

Soil Erosion and Sediment Control *Tools and Resources for RI*



2017 Land & Water Conservation Summit
Saturday, March 11, 2017
URI Memorial Union, Kingston, RI

Introduction of Presenter

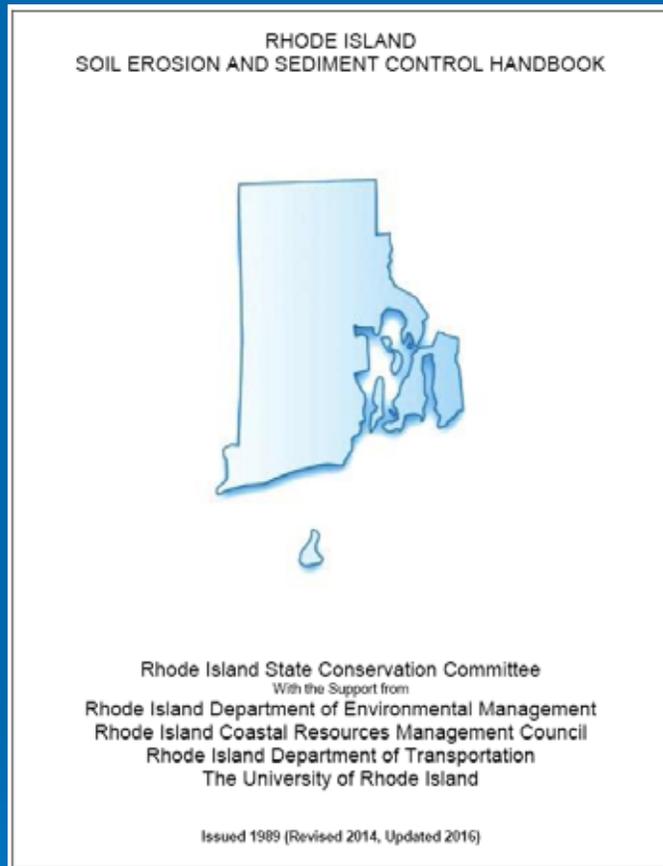


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The Big Picture

- Soil Erosion and Sediment Control Standards for RI were revised at the State level starting in 2014.
- New Soil Erosion and Sediment Control Plan elements are required by State permitting programs for small and large construction sites.
- New techniques and technologies have been reflected in revised guidance and standards.
- Many new compliance assistance tools have been developed for applicants complying with State requirements.
- These tools are available and can be easily adopted by local permitting programs and practitioners throughout the state.

RI SESC Handbook



- 1989 - First issued
- 2014 Completely overhauled
- 2016 Minor Update

The *Handbook* is an important guidance tool for local, state, and federal agencies, the general public, and the private sector in the application of appropriate Soil Erosion and Sediment Control measures in Rhode Island.

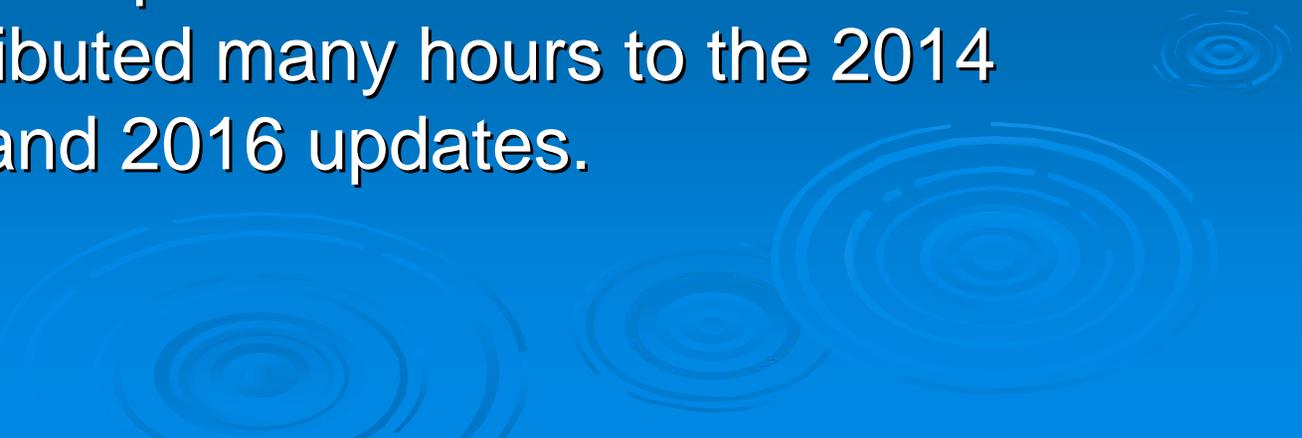


- Erosion Control
- Runoff Control
- Sediment Control
- Construction Activity Pollution Prevention

Who Was Involved In the Overhaul?

This process was managed by a Technical Review Committee (TRC) led by *Eric Scherer, Executive Director of the Southern RI Conservation District.*

The TRC was represented by both public agencies and private sector individuals who contributed many hours to the 2014 overhaul and 2016 updates.



TRC Accomplishments in 2016...

- Revised 2014 Handbook based on public feedback, all edits reviewed by TRC and approved by the State Conservation Committee;
- Updates to graphics and charts to were made to improve clarity;
- Developed a new companion document, the RI SESC Field Guide;
- Develop a Small Site (< 1.0 acre of disturbed area) SESC Plan Template and Brochure for those sites not covered by the Construction General Permit.

**RHODE ISLAND
SOIL EROSION AND
SEDIMENT CONTROL
FIELD GUIDE**



ISSUED 2016

Rhode Island State Conservation Committee

With the Support from

Rhode Island Department of
Environmental Management

Rhode Island Coastal

Resources Management Council

Rhode Island Department of Transportation

The University of Rhode Island

About this Field Guide...

This Field Guide is a companion document to the Rhode Island Soil Erosion and Sediment Control Handbook (2015 edition). This Field Guide is not intended to be an all-inclusive document. It is intended to be used for installation, inspection, and maintenance of control measures. Specific details addressing planning, design, and applicability of control measures can be found in the Handbook.

This Field Guide contains information on 45 of the most commonly used control measures that address Pollution Prevention and Good Housekeeping, Erosion Control, Runoff Control, and Sediment Control. It is a quick, handy, and portable document intended for use in the field.

This Field Guide had been designed to provide the user with guidance on installation of measures, maintenance of measures, inspection of measures, removal of measures, troubleshooting tips, as well as some good and bad practice visuals. This Guide reflects the best state of science and technology for control measures.

The user of this Field Guide (and Handbook) should ensure they are using the most current information available by subscribing to the Office of Water Resources (OWR) e-mail list. This list allows users to be informed on the most current guidance, policies, and new regulations regarding a variety of stormwater topics, which can be found at the user-friendly webpage at: <http://listserve.ri.gov/mailman/listinfo/owrinfo>.

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Seeding for Permanent Vegetative Cover



Description

Establishment of permanent vegetative cover by seeding and mulching exposed soils with an appropriate seed mixture to facilitate long term stabilization following site preparation and topsoiling.

Inspection and Maintenance

- Lime according to a soil test or at a minimum every 2 to 3 years using a rate of one ton per acre (50 lbs per 1,000 sq. ft.).
- Where grasses predominate, fertilize if so indicated by a soil test. Customary applications are biennial broadcasts of 500 lbs of 10-8-4 (lawn fertilizer) or equivalent per acre (12.5 lbs per 1,000 sq. ft.). At least 30% of the fertilizer's available nitrogen must be in a slow releasing form.
- Where legumes predominate, fertilize according to a soil test or every three years, broadcast 300 lbs of 0-20-20 or equivalent per acre (7.5 lbs per 1,000 sq. ft.).
- Permanent vegetative cover shall not be considered established until ground cover (approximately 95% vegetative surface cover) controls soil erosion and withstands severe weather conditions.

Section Four: Erosion Control Measures
Seeding for Permanent Vegetative Cover

Troubleshooting Tips: Seeding for Temporary & Permanent Vegetative Cover

Condition	Common Solution
Seeds fail to germinate.	Verify that seed is appropriate for your area and reapply. Apply mulch to keep seeds in place and to moderate soil moisture and temperature. Temporary irrigation may be necessary.
Seeded slope fails.	Fill in rills and re-seed. Combine with erosion control blankets or mats.
Seeding is washed off slope.	Re-apply where necessary and mulch.
Grass is dying.	Provide temporary irrigation. Top-dress with compost to hold moisture and provide nutrients and heat for seeds.
Bare spots in vegetative cover.	Rake, drill, or walk in seed to ensure good ground contact. Over-seed bare areas and ensure adequate water and nutrients.

Good & Bad Practices:

Seeding for Temporary & Permanent Vegetative Cover



- * Good seeding.
- * Mixture has minimal weeds
- * Grass has merged and no bare soil exists.



- *Poor erosion control.
- *Seed growth is spotty.
- *Bare soil conditions enable erosion.

Section Four: Erosion Control Measures
Seeding for Permanent Vegetative Cover

Small Residential Lot (Less than 1.0 acre of disturbed area) Soil Erosion and Sediment Control Plan Template*

This template satisfies the *RI Stormwater Design and Installation Standards Manual - Minimum Standard 10: Construction Activity Soil Erosion, Runoff, Sedimentation, and Pollution Prevention Control Measure Requirements*



RI Department of
Environmental Management

*Credit:
EPA 830-K-15-001
December 2015

Part 1: Site and Activity Description

Instructions: Complete Sections A, B, and C.

- Provide summary details of your project, including the number of homes to be built, the size of the lot on which construction will occur, and the total area of disturbance.
- Provide your best estimate of the dates that construction will start and finish.
- Specify who will be the lead individual(s) at the project who will make sure that you are in compliance with the permit, and have them verify that they have read and understand the permit.

1. A. Nature of construction activities at this site

1. This project will result in the construction of [insert project scope description here](#).

Lot Address	Total Lot Size (Acres)	Maximum Area of Construction Disturbance (Acres)
1.		
2.		
3.		
4.		
5.		
		Total maximum disturbed area (must be < than one acre):

1. B. Estimated dates that construction will take place

1. Construction activities on this project will begin on or about: [Click here to enter a date](#). (Note: once the actual date is known, correct the estimated date)
2. All construction activities on this project will be completed on or about: [Click here to enter a date](#). (Note: once the actual date is known, correct the estimated date)

1. C. Contacts for Stormwater Compliance

Identify person(s) responsible for compliance with this permit. These persons constitute the stormwater team.

Name	Responsibilities	I Have Read the CGP And Understand the Applicable Requirements
1. Insert name of responsible person	Insert responsibility	<input type="checkbox"/> Yes Date: Click here to enter a date .
2. Insert name of responsible person	Insert responsibility	<input type="checkbox"/> Yes Date: Click here to enter a date .

Straw Wattles, Compost Tubes, and Fiber Rolls

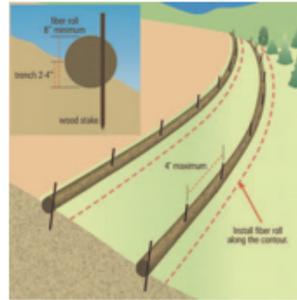


Illustration of filter log installation.

Photo Credit: EPA Small Residential Lot SWPPP Template



Drive stakes every 3-4 feet along the filter log.

Photo credit: Barry Topping, Tetra Tech



Make sure filter log stakes are spaced to prevent undercutting or bypasses. Leave stake tops extended along sections to prevent drive-overs.

Photo credit: Barry Topping, Tetra Tech

Use: Tubular filtration devices used to intercept and contain sediment laden runoff from small drainage areas of bare soil and/or other disturbed areas, break up longer slopes, reduce runoff velocity, and cause deposition of transported sediment.

Planning and Design Requirements:

- Determine areas where erosion may occur, and areas where sediment has the potential to exit the property or enter an environmentally sensitive area.
- May be used where erosion would occur in the form of sheet erosion, and/or where there is no concentration of water flowing to the barrier.

Straw Wattles and Fiber Rolls:

- Can be used in areas of low shear stress.
- Suitable along the toe, top, face, and at-grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow; at the end of a downward slope where it transitions to a steeper slope; along the perimeter of a project to control runoff or **reduce** surface flows; as temporary 'check dams' in unlined ditches; downslope of exposed soil areas; and around temporary stockpiles.
- Determine the vertical spacing for slope installations on the basis of the slope gradient and soil type, a good rule of thumb is:
 - 1:1 slopes = 10 feet apart
 - 2:1 slopes = 20 feet apart
 - 3:1 slopes = 30 feet apart
 - 4:1 slopes = 4 feet apart
- Wattles and fiber rolls at the toe of slopes greater than 3:1 must be at least 20 inches in diameter. Stacked smaller-diameter fiber rolls can be used to achieve a similar level of protection.
- Should not be used on slopes subject to creep, slumping, or landslide.

Compost Tubes:

- Drainage areas do not exceed 0.25 acre per 100 feet of device length and flow does not exceed one cubic foot per second.
- Compost Tubes may be used, subject to the slope conditions listed on the next page.
- Compost Tubes socks on steeper slopes with faster flows if they are spaced more closely, stacked beside and/or on top of each other, made in larger diameters, or used in combination with other runoff and sediment control measures.
- Larger diameter compost tubes and coarser compost products are recommended for areas subject to high rainfall and runoff conditions.
- Useful in protecting areas where trenching is difficult.

Installation Requirements:

Straw Wattles and Fiber Rolls:

- On slopes, install along the contour with a slight downward angle at the end of each row.
- Turn the ends of each roll upslope to prevent runoff from flowing around the roll.
- For soft, loamy soils, install in shallow trenches dug 3 to 5 inches deep and place rows closer together.
- For hard, rocky soils, install in shallow trenches dug 2 to 3 inches deep and place the rows farther apart.
- Stack wattles and rolls securely into the ground with biodegradable wood stakes or willow cuttings and orient them perpendicular to the slope.



Soil Erosion and Sediment Control for Small Construction Sites*

*Adapted from:
EPA 830-F-15-001
December 2015



10 Steps to Soil Erosion and Sediment Control on Small Residential Construction Sites

Stormwater management on small residential construction sites need not be complicated.

1 Protect Any Areas Reserved for Vegetation or Infiltration and Preserve Existing Trees

If you will be installing infiltration-based features such as rain gardens or bioswales, make sure these areas are designated as off limits to avoid compaction.

Save time and money by preserving existing mature trees during construction. Preserving mature trees minimizes the amount of soil that needs to be stabilized once construction is complete, and minimizes the amount of runoff during and after construction activity.

2 Stockpile Your Soil

Operators need to preserve native topsoil on site unless infeasible and protect all soil storage piles from run-on and runoff. For smaller stockpiles, covering the entire pile with a tarp may be sufficient.

3 Protect Construction Materials from Run-On and Runoff

At the end of every workday and during precipitation events, provide cover for materials that could leach pollutants.

4 Designate Waste Disposal Areas

Clearly identify separate waste disposal areas on site for hazardous waste, construction waste, and domestic waste by designating with signage, and protect from run-on and runoff.

5 Install Perimeter Controls (i.e., Sediment Barriers) on Downhill Lot Line

Install perimeter controls such as sediment filter logs or silt fences around the downhill boundaries of your site.

6 Install Inlet Protection Controls

Sediment control logs, gravel barriers, and sand or rock bags are options for effective inlet controls. Make sure to remove accumulated sediment whenever it has reached halfway up the control.

7 Install a Concrete Washout Area

Designate a leak-proof basin lined with plastic for washing out used concrete and stucco containers. Never wash excess stucco or concrete residue down a storm drain or into a stream!

8 Maintain a Stabilized Construction Entrance

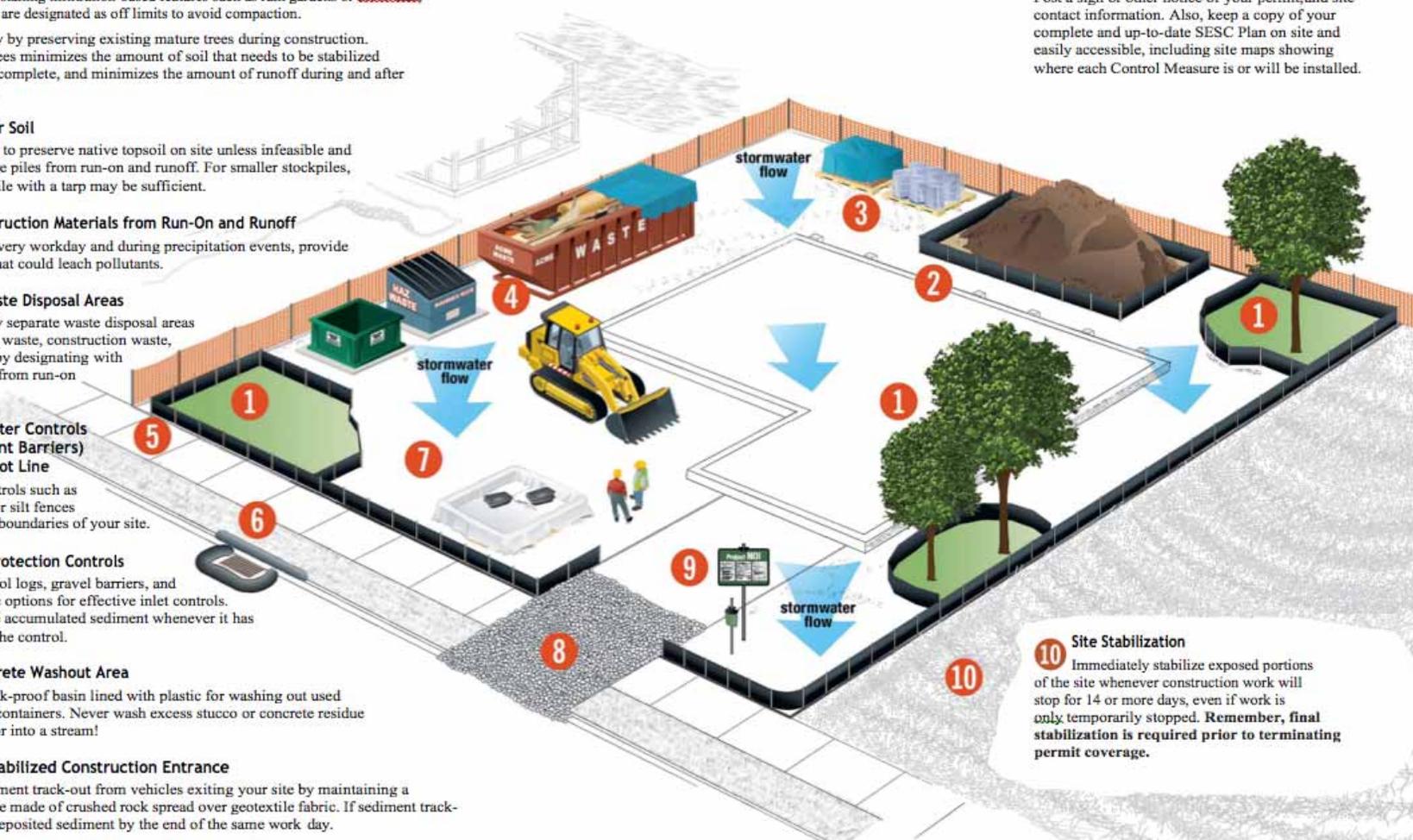
Minimize sediment track-out from vehicles exiting your site by maintaining a construction entrance made of crushed rock spread over geotextile fabric. If sediment track-out occurs, remove deposited sediment by the end of the same work day.

9 Post Your NOI and Keep an Up-to-Date Copy of Your SESC Plan on Site

Post a sign or other notice of your permit, and site contact information. Also, keep a copy of your complete and up-to-date SESC Plan on site and easily accessible, including site maps showing where each Control Measure is or will be installed.

10 Site Stabilization

Immediately stabilize exposed portions of the site whenever construction work will stop for 14 or more days, even if work is only temporarily stopped. Remember, final stabilization is required prior to terminating permit coverage.





Soil Erosion and Sediment Control

Proper soil erosion and sediment control is critical to minimizing impacts to water resources and the environment during land disturbing activities. Proper soil erosion and sediment control techniques protect water quality, receiving conveyances and drainage systems, and downstream areas including cultural and natural resources and private properties. The webpage has been developed to provide a multitude of resources on this topic. This page contains guidance documents, soil erosion and sediment control plan templates for large and small construction sites, educational fact sheets and presentations, along with relevant links to outside organizations.

KEY GUIDANCE DOCUMENTS

-  [RI Soil Erosion and Sediment Control Handbook](#)
-  [RI Soil Erosion and Sediment Control Field Guide](#)

MODEL SESC PLAN TEMPLATES

Large Site (>1 Acre) SESC Plan

-  [Fact Sheet](#)
-  [RI Model SESC Plan Instructions](#)
-  [RI Model SESC Plan Template](#)
-  [RI Model SESC Plan – Appendix F – Inspection Report Instructions](#)
-  [RI Model SESC Plan – Inspection Report Template](#)
-  [RI Model SESC Plan – Appendix G – Amendment Log Template](#)

Small Site (<1 Acre) SESC Plan

-  [RI Model SESC Plan Small Sites Brochure](#)
-  [RI Model SESC Plan for Small Sites Template](#)

COMPLIANCE ASSISTANCE FACTSHEETS

-  [Soil Erosion, Runoff, and Sedimentation](#)
-  [Construction Site Soil Stabilization](#)

Permitting Information

[About Stormwater Permitting](#)[+ Stormwater Permitting](#)[Stormwater Manual and Guidance](#)[Soil Erosion and Sediment Control](#)[Stormwater Compliance Assistance](#)[+ Permit Search](#)

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Questions?