

Aerobic Treatment Worksheet Version 2.1

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1. Design Flow and Septic Tanks		
<i>Determine daily wastewater usage (gallons per day (gpd))</i> <i>Measured using water meter or estimated using 5 gallons per cow per day (# cows x 5 g/cow/day)</i>		
1 a.	Daily wastewater usage (# cows _____ x 5 gal/cow/day) <input type="checkbox"/> Measured (_____ months) of water meter data <input type="checkbox"/>	_____ gpd _____ gpd
<i>Calculate minimum septic tank capacity. Select larger of:</i> <div style="text-align: right; margin-right: 50px;"> 3-day HRT of daily water usage (1a x 3) (_____ gallons) <input type="checkbox"/> Bulk tank volume (_____ gallons) <input type="checkbox"/> 1000 gallon minimum <input type="checkbox"/> </div>		
1 b.	Minimum total septic tank capacity _____ g	
<i>Determine wastewater strength (Biochemical Oxygen Demand (BOD₅) mg/L)</i> If one tank with 3-day HRT, use design value of 1,200 mg/L (<u> 1,200 </u> mg/L) <input type="checkbox"/> If two tanks with 3-day HRT each, use design value of 750 mg/L (<u> 750 </u> mg/L) <input type="checkbox"/> Use measured (BOD ₅) value (_____ mg/L) <input type="checkbox"/>		
2. Aerobic Treatment Unit or Recirculating Media Filter Information		
<i>Record Aerobic Treatment Unit (ATU) or Recirculating Media Filter (RMF) capacity (i.e. volume) and expected BOD₅ removal rate.</i> <div style="text-align: right; margin-right: 50px;"> Aerobic Treatment Unit (ATU) <input type="checkbox"/> Recirculating Media Filter <input type="checkbox"/> ATU or RMF capacity (_____ gallons) ATU or RMF BOD₅ removal rate (_____ kg BOD₅ removed per day) </div>		
3. Size Infiltration Area		
<i>Determine the size of the infiltration area based on soil type. After determining the soil type, divide the daily water usage by the corresponding soil loading rate to determine the total size of the infiltration area. Note that the infiltration area could be <u>larger</u> than the calculated minimum value. Please refer to septic system drainage trench design (OSTP manual) for complete information on infiltration area design.</i> <div style="text-align: center; margin-bottom: 10px;"> Course sand, medium sand, and loamy sand = 1.20 gpd/ft² Loamy sand, fine sand, sandy loam or loam = 0.59 gpd/ft² Silt loam, silt or clay loam = 0.45 gpd/ft² Sandy clay, silty clay or clay = 0.24 gpd/ft² </div>		
2 a.	Soil type _____ infiltration area loading rate	_____ gpd/ft ²
2 b.	Minimum infiltration area: (daily water usage (1a) ÷ loading rate (2a))	
2 c.	Design infiltration area: (this could be larger than minimum area, 2b)	
		_____ ft ² _____ ft ²