

## A. **Mulching** (See Specifications manual item 645S-1 for detail)

### 1. **Description.**

Mulching is the process of applying wood mulch, wood chips, or other organic material to the exposed soil surface to protect it from erosive forces (wind, water, etc.) and to conserve soil moisture until plants can become established. Mulching shall not be considered a primary erosion control, but shall be used in conjunction with other approved controls.

The effectiveness of using Mulching as an erosion control technique depends on:

- The type of mulch used
- Mulch morphology
- Application rate
- Method of application: the mulching material can be placed mechanically or by hand.
- Soil type
- Slope
- Climatic characteristics
- Proper preparation of application area (uniform application surface to ensure optimal mulch to soil contact)

### 2. **Materials.**

Mulching material can be manufactured on or off the project site. It consists primarily of organic material, separated at the point of generation, and may include: shredded bark, stump grindings, or composted bark.

The mulching shall have the following composition:

- Use wood chips produced from a 3 (three) inch minus screening process (equivalent to TXDOT Item 161 Section 1.6.2.B Wood Chip requirements).
- Large portions of silts, clays, or fine sands are not acceptable in the mix.

Mulching material is composed of a well-graded mixture of particle sizes and may contain rocks less than 2 in diameter. Mulching material must be free of refuse, physical contaminants, and material toxic to plant growth. It is not acceptable for the mulching material to contain ground construction debris, biosolids, or manure.

Prior to placement a representative sample of the mulching material must be accepted by the project engineer or his/her designee and by the city inspector.

### 3. **Installation.**

Mulching is performed after grading and soil surface preparation is completed.

- Mulching is not recommended on 2:1 slopes or steeper.
- Mulching on slopes of 3:1 or flatter use a minimum depth of 4 inches. Apply mulching material a minimum of three (3) feet over the shoulder and beyond the base of the slope or into existing vegetation where possible to prevent rill formation and transport of the material (Figure 1.4.5.A).
- The mulch may be placed with a hydraulic bucket, a pneumatic blower, or by hand.
- The effectiveness of the mulching material depends on good contact between the soil and mulching

material. Maximum contact with the soil promotes increased infiltration and sediment trap formations. If the mulching material does not make full contact with the soil, is perched above the soil by clods, or stays suspended above depressed areas, severe rill erosion can occur beneath it. Therefore mulching material must be placed to ensure maximum contact with the soil. Provide a smooth application surface by tracking, rolling, raking, etc. to ensure an optimal mulch to soil contact.

- The mulching material shall be placed evenly and uniformly to provide 100% coverage.

#### 4. **Where mulching is not allowed as an erosion control:**

- On slopes with groundwater seepage;
- At low points with concentrated flows and in gullies;
- On slopes equal to or steeper than 2:1;
- At the bottom of steep perimeter slopes exceeding 100 feet in length (large up-gradient watershed);
- Below culvert outlet aprons, and
- Around catch basins and closed storm system outlets.
- Within a stormwater control structure.
- No mulching material shall be placed within 100 feet of any source of surface water or drinking water supply.
- Mulching shall not be used as a primary perimeter site erosion control.

#### 5. **Inspection and Maintenance.**

- The mulched area shall be inspected regularly and after each large rainfall. Any required repairs shall be made immediately, with additional mulching material placed on top of the mulch to reach the recommended thickness.
- When the mix is decomposed, clogged with sediment, eroded or ineffective, it must be replaced or repaired.
- Vegetation adds stability and should be promoted.
- If the mulch is not removed prior to revegetation, it should be spread out into the landscape to a depth that will not prevent seed germination and will encourage effective revegetation of the site.

#### References:

1. Foltz, Dooley (2003), Comparison of Erosion Reduction Between Wood Strand and Agricultural Straw, Trans. ASAE 46(5): 1389-1396.
2. Demars, Long, and Ives (2000), Use of Wood Waste Materials for Erosion Control, NETCR 20
3. McCoy and Noble (2002), Use of Compost & Mulch for Storm Water Management, Erosion & Sediment Control, TCEQ
4. Wischmeier, W.H. and D.D. Smith (1978), "Predicting Rainfall Erosion Losses - A Guide to Conservation Planning" U.S. Department of Agriculture, Agriculture Handbook No. 537

**NOTE: THIS METHOD IS NOT A PRIMARY EROSION CONTROL AND SHOULD BE USED IN CONJUNCTION WITH MULCH SOCKS, SILT FENCES, MULCH BERMS, AND OTHER APPROVED METHODS OF SEDIMENTATION AND EROSION CONTROL.**

Figure 1.4.5.A.1 Mulching Detail

