SUMMARY REPORT 48-1(S)

COMPARISON OF AASHO AND TEXAS TEST METHODS AND SPECIFICATIONS FOR FLEXIBLE BASE MATERIALS

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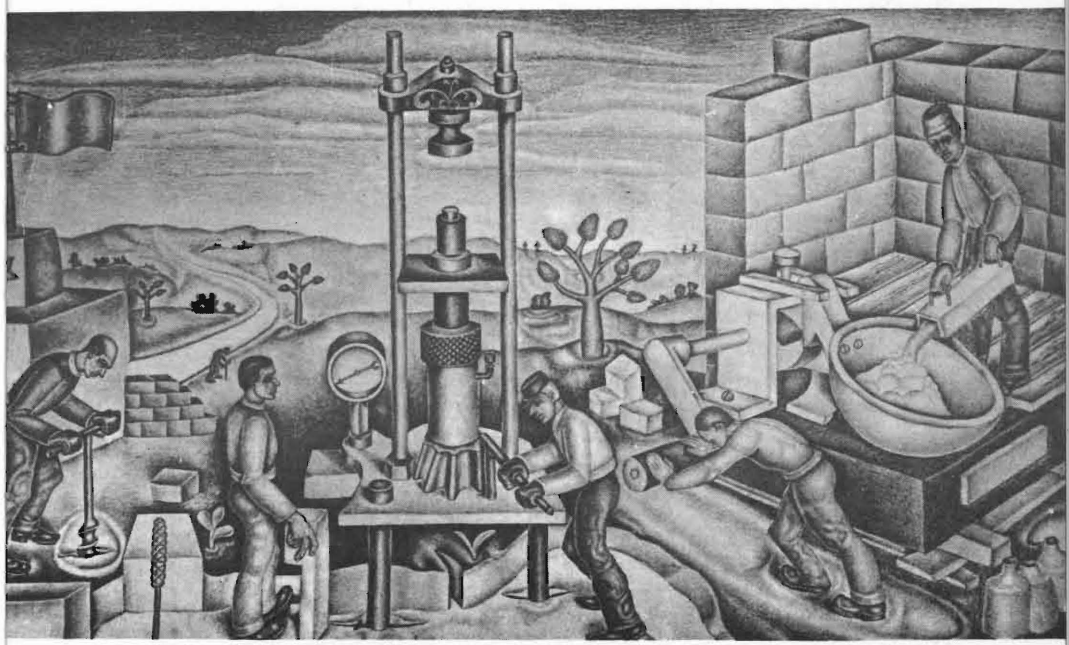

Cooperative Research Study of the
Texas Highway Department, and U.S.
Bureau of Public Roads

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TEXAS HIGHWAY DEPARTMENT
Austin, Texas

COMPARISON OF AASHO AND TEXAS TEST METHODS AND SPECIFICATIONS FOR FLEXIBLE BASE MATERIALS

By

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INTRODUCTION

For a number of years there has been some disagreement between the personnel of the Bureau of Public Roads in Washington, D.C., and of the Texas Highway Department concerning the Liquid Limit and Plasticity Index to be specified for flexible base materials and the methods of test for their determination. In view of these differences a cooperative study of flexible base performance and testing procedures was entered into so that a body of factual data could be accumulated through which differences may be resolved.

OBJECTIVES

First, to compare L.L. and P.I. test results for a suitable range of flexible base materials using the a) wet and b) dry methods of sample preparation, through a cooperative check test program between the Bureau of Public Roads and the Texas Highway Department. Secondly, to conduct a study of the performance of existing flexible base courses whose plasticity indices cover a considerable range. Thirdly, to try to reach a mutual understanding of the significance of the findings of this research project.

OUTLINE OF RESEARCH CONDUCTED

Forty-two samples of various types of flexible base materials were collected from various parts of Texas and processed by splitting each sample into two nearly identical portions, one of which was sent to B.P.R. Laboratory in Washington, D.C., and the other retained in the T.H.D. Laboratory. Small samples of soil binder which were obtained by each laboratory were also exchanged. Each laboratory performed test for soil constants and some sieve size analysis on all samples. From time to time detailed test results were exchanged between the two laboratories.

A study of the relation of the soil constants and road performance was also made. This included obtaining records of construction and maintenance data and evaluating road performance.

Results of the investigation indicate that operators from the laboratories are in reasonably close agreement on L.L. and P.I. values so long as they are testing the same minus No. 40 material. This was not found to be the case when operators did their own preparation and testing. The difference in P.I. produced by the laboratories' use of two different preparation methods (wet and dry) can be expected to be as much as four or five points for a great many of our flexible base materials.

Soil binder content data indicate that each laboratory has a wet and dry method of preparation, neither of which are alike. The wet methods showed less discrepancy in P.I. and soil binder contents than did the dry methods of preparation. The findings indicate that the preparation methods employed by B.P.R. produced amounts of soil binder in excess of those obtained by T.H.D. Laboratory for both wet and dry methods, thus indicating that the B.P.R. scrubbing equipment produced severe grinding effects on many of the samples tested. In general, both of the methods of preparation used by B.P.R. produce more large particles in soil binder than the T.H.D. wet method does. This usually causes B.P.R. tests to indicate greater amounts of soil binder, lower L.L. and lower P.I. than are indicated by T.H.D. wet method.

The data obtained from roads of known behavior do not show any correlation between the soil constants (L.L. and P.I.) and pavement performance. This evidence does not substantiate the idea that Texas should use a maximum L.L. of 25 and P.I. of 6 in specifications for base materials.