Aerobic Treatment Worksheet Version 2.1
Draft 05/05/08

1. Design Flow and Septic Tanks

**Determine daily wastewater usage (gallons per day (gpd))**

Measured using water meter or estimated using 5 gallons per cow per day (# cows x 5 g/cow/day)

| 1 a. | Daily wastewater usage (# cows ____ x 5 gal/cow/day) □ | ____ gpd  
|      | Measured (____ months) of water meter data □ | ____ gpd |

*Calculate minimum septic tank capacity. Select larger of:*

- 3-day HRT of daily water usage (1a x 3) (_______gallons) □
- Bulk tank volume (_______gallons) □
- 1000 gallon minimum □

| 1 b. | Minimum total septic tank capacity | ____ g |

**Determine wastewater strength (Biochemical Oxygen Demand (BOD₅) mg/L)**

- If one tank with 3-day HRT, use design value of 1,200 mg/L (____1,200____ mg/L) □
- If two tanks with 3-day HRT each, use design value of 750 mg/L (____750____ mg/L) □
- Use measured (BOD₅) value (_______mg/L) □

2. Aerobic Treatment Unit or Recirculating Media Filter Information

Record Aerobic Treatment Unit (ATU) or Recirculating Media Filer (RMF) capacity (i.e. volume) and expected BOD₅ removal rate.

<table>
<thead>
<tr>
<th></th>
<th>Aerobic Treatment Unit (ATU) □</th>
<th>Recirculating Media Filter □</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ATU or RMF capacity (_______gallons)</td>
<td>ATU or RMF BOD₅ removal rate (_______ kg BOD₅ removed per day)</td>
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</tbody>
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3. Size Infiltration Area

**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 larger than the calculated minimum value. Please refer to septic system drainage trench design (OSTP manual) for complete information on infiltration area design.**

- 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

| 2 a. | Soil type ____________ infiltration area loading rate | ____gpd/ft² |
| 2 b. | Minimum infiltration area: (daily water usage (1a) ÷ loading rate (2a)) | ____ft² |
| 2 c. | Design infiltration area: (this could be larger than minimum area, 2b) | ____ft² |