# *SECTION 17*

## INSTALLATION OF SEPTIC TANKS, SETTLING TANKS AND PUMP TANKS

The information in this section pertains to the actual practices to be utilized in the placement into the ground and connections of septic tanks, settling tanks and pump tanks.

*NOTE: The use of the term "tank" in this section refers to ~~both~~ septic tanks, settling tanks and pump tanks.*

### A. Location of Tanks

1. Conventional Systems

   The actual tank installation site on any parcel of land shall, as a minimum, be in accordance with the provisions set forth in *Section 13* of these regulations.

2. Alternative Systems

   The actual tank installation site involved in an alternative subsurface sewage disposal system is an integral part of the engineering design of that system. Therefore, the tanks are to be placed in the location, as it relates to the location of the structure, as specified by the approved alternative system design plans and be in accordance with the provisions set forth in *Section 13* of these regulations.

### B. Excavation for Tank Placement

The appropriate methods and techniques to be utilized for excavating tank holes is left to the discretion of the installer. The site conditions (i.e. presence of deep soils, soils having shallow depths to bedrock, etc.) will undoubtedly determine what type of excavation methods will be employed.

### C. Placement of Tanks in Prepared Excavation

1. All tanks shall be level.

   (a) Tank Hole(s) Being Entirely Within Soil

   The bottom of the tank hole(s) shall be level and the tank shall be set upon firm, undisturbed soil/earth in the excavation prepared for said tank.

   (1) The bottom or base of the excavation prepared for the placement of the tank shall be level.

   (2) If the excavation prepared for the placement of the tank is not level, loose soil material shall not be replaced into said excavation to create a level pad on which the tank will set.

   To create a level pad on which the tank will sit, either:

   (i) more soil material shall be removed from the bottom of the excavation,

   (ii) a layer (i.e. not to exceed four inches in depth) of thoroughly compacted crusher-run type gravel (i.e. gravel containing fines so as to allow for complete compaction) shall be placed on the bottom of the excavation, or

   (iii) a level concrete pad, of not less than three (3) inches in thickness, shall be poured in the bottom of the excavation.

   (3) Where a tank hole was excavated to a deeper depth than intended, loose soil material shall not be replaced into said excavation to raise the elevation of the hole bottom.

   To raise the elevation of the base upon which the tank will sit, either:

   (i) a layer of thoroughly compacted crusher-run type gravel (i.e. placed in four inch lifts, each lift being compacted before the placement of another lift) shall be placed on the bottom of the excavation, or

   (ii) a level concrete pad, of not less than three (3) inches in thickness, shall be poured in the bottom of the excavation.

(b) Tank Hole(s) Being Partially or Entirely Within Rock

(1) Rock being present in the side-walls of the tank hole(s).

Where rock is present in the side-walls of the tank hole, there shall be a minimum clearance of six (6) inches between said rock and the set tank.

(2) Rock being present in the bottom or base of the tank hole(s).

The tank(s) shall not be set directly upon any rock present in the bottom of a tank hole.

A level layer (i.e. not to exceed four inches in depth) of thoroughly compacted crusher-run type gravel (i.e. gravel containing fines so as to allow for complete compaction) shall be placed on the bottom of the excavation to provide an even base for the tank to be set upon.

(3) Leveling or raising the base of a tank hole.

The same procedures shall be utilized as outlined in *subpart (a)(2) and (a)(3) of the Part 1 of this Subsection*.

2. Where a settling tank is required, the septic tank shall be set in such a manner so that its inlet port is at a lower elevation than the elevation of the outlet port of the settling tank.

3. A pump tank shall be set in such a manner so that its inlet port is at a lower elevation than the elevation of the outlet port of the septic tank.

4. Filling the tank(s) with water after said tank is set.

(a) This task may be required at the Department's discretion in order to verify that the tank is watertight. Refer to *Section 20*.

(b) This task may be necessary should there be a danger (e.g. impending rain storm, etc.) of the tank floating. Under this scenario, the decision as to whether or not to fill the tank(s) with water will be left to the installer.

## D. Piping Associated With Tanks

1. Pipe Components

(a) From Structure to the Septic Tank or Settling Tank

The piping connections between the structure and the septic tank or settling tank, regarding the utilization and placement of clean-outs and the minimum pipe size (i.e. pipe diameter), shall be in accordance with all applicable Williamson County building/plumbing codes.

(b) Gravity Flow Systems

Piping shall be in accordance with the provisions outlined in *Appendix 12, Subsections A and G* and shall be properly bedded and supported as outlined in *Section 15, Subsection F, Part 1*.

(c) Pump Systems

Piping shall be in accordance with the provisions outlined in *Appendix 12, Subsections A and G* and shall be properly bedded and supported as outlined in *Section 15, Subsection F, Part 2*.

2. Pipe Connections to Tank(s)

All pipe-to-tank connections shall be in accordance with the provisions as outlined in *Appendix 12, Subsection G, Part 5.*

3. Pipe to Pipe Connections – Gravity Flow and Pump Systems

All pipe to pipe connections shall be in accordance with the provisions as outlined in *Appendix 12, Subsection G, Parts 2, 3 and 4*.

## E. Tank Risers and Ground Level Access

There shall be a ground-level access riser installed on each manhole opening of the tank(s). The riser-to-tank connection shall be made watertight.

Said riser shall be in accordance with the provisions outlined in *Appendix 12, Subsection G, Part 6*.

## F. Preparation for the Backfilling of Set Tank(s)

1. Where the space between any tank piping and the side-wall of the tank hole is in excess of thirty (30) inches, there shall be provided bedding support for said pipe. The void space in the tank hole shall be filled to the level of the invert of the inlet and outlet holes of said tank with gravel.

2. The tank hole shall be cleared of all construction debris (i.e. wood, plastic buckets, etc.) and trash prior to backfilling.

## G. Miscellaneous Circumstances

Should there exist a site where the aforementioned methodologies/techniques cannot readily be adhered to, the installer shall follow the procedures outlined in *Section 20, Subsection A, Part 13 (Construction Related Problems)*.

## H. Settling Tanks

The primary purpose of the septic tank is to remove solids suspended in the wastewater. It is to provide quiescent conditions for a sufficient period of time to allow the settleable solids to fall to the bottom and the scum to rise to the top. If wastewater is pumped from a dwelling or structure via a sewage ejector pump to a septic tank, those quiescent conditions no longer exist and the septic tank can no longer accomplish its primary function, resulting in excessive solids having a much greater potential to exit the septic tank and enter the drainfield.

In these situations, it shall be required that the septic tank be preceded by a settling tank.

1. Settling tanks shall be sized to accommodate the wastewater flow from the structure, or portion of the structure, it is intended to serve and its minimum capacity shall be in accordance with the provisions outlined in *Section 14* for septic tanks.

2. The design and construction of settling tanks shall be the same as that for septic tanks and shall be in accordance with the provisions outlined in *Section 10*.

3. The installation of settling tanks shall be the same as that for septic tanks and shall be in accordance with the provisions outlined in this *Section 17*.

4. An approved effluent filter shall be installed on the outlet piping network in the second compartment of the settling tank in accordance with the provisions outlined in *Section 37*.