Using the Updated
RI Soil Erosion and Sediment Control Handbook

The Introductory Workshop for RIDEM/CRMC Staff
January 23, 2015
White Oak, estimated age 100-150 yrs.  Photo: David Schwartz 1996
David Schwartz,
Residential lot < 1 acre, drain discharging to Bay, class A waters. 2011

Photos: Jim Turenne
Storm drains clogged with sediment from construction activity ~ 2009

Photos: URI Cooperative Extension NEMO
URI Cooperative Extension is assisting in the development of this training thanks to funding provided by DOT under the Storm Water Phase II Education Project.
New Handbook Features

Lorraine Joubert
URI Cooperative Extension, NEMO
Handbook Table of Contents

SECTION ONE: INTRODUCTION

SECTION TWO: SITE PLANNING AND MANAGEMENT

SECTION THREE: POLLUTION PREVENTION AND GOOD HOUSEKEEPING

SECTION FOUR: EROSION CONTROL MEASURES

SECTION FIVE: RUNOFF CONTROL MEASURES

SECTION SIX: SEDIMENT CONTROL MEASURES

SECTION SEVEN: APPENDICES

Many new or updated measures, organized by process
Section One: Introduction

Part A. About This Handbook
Section One: Introduction

Part B. Erosion and Sediment Pollution
Section Two: Site Planning and Management

Part C. Control Measures

Part D. Soil Erosion and Sediment Control Plan Criteria

Part E. Construction Phasing and Sequencing
Section Two: Site Planning and Management

Part C. Control Measures Selection Guide

Includes 5 decision charts, one for each handbook section.
Section Two: Site Planning and Management

Part D. Soil Erosion and Sediment Control Plans

- Establishes **15 Performance Criteria** for SESC plans.
- **Required** under Stormwater Manual Minimum Standard 10

1. Avoid and Protect Sensitive Areas and Natural Features
2. Minimize Area of Disturbance
3. Minimize the Disturbance of Steep Slopes
4. Preserve Topsoil
5. Stabilize Soils
6. Protect Storm Drain Inlets
7. Protect Storm Drain Outlets
8. Establish Temporary Controls for the Protection of Post-Construction Stormwater Treatment Practices
9. Establish Perimeter Controls and Sediment Barriers
10. Divert or Manage Run-on from Up-gradient Areas.....11, 13, 14,
Part E. Construction Phasing and Sequencing

Phasing is used to reduce the amount of soil disturbed at one time.

Construction is completed and soils are stabilized on one part of the site before grading and construction commence at another part.

(Photo Credit: Douglas County, CO)
Section Three: Pollution Prevention and Good Housekeeping

- Minimizing Disturbed Area: Preserving Soils & Vegetation
- Protecting Vegetated Buffers
- Limit of Work and Site Access Control
- Tree Protection
- Dust Control
- Spill Prevention and Control Plan
- Stockpile and Staging Area Management
- Street Sweeping
- Waste Management
- Concrete Washout
- Vehicle Fueling, Maintenance and Washing
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LID Site Management measures to Avoid and Minimize Impacts
Section Three: Pollution Prevention and Good Housekeeping

- Dust Control
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- Vehicle Fueling, Maintenance and Washing
Section Four: Erosion Control Measures

- Mulching
- **Soil Preparation and Topsoiling**
- Seeding for Temporary Vegetative Cover
- Seeding for Permanent Vegetative Cover
- Sodding
- Landscape Planting
- **Land Grading**
- Retaining Walls
- Slope Protection
- Surface Roughening
- Branch Packing
- Brush Layering
- Brush Mattresses
- Fascines
- Fiber Rolls for Bio-Eng.
- Live Crib Walls
- Live Staking
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Restore compacted soils. Provide adequate depth and quality of...
Section Four: Erosion Control Measures

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*Restore compacted soils. Provide adequate depth and quality of*

*Bioengineering for stream restoration*
Section Five: Runoff Control Measures

- Check Dams
- Water Bars
- Diversions
- Perimeter Dikes
- Lined Waterways
- Vegetated Waterways
- Temporary Lined Channel
- Pipe Slope Drains
- Grade Stabilization Structures
- Outlet Protection
Section Six: Sediment Control Measures

- Inlet Protection
- Construction Entrances
- Temporary Sediment Basins
- Temporary Sediment Traps
- Temporary Stream Crossings
- Compost Filter Berms
- Silt Fence
- Straw Wattles, Compost Tubes and Fiber Rolls
- Straw Bale
- Turbidity Curtains
- Containment Areas for Earth Materials
- Portable Sediment Tanks and Bags
- Pumping Settling Basins
- Pump Intake Protection
Section Six: Sediment Control Measures

- Inlet Protection
- Construction Entrances
- Temporary Sediment Basins
- Temporary Sediment Traps
- Temporary Stream Crossings
- Compost Filter Berms
- Silt Fence
- Straw Wattles, Compost Tubes and Fiber Rolls
- Straw Bale – limited application
- Turbidity Curtains
- Containment Areas for Earth Materials
- Portable Sediment Tanks and Bags
- Pumping Settling Basins

Hay Bale
Appendices

- Appendix A. Glossary
- Appendix B. Model Ordinance: Erosion and Sediment Control
- Appendix C. Request Form to Submit Updates to the Handbook
- Appendix D. Subscription for Updates and other Notices for the Handbook
- **Appendix E. Model SESC Plan Templates**
- Appendix F. Site Constraint Maps
- Appendix G. Spill Prevention, Control and Countermeasures Plans (SPCCP)
- Appendix H. Soil Classification Systems
- Appendix I. Revised Universal Soil Loss Equation -- RUSLE2
- Appendix J. Chemical Treatment for Erosion and Sediment Control
- Appendix K. Turf Reinforcement Mats
- Appendix L. Riprap
- Appendix M. Gabions
- Appendix N. Erosion Control Blankets (ECBs)
- Appendix O. Earth Fill
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Next steps – Update! Use Appendix C and Send your comments to Beverly Migliore DEM Water Resources.
Clear, Consistent, & Predictable Rules
Unifying State Regulations and Local Ordinances for Better Outcomes

Eric Beck
Supervisor, RIDEM RIPDES Permitting Program
Who Should Use the Handbook?

- Designers
- Municipal Officials
- Property Owners
- Regulatory Reviewers
Enabling Legislation for State Regulations and Local Ordinances


- *RIGL 45-61.2-2(b) passed in the 2012 allows communities to adopt the stormwater manual as local requirements: ordinances may require compliance with the Rhode Island Stormwater Design and Installation Standards Manual for any development, redevelopment, or land disturbance.

- In accordance with the RIPDES MS4 General Permit, Ms4s have adopted a local ordinances that references the RISDISM and RI SESC Handbook (as amended)
The Stormwater Manual
Established Eleven (11) Stormwater Management Design Standards

1. LID Site Planning and Design
2. Groundwater Recharge
3. Water Quality
4. Conveyance and Channel Protection
5. Overbank Protection
6. Redevelopment Projects
7. Pollution Prevention
8. LUHPPLs
9. Illicit Discharges
10. Construction Erosion and Sedimentation Control
11. Operation and Maintenance
Stormwater Management Plan

- Stormwater Site Planning, Analysis, and Design (SW Manual)
- Post Construction Operation and Maintenance (SW Manual)
Stormwater Management Plan

- Stormwater Site Planning, Analysis, and Design (SW Manual)
- Post Construction Operation and Maintenance (SW Manual)
Soil Erosion and Sediment Control Performance Criteria Are Now Aligned

Part D – SESC Plans

Minimum Standard 10 - SESC
Soil Erosion and Sediment Control Plan
Performance Criteria

Brian Lafaille
RIDEM RIPDES Permitting Program
Soil Erosion and Sediment Control Plan
Soil Erosion and Sediment Control Plan

Format

Narrative (Written Document)

Site Plans (Construction Drawings)
Soil Erosion and Sediment Control
Performance Criteria

1. Avoid and Protect Sensitive Areas and Natural Features
2. Minimize Area of Disturbance
3. Minimize the Disturbance of Steep Slopes
4. Preserve Topsoil
5. Stabilize Soils
6. Protect Storm Drain Inlets
7. Protect Storm Drain Outlets
8. Establish Temporary Controls for the Protection of Post-Construction Stormwater Treatment Practices
9. Establish Perimeter Controls and Sediment Barriers
10. Divert or Manage Run-on from Up-gradient Areas
11. Properly Design Construction Stormwater Conveyance Channels
12. Retain Sediment Onsite
13. Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows
14. Construction Activity Pollution Prevention Control Measures
15. Control Measure Installation, Inspections, Maintenance, and Corrective Actions
Avoid and Protect Sensitive Areas and Natural Features

Example signage and fencing protecting wetland buffers and forest. Source: RI LID Site Planning and Design Guidance Manual
Minimize Area of Disturbance

Figure 15. Sign posted at construction site informs workers of forest protection area.

~ 20 ft
Minimize Disturbance of Steep Slopes

- Roads on ridge lines or upland areas
- Vegetated drainage swales
- Natural drainageways preserved
- Houses located on “brow” of ridge
- Undisturbed vegetation on slopes
Preserve Topsoil

**MULCH**

**LOOSE SOIL**
with visible dark organic matter

**LOOSE OR FRACTURED SUBSOIL**

4 - 8"

4"
Stabilize Soils

trench or extend top of blanket at top of slope

direction of flow

ensure blanket is secure along entire slope with staples

overlap blankets at least 6 inches
Protect Storm Drain Inlets
Protect Storm Drain Outlets
Establish Temporary Controls for the Protection of Post-Construction Stormwater Treatment Practices
Establish Perimeter Controls and Sediment Barriers
Divert or Manage Run-on from Up-gradient Areas

Source: USEPA-833-R-06-004 May 2007
Properly Design Construction Stormwater Conveyance Channels

Temporary Conveyance Channels must be designed to handle the 10 Year, 24 Hour Type III Design Storm
Retain Sediment Onsite

Sediment Traps are Mandatory for Common Drainage Locations Where 1-5 Acres of Land Will Be Disturbed

Sediment Basins are Mandatory for Common Drainage Locations Where >5 Acres of Land Will Be Disturbed
Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows

**Goal**: Protect Downstream Receiving Waters, Conveyances, and Drainage Systems During Construction.

- In most cases the combination of all other performance criteria will be adequate.
- SESC Plan Preparer must evaluate the need for additional velocity, peak, and volume controls.
Construction Activity Pollution Prevention Control Measures
Control Measure Installation, Inspections, Maintenance, and Corrective Actions
Questions?