

## **Construction Specification 723 – Earthfill**

### **1. Scope**

The work shall consist of placing earthfill required by the drawings and specifications.

### **2. Materials**

All fill materials shall be obtained from required excavations and designated borrow areas as approved by the NRCS representative. Fill material shall contain no sod, brush, roots, or other perishable materials. Rocks larger than 6 inches in diameter shall be removed prior to compaction of fill, unless otherwise specified.

The type of material used in the fills shall be listed and described in the specifications and drawings.

### **3. Foundation Preparation**

Foundation for earthfill shall be stripped to remove vegetation and other unsuitable materials or shall be excavated as specified. Earth foundation surfaces shall be graded to remove surface irregularities and scarified to a minimum depth of 2 inches. Moisture of scarified foundation surface shall be such that earthfill can be compacted against it to produce a good bond between the fill and foundation.

### **4. Placement**

Fill shall not be placed on frozen surface nor shall snow, ice or frozen material be incorporated in the earthfill. Fill shall be placed in approximately horizontal layers. The thickness of each layer before compaction shall not exceed the maximum thickness specified on the drawings. Adjacent to structures, fill shall be placed in a manner which will prevent damage to the structures and will allow the structures to assume the loads from the fill gradually and uniformly.

Earthfill in dams, dikes, or other structures designed to restrain the movement of water shall be placed so as to meet the following additional requirements:

- a. The distribution of materials throughout each zone shall be essentially uniform, and the fill shall be free from lenses, pockets, streaks or layers of material differing substantially in texture, moisture content or gradation from the surrounding material.
- b. If the surface of any layer becomes too hard and smooth to achieve a suitable bond with the succeeding layer, it shall be scarified parallel to the axis of the fill to a depth of not less than 2 inches before the next layer is placed.
- c. The top surfaces of embankments shall be maintained approximately level during construction, except that a crown or cross-slope of approximately 2 percent shall be maintained to ensure effective drainage.
- d. Dam embankments shall be constructed in continuous layers from abutment to abutment except where openings to facilitate construction or to allow the passage of stream flow during construction are specified.

### **5. Moisture Content**

Unless otherwise specified, the soil will be wet enough to form a ball when squeezed in the hand, but not so wet that water will run out of the ball when squeezed.

Material that is too wet when deposited on the earthfill shall either be removed or be dried to the specified

moisture content prior to compaction.

If the top surface of the preceding layer of compacted earthfill or a foundation or abutment surface in the zone of contact with the earthfill becomes too dry to permit suitable bond, it shall either be removed or scarified and moistened by sprinkling to an acceptable moisture content before placement of the next layer of earthfill.

## **6. Compaction**

Earth backfill adjacent to structures shall be placed and spread in layers not over 4 inches thick before compaction, and shall be manually tamped in a manner which will prevent damage to the structure. Heavy equipment shall not be operated within 2 feet of any structure.

All other earthfill shall be placed and spread in layers not over 6 inches thick before compaction. Unless otherwise specified, each layer of fill shall be compacted by the specified number of passes of the type and weight of roller or other equipment specified, or by an approved equivalent method. Each pass shall consist of one complete passage of the roller wheel, track or drum over the entire surface of the layer.

Unless otherwise specified, use one of the following compaction methods for earthfill installation:

- a. Tamping (Sheepsfoot) Roller – Minimum of 4 passes with a contact pressure of at least 100 psi, towed at speeds not exceeding 5 mph.
- b. Wheel Type Tractor (Farm Tractor) - Minimum of 4 passes with a wheel load of at least 10,000 pounds and a tire pressure of 80 psi, towed at speeds not exceeding 5 mph.
- c. Type Tractor (Bulldozer) – Minimum of 4 passes with a track type tractor exerting a pressure of not less than 8 psi. Tractor speeds shall not exceed 5 mph during compaction process.