

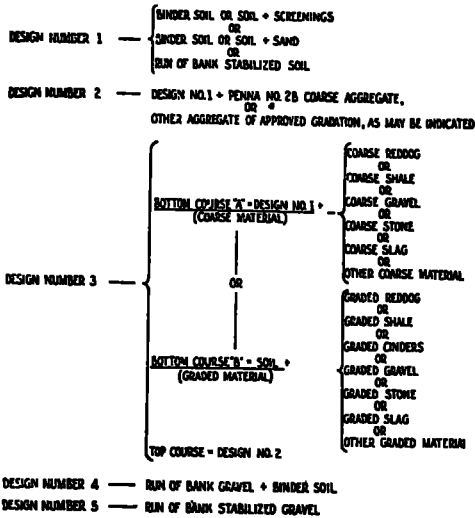
# DESIGN OF SOIL AGGREGATE MIXTURES IN PENNSYLVANIA

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Pennsylvania's efforts in the field of low cost roads have been confined almost entirely to the application, development, and simplification of the soil-aggregate type. In this type, control of that fraction of the mix passing the No. 10 sieve or the soil mortar, is fundamental in obtaining the necessary density and allowing the utilization of a variety of economical materials.

of materials. All available sources of binder soil and granular material are located and tested. Primary consideration, of course, is given to soil on the project. The many sources of quarry, mine, and manufacturing wastes are always considered, if tests indicate their use is possible.

To allow for the use in soil-aggregate mixtures of the variety of materials found in Pennsylvania, the designs specified are correspondently wide as shown in Figure 1. In these five combinations every effort is made to incorporate judiciously all sound materials available over the state. Detailed description of the various designs will be found in the Proceedings of the 17th Annual Meeting, Highway Research Board, with the exception that the plasticity index for all designs is now set at 0 to 6.<sup>1</sup>



## RESULTS OBTAINED

The spring condition survey of soil-aggregate stabilized projects reported in 1938 classified the mileage as follows:

Very good—No roughness, washing, or potholing—23.98 miles.

Good—Slight roughness, wearing, or potholing—65.26 miles.

Fair—Rough, worn, potholed—16.76 miles.

Poor—Badly worn, washed, or soft—10.00 miles.

The 116 miles surveyed included all projects, the majority of which have been in place over two winter seasons. Less than 10 miles were constructed this season.

<sup>1</sup> G. A. Rahn, "Materials and Design of Stabilized Soil Road Mixtures," *Proceedings*, Highway Research Board, Vol. 17, p. 497.

Figure 1. Design of Mixtures, Pennsylvania Highway Department

Accepting as a starting point the research and development work of the United States Bureau of Public Roads in the classification of soils and the physical properties of the soil mass, the most practical adaptation of the results to the development of the soil-aggregate type of construction was devised.

Consistent with the low cost contemplated, laboratory and field testing are simplified wherever feasible.

The same trend is followed in the choice