
UDC / Erosion Control Info Bulletin

July 16, 2004

SPS 321.125 Erosion Control

Wisconsin builders, landscapers, other private companies, land conservation districts, and a nonprofit organization have worked together to develop a system whereby chipped waste lumber (dimensional and engineered) is applied to soil sites to protect it from raindrop impact and overland flow. A number of questions have been asked regarding the system's application to one- and two-family dwelling sites and whether or not it satisfies the erosion control requirements of the UDC. Questions and answers to those questions follow.

Question #1: May wood chip mulching comprised of waste lumber be used as a site stabilizing material?

Answer: Yes. Using the practice of mulching as a means of to stabilization is recognized in SPS 321.125(1)(b). The waste wood used for mulch may be a hard or soft wood chipped to less than 3-inches in every dimension and shall be free of mold, sawdust, and other foreign materials. Currently the only waste lumber allowed for use as mulch is untreated dimensional lumber and oriented strand board (OSB). Wood chips shall be applied at a rate of 6 to 9 tons per acre which should result in a layer of wood chips or wood bark ½ to 1 ½ inches thick. (See attached document "Wood Chip Mulching for One and Two Family Home Sites".)

This site stabilization methodology may be used in lieu of perimeter control measures such as silt fences, hay bales and silt socks as long as the disturbed site is covered with the wood mulch in its entirety. Application, application rate and maintenance of the waste wood mulch shall conform to the provisions set forth in the attached document and SPS 321.125.

Discussion: The code already accepts mulch as a means for stabilizing sites. The wood mulch produced through this process is comprised of chipped waste wood material. Instead of shipping the waste material to the landfill the material is used as mulch to stabilize the soil on the construction site. The waste material used in the process must be material that has been approved by the DNR for distribution on the site. Examples of acceptable materials are identified in the answer. Under no circumstances may treated wood (CCA, green treated, creosote, Copper Quat) be used as mulch or erosion control material because of the toxic chemicals used in their treatment.

Question #2: Is a silt sock an acceptable perimeter erosion control measure?

Answer: Yes, as long as it is at least 8 inches in diameter, is placed in contact with the ground along the entire length of the sock and is appropriately secured in place. Similar to silt fences and straw bales used as perimeter protection, the silt socks shall be installed prior to disturbing the up-slope area unless indicated otherwise on the approved erosion control plan. The spacing and maintenance of the silt socks shall be similar to silt fences and straw bales as set forth in the best management practice.

Discussion: A silt sock is a tubular shaped material comprised of a fabric exterior shell that is stuffed with compost or wood chips. As with the wood mulch, compost and wood chips used in the sock shall be an environmentally safe material. The silt sock can come in lengths of 10 feet to 40 feet or more. The silt sock is typically just laid on the top of the ground along the down-slope areas and along side-slope areas as required to prevent or reduce erosion. The silt sock is either lapped or butted at the ends and secured in place by means of stakes or other supports. Intermittent stakes, or other means of support, shall be provided along the rest of the silt sock as needed.

WOOD CHIP MULCHING

FOR ONE AND TWO FAMILY HOME SITES

GENERAL

Wood chip mulching is the application of chipped waste lumber (dimensional and engineered) material to the soil surface to protect it from raindrop impact and overland flow. The mulch covers the soil and absorbs the erosive impact of rainfall and reduces the flow velocity of runoff, significantly reducing soil loss from a site.

Wood chip mulch may be applied after the site has been rough graded to control erosion. It provides a temporary cover that reduces soil loss and allows vehicular and foot traffic over the area. Mulch also provides benefits to the site beyond erosion control. The wood chips form a blanket over the soil, and moderate its temperature, conserving moisture and providing an environment conducive to seed germination.

Wood chip mulching is a versatile practice that is applicable on sites where sheet flow is maintained and slopes do not exceed 3:1. It may not be used in channels or other areas where concentrated flow may occur. In these situations, erosion blankets or mats, which are more effective and may have a longer life span, should be used.

TYPES

The wood used for mulch may be a hard or soft wood chipped to less than 3-inches in every dimension and shall be free of mold, sawdust, and other foreign materials. Currently the only waste lumber allowed for use as mulch is un-treated dimensional lumber and oriented strand board (OSB). Other engineered lumber is expected to gain approval for use in the near future. **Under no circumstances may treated wood (CCA, green treated, creosote, Copper Quat) be used as mulch or erosion control material because of the toxic chemicals used in their treatment.**

ADVANTAGES

- ▶ Cost-effective
- ▶ Easy to apply
- ▶ Protect the soil surface from raindrop impact, preventing erosion
- ▶ Reduce evaporation from the soil and moderates soil temperature
- ▶ Hinders weed growth

DISADVANTAGES

- ▶ Ineffective on slopes steeper than 3:1
- ▶ Ineffective with large storm events
- ▶ May require frequent maintenance

Like all other organic mulches, wood chips are biodegradable. However, as wood chips degrade, they typically absorb a significant portion of the available soil nitrogen, making it unavailable for the establishing seed. Thus, depending upon the nitrogen content of the soils present on site, nitrogen fertilizer may need to be applied along with wood products to encourage the establishment of seed.

APPLICATION RATE

Mulch should be applied so that the soil surface is uniformly covered. Wood chips shall be applied at a rate of 6 to 9 tons per acre to achieve a minimum of 80% ground cover. This application should result in a layer of wood chips or wood bark ½ to 1½ inches thick.

Mulch may be applied by hand or by mechanical methods. Mechanical methods are generally much faster and more cost-effective, but may not distribute the mulch as evenly as hand application.

MAINTENANCE

Mulch shall be inspected weekly and after each storm event (including windy days) for signs of displacement and rill erosion. Necessary repairs and/or replacement shall be performed immediately to preserve effectiveness. Inspections shall continue until vegetation has been permanently established.

METHOD TO DETERMINE PRACTICE EFFECTIVENESS

Since wood chip mulching protects the soil surface from raindrop impact, it is a very effective erosion control practice. In general, when properly applied, mulching provides a reduction in soil loss of up to 88% compared to no control. (Derived by using a Universal Soil Loss Equation Cover Factor of 0.12)



Home construction site utilizing wood chip mulch for erosion control.

SOURCES

1. *Minnesota Urban Small Sites BMP Manual*. Metropolitan Council. Minneapolis. 2000.
2. *Planning and Design Manual for the Control of Erosion, Sediment, and Stormwater*. U.S. Department of Agriculture, Natural Resources Conservation Service and Mississippi Department of Environmental Quality. Washington, D.C. April 1994.
3. *Mulching Fact Sheet*. Center for Watershed Protection. 1998. Center for Watershed Protection, Inc., Ellicott City, MD.
4. *Wisconsin Field Office Technical Guide*. U.S. Department of Agriculture, Natural Resources Conservation Service. Washington D.C. 1993.
5. *Illinois Urban Manual. A Technical Manual Designed for Urban Ecosystem Protection and Enhancement*. United States Department of Agriculture, Natural Resources Conservation Service. Washington, D.C. 1995.
6. *Indiana Handbook for Erosion Control in Developing Areas*. Indiana Department of Natural Resources, Division of Soil Conservation. Indianapolis. 1994.
7. *National Catalog of Erosion and Sediment Control and Stormwater Management. Guidelines for Community Assistance*. U.S. Department of Agriculture, Natural Resources Conservation Service. Washington D.C. 1996.