

OFFICE MEMORANDUM

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MICHIGAN
STATE HIGHWAY DEPARTMENT

April 27, 1965

To: J. C. Brehler, Engineer of Materials
Field Testing Division

From: E. A. Finney

Subject: Inspection of Projects Containing Selected Big Cut Pit Aggregate.
Research Project 59 A-19. Research Report No. R-516.

In accordance with your recent request, F. Copple and H. Merrill on April 12, 1965 conducted a field survey of three projects constructed of concrete containing selected Big Cut Pit aggregate. Each project is reported separately below.

US 10, Sanford, Construction Project EBBF 56044, C16R

US 10 northwest of Sanford was constructed in 1961. The intensity of popouts varies considerably among areas. Some slabs (12 ft by 99 ft) show as few as 25 popouts and others more than 200, with the average number per slab being about 45. Only popouts with a diameter exceeding 1 in. were counted. The majority of popouts in the pavement were 1 to 2 in. diam with a few having a diameter of about 5 in. Fig. 1 shows the condition of a typical slab with a comparatively high density of popouts. Although the popout intensity appeared to be somewhat greater than on most Michigan pavements, there was no perceptible impairment of highway serviceability.

US 23, East Tawas, Construction Project F 35032C, C9

Selected Big Cut Pit aggregate was used in the 1964 construction of the curb and gutter along US 23 through East Tawas. As indicated by Fig. 2, there are almost no popouts in this project. However, it was noted on another Big Cut aggregate project (I 75 just south of the Mackinac Bridge) that although excessive popouts were found in the pavement, very few popouts were found in the curb and gutter. Therefore, it appears that the popout susceptibility of this gravel may be less for curb and gutter than for pavement. This could be due either to the better drainage of the curb and gutter or to coarse aggregate in curb and gutter being protected from moisture absorption by a heavy cover of mortar. Thus, curb and gutter may not provide a good test of the popout susceptibility of a gravel to be used in highway pavement.

J. C. Brehler

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11th Street, Alpena

The popout intensity of this project appeared to be approximately the same as on US 10 near Sanford.

OFFICE OF TESTING AND RESEARCH

E. A. Finney, Director
Research Laboratory Division

EAF:FC:nl

cc: W. W. McLaughlin
C. J. Olsen

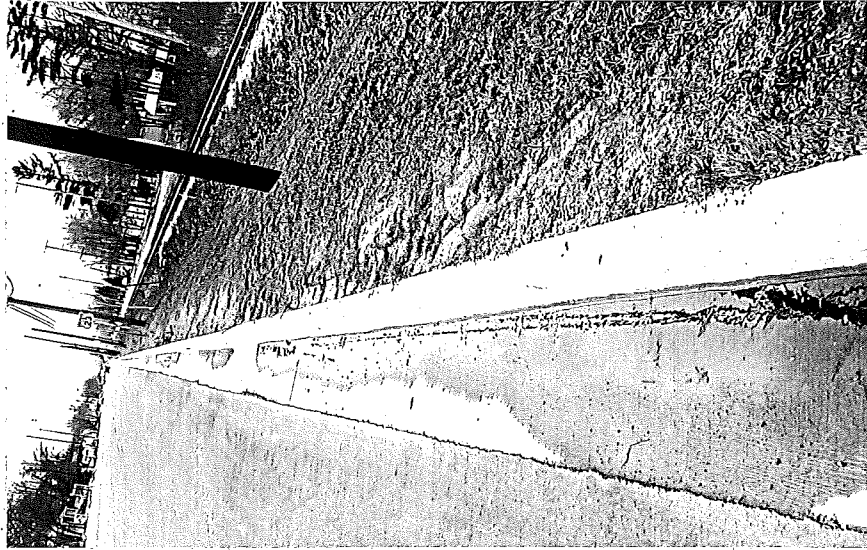


Figure 1. Typical slabs containing Big Cut aggregate on US 10 with frequent popouts (Project EBBF 56044, C16R).

Figure 2. Typical popout-free curb and gutter on US 23 in East Tawas (Project F 35032C, C9).