

INVESTIGATIONAL CONCRETE PAVEMENT IN KENTUCKY

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The Kentucky experimental joint spacing project consists of seven different combinations of the spacing of expansion and contraction joints with and without load transfer bars in the contraction joints. These seven types are given in Table 1.

After the Public Roads Administration asked us to participate in a cooperative joint spacing project, we looked over our program to find a project which would meet their requirements regarding mini-

ments would be taken, followed by one mile of standard pavement which incidentally passes over five bridges that span creeks and drainage ditches. These bridges range from 60 ft to 120 ft. in length. The remainder of the project duplicated the layout of the seven test sections used in the first 2½ miles. This second test section is very similar to the first one with the exception that the fills are slightly higher, however, in no instance will they exceed 15 ft.

TABLE 1

Length	Experimental Type No	Sub-grade Paper	Wire Mesh	Expansion Joints			Contraction Joints		
				Spacing	Type	Load Transfer Bars	Spacing	Type	Load Transfer Bars
<i>miles</i>				<i>ft</i>			<i>ft.</i>		
0 947	1	Yes	None				20	Weakened Plane	None
0 568	2	"	"	800	Premoulded	Dowel Bars	20	"	None
0 473	3	"	"	400	"	"	20	"	None
0 284	4	"	"	120	"	"	20	"	None
0 284	5	"	"	120	"	"	20	"	Dowel Bars
0 284	6	"	70 lb	120	"	"	60	"	Dowel Bars
0 237	7	"	None	120	"	None	20	"	None

Width of Pavement—20 ft. Cross Section 9 in. by 7 in. by 9 in. with exception of Section No. 7 which was 7 in. uniform thickness.

imum 4-ft. fills on the test sections where measurements were to be taken and which would also come within their curvature minimum.

Such a project was located in Daviess County, approximately six miles from Owensboro on State Route No. 71, known as the Owensboro-Hartford Road. The new alignment runs approximately north and south and the contract covered 6.27 miles of 20-ft. pavement.

Starting from the north end approximately 2½ miles was scheduled for the seven test sections on which the measure-

The soils were mostly silty loams with some clay loams and are classified as A-4 and A-4-6. The volume change is comparatively low, varying from 7 per cent to 12 per cent. The subgrade was compacted with a sheepfoot roller at optimum moisture in 12-in. layers.

The concrete slab construction started on the south end of the project on July 8, 1940 and excellent weather prevailed all through the construction period. There was practically no rain, and no unusual interruptions. The contractor averaged

close to 1200 ft. per day and finished concreting August 16, 1940.

The aggregates used were Ohio River sand and gravel.

The cement used approached a moderate heat of hydration material in that the tricalcium aluminate did not run higher than 9 per cent.

The equipment used by the contractor was a new 27-E paver, and a new gasoline driven finishing machine. The mechanical longitudinal float had previously been used on about 25 mi. of pavement. Gasoline driven portable vibrators were used at all edges, transverse joints and longitudinal center joints.

Water was supplied by pipe line from one of the local creeks, and the concrete was cured with one layer of wet burlap

overnight and then three days of Sisal Kraft paper.

The concrete was placed according to Kentucky standard specifications and averaged a slump of 2 to 2½ in. with a W/C that was close to 5 gal per sack of cement. All daily cylinders and beams gave satisfactory strength and cores averaged 4800 lb. at 60 days. Only slight bleeding was noticeable and the finishers had no difficulty keeping within 75 ft. of the mixer. The concrete was broomed from 1 hr. to 1½ hr. after dumping.

The inserts for the measurements were placed after the completion of the concreting. A ¾ in. hole was drilled and the inserts grouted in place.

The project is too new to permit any conclusions to be drawn at this time.