OSSF Design Calculations

Project Name: Hill Country Family Fitness Center
Project Location: 490 Rodeo Drive, Comal County, Texas 78070

SEPTIC SYSTEM DESIGN

TCEQ Chapter 285 Subchapter I
Table III. Wastewater usage rate

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Usage Rate* (gpd)</th>
<th># of people</th>
<th>Total gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>fitness center</td>
<td>8 to 12 per person**</td>
<td>150</td>
<td>1800</td>
</tr>
<tr>
<td>day care, no kitchen</td>
<td>12 per child</td>
<td>15</td>
<td>180</td>
</tr>
<tr>
<td>Laundries</td>
<td>200 per machine</td>
<td>2</td>
<td>400</td>
</tr>
</tbody>
</table>

** with water saving devices

** 12 gpd used for maximum calculations

DESIGN FLOW = 2,500 GPD

SEPTIC SYSTEM COMPONENTS (Type IV Soil)
Trash Tank
Dosing Tank
Aerobic Treatment Unit (ATU)
Pump Tank
Effluent Disposal System

SEPTIC SYSTEM COMPONENT SIZING
Trash tank capacity is 1/2 to 2/3 the flow

1/2 flow = 1250
2/3 flow = 1666.66667

We will use a trash tank with a 1,500-gallon capacity.

Dosing tank must be sized to hold daily flow but limited tank sizes are available.
The dosing tank will be equipped with duel alternating pumps to transfer wastewater to 2 ATUs.

We will use a dosing tank with a 3,000-gallon capacity.

ATUs must be sized to handle daily flow.

We will use two 1,500-gallon ATUs.

Based on a flow of 1,500-gallons from each ATU, the pump tank will be sized to accommodate the daily flow.

The system will include two 2,000-gallon pump tanks; one for each ATU.

By: Amanda Watson
Notes §285.32(b)(1)(F):

Installation of tanks. For gravity disposal systems, septic tanks must be installed with at least a 12 inch drop in elevation from the bottom of the outlet pipe to the bottom of the disposal area. A minimum of four inches of sand, sandy loam, clay loam, or pea gravel, free of rock larger than 1/2 inch in diameter, shall be placed under and around all tanks. Unless otherwise approved by the permitting authority, tank excavations shall be left open until they have been inspected by the permitting authority. Tank excavations must be backfilled with soil or pea gravel that is free of rock larger than 1/2 inch in diameter. Class IV soils and gravel larger than one-half inch in diameter are not acceptable for use as backfill material. If the top of a septic tank extends above the ground surface, soil may be mounded over the tank to maintain slope to the drainfield.

§285.33(a). Criteria for Effluent Disposal Systems

(3) The pipe between all treatment tanks and the pipe from the final treatment tank to a gravity disposal system shall be a minimum of three inches in diameter and be American Society for Testing and Materials (ASTM) 3034, Standard dimension ratio (SDR) 35 polyvinyl chloride (PVC) pipe or a pipe with an equivalent or stronger pipe stiffness at a 5% deflection. The pipe must maintain a continuous fall to the disposal system.

(4) The pipe from the final treatment tank to a gravity disposal system shall be a minimum of five feet in length.

(5) Except for drip irrigation tubing, pipe under internal pressure within any part of an on-site sewage facility system shall meet the minimum requirements of ASTM Schedule 40.