Mulching

Definition

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface.

Description and Purpose

The primary purpose is to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch is also used alone for temporary stabilization in nongrowing months.

Pollutant(s) controlled:

- Suspended Sediments

Companion and Alternative BMPs

- Rolled Erosion Control Products
- Hydroseeding
- Seeding/vegetation
- Compost Products

Advantages and Disadvantages

Advantages:

- Mulch offers a moist, shaded growing zone which reduces plant burn-off
- Proper and timely application can help keep seed and soil nutrients or fertilizer in place.
- Mulch can help suppress weed growth

Disadvantages:

- Unanchored mulch can be mobilized in concentrated flow or high wind conditions or when on slopes.

Location

On soils subject to erosion and on new seedings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

General Characteristics

- Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems. To keep eroded soil or concentrated runoff away from the mulched area.
- Several types of mulch materials exist, several of the most common are described as follows:

    - Straw – Straw is the most commonly used type of mulch, is readily available in most areas, and is effective when applied properly. Use small grain straw (wheat or oat) that is reasonable free of grain and weed seeds or mold. Straw of winter rye is preferable to spring-seeded grains, since fewer weed seeds generally are present. Hay should only be used if straw is not available.
    - Wood Chips – Wood chips are suitable for areas which will not be mowed, and around landscaped areas. Wood chips should not be used in areas which are drained by storm sewers, areas subject to flooding, or any other place where they would cause problems if they floated away. Wood chips do not require anchoring, but need to be applied evenly to be effective as an erosion control measure.
    - Bark Chips and Shredded Bark – Bark chips and shredded bark are bi-products of timber processing and are often used in landscaping. They may also serve as mulch for areas planted to grasses which are not mowed, and on slopes which are not steep. Applied with a blower, bark chips and shredded bark are less likely to leave the site than wood chips because of their rough edges.
    - Compost – Compost can be used as mulch. See the Compost Product BMP on Page # BMP Guidebook for additional details.
- Anchoring should be done at the time of or immediately following the application of the mulch

Materials

- Mulch of choice
- Seed
- Anchoring

Design Specifications

- See Table 1 for specific design specifications by mulch type and Table 2 for specific anchoring selection details

Construction Guidelines

1. Slope, grade and smooth the site to fit needs of selected mulch products.
2. Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.
3. Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.
4. Select appropriate mulch material and application rate or material needs. Determine local availability.
5. Select appropriate mulch anchoring material.
6. Anchor mulch immediately after the mulch is applied

Monitoring

- Mulched areas should be checked following each rain to ensure the much is staying in place.

Maintenance

- Maintenance procedures should be followed for the BMPs which were implemented to keep the eroded soil or concentrated runoff away from the mulched area.

References

New York Standards and Specifications for Erosion and Sediment Control. 2005. Mulching

Table 1:

Guide to Mulch Materials, Rates, and Uses

Mulch Material	Quality Standards	per 1000 Sq. Ft.	per Acre	Depth of Application	Remarks
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7"	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2"	9 cu. yds.	405 cu. yds.	3"	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/ yd. 60-90 lbs./roll	48" x 50 yds. or 48" x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	8" x 100" 2-sided plastic, 48" x 180" 1-sided plastic	—	—	Use without additional mulch. Excellent for seeding establishment. Tie down as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Compost	Up to 3" pieces, moderately to highly stable	3-9 cu. yds.	134-402 cu. yds.	1-3"	Coarser textured mulches may be more effective in reducing weed growth and wind erosion.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

Table 2:

Guide to Mulch Anchoring

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45^0 Fahrenheit are required.