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4.2.6.9 Stabilization with Straw or Mulch: Temporary



Source: TNWRRC

Definition and Purpose

Mulching is the process of blanketing exposed soil surface with organic materials like straw, wood chips, corn stalks, wood fiber, or other fibrous residues. The primary purpose of mulching is to protect the soil from raindrop impact and reduce the velocity of overland flow, thereby minimizing erosion and sediment displacement. Mulching also conserves soil moisture, promotes seed germination, acts as a weed barrier, and provides insulation against temperature fluctuations, which helps support healthy vegetation growth.

Appropriate Applications

Mulching is applicable on most construction sites and is a cost-effective solution for temporary stabilization. It is particularly useful when seasonal constraints, such as dry soils, extreme heat, or frost, limit vegetation growth or in areas that cannot be mowed. Further, mulching is an economic option when mulch or wood chips can be made from cleared trees and vegetation. Mulching is most effective when used in combination with seeding or vegetation that, when established, becomes permanent stabilization (USEPA, 2021).

Limitations and Maintenance

During large storms or windy conditions, mulch alone may not provide lasting stabilization. Furthermore, mulching applications are least effective in areas receiving concentrated flow. When these conditions are anticipated, mulch should be applied with an anchoring device, a tackifier (Section 4.2.6.5), in conjunction with other stabilization practices, or hydro applications (Section 4.2.6.5) should be considered.

Mulched areas should be inspected frequently, especially after rainstorms, to check for signs of erosion and dislocation. It is necessary to repair any damaged areas by reapplying mulch



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as needed. If the erosion persists, ensure the anchoring device is properly installed or consider adding an additional anchoring mechanism. Maintenance activities should continue until vegetation has established or until construction activities resume.

Planning and Design Considerations

There are a variety of mulch materials available (Table 4.2.6.9-A) and the selection of mulch should be based on site conditions, soil type, vegetation goals, season, and economic factors. Before applying mulch, install sediment control practices, complete the required grading, and, if applying seed, prepare the seed bed. Mulch should be spread uniformly over the disturbed area at rates specified in Table 4.2.6.9-A, covering at least 75% of the disturbed area. When mulch and seed are used in combination, apply the seed before the mulch except in the following scenarios: 1) seed is applied as a part of a hydroseeder slurry containing mulch, and 2) a hydroseeder slurry is applied over straw.

Table 4.2.6.9-A: Mulching materials, application rates, and application notes. Sources: ALSWCC (2018), NCDEQ (2013), and USEPA (2021).

Mulch Material	Application Rate Per (tons/acre)	Application Notes
Straw (no seed)	2 - 3	Spread by hand or machine, requires anchoring.
Straw (with seed)	1 - 2	Spread by hand or machine, requires anchoring.
Wood Chips or Bark	5 - 8	Apply with mulch blower, chip handler, or by hand.
Wood Fiber/Cellulose	0.5 - 1	Use with hydroseeder. Not applicable in hot, dry weather.
Corn Stalks	4 - 6	Apply 4 - 6 inch shredded stalks with mulch blower or by hand.
Pine Straw	1 - 2	Spread by hand or machine, may not require anchoring.

Straw is one of the most commonly used mulching materials on construction sites, particularly in conjunction with seeding, due to its effectiveness in reducing raindrop impact and moderating soil microclimate (KTC, 2015). Straw often comes from wheat or oat and can be applied by hand on smaller sites or blown onto larger areas using specialized equipment. Proper application rates are to ensure soil protection while allowing sunlight and seedlings to penetrate is crucial. It is best to use clean, weed-free straw to minimize the spread of invasive vegetative species. To prevent displacement by wind, straw mulch should be anchored immediately after application (ALSWCC, 2018; VDEQ, 2024).



Source: TDEC



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Wood chips or bark are an effective mulching material for areas that will not be closely mowed, such as landscaped areas (ALSWCC, 2018). They decompose slowly and do not require anchoring, making them relatively low maintenance. If soil building or revegetation are part of the plans, nitrogen fertilizer can be applied to the mulch to compensate for the temporary loss of available nitrogen to soil microbes as they break down the carbon-rich mulch (MCPA, 2019). Wood chips or bark can be applied by hand or with a mulch blower.



Wood fiber mulch, commonly used in hydroseeding applications, is typically made from a combination of wood and paper fibers derived from lumber mill waste, wood chips, or recycled paper products. It is applied as a slurry using a hydraulic applicator and is often mixed with seed and fertilizer. Tacking agents or binders (Section 4.2.6.5) can be added to improve adhesion, especially on steep slopes or critical areas. Wood fiber mulch is most effective for enhancing seed germination and stabilizing soil but is not suitable for erosion control on highly erodible soils or during dry summer and late fall periods.

Corn stalks, pine straw, and hay are less common mulching materials as they may only be available locally or seasonally. Corn stalks are cut or shredded to a size of four to six inches before applied either by hand or blower. Both corn stalks and pine straw are mostly resistant to wind displacement and likely do not need anchoring; however, hay requires immediate anchoring.

Anchoring must be applied to straw (or hay) mulch immediately or to other mulches if inspection notes indicate mulch displacement. Appropriate anchoring mechanisms may include mulch anchoring tools (crimping), nettings (Section 4.2.6.6), or liquid mulch binders and tackifiers (Section 4.2.6.5). Whenever possible, use plastic-free, wildlife-friendly (netless), and biodegradable anchoring mechanisms.

Example Application

No formal design or quantities are required for this measure and therefore are not presented here.

References

ALSWCC. (2018). *Erosion Control, Sediment Control and Stormwater Management on*



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Construction Sites and Urban Areas.

KTC. (2015). *Best Management Practices (BMPs) for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites.*

MPCA. (2019). *Minnesota Stormwater Manual: Erosion prevention practices – natural and synthetic mulches.*

NCDEQ. (2013). *Erosion and Sediment Control Planning and Design Manual.*

USEPA. (2021). *Stormwater Best Management Practices: Mulching.*

VDEQ. (2024). *Virginia Stormwater Management Handbook.*