

# THE HOMEOWNER GUIDE TO ON-SITE SEWAGE DISPOSAL SYSTEMS



**CITY *of* CALABASAS**

**COMMUNITY DEVELOPMENT DEPARTMENT  
BUILDING AND SAFETY  
100 CIVIC CENTER WAY  
CALABASAS, CALIFORNIA 91302**

**(818)224-1600**

**[www.cityofcalabasas.com](http://www.cityofcalabasas.com)**

## **INTRODUCTION**

This homeowner's guide has been assembled by the City to assist property owners and tenants on how to properly maintain a septic system. Well maintained systems have an average lifespan of 20 to 35 years before serious problems occur. Failure to follow the recommendations contained in this guideline decreases the lifespan of such systems, and leads to costly and unnecessary early repairs. If you have questions about your system, you are advised to contact a licensed professional who can inspect your system and advise you on its status.

*If you suspect problems, please act responsibly; raw sewage is a threat to health, your neighbors, pets, and the environment!*

### **Why this Guide?**

Many new homeowners and tenants are not aware of how to care for their systems. This document will assist you in learning about 1) how a septic system works, 2) how to maintain it and 3) signs that your system may be failing.

The failure of a septic system manifests itself typically in two ways; either in the backup of wastewater into the residence or appearance of effluent on the surface of the ground. Its presence constitutes a potential health hazard, and is a source of pollution to natural water bodies. Ultimately, the homeowner or user may face substantial expense associated with having to install a new disposal area or tank; therefore it makes good economic and environmental sense to take care of your septic system.

### **How a Septic System Works:**

A septic system consists of a septic tank and a subsurface disposal area composed of buried drainage lines and/or septic pit. Wastewater (also called effluent, raw sewage, or grey water) from the home is discharged into the septic tank where most of the solids are separated. From there, the wastewater travels to the disposal areas where it is dispersed. Each component of this system has unique maintenance needs in order to keep the system operating properly.

### **The Septic Tank:**

A typical septic tank has a volume of 750-1500 gallons and can be made of concrete, steel, or fiberglass. They are typically eight feet long by five feet wide by five feet deep, and are buried about 3 feet below ground.

Septic tanks are *watertight chambers* which promote the growth of anaerobic bacteria for the biological decomposition of sewage. They have mid-tank baffles which prevent the flow-through of floating solids directly to the dispersal areas, allowing them to settle to the bottom where they are decomposed.

Today's septic tanks are made with two openings: one for each chamber or holding area within the tank. They are located on the top of the tank so as to permit surface access to the tank for pumping of the accumulated solids. If your septic tank is not equipped with two access risers, it may be an older version, which requires the unearthing of the tank and a "lid" to be pulled off in order to gain access.

Septic tanks are only sized to handle the normal, daily (24 hours) effluent flow which a household can produce. For this reason, systems are designed based on the maximum capacity of a single family home, which is typically measured by number of bedrooms.

### **Locating your Septic Tank:**

In order to facilitate location and regular maintenance, it is necessary to develop a scaled plot plan of the property depicting the location of the septic system and its respective components. The City's Building and Safety Department may have records showing the exact location and size of your septic tank and dispersal area.

To identify tank location and provide for physical access, newer septic tanks have manhole covers which extend to the exterior ground surface. These manhole covers allow for access, routine inspection, and the pumping of the septic tank.

If you cannot locate your tank, you or your inspector will need to utilize either direct or indirect methods to identify system components. Direct methods include probing with a rod, while indirect methods include electronic location or ground penetrating radar. A starting point in locating your system is to begin at the sewer cleanout outside the house, probe and follow the pipeline until you reach the buried septic tank. The top is usually buried two to four feet deep. It is possible to add risers and manhole covers to the tank lids which serve a number of future purposes; a) it will make tank location easier, b) it will facilitate pumping and repair, and c) will reduce costs as less labor will be involved in exposing the system.

### **Maintaining Your Septic Tank:**

The most important step in maintaining a trouble-free septic system operation is to remove the accumulated solid residue and scum from the tank before it migrates to distribution areas. The size of the tank, the number of people in the household, and the kinds of wastewater discharging appliances you use will determine how often you

should pump. At a minimum, tanks serving private homes should be cleaned once every three years. If the thickness of the scum layer is a foot or more, the tank should be pumped immediately.

*Minimize the solids load* - Do not use your septic system for anything except human wastes, toilet paper, and water from toilets, bathing fixtures, kitchen sinks and laundry washers. The less material you put into your septic tank, the better the quality of the effluent going to the leaching system.

- a) Avoid using a garbage disposal unit. Remove scraps with the garbage or properly compost them.
- b) Collect grease in a container near the sink rather than pouring it down the drain.
- c) Minimize the discharge of paper products. Non-degradable items, such as disposable diapers, sanitary napkins, kitty litter and paper towels are especially harmful. Seek out septic friendly tissue.
- d) Minimize household chemicals so as not to affect the bacteria in your system. Do not use your tank to get rid of oils, paints, insecticides or other poisonous liquids.
- e) Septic tank additives, chemicals, yeasts, bacteria, enzymes, etc. do not increase the bacterial solids break down in the tank and will not affect (increase) the time needed for routine pumping. Experiments with chemicals to unclog absorption fields have not proven reliable.
- f) Check to make sure that roof and garage drains are not connected to the septic system.

### **What can go wrong with a Septic Tank:**

Concrete septic tanks can suffer structural damage and/or deterioration over time, eventually leading to collapse. The interior of the tanks are susceptible to erosion from highly alkaline wastewater and gases generated during sewage decomposition. Outside the tank, water traveling through our highly alkaline soils can also erode and weaken concrete tanks.

Tanks can crack when they are buried in clay soils, which swell when exposed to water and heave the tank unevenly. Once the tank is cracked, effluent will migrate into the soil and can daylight to the surface.

**The Dispersal Area:** As new wastewater enters the septic tank, old wastewater is forced out where it is gravity fed down to a dispersal area. The function of the dispersal area is to allow for the gradual absorption of wastewater into the ground. There are two primary types of systems; leach fields, and septic pits.

*Leach Fields* - The most common absorption system seen in the City, especially in older homes, is a leach field. It consists of a large outdoor area where perforated wastewater

pipes are laid in rock filled horizontal trenches between two to four feet below the ground surface. Wastewater coming from the septic tank is fed through a distribution box and fed by gravity down through the perforated pipe. Aerobic (bacterial) treatment of the wastewater is accomplished as it flows through the rock trenches and is absorbed (percolated) down into the ground.

Leach fields operate on the principle of evapo-transpiration as well as percolation due to their close proximity to the ground surface. Because of the principal of evapo-transpiration, leach lines and leach beds may not be placed under pavement, driveways, or planted areas requiring frequent watering. They are also highly susceptible to ground heaving (which interrupts the gravity flow) and plant roots.

*Seepage Pits* - A seepage pit is one or more three to six foot wide holes filled with rock up to 50 feet in depth. In the middle of the pit is a perforated pipe where the wastewater enters and is fed to the bottom of the hole where it percolates into the ground. Seepage pits rely on percolation only; accordingly, they may be placed under paved surfaces.

Wastewater penetration in the soil is directly related to its porosity. For example, coarse (sandy) textured soils generally require smaller size leach fields and pits because of good porosity characteristics, where very fine soil particles (clays) which are too tight to allow wastewater to pass through require larger field area. Anaerobic treatment is also affected by soils characteristics, with courser grained materials being less effective at filtering the hazardous ingredients of wastewater.

Code requires that all on-site sewage disposal absorption systems be designed so that there is an additional 100% expansion area available on the property in case the original distribution system fails. Therefore, hot tubs, patios, or other permanent structures should not be constructed in the expansion area.

### **Locating your Dispersal Area:**

It is possible to probe along the pipe leading out from the septic box to locate your leach field and/or septic pit. Pits are usually constructed with a small pipe vent to the surface which is the best way to locate it. Leach fields are more difficult to locate with precision, but in general, consist of three long trenches branching out from a small concrete distribution box buried about 2 to 3 feet below the surface. Once you have probed and identified the location of the distribution box, probe gently along a pipe to determining the trench location, usually marked by gravel.

Digging a trench to expose the distribution line is also possible, though caution needs to be undertaken as the dug up ground may be saturated with effluent.

### **Maintaining Your Dispersal Area:**

Proper maintenance efforts should be employed in your day to day routine and center around minimizing discharges into the septic system.

*Minimize your liquid load* - The less wastewater you produce, the less the soil will need to absorb. Water conservation is the cheapest and easiest way to protect your septic system. Remember, the capacity of the septic tank must not be exceeded in any one day. This can be achieved by:

- a) Repairing leaky fixtures.
- b) Washing clothes only when you have a full load, and avoiding doing several loads in one day.
- c) Taking short showers instead of baths.
- d) Installing a water saving device in your old toilet tank, or purchasing a new low flow fixture;
- e) Don't flush unnecessarily.
- f) Don't let water run while washing teeth, hands, vegetables, dishes, etc. Use a closed drain.
- g) Installing flash hot water devices where feasible, which minimize the need to waste water as you are waiting for it to warm up.
- h) Divert drains and surface water from driveways and hillsides away from the
- i) Do not allow rain water or site drainage to pond over the leach field.
- j) Keep sump pumps and house footing drains away from the septic system as well.

Maintaining your dispersal area also involves protecting its physical integrity:

- k) Keep large trees at least ten feet away from a leach field or seepage pit. Small feeder roots will enter the drain holes of the leach field drain lines and form a mat within the drain line. This mat blocks the flow in the level drain line rendering the remainder of the line unusable. Large roots may displace the drain line.
- l) The leach field should be left uncovered and unpaved to allow for the system evapo-transpiration. Do not construct walkways patios, hot tubs or other permanent structures over the leach field or the future expansion area.
- m) Keep vehicles off of leach fields; underground pipes and soil porosity can be damaged by heavy pressure on top of them.

### **What Can Go Wrong with a Distribution Area?**

Problems occur when the soil and/or perforated distribution drain pipe becomes clogged by sludge and scum from the septic tank. Partially clogged distribution areas may work well during dry weather, but when winter rains soak the ground or household water use is high, the system becomes overloaded, and backups occur.

*A system that performs sluggishly suggests that full failure is imminent.*

You can suspect a malfunctioning distribution area if:

- a) There are odors, persistent wet spots and/or lush green growth in any areas of your system.
- b) Your waste plumbing becomes sluggish over a period of time.
- c) Your waste plumbing becomes sluggish when it is being used heavily or during wet weather.
- d) Problems persist even though the septic tank has been pumped and cleaned recently.

Remember, once the soil absorption system is clogged, cleaning the tank will do little good; you will probably need a new distribution area.

If your plumbing backs up suddenly under normal use in dry weather, a professional may be able to clear blockages in the distribution drain pipe. Occasionally blockages caused by tree roots entering the leach field distribution drain pipes develop over a period of time.

### **Steps to consider if your leach field system fails:**

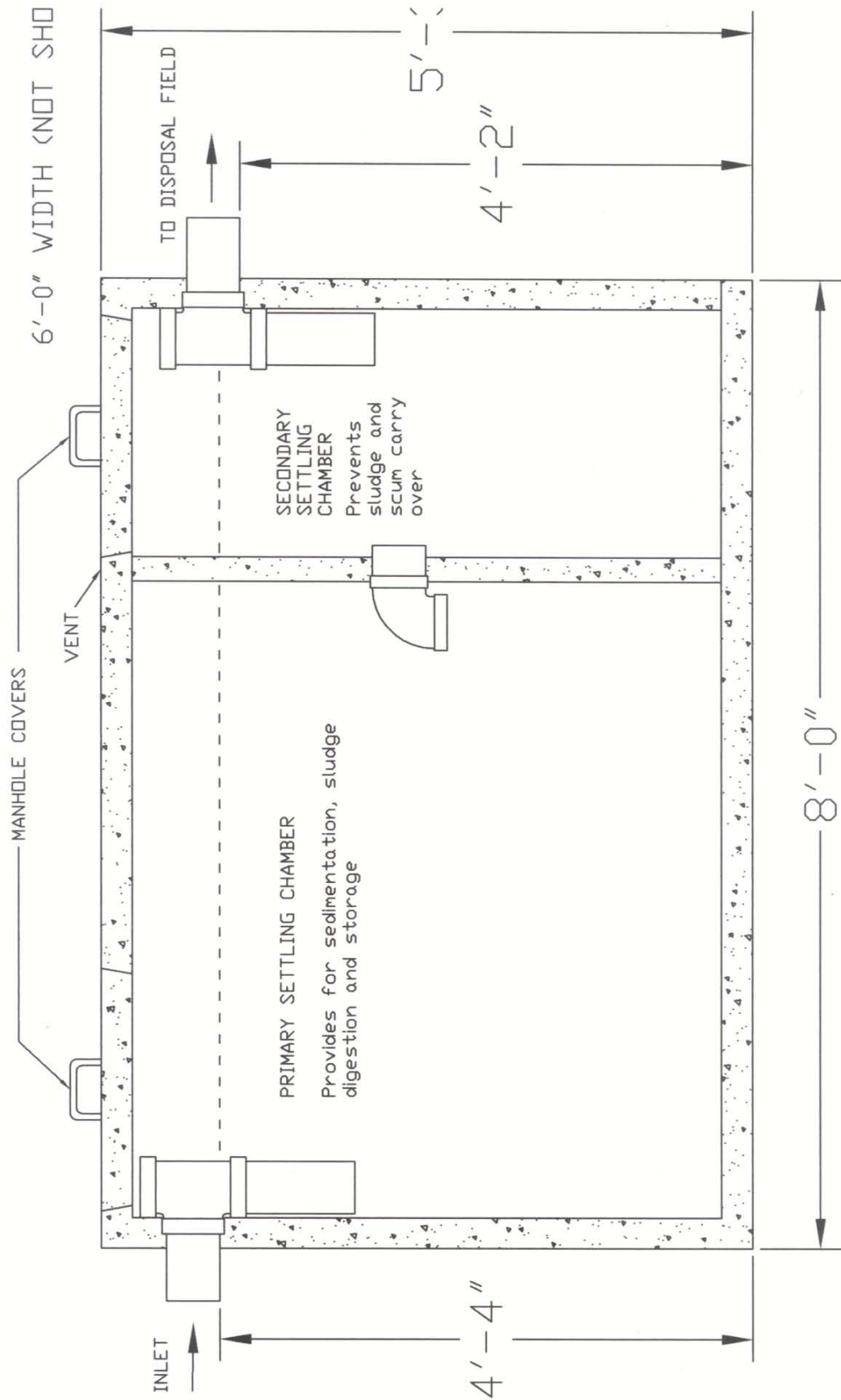
If a professional or the City has determined that your leach field has failed, a portion or all of the system will have to be replaced.

If your system requires repair or replacement, contact a licensed septic tank contractor/plumber with a C-42 license or a registered civil engineer with soils and septic expertise.

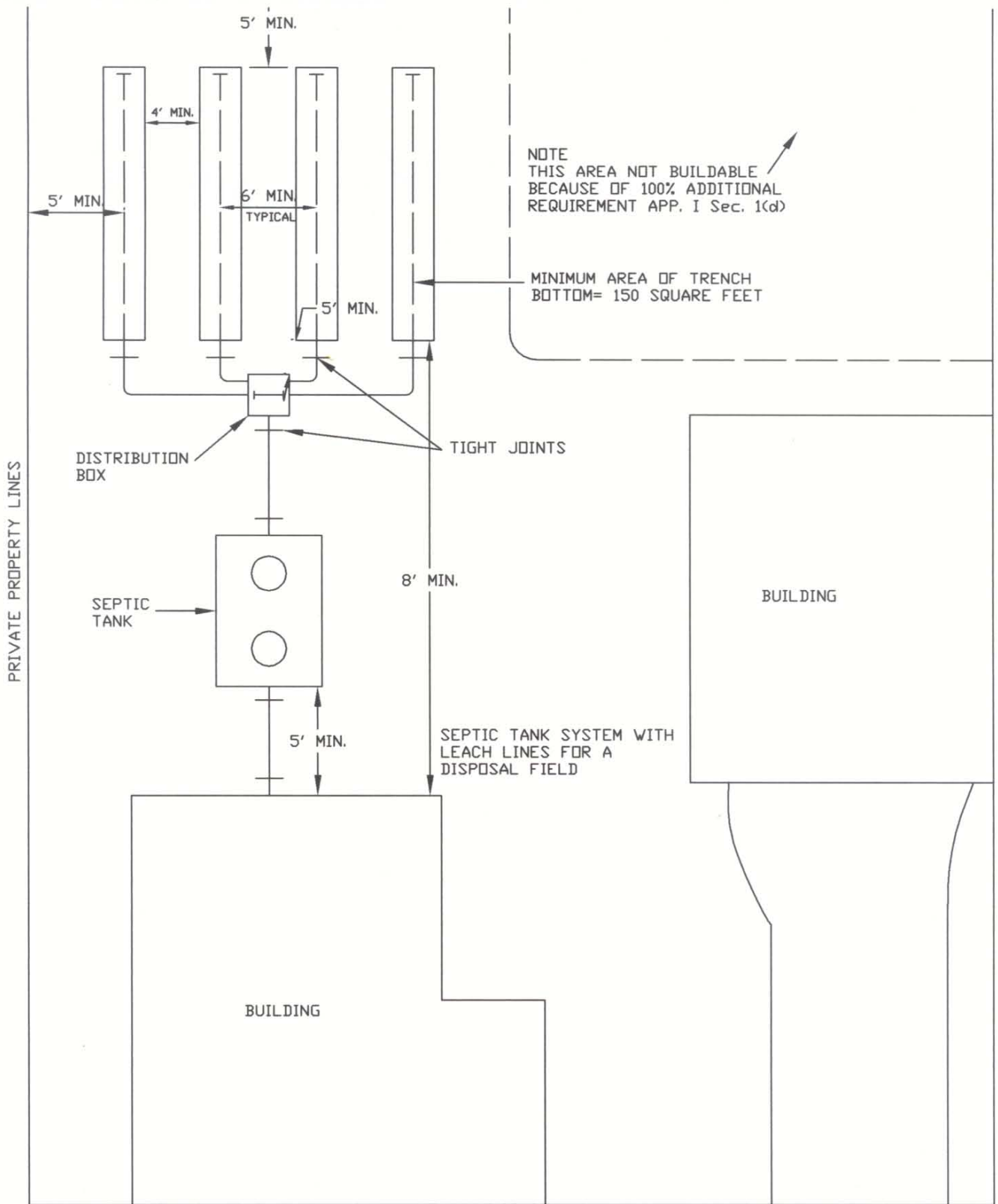
A permit to repair *must* be obtained from City prior to any construction.

### **Summary**

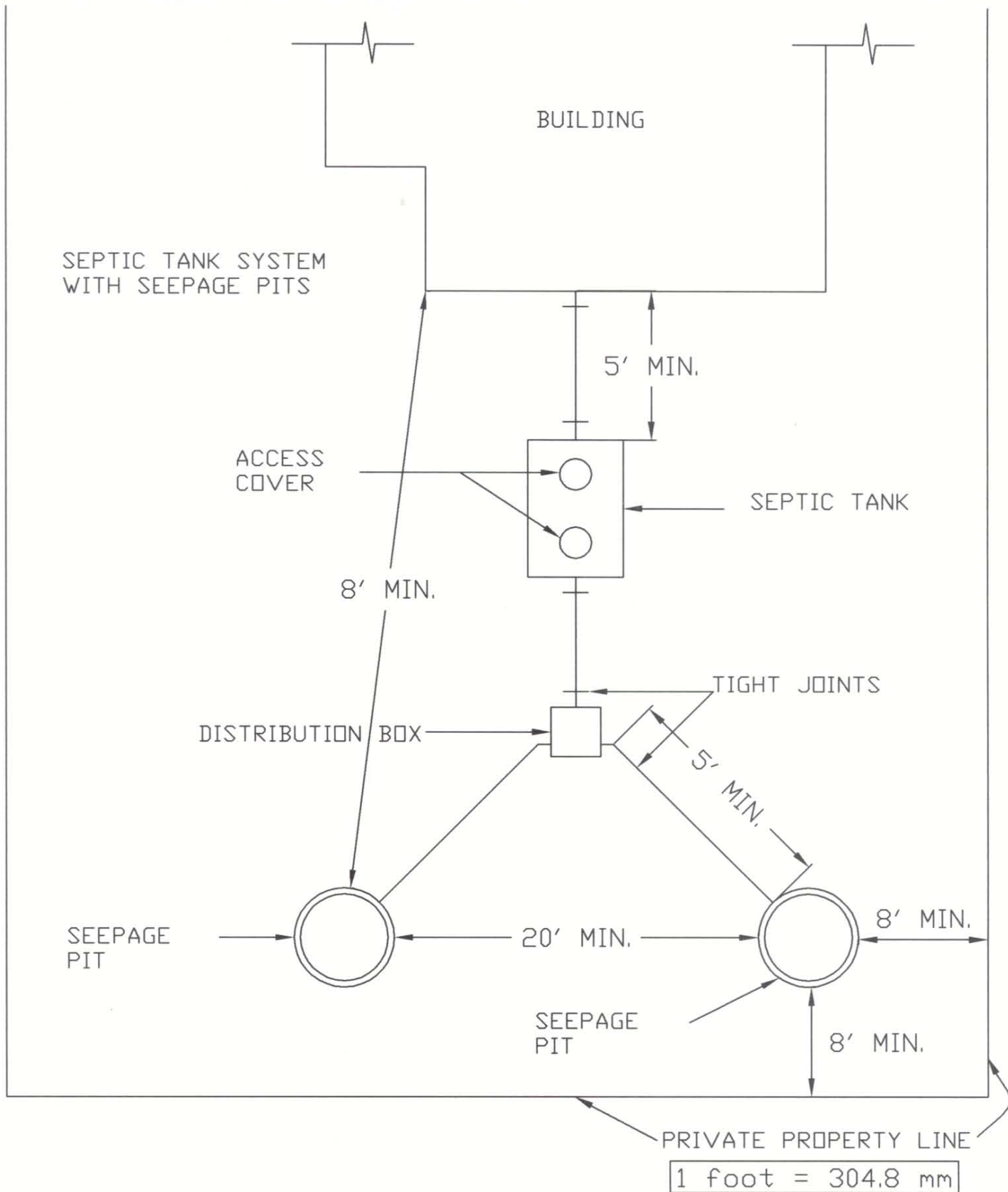
A properly designed, constructed and maintained septic system can last several decades, but will eventually suffer deterioration and require maintenance improvements. At a minimum, have your septic tank pumped and system inspected every three to five years to maximize its life. Keep a record of inspections, repairs, and pumping. Remember that any repairs to a system require permits from the City of Calabasas.



**TYPICAL CONCRETE 1000 GALLON SEPTIC TANK (3 BEDROOM DWELLING)**



# Typical leachline plot plan



# Typical seepage pit plot plan