Discussion of “Inventory of Granular Materials in Indiana”

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The ever-increasing intensity of loads on our highways has compelled highway engineers, not only in Indiana but throughout the country, to recognize the need for subgrade improvement.

As early as 1936 your State Highway Commission, recognizing this need, began constructing some pavements on improved subgrades. Several experimental projects with different types of subgrade material, using variable depth and different construction methods, were constructed.

All recent road-construction projects, through areas of poor subgrade soil, have been designed with subgrade treatment sections using granular material. This type of treatment has been used because of the economy and satisfactory results that have been obtained.

I feel sure that we all agree with Mr. Hittle’s statement that “there will be an unprecedented demand for large quantities of low-cost materials suitable for the construction of base courses.”

I have been intrigued by the nicety of the technique that he has used in locating these natural stores of granular material from aerial photographs. No other known method can assure such wealth of accurate information at such low cost. Little did we think when, as youngsters, we looked at stereopticon pictures, that the same principle would be used in obtaining valuable information from aerial photographs. The location of an existing drain tile is often required in order to provide for its replacement before the construction of a new project. In most of these cases, there is no record of the exact location of the drain. Aerial photographs provide us with an economical means of quickly and accurately finding such a structure.

Many of us have neither the facilities nor the experience to make such detailed studies of aerial photographs, but we do have dire need for the information to be obtained from such a study, and I feel justified in discussing some of the direct ways in which we can utilize and profit from this information, which is being obtained for our use.
Definite knowledge of the availability of granular deposits will do much to relieve our apparent past failure to utilize them. Armed with this information, we can design more wisely and specify with greater economy.

Knowing the location of these deposits, the designer can specify the proper sequence of grading operations and provide for the use of granular material in the immediate subgrade, often obtainable from our roadway excavations or as selected special borrow from nearby sources.

Such procedure, if specified in the contract, would eliminate placing yards of good material deep in a heavy fill and ending up with a poor and unsatisfactory soil on the subgrade, which unfortunate practice has been too common in the past. These advantages, alone, certainly justify the cost of making this information available.

Granular deposit maps have many other useful applications. If and when available for large areas they should certainly play an important part in determining wise locations for construction improvements, such as highways and airports. They will be employed to define major drainage areas quickly and can be used to public advantage by all of us.

Here is a research project supplying urgently needed information for immediate application in the field and design room. I am sure you join me in urging the Research Project to continue this project so that the mapping may be completed throughout the state.

I also wish to take this opportunity to compliment Mr. Hittle for the skill which he has displayed in assembling and presenting his subject and for his diligent effort on this research project.