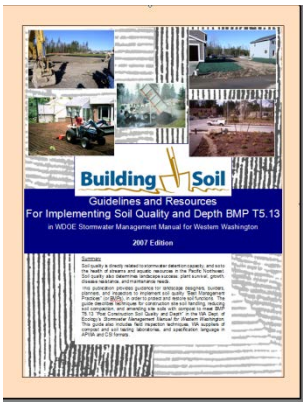


View or print the full manual at www.SoilsforSalmon.org

What's in the Building Soil Manual?

Summary of "Building Soil: Guidelines and Resources for Implementing Soil Quality and Depth BMP T5.13 in WDOE Stormwater Management Manual for Western Washington"

The Role of Soil Quality in Stormwater Management

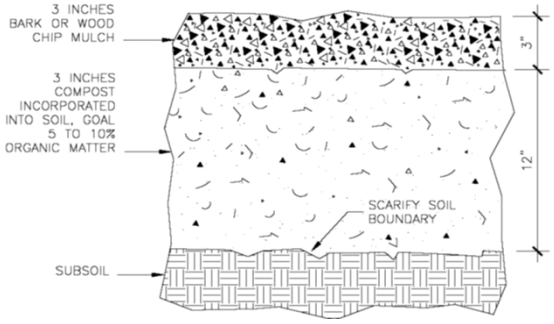
Native forest soils in western Washington soak rainfall quickly down into the groundwater, so that little runs off. But during development soils are often stripped and compacted, resulting in rapid runoff that damages streams and downstream properties. The Department of Ecology has decided to require a minimum post-construction soil standard on all building sites around western Washington, to protect water quality, streams, Puget Sound, and downstream property owners.

What happens when the rain can't soak in?

BMP T5.13 "Post Construction Soil Quality and Depth"

This new "best management practice" (BMP), which local governments around western Washington are now adding to their stormwater codes, requires:

- **Soil retention** – preserving existing site vegetation and soil, uncompacted by equipment, or
- **Soil restoration** – correcting compaction to a 12-inch depth, and amending soils with compost or bringing in/reusing an amended topsoil to an 8-inch depth, plus
- **Soil protection** – protecting restored soils from re-compaction, and mulching after planting to prevent erosion and support healthy plant growth.



Summary of Steps for Implementing BMP T5.13

The Ecology BMP requires a12-inch finished uncompacted soil depth, including 8 inches of topsoil amended to meet a minimum "soil organic matter" (SOM – by loss-on-combustion test) of 10% for planting beds or 5% for turf areas.

Building and landscape professionals worked with soil scientists and planners to create this "Building Soil" manual and website, to help builders, landscapers, and designers implement BMP T5.13 in a practical and cost-effective way.

Amendment Options

The Department of Ecology's BMP T5.13 lays out **four options** for soil management in different areas of each site:

1) **Leave native vegetation and soil undisturbed**, and protect from compaction during construction. This is the least expensive option, because undisturbed soils don't have to be restored.
2) **Amend existing site topsoil or subsoil with compost** to meet the "soil organic matter" requirements. (Pre-approved rates are 3 inches of compost tilled in to an 8-inch depth for planting beds, or 1.75 inches of compost tilled in 8 inches for turf areas.)
3) **Stockpile existing topsoil during grading**. Amend as needed to meet the organic matter requirement, and replace 8 inches of topsoil before planting, again scarifying to break up compaction to a 12-inch depth.
4) **Import a topsoil mix that meets the organic content and depth requirements**. Topsoil mixes around 40% compost by volume meet the 10% SOM requirement for planting beds. Mixes around 25% by volume compost meet the 5% SOM required for turf areas. Scarifying to a 12 inch depth, or tilling in the first layer of topsoil, will allow water and roots to penetrate the subsoil. It's important not to have too many fine particles (silt or clay, which can plug up drainage) in the mix. Compost quality is also important, so the manual lists Washington permitted compost facilities, as well as soil labs that can do testing for custom soil mixes if desired.

Building Soil
Foundation for Success

Developing a Soil Management Plan

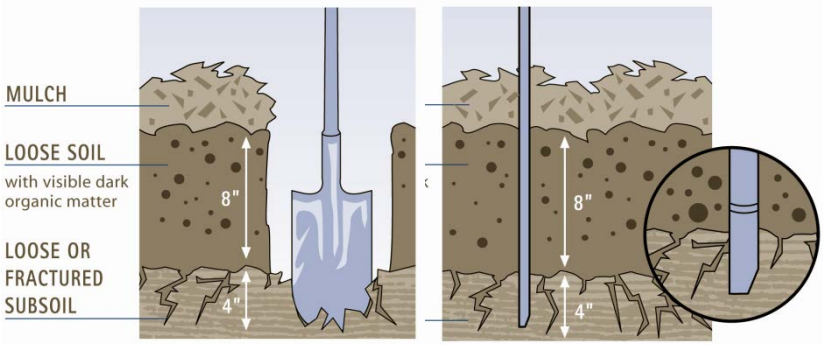
The *Building Soil* manual walks through the steps to develop a "Soil Management Plan":

1) **Review site landscape plans and grading plans.** Identify areas where existing soil and vegetation can be left undisturbed and protected from compaction. For areas that will be graded, decide whether to stockpile and reuse site topsoil, amend soils on-site with compost, or bring in an amended topsoil mix that meets requirements.
2) **Visit site to determine soil conditions**. Identify trees and other vegetation to be preserved. Check existing soil conditions and compacted areas. Flag and fence protected areas, and make sure they fit with grading plans.
3) **Select amendment options for each area of the site**.
4) **Identify compost, topsoils, and other organic materials for amendment and mulch**.
5) **Calculate amendment, topsoil, and mulch volumes required for this site**, and record them on a soil management plan form. That form becomes part of permit and landscaping specifications.

Field Guide for Verifying Soil Quality and Depth

The manual describes simple field tests:

1) Verify that compost, topsoil mixes, and mulch have been delivered to the site as specified in the soil management plan.
2) Dig a few test holes to see that soils have been amended to an 8-inch depth. Push a metal rod into the soil to verify that soils are un-compacted to the required 12-inch depth.



Why build healthy soil?

- More marketable buildings and landscapes
- Better site erosion control
- Reduced need for water and chemicals
- Less stormwater runoff, better water quality, lower costs to comply with new regulations
- Healthy landscapes, for satisfied customers

Resources

The *Building Soil* manual also contains a number of useful resources for builders and designers:

- **Calculating Custom Amendment Rates** – formula, and an online Excel spreadsheet calculator
- **Permitted Composting Facilities in Western Washington** – contact information for suppliers
- **Soil and Compost Analysis Labs** serving the Northwest
- **Model Soil Amendment Specifications** in APWA and CSI formats
- **Additional Resources** on compost quality and use, and the role of soil quality in stormwater management and successful landscaping

View or download the complete *Building Soil* manual at **www.SoilsforSalmon.org**

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