**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 7**

**The intention of Method 7 is to create an engineered healthy soil profile onsite where topsoil is absent by importing compost and possibly sand. Method 7 involves 6” of initial tillage. Two inches of compost is then spread and a second tillage pass of 4” is performed. *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. Please attach a copy of the Soil Quality Management Plan including a 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?

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

**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** | **Compost Depth****(Inches)** | **Secondary Tillage****Depth of Subsoil****(inches)** |
| 7 | 6 | 0 | 2 | 4 |

1. Will 6” of tillage take place before 2” of compost is applied?

Yes \_\_\_\_ No \_\_\_\_

1. Will 4” of tillage take place after 2” of compost is applied?

Yes \_\_\_\_\_ No \_\_\_\_\_\_

1. Identify type of tillage tool(s) to be used. Attach photos of tillage equipment to be used?

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

1. Compost depth \_\_\_\_\_\_\_ Source of Compost\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Percent Organic Matter of Compost \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Identify type of tillage tool(s) to be used. Attach photos of tillage equipment to be used.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. 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 complete the following items. Please attach your calculations. (See example at end of document.)

Input from Table 6:

* 1. \_\_\_\_\_ % Organic Matter (OM) by weight (See example at end to calculate % OM by weight)
	2. \_\_\_\_\_\_ 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. \_\_\_\_\_\_ List 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

 maximum impervious area 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

**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.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 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 7 will use 6 inches of tillage and 2 inches of compost with **40% Organic Matter (O.M.)** on 10,000 square feet.

2”/8” profile is compost at 40% Organic Matter

2”/12” = 0.167’ Deep x 1’ Wide x 1’ Long = 0.167 cf

1 cy compost = 1200 lbs

0.167 cf/27 cf per cy = 0.0062 cy x 1200 lbs/cy = 7.4 lbs compost in 8-inch profile

Total weight of the 8 inch profile:

1 cf of soil = 90lbs

0.5’ or 6 inches of tilled soil = 45 lbs

7.44 lbs of compost + 45 lbs of tilled soil = 52.44 lbs in 8” profile

% of total weight that’s compost = 7.44 lbs /52.44 lbs in 8 inch profile = ~14%

**14% of weight x 40% OM** **= 5.6 % OM by weight**

**Go to Table 6** and find column (Available Water Storage in/8 in soil)

5.6% OM is between 5 and 6. Available Water Storage in/8 in soil is 2.51 for 6 and 2.22 for 5.

2.51 + 2.22 = 4.73/ 2 = 2.37 Available Water Storage in/8 in soil.

2.37” – 1.25” = 1.12 inches of available storage above the Water Quality Volume.

**Go to Table 8** under column titled Excess Water Storage Volume and find 1.12.

1.12/1.1875 = 0.94

10,000 square feet of SQR area x 0.94 = SQR can address 9400 square feet of impervious surface runoff.

**Example 2:** Assume Method 7 will use 6 inches of tillage and 2 inches of compost with **27% Organic Matter (O.M.)** on 10,000 square feet.

2”/8” profile is compost at 27% Organic Matter

2”/12” = 0.167’ Deep x 1’ Wide x 1’ Long = 0.167 cf

1 cy compost = 1200 lbs

0.167 cf/27 cf per cy = 0.0062 cy x 1200 lbs/cy = 7.4 lbs compost in 8” profile

Total weight of the 8 inch profile:

1 cf of soil = 90lbs

0.5’ or 6 inches of tilled soil = 45 lbs

7.44 lbs of compost + 45 lbs of tilled soil = 52.44 lbs in 8” profile

% of total weight that’s compost = 7.44 lbs /52.44 lbs in 8 inch profile = ~14%

**14% of weight x 27% OM** **= 3.78 % O.M. by weight**

**Go to Table 6** and find column (Available Water Storage in/8 in soil)

4% O.M. with 8” profile = 1.92” – 1.25 = 0.67” extra available storage

**Go to Table 8** under column titled Excess Water Storage Volume and find factor.

 0.67”/1.1875 = 0.56

10,000 square feet of SQR area x 0.56 factor = SQR can address 5600 square feet of impervious surface runoff.