



Acceptable Vegetation and Cap System Maintenance

This document provides information regarding selection and maintenance of vegetation on landfills.

Applicable Rules

MSW: OAC 3745-27-08(C)(5)(d)
OAC 3745-27-14(A)(2)

IMW: OAC 3745-30-07(D)(11)
OAC 3745-30-10(B)(2)

Tires: OAC 3745-27-72(C)(9)(g)
OAC 3745-27-74(A)(2)

C&DD: OAC 3745-400-07(G)(2)(a)(iii), (b)(ii)
OAC 3745-400-12(E)(8)

Applicability

This document applies to owners and operators of municipal (MSW) and industrial or manufacturing waste (IMW) landfills, scrap tire monofills, and construction and demolition debris (C&DD) facilities undergoing closure or in post-closure care.

Detailed Discussion

The various landfill programs have different final cap design standards. However, all the programs have a requirement to establish a complete and dense vegetative cover; either as healthy grasses or other vegetation, or as perennial vegetation. In addition, the owner or operator is required to maintain the integrity and effectiveness of the cap system.

Deep Root Systems

Although the rules do not address root type or depth, DMWM has discouraged the selection of plants with deep root systems because they may be detrimental to the function of the cap system. For caps without a drainage layer and flexible membrane liner, deep root systems can create infiltration pathways when the plant dies, which results in the promotion of leachate generation. For caps with a geocomposite drainage layer, deep root systems can fill and clog the geocomposite drainage layer and disrupt its function. Thus, DMWM has discouraged establishing trees, brush, and some forbs and grasses on landfill caps.

If the owner or operator desires to establish plants with deep root systems (e.g. to establish a wildlife biodiverse area), the cap system will need to be designed to accommodate the deep roots. A thicker (>60 inches) vegetative layer can be established, or planters can be incorporated to contain the deep root system.

Removing Vegetation Prior to Cap Construction

Sometimes trees and brush become established on the landfill before the final cap is constructed. Typically, the area is cleared and grubbed prior to cap construction. The trees and brush can also be cut flush to the ground or removed completely, after which the hole should be filled.

Mowing

Natural succession of vegetation is from grass to brush to trees. Thus, if efforts are not taken to maintain a healthy grass cover, brush and trees will grow on the cap. Trees are subject to uprooting, which leads to soil erosion and forms depressions in the cap where ponding will occur. Also, shade from trees can inhibit grass growth, which leads to soil erosion as well. Therefore, it is necessary to plan for mowing of the cap system during the post-closure care period. Although the rules do not specify a frequency for mowing, DMWM recommends mowing at least once a year. If mowing takes place in the spring, the owner or operator has an opportunity to identify and perform needed repairs and to

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reestablish vegetation during the growing season. If mowing takes place in the summer, weeds are cut down before they seed.

If trees and brush become established on the cap, and the owner or operator needs to remove them; DMWM recommends either removing the offending vegetation and filling the holes or cutting the trunks flush to the ground (low enough to be mowed over).

[Reseeding](#)

For MSW and IMW landfills, rules were recently updated to include a provision for reseeded. If vegetation covers less than 75% of the cap system, the owner or operator shall reseed and, if appropriate, amend the soil. This principle can also be applied to scrap tire monofills and C&DD facilities.

The assessment of vegetative cover should be made as close to 'vertical' as possible. It should not be made obliquely, i.e. standing at the top or bottom of the slope and looking down or up, due to bare or sparse areas potentially being obscured by neighboring vegetation. Based on this approach and observed bare areas (e.g. result of leachate outbreak or bare patches from landfill gas), a 10-foot by 10-foot area is considered reasonable for assessing the percentage of vegetative cover. It is not acceptable if, for example, 80% of the cap has dense vegetation but 20% is sparse or bare. In practice, if a sparse or bare area is noted, if less than 75% is vegetated, the area is required to be reseeded.

[Contact](#)

If you have questions regarding this document or would like additional information, please contact:

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