

# DEQ Certification Class Presentations

**Class presentations are provided for study/review purposes only. Printouts of these PowerPoint slides will not be allowed into the exam testing centers.**

**August 2024**



# Exercise 1A

## Simple Site Design

- Turn to Exercise 1A in the back of your participant guide (after appendices)
- Open the Virginia Runoff Reduction Method (VRRM) 4.1 New Development Spreadsheet

# Exercise 1A Materials

In your participant guide:

- Exercise 1A Instructions
  - Use this sheet to jot down your results and notes

## Exercise 1A: Instructions

**SIMPLE SITE DESIGN**

Follow the instructions below to evaluate the provided site for water quality compliance. Assume "C" soils throughout and use the New Development Compliance spreadsheet.

**Site Information**

- Project area = 6.7 acres
- Post-development land cover:
  - Managed turf = 4.75 acres
  - Impervious cover = 1.95 acres
  - Assume "C" soils throughout

**EVALUATE FOR WATER QUALITY COMPLIANCE**

- Determine the total post-development phosphorus load.
- Determine the site treatment volume.
- Determine the pollutant removal requirement (load reduction required).
- Determine the average efficiency needed for water quality compliance (removal requirement/total load).

**Instructions:**

1. Use the site information above to enter the land cover data into the Site tab of the spreadsheet.
2. Determine the results using the summary information at the bottom of the Site tab.
3. Save the spreadsheet as "EX1A.xls" or similar for a later exercise.

**Helpful Hints:** Make sure you are using the New Development Spreadsheet and refer to Module 4 of this Participant Guide for a description of the Site tab.

Exercise 1A  
Plan Reviewer for Stormwater Management (v5.0)

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# Exercise 1A Materials

## Virginia Runoff Reduction Methodology (VRRM) 4.1 New Development Spreadsheet

DEQ Virginia Runoff Reduction Method New Development Compliance Spreadsheet - Version 4.1

Project Name:

Date:

CLEAR ALL  
(Ctrl+Shift+R)

BMP Design Specifications List: 2024 Stds & Specs

data input cells

constant values

calculation cells

final results

### Site Information

#### Post-Development Project (Treatment Volume and Loads)

Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest (acres) – undisturbed, protected forest or reforested land					0.00
Mixed Open (acres) – undisturbed/inrequently maintained grass or					0.00
Managed Turf (acres) – disturbed, graded for yards or other turf to be mowed/managed					4.75
Impervious Cover (acres)					1.95
					6.70

**Post-Development Requirement for Site Area**

TP Load Reduction Required (lb/yr)

**LAND COVER SUMMARY – POST DEVELOPMENT**

Land Cover Summary		Treatment Volume and Nutrient Loads	
Forest Cover (acres)	0.00	Treatment Volume (acre-ft)	0.2415
Weighted Rv (forest)	0.00	Treatment Volume (cubic feet)	10,518
% Forest	0%	TP Load (lb/yr)	5.21
Mixed Open (acres)	0.00	TN Load (lb/yr)	61.71
Weighted Rv (mixed open)	0.00		
% Mixed Open	0%		
Managed Turf Cover (acres)	4.75		
Weighted Rv (turf)	0.22		
% Managed Turf	71%		
Impervious Cover (acres)	1.95		
Rv (impervious)	0.95		
% Impervious	29%		
Site Area (acres)	6.70		
Site Rv	0.43		

# Exercise 1A

## Simple Site Design

### Site Information:

- Project area = 6.7 acres
- Post-development land cover
  - Managed turf = **4.75 acres**
  - Impervious cover = **1.95 acres**
  - Assume “C” soils

### Determine:

- ❑ Total phosphorus load
- ❑ Site treatment volume (Tv)
- ❑ Pollutant removal requirement
- ❑ Average efficiency required for removal requirement

Enter site data

## Site Information

### Post-Development Project (Treatment Volume and Loads)

#### Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest (acres) -- undisturbed, protected forest or reforested land					0.00
Mixed Open (acres) -- undisturbed/infrequently maintained grass or shrub land					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed			4.75		4.75
Impervious Cover (acres)			1.95		1.95
					6.70

Site D.A. A D.A. B D.A. C D.A. D D.A. E Water Quality Compliance Runoff Volume and CN Summary Constants Notes

Site tab



Light green = Managed turf  
Dark gray = Building  
Light gray = Parking and sidewalks

# Results

## Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	3.47
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## LAND COVER SUMMARY -- POST DEVELOPMENT

### Land Cover Summary

Forest Cover (acres)	0.00
Weighted Rv (forest)	0.00
% Forest	0%
Mixed Open (acres)	0.00
Weighted Rv (mixed open)	0.00
% Mixed Open	0%
Managed Turf Cover (acres)	4.75
Weighted Rv (turf)	0.22
% Managed Turf	71%
Impervious Cover (acres)	1.95
Rv (impervious)	0.95

### Treatment Volume and Nutrient Loads

Treatment Volume (acre-ft)	0.2415
Treatment Volume (cubic feet)	10,518
TP Load (lb/yr)	5.21
TN Load (lb/yr)	61.71

**Save results as: EX1A.xlsm**

Overall efficiency required =  $100 \times (3.47 \div 5.21) = 67\%$

**\*High overall reduction efficiency for a 30% impervious site\***

# Questions?

