CONSTRUCTION SPECIFICATION FOR WASTE TREATMENT LAGOON

CODE 359

SCOPE

This specification shall consist of the clearing, grubbing, excavation, backfill, concrete, forms, reinforcing steel, other appurtenances, and services required for the construction of a waste treatment lagoon, incidental structures, and the disposal of all cleared and excavated materials. Construction shall be carried out in such a manner that erosion, water, air, and noise pollution will be minimized and held within legal limits as established by state and federal regulations.

All structures shall be constructed according to plans furnished by the Natural Resources Conservation Service (NRCS) and in accordance with the NRCS's engineering standards for these practices, as well as any local codes or state laws. Any deviation from the approved drawings and specifications must be approved by the engineer prior to construction.

SPECIFICATIONS FOR WASTE TREATMENT LAGOONS

Clearing

All trees, brush, and stumps shall be removed from the site and spoil areas before excavation is peformed. All material cleared from the area shall be disposed of by burning or removing from the site and stacking. All burning shall conform to regulations of Alabama state law.

Excavation

The completed excavation, berms, and placed banks (spoil disposal) of unsuitable material shall conform to lines, dimensions, grades, and slopes shown on the plans or staked on the site to the degree that skillful operation of the excavating equipment will permit. Runoff from outside drainage areas will be diverted from the waste treatment lagoon.

Borrow material shall be obtained from within the lagoon site as much as practical. The bottom of the lagoon shall be uniformly flat as possible. Any changes in slope of the lagoon bottom will be approved by the engineer responsible for design. Any excess borrow material will be disposed of by: (1) raising the height of or widening the embankments or by flattening the slopes; (2) blending in with the diversion or levee; or (3) hauling off-site.

Dike or Levee Construction

The placing and spreading of fill material shall be started at the lowest ponit of the foundation and shall be brought up in approximately horizontal layers not exceeding 9 inches in thickness before compaction. These layers shall be of approximately uniform elevation and shall extend over the entire area of fill. Construction equipment will be operated over the area of each layer in a manner that will result in a specified degree of compaction and a watertight structure. Special construction equipment will be used when the required compaction cannot be obtained by routing of the construction equipment. Construction of the fill shall be undertaken only at such times that the moisture content of the fill material will permit satisfactory compaction. If the material is too dry, or too wet, the fill material shall be manipulated (adding water, drying, disking, etc.) to obtain the desirable moisture content.

Liner Construction

Detailed specifications for liner construction will be specified in the plan by the design engineer.

Inlet and Outlet Structures

Inlet and outlet pipes, flumes, and troughs shall be placed to the lines and grades shown on the plans.

Ramp Installation

When used, an inlet ramp shall be constructed to the dimensions, lines, and grades shown on the plans or as otherwise specified.

Materials

All of the component parts of the inlet and outlet pipes and supports, ramps, fences, and other materials shall be specified on the plans and shall be installed in a workmanlike manner. Concrete for flumes or other concrete structures associated with the lagoon shall be as specified below.

Concrete

This work shall consist of furnishing, forming, placing, finishing, and curing Portland cement concrete as required in the construction of the work. When concrete is used, the mixture shall be no less than a 5-bags-per-yard mix. Water content shall not exceed 6.0 gallons per sack. Concrete will be thoroughly rodded or vibrated to remove voids and consolidate the concrete.

Small batch mixture shall be as follows:
A standard brand Type 1 Portland cement, washed sand, and gravel. Clean water shall be used in the mix. (Suggested ratio of aggregates in mix: 94 lb. cement (1 bag), 6 gal. water, 170 lb. clean dry sand, 315 lb. dry gravel. Smaller batches: 1 part cement, 2 parts sand, and 3 parts gravel, and water at the rate of 1 gal. per 16 lb. of cement.

Concrete shall not be placed when the atmospheric temperature may be expected to fall below 40°F at the time concrete is delivered and placed at the work site.

All exposed surface of the concrete shall be protected from the direct rays of the sun for at least the first 7 days. All concrete shall be cured by keeping it continuously moist for at least 7 days after placement. This moist curing can be accomplished by spraying with two coats of curing compound when other concrete will not be bonded to the treated surface.

Vegetation

Vegetative treatment shall be established as specified or as shown on the plans. Vegetation shall be applied as critical area planting and will include seedbed preparation, seeding, liming, fertilizing, and mulching. The interior slope of the lagoon shall be either vegetated the same as other areas or mulched at a rate of 2.5 tons/acre to prevent erosion prior to filling of the lagoon.

Fencing

The lagoon shall be fenced when all construction work is completed. Permanent fencing shall be installed as specified in the plan, with safety as the objective. A "WARNING" sign (90 in^2 minimum) shall be placed on each straight section of fencing, not to exceed a spacing of 300 feet, to alert the public to the hazards of the lagoon.