OPTION 2

SECTION 32 11 30

LIME FLY ASH STABILIZED SUBGRADE

PART 1 - GENERAL

1.1 DESCRIPTION

A. This item shall consist of admixing lime and fly ash with the existing material, and mixing and compacting the mixed material to the required density. All work performed in this item shall be constructed as specified herein and in conformity with the typical cross-sections, lines and grades as shown on the Plans and as directed by the Engineer.

1.2 MEASUREMENT AND PAYMENT

A. Measurement for Lime Fly Ash Stabilized Subgrade is on a square yard basis. Separate measurement will be made for each different thickness of base course. Limits of measurement shall match actual pavement area, but no greater than the maximum pavement limits shown on Drawings. Limits for measurement will be extended to include installed lime/fly ash stabilized subgrade material that extends 1 foot beyond outside edge of pavement. No payment will be made for lime/fly ash stabilized subgrade in areas beyond these limits.

B. Measurement for quicklime is by the ton of 2,000 pounds dry-weight basis.

C. Measurement for commercial lime slurry is by the ton of 2,000 pounds of lime calculated on the percentage by weight of dry solids for the grade slurry.

D. Measurement for fly ash is by the ton of 2,000 pounds dry-weight basis. Fly ash may be applied in dry or slurry form. Moisture content in the final mix not to exceed moisture by more than 2 percent.

E. Lime/fly ash stabilized material as described in this section will be paid for at the unit price bid in the Proposal for the lime/fly ash stabilized treatment, which price shall be full compensation for scarifying, preparation below secondary grade, furnishing, distributing, and mixing the lime and for all labor, supplies, water, fuel, tools, equipment and incidentals necessary to mix and compact the stabilized soil to the density specified in these Specifications. Payment will not be made for unauthorized work.

1.3 SUBMITTALS

Mix Design for lime/fly ash ratio

Certification that fly ash, quicklime, or commercial lime slurry complies with these specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

A. The lime to be used for stabilization shall meet with requirements of TX DOT DMS-6350: "Lime and Lime Slurry" and DMS-6330, "Lime Sources Prequalification of Hydrated Lime and Quicklime". Use, Type B - commercial lime slurry or Type C - pebble grade quicklime. Quicklime can be dangerous. Exercise extreme caution if used for the Work. Contractor shall become informed about recommended precautions in the handling, storage and use of quicklime.

B. The amount of lime required for stabilization will be the percent by weight shown on the Plans, stated in the Special Provisions, or that amount which produces a pH not less than 12.4 and provides for a Plasticity Index less than 18.

C. The fly ash to be used shall conform to the requirements of TXDOT DMS-4615: "Fly Ash for Soil Treatment", Class C. Fly ash to also have a minimum CaO content of 20 percent and contain no lignite ash.

D. Water: clean, clear and free from oil, acids, alkali, or vegetable matter. Water sources other than the local municipal domestic water supply must be approved by the Engineer.

E. Mix Design – The Engineer will determine the target lime/fly ash content and optimum moisture content in accordance with Tex-127-E or prior experience with the project material. The Contractor may propose a mix design developed in accordance with Tex-127-E. The Engineer will use Tex-127-E to verify the Contractor's proposed mix design before acceptance.

2.2 TESTING REQUIREMENTS

A. Soil will be sampled to establish percent of fly ash and quicklime or lime slurry to be applied to sub grade material.

B. Testing will be in accordance with Part 2 of Section 321129 – Lime Stabilization.

PART 3 – EXECUTION

3.1. GENERAL:

A. It is the primary requirement of this specification to produce a completed course of treated material containing a uniform line mixture, free form loose or segregated areas, of uniform density and moisture content, well bound for its full depth as shown on the detail sheet or specified in the Special Provisions and with a smooth surface suitable for placing subsequent courses. It shall be the responsibility of the Contractor to regulate the sequence of his work, to use the proper amount of lime and fly ash, maintain the work and rework the courses as necessary to meet the above requirements.

B. The Contractor is required to ensure the existing sub-grade or embankment beneath the course to be lime/fly ash stabilized is of proper density, uniformity and quality. The Contractor may elect to proof roll, replace and/or compact, areas that exhibit instability. If necessary, the Contractor may need to scarify, dry and compact the existing sub-grade prior to addition of lime/fly ash. All work for the preparation of the existing sub-grade will not be paid directly, but will be considered a part of "Lime Fly Ash Stabilization".

3.2. APPLICATION:

A. Conform to Part 3 of Section 321129 – Lime Stabilization with following exceptions:

1. Include fly ash in percentage amounts in lime or lime slurry as established from geotechnical evaluation for application, mixing, and compaction.

2. Apply lime/fly ash as single mix, single pass over lower PI soils.
3. Conduct operations to minimize elapsed time between mixing and compacting lime/fly ash stabilized sub grade in order to take advantage of rapid initial set characteristics. Complete compaction within 2 hours of commencing compaction, and not more than 6 hours after adding and mixing last stabilizing agent.

END OF SECTION