Trench Field Sizing Worksheet

Trench Bottom Surface Area **(A.I.S)** & Length Sizing
The complete system is to comply with BC SPM Version 3

This worksheet does NOT consider all of the requirements of SPM Version 3

Use only Metric units of measurement throughout (Liters (L), Centimeters (cm), L/day/m^2)

Step 1) Determine the expected volume of sewage per day

Daily Design Flow DDF

Assure that sewage strength does not exceed requirements of BC SPM V3

L/day F1

Step 2) Determine the (design) soil effluent loading rate:

Texture & Structure & Grade & Consistence = Consistence Category = L/day/m^2 Soil HLR F2

mm/day Kfs OR min/in Perc or Permi = L/day/m^2 Permability HLR F2A

Note: HLR MUST be determined from soil texture, structure, and grade classification. Permeameter or Percolation testing must be used for supporting the soil HLR. Note: Ensure infiltration loading rate does not exceed soil texture loading rates as set out Table 11-22 in SPM V3

Residential strength effluent
From Table 11-22 or Table II-23SPM V3 Volume II

Site Slope %

Step 3) Calculate the required infiltration surface area for the soil **(AIS)**

Daily Design Flow (DDF) L/day From F1 ÷ Hydraulic Loading Rate HLR L/day/m^2 Use Lower value of F2 or F2A = Minimum Area of Infiltrative Surface AIS m2 F3

Step 4) Determine linear feet of trench required based on HLR

AIS From F3 ÷ Choose Trench Width m F4A = Minimum Trench Length Required to Address AIS m F4

Step 5) Determine Linear Loading Rates (LLR) based on soils & percolation rates

Texture & Structure & Grade & Consistence = Consistence Category = Table 11-27 L/day/m Soil LLR F5

KFS mms/day Or Perc Rate min/in = Table 11-28 L/day/m Permeability LLR F5A

Use lower of values from 5 or 5A to determine LLR

Step 6) Determine contour length of dispersal field required based on LLR

DDF L/day from F1 ÷ LLR L/d/m Use lower value of F5 or F5A = Minimum Contour Length - MCL m F6

Step 7) Calculate number of trenches & dispersal width to meet contour length requirements

Minimum Trench Length		MCL		Number of trenches	
m	÷	m	=		F7
From F4		From F6		always round down	

Note: *Number of spaces is equal to number of trenches minus 1 *

Step 8) Adjust Contour Length to Number of Trenches to Meet Linear Loading

Min.Trench length

		Number of Trenches		Adjusted Contour Length to meet LLR & AIS	
m	X		=	m	F8
From F4		From F7 (rounded down)			

Step 9) Calculate Minimum Total width from outside to outside of trenches

Total Trench Width		Space between trenches # of spaces x space width		Width of Dispersal Infiltrative Area	
	+	m	=	m	F9
F4a X F7		Minimum 1.8 m on center or 0.9 m between trench edges			

Step 10) Calculate Adjusted AIS

Actual Trench Width		Adjusted Contour Length x number of trenches		Adjusted AIS	
m	X	m	=	m^2	F10
From F4A		From F8 X F7 (rounded)			

Step 11) Calculate Total Treatment Area

Dispersal Area Width		Dispersal Length		Total Dispersal Field Area	
	X	m		m^2	F11
From F9		From F8			

Step 7) Summarize

F1	L/day	Daily Design Flow - DDF
F2 or F2A	L/day/m²	Effluent Loading rate - HLR SELECT LOWER OF F2 OR F2A
F3		Minimum Soil Infiltration Surface Area - AIS
F4A	m	Actual width of trench
F4	m	Minimum trench Length to address AIS requirements
FS or FSA	L/day/m²	Linear Loading Rate - LLR
F6	m	Minimum Contour Length based on LLR
F7		Number of trenches (to address LLR (be sure to round down))
F8	m	Adjusted Contour Length to meet LLR & AIS
F9	m	Width of Dispersal Infiltrative Area
F10	m2	Adjusted AIS
F11	m	Total dispersal field area (for your site plan)