NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATIONS

ACCESS ROAD

1. Scope

The work shall consist of all construction operations and furnishing all materials as required by the drawings and specifications for the complete installation of the access road. All work shall be done in a workmanlike manner.

2. Location

The location of the road shall be as shown on the drawings or as staked in the field.

3. Site Preparation

The roadbed area (including ditches and side approaches) shall be cleared of all topsoil, trees, logs, stumps, roots, boulders, sod, and other unsuitable material. The limits of clearing (if required) will be marked in the field by stake, flags, or tree markings. Material residues from clearing shall be burned, chipped, buried, or piled in designated locations shown on the drawings or as staked in the field.

All channel banks and breaks crossing the roadbed area shall be sloped no steeper than 2 horizontal to 1 vertical (2:1). The roadbed area will be thoroughly scarified to a minimum depth of 4 inches before the fill material is placed and moisture is added (if necessary) so that the first layer of fill material can be bonded to the foundation.

4. Excavation

Excavation of the ditches, side approaches, channel banks, and other areas will be completed to the required elevations. Excavated slopes shall be as shown on the drawings or flatter. Suitable material from the required excavations shall be used as fill material. Additional material required for fill material will be obtained from designated borrow locations. Unsuitable materials from required excavations or the borrow area will be placed in designated waste areas or in exhausted borrow locations.

Borrow locations shall be as shown on the drawings. Unless otherwise shown on the drawings, all borrow areas shall be graded and left so they are well drained, protected from erosion, or seeded. Borrow area cut slopes shall be 3:1 or flatter unless otherwise shown on the drawings.

5. Earthfill

All earthfill materials shall be placed in approximately horizontal layers starting at the lowest point in the foundation. The earthfill materials shall be placed in nearly horizontal layers not exceeding 9 inches before compaction or as shown on the drawings. Materials placed by dumping in piles or windrows shall be spread uniformly to not more than the specified thickness before being compacted.

Machine compaction shall be accomplished by the controlled movement of hauling and spreading equipment over the fill area. Every point on the surface of each lift shall be traversed by not less than 1 tread track of the equipment.

Hand compaction shall be required adjacent to drainage structures and in areas inaccessible to heavy equipment. The hand-compacted fill shall be compacted by hand tamping or manually directed power tampers or plate vibrators. The backfill shall consist of clay material (lean clay [CL] or clayey sand [SC]) that is free of stones larger than 2 inches. The fill shall be placed in layers not more than 4 inches thick before compaction.

6. Control of Moisture Content

During placement and compaction of earthfill and earth backfill, the moisture content of the material being placed shall be sufficiently moist to prevent dusty conditions. The material will also be sufficiently dry to be workable (without excessive rutting of the compacted surface by the earthmoving equipment). Tracks from the earthmoving equipment should not exceed 1/2 of the compacted fill layer depth. The top surface of the preceding layer of fill shall have adequate moisture to permit suitable bonding with the next layer of fill prior to the placement of additional fill.

7. Structures for Water Control

Culverts of sizes and lengths specified shall be placed at the locations and grades as shown on the drawings. The installation shall conform to the requirements of Construction Specification 587, Structure for Water Control, or as recommended by the manufacturer. Compacted materials adjacent to the culverts shall meet the requirements of hand compaction.

For circular or oval culverts, initial backfill to 6 inches above the top of the conduit is required. Initial backfill shall be placed in 2 stages. In the first stage (haunching), backfill is placed to the pipe spring line (center of pipe). In the second stage, it is placed to 6 inches above the top of the pipe.

The first stage material shall be worked carefully under the haunches of the pipe to provide continuous support throughout the entire pipe length. The initial backfill material shall meet the requirements for hand-compacted earthfill in Section 5 or as shown on the drawings. During compaction operations, care shall be taken to ensure that the tamping or vibratory equipment does not come in contact with the pipe, and the pipe is not deformed or displaced.

Final backfill shall consist of placing the remaining material required to complete the backfill from the top of the initial backfill to the ground surface. Final backfill material within 2 feet of the top of the pipe shall be free of debris or rocks larger than 3 inches nominal diameter. Final backfill shall meet the requirements for machine-compacted earthfill as specified in Section 5 or as shown on the drawings. Vehicles or construction equipment shall not be allowed to cross the culvert until the initial backfill is completed.

Construct surface cross drains as broad based dips or diversions perpendicular to the roadway at the locations shown on the drawings. Limit the dip or diversion fill to 0.5 foot unless otherwise shown on the drawings or specified in section 12. Provide erosion resistant materials at the outlets of cross drains when required by the drawings.

8. Rock Riprap

Rock riprap for erosion control on slopes or around drainage structures shall be placed to the lines and grades as shown on the drawings. The rock shall be dense, sound, and free from cracks, seams, or other defects conducive to accelerated weathering. The rock fragments shall be angular to sub-round in shape with the least dimensions not less than 1/3 the greatest dimension of the fragment.

The subgrade surfaces on which the riprap is to be placed shall be cut or filled and graded to the lines and grades shown on the plans. The rock shall be placed to the depths specified. The riprap shall be constructed to the fill course thickness in 1 operation and in such a manner as to avoid serious displacement of the underlying materials. The rock in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact with one another, and with the smaller rocks filling the voids.

Hand placing will be required to the extent necessary to prevent damage to any structure.

The gradation requirements of the rock riprap will be as shown on the plans or as specified in Section 12.

9. Surfacing

Surfacing materials shall be required as shown on the drawings. Gravel surfacing materials will be dense, sound, and free of deleterious materials. The gradation of the surfacing materials will be as shown on the drawings or as specified in Section 12.

Surfacing materials will be placed or spread to a uniform thickness as required by the drawings. No compaction of the surfacing materials is required beyond that accomplished by the placing and spreading equipment.

10. Vegetation

A protective cover of vegetation shall be established on all exposed earthfill and borrow location surfaces. Seedbed preparation will consist of lightly disking compacted or polished soil surfaces to a depth of 3 inches and smoothing with a cultipacker. Seeding will be accomplished with a grass drill equipped with double disc or coulter furrow openers with depth bands and press wheels spaced not more than 12 inches apart. Mulch shall consist of native hay or clean straw and be applied at the rate of 2 tons per acre. It will be anchored by hand methods or specialized equipment using straight blades to punch the mulch into the soil. The mulch can be applied at the rate of 1 ton per acre if it is anchored by an asphalt emulsion at the rate of 300 gallons per acre. The seeding mix will be as shown on the drawings or in Section 12.

11. Measurement

Measurement of the completed access road will be measured to the nearest linear foot along the grade line of the completed road. All drainage structures will be measured to determine if the as-built dimensions are within a reasonable tolerance of the design dimensions. Typical tolerances are $\pm$2% of the dimension or quantity. Specific tolerances for individual items are given in Section 12.

12. Construction Details