
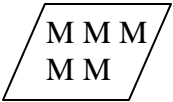



<b>Oak Park Conservancy District Stormwater Best Management Practices (BMPs) Erosion Prevention Practices (EPPs)</b>		<b>EPP-08</b>	
<b>Activity: Mulching</b>			
<b>PLANNING CONSIDERATIONS:</b>  <b>Design Life:</b> 6-8 Months  <b>Acreage Needed:</b> None  <b>Estimated Unit Cost:</b> Straw Mulch: Avg: \$1700/acre Range: \$500-\$5000/acre Wood Fiber: Avg: \$1000 Range: \$500-\$2300 Per acre <b>Monthly Maintenance:</b> 60% of Installation			
			
	<b>Target Pollutants</b>		
	Significant ◆                      Partial ◆                      Low or Unknown ◇		
Sediment ◆    Heavy Metals ◇    Nutrients ◇                      Oxygen Demanding Substances ◇    Toxic Materials ◇ Oil & Grease ◇    Bacteria & Viruses ◇                      Floatable Materials ◇                      Construction Waste ◇			
<b>Description</b>	To secure temporary or permanent freshly seeded areas, mulching is used as a stabilizer. There are several types of mulches to be utilized, some of which include organic materials, straw, wood chips, and bark or other wood fibers. This management practice has the possibility to significantly reduce sediment and partial reduction of nutrients.		
<b>Suitable Applications</b>	<ul style="list-style-type: none"> <li>➤ Temporary stabilization of freshly seeded and planted areas, sometimes during periods of unsuitable vegetative growth.</li> <li>➤ Temporary stabilization of areas that cannot be seeded or planted (e.g., insufficient rain, steep slope, non-growth season).</li> <li>➤ Areas that have been permanently seeded to assist in retaining moisture, and to hold seeding.</li> <li>➤ On areas to increase the survival of temporary and/or permanent vegetative cover.</li> <li>➤ As short term, non-vegetative ground cover on steepened slopes to reduce rainfall impact, decrease the velocity of sheet flow, and settle out sediment.</li> <li>➤ As ground cover around established plants, such as trees or shrubs, and on unprotected flat to minor slopes.</li> <li>➤ Apply to planting areas where slopes are 2:1 (H: V) or less steep. Tacking agents or devices may be necessary for steeper slopes.</li> <li>➤ Areas where climatic conditions require soil moisture retention aid to avoid cracking.</li> </ul>		
<b>Approach</b>	The term "mulch" is commonly used to describe a variety of materials, such as: Shredded tree bark and other woody materials, to protect trees and shrubs Straw or hay, scattered across a slope or disturbed area Peat mulch, used in planting trees and shrubs.		

**Approach  
(Continued)*****Vegetative Fibers***

Loose hay or straw are the most common mulch materials used in conjunction with direct seeding of soil. Straw mulch is preferable over hay mulch, which may contain weeds and other objectionable material. Straw mulch is the short-term protection most commonly used with seeding. Wheat or oat straw is recommended from the current season's crop (less than 12 months old). Average fiber length should exceed 6 in. Straw mulch is applied immediately after seeding, either by machine or by hand distribution. Anchor the mulch in place using a tacking agent, plastic netting, or punching into the soil mechanically. Plastic netting requires wire staples, wooden stakes, or plastic stakes. If the slopes are too steep for netting, then tacking agents should be selected based on longevity and the ability to hold the fibers in place.

***Shredded Vegetation***

"Green" mulch is produced by recycling of vegetation trimmings such as grass, shrubs, and trees. Methods of application are generally by hand, although pneumatic methods are currently being developed. It can be used as a temporary ground cover with or without seeding. The green mulch in place with a tacking agent on steep slopes and in areas where overland sheet flow is anticipated. The quality of green mulch may vary, and there is a strong potential for establishing unwanted weeds and plants.

***Wood and Bark Chips***

Wood and bark chips are suitable for landscaped areas that will not be closely mowed. Wood and bark chips may require nitrogen treatment (12 lbs/ton typical rate) to prevent nutrient deficiency. Bark chips do not require additional nitrogen fertilizer.

If there is a wood source near the project site, wood and bark chips can be very inexpensive. Caution must be used on steep slopes, since both wood and bark chips tend to wash down slopes exceeding 6 percent. Wood and bark chips are also used around trees and shrubs, or in ornamental or landscape gardens. A typical depth is 2 to 3 in.

***Hydraulic Mulch***

Hydraulic mulch can be made from virgin wood fibers or from recycled waste paper sources (newsprint, magazine). There are also mulches available that are a combination. In general, virgin wood fibers contain a longer fiber length than recycled paper mulch.

Hydraulic mulch is mixed in a hydraulic application machine (such as a hydroseeder or a mulch blower) and then applied as a liquid slurry. The hydroseeder slurry contains recommended rates of seed and fertilizer for the site, usually specified with a tacking agent. Slurry must be constantly agitated to keep the proper application rate and achieve uniform effective coverage.

***General Description***

Mulch is basically defined as a layer of material spread uniformly over a ground surface to prevent weeds and/or retain soil moisture. Mulch is usually an organic material such as shredded tree bark, hay, straw sawdust or leaves. Mulch prevents erosion by protecting the soil surface from rain and runoff impact and fostering growth of new seeds or seedlings. The choice of mulch should be based on the size of the

**Activity: Mulching****Approach  
(Continued)**

Area, site slopes, amount of sunlight or shade, proximity to drainage features and natural streams, soil hardness and moisture, weed potential, and availability of mulch materials. Organic materials may also decompose and aid the soil in providing nutrients for vegetation.

Inorganic materials such as inert black plastic or manufactured landscaping fabric can also be used to prevent weeds and retain moisture, but are not considered as mulch. Newspaper is also commonly used to control weeds, but is subject to leaching of ink and chemicals. The use of newspaper within soil for weed control is discouraged.

***Grass Vegetation***

Mulch helps establish temporary or permanent grass vegetation for disturbed soils after a construction project or land-use reclamation project. Straw and hay mulch are often selected due to the ease of application and good results. Alternatively, hydroseeding (including hydraulic application of mulch) is often performed, especially on steep slopes and locations that require quick establishment of grass.

Applying straw or hay mulch to a slope or hillside will require wither physical measures (crimping, erosion control mats) or chemical binders (special asphalt emulsions) to keep the mulch from washing away or blowing away. The binder is also called a tacking agent or tackifier. A typical application rate might be 100 lbs pf straw or hay mulch per 100 square feet.

Hydraulic application of seeding and other materials (hydroseeding) can be done quickly and efficiently with the correct equipment and ingredients. Also, hydraulic application must be done when no rainfall is expected, preferably within a 24-hour time period.

Virgin wood fiber mulch consists of specially prepared wood fiber that does not contain any growth-inhibiting factors. The mulch is manufactured and processed so the fibers will remain in uniform suspension in water under agitation to form a homogeneous slurry. The fiber lengths should be as long as possible to increase the effectiveness for erosion control. Wood fiber mulching should not be used in areas if extremely hot summer and late fall seasons because of fire danger. When used as a tacking agent with straw mulch, wood fiber mulches are good for steep slopes and severe climates.

A wood mulch can be manufactured containing a tacking agent in each bag or specified without a tacking agent. A typical construction specification for wood fiber mulch is as follows:

- Composed of 100% wood fiber.
- Moisture content (total weight basis) not to exceed 12%.
- Organic matter content (dry weight) = 99.3% minimum.
- Inorganic matter (ash) content (dry weight) =0.7% maximum.
- Controlled pH values.
- Water-holding capacity (dry weight) = minimum 1.2 gallons per pound.

<b>Activity: Mulching</b>	<b>EPP-08</b>
<b>Approach (Continued)</b>	<p>A high quality type of hydraulic matrix known as a Bonded Fiber Matrix (BFM) is generally manufactured for easy application by the appropriate equipment. It generally contains a tacking agent mixed with the wood fibers.</p> <p>A combination mulch may include wood fiber and paper fiber, with a tacking agent. A hydraulic matrix can be formulated using varying quantities of these components. A typical mixture is as follows</p> <ul style="list-style-type: none"> <li>- 12 lbs per 1000 square feet wood fiber mulch.</li> <li>- 24 lbs per 1000 square feet recycled paper mulch.</li> <li>- 2 gallons per 1000 square feet acrylic copolymer (55% solids content).</li> </ul>
<b>Maintenance</b>	<ul style="list-style-type: none"> <li>➤ Must be inspected weekly and after rain for damage or deterioration.</li> <li>➤ Maintain an unbroken, temporary mulched ground cover throughout the period of construction that the soils are not being reworked. Inspect before expected rainstorms, repair any damaged ground cover, and remulch exposed areas of bare soil.</li> </ul>
<b>Inspection Checklist</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Organic mulches are not permanent erosion control measures.</li> <li><input type="checkbox"/> Check soil surface temperatures to ensure no germination delays.</li> <li><input type="checkbox"/> Intensive practices require specific mulching measures, determine if straw or hay is needed.</li> <li><input type="checkbox"/> Large ground surface areas can use recycled paper hydraulic mulches and wood fiber based hydraulic mulches.</li> </ul>