

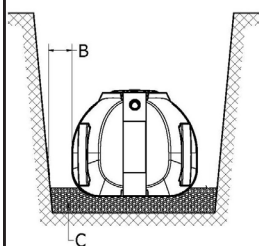
# Installation Instructions

## Low Profile Underground Tank

For septic installations, it is important to contact your local or state sanitarian regarding approved installation procedures. Refer to SITE SELECTION/PREPARATION.

- Water runoff caused by sloping terrain, adjacent structures, or paved surfaces can be problematic if the site selection and installation are not managed properly. Refer to SITE SELECTION/PREPARATION for the proper methods of managing these issues. Failure to locate the tank site properly in areas of water runoff caused by sloping terrain, adjacent structures or paved surfaces, and/or not managing the installation properly can void the warranty.

### 1. EXCAVATION



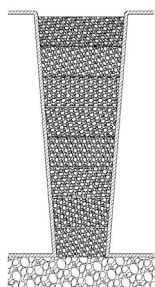
compactable, rock free, and can provide uniform support in the recessed rib areas. The tank should be installed level. Level tolerance is +/- 1/2" from each end.

- Excavate to a depth that will provide a minimum of 6" and maximum of 36" of cover over the top of the tank and a minimum of 6" -12" of bedding under the tank.
- Allow 18" to 24" on both sides and both ends of the tank.
- Prepare the tank bed. Preferred bedding material is well-packed sand — 6" minimum in soil terrain, 12" minimum in rock terrain. Native soil can be used if it is flowable,

### 2. BACKFILL MATERIALS

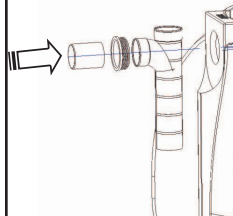
- Free flowing native soil can be used as backfill. All fill must be free of any wood, masonry debris, or silt. Shrink/swell clay soils should be avoided as backfill material.
- If the native soil is unsuitable, replace it with a free flowing, compactable material. A typical specification is 100% smaller than 1 1/2" and approximately 50% smaller than 1/4".
- Sharp objects must not come into contact with the tank.

### 3. BACKFILLING EXTERIOR



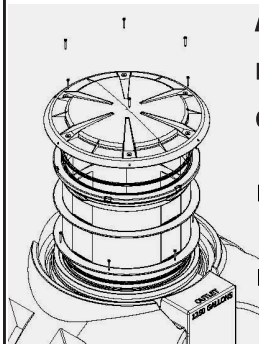
- Backfill around tank with 12" layers and compact each layer. Always compact ends first.
- Each of the interior support columns must be filled with free-flowing fill and compacted in 6" layers. The columns must have the soil compacted to provide structural support. See diagram.
- Be sure to compact soil under inlet and outlet piping.
- Maximum backfill over the top of the tank is 36".
- Mound soil over the top of the tank to direct surface water away from the tank.

### 4. SEPTIC TANK CONNECTIONS



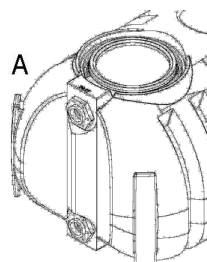
- Low Profile septic tanks are provided with 4" PVC sanitary tees and rubber gaskets for the inlet and outlet.
- All pipes should be chamfered and gaskets lubricated.
- Install gasket from the outside of the tank as shown in the diagram. From outside of the tank, push the pipe into the gasket.
- Inlet and outlet piping should be solvent welded to sanitary tees.
- Note the direction of flow. The outlet is lower than inlet and all tanks are marked accordingly.

### 5. MANHOLE EXTENSIONS



- Install manhole extensions and/or lid risers **before** you backfill.
- Manhole extensions are supplied with gaskets and screws.
- Install screws as shown in the diagram around the circumference of the base of the extension.
- Be sure that the self-tapping screws seat squarely into the tank. Do not over-tighten screws.
- For jurisdictions requiring a safety lid or device, purchase our manhole extension with safety lid or install a safety net as shown on website.

### 6. CISTERN INSTRUCTIONS



- Install bulkhead fittings at the flat areas located on either end of the tank.
- All tanks must be vented including each tank in an interconnected series.
- The vent pipe should be the same diameter as the outlet pipe.
- When multiple tanks are installed in series, you must maintain at least 36" of separation between tanks.
- Flexible connections are required between each tank on interconnected tank installations.



# CAUTION

***Failure to comply with the points below voids warranty.***

- A. Tanks are not fire-resistant. Do not store them near an open flame or heat in excess of 180 °F.
- B. Do not install any tank under the path of vehicles or heavy equipment.
- C. Do not leave Low Profile septic tanks empty for extended periods of time.
- D. Low Profile septic tanks and cisterns are designed only for use as underground tanks.
- E. Low Profile septic tanks and Low Profile cisterns may be used as holding tanks or for pumping applications where permitted by local codes.
- F. Low Profile natural colored cisterns are made of resins that meet FDA specifications for the storage of drinking water and can be used for that application.
- G. Protect the tank from sharp objects which could puncture it and cause leakage.
- H. Where saturated soil or seasonal high water tables are indicated between the bottom of the tank and the ground surface, see separate Supplemental Installation Instructions on the following pages.
- I. For installations requiring counter-buoyancy measures; please refer to Counter-Buoyancy Instructions on the following pages.
- J. Maximum temperature of liquid entering tank is 120° F.
- K. Maximum bulkhead fitting size is 4".

***It is not advised to use this plastic underground tank for any application other than domestic strength waste . Such uses would void product warranty.***

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## WARRANTY

Manufacturer warrants that if this part is proven to be defective in material or workmanship within five (5) years from the date of manufacture, manufacturer will (at company's option) either replace or repair said part. This standard limited warranty does not apply to damages resulting from misuse, improper application of recommended materials, accident, or improper installation or maintenance. Remedy to the buyer is limited to the replacement of any defective product (or its component where applicable), F.O.B. point of manufacture. The buyer's remedy under this warranty does not include any other direct or indirect consequential damages which result from defects in material and/or workmanship of its products.



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Soil Cover Provided Over Top of the Tank (inches)	Norwesco 750 Gallon Low Profile Tank: Additional Ballast Weight Required (lbs) for Buoyancy Control at the Noted Groundwater Rise Above the Base of the Tank (feet)						
	0.5'	1.0'	1.5'	2.0'	2.5'	3.0'	3.5'
6		300	1500	2700	3900	5100	6300
9			500	1700	2900	4100	5300
12				600	1800	3000	4200
15		No Additional			800	2000	3200
18			Ballast Weight			900	2100
21				Required for			1000
24					Buoyancy Control		
27							
30							

Soil Cover Provided Over Top of the Tank (inches)	Norwesco 1000 Gallon Low Profile Tank: Additional Ballast Weight Required (lbs) for Buoyancy Control at the Noted Groundwater Rise Above the Base of the Tank (feet)						
	0.5'	1.0'	1.5'	2.0'	2.5'	3.0'	3.5'
6		400	2100	3700	5400	7000	8700
9			600	2300	3900	5600	7200
12				800	2500	4100	5800
15		No Additional			1000	2700	4300
18			Ballast Weight			1200	2900
21				Required for			1400
24					Buoyancy Control		
27							
30							

No additional ballast required.

= Indicates pounds of ballast required to prevent floatation.

Installation not recommended.



Soil Cover Provided Over Top of the Tank (inches)	Norwesco 1250 Gallon Low Profile Tank: Additional Ballast Weight Required (lbs) for Buoyancy Control at the Noted Groundwater Rise Above the Base of the Tank (feet)						
	0.5'	1.0'	1.5'	2.0'	2.5'	3.0'	3.5'
6		500	2500	4500	7000	8700	10700
9			750	2800	5000	7000	9000
12				1000	3000	5000	7000
15		No Additional			1200	3200	5300
18			Ballast Weight			1500	3500
21				Required for			1700
24					Buoyancy Control		
27							
30							

Soil Cover Provided Over Top of the Tank (inches)	Norwesco 1500 Gallon Low Profile Tank: Additional Ballast Weight Required (lbs) for Buoyancy Control at the Noted Groundwater Rise Above the Base of the Tank (feet)						
	0.5'	1.0'	1.5'	2.0'	2.5'	3.0'	3.5'
6		600	3000	5300	7600	10000	12300
9			900	3200	5600	7900	10300
12				1200	3500	5900	8200
15		No Additional			1400	3800	6100
18			Ballast Weight			1700	4100
21				Required for			2000
24					Buoyancy Control		
27							
30							

- Soil cover/backfill is assumed to be 110 pounds per cubic foot.
- Tank is assumed to be empty at critical buoyancy event.
- Calculations based on only one lid brought to grade.
- 1.5 Safety Factor used in calculations.



## BUOYANCY CONTROL - EXAMPLE CHART

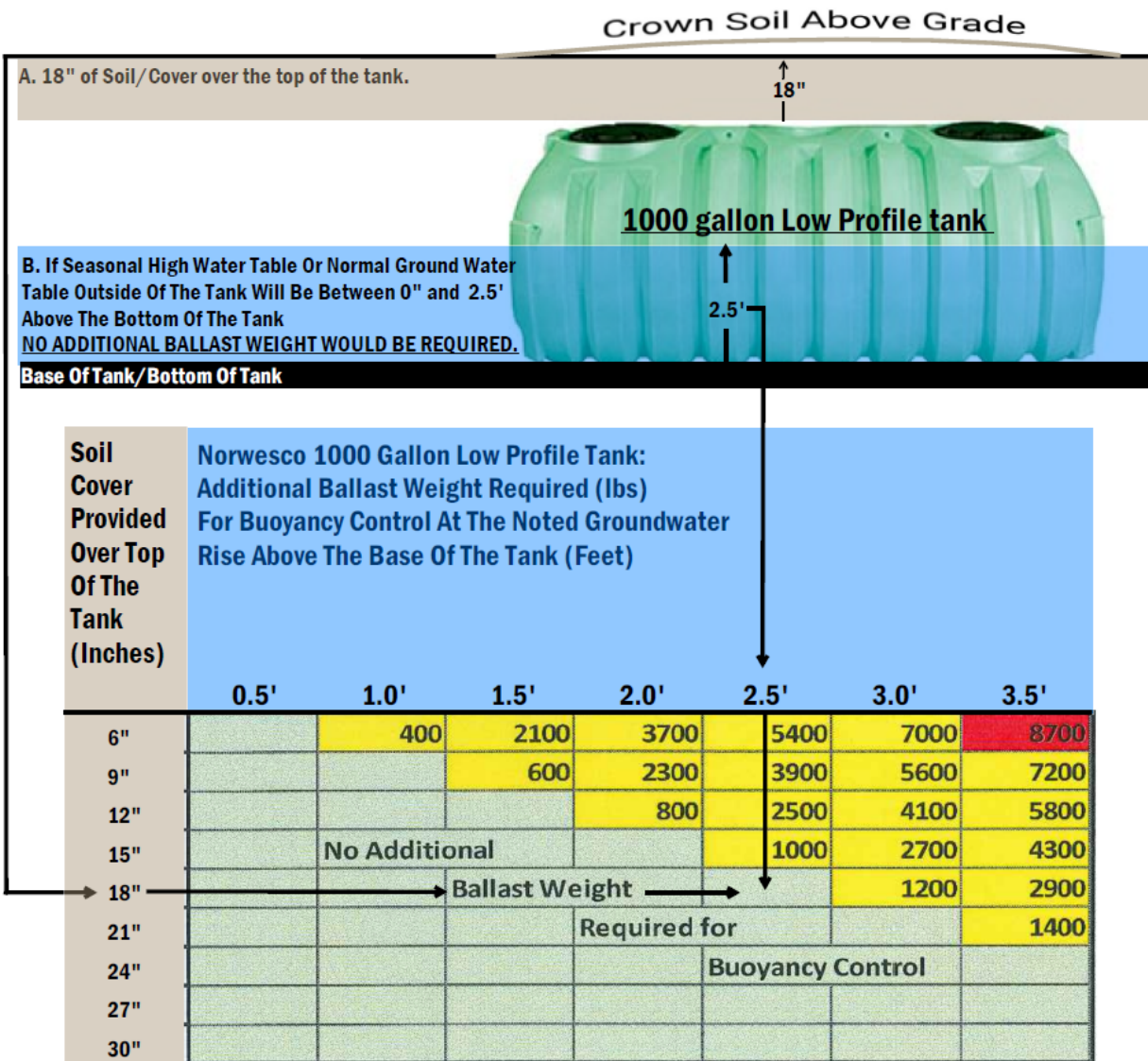
1. Determine if buoyancy control is needed. Tanks must be installed per state and local codes. In some cases, those regulations may supersede this document.

### EXAMPLE: No Additional Ballast Weight Would Be Required For This Example

Use Chart Size Corresponding To Size Of Tank Being Used. The Tank Size Is Listed In The Blue Heading On Top Of Each Chart. The Example On This Page Is Using A 1000 Gallon Low Profile Tank.

A. Depth Of Soil Cover Over The Top Of The Tank. This Example is using 18" Of Cover Over The Top Of Tank.

B. Height Of Seasonal Water Table Or Normal Water Table Above The Bottom Of The Tank. This Example Is Using 2.5'.



**NOTE:**

**Green** = No additional ballast required.

**Yellow** = Indicates pounds of ballast required to prevent floatation. See Instructions On Last Page

**Red** = Installation not recommended.

## **2. Method of Control**

Tanks can be anchored by:

- a. Concrete dead men
  - a. Traffic Barriers
  - b. Pre-poured blocks
  - c. Parking Bumpers
- b. Helical anchors

## **3. Implementation of Control**

- a. Tank should be anchored down with 10,000 lb. rated capacity ratchet straps.
  - i. One looped around each corner tie down lug and one centered over the top of each column. (See attached drawing).
  - ii. 750: 5 straps (1 on each lug + 1 centered over column)
  - iii. 1000: 5 straps (1 on each lug + 1 centered over column)
  - iv. 1250: 6 straps (1 on each lug + 1 centered over each of the 2 columns)
  - v. 1500 : 6 straps (1 on each lug + 1 centered over each of the 2 columns)





## Installing Pumps and Related Equipment

Pumps may be supported on a stable, level 16x16-inch (400x400-mm) platform positioned on the bottom of the tank. One 16x16-inch block or two 8x16-inch (200-mm x 400-mm) side-by-side blocks may be used. Limit block height to account for pump height and liquid levels during pump cycles. Block(s) should be placed below an access opening and level upon the tank bottom.

For two blocks, orient them perpendicular to ribs on the tank bottom, if present, 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.

Appurtenances shall be fastened to the tank riser system and not the tank body or access opening rim. Where possible, appurtenances shall be installed to facilitate maintenance and repair access via the tank access openings.

Note: Prefabricated pump vaults may be installed.