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CONSTRUCTION OF FLY ASH TEST SITES AND GUIDELINES FOR CONSTRUCTION

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CONSTRUCTION OF FLY ASH TEST SITES AND GUIDELINES FOR CONSTRUCTION

by

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The report summarized here provides recommended guidelines on fly ash use in roadbuilding and presents the construction details of twelve full scale test sites in Texas. Eight sites utilized lime-fly ash stabilization of soils, three sites utilized fly ash as partial replacement for portland cement in concrete pavements and one site involved fly ash use in concrete box culverts. Each of the 12 test sites contained several test sections, including a control section. The research shows Texas fly ashes from subbituminous coals and lignite can be effectively used in highway construction.

Results of the experimentation have shown that lime-fly ash stabilization of clay-type soils can be effectively constructed in the field with a minimum of problems if certain procedural steps are followed. (1) Initially break down the soil with lime and allow it to cure for at least two days. (2) Add dry fly ash, then mix, water, and compact the soil within a maximum of six hours (to achieve maximum cementitious reaction between the fly ash and the water). (3) Discharge the fly ash from transport truck under very low pressure to minimize dusting. (4) Do not rework a previously stabilized lime-fly ash section.

Initial results indicate that fly ash, when used as a partial replacement for lime in stabilizing clay-type soils, will be an effective stabilizing agent.

Additional evaluation of the test sites over time will be needed to determine the optimum amounts of lime and fly ash for stabilization.

Fly ash stabilization of granular materials can be effectively constructed in the field if the fly ash is handled in a manner analogous with the construction of cement-treated-bases.

Construction of fly ash-portland cement concrete pavements has been found to pose no special problems and can be effectively prosecuted in the field.

Replacing up to 25 percent of the portland cement with selected Class C fly ashes on a 1:1 basis resulted in *no* loss of strength. To the contrary, strengths were generally enhanced at all ages.

Replacing up to 25 percent of the portland cement with fly ash on a 1:25:1 basis resulted in significantly higher strengths at all ages. The only problem was a slightly "sticky" batch which was corrected by the addition of air entrainment.

The published version of the report may be obtained by addressing your request as follows:

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