

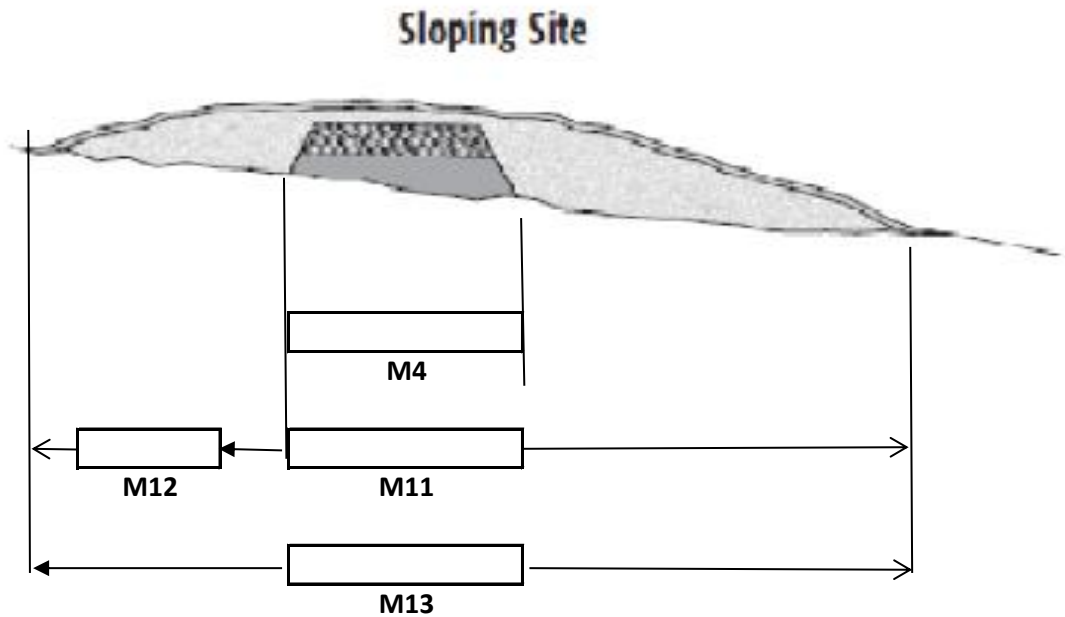
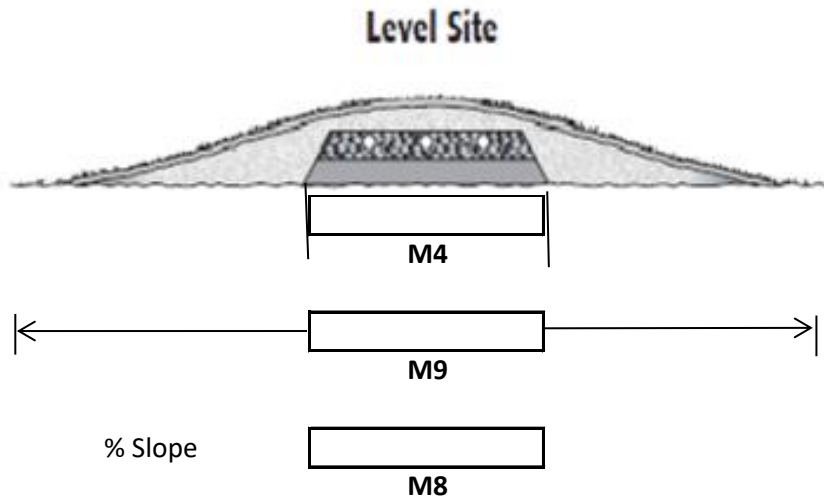
# PSDS Design - Worksheet "M"

## Treatment Mound: Area Sizing

The complete system is to comply with Saskatchewan Onsite Wastewater Disposal Guide 2018

**This worksheet does NOT consider all of the requirements of the Guideline**

Use only Imperial units of measurement throughout (feet, inches, Imperial gallons, etc...)



Sand Layer Length (ft.)	<input style="width: 80px; height: 20px;" type="text"/>	M3
Overall Length of Mound (ft.)	<input style="width: 80px; height: 20px;" type="text"/>	

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### Step 1) Determine the expected volume of sewage per day:

Volume of sewage per day. Provide allowance for additional load factors as detailed in Articles 8.1.2.2.; 8.1.2.4; 8.1.2.5. (Annex 3)

Assure that the sewage strength does not exceed the requirements of Article 8.1.1.

Expected Volume of Sewage  
per Day

  
gal. / day M1

### Step 2) Calculate the treatment area of the sand layer:

Expected Volume of  
Sewage per Day

  
gal. / day

From M1 (this worksheet)

÷

Sand Layer Loading Rate

  
0.83 gal. / sq.ft. per day

Article 16.6.2.b)

Area Required for Sand Layer

  
sq.ft. M2

### Step 3) Calculate the length of the sand layer:

Expected Volume of Sewage  
per Day

  
gal. / day

M3a

From M1 (this worksheet)

÷

Hydraulic Linear Loading Rate  
(if applicable)

  
gal./day/lin.ft.

M3b

from Tables 13-4 or 13-5

Length of Sand Layer

  
ft. M3

### Step 4) Calculate the minimum width of the sand layer:

Area of the Sand Layer

  
sq.ft.

From M2

÷

Length of the Sand Layer

  
ft.

From M3

Width of the Sand Layer

  
ft. M4

### Step 5) Determine the infiltration soil effluent loading rate:

Note: Effluent loading rate can be determined from soil texture classification according to Table 13-2 or 13-3

Soil Effluent Loading Rate

  
gal./sq.ft./day M5

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**Step 6) Calculate the in situ soil infiltration area required:**

Expected Volume of Sewage  
per Day

 gal./day

From **M1** (this worksheet)

÷

Soil Effluent Loading Rate

 gal./sq.ft./day

From **M5** (this worksheet)

Required Soil Infiltration Area

 sq.ft.

M6

**Step 7) Calculate the required width of the infiltration area:**

Required Infiltration Area

 sq.ft.

From **M6** (this worksheet)

÷

Length of Sand Layer

 ft.

From **M3** (this worksheet)

Width of Required Soil Infiltration  
Area

 ft.

M7

**Step 8) Determine the slope criteria of the installation site:**

If the slope of the installation site exceeds 1%, proceed to Step 11. If the slope is 1% or less, proceed to Step 9.

Slope of Installation Site

 %

M8

**Note: The following calculations apply ONLY to the minimum height configuration of a mound. If it is necessary to raise the sand layer, (for example to provide vertical separation from restrictive layer to the water table) the following calculations are NOT adequate for the design.**

**For Slopes of 1% or Less, Use Steps 9 to 10.**

**Step 9) Determine the toe to toe width of the mound:**

Toe to Toe Width Based on 3:1  
Slope Requirement

 ft.

**M9a**

3:1 Slope Requirement - 16.6.4.3)  
Refer to Berm Dimensions  
Diagram (this worksheet or  
determine by calculation)

or

Width of Area Required  
Infiltration Area Within Berm

 ft.

**M9b**

From **M7** (this worksheet)

Toe to Toe Width of Mound

 ft.

M9

The greater of M9a or M9b

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**For Slopes Exceeding 1%, Use Steps 11 to 14.**

### Step 10) Proceed to Step 14:

Steps 11 to 13 are used only for installations where the slope exceeds 1%.

### Step 11) Determine the width of the sand layer plus downslope berm:

The width of the mound is based on the greater of:

- the width as determined by the 1:3 slope requirement, or
- the width required to provide adequate infiltration area

#### Downslope Berm Width Based on 3:1 Slope Requirements

 ft.

**M11a**

Refer to Berm Dimensions  
Diagram (this worksheet)

+

#### Width of Sand Layer

 ft.

**M11b**

From **M4** (this worksheet)

---

 ft.

**M11c**

or

#### Width of Required Infiltration Area Under Sand Layer and Downslope Berm

 ft.

**M11d**

From **M7** (this worksheet)

#### Width of Sand Layer and Downslope Berm

 ft.

**M11**

3:1 Slope Requirement is the  
greater of **M11c** or **M11d**

### Step 12) Determine the width of the upslope berm:

Width based on 3:1 Slope Requirement (refer to 16.6.4.)

Refer to Berm Dimensions Diagram (this worksheet) or determine by  
calculation.

#### Width of Upslope Berm

 ft.

**M12**

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### Step 13) Determine the toe to toe width of the mound:

Width of Sand Layer and  
Downslope Berm

 ft.

+

Width of Upslope Berm

 ft.

=

Toe to Toe Width of Mound

 ft.

M13

### Summary

### Step 14) Summarize the information:

Width of Sand Layer  
(From M4 this worksheet)

 ft.

Length of Sand Layer  
(From M3 this worksheet)

 ft.

Slope of Installation Site  
(From M8 this worksheet)

 %

Toe to Toe Width of Mound <1% slope  
(From M9 this worksheet)

 ft.

Toe to Toe Width of Mound >1% slope  
(From M13 this worksheet)

 ft.

### Step 15) Complete the berm diagram dimensions on the first page:

Fill the appropriate diagram on the first page with the numbers calculated in this worksheet.

### Step 16) Confirm the design complies with the Standard of Practice:

This worksheet does NOT consider all the requirements of the Guideline. Please work safely and follow safe practices near trenches and open excavations.

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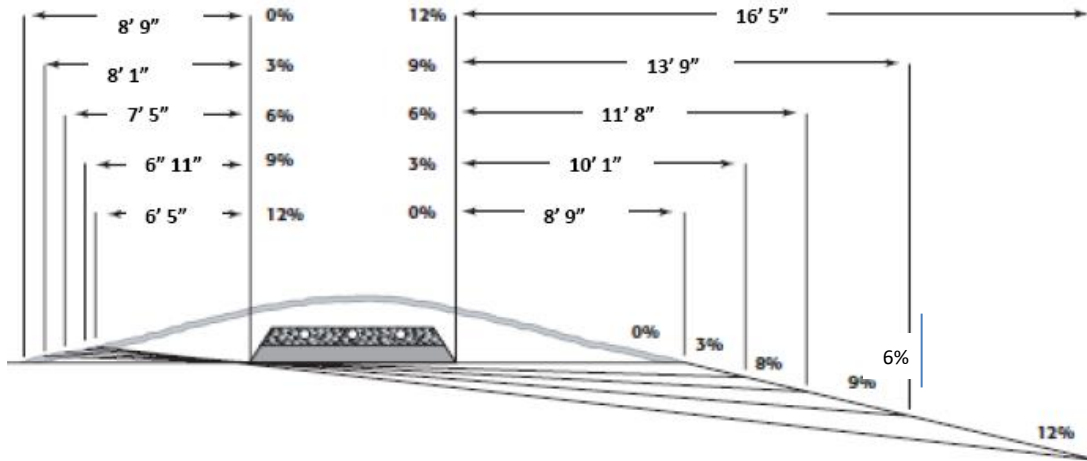
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### Treatment Mound Berm Dimensions on Slopes



**This Diagram is Based on a Minimum Mound Height and a Minimum Berm Slope of 3:1**



Based on: 3 inches top soil  
6 inches berm fill material  
12 inches of chamber height  
2 inches of washed rock  
12 inches of sand media  
35 inches of height

Based on minimum height requirements from 2018 SOWDG