

SECTION 509—PATCHING HYDRAULIC CEMENT CONCRETE PAVEMENT

509.01—Description.

This work shall consist of removing designated areas of defective hydraulic cement concrete pavement and unstable subbase material, replacing subbase material where required, and replacing pavement with high-early-strength hydraulic cement concrete in accordance with these specifications and in reasonably close conformity to the original lines and grades or those established by the Engineer.

509.02—Materials.

- (a) **Hydraulic cement concrete** shall conform to the requirements of Section 217 for Class A3 paving concrete except that the compressive strength shall be at least 3,000 pounds per square inch within 24 hours. The accelerated strength gain shall be achieved by the use of 800 ± 50 pounds per cubic yard of Type III cement conforming to the requirements of AASHTO M-85 and approved air-entraining, accelerating, and water-reducing admixtures conforming to the requirements of Section 215. If calcium chloride is permitted as an accelerating admixture, it shall be lim-

ited to 2 percent by weight. The air content shall be 6 ± 2 percent. The water/cement ratio shall be not more than 0.42 by weight.

The Contractor shall prepare a sufficient number of trial batches in the presence of the Engineer to verify the strength and workability of the mixture design when required. The continued adequacy of the mixture design and minimum compressive strength will be verified monthly by the Engineer.

- (b) **Asphalt concrete** shall conform to the requirements of Section 211 except that material may be accepted by certification and visually inspected at the job site.
- (c) **Subbase material** shall conform to the requirements of Section 208.
- (d) **Preformed asphalt joint filler and joint sealer** shall conform to the requirements of Section 212.
- (e) **Curing material** shall conform to the requirements of Section 220.
- (f) **Reinforcing steel** shall conform to the requirements of Section 223.

509.03—Procedures.

Where the existing joint dowel assembly is to be removed, existing concrete shall be saw cut and removed at least 1 foot on each side of transverse joints. Undisturbed portions of pavement adjacent to the area to be patched shall be left with straight, vertical sides. In areas from which concrete has been removed, the subbase shall be dressed, brought to grade, and mechanically compacted. Dowels and assemblies shall be removed and disposed of off the project.

Saw cuts shall not extend into adjacent concrete pavement except when repairs are to be extended at that location. Saw cuts shall be straight, neat, vertical, and parallel or perpendicular to the centerline as required.

Unsuitable subbase shall be removed, disposed of, and replaced in accordance with the requirements of Section 307 or 308, whichever is applicable. Where soil cement subbase is present and sound, excavation below the top of the soil cement line and under adjacent slabs will not be required.

Preformed asphalt joint filler shall be installed in accordance with the requirements of Section 316.04(g)2.

Joint material and reinforcing steel shall be placed in accordance with the following:

1. **Patches less than 10 feet in length:** Preformed asphalt joint filler shall be placed flush against the run-off side of the adjacent pavement.

2. **Patches greater than 10 feet in length:** Preformed asphalt joint filler shall be placed flush against sides of the adjacent pavement.
3. **Patches 20 feet in length or greater:** Patches shall conform to the requirements of the applicable reinforced concrete pavement standards.
4. **Load transfer devices used in initial construction:** Load transfer devices shall be left intact, straightened, and used for tying in the replaced slab or shall be replaced with an approved load transfer device.
5. **Joints:** Rounded or beveled transverse joints shall be provided adjacent to the undisturbed pavement to allow installation of sealant at a depth of at least 1/4 but not more than 1/2 inch.

The excavated area shall be thoroughly cleaned and moistened before concrete is placed.

Full-depth forms shall be of sufficient strength to support plastic concrete without deformation.

Existing pavement shall not be removed if removal will result in concrete being placed when the air temperature is below 55 degrees F. The concrete temperature at the time of placement shall be at least 70 degrees F but not more than 95 degrees F.

Concrete shall be placed on the subgrade and consolidated so that it fills the area of the patch. Concrete shall be finished in accordance with the requirements of Section 316.04(h) except that the final surface shall have a texture similar to that of the adjoining pavement.

As soon as concrete is finished and prior to its initial set, the patch and existing pavement for a distance of 8 feet shall be tested by means of a 10-foot straightedge placed parallel to the center line of the road surface. Irregularities in the patch in excess of 1/4 inch shall be corrected.

Immediately after it has been textured, concrete shall be covered with wet burlap and PE film. An insulating blanket shall be placed over the PE film whenever the air temperature is below 65 degrees F during the curing period. Curing shall continue until immediately before opening to traffic but will not be required beyond 24 hours.

Transverse joints at pavement repair locations shall be cleaned and resealed in accordance with the requirements of Section 316.04(m).

Asphalt concrete shoulders that are damaged during repair operations shall be reconstructed within 24 hours after completion of a patch in accordance with the requirements of Section 315 with full-depth SM-12.5A asphalt concrete to match the finished grade. If traffic is to be permitted on the patch prior to reconstruction of the shoulder, the shoulder shall be temporarily repaired to prevent any hazardous condition.

509.03

Traffic shall be maintained in accordance with the requirements of Section 512 or as directed by the Engineer.

509.04—Measurement and Payment.

Patching hydraulic cement concrete pavement will be measured in square yards of pavement surface area, complete-in-place, and will be paid for at the contract unit price per square yard. This price shall include saw cutting pavement full depth; removing and disposing of existing concrete; preparing subgrade; furnishing and installing preformed asphalt joint filler; placing, finishing, and curing special design concrete; trial batches; cleaning and resealing joints; repairing shoulders; sealing joints; and reinforcing steel.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Patching hydraulic cement concrete pavement	Square yard