MICHIGAN
STATE HIGHWAY DEPARTMENT
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State Highway Commissioner

A CONDITION SURVEY OF EXPERIMENTAL CONTRACT

RESEALING AND PATCHING PROJECT

US-16 Nunica to Fruitport
Project Mc 70-28, C3

By

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Cooperative Research Program Between the Maintenance Division and Testing and Research Division

(A supplemental report to Research Laboratory Reports 197 and 197A)

Research Project 53 G-68

Research Laboratory
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A CONDITION SURVEY OF EXPERIMENTAL CONTRACT RESEALING AND PATCHING PROJECT US-16 Nunica to Fruitport

On February 18, 1954 the experimental resealing of joints and cracks as well as the experimental patching of broken concrete on US-16 between Nunica and Fruitport was examined to determine the effect of five months of winter weather, followed by a February thaw, on the repair work. The joints and cracks had been prepared and sealed between August 11 and September 10, 1953 and the broken concrete patched between September 15 and September 18, 1953 (Report 197, Oct. 9, 1953 and Report 197A, Dec. 4, 1953). Six brands of hot-pour rubber type joint sealer designated Brands A thru E had been used in the resealing project.

Inspection of these various maintenance repairs showed that they had held up very well with the exception of transverse joints and open cracks which had been sealed with the Brand A joint sealer.

The entire longitudinal joint and all of the closed cracks appeared well sealed with no loss in adhesion between sealer and concrete regardless of the brand of sealer used (Figures 1 and 2).

The Brand A material in transverse joints was badly cracked and separated from the joint faces (Figures 3A and 3B). The other five materials in transverse joints still had a fresh appearance and had maintained complete adhesion to the joint faces.

The Brand A material in open cracks had lost its adhesion to the concrete and, in some sections, had worked entirely out of the cracks (Figures 4A, 4B, and 4C). Other sealers used in open cracks had held up well and still maintained a perfect seal (Figures 4C, 4D, and 4E).

The concrete patches were still intact, showing good bond between the patching material and the old concrete (Figures 5A thru 5E). There was some

tendency for the joint seal to come loose from the patching material (Figure 5A) and also a small amount of spalling of the patching material at the joint (Figure 5D). In general, however, their condition was satisfactory.

As a whole the condition of the project is excellent except for the deterioration of the Brand A sealing material. The general condition of the joints, cracks and patches reflects both the care taken in carrying out the project and the quality of the materials used.

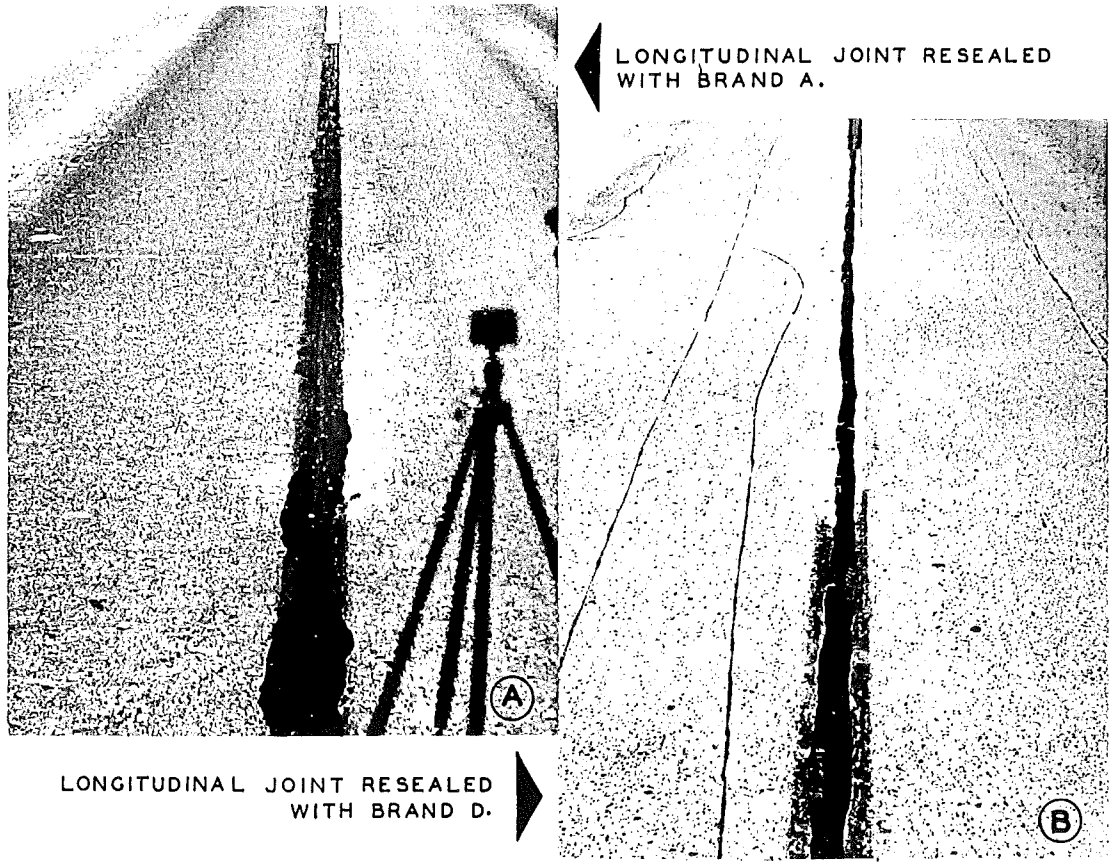


FIGURE 1. TYPICAL APPEARANCE AT LONGITUDINAL JOINT ON FEB. 18, 1954

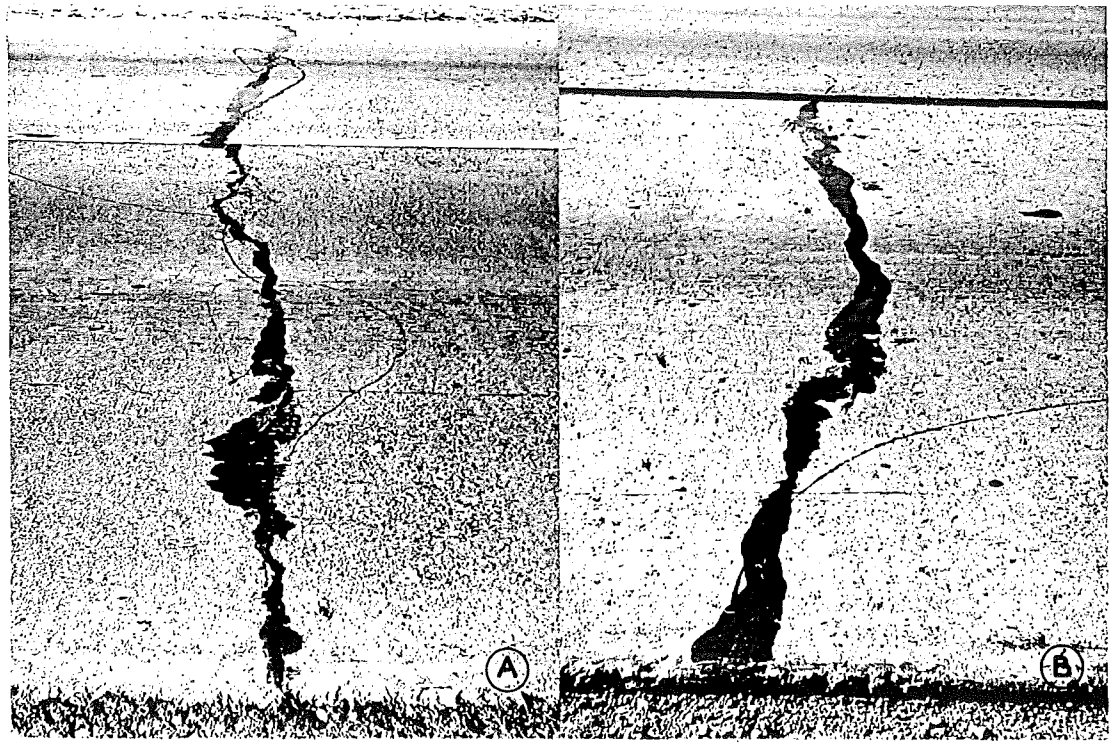
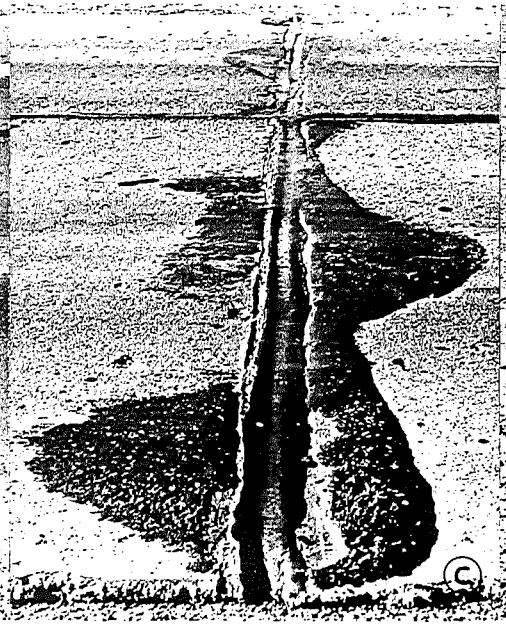


FIGURE 2. TYPICAL APPEARANCE OF CLOSED CRACKS ON FEB. 18, 1954

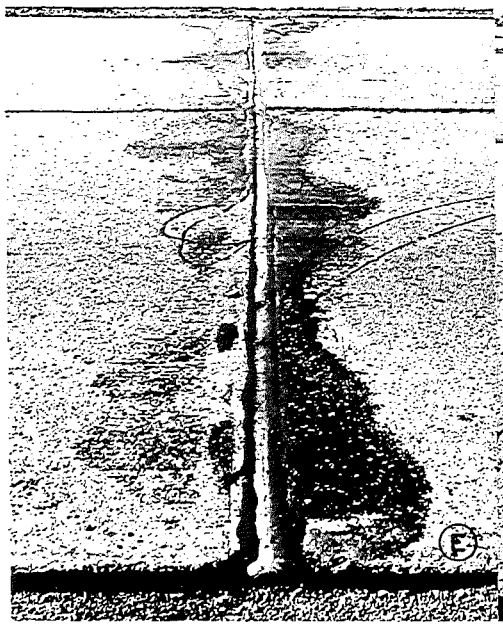
▲ STATION 656 + 60. RESEALED WITH BRAND A. NOTE CRACKING IN SEALER AND SEPARATION FROM JOINT FACE.

▲ STATION 654 + 68. ANOTHER EXAMPLE OF TRANSVERSE JOINT RE-SEALED WITH BRAND A.

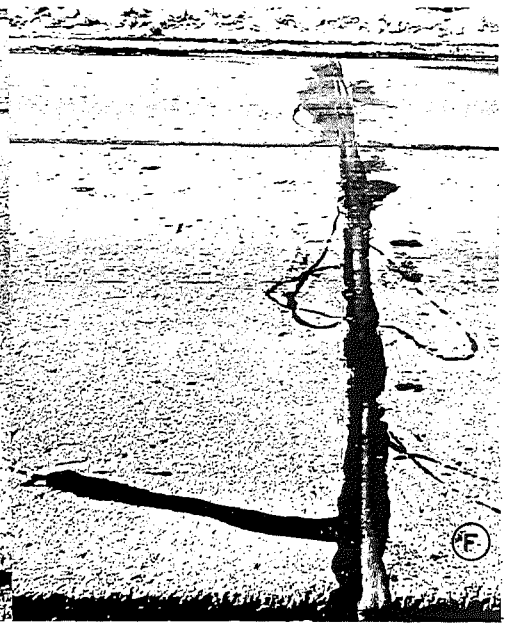


▲ STATION 649 + 45. RESEALED WITH BRAND B.

▲ STATION 587 + 52. RESEALED WITH BRAND C.

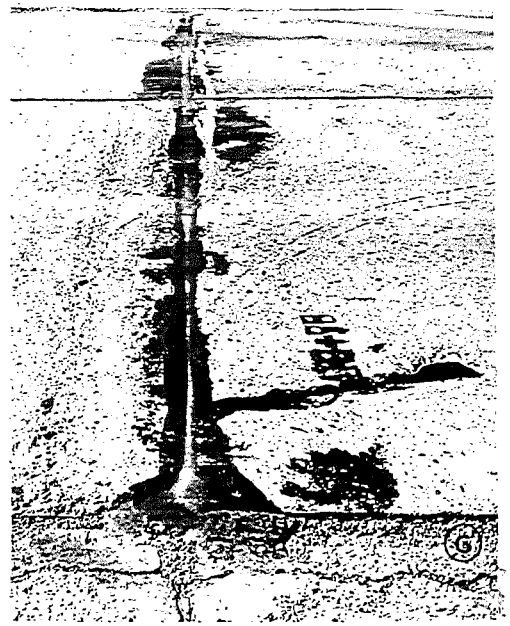


▲ STATION 489 + 19. RESEALED WITH BRAND D.



▲ STATION 454 + 09. RESEALED WITH BRAND E.

FIGURE 3
TYPICAL APPEARANCE
OF TRANSVERSE JOINTS
ON FEB. 18, 1954



▲ STATION 419 + 74. RESEALED WITH BRAND F.

STATION 653 + 65. SEALED WITH BRAND A. NOTE LOSS OF SEALING MATERIAL.

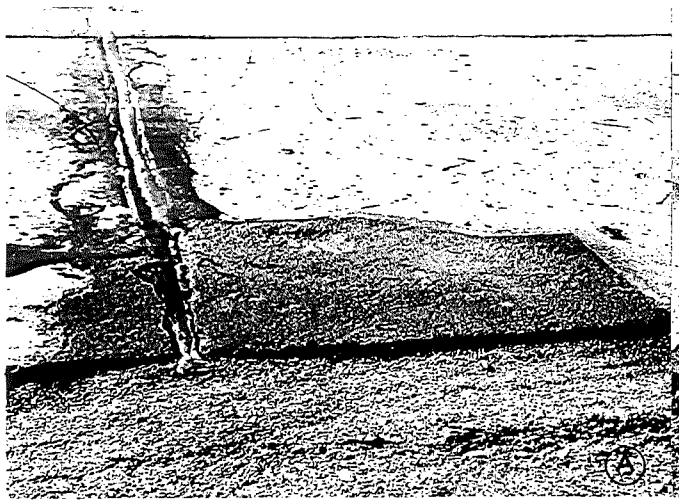
STATION 651 + 85. ANOTHER OPEN CRACK SEALED WITH BRAND A AND SHOWING LOSS OF MATERIAL.

STATION 649 + 30. NEAR LANE SEALED WITH BRAND A. FAR LANE WITH BRAND B. SEAL WITH BRAND B IS INTACT.

STATION 454 + 61. SEALED WITH BRAND E. PERFECT SEAL HAS BEEN MAINTAINED.

STATION 420 + 45. SEALED WITH BRAND F. ANOTHER EXAMPLE OF AN INTACT SEAL.

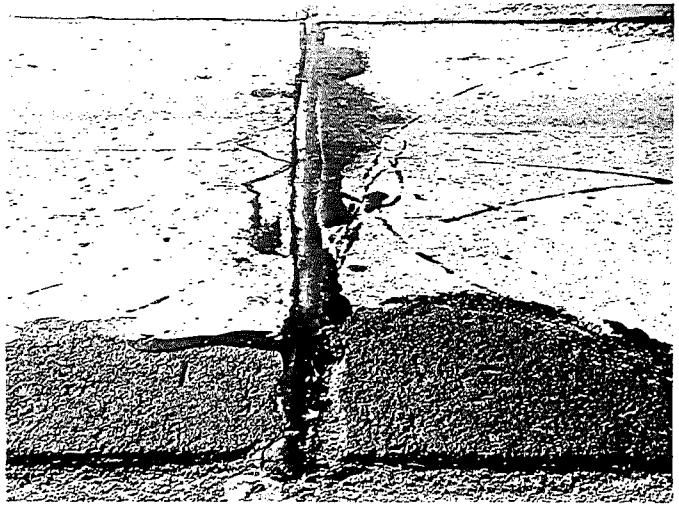
FIGURE 4. TYPICAL APPEARANCE OF VARIOUS OPEN CRACKS ON FEB. 18, 1954



STATION 464 + 16. SHOWING LACK OF ADHESION OF JOINT SEAL TO REPAIR MATERIAL.

STATION 461 + 01. NOTE CONCRETE BUTTRESS AT END OF JOINT TO PREVENT SHOULDER INFILTRATION.

STATION 463 + 63. A SINGLE CORNER BREAK REPAIR.



STATION 450 + 04. SHOWING SPALLING OF REPAIR MATERIAL AT JOINT.

GENERAL VIEW OF REPAIR SHOWN IN D.

FIGURE 5. TYPICAL APPEARANCE OF REPAIRED CORNER BREAKS ON FEB. 18, 1954