

**Development and Demonstration of High-Carbon CCPs and FGD By-products in
Permeable Roadway Base Construction**

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ABSTRACT

The major objective of this project is to develop and demonstrate permeable base course materials using coal combustion products (CCPs) for highways, roadways, and airfield pavements. Two types of CCPs, a high-carbon fly ash and a flue gas desulfurization (FGD) by-product, are being evaluated for no-fines or low-fines concrete as a permeable base material. This quarterly report deals with the work completed during the period from June 1, 2000 through August 31, 2000. During this period, the work completed is related to Task 1, 2, and 3. A literature search was conducted to build the knowledge-base to establish mixture proportions and performance standards for the base course materials. The literature accumulated on permeable base road pavements and roller compacted concrete (RCC) is briefly addressed in this report. All constituents materials such as high-carbon fly ash, FGD by-product, cement, coarse aggregate, and fine aggregate required for manufacture of the base course materials have been obtained. These materials are being tested and evaluated for physical, chemical, and mineralogical properties. Testing of coarse and fine aggregates, cement, and FGD by-products has been completed. Most of the remaining testing of the constituent materials is expected to be completed by the end of September 2000. Based on the data derived from the literature search and the measured properties of the constituent materials, mixture proportions for the permeable base course materials are being finalized; and laboratory evaluation of concrete mixtures is being started.