

OFFICE MEMORANDUM

MICHIGAN
STATE HIGHWAY DEPARTMENT

September 3, 1965

To: G. R. Cudney, Supervisor
Physical Research Section

From: J. E. Simonsen

Subject: US 127 Blowup South of Jackson (Construction Project 38-7, C5).
Research Project 39 F-7(14). Research Report No. R-541.

At your request prompted by a telephone call from the District 8 Office, a US 127 joint blowup located at Sta. 460+20 near Loomis Road was inspected on June 23, 1965. This 1955 project has 22-ft wide roadways, with 99-ft transverse joint spacing. In the summer of 1964, the gravel shoulders were bituminous surface-treated for a 3-ft width. The blowup occurred across both lanes in the late afternoon of June 22, and was temporarily patched at that time. More permanent repairs were performed on June 23, and were nearing completion at the time of the inspection (Fig. 1).

General inspection of pavement near the failed joint revealed that contraction joint grooves were about 1-in. wide (i. e., open about 1/2-in.) in spite of an air temperature over 80 F. To determine the reason for this, sealant in the second joint south of the failure (Sta. 458+22) was removed, and the groove and plane of weakness crack were inspected for dirt infiltration. The bottom of the joint groove was found to be filled with sand and small stones, and the crack completely filled with similar material (Fig. 2).

The 1960 five-year condition survey showed an average of 2.46 transverse cracks per slab, which is high compared to other projects with similar service. The 1960 record shows no blowups, but a few joints were noted to have been repaired subsequently. The pavement was constructed with coarse aggregate from Bundy Hill (Pit No. 30-35) and American Aggregates (Pit No. 47-03).

OFFICE OF TESTING AND RESEARCH

J. E. Simonsen
Structures Unit
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JES:nw

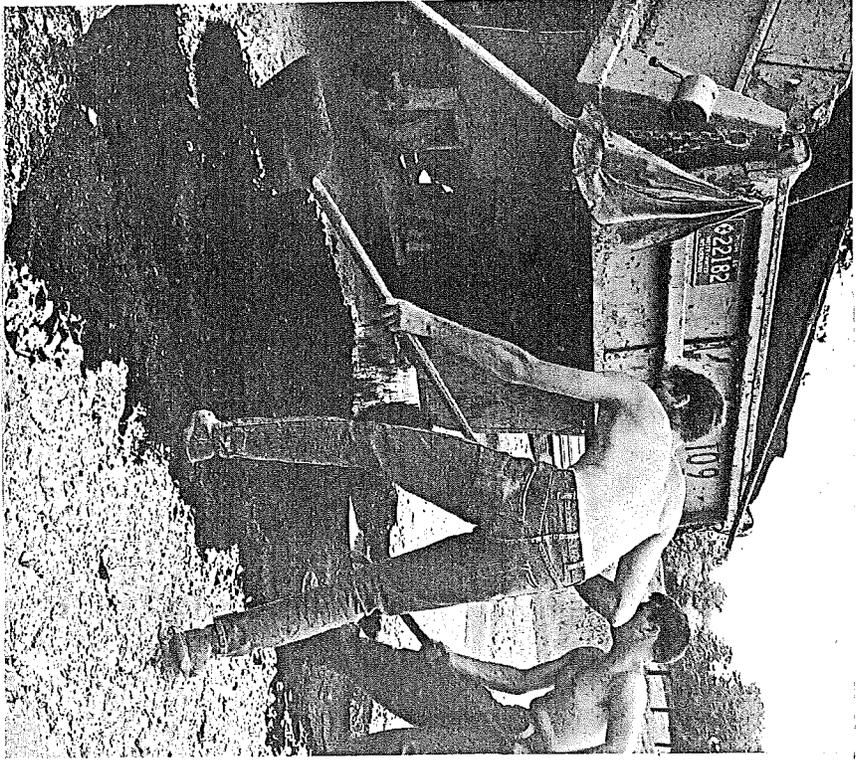


Figure 1. Blowup repair in progress during inspection of joint at Sta. 460+20.

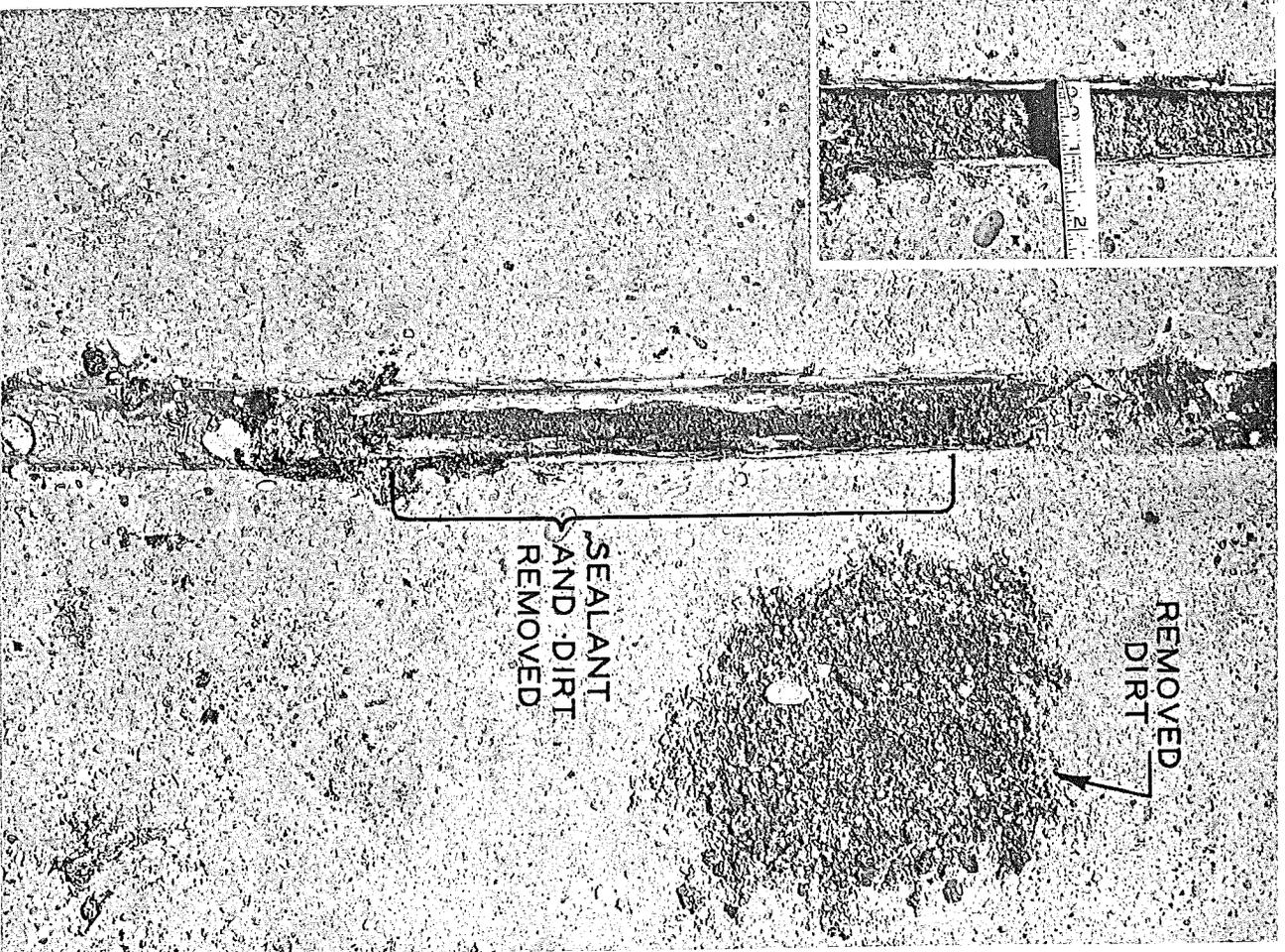


Figure 2. Joint width (upper left), and appearance of groove with infiltrated dirt and sealant removed (center), exposing plane of weakness crack, at Sta. 458+22.