

## Guideline For Design and Installation of Fill Systems with Conventional Trenches

### I. Trench and Fill Specifications

<u>III</u>	- Soil Texture Group	_____ ft.	- Length of Fill
<u>3</u> gpd/sq. ft.	- Acceptance Rate	_____ ft.	- Width of Fill
<u>360</u> gpd	- Sewage Flow	_____ sq. ft.	- Total Fill Area
<u>1200</u> sq. ft.	- Trench Bottom	_____ in.	- Depth of Sand
<u>3</u> ft.	- Trench Width	_____ cu. yd.	- Volume of Sand
<u>400</u> ft.	- Total Trench Length	_____ in.	- Depth of Topsoil
<u>4</u>	- Number of Trenches	_____ cu. yd.	- Volume of Topsoil
<u>100</u> ft.	- Length of each Trench		

### II. Site Preparation

1. Place flags at the 4 corners of the area to be filled designated on the improvement permit. Failure to place fill in the permitted area may result in the fill having to be moved or the permit revoked.
2. Do not work when the site is wet. Working on soil when wet can destroy soil structure making the site unsuitable for a Construction Authorization.
3. Remove all above ground vegetation and root mat from area to be filled without removing topsoil. Removal of soil can result in revocation of the permit.
4. Disk the area to be filled to a depth of 6 inches to break up root mat.

### III. Placement Of Fill

1. Add 3 to 4 inches of approved sand fill to area and disk again to thoroughly mix the original soil and the fill. Approved sand fill is a sand or loamy sand.
2. Add more sand fill to achieve a uniform height of SD (see diagram) in the middle of the fill area.
3. The fill shall be tapered from the top edge of the fill to the ground surface 2 feet from the boundary of the fill area. The top edge of fill is located 5 feet from the proposed trenches.

4. Six (6) inches of finer textured fill shall be placed over the sand fill and extend to the boundary of the fill area. Finer texture is necessary to establish a vegetative cover which will prevent erosion of the fill. Fill used for cover shall be a sandy loam, loam, silt loam or sand clay loam texture. See CD dimension of diagram. Side slope shall be 1 to 4 except for site with Soil Texture Group 1 which can have a side slope of 1 to 3.
5. Contact Health Department for inspection of fill before constructing trenches. A Construction Authorization must be obtained before proceeding.

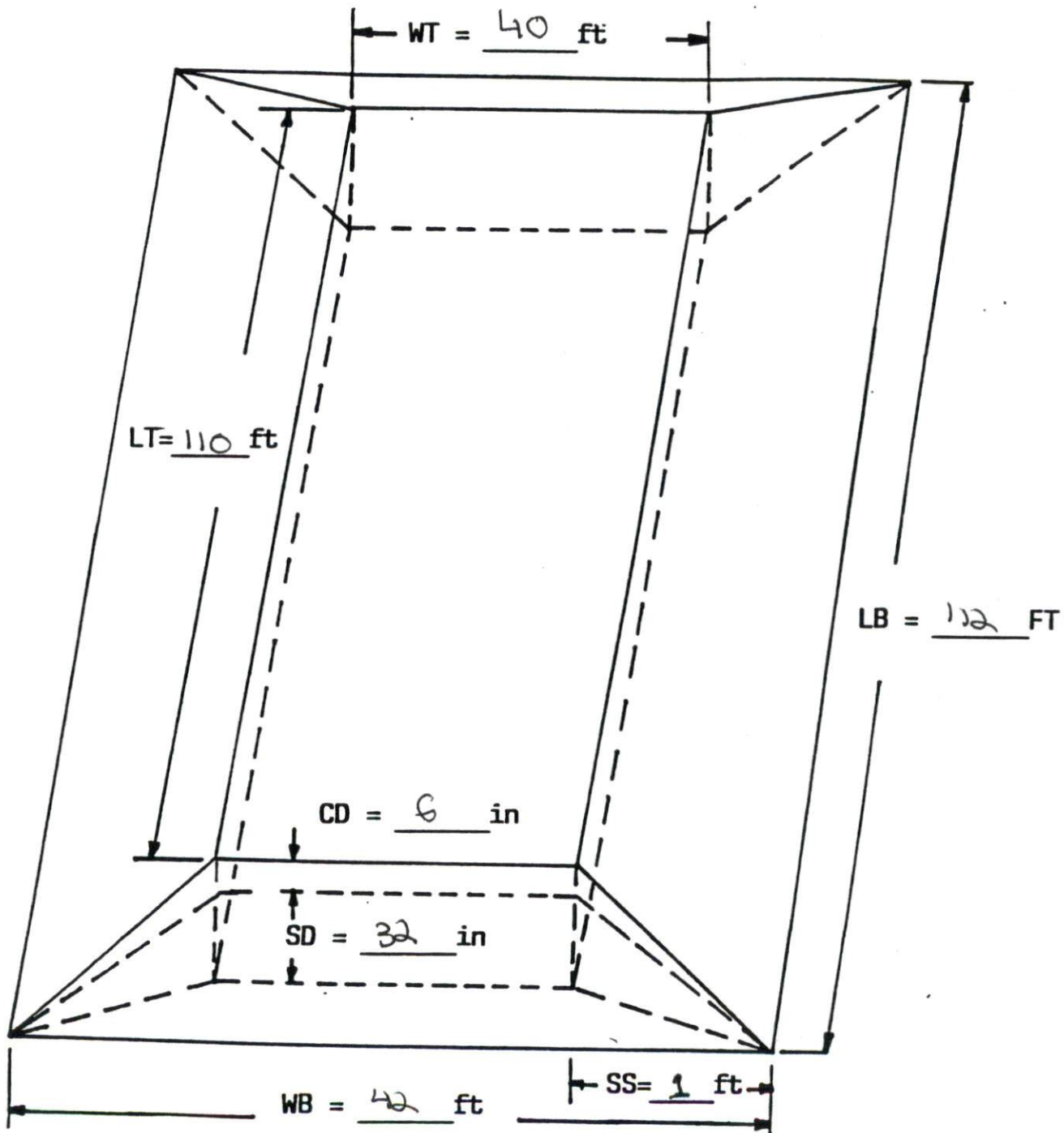
#### **IV. Trench Construction**

1. The outside edge of any trench shall be 5 feet from the top of the side slope of the fill.
2. This system is designed with \_\_\_\_ trenches which are \_\_\_\_ ft. long and \_\_\_\_ ft. wide. Trenches must have a spacing of \_\_\_\_ ft. on centers.
3. Trench bottoms shall be no deeper than 18 inches below finished grade of the fill.
4. Trench bottoms shall be constructed level.
5. Distribution boxes shall be located 5 feet from the top edge of the fill.
6. Call the Health Department for inspection after the trenches are finished.

#### **V. Landscaping**

1. The fill must be shaped to shed surface water and shall be stabilized with grass or other suitable cover to prevent erosion.
2. Vegetation must be maintained after established. Grass must be mowed.
3. Additional fill beyond what has already been specified may be necessary to cover and landscape around the septic tank.
4. Call the Health Department for inspection after landscaping is complete. The Operation Permit allowing use of the system is issued at this time.

# DIMENSIONS OF FILL SYSTEM



20" SE

## DEFINITIONS

WT - width of top  
LT - length of top  
WB - width of bottom  
LB - length of bottom

SS - side slope  
SD - sand depth  
CD - cover depth

## Calculation of Fill Volume

### Total volume of fill (TVF)

$$\begin{aligned} \text{TVF} &= [ (LT + LB) / 2 \times (WT + WB) / 2 ] \times \text{TFD} \\ &= [ (\overset{222}{120} \text{ FT.} + \overset{111}{112} \text{ FT.}) / 2 \times (\overset{82}{40} \text{ FT.} + \overset{41}{42} \text{ FT.}) / 2 ] \times \underline{3} \text{ FT.} \\ &= \underline{1363} \text{ CU. FT.} \end{aligned}$$

(DIVIDE BY 27 CU. FT. TO OBTAIN CU. YDS.)

$$= \underline{50} \text{ CU. YDS.}$$

### Total volume of sand (TVS)

$$\begin{aligned} \text{TVS} &= [ (LT + LB - 4) / 2 \times (WT + WB - 4) / 2 ] \times \text{SD} \\ &= [ (\overset{218}{120} \text{ FT.} + \overset{109}{112} \text{ FT.} - 4) / 2 \times (\overset{78}{40} \text{ FT.} + \overset{39}{42} \text{ FT.} - 4) / 2 ] \times \underline{2.8} \text{ FT.} \\ &= \underline{11902} \text{ CU. FT.} \end{aligned}$$

(DIVIDE BY 27 CU. FT. TO OBTAIN CU. YDS.)

$$= \underline{440} \text{ CU. YDS.}$$

### Total volume of cover (TVC)

$$\text{TVC} = \text{TVF} - \text{TVS}$$

$$= \underline{50} \text{ CU. YD.} - \underline{440} \text{ CU. YD.}$$

$$= \underline{70} \text{ CU. YD.}$$

### Key to abbreviations:

LT = length of top  
LB = length of bottom  
WT = width of top  
WB = width of bottom

TFD = total fill depth  
= SD + CD  
SD = sand depth  
CD = cover depth