

COMMUNITY DEVELOPMENT

1701 C Street
Washougal, WA 98671

(360) 835-8501
ext. 236

Fax (360) 835-8808
cityofwashougal.us

Post-Construction Soil Quality and Depth Guide



*Adapted from Building Soil: Guidelines and Resources for
Implementing Soil Quality and Depth Community Development*

WHAT IS POST-CONSTRUCTION SOIL QUALITY AND DEPTH?

Naturally occurring, undisturbed soil and vegetation provide important stormwater functions including water infiltration and removal of pollutants. These functions are largely lost when native soils and vegetation are compacted or stripped and replaced with lower quality soil and sod during development and construction.

Post-Construction Soil Quality and Depth (BMP T5.13) is an on-site stormwater best management practice (BMP) that mitigates the loss of native soils. Compost amendments are rototilled into disturbed or compacted soil to ensure sufficient organic material and to allow the soil to absorb rain water.

In addition to improved stormwater management, other benefits include reduce irrigation needs, healthier plant growth, and reduced need for fertilizers.

Post-Construction Soil Quality and Depth is required for lawns and planting beds on development and construction sites.

This guidance is intended for use by property owners and is not a substitute for Washougal Municipal Code. We have substituted some technical language with plainer terms. In case of conflict, the meaning and intent adopted in the Washougal Municipal Code and the Washougal Engineering Standards for Public Works Construction shall prevail.



The instructions in this handout have been adapted from the 2016 edition of *Building Soil: Guidelines and Resources for Implementing Soil Quality and Depth BMP T5.13* from Soils for Salmon, a project of the Washington Organic Recycling Council. The full guidelines are available at www.soilsforsalmon.org.

WHAT ARE THE LIMITS OF POST-CONSTRUCTION SOIL QUALITY AND DEPTH?

This BMP is not feasible on slopes greater than 33 percent.

WHAT ARE THE POST-CONSTRUCTION SOIL QUALITY AND DEPTH REQUIREMENTS?

SOIL RETENTION. Retain, in an undisturbed state, the duff layer and native topsoil to the maximum extent practicable. In any areas requiring grading, remove and stockpile the duff layer and topsoil on site in a designated, controlled area, not adjacent to public resources and critical areas, to be reapplied to other portions of the site where feasible.

SOIL QUALITY. All areas subject to clearing and grading that have not been covered by impervious surface, incorporated into a drainage facility or engineered as structural fill or slope shall, at project completion, demonstrate the following:

1. A topsoil layer with a minimum organic matter content of 10% dry weight in planting beds, and 5% organic matter content in turf areas, and a pH from 6.0 to 8.0 or matching the pH of the undisturbed soil. The topsoil layer shall have a minimum depth of eight inches except where tree roots limit the depth of incorporation of amendments needed to meet the criteria. Subsoils below the topsoil layer should be scarified at least 4 inches with some incorporation of the upper material to avoid stratified layers, where feasible.
2. Mulch planting beds with 2 inches of organic material.



WHAT DOES IT LOOK LIKE?

MULCH

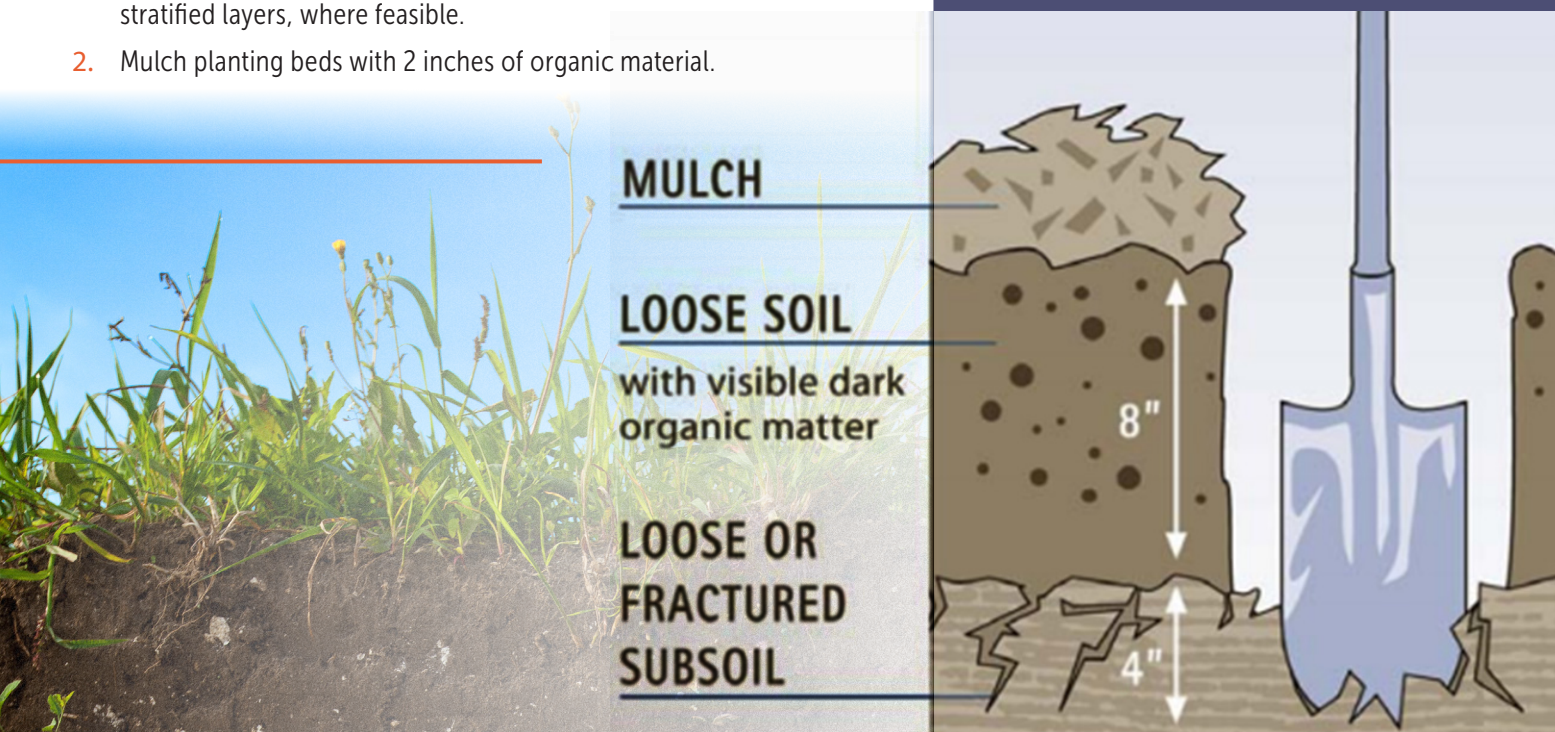
The layer of mulch protects the loose soil underneath from erosion and moisture loss. It also prevents weed growth. Use mulch for planting beds.

LOOSE SOIL

The loose soil consists of topsoil or amended soil with a minimum organic matter content. The loose soil provides space for water absorption, filtration, and storage. The soil supports plant growth and helps break down pollutants.

LOOSE OR FRACTURED SUBSOIL

The fractured or scarified soil at the bottom provides a path for water to infiltrate into deeper soil where it can enter groundwater or slowly move laterally to enter streams and lakes.



HOW DO I MEET THE SOIL QUALITY REQUIREMENTS?

STEP

1

Select from the following four methods for meeting the soil quality design guidelines listed above. More than one option may be selected for different parts of the site.

OPTION

METHOD

1	<p>Leave native vegetation and soil <u>undisturbed</u>, and protect from compaction during construction.</p>	<p>Identify areas of the site that will not be stripped, logged, graded or driven on, and protect the soils from compaction.</p> <p>If neither soils nor vegetation are disturbed, these areas do not require amendment. Before construction begins, fence off those areas to prevent impacts. Maintain exclusionary fencing until construction is complete.</p>
2	<p>Amend existing topsoil or subsoil in place.</p>	<p>Near the end of construction, amend the disturbed topsoil or subsoil that remains where lawn and landscaping is planned.</p> <p>Amend the soil. Scarify or till the area to 9 inches depth. Entire surface should be tilled. Do not scarify or till within drip line of existing trees.</p> <p>Planting Beds: Place 3 inches of compost* and rototill into 5 inches of soil (a total amended depth of about 9.5 inches). Tamp or roll to settle the soil down 1.5 inches (8 inches total depth of soil). Add 2 inches of organic mulch.</p> <p>Turf Areas: Place 1.75 inches of compost* and rototill into 6.25 inches of soil (a total amended depth of about 9.5 inches). Tamp or roll to settle the soil down 1.5 inches (8 inches total depth of soil).</p>
3	<p>Stockpile existing topsoil. Replace and amend before planting.</p>	<p>During construction, stockpile the site's topsoil in an approved location. Cover stockpile with a weed barrier material that sheds moisture yet allows air transmission.</p> <p>Near the end of construction, replace topsoil in areas where lawn and landscaping is planned. If quantity of stockpiled topsoil is not sufficient to cover the area to the required depths, below, rototill subsoil prior to placement, or import loose soil.</p> <p>Amend the soil.</p> <p>Planting Beds: Place 3 inches of compost* and rototill into 5 inches of soil (a total amended depth of about 9.5 inches). Tamp or roll to settle the soil down 1.5 inches (8 inches total depth of soil). Add 2 inches of organic mulch.</p> <p>Turf Areas: Place 1.75 inches of compost* and rototill into 6.25 inches of soil (a total amended depth of about 9.5 inches). Tamp or roll to settle the soil down 1.5 inches (8 inches total depth of soil).</p>



*COMPOST MUST:

1. **Be produced by a permitted facility.** See list at: <https://ecology.wa.gov/Asset-Collections/Doc-Assets/Reducing-and-recycling/Organic-materials/Washington-compost-facilities-and-material-types-2>
2. **Have organic matter content of 40% to 65%**
3. **Have a carbon to nitrogen ration below 25:1**

Continued on following page.

4 Import topsoil of sufficient organic content and depth to meet the requirements.

Near the end of construction, import 8 inches of topsoil with a PH from 6.0 to 8.0 and meeting minimum organic content below.

Scarify or till subgrade in two directions to 6 inches depth. Entire surface should be disturbed by scarification. Do not scarify within drip line of existing trees to be retained.

Planting Beds: Topsoil mix containing a minimum 10% organic matter.

- Place 4 inches of imported topsoil mix on surface and till into 2 inches of soil.
- Place second lift of 4 inches topsoil mix on surface.
- Rake beds to smooth.
- Mulch planting beds with 2 inches of organic mulch.

Turf Areas: Topsoil mix containing a minimum 5% organic matter.

- Place 4 inches of imported topsoil mix on surface and till into 2 inches of soil.
- Place second lift of 4 inches topsoil mix on surface.
- Rake to level.



STEP

2

Calculate quantities of compost or topsoil needed in cubic yards.

Options 2 or 3 for Planting Beds:

$$\underline{\hspace{2cm}} \text{ planting bed area (sq. ft.)} \times 0.25 \text{ (ft.)} / 27 = \underline{\hspace{2cm}} \text{ cubic yards of compost}$$

Options 2 or 3 for Turf Areas:

$$\underline{\hspace{2cm}} \text{ turf area (sq. ft.)} \times 0.15 \text{ (ft.)} / 27 = \underline{\hspace{2cm}} \text{ cubic yards of compost}$$

Option 4:

$$\underline{\hspace{2cm}} \text{ planting beds + turf area (sq. ft.)} \times 0.66 \text{ (ft.)} / 27 = \underline{\hspace{2cm}} \text{ cubic yards of topsoil}$$

STEP

3

Order products meeting minimum requirements for organic matter and pH.

- Obtain and keep copies of product test results from supplier.
- Retain delivery receipt showing product and quantity.