MULCHING

Mulch is a layer of organic material applied to a soil surface to help to retain moisture, regulate temperature and enhance soil health. Common materials used as mulch or as part of a hydraulic mulch mix are straw, shredded trees or bark, wood shavings, paper fiber and compost. When applied alone on bare soil it can reduce erosion by absorbing rainfall and acting as a protective physical barrier. It is often applied in conjunction with seed since it provides the added benefits of insulating the seeds and keeping them in place until they germinate.

Mulch is typically applied using one of the following methods:

- **Placement and spreading by construction equipment** | Dry mulch may be placed and spread using construction vehicles such as rubber-tired loaders or dozers. For smaller areas or those with no vehicle access, manual placement and raking may be suitable. Once applied, dry straw or hay can be kept in place by crimping it into the soil using a crimper (Figure B1-7).

Figure B1-7: Dry straw crimped into place (left) and hydromulched area (right)

- **Hydraulic application** | Hydraulically applied mulch, also referred to as 'hydro-mulch' is a slurry containing mulch materials (typically wood or paper based), water and a tackifier (Figure B1-7). Similar to a hydroseed mixture, it is stored in a tank and sprayed onto the soil surface using a hose. Helicopters with hydro-mulch sprayers are used when it is necessary to cover very large areas (e.g. following forest fires).
- **Pneumatically applied using a blower truck** | A blower truck can be used to apply dry mulch alone or with a tackifier. When applied as a dry mulch it is more appropriate for application on planted areas rather than on bare soil areas where it may not stay in place. Blower truck application of mulch with soil and seed is detailed in the 'Seeding' section.

Application

- Short term erosion control on bare soil areas that are not subject to concentrated flows.
- Dry mulch best used on areas that have been seeded.
- Hydro-mulch (with tackifier) should only be applied alone to areas requiring temporary erosion control, including areas that are not meant to be seeded at time of mulching.
- Mulch applied for erosion protection on slopes steeper than 2H:1V should be in conjunction with a tackifier and/or seeding.

Design and Installation

- Mulching is most effective for erosion control when it is applied in conjunction with seeding, so that it can insulate seeds, retain moisture and prevent erosion.
- Select a mulch material which is derived from organic matter, and is free of weeds, seeds and fragments of invasive species. Straw mulch should be oat or wheat straw, while a hydraulic mulch should consist of wood or paper fibres, water, and a tackifier (OPSS.PROV 804, 2014). Mulch should not be derived from chemically treated wood or contain any additives that could inhibit growth of vegetation. Guidance on tackifiers is provided under "Chemical Stabilization" in this Appendix.

Figure B1-8: Straw crimper

- Compost used as mulch should be stable, humus-like material produced from the aerobic decomposition of organic feedstocks, composted and cured until maturity. Compost quality should comply with mandatory Ontario MECP Compost Quality Standards for Category 'AA' or 'A' and be applied at rates that comply with Canadian Food and Inspection Agency (CFIA) regulations T-4-93 (CFIA, 1997a) and T-4-120 (CFIA, 1997b).
- Prior to application of hydro-mulch, the soil surface should be prepared by removing large rocks or other deleterious materials and filling in any rills or gullies. Roughening soil surface prior to application can help to keep mulch in place.
- Hydraulic mulch should be applied to the soil surface with good coverage. It should be applied with a uniform thickness, although slightly denser application may be warranted in erosion prone areas.
- Dry straw mulch should be kept in place by application of a tackifier or by crimping into place with a crimper (Figure B1-8).
- When applying hydro-mulch, consider the drying time and ensure that there will be an opportunity for the application to dry before the next rainfall event.
- Hydro-mulch should not be applied to frozen soil or during freezing or rainy conditions.
- For direction on the use of mulch in permanent/post-construction site restoration, see the guide entitled *Preserving and Restoring Healthy Soils: Best Practices for Urban Construction* (TRCA, 2012).

Inspection and Maintenance

- Inspect mulched areas weekly, and before and after significant rainfall (see definition in Section 10.1.2) or snowmelt events. Keep a record of inspections.
- Ensure mulch applied on-site is consistent with approved plans with respect to the type and quality.
- Ensure vehicles and equipment are not driving over areas that have been mulched.
- Look for any evidence of insufficient coverage, migration of mulch due to poor attachment or soil erosion (e.g. rilling). Where erosion is occurring, determine whether re-application is needed, if the area should be reinforced with additional erosion control measures, or if flows should be re-routed around the area.

- Regrade and re-apply mulch in areas where coverage was insufficient or where mulch has been removed due to erosion.
- Refer to inspection and maintenance guidance in ‘Seeding’ section (p. B1-17) for mulched areas that have also been seeded.
- Any repair or maintenance needs identified should be repaired within 48 hours or sooner if natural receptors are at imminent and foreseeable risk of adverse impact.