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Infiltrator 1060-Gallon Septic Tank General Installation Instructions

INFILTRATOR® septic tanks

Before You Begin

Infiltrator Systems' 1060-Gallon septic tank must be installed according to state and/or local regulations, which supercede the manufacturer's installation instructions. If unsure of the installation requirements for a particular site, contact the local health department or permitting authority

Materials and Equipment Needed

- ☐ 1060-Gallon tank
- ☐ Access port lids (included)
- ☐ 6 screws per lid (included)
- ☐ Inlet/outlet gaskets (included)
- ☐ Inlet/outlet tees*
- ☐ Tape measure
- ☐ Pipe, risers, etc.
- ☐ Socket wrench
- ☐ Excavator
- ☐ Shovel
- ☐ Level
- ☐ 5 inches (125 mm) or 5¼ inches (130 mm) diameter hole saw
- ☐ Utility knife
- ☐ PVC pipe glue with primer

*tee inclusion varies by state/province

Installation Site Selection

1. Avoid installation of the tank in vehicular traffic areas. The tank is designed for non-traffic applications.

2. The maximum vehicle load is a 4,500-pound (20 kN) axle load at a soil cover depth of 6 to 48* inches (152 to 1,219 mm).

**18-inch max. burial depth in Florida; 36-inch max. burial depth in Massachusetts, North Carolina, and Oregon.*

Excavating and Preparing the Site

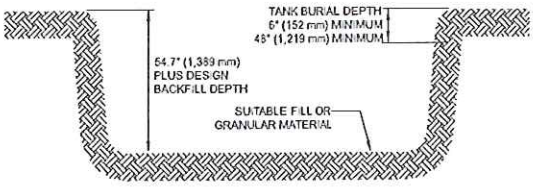
1. Unless anti-buoyancy control measures are required, the excavation width and length should be 12 to 36 inches (304 to 914 mm) larger than the tank on each side. See Anti-Buoyancy Control Measures section for alternative excavation requirements.

2. Excavate to account for 54.7-inch (1,389 mm) height of tank, 4 inches (101 mm) of bedding (if required), and backfill thickness (permissible cover depth is 0.5 to 4 feet (152 to 1,219 mm) of soil).

3. Inspect bottom of excavation to verify suitability of native soil for tank installation. Soil with large, protruding, or sharp stones or other similar objects that may damage the tank are not suitable.

4. The tank may be bed either in suitable native soil (see Backfilling the Tank section) or a minimum 4-inch (101 mm) layer of pea stone, sand, gravel, or other similar material having particles less than 3 inches (76 mm) in diameter.

5. Create a uniform, level bedding surface to ensure that the bottom of the tank is evenly supported at the base of the excavation. Verify that the base of excavation is flat.



Installing the Tank

1. Inspect the tank for damage before installation.

2. If the tank inlet and outlet penetrations are not drilled, drill holes using the drill points provided at each of the inlet and outlet ports. The inlet and outlet may be drilled on either the side or end of the tank, as required based on site conditions. The elevation drop from inlet invert to outlet invert is 3 inches. The inlet invert height above the inside surface of the tank is 47 inches. The outlet invert height above the bottom surface of the tank is 44 inches.

Florida, Indiana, Kentucky, Oregon and West Virginia tank inlet/outlet holes are factory drilled.

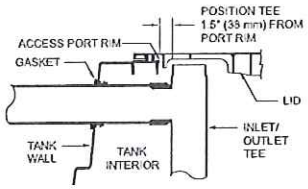
3. The gaskets supplied with the tank are compatible with Schedule 40 and SDR 35 pipe using a 5¼-inch (130 mm) hole saw. If using an alternative gasket (not supplied with the tank) sized for Schedule 40 pipe only (having a larger inside diameter), use a 5-inch (125 mm) hole saw.

4. Install the rubber gaskets at the inlet and outlet.

5. Slide the inlet and outlet pipes* through the gaskets.

**For North Carolina, the inlet pipe shall be a straight pipe with no tee.*

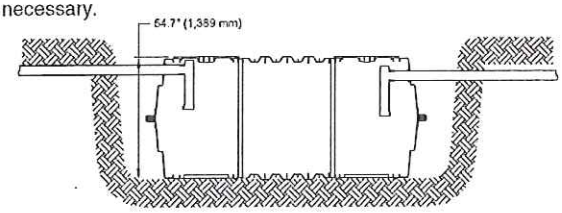
6. Horizontally position the tee 1½ inches from the access port rim as shown in the detail below. This allows the tee to fit into the access port lid.



**For Illinois, 6-inch (152 mm) drop required for inlet tee.*

7. Using the tank's integral lifting lugs, lower tank into excavation with tees in place.

8. Connect piping, install lid and risers (see Installing the Riser section) as necessary.



Backfilling the Tank

Note: The Infiltrator 1060-Gallon tank does not require filling with water prior to backfill placement.

1. Backfill with suitable native soil. If native soil is unsuitable, replace unsuitable fraction with suitable soil.

2. Suitable soil shall include soil textural classes defined in the United States Department of Agriculture soil triangle. Suitable soil textural classes are based on the tank installation depth, as measured from finished grade to the top of tank.

a) For a tank installation depth of 0.5 to 2.0 feet (152 to 610 mm), suitable soil textures include:

i. Sand
ii. Loamy sand
iii. Sandy loam
iv. Loam
v. Sandy clay loam
vi. Sandy clay
vii. The following, assuming that the sand particle fraction by weight (i.e. % that would be retained on No. 200 sieve, as per ASTM D2487) is greater than 30%: silt loam, clay loam, and clay
viii. The following, assuming that the sand particle fraction by weight (i.e. % that would be retained on No. 200 sieve, as per ASTM D2487) is less than 30% and the soil is shown to be dilatant (refer to Step 5 below for simple dilatancy test to be conducted in the field): silt loam, silt, clay loam, silt clay loam, silty clay, and clay

b) For a tank installation depth that is greater than 2.0 feet and up to 4.0 feet (610 to 1,219 mm), suitable soil textures include:

i. Sand
ii. Loamy sand

iii. Sandy loam
iv. Loam
v. Sandy clay loam
vi. Sandy clay
vii. Silt loam, clay loam, and clay having at least a 30% sand particle fraction by weight (i.e. % that would be retained on No. 200 sieve, as per ASTM D2487).

3. Backfill should not have stones greater than 3 inches in diameter or excessive clods that do not break apart during placement and compaction. Backfill must be capable of occupying the spaces between the tank ribs.

4. Standard field soil classification methods shall be used to determine the soil textural class.

5. Under most circumstances, the determination of soil dilatancy will not be required. Dilatancy shall be determined in the field using a test that does not require specialized equipment, per ASTM D2488, Section 14.3, and as described below.

a) Mold a ½-inch-diameter (13 mm) soil test specimen in the palm of the hand. The test specimen shall be representative of the prospective tank backfill soil.

b) Mold the test specimen, adding water if necessary, until it has a soft, but not sticky consistency.

c) Smooth the soil ball in the palm of one hand with a spatula or similar instrument.

d) Shake the soil sample by striking the hand vigorously against the other hand approximately 5 times. Do not strike hand in a manner that results in an injury.

e) Immediately following shaking, gently squeeze the soil in the palm of the hand.

f) Repeat shaking test if necessary to evaluate soil.

g) Note whether water appears on the surface of the soil specimen during shaking and squeezing.
i. If water appears on and disappears from the surface of the soil specimen, the soil is dilatant, and is suitable.
ii. If no visible change or only a slight visible change in the soil specimen occurs due to shaking or squeezing, the soil is not dilatant, and is unsuitable.

6. Do not backfill top of tank before sidewalls are completely backfilled.

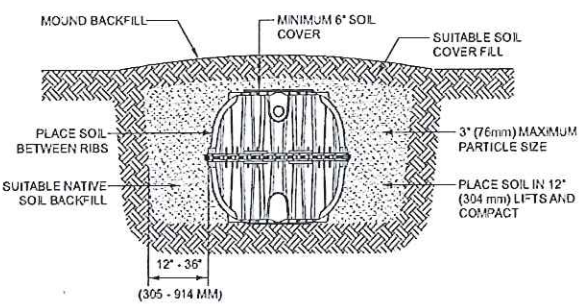
7. Place backfill around the four sidewalls in a progressive, alternating manner, so that the backfill height along the four sidewalls is maintained within a 12-inch (304 mm) tolerance.

8. Continue to place backfill along the sidewalls in 12-inch (304 mm) lifts. Place backfill between the ribs on the sidewalls such that the space between the ribs is completely filled with soil.

9. Compact backfill material either by hand tamping or mechanical compaction (includes backhoe bucket). Compact each lift prior to placement of next lift. Compact backfill from tank walls to excavation sidewalls.

10. Complete backfilling and grade the area.

11. A minimum 6-inch-thick layer of suitable soil must be placed over the top of the tank. The balance of backfill placed to finish grade above the tank may be either suitable or unsuitable soil.



Installing Under Shallow Groundwater Conditions

Anti-buoyancy control measures may be required if the Infiltrator 1060-Gallon tank is to be installed with less than 16 inches (406 mm) of soil backfill cover and the seasonal high groundwater table has the potential to rise above the elevation of the tank bottom. Otherwise, no control measures are required. If the seasonal high groundwater is higher than the elevation of the tank bottom at the time of installation, coverage with at least 16 inches (406 mm) of soil backfill cover will eliminate the need for anti-buoyancy control measures. For backfill depths of less than 16 inches (406 mm), the need for anti-buoyancy control measures must be determined based on backfill cover depth and height of groundwater above the tank bottom.

Steps for Determining Anti-Buoyancy Control Measures

1. Is the seasonal high groundwater elevation greater than 36 inches (914 mm) above the elevation of the tank bottom?

YES – Proceed to step 2.

NO – No control measures required.

2. Will the soil backfill cover above the tank be less than 16 inches (406 mm) deep?

YES – Proceed to step 3.

NO – No control measures required.

3. What is the proposed depth of soil backfill cover above the tank?

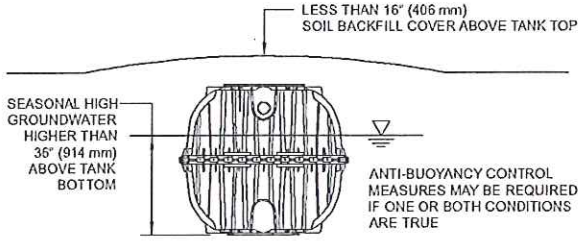
6 to 12 in (152 to 305 mm) – Implement Case 1 Anti-Buoyancy Control Measures.

12 to 16 in (305 to 406 mm) – Proceed to step 4.

4. Is the seasonal high groundwater elevation greater than 48 inches (1,219 mm) above the elevation of the tank bottom?

YES – Implement Case 2 Anti-Buoyancy control Measures.

NO – No control measures required.



Case 1 Anti-Buoyancy Control Measures

Case 1 control measures are required if soil backfill cover above the tank will be between 6 and 12 inches (152 and 305 mm) deep and the seasonal high groundwater elevation is higher than 36 inches (914 mm) above the elevation of the tank bottom. Options include:

a) Utilize two unreinforced concrete blocks as deadmen* (2-ft high x 2-ft wide x minimum 6-ft long, or 3,750 lbs [1,700 kg] each block), one on each side of the tank and placed at the elevation of the tank bottom.

OR

b) Utilize two concrete traffic barriers as deadmen* (minimum 6-ft lengths, or 3,750 lbs [1,700 kg] each barrier), one on each side of the tank and placed at the elevation of the tank bottom.

OR

c) Method that provides a minimum of 7,500 lbs (3,400 kg) of supplemental uplift resistance.

Case 2 Anti-Buoyancy Control Measures

Case 2 control measures are required if soil backfill cover above the tank will be between 12 and 16 inches (305 and 406 mm) deep and the seasonal high groundwater elevation is higher than 48 inches (1,219 mm) above the elevation of the tank bottom. Options include:

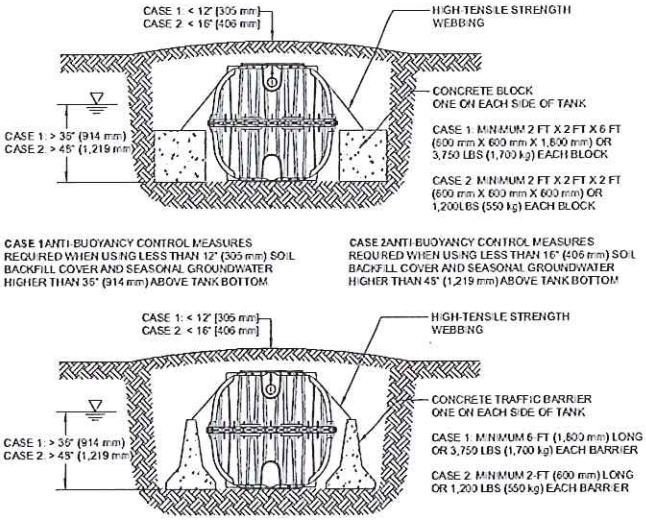
a) Utilize two unreinforced concrete blocks as deadmen* (2-ft high x 2-ft wide x minimum 2-ft long, or 1,200 lbs [550 kg] each block), one on each side of the tank and placed at the elevation of the tank bottom.

OR

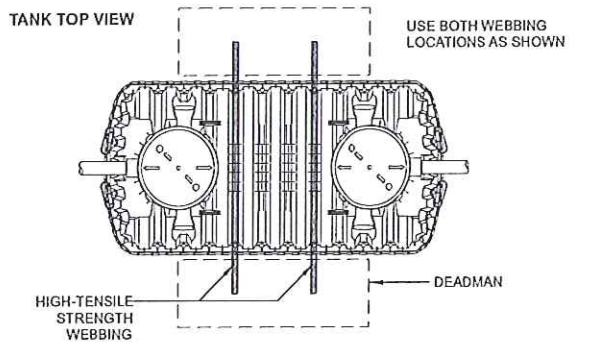
b) Utilize two concrete traffic barriers as deadmen* (minimum 2-ft lengths, or 1,200 lbs [550 kg] each barrier), one on each side of the tank and placed at the elevation of the tank bottom.

OR

c) Method that provides a minimum of 2,400 lbs (1,100 kg) of supplemental uplift resistance.



*Attachment of deadmen to the tank must be with high tensile strength (10,000 lbs [4536 kg] min. capacity) webbing over the tank at specific corrugation locations as shown in the associated figure. The webbing must be tightened with a ratchet or turnbuckle system to remove all slack and to slightly preload the system. Hooks, eyes and other connecting hardware should be heavy duty. Use stainless steel, galvanized steel, or otherwise corrosion-protected components (coated with epoxy or other corrosion-inhibiting coating). Consider encapsulating such components in heat shrink tubing or applying additional epoxy prior to burial.



Short and Long-Term Groundwater Control

It may be necessary to implement short-term groundwater control measures during tank installation. Maintain dry conditions by expanding the excavation to create a groundwater collection sump for temporary placement of a dewatering pump if needed.

Long-term groundwater control measures such as underdrains and interceptor trenches may be sensible if the site is amenable to construction of a control system and such systems are not prohibited by regulation or law, and the tank location is not subject to flooding. Properly installed underdrains and interceptor trenches where groundwater is collected and allowed to drain by gravity away from the tank and drainfield can be an effective method of lowering groundwater that may prevent the need for additional anti-buoyancy control measures.

Installing the Riser

1. Compatible risers include 24-inch (600 mm) diameter products such as Infiltrator TW riser products from EZset by Infiltrator, PolyLok®, Inc., and Tuf-Tite® Corporation, in addition to 24-inch (600 mm) diameter corrugated HDPE and IPEX Ultra Rib PVC pipe.

2. Oregon watertightness testing to include filling with water at least 2 inches above riser connection, with no more than 1 gallon leakage per 24 hours, per OAR 340-073-0025(3).

Note: Installation guidance for connection of the riser to the Infiltrator 1060-Gallon tank is available upon request.

Installing Pumps and Related Equipment

Pumps shall be supported on a stable, level 16 x 16 inch (406 x 406 mm) platform positioned on the bottom of the tank. Precast concrete block is acceptable pump support material. One 16 x 16 inch block or two 8 x 16 inch (203 mm x 406 mm) side-by-side blocks may be used. The support block(s) shall be placed below an access opening and level upon the ribs on the tank bottom. If two blocks are used, they shall be oriented perpendicular to the ribs on the tank bottom for stability.

Installation of products such as electrical conduit and wiring, pumps, water level control equipment, valves, siphon equipment, etc. shall be in accordance with the product manufacturer's instructions and compliant with applicable state or local rules and regulations. Where possible, appurtenances shall be installed to facilitate maintenance and repair access via the tank access openings.

General Specifications

- Failure to comply with installation instructions may void warranty.
- Prior to ground disturbance, check for subsurface obstructions and utilities in conformance with local requirements.
- Tanks are only designed for installation underground.
- Operating water temperature shall be less than 140° F (60° C).
- Tanks are not fire resistant. Store away from ignition sources.
- Tanks are recommended for use as septic, rainwater/stormwater storage, and pump tanks only.
- Suitable for potable water storage applications only if the tank bears an NSF Standard 61 certification mark.