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A CONCRETE SEPTIC TANK FOR THE FARM

by

Everett H. Davis
Extension Specialist in
Agricultural Engineering

Federal Cooperative Extension Service
Oregon State College
Corvallis

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Wm. A. Schoenfeld, Director
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A CONCRETE SEPTIC TANK FOR THE FARM

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Installation of a septic tank provides a safe means of disposal of all wastes from the plumbing system. The construction of a concrete septic tank and drainage system is neither difficult nor expensive and if properly constructed, will give satisfactory service for many years.

This circular discusses and illustrates the installation of a septic tank system designed to serve from 2 to 10 persons. It is recommended that anyone planning to install a system should first obtain a copy of the Oregon State Plumbing Code* in order that the installation is made according to state regulations.

How the Septic Tank Functions:

The septic tank is simply a water-tight container that retains sewage and waste water for a period long enough for proper bacterial action. Agitation of the contents is minimized by baffles placed in front of the inlet and outlet connections.

When additional sewage enters the tank from the house, the liquefied material resulting from the bacterial action flows out into the drain line. A portion of the solids, however, are not liquefied by the bacteria and settles in the bottom of the tank. This sludge, which gradually accumulates, necessitates the cleaning out of the tank every four or six years.

If only moderate amounts of disinfectants, grease or cleaning agents are allowed to enter into the septic tank, there will be no detrimental effect on the bacterial action.

STEPS IN THE CONSTRUCTION OF SEPTIC TANK:

1. Dig a hole 4' x 7' and 6 1/2' deep with straight, smooth sides
2. Build inside forms 3' x 6' and 4 1/2' deep, using 1" boards. Tack strips to the sides of the forms to make grooves in tank walls for baffle boards. Suspend forms in hole 6" from sides.
3. Place inlet and outlet quarter bends in position.
4. Make concrete of 1 part cement, 2 parts clean sand, and 4 parts of clean gravel or crushed rock. Medium dry mixture is best.

* Available without cost at Oregon State Board of Health, Portland, Oregon.

5. Pour cement between forms and earth sides. Tamp the concrete well as it is placed in the forms to secure a water-tight job. Pour the bottom last and trowel down smooth.
6. Cast cover slabs on smooth earth surface or barn floor, making them 1'-9" x 4'-0" x 4" thick and embedding reinforcing wire or rods 1" from the bottom.
7. Forms may be removed in 48 hours.
8. Locate the septic tank where it can be opened for periodic cleaning and inspection.
9. Roof drains should never be connected to the sewer system.

LIST OF MATERIALS FOR SEPTIC TANK:

- 2 - 4" long sweep quarter bends.
- 16 Bags cement.
- 1-1/5 Cubic yards sand
- 2-2/5 Cubic yards gravel
- Reinforcing wire for cover slabs
- Lumber for forms
- Baffle boards

DRAINAGE LINE CONSTRUCTION:

Drainage systems which dispose of septic tank effluent should, if possible, be located at least 100 feet and downhill from any well, spring or stream used for a water supply. In no case should they be located within 50 feet of the water supply.

INVERTED-TROUGH DRAIN SYSTEM: (See Drawing)

This type of drain system is easy to construct and is not easily clogged by roots from trees and shrubs.

These instructions for installing the trough system should be carefully followed:

1. Dig ditch 24" deep and 24" wide. Allow ten feet of drain line per person in the family. If more than ten persons in the family, use branch lines. Ditch should be dug on a grade of one inch per ten feet.
2. Fill bottom of ditch with 6 inches of coarse gravel or rock. Minimum size should be 3/4 of an inch.
3. Place wood trough in inverted position on the gravel bed as shown in the drawing. Place 3 inches or more gravel or rock along edges of trough and then fill to top of ditch with dirt.
4. At least 15 feet of sewer pipe should be used between the septic tank and drain line. Extend sewer pipe into the trough at least six inches.

5. Apply two coats of hot creosote to the lumber with a brush to make it more resistant to decay. Allow one gallon of creosote for every 22 feet of drain line.

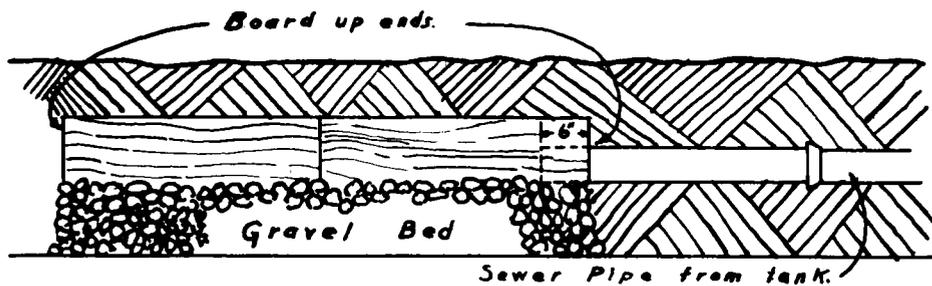
6. Use galvanized nails in the construction. The use of cedar lumber is also recommended to lengthen the life of the system.

DRAIN TILE DRAIN SYSTEM: (See Drawing)

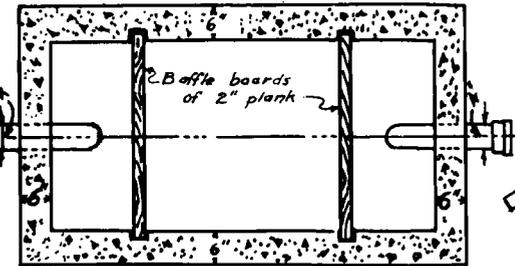
This is an optional method whereby 4-inch drain tile laid 12 to 18 inches underground is used to dispose of overflow from the septic tank. Drain tile should be laid carefully to a uniform grade. A grade of $1/2$ to 1 inch per 10 feet is recommended.

The top half of drain tile joints should be covered with tar paper to prevent entrance of earth or sand into the tile. Care should be taken to locate the tile lines where roots from trees and shrubs will not enter through the open joints and hinder drainage.

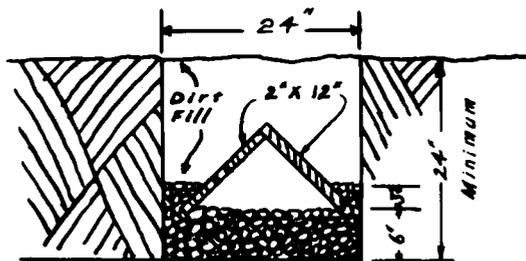
In sandy soil allow 20 feet of tile per person. In loam soil allow 40 feet per person. In heavy clay soil it is advisable to construct a filter trench. In this case the tank overflow runs through an upper tile of the trench, seeps through a sand bed, and is carried away by a lower tile placed 2 feet directly beneath the upper tile.



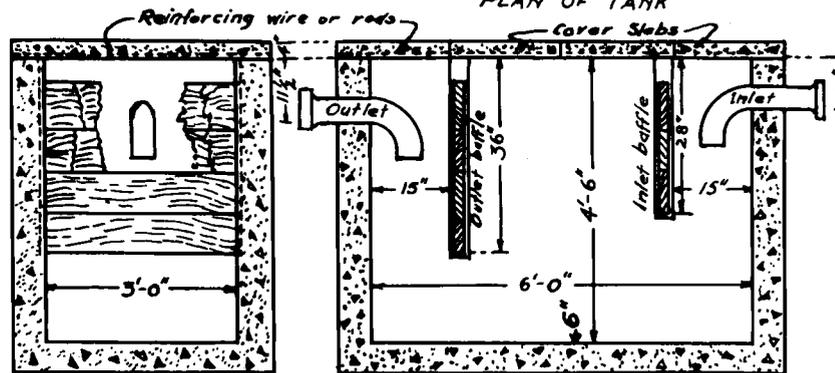
LONGITUDINAL SECTION V-TROUGH



PLAN OF TANK



CROSS SECTION V-TROUGH



CROSS SECTION

LONGITUDINAL SECTION

DETAILS OF CONSTRUCTION OF SEPTIC TANK
(Size suitable for 2 to 10 persons)



OPTIONAL DRAINAGE SYSTEM
(4" tile laid 18"-24" deep)

