**Soil Quality Restoration (SQR) for New Lawns:**

**Use this checklist when SQR will be used to improve the soils on site and provide credit to manage the water quality volume from adjacent impervious surface areas.**

**Method 6**

**Method 6 is intended to be used when there is not enough topsoil onsite and compost is readily available. One inch of topsoil is blended with one inch of compost (for a total of 2 inches) and applied as a surface blanket over 6 inches of tilled subsoil. Tillage is performed a second time to a minimum depth of 4 inches in order to incorporate the topsoil and compost blend into the upper portion of the subsoil to create an 8 inch thick healthy soil profile. *Runoff must be distributed evenly across the SQR area if SQR area will be used to manage the water quality volume from adjacent impervious surfaces.***

Applicant\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Submitted by\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Location\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Attach copy of Soil Quality Management Plan including site and soil maps.
2. What is the size of the SQR area in square feet? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is the drainage area flowing onto the SQR area? (Include the SQR area)

(The drainage area may need to be divided into multiple subwatersheds in order to ensure that the runoff will be distributed evenly as sheet flow over SQR areas.)

\_\_\_\_\_\_\_\_\_\_ ac \_\_\_\_\_\_\_\_\_\_\_ SF \_\_\_\_\_\_\_\_\_\_ % Impervious

1. How will runoff be distributed evenly as sheet flow over the SQR area?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Please attach documentation showing existing soil conditions including description of topsoil to be used and *percent of organic matter from lab analysis*.

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**Table:** Recommended tillage, topsoil, and compost depths for soil quality restoration to achieve an 8 inch deep healthy soil profile.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Method** | **Initial Tillage****Depth of Subsoil****(inches)** | **Topsoil Depth****(Inches)** | **Compost Depth****(Inches)** | **Secondary Tillage****Depth of Subsoil****(inches)** |
| 6 | 6 | 1 | 1 | 4 |

1. Will 1st tillage pass be 6” deep? Yes \_\_\_\_\_\_ No\_\_\_\_\_\_\_\_
2. Identify type of tillage tool(s) to be used. Attach photos of tillage equipment to be used. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Topsoil Depth to be Respread \_\_\_\_\_\_
4. Compost depth \_\_\_\_\_\_\_ Source of Compost\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Percent Organic Matter of Compost \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Will second tillage pass be 4” deep? Yes\_\_\_\_\_\_\_\_ No \_\_\_\_\_\_\_\_\_\_
7. If the area being treated with Soil Quality Restoration will give credit for managing runoff from impervious surfaces show calculations for determining that the storage capacity of the treated area meets or exceeds the water quality volume (WQv). Please attach calculations. (See example at end of document.)

Input from Table 6:

* 1. \_\_\_\_\_ % Organic Matter by weight (See example at end to convert % Organic Matter from

 your lab analysis to % Organic Matter by Weight)

* 1. \_\_\_\_\_\_ Available Water Storage (in/8 in soil)

Input from Table 8:

* 1. \_\_\_\_\_\_ Excess Water Storage (Subtract 1.25 inches from Available Water Storage above.)
	2. \_\_\_\_\_\_ Factor to determine maximum impervious area to be treated

 (\*If you need to extrapolate excess water volume to determine the factor in Table 8,

 divide Table 8 Excess Water Storage inches by 1.1875 to get factor to determine

 impervious areas to be treated. For example, 0.5 inches/1.1875 = 0.42)

* 1. \_\_\_\_\_\_SF of impervious area that can be treated with SQR area
1. Provide the calculations and quantities of materials applied as amendments

**Topsoil:**

\_\_\_\_Depth of topsoil (in feet) [For example: 1” of topsoil = 1”/12” = 0.083 ft of topsoil]

\_\_\_\_Depth of topsoil (in feet) x \_\_SF of treated area = \_\_\_\_\_CF of topsoil

\_\_\_\_CF of topsoil / 27 cf/cy = \_\_\_\_cy of topsoil needed

 \_\_\_\_CF of topsoil x 90 lbs/cf = \_\_\_\_lbs of topsoil/2,000 lbs/ton = \_\_\_tons of topsoil needed

**Compost:**

\_\_\_\_\_\_\_SF x \_\_\_\_\_\_depth in inches of compost application x 0.0031 = \_\_\_\_\_\_CY of compost needed

\_\_\_\_\_\_\_CY x 1,200 lbs/CY (on average) divided by 2,000 lbs = \_\_\_\_\_\_tons of compost needed

1. Provide a copy of the planting plan with quantities of seed or plants used and a listing of species and rates applied.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Describe the erosion and sediment control measures used to protect the soil quality restoration area until vegetation is established. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***FOR REVIEWERS USE ONLY***

[ ]  Design appears to comply with applicable design standards, and local, state, and federal requirements.

[ ]  Design does not appear to comply with applicable design standards, and local, state, and federal requirements.

Comments:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of Reviewer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example 1:** Assume Method 6 will use 6 inches of tillage and 1 inch of topsoil and 1 inch of compost.

Assume compost is 40% Organic Matter (O.M.) and Topsoil is 2% Organic Matter (O.M.).

 Assume 1” of compost = 1”/12”= 0.083 ft x 1’ long x 1’ wide = 0.083 cf of compost

 Assume 1” of topsoil = 1”/12” = 0.083 ft x 1’ long x 1’ wide = 0.083 cf of topsoil

 Assume 6” of tilled soil = 6”/12” = 0.5ft x 1’ long x 1’ wide = 0.5 cf of tilled soil

To convert organic matter % to organic matter % by weight:

0.083 cf of compost/27 cf/cy = 0.0031 cy of compost x 1200 lbs/cy compost = 3.7 lbs of compost

0.083 cf of topsoil x 80 lbs/cf = 6.64 lbs of topsoil

0.5 cf of tilled soil x 90 lbs/cf = 45 lbs of soil

3.7 lbs compost + 6.64 lbs of topsoil + 45 lbs of tilled soil = 55.34 lbs in 8-inch profile

3.7 lbs of compost/ 55.34 lbs in 8” profile = 6.7% of weight of compost x 40% O.M. = 2.67% O.M. by weight

(0.067 x 0.4 = 0.0268 x 100 = 2.67%)

6.64 lbs topsoil/ 55.34 lbs in 8” profile = 12% of weight is topsoil x 2% O.M. = 0.24% O.M. by weight

2.67% O.M. + 0.24% O.M. = 2.91% O.M. by weight

**Go to table 6:** Assume 3%: 1.62” – 1.25” = 0.37 inches of extra storage

**Go to table 8**

0.37/1.1875 = 0.31 factor

10,000 square feet of SQR area x 0.31 = SQR can address 3100 square feet of impervious surface.

**Example 2: Use same assumptions above except assume compost is 27% Organic Matter (O.M.)**

3.7 lbs compost/ 55.34 lbs in 8” profile

6.7% of weight of compost x 27% = 1.8% O.M. by weight

1.8% O.M. + 0.24% O.M. = 2.04 % O.M.

Assume 2% O.M by weight

**Go to table 6.**

2% O.M. by weight = 1.33 inches of storage

1.33 inches – 1.25 inches = 0.08 inches

0.08/1.1875 = 0.067 x 10,000 sq ft of SQR = 674 square feet. SQR can address 674 sq ft of impervious surface.