlay on top of the concrete pavement to be removed, the Contractor may make either a full depth saw cut through the asphalt concrete overlay and the concrete pavement, or make an offset saw cut through the asphalt concrete overlay. If making an offset saw cut through the asphalt concrete overlay, remove the overlay as necessary to provide clearance for the full depth saw cut through the concrete pavement. The Contractor may elect to make additional cuts to facilitate the removal of the pavement.

Remove pavement in the repair area by the lift-out method without damaging or undermining the remaining pavement. After the repair area is isolated by full depth saw cuts, drill holes through the deteriorated slab, and install lift pins. Vertically lift the

pavement out of the repair area. Remove loose debris left behind after lift-out using hand methods. Dispose of removed pavement according to Item 202.

Do not break the pavement and clean out the material using a backhoe unless the Engineer determines that the lift-out method is not feasible due to deteriorated pavement.

If the bottom face of the adjacent concrete pavement is deteriorated for a height greater than one-fourth (1/4) the thickness of the rigid pavement, make additional full depth saw cuts as directed by the Engineer along the full width of the lane or lanes to remove the deteriorated areas. Repair pavement damaged during the pavement sawing or pavement removal according to Item 255 or Item 256.

255.04 Correction of Disturbed Subgrade. After removing the existing pavement full depth and before installing dowels or tiebars, shape and recompact the subgrade to the satisfaction of the Engineer. Replace any subgrade material removed with the existing concrete pavement removal with concrete as part of the rigid pavement replacement.

255.05 Placing Dowels and Tiebars. Drill dowel and tiebar holes using hydraulic or electric drills without spalling or damaging the existing concrete. To drill for dowels, use a device capable of drilling a minimum of three holes at a time. For patches 10 feet (3 m) or greater in length, provide tie bars or wiggle bolts of the size and spaced as shown on the standard construction drawings. Blow clean all drilled holes with oil-free compressed air. Maintain holes dry and frost free before grouting the dowels or tiebars. Pneumatically inject grout into the rear portion of the drilled holes. Use a grout retention disc with a radius slot as shown in the standard drawings to retain the grout within the drilled holes. Inject grout to fill all voids behind the grout retention disc and until grout extrudes through the radius slot. Insert dowels and tiebars through the grout retention disc while the disc is placed flush with the sawed edge of pavement and aligned with the drilled hole. Insertion of the dowels and tiebars shall force the grout out of the radius slot in the grout retention disc. Hold dowel bars in proper alignment until the grout has hardened.

255.06 Placement of Portland Cement Concrete. Do not place any PCC for rigid pavement replacement until the grout around the dowel or tiebar has hardened. Coat dowel bars with bond breaking material conforming to 451.08.B. Place PCC according to 451.06. Use forms at the shoulder. Cast each patch in one continuous operation. Consolidate the concrete around the perimeter of the patch and within the limits of the patch area using an internal type vibrator. Use approved internal type vibrators capable of visibly affecting the concrete for a distance of 12 inches (0.3 m) from the vibrator head.

Screed repairs less than 12 feet (3.7 m) in length parallel to the centerline. Screed repairs 12 feet (3.7 m) in length and longer perpendicular to the centerline.

While the concrete is still in a plastic state, test the surface for trueness and for being flush with the edges of the adjacent slabs using a 10-foot (3 m) straightedge. Place the straightedge parallel to the pavement centerline with half of the straightedge resting on the existing pavement, and draw the straightedge across the patch to test the patch edges. Check areas within the patch length in a similar manner. Where the straightedge does not remain in contact with the existing pavement while drawing it across the patch,

correct all high or low areas exceeding 1/8 inch in 10 feet (3 mm in 3 m). Recheck the concrete surface after making corrections to ensure conformance to the above tolerance. Make additional checks and corrections until patch is within tolerance.

Texture the new concrete surface similar to that of the surrounding pavement.

Apply the liquid membrane-forming compound conforming to 705.07, Type 2 for curing at a minimum rate of 1 gallon (1 L) of material for each 150 square feet (3.7 m2).

255.07 Wearing Course Replacement. Replace the removed asphalt concrete overlay with Item 301 or 448 Type 2 material as shown on the plans. Compact these mixtures as approved by the Engineer using any of the roller types specified in 401.13. Apply Item 407 tack coat to the replacement surfaces.

Trim the limits of the repair to form a vertical face 1.5 inches (38 mm) deep from the surface before placing the final asphalt concrete layer adjacent to the existing pavement.

Before opening the rigid replacement to traffic, restore the shoulders to the original line and grade. Use either aggregate or asphalt concrete as shown on the plans or as the Engineer directs. Fill the low areas, and compact them flush with the surrounding shoulder.

Seal the perimeter surface of the repaired areas by applying a nominal 4 inch (100 mm) wide strip of approved 702.04 asphalt material, RS-1, RS-2, CRS-1, or CRS-2 or 702.01 approved PG binder.

255.08 Opening to Traffic. Do not open the rigid replacement to traffic until the concrete attains a split tensile strength of 250 pounds per square inch, as tested per ASTM C496 (1.7 MPa). If maintaining traffic in adjacent lanes, schedule work in order to place the concrete in the prepared repair area within 48 hours after removing the existing pavement. If unable to complete placement of the concrete in the exposed repair area by the end of the daily work shift, cover unfilled repair areas 10 feet (3 m) or less in length with a steel plate. Do not leave repair areas unfilled with concrete when work is suspended on weekends or holidays. If unable to complete placement of the concrete in the exposed repair area before suspending work for a weekend or holiday or within the time specified above, fill the excavation with an asphalt concrete mixture or other suitable temporary patch material with a durable surface as the Engineer directs. Maintain the temporary patches while they are in service.

255.09 Method of Measurement. The City will measure the quantity of Full Depth Pavement Removal and Rigid Replacement by the number of square yards (square meters) repaired in the complete and accepted work.

The City will measure the quantity of Full Depth Pavement Sawing by the number of feet (meters) of perimeter full depth saw cuts in the complete and accepted work. The City will not measure offset saw cuts. The City will not measure additional cuts made to facilitate the removal of the pavement.

255.10 Basis of Payment. Payment is full compensation for furnishing all materials, including paint; removing pavement by any method; removing subbase for undercut replacement; compacting subbase and subgrade; placing rigid pavement, including concrete necessary to replace removed subbase or subgrade; furnishing and placing dowels, tiebars, and mesh; placing, maintaining, removing, and disposing of temporary patches, and restoring the shoulders.

The City will not pay for additional concrete sawing and removal depths within 1 inch (25 mm) greater than those shown on the plans.

The City will not pay for additional work to repair damage caused by pavement sawing or pavement removal.

The City will include tack coat in the cost of the asphalt concrete. The City will pay for asphalt concrete according to Item 301 or Item 448.

The City will pay for accepted quantities at the contract prices as follows:

Item	**Unit**	**Description**
255	Square Yard (Square Meter)	Full Depth Pavement Removal and Rigid Replacement, Class ___
255	Foot (Meter)	Full Depth Pavement Sawing