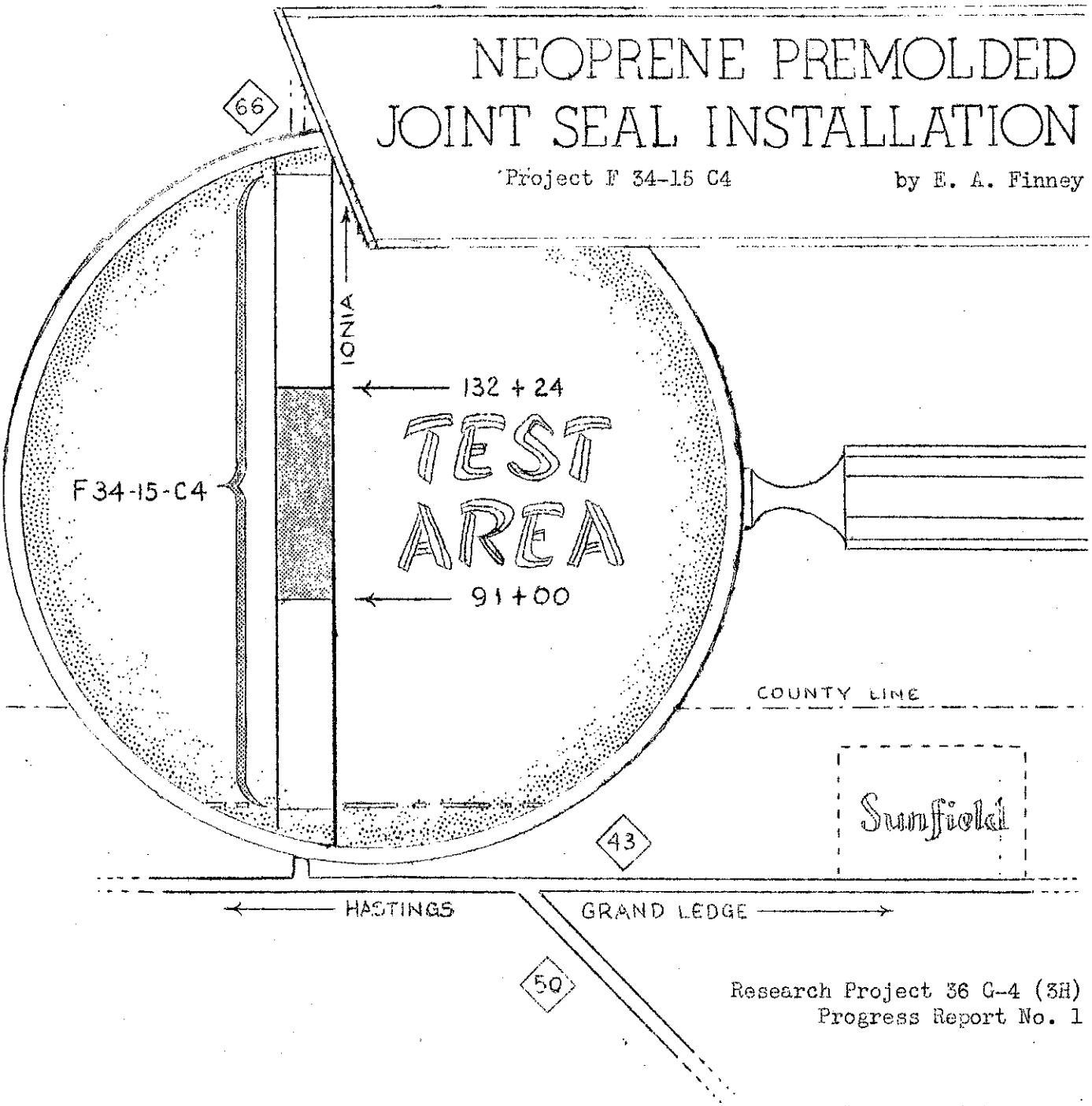
MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

NEOPRENE PREMOLDED JOINT SEAL INSTALLATION

Project F 34-15 C4

by E. A. Finney



Research Project 36 G-4 (3H)
Progress Report No. 1

Research Laboratory
Testing and Research Division
Report No. 139
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NEOPRENE PREMOLDED JOINT SEAL
INSTALLATION - PROJECT F 34-15, C4: F 412 (4)

At the request of H. C. Coons, Deputy Commissioner and Chief Engineer, and by permission of the Bureau of Public Roads, an installation comprised of 30 Neoprene-sealed contraction joints was made on Project F 34-15, C4: F 412 (4), Route M-66 through the cooperation of Homer Cash, Acting Construction Engineer, and Road Division personnel. On October 17-19, 1949, the experimental joints were placed at the general location shown on the cover and at stations given in Table I.

The Neoprene joint seal material was installed in the manner shown in Figures 1 to 6 inclusive. A 1/8-inch thick Masonite plate fabricated to fit the Department's standard dowel bar assembly was used to support the seal in proper position. See Figures 1 and 2. When the joint assembly was installed ready to receive the concrete, the top of the Neoprene seal was supposed to be about 1/4 inch below the surface of the pavement. However, after completion of the work, it was found that the depth of the seal varied considerably, and in many cases it was at least 1 inch below the surface.

Figures 3 and 4 show how the joint assembly was staked in place on the subbase and also the type of holding pins used. Figure 5 shows placing of concrete around the joint assembly. It was necessary to keep the top of the joint low enough to prevent lateral displacement by the finishing equipment. This was most difficult to do without getting the joints too low, which was what happened in most cases. It was necessary to use a wood strip of 1/2-inch width placed on top of the rubber seal to facilitate finishing of the joint edges. The method of doing this is shown in Figure 6.

Figures 7 and 8 show typical completed joints with top of Neoprene seal material exposed in bottom of groove.

Data from a subsequent joint-by-joint survey relative to depth of seal is presented in Table I. The data in Table I show that the seal depths varied from, in one case, 1/2 inch above, to as much as 1-5/16 inches below the surface.

Conclusions

The experimental Neoprene joint seal installation has definitely proved that the method used in this particular case to install the seal material is impractical and undesirable from the standpoint of producing a satisfactory looking joint. In time we will learn whether or not the material itself will continue to seal the joint in the manner intended.

TABLE I

SUMMARY OF NEOPRENE JOINT SEAL DATA

Joint No.	Station	(Depth of Seal below Surface of Pavement in inches) East Edge	Center	West Edge
1.	91+00	1-1/8	1	1-1/8
2.	91+99	1-1/8	15/16	1-1/8
3.	92+98	1-11/16	7/8	1-1/4
4.	94+96	1-1/4	1-1/4	1-5/16
5.	95+95	11/16	1/2	7/8
6.	96+94	1/4	3/8	1/2
7.	101+33	5/16	3/16	1
8.	103+31	1	3/4	1
9.	104+30	1	3/4	1
10.	105+29	1	1	11/16
11.	107+27	1	3/4	3/4
12.	108+26	1-1/8	7/8	1
13.	109+25	1	3/4	1
14.	111+23	1	1	1
15.	112+22	9/16	1-1/8	1
16.	113+21	5/8	7/8	7/8
17.	115+19	5/8	5/8	7/8
18.	116+18	1/4	1/4	1/2
19.	117+39	1/4	1/4	1/4
20	119+37	1/4	1/4	3/4
21.	120+36	7/8	3/8	3/4
22.	121+35	3/8	3/8	1/2
23.	123+33	1/4 above	Flush	1/2
24.	124+32	1/4	Flush	1/2
25.	125+31	1/4	1/4	1/2
26.	127+29	Flush	1/2 above	1/2 above
27.	128+28	1/4	Flush	5/8
28.	129+27	Flush	Flush	1/2
29.	131+25	3/8	3/8	5/8
30.	132+24	1/2	1	3/4

NOTE: 3 standard type contraction joints were placed between Stations 96+94 to 101+33.

FIGURE 1. VIEW OF JOINT ASSEMBLY WITH NEOPRENE SEAL IN PLACE ON TOP OF 1/8" MASONITE PLATE.

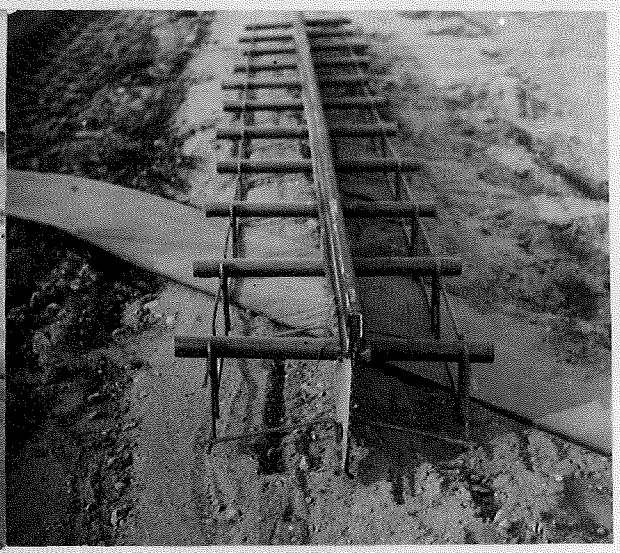

FIGURE 2. END VIEW OF ASSEMBLED JOINT SHOWING EARS ON NEOPRENE JOINT SEAL STRIP.

FIGURE 3. STAKING ASSEMBLED JOINT IN PLACE.

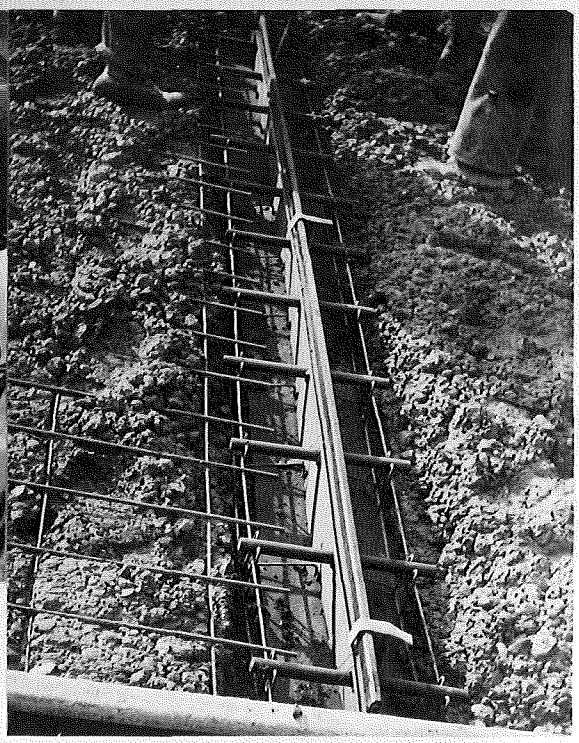

FIGURE 4. CLOSE VIEW OF INSTALLED JOINT ASSEMBLY SHOWING HOLDING PINS.

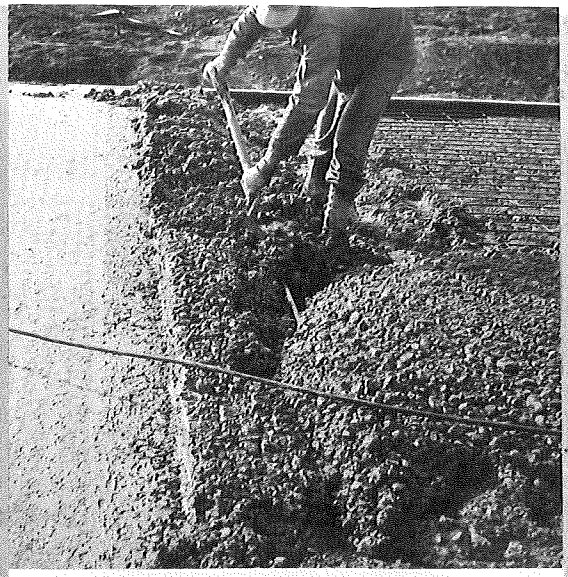

FIGURE 5. PLACING CONCRETE AROUND JOINT SEAL.

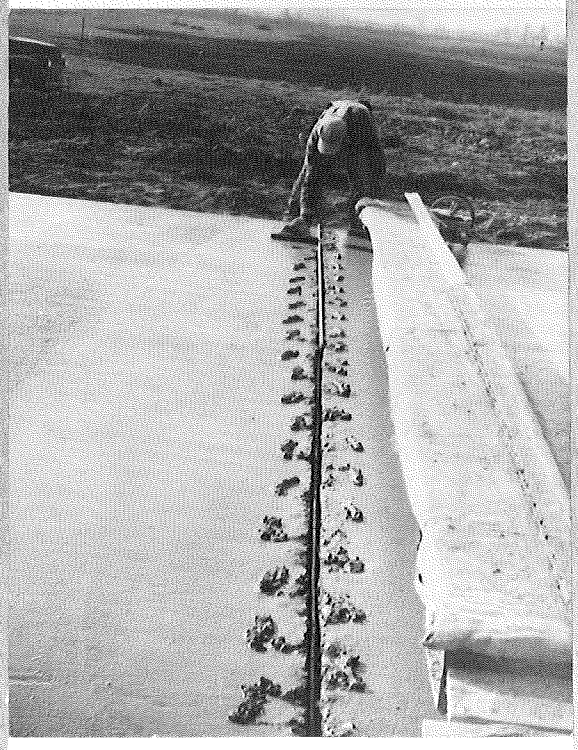

FIGURE 6. METHOD OF FINISHING JOINTS.

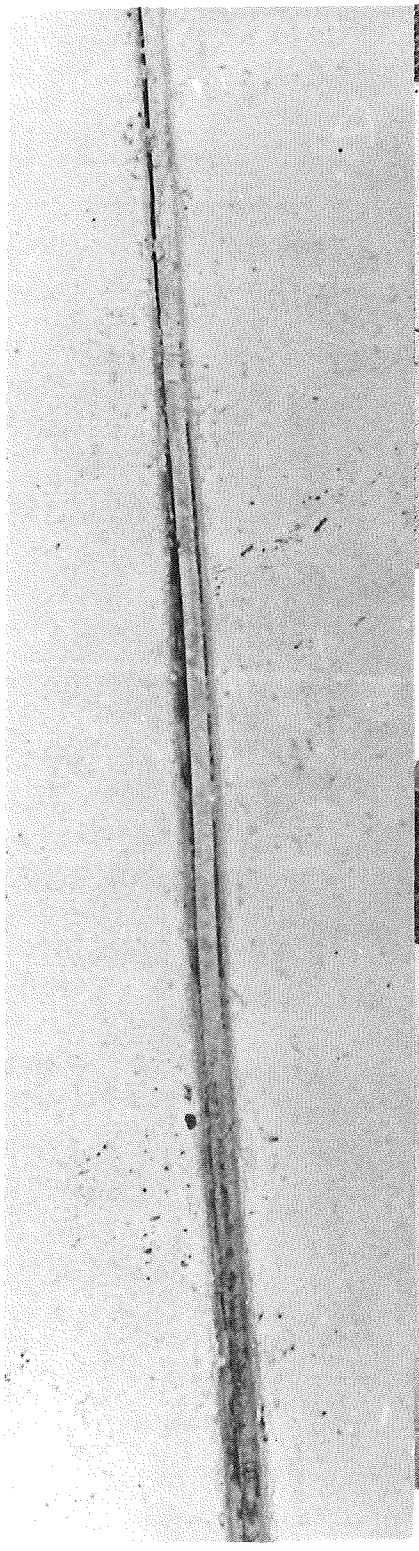

FIGURE 7. VIEW OF COMPLETED JOINT AT STATION 107+27, SHOWING TOP OF SEAL.

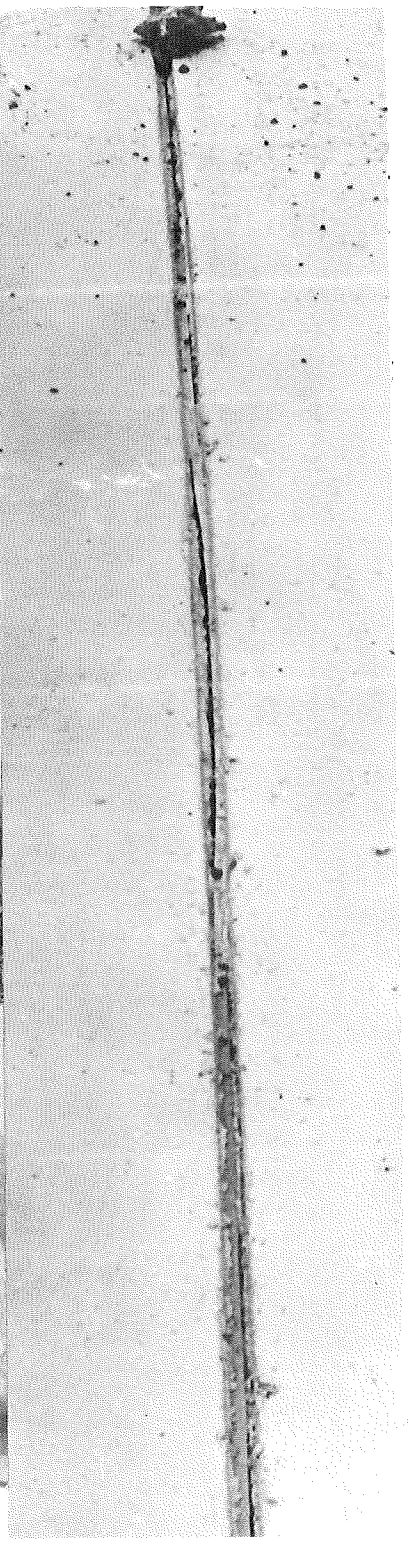

FIGURE 8. ANOTHER VIEW OF COMPLETED JOINT AT STATION 107+27, SHOWING SLIGHT CONCRETE BRIDGE ABOVE SEAL.