

**Last Revision 5/7/01 - The SP5 Book was totally renumbered as of 10/4/99**

spec hot-pour sealers (3723 & 3725) on the job site. See Sections 3723 (JOINT AND CRACK SEALER [HOT-POURED, ELASTIC TYPE]) and 3725 (JOINT AND CRACK SEALER [HOT-POURED, EXTRA LOW MODULUS, ELASTIC TYPE]) of these Special Provisions.

If the type of sealant for transverse joints is not specified elsewhere in the Contract, the Contractor shall select an approved moisture cured polymeric sealant from the list of approved products on file at Mn/DOT's concrete office.

S- .2 The Construction Notes for Concrete Joint Repair are on Sheet Nos. \_\_\_ thru \_\_\_ of the Plan. The Concrete Repair Guidelines and the rehabilitation details are on Sheet Nos. \_\_\_ thru \_\_\_ of the Plan.

S- .3 Measurement and Payment

A) Sealing of pavement joint will be measured by the weight of each type sealant material utilized therefor.

Pavement joint and crack repair will be measured separately by the length of each type of repair performed as specified.

Pavement surface repairs and spot depth joint repairs will be measured separately by the area of each specific type of repairs performed as specified.

B) Payment for the various types of pavement crack, joint and surface repairs will be made in accordance with the schedule set forth below at the appropriate Contract unit bid price for each separate item of work, which shall, in each instance, be compensation in full for the costs of all materials, equipment, and labor required to complete the work as specified, to the satisfaction of the Engineer.

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>
<i>Insert items here</i>		

**REVISED 1/4/00**

**SP5-127**

**S- (2301) CONCRETE PAVEMENT REHABILITATION (CPR)**

This work shall consist of performing concrete pavement repairs and joint/crack sealing in accordance with the applicable provisions of Mn/DOT 2301, the Plan, Concrete Pavement Rehabilitation (CPR) Standard Details and Construction Notes, and the following:

**Last Revision 5/7/01 - The SP5 Book was totally renumbered as of 10/4/99**

S-.1 The Contractor shall be responsible to replace bituminous shoulder pavement removed to allow for adjacent full-depth concrete repairs. This work shall be performed at the direction of the Engineer and shall be incidental to the adjacent concrete pavement repair.

S-.2 GENERAL REQUIREMENTS

A) Any spalls or other damage caused by construction activities to the concrete that was intended to remain in place shall be repaired with Type B repair techniques at no cost to the State.

B) The surface shall not vary by more than 1/8"+ from the existing pavement surface as measured with a straight edge placed over the joint. Replacement or grinding will be required as necessary to correct deficiencies. The portion of the lane that was closed to traffic must be swept with a power broom prior to re-opening to traffic.

C) The requirements of Mn/DOT 2301.3L Surface Finishing, are deleted for all repairs; except Type D repairs that abut concrete surfacing that was tined during the original construction. In lieu thereof, surface texturing shall consist of brooming in the long dimension direction of the repair.

D) The latest date for placement of all concrete mixes shall be October 1st.

E) Any areas of failure that appear within one (1) month of the original construction or subsequent repair, must be repaired by the Contractor at no cost to the State. A failure includes loss of bonding to the in place concrete or crack apparent in the repair other than the desired crack in the newly constructed joint or re-established crack.

F) Any removal and replacement of existing bituminous in conjunction with the Concrete Pavement operations shall be incidental work for which no direct payment will be made unless otherwise shown in the Plan. The Contractor shall also restore any rutted, broken or otherwise damaged bituminous shoulder which resulted from his operations to a condition equal to the condition existing prior to start of work, at no cost to the State.

G) All placement and finishing of Concrete shall be accomplished in a manner such that no rounding of the surface shall be exhibited adjacent to any joint or header.

H) Relief cuts shall consist of sawing full depth and removing a transverse section 4 inches wide by 12 feet long from the slab adjoining a full depth, full width repair as determined necessary by the Contractor to protect the existing concrete pavement. If the Contractor chooses not to saw a relief cut and damage is caused to the existing concrete pavement, the Contractor shall make repairs to the concrete as directed by the Engineer, at no cost to the State. The void formed after concrete removal is to be backfilled with Class 5 or other material as approved by the Engineer. Backfilling is to be

**Last Revision 5/7/01 - The SP5 Book was totally renumbered as of 10/4/99**

completed prior to opening for traffic usage. Backfill material must be maintained flush (+/- 1/2") with adjacent concrete.

This work will not be measured for payment but will be considered incidental to the type of concrete repair performed.

S-.3            TYPE A REPAIRS

A)            This work shall consist of cleaning and sawing or routing transverse joints, longitudinal joints or cracks to the specified width, as detailed in the Plan, in preparations for resealing.

B)            In areas where Concrete Texture Planing is to be done the cleaning, sawing or routing and resealing is to be done after the Concrete Texture Planing.

C)            The waste material produced from cleaning, sawing or routing must be cleaned and removed from the adjacent pavement and disposed of as approved by the Engineer. Disposal of waste material off of State Right-of-Way may be required to avoid unsightly buildup of waste or future maintenance problems.

D)            The Contractor shall remove all of the existing joint seal material from the joints insofar as it is possible with ripping teeth, wire brush, sawing or other reasonable equipment to the satisfaction of the Engineer. However, no equipment shall be used that will cause spalling of the pavement surface beyond the limits of the proposed sawed section.

E)            The existing joint or crack shall be widened by sawing to a width +1/16 inch of that shown in the Plan and to a depth of +1/8 inch of that shown in the Plan. The size of joint or crack to be used at each location will be designated by the Engineer.

F)            The Contractor shall use the type of joint sealant and method of construction shown in the Mn/DOT CPR Standard Detail and Construction Notes. Silicone joint sealant shall be approved by the Concrete Office.

G)            Joints or cracks shall be filled to 1/8 inches below the pavement surface plus or minus 1/16 inch. Any overfilling will require removal and replacement by the Contractor at no cost to the State.

S-.4            TYPE B REPAIRS

**Last Revision 5/7/01 - The SP5 Book was totally renumbered as of 10/4/99**

A) This work shall consist of removing deteriorated concrete at designated Type B repair area, furnishing, placing, and curing 3U18 concrete to the original slope and grade and reestablishing joints or cracks.

B) The removal of the concrete surface in the designated repair areas shall have a minimum depth of 2 inches with all deteriorated concrete removed to a maximum depth of 4 inches. All saw cuts used in delineating a repair area must be 2 inches in depth, and must be tapered back from the repair area by an approved method.

C) The replacement concrete for all Type B repairs shall be 3U18 Concrete and shall be furnished, placed and cured in accordance with the provisions for 3U18 Concrete in this Plan and Proposal.

D) Milling may be accomplished either longitudinally or transversely to the joint, crack or edge. The removal process must not damage the dowel bars. In the event the dowel bars exhibit corrosion to a degree of greater than 40% of the cross section, the bar shall be cut or burned off. Corroded dowel bars that exhibit deformation that are not bridged by the M.C. 250 coating must be covered with a heavy bridging material as shown in the Plan.

E) Any crack or joints falling in these repairs shall be re-established complying with the appropriate detail for the situation encountered.

F) A compression relief saw cut or the installation of compression relief material at the time of placement of the concrete is required on all Type B repairs on a transverse joint or crossing a transverse joint.

#### S-.5 TYPE C REPAIRS

Smooth 18" x 1" diameter dowel bars or #8 reinforcement bars shall be drilled with an approved drill assembly and grouted 9 inches into the face of the in-place concrete slab as shown in the Plan. The centerline of individual dowel bars shall be parallel to the in-place grade and the in-place roadway centerline within 1/8"± and to all other dowel bars in the assembly within 1/16"±.

The grout shall be placed into the drilled hole in a manner that will completely fill the void, then the bar shall be pushed into the hole, after which any voids shall be filled with grout and finished smooth.

The grouted bars shall be fully set prior to placement of concrete.

#### S-.6 TYPE D REPAIRS

**JULY 27, 1994**

**Last Revision 5/7/01 - The SP5 Book was totally renumbered as of 10/4/99**

Concrete Pavement Joints:

A) Where Plans and Specifications call for polymeric joint sealants (silicones, etc.) in the transverse joints, 3723 sealant shall be used in longitudinal joints and expansion joints. Where Plans and Specifications require 3725 sealant in transverse joints, 3725 sealant shall also be used in longitudinal and expansion joints to avoid potential confusion caused by different spec hot-pour sealers (3723 & 3725) on the job site. See Sections 3723 (JOINT AND CRACK SEALER [HOT-POURED, ELASTIC TYPE]) and 3725 (JOINT AND CRACK SEALER [HOT-POURED, EXTRA LOW MODULUS, ELASTIC TYPE]) of these Special Provisions.

B) When placing concrete adjacent to in-place concrete pavement joints, protect all ends of transverse joints to the satisfaction of the Engineer to prevent concrete mortar from infiltrating into the existing joints and causing compression spalls.

C) If the type of sealant for transverse joints is not specified elsewhere in the Contract, the Contractor shall select an approved moisture-cured polymeric sealant from the list of approved products on file at Mn/DOT's concrete office.

This work shall consist of sawing and removing in-place concrete; restoration of subgrade; furnishing and installation of dowel bars and reinforcement tie bars; furnish, place, finish and cure structural concrete; and restoration of joints. All longitudinal joints are to be style L2KT or as directed by the Engineer.

S-.7 CONCRETE MIXTURE REQUIREMENTS

Concrete shall be incorporated into the work for concrete rehabilitation repair areas as indicated in the Plans and at other locations deemed necessary, all in accordance with the applicable provisions of Mn/DOT 2301, Mn/DOT 2461 and the following:

A) The 3U18 mix shall be proportioned by weight and mixed at the job site in a paddle type mixer; or proportioned and mixed in at the job site by a continuous batching mixing machine designed for this purpose. Admixtures, as noted in the Plan, shall be included in the concrete mixture.

B) Concrete Mix Design 3A32HE, 3U22, 3U27 or 3U28 shall be incorporated into the work for all full depth concrete pavement as indicated in the Plans and at other locations deemed necessary by the Engineer.

C) Concrete mixes shall be considered incidental to the work in which they are incorporated into.

*Last Revision 5/7/01 - The SP5 Book was totally renumbered as of 10/4/99*

D) Substitute mixes may be approved by the Concrete Engineer.

S-.8 MEASUREMENT

(A) Sealing of pavement joints will be measured by the weight of sealant material utilized therefor. The amount of waste will be weighed and deducted from the total amount of sealant used.

(B) Pavement joint and crack repair will be measured separately by the length of each type of repair performed as specified.

(C) Pavement surface repairs and spot full depth joint repairs will be measured separately by the area of each specific type of repairs performed as specified.

S-.9 PAYMENT

Payment for the various type of pavement crack, joint and surface repairs will be made in accordance with the schedule set forth below at the appropriate Contract unit bid price for each separate item of work, which shall, in each instance, be compensation in full for costs of all materials, equipment, and labor required to complete the work as specified, to the satisfaction of the Engineer.

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>
2301.501	Concrete Pavement Type CX	Sq. Yd.
2301.501	Concrete Pavement Type D-1	Sq. Yd.
2301.529	Reinforcement Bars (Epoxy Coated)	Pound
2301.538	Dowel Bar	Each
2301.602	Seal Concrete Pavement Joints (3720)	Pound
2301.604	Joint Repair (Type A-1 H)	LF
2301.604	Longitudinal Joint Repair (Type A-5H)	LF
2301.604	Crack Repair (Type B-1)	LF
2301.604	Edge Repair (Type B-2C)	LF
2301.604	Joint Repair (Type B-3)	LF
2301.604	Contraction Joint Repair (Type C-3D)	LF
2301.609	Repair Special (Type B-2E)	Sq. Yd.
2301.609	Spot Surface Repair (Type B-2A)	Sq. Yd.

**REVISED 5/7/99**

**SP5-128**

**S- (2331) PLANT MIXED BITUMINOUS PAVEMENT**