

# REPORT OF DEPARTMENT OF MATERIALS AND CONSTRUCTION

C. H. SCHOLER, *Chairman*

## REPORT OF COMMITTEE ON FILLERS AND CUSHION COURSES FOR BRICK AND BLOCK PAVEMENTS

J. S. CRANDELL, *Chairman*

*Professor of Highway Engineering, University of Illinois*

The committee reports some progress in the use of fillers on the Hocking County road in Ohio. In 1934 a report was presented on laboratory results. In 1935 the construction of the test road was reported; and in 1936 the first annual results of the tests were given. In 1937 a report was presented indicating that entire pavement projects were being constructed using a filler selected from the

If a joint was built in the concrete base, very pronounced exudation of filler is apparent.

It has been noticed that there is some incomplete filling at the end joints of the brick. This is attributed by investigators to insufficient heating of the new type of filler. This of course can be readily overcome. For the rest, it may be said that the pavements constructed with this new type have been very successful.

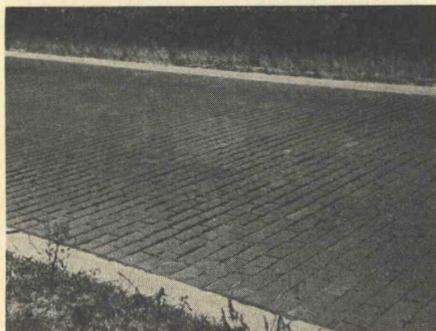


Figure 1. Typical View Over Base Expansion Joint. Project 26



Figure 2. Typical Closeup Over Base Joint. Project 26

test road. This is the first annual report of these pavement projects.

On the original test road a blend of semi-asphaltic base and asphaltic base asphalts was used. On the entire pavement projects a mid-continent base asphalt was used which complied with the physical properties specifications.

It is apparent that the use of this filler has produced a pavement which is clean and free from exudation. There is one exception and in this case the filler apparently is F. 1, Ohio Specification.

The filling of the joints on the entire pavement projects is shown in Figures 1-14.

### PROJECT 26—1937

U. S. Route 40, Old Washington westward 2.85 miles.

Pavement is 20 ft. wide with lip curbs.

Base has transverse expansion joints at 120 ft. intervals.

Cushion is Natural Asphaltic Limestone.

In general the exuding of filler is very



Figure 3. Typical Closeup Between Base Joints. Project 26



Figure 4. Project 41

light (Fig. 3). In fact some areas appear almost as good as the Robertson section of the Hocking County Filler Test Road.

However, over each base expansion joint there is a heavily exuded area for the full pavement width and extending back some three feet on each side of the joint (Figs. 1 and 2).

#### Project 41—1937

Ohio Route 8, 700 or 800 ft. between East Sparta and the Stark County south line.

Pavement is 20 ft. wide with flush side curbs.

Cushion is plain sand.

Although the pavement is less than 800 ft. long, it has two shale pit entrances, one railroad crossing, one house entrance

and one depot entrance. Bricks are shattered badly in the center of each traffic lane; lug marks on the berms parallel to and two or three feet from each curb indicate that passage of tractors is common. Bricks have settled badly over the base contraction joints.

Filler exudation varies from very light

to medium and a mottling of light and medium (Fig. 4).

Conditions in general make filler behavior observations of little value.

#### Project 42—1937

Ohio Route 8, North of Akron (approximately midway between intersections with Ohio Routes 303 and 527).



Figure 5. Typical View Over Base Joint.  
Project 42

Pavement is of about two mile length and is 30 ft. wide with raised sandstone curbs.

Cushion is natural asphaltic limestone.

Over each transverse base contraction joint is an area mottled with medium filler exudation (Figs. 5 and 7), each area being full pavement width and approximately five ft. long. Otherwise, the

entire pavement exhibits a uniform light exudation of filler (Figs. 6 and 8).

#### PROJECT 20—1937

U. S. Route 20, Bellevue to Fremont, from junction with Ohio Route 19 eastward some two miles.

A three lane pavement with two flush center curbs and flush side curbs.



Figure 6. Typical Closeup Between Joints.  
Project 42

The center lane is of relaid repressed block while the outside lanes are of new wire cut VF brick.

Cushion is mastic.

The brick surface course over each base contraction joint has failed and been maintained.

Filler exudation on the north lane varies from medium (Fig. 9) to heavy



Figure 7. Typical Closeup Over Base Joint.  
Project 42

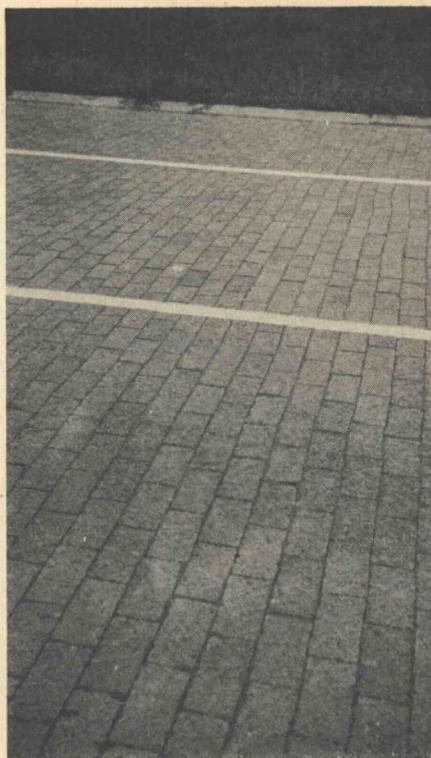


Figure 8. Typical View Between Joints.  
Project 42



Figure 9. Project 20

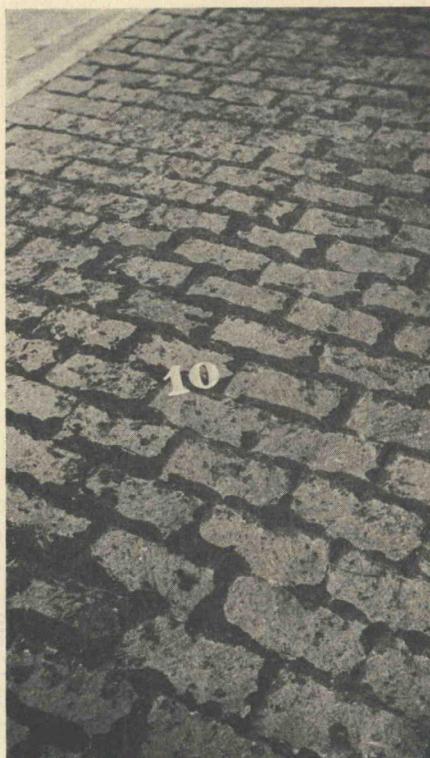


Figure 10. Project 20



Figure 11. Project 20



Figure 12. Project 24



Figure 13. Project 24



Figure 14. Project 24

(Fig 10) over the entire pavement length Filler exudation on the center lane is light but the surface had not been well cleaned Filler exudation on the south lane is light (Fig 11) except for a short length near each end of the pavement where exudation is medium

PROJECT 24—1937

U S Route 30N, Crawford County, Ocoola eastward 3 8 miles Pavement is 20 ft wide with flush side curbs

West 1 65 miles are relaid repressed

block, east 2 15 miles are new wire cut VF brick.

Cushion is mastic.

Filler exudation is very light on the relaid part (Fig 12) and exudation is not exaggerated over the base joints In general filler exudation on the new brick part is light (Fig 14) and, of all projects inspected, most nearly equals in appearance the Robertson section of the Hocking County Filler Test Road However, over each base contraction joint medium exudation exists for an area of full pavement width and five foot length (Fig 13)