

R-239

MICHIGAN
STATE HIGHWAY DEPARTMENT
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State Highway Commissioner

EXPERIMENTAL RESEALING OF JOINTS ON M-83
SECOND CONDITION SURVEY

Saginaw County, Projects 73-25, C3 and 4

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

Highway Research Project 53 C-9
Final Report

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Research Laboratory
Testing and Research Division
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EXPERIMENTAL RESEALING OF JOINTS ON M-83
SECOND CONDITION SURVEY

A survey of the experimental resealing project on M-83 south of Frankenth was made on September 26, 1955 to determine the condition of the various sealers used after approximately one year of service. The sealing work was done during August, September and October of 1954 under normal maintenance procedure (Research Report No. 218, Jan. 10, 1955). A six-month condition survey made on April 20, 1955 indicated that Brand A sealer, a rubber-asphalt product, was the only one of the five materials used that still maintained an effective seal in the joints and cracks (Research Report No. 228, April 25, 1955).

The current survey indicated that, after approximately one year of service, Brand A sealer had also failed. The material had become very stiff and hard, pulling loose from the joint faces when the slabs contracted. Figures 1 and 2 illustrate typical examples of this adhesion failure. The Brand A sealer had also failed in open cracks where there was movement as in joints, Figure 3, but was still intact in closed cracks and in the longitudinal joint, Figures 4 and 5.

The other materials, which had all failed after six months service, are shown in Figures 6 through 9 as they appeared after 1 year of service.

The results of this field test indicate that none of the materials tested has proven to be durable enough so that their use as maintenance sealers would eliminate the present necessity of resealing annually. It is therefore recommended that the present field test on M-83 be discontinued. A further attempt will be made to find other materials which might serve as effective maintenance sealers. When such materials are available, another similar field evaluation will be recommended.

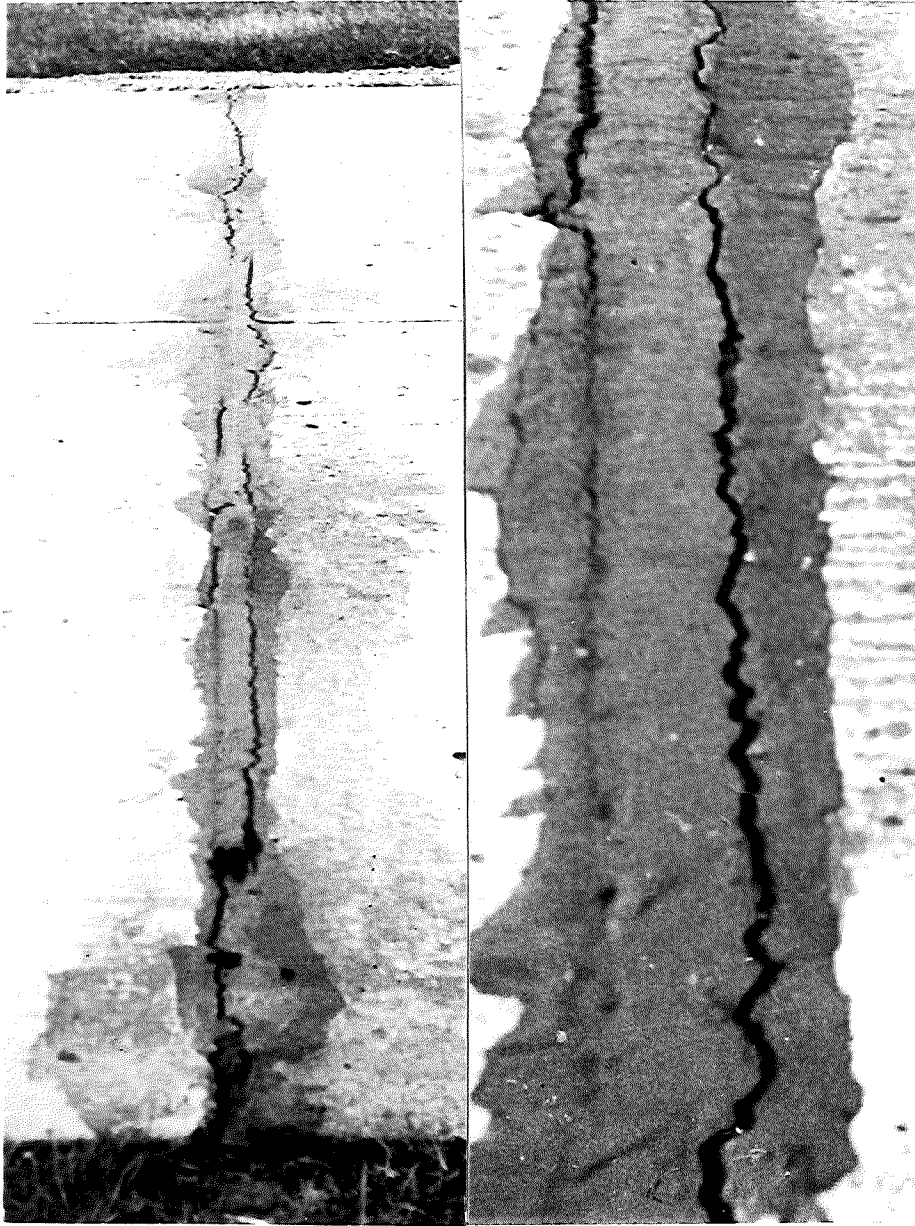
EXPERIMENTAL RESEALING OF JOINTS ON M-83 SECOND CONDITION SURVEY

A survey of the experimental resealing project on M-83 south of Frankenth was made on September 26, 1955 to determine the condition of the various sealers used after approximately one year of service. The sealing work was done during August, September and October of 1954 under normal maintenance procedure (Research Report No. 218, Jan. 10, 1955). A six-month condition survey made on April 20, 1955 indicated that Brand A sealer, a rubber-asphalt product, was the only one of the five materials used that still maintained an effective seal in the joints and cracks (Research Report No. 228, April 25, 1955).

The current survey indicated that, after approximately one year of service, Brand A sealer had also failed. The material had become very stiff and hard, pulling loose from the joint faces when the slabs contracted. Figures 1 and 2 illustrate typical examples of this adhesion failure. The Brand A sealer had also failed in open cracks where there was movement as in joints, Figure 3, but was still intact in closed cracks and in the longitudinal joint, Figures 4 and 5.

The other materials, which had all failed after six months service, are shown in Figures 6 through 9 as they appeared after 1 year of service.

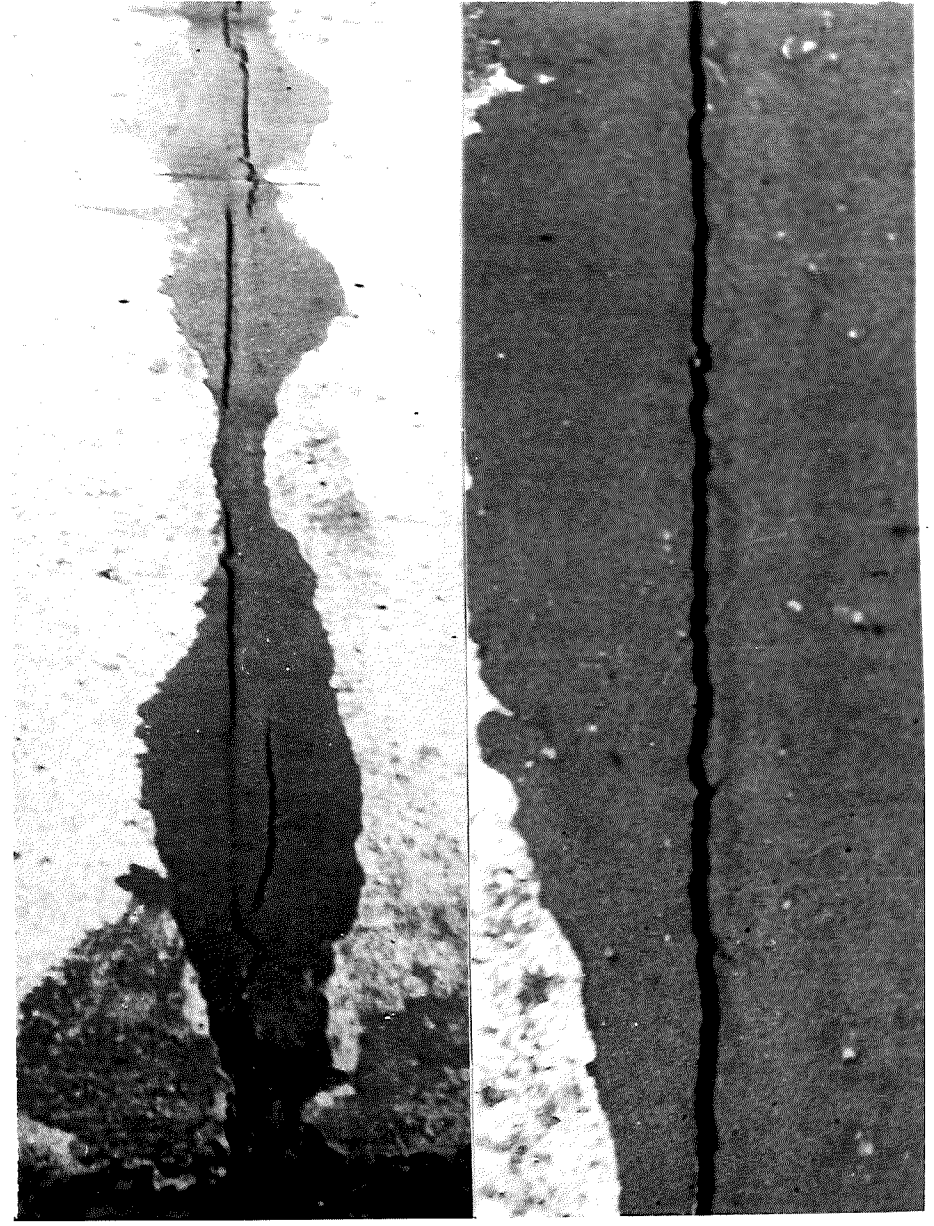
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A. OVERALL VIEW

B. CLOSE-UP

▲ FIGURE 1. STA. 138+00. EXPANSION JOINT RESEALED WITH BRAND A SEALER. FAILED IN ADHESION.



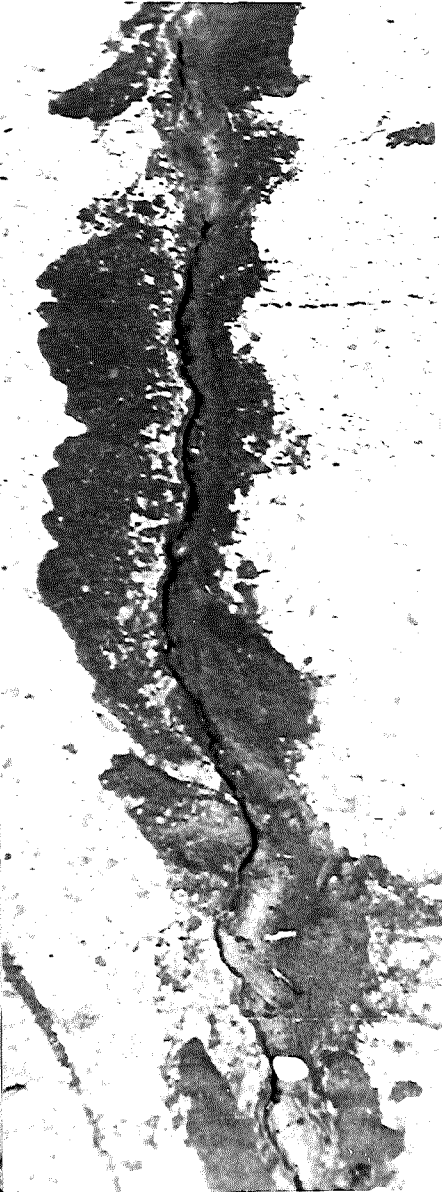
A. OVERALL VIEW

B. CLOSE-UP

▲ FIGURE 2. STA. 137+00. EXPANSION JOINT RESEALED WITH BRAND A SEALER. FAILED IN ADHESION.



A. OVERALL VIEW



B. CLOSE-UP

▲ FIGURE 3. STA. 132+45. OPEN CRACK SEALED WITH BRAND A SEALER. SEAL HAS FAILED AND CRACK IS AGAIN OPEN.



A. OVERALL VIEW



B. CLOSE-UP

▲ FIGURE 4. STA. 135+35. FINE CRACK SEALED WITH BRAND A SEALER. SEAL INTACT.

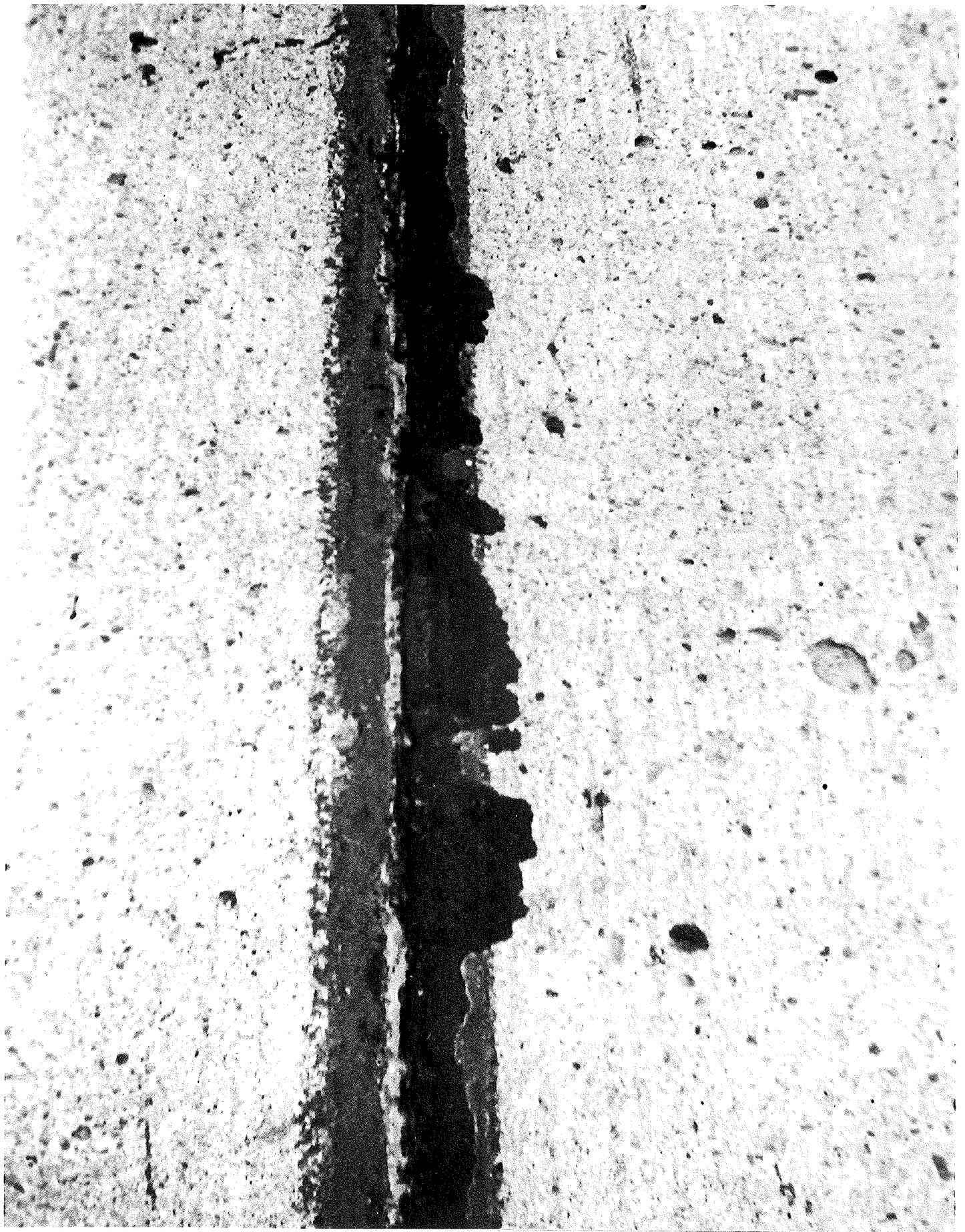
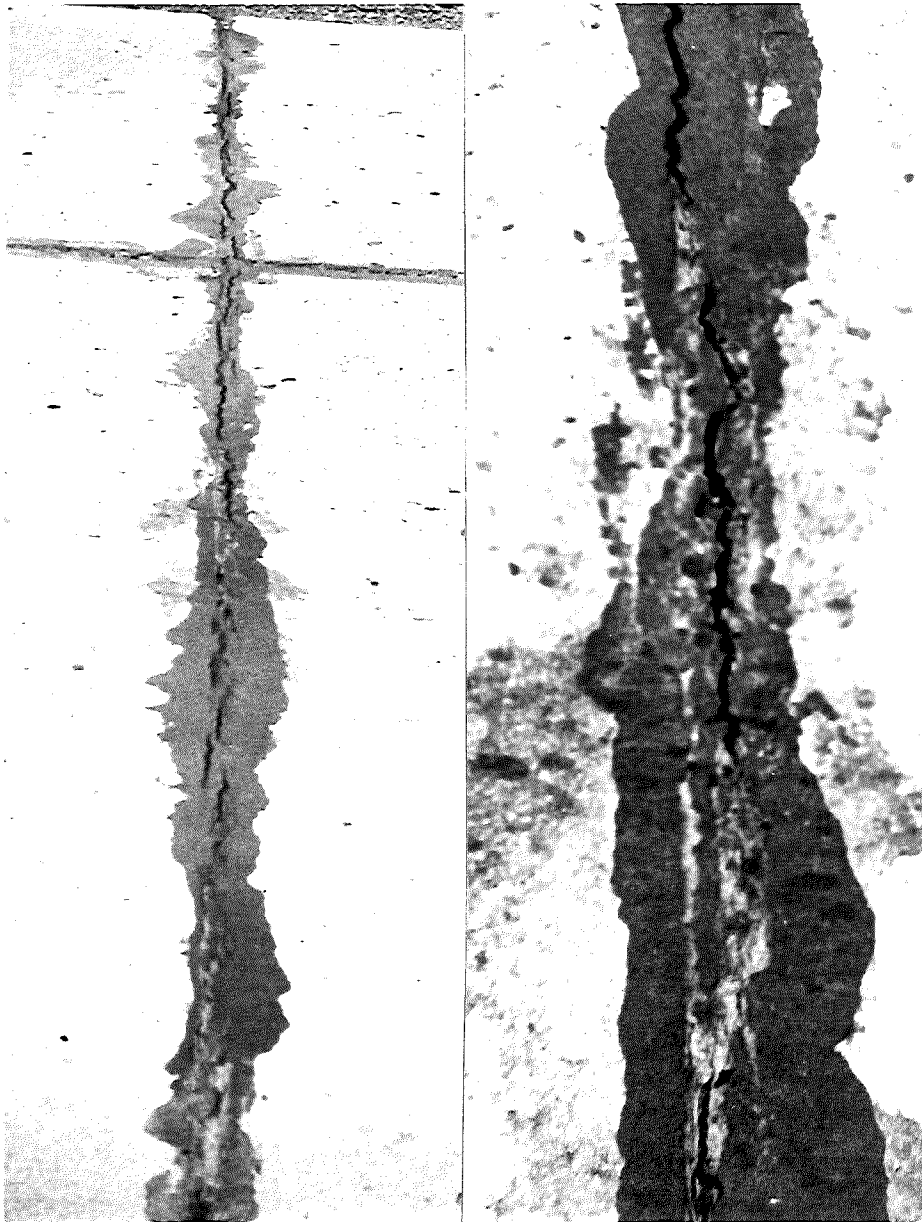


FIGURE 5. STA. 135+00. LONGITUDINAL JOINT RESEALED WITH BRAND A SEALER. SEAL INTACT.



A. OVERALL VIEW

B. CLOSE UP

▲ FIGURE 6. STA. 145+15. EXPANSION JOINT RESEALED WITH BRAND B SEALER SOA ASPHALT. FAILED IN BOTH ADHESION AND COHESION.



A. OVERALL VIEW

B. CLOSE UP

▲ FIGURE 7. STA. 204+60. EXPANSION JOINT RESEALED WITH BRAND C SEALER.



▲ FIGURE 8. STA. 280+32 EXPANSION JOINT RESEALED WITH BRAND D SEALER.



A. OVERALL VIEW



B. CLOSE-UP

▲ FIGURE 9. STA. 356+00, EXPANSION JOINT RESEALED WITH BRAND E SEALER.