

## 506-R-817 PCCP PATCHING

*(Adopted 03-20-26)*

The Standard Specifications are revised as follows:

SECTION 506, BEGIN LINE 29, DELETE AND INSERT AS FOLLOWS:

- <sup>A</sup> A flexible foam expansion joint material meeting the requirements of ASTM D5249, Type 2 may also be used for the ~~retrofit-pressure relief~~ expansion joint. If the flexible foam expansion joint is used, the basis for use will be a Type C certification in accordance with 916.

SECTION 506, BEGIN LINE 38, INSERT AS FOLLOWS:

Retrofitted tie bars *along the longitudinal joint* shall be No. 5 or No. 6 epoxy coated reinforcing bars in accordance with 910.01(b)9.

SECTION 506, BEGIN LINE 158, DELETE AND INSERT AS FOLLOWS:

**(a) Patches Less than or Equal to ~~1520~~ ft in Length**

SECTION 506, BEGIN LINE 218, DELETE AND INSERT AS FOLLOWS:

**(b) Patches Greater than ~~1520~~ ft in Length**

SECTION 506, BEGIN LINE 351, DELETE AND INSERT AS FOLLOWS:

**506.07 General**

Patch areas shown on the plans or marked by the Engineer as greater than ~~1520~~ ft in length may be subdivided. If a patch is subdivided, concrete mix in accordance with 506.04(b) shall be used in all portions of the patch and the requirements for opening to traffic will be in accordance with 506.12(b).

SECTION 506, BEGIN LINE 362, DELETE AND INSERT AS FOLLOWS:

Vertical saw cuts around the perimeter of the removal areas shall be made in the PCCP and shall be full depth. Transverse cuts that define the ends of the patch shall be straight and perpendicular to the centerline. ~~In no case shall the transverse joint be over-cut into the adjacent pavement.~~ *Tolerance of the saw cut into adjacent panels shall be as shown on the plans, or as approved. Saw cuts into adjacent panels shall be sealed with hot pour joint sealant in accordance with 503.05. Epoxy may be substituted for hot pour joint sealant, as approved.* Following the saw cutting, the concrete that remains in the corners of the patch area shall be removed by pneumatic hammers that do not damage the adjacent PCCP or shoulders. Pneumatic hammers shall not exceed 45 lb.

SECTION 506, BEGIN LINE 406, DELETE AND INSERT AS FOLLOWS:

Full depth saw cutting and removal shall be extended at the direction of the Engineer until sound PCCP is encountered to allow the drilling and installation of ~~dowel~~ tie bars for load transfer. Removal operations shall not damage the existing PCCP that is sound and is to remain in place.

SECTION 506, BEGIN LINE 420, DELETE AND INSERT AS FOLLOWS:

**(a) For Patches Less than or Equal to ~~1520~~ ft in Length**

SECTION 506, BEGIN LINE 440, DELETE AND INSERT AS FOLLOWS:

**(b) For Patches Greater than ~~1520~~ ft in Length**

SECTION 506, BEGIN LINE 490, DELETE AND INSERT AS FOLLOWS:

~~Dowel bars~~, *A retrofit transfer joint, consisting of epoxy coated tie bars in accordance with 910.01(b)9, shall be installed to provide load transfer from the adjoining PCCP to the patch. The tie bars shall be installed in accordance with 503.03(g) and as shown on the plans.* The diameter of the drilled holes shall be no more than 1/8 in. greater than the diameter of the ~~dowel~~ *tie* bar. ~~Dowel~~ *Tie* bars shall be placed parallel to the pavement surface and to the longitudinal joint. ~~Dowel~~ *Tie* bar alignment tolerances shall be as shown on the plans.

~~Dowel~~ *The* holes shall be drilled using hydraulic, electric, or pneumatic percussion drills without spalling or damaging the existing concrete. Drills shall be capable of independent adjustment of each drill shaft in the horizontal and vertical direction. ~~The device used to drill dowel holes shall be slab riding and be capable of drilling a minimum of three holes at a time.~~ The drilled holes shall be free of dust, moisture, and grease prior to installation of the ~~dowel~~ *tie* bars. The chemical anchor system shall be injected to the back of the hole to eliminate air pockets prior to inserting the ~~dowel~~ *tie* bar.

The quantity of material injected shall be sufficient to disperse the chemical anchor material along the entire length of the dowel bar and completely fill all voids around the bar. Application of the chemical anchor system by buttering it onto the ~~dowel~~ *tie* bar will not be allowed.

After the anchor system has been injected, the ~~dowel~~ *tie* bar shall be fully inserted in the hole using a back-and-forth twisting motion, leaving the proper length exposed. If it is necessary to use a hammer to seat the ~~dowel~~ *tie* bar, the exposed end shall be protected with a wood block.

~~A lightweight plastic, clear or semi-transparent grout retention ring shall be installed after each dowel bar is inserted into the hole. The grout retention ring shall be pushed flush to the vertically sawn concrete surface and shall be used to help retain the chemical anchor system in the dowel hole.~~

Retrofit tie bars *along the longitudinal joint shall be installed when the length of the patch exceeds 100 ft. The retrofit tie bars shall be installed in accordance with 503 and as shown on the plans. The tolerance for horizontal and vertical translation shall be the same as for ~~dowel~~ tie bars for the retrofit transverse joint.*

~~Joint filler and grout retention rings shall be placed and installed at the pressure relief joint as shown on the plans. Oversized holes shall be drilled in the joint filler no more than 1/2 in. over the dowel bar diameter and at a spacing to match the installed dowel bars. The oversized holes are to allow a tolerance for ease of installation of the joint filler up against the sawed face without interference with the dowel bars. The joint filler shall be attached to the sawed face without wrinkles or buckling.~~

~~Joint filler material with vertical slits or cuts will be rejected. Grout retention discs shall be installed to make the annular space between the dowel and the oversized hole mortar tight. The joint material may be spliced along vertical joints that are joined and sealed with tape. The joint material shall not be spliced in the horizontal direction. An~~

~~alternate method of installing a joint filler that has a mortar tight seal around the dowel bar may be used if approved by the Engineer.~~

All patches ~~longer than 15 ft~~ shall be placed in accordance with 502.12 ~~and shall have joints in accordance with 503.~~ *When required, joints shall be in accordance with 503.* Dowel bars *and assemblies for D-1 contraction joints* shall be installed within the boundaries of the patch at a spacing as shown on the plans or as approved by the Engineer.

Patches longer than ~~1520~~ ft shall be finished in accordance with 504. Patches ~~longer than 15 ft~~ constructed with concrete containing portland cement, shall be cured in accordance with 504.04(a) unless ambient air and concrete temperatures warrant following the requirements in 506.11.

SECTION 506, BEGIN LINE 566, DELETE AND INSERT AS FOLLOWS:

**(a) For Patches Less than or Equal to 1520 ft in Length**

SECTION 506, BEGIN LINE 580, DELETE AND INSERT AS FOLLOWS:

**(b) For Patches Greater than 1520 ft in Length**

SECTION 506, BEGIN LINE 590, INSERT AS FOLLOWS:

D-1 contraction joints and retrofitted tie bars, *along the longitudinal joint*, used in PCCP patching will be measured in accordance with 503.07.

SECTION 506, BEGIN LINE 596, INSERT AS FOLLOWS:

New subbase will be measured in accordance with 302.08 *or* 309.07.

SECTION 506, BEGIN LINE 601, DELETE AND INSERT AS FOLLOWS:

~~Retrofit pressure relief joints, retrofit contraction joints, Retrofit transverse joints,~~ non-vapor barrier bonding agent, anchored ~~dowel~~tie bars installed at the beginning and end of the patch, individual ~~dowel~~tie bars, joint fillers, joint materials, drilling holes for ~~dowel~~tie bars, ~~grout retention rings~~, and chemical anchor systems will not be measured for payment.

SECTION 506, BEGIN LINE 610, INSERT AS FOLLOWS:

D-1 contraction joints and retrofitted tie bars *placed along the longitudinal joint* used in PCCP patching will be paid for in accordance with 503.08.

Subgrade treatment will be paid for in accordance with 207.06.

New subbase will be paid for in accordance with 302.09 *or* 309.08.

SECTION 506, BEGIN LINE 631, DELETE AND INSERT AS FOLLOWS:

The cost of ~~retrofit pressure relief joints, retrofit contraction joints, retrofit transverse joints,~~ non-vapor barrier bonding agent, anchored ~~dowel~~tie bars installed at the beginning and end of the patch, individual ~~dowel~~tie bars, joint fillers, joint materials, drilling holes for ~~dowel~~tie bars, ~~grout retention rings~~, and chemical anchor systems shall be included in the cost of PCCP patching.