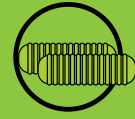


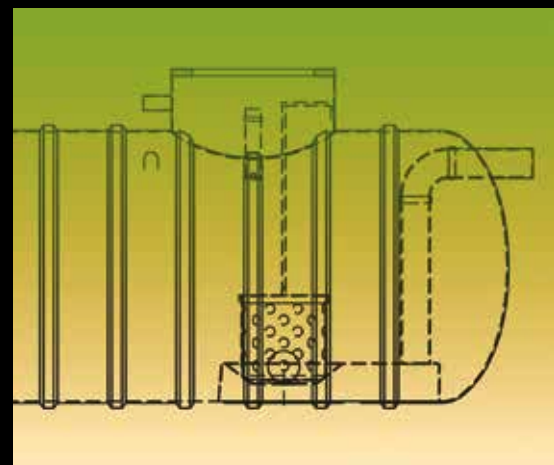
FIBREGLASS UNDERGROUND STORAGE TANKS



ENVIROTANK

Installation Instructions For Water Storage and Separator Tanks

PUBLICATION NO. INST INS WT SEP

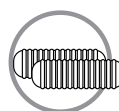


Tank Technical Support

Auckland, New Zealand
(64) 9 573 0548

Melbourne, Australia
1800 818 354 (61) 3 9550 0800

Copyright © 2011 Envirotank
Publication No. INST INS WT SEP
First Issue July 2011



ENVIROTANK



Quality
ISO 9001

TABLE OF CONTENTS

Introduction	4
A. Handling/Preparation	6
B. Bed and Backfill	7
C. Excavation and Tank Clearance	8
Stable Excavations	
Unstable Excavations	
Shoring removal	
Tank Location – Nearby Structures	
Filter Fabric	
Filter Fabric Installation	
D. Burial Depth & Cover	9
Important Tank Burial Factors	
Minimum Burial Depth with No Trafficable Loads	
Minimum Burial Depth with Trafficable Loads	
Minimum Burial Depth for Wet or Flooded Installations	
E. Anchoring	10
General Anchoring Requirements	
Anchoring Point Loads	
Deadman Anchors	
Concrete Anchor Pad for Use in Unstable Conditions	18
Overburden (No mechanical Anchoring)	
Hold Down Straps	
Hold Down Strap Installation	
F. Tank Installation	13
Tank Vertical Diameter Measurements	
Installation Procedure	
Wet Hole Installation	
Backfill to Subgrade	
G. Adding Tanks at Existing Locations	16
H. Piping & Bottom Sump Clearances	17
I. Tank Venting	17
J. Filling Tanks	17
K. Manways	18
L. Containment Collars and Sumps	18
M. Integral Access Risers	19
Appendices	
App. A. Tank Burial Depth Recommendations	20
App. B. Hold Down Strap Installation	21
App. C. Tank Dimension Chart	22
App. D. Condor Clereflo™ Separator Operating and Maintenance Guide	23
Forms	
Tank Installation Validation Checklist (INST CKWT)	26–27
Tank Delivery Inspection Checklist (DEL CK02)	28

INTRODUCTION

The purpose of this manual is to provide consultants, designers, owners, installation contractors and their employees with detailed instructions for the proper installation of Fibreglass Underground Water and Sewage Storage Tanks, Separators and related accessories.

Underground Water and Sewage Storage Tanks, Separators and related accessories.

Tank installation is a very specialized business. If you do not have the proper experience and you have not completed and passed the Envirotank Approved Installer program in the last 24 months, please contact Envirotank for a list of approved contractors or further information.

Proper installation is required to assure the long-term performance of Envirotank Underground Storage Tanks.

These instructions must be followed.

SAFETY

These Instructions must not be interpreted in anyway that could put any persons health at risk, or could harm property and/or the environment.

The following definitions can serve as a guide when reading this manual:

⚠ WARNING

Indicates a potentially hazardous situation, which if not avoided could result in injury or death.

CAUTION

Indicates a potentially hazardous situation, which if not avoided may result in property damage.

IMPORTANT INFORMATION

Proper installation of each tank is essential to:

- Ensure the safety of all the individuals involved in the tank installation.
- Prevent tank damage and/or failure, which could lead to product loss and environmental contamination.
- Validate the tank structural warranty.

IMPORTANT REMINDERS

- In addition to these instructions the installation must comply with all relevant OH&S regulations and all applicable Federal, State and Local safety, construction and environmental laws, regulations, codes and/or guidelines.
- Any variances or deviations to these installation instructions must be approved by Envirotank in writing prior to the tank installation.
- These instructions provide the minimum requirements for the successful and safe installation of a fibreglass underground storage tanks and separators under normal conditions.
- Envirotank does not design or engineer the actual installation. The tank owner’s designer/engineer of record for the installation can exceed these minimum requirements and is responsible for the design and installation of the storage or separator system.

TANK WARRANTY ACTIVATION

- In order to activate the tank or separator's structural warranty, the installation must be performed by an Approved Installation Contractor.
- These instructions must be followed.
- The Envirotank installation validation checklist (INST CKWT) must be correctly completed by the approved installer and witnessed by the tank owner's representative.
- A copy of the installation validation checklist, these instructions and any other correspondence must be maintained by both the approved installation contractor and tank owner to validate any future warranty claim.

BEFORE YOU BEGIN

- Check with the tank owner that all the supporting documentation and drawings are correct.
- If you have questions regarding tank modifications, such as adding fittings or manways or tank repair, contact Envirotank prior to purchasing the tanks.
- Check with the Local authorities for building codes, underground utilities locations\dial before you dig and environmental conditions have been completed.
- Read, understand and follow these instructions.
- Be an Approved Envirotank Installer.
- If you have installation questions or need alternative installation methods, contact Envirotank before proceeding.
- Review and prepare to complete the installation validation checklist.
- Barricade the tank area to prevent unauthorised access and any vehicle travel over the tanks until installation is complete.

IMPORTANT TELEPHONE NUMBERS


Envirotank Australia	1800 818 354 or (+61 3) 955 0800
Envirotank New Zealand	(+64 9) 573 0548


ADDITIONAL INFORMATION SOURCES


www.envirotank.com.au
www.envirotank.co.nz

⚠ WARNING

Do not enter tank or sumps unless all appropriate OH&S regulations and permits for confined space entry have been completed. Failure to follow OH&S requirements could result in death or serious injury.


ASPHYXIATION


FIRE


EXPLOSION

A. HANDLING AND PREPARATION

⚠ WARNING

Do not stand under tank while tank is being lifted.
Do not drop tank.
This could result in death or serious personal injury..

⚠ WARNING

Straps securing the tank to the truck should never be released before the appropriate lifting equipment is properly secured to the tank's lifting lugs. This could result in death or serious personal injury.

- Insure lifting equipment is rated to handle the load before lifting. Tank weight is noted on the tank.
- The tank owner or their representative is responsible for rigging, unloading and securing the tank on site.
- All tanks must be mechanically unloaded under the direction of a suitably qualified person.
- Complete the delivery checklist (DEL CK02) provided prior to unloading tanks.
- Upon tank delivery and when lifting the tank, visually inspect the entire surface of the tank for shipping or handling damage.
- The tank owner or their representative is responsible for making sure the tank is secured by a suitably qualified person before removing the shipping straps, so that the tank does not roll off the truck / trailer.

For temporary storage of tanks on site:

- Set on smooth ground (no protruding rocks, or hard objects) or on the shipping pads, orientated to allow for tank rotation that may be required.
- Chock tanks with sandbags to prevent rolling.
- If high winds are anticipated, tie the tanks down to prevent damage.
- When the tank must be rolled for air / soap test, roll only on shipping pads or smooth surface free of protruding rocks or hard objects. Ensure fittings and / or collars do not come in contact with the ground.

To avoid tank damage:

- Do not allow tank to rotate or swing during off loading.
- Do not use chains or cables around tanks.
- Do not allow metal hardware to contact the tank.

- Do not allow fittings, collars, manways, reservoirs or any accessory to contact the ground during rotation or placement.
- Do not drop tank.

LIFTING TANKS

To lift the tank, always use all of the lifting lugs provided on the tank. Apply equal tension to all the lifting lugs simultaneously. There may be different orientations or numbers of lifting lugs on tanks, always identify the number of lifting lugs and use them all.

Where applicable guide the tank using the attached guidelines.

Only use appropriate lifting equipment to lift and move tanks. The capacity of lifting equipment must be checked before lifting and moving tanks. Only suitably qualified persons should supervise, connect and lift tanks.

Figure A-1

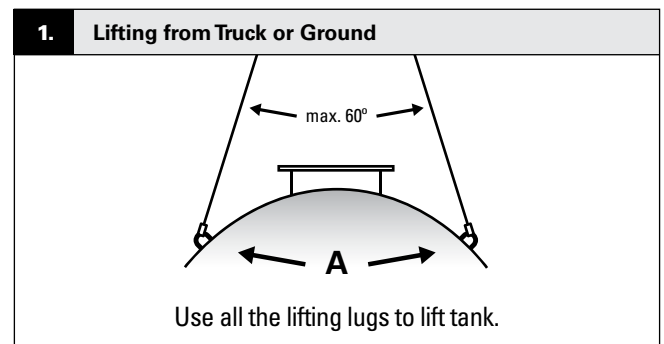
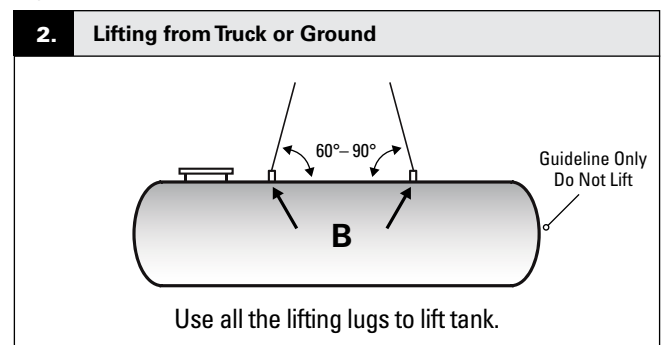


Figure A-2



LIFTING ENVIROTANK DEADMAN ANCHORS

⚠ WARNING

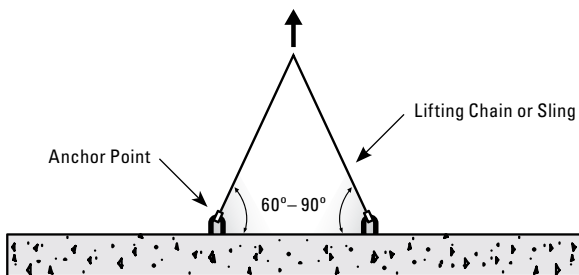
Use the anchor points only when lifting and positioning Envirotank deadman. Failure to do so could result in death or serious injury.

- Insure lifting equipment is rated to handle the load before lifting. For deadman anchor weight estimates use the following table to work out individual deadman anchor weights.

Deadman Anchor Weight Approximations	
300 x 300 Blocks	450 x 300 Blocks
250 kgs per lineal metre	350 kgs per lineal metre

- The deadman anchor type, lengths and number of anchor points are dependant on the tank diameter, model and capacity.
- Lift deadman anchors using a minimum of two equally spaced anchors points.
- The angle from the deadman to the lifting equipment should always be between 60° and 90° (see Figure A-3).

Figure A-3



- Refer to Section G of these instructions for additional information.

LIFTING ENVIROTANK TANK CONTAINMENT SUMPS AND COMPONENTS

- Visually inspect the sumps and components for shipping damage. If damage found, contact Envirotank.
- When handling sumps always wear gloves.
- Do not roll, drop or bounce.
- Set on smooth level surface.
- The sumps must be stored / secured to prevent damage from high winds.
- Refer to Section N of these instructions for additional information on tank containment sumps.

B. BED AND BACKFILL

CAUTION

Not using approved backfill material may result in tank failure and environmental contamination.

The use of approved backfill material is critical to long term tank performance.

- **DO NOT MIX APPROVED BACKFILL WITH SAND OR NATIVE SOIL.**
- **DO NOT BACKFILL TANK WITH SAND OR NATIVE SOIL ALWAYS USE APPROVED BACKFILL.**
- Replace all excavated native soil with approved backfill of proper size and grading.
- Only use backfill that meets (Australia) AS2758 and AS1141.11 or equivalent standards requirements for quality and soundness for the material detailed in Figure B-1.
- Require your backfill supplier to certify, with a sieve analysis document, that the backfill meets this specification.
- Sieve analysis documents must be attached to the tank installation checklist.
- Use only approved naturally rounded gravel or crushed stone for the tank bed and backfill (see Figure B-1).

Figure B-1

NATURALLY ROUNDED GRAVEL	CRUSHED STONE
<p>19 mm maximum size</p>	<p>13.2 mm maximum size</p>
<p>Naturally Rounded Gravel: Clean naturally-rounded aggregate with particle sizes no larger than 19mm with no more than 5% passing a 2.36mm sieve. Dry density must not be less than 1500 kg/cubic metre.</p>	<p>Crushed Stone or Gravel: Washed, with angular particle sizes no larger than 13.2mm with no more than 5% passing a 2.36mm sieve. Dry density must not be less than 1500 kg/cubic metre.</p>

Note: If backfill material which meets these specifications is not available, contact Envirotank for further information. The use of non-specified backfill material without Envirotanks prior written approval will void the tank warranty and may result in tank failure.

C. EXCAVATION AND TANK CLEARANCE

WARNING

Do not enter the tank excavation unless in compliance with OH&S regulations. Follow OH&S guidelines for the tank excavation.

Collapsing excavation walls can cause injury or death.

STABLE EXCAVATIONS

- When your excavation is in stable undisturbed soil; Use the minimum spacing's as detailed in Figure C-1 and Table C-2.

Figure C-1, Stable Excavations

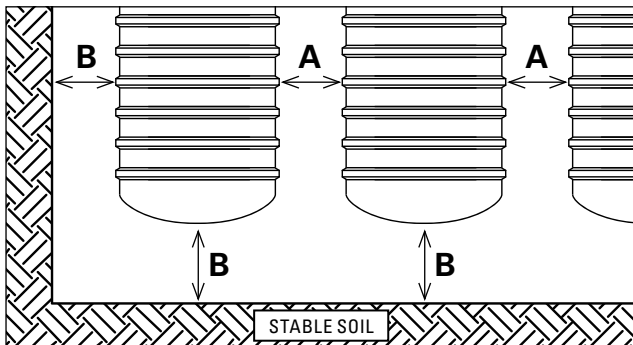


TABLE C-2, Stable Excavations

1.2m, 1.5m, 2.0m & 2.5m Diameter Tanks		
	Minimum Clearance / No Deadman Anchors	c\w 300 x 300 mm Envirotank Deadman
A	450mm	600mm
B	450mm \ 600mm Pref.	450mm \ 600mm Pref.
3.0m Diameter Tanks		
	Minimum Clearance / No Deadman Anchors	c\w 450 x 300 mm Envirotank Deadman
A	450mm	900mm
B	450mm \ 600mm Pref.	600mm

UNSTABLE EXCAVATIONS

An unstable excavation is any of the following:

- Muck, bog, peat, swamp, quick sand, flowing water, landfill type areas or where the soil is soft or in areas with expansive clay soils or any other situations where the soil is inherently unstable.
- Soil less than 36 kPa (750 lbs./sq. ft.) cohesion, or have an ultimate bearing capacity less than 170 kPa (3500 lbs./sq. ft.)

CAUTION

If the soil is unstable, the tank owner should consult a professional engineer to ensure a proper installation and avoid the potential for tank or property damage.

- A soils consultant can provide additional recommendations, including when a reinforced min. 200mm concrete slab is needed under the tank.
- When a concrete slab is used, it should extend to the excavation walls.
- Unstable excavations also require filter fabric.
- When the soil is unstable, with or without shoring, use the minimum spacing's as detailed in Figure C-3 and Table C-4.

Figure C-3, Unstable Excavations

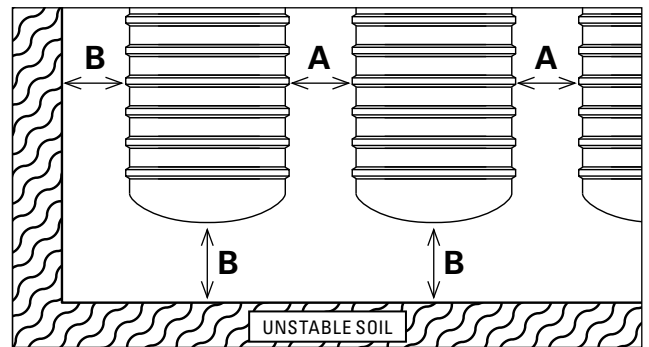


TABLE C-4, Unstable Excavations

1.2m, 1.5m, 2.0m & 2.5m Diameter Tanks		
	Minimum Clearance / No Deadman Anchors	c\w 300 x 300 mm Envirotank Deadman
A	450mm	600mm
B	1/2 Tank Diameter	1/2 Tank Diameter
3.0m Diameter Tanks		
	Minimum Clearance / No Deadman Anchors	c\w 450 x 300 mm Envirotank Deadman
A	450mm	900mm
B	1500mm	1500mm

SHORING REMOVAL

After the backfill is properly placed completely around the tank(s):

- Carefully remove shoring and pull slowly to top of backfill.
- Fill any voids created by the pulled shoring with approved backfill.

- All shoring should be removed and all voids must be filled using a long handled probe before continuing installation.
- If shoring is left in place and the min. separation distances are used, the shoring must not degrade over the life of the tank.

TANK LOCATION - NEARBY STRUCTURES

- The tank owner and the tank owner’s representative’s are responsible for determining the proper location of the tank excavation.
- The location of a tank can be affected by the location of nearby structures. When selecting a tank site, care must be taken to avoid undermining the foundations of new or existing structures.
- Ensure that downward forces from loads carried by the foundations and supports of nearby structures (constructed before or after tank installation) are not transmitted to the tanks.

FILTER FABRIC SPECIFICATION

	NEW ZEALAND	AUSTRALIA
Product	TYPAR 3407 or 3337 or equivalent	BIDIM A14 or 24 or equivalent

Filter Fabric allows the passage of water and prevents the migration of approved backfill into native soil and native soil into the approved backfill.

Migration may compromise the backfill support of the tank.

Polyethylene or plastic is not considered an effective material to prevent migration of approved backfill and/or native soil; prevents water migration, tears easily and over time may degrade in a wet environment.

FILTER FABRIC INSTALLATION

1. Line the excavation base and walls with filter fabric.
2. Overlap adjoining fabric panels 300mm minimum.
3. Place backfill on top of fabric and around base of excavation perimeter to hold fabric in place.

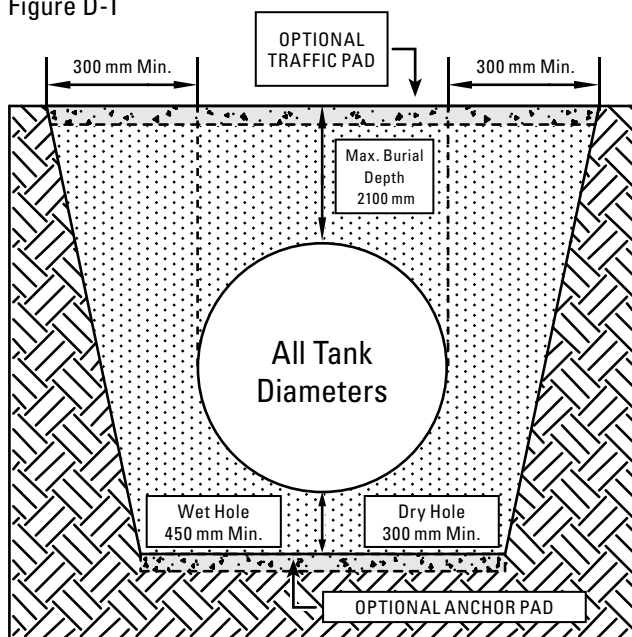
D. BURIAL DEPTH AND COVER

Always adhere to the minimum and maximum dimensions in this section.

If at anytime wet conditions can occur, including excavations likely to fill with water over the life of the tank, sufficient overburden and/or an appropriate anchoring system must be used to offset the buoyancy of the tank.

Refer to the “Tank Burial Depth Recommendations” (Appendix A) for minimum burial depth in buoyant conditions

Figure D-1



IMPORTANT TANK BURIAL FACTORS

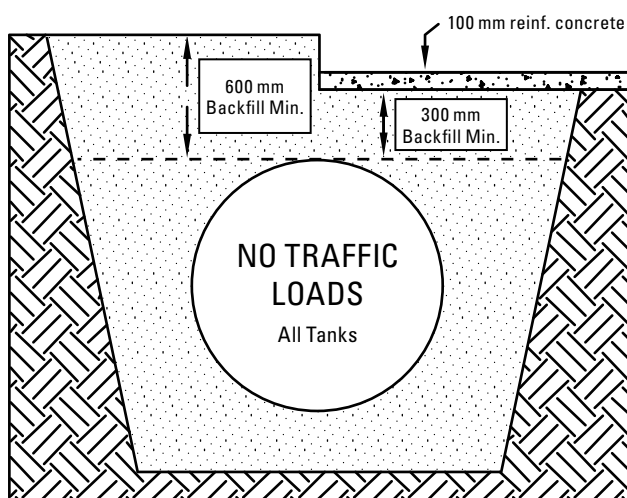
- Any covering pavement must extend by 300mm minimum beyond the tank perimeter in all directions.
- The maximum allowable burial depth is 2.1m from the tank top to finished level including pavement.
- Tanks can be designed for burial depths greater than 2.1m, contact Envirotank prior to tank purchase.
- Dry hole and/or stable excavations must have a bed of 300mm minimum of approved backfill between the bottom of the tank and the base of the excavation.
- Wet hole and/or unstable excavations must have a bed of 450mm minimum of approved backfill between the bottom of the tank and the base of the excavation or a bed of 300mm minimum of approved backfill on top of the concrete anchor pad.
- Should fill be required in an excavation to raise the base level, only approved backfill must be used.

MINIMUM BURIAL DEPTH WITH NO TRAFFIC LOADS FOR DRY INSTALLATIONS

Local site conditions and or codes may require deeper minimum burial depth, check with the tank owner.

- All tanks need a 600mm minimum cover of approved backfill or a 300mm minimum cover of approved backfill plus 100mm of reinforced concrete. (see Figure D-2)

Figure D-2



MINIMUM BURIAL DEPTH WITH TRAFFICABLE LOADS FOR DRY INSTALLATIONS

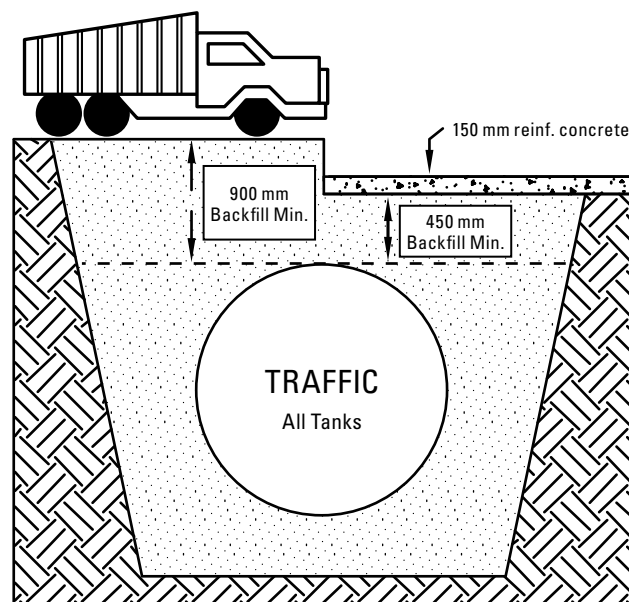
- The burial depths are detailed in Figure D-3 are suitable for a H20 traffic loads.
- The concrete pavement, thickness and reinforcement, must be designed for job specific conditions and applicable traffic loads to assure concrete traffic pad integrity. It is the responsibility of the tank owner to design the traffic pad for all loads.
- It is essential that no traffic loads are transmitted to the tank by the Containment Sumps or any risers or piping. (see Section N).

CAUTION

Failure to provide sufficient approved backfill cover or allowing point loading to the tank by transmitting trafficable loads may damage the tank or cause tank failure.

- All tanks located in trafficable areas, need a 900mm minimum cover of approved backfill or a 450mm minimum cover of approved backfill plus 150mm of reinforced concrete. (see Figure D-3).

Figure D-3



MINIMUM BURIAL DEPTH FOR WET OR FLOODED INSTALLATIONS

It is the responsibility of the tank owner to establish the needs and requirements for burial depth and/or anchoring to suit their specific tank application and site conditions.

Refer to the "Burial Depth Recommendations" (Appendix A) for minimum burial depth in buoyant conditions.

In most cases anchoring may be necessary because the tank excavation is likely to fill with water during the life of the installation and flooding to ground level may occur in seasonal events or water and drainage system may fail. We recommend tank owners evaluate the tank application and risks involved for each specific site..

E. ANCHORING

CAUTION

Every site is unique and should be evaluated for buoyant conditions including but not limited to local water tables, flooding and trapped water.

Failure to provide sufficient overburden and/or appropriate anchoring may result in tank failure and property damage may occur

It is the responsibility of the tank owner to determine the appropriate anchoring method and to design the anchoring system suitable for the tank application.

Envirotank has provided an “Anchor Chart” in (Appendix A) that covers the minimum burial depths for the three common methods of anchoring tanks.

The three common methods are:

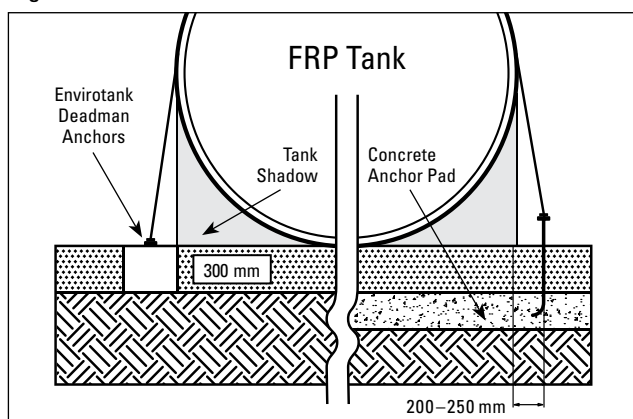
1. Deadman Anchors
2. Concrete Anchor Pad
3. Overburden Only (no mechanical anchoring)

Envirotank offers an engineered mechanical anchoring system designed for each size tank consisting of deadman anchors and hold down straps.

Burial depth, straps, deadman anchors and anchor pads can be combined to provide anchoring using the information provided in this section.

The mechanical anchoring methods are shown in Figure E-1

Figure E-1



GENERAL ANCHORING REQUIREMENTS

- Prior to anchoring, take the first deflection measurement after the tank is lowered into the excavation. If mechanical anchoring is used, take the second deflection measurement of the tank after the anchoring is complete and record the results on the Tank Installation Checklist (Additional information on deflection measurements can be found in Section I).
- Use Envirotank supplied anchor straps only.
- Anchor points must be aligned with designated anchor ribs marked on the tank (▶◀). Do not use straps between ribs.
- For deadman anchors, place the inside edge of the deadman outside the tank shadow. (Outside of ribs)
- For bottom anchor pad, position anchor points 200mm min. outside the tank shadow.

- All anchor straps must be uniformly tightened. Straps should only be snug tight, and not be over tightened so to cause tank deflection.

ANCHORING POINT LOADS

The Envirotank deadman anchoring and/or strapping system is designed for the maximum working loads the system will experience over the life of the tank. Contact Envirotank for deadman anchor design details if Envirotank deadman anchors are not be used.

The weight of the overburden (approved backfill) acting on the deadman anchor or pad and the tank provides the majority of the anchoring force (not the weight of the concrete deadman anchor or pad alone).

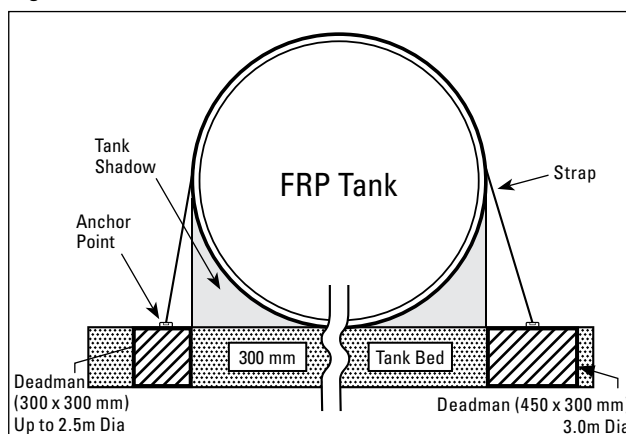
DEADMAN ANCHORS

Deadman anchors are made of reinforced concrete and are designed and suitable for the life of the installation and must be placed end to end and combined be equal to tank length, with the anchor points aligned with designated anchor ribs marked on the tank (▶◀).

The weight of the overburden (approved backfill) to finished grade acting on both the deadman anchors and the tank provides the total anchoring force (not the weight of the deadman anchors alone).

- Refer back to Section A. Handling and Preparation for deadman weight approximations.
- Each tank requires its own set of deadman anchors on both sides of the tank.
- A separate anchor point must be provided for each strap.
- Envirotank deadman anchors are engineered and sized to the tank ordered.
- Place the deadman in the excavation parallel to the tank and outside of the tank shadow. (see Figure E-2).

Figure E-2



- Envirotank deadman anchors are supplied with 25mm diameter galvanized anchor points.
- Anchor points must match the designated anchor ribs marked on the tank (▶◀).
- Place multiple deadman anchor blocks, in contact with each other, end to end.
- Use one anchor point per strap.
- Should acid sulphate soils or similarly aggressive environment be likely, the concrete deadman anchors should be coated with bitumen and all galvanized steel components be adequately protected.

CONCRETE ANCHOR PADS FOR USE IN UNSTABLE CONDITIONS

The weight of the overburden acting on the concrete anchor pad and the tank provides the majority of the anchoring force (not the weight of the concrete anchor pad alone).

- The anchor pad for unstable excavations must be a min. 200mm thick.
- For un stable conditions the pad must extend a minimum of 450mm beyond the tank shadow. The pad must also be as a minimum the same length as the tank.
- For unstable excavations, it is the responsibility of the tank owner to design the concrete anchor pad to suit the specific conditions being encountered..
- Regardless of design, the anchor pad should extend to the excavation walls.
- Poor soil conditions, local codes, seismic activity, etc. may require increased reinforcement and anchor pad thickness. Contact a soils consultant for specifications.
- Embedded anchor points as a minimum should be designed for the working loads in Table E-3.
- A separate anchor point must be provided for each strap.
- Anchor points must match the designated anchor ribs marked on the tank (▶◀).
- Only use Envirotank supplied anchor straps and hold down stirrups.

Table E-3

Anchor Point Loads Allowed	
Tank Diameter	Maximum Load
1.2m & 1.5m	570kg
2.0m	2450kg
2.5m & 3.0m	3400kg

OVERBURDEN (No Mechanical Anchoring)

Overburden is burying the tanks deep enough so that the weight of the approved backfill is sufficient to overcome any buoyancy.

This typically requires the burial depth to be greater than 60% of the tank diameter as a minimum cover of approved backfill / pavement.

Envirotank has provided an “Anchor Chart” in (Appendix A) that covers the minimum burial depths for the three common methods of anchoring tanks as a guide only and for a fully flooded multiple tank installation.

The important criteria for buoyancy and burial depth is the selection of approved backfill, maximum expected flood water level, single or multiple tank installation, the use and numbers of containment turrets per tank, pavement type and thickness and the safety factor and/or risk evaluation acceptable.

Due to unique site conditions at all locations, variations in approved backfill weight and tank configurations, the tank owner must verify the application and particular circumstances when evaluating the need for an anchoring system and recognise that the information provided by Envirotank is based on theoretical assumptions and while accurate, Envirotank take no responsibility for the information provided..

HOLD DOWN STRAPS

The Envirotank Hold Down Strapping System comes complete with a single length of flexible polyester webbing that is used to secure the deadman anchors on both sides of the tank and with the tensioning device and clamp and is supplied standard unless requested otherwise.

The Envirotank strapping system uses high strength polyester webbing without any third party hardware such as turnbuckles and shackles.

The Envirotank System minimises and can eliminate the “time in the hole” and is generally quicker and simpler to use and can also be clamped on the upper side of the tank to avoid working on top of the tank.

CAUTION

Anchor straps must be uniformly tightened and should be snugged down and not over tightened to avoid tank deflection.

HOLD DOWN STRAP INSTALLATION

- Feed one end of the webbing through the anchor hold down point, over the top of the tank, through the anchor hold down point on the other side and back to the position on the tank to be clamped there to the other end of the webbing by the clamping device. Ensure the clamp is central on a designated rib (▶◀) ensuring the webbing is on the rib (▶◀) as well.

- Feed the two loose ends of the webbing through the clamp bars and close the bars, then rotate the bars in the sheet metal guide provided. One or two full turns to tighten using a spanner or equivalent to get maximum tension.
- While holding full tension assemble the side plates onto the clamping bars and bolt in place with the bolt and spacer provided. See (Appendix B) for detailed assembly instructions

F. TANK INSTALLATION

⚠ WARNING

Do not enter the tank excavation unless all OH&S requirements pertaining to excavations are followed. Collapsing excavation walls may cause death or serious injury.

BEFORE YOU BEGIN

It is important to review all instructions and documents to make sure you are compliant with the proper procedures to ensure proper installation and service life of the tank. This includes:

- Bed and Approved Backfill
- Hole Size and Burial Depth
- Pre-Installation Testing
- Anchoring
- Tank Orientation

TANK VERTICAL DIAMETER MEASUREMENTS

Each vertical diameter measurement is used to determine the tank's deflection. If at any point the deflection measurements exceed the values in Table F-1, stop the installation and contact Envirotank immediately

CAUTION

Excessive tank deflection may result in tank failure.

During installation, vertical diameter measurements must be taken and recorded on the Tank Installation Checklist after each of the following steps:

- "First Vertical Diameter Measurement" Placement of tank on backfill bed
- "Second Vertical Diameter Measurement" Anchoring completed (Only applicable if mechanical anchoring is used.)
- "Third Vertical Diameter Measurement" Backfill to tank top.

- "Fourth Vertical Diameter Measurement" Backfill to sub grade, before the pavement is laid.

Note: Separate vertical diameter measurements must be recorded for each tank compartment.

- All measurements for vertical deflection are made from the bottom of the tank to the top of the tank shell fitting.
- All measurements should be made in millimetres.
- All measurements should be made through the fitting closest to centre of tank where possible.
- Refer to Table F-1 for maximum allowable vertical deflection values.

Table F-1

Tank Diameter	Maximum Deflection
1.2m & 1.5m	12mm
2.0m	20mm
2.5m	32mm
3.0m	38mm

INSTALLATION PROCEDURE

- Determine if filter fabric is required for your installation (see Section C for details).
- All tank holes must have a minimum of 300mm and 600mm maximum of approved backfill bed between the bottom of the tank and the base of the excavation or concrete anchor pad.
- Place tank in excavation with lifting cables attached to all the lifting lugs provided on tank, while maintaining control of tank with guide ropes (see Figure A-1 or A-2).
- Set tanks directly on 300mm minimum of approved backfill bed for a stable excavation and 450mm minimum for an unstable and or wet excavation. (See figure D-1)

CAUTION

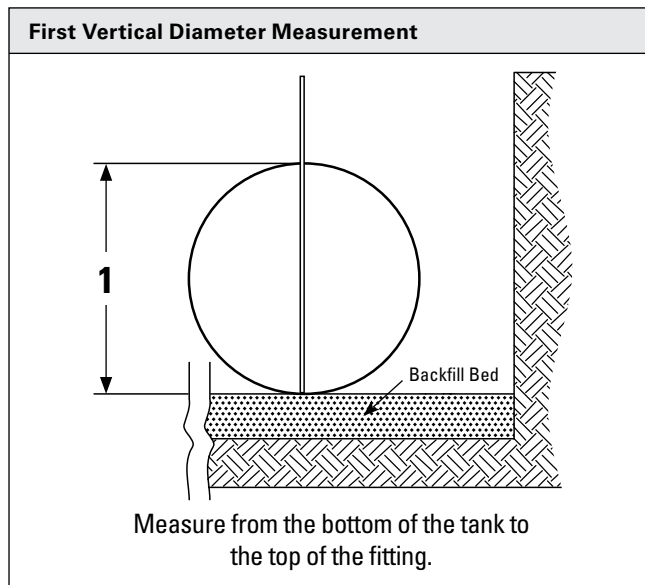
Do not place tanks directly on concrete slab, timbers, beams or cradles or tank damage can occur.

CAUTION

Do not mix native soil with approved backfill material or tank damage can occur

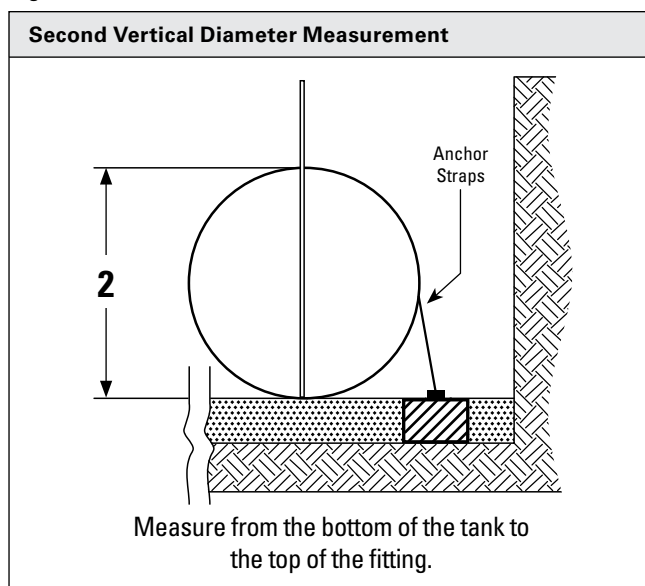
- Take the "First Vertical Diameter Measurement" and record the value on the Tank Installation Checklist (see Figure F-2).

Figure F-2



- If mechanical anchoring is used, after anchoring is completed, take the "Second Vertical Diameter Measurement" and record the value on the Tank Installation Checklist. If this value does not equal the "First Vertical Diameter Measurement", loosen the anchor straps (see Figure F-3).

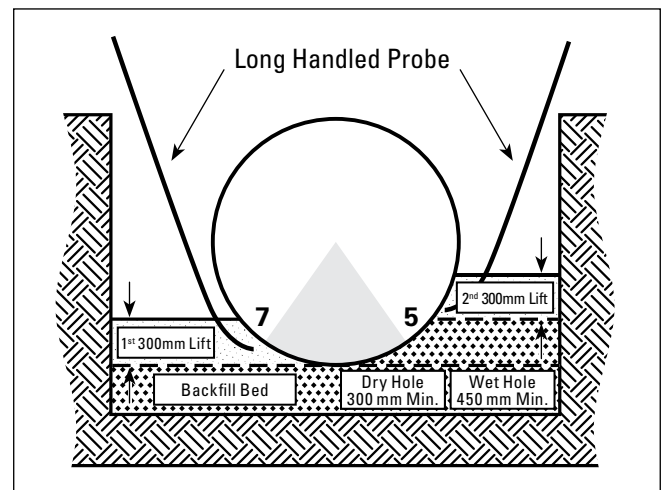
Figure F-3



- Proper backfilling is required to provide necessary support for the tank.
- Only use approved backfill. (See Figure B-1)

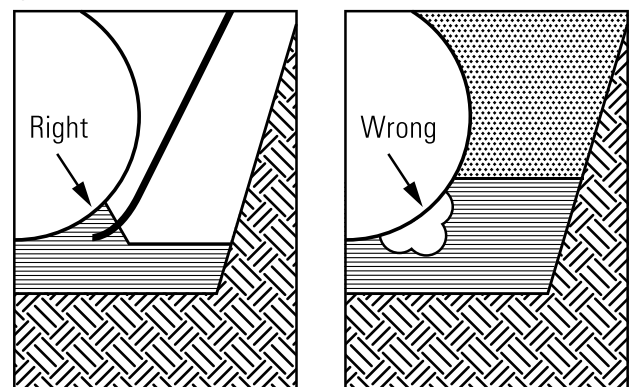
- Place the first 300mm lift of approved backfill material evenly around the tank. Push the backfill in to place by using a probe long enough to reach beneath the tank. Work the backfill material under the entire length of the tank between and around ribs and end-caps, eliminating all voids, so the tank is fully supported (see Figure F-4).

Figure F-4



- Eliminate all voids by using a probe to push backfill:
 - Completely beneath tank bottom .
 - Completely between the 5 o'clock and 7 o'clock positions along the entire length of the tank between and around all ribs and end-caps. It is critical to tank performance that this area offers full support under the tank and end caps (see Figure F-5).
- Repeat this process with a second 300mm lift.

Figure F-5



- After completion of second lift, backfill can be brought to tank top without additional handwork.

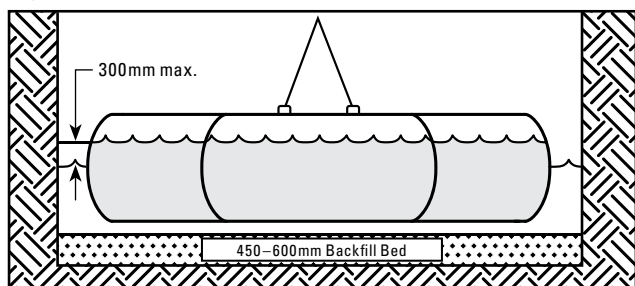
WET HOLE INSTALLATION

CAUTION

Keep tank vented to prevent pressurisation of tank when adding ballast. As the tank nears full, reduce the fill rate to prevent pressurisation or tank damage may occur.

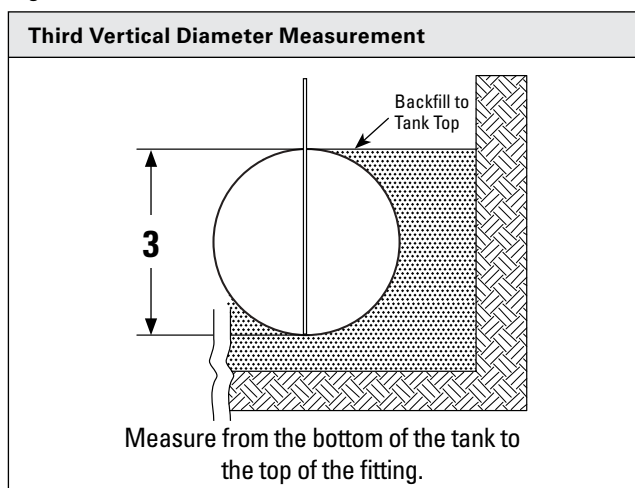
- Additional information on wet hole installations and alternate installation techniques are available. Contact Envirotank for further information.
- Special Instructions for a wet hole installation:
- Water level in the excavation should be maintained at lowest practical level by using pumps.
- Ballast the tank if ground water cannot be lowered.
- For compartment tanks, add ballast to compartments as needed to keep tank level. Add enough ballast to sink the tank. Ballast level inside all tank compartments should not be more than 300mm above ground water level outside tank (see Figure F-6).

Figure F-6



- Backfill to the tank top using approved material.
- Take the Third Vertical Diameter Measurement and record the value on the Tank Installation Checklist and verify the measurement does not exceed the value in Table H-1. (see Figure F-7).

Figure F-7



- After backfill is even with tank top, fill all tank compartments with water ballast to minimize chance of tank buoyancy.

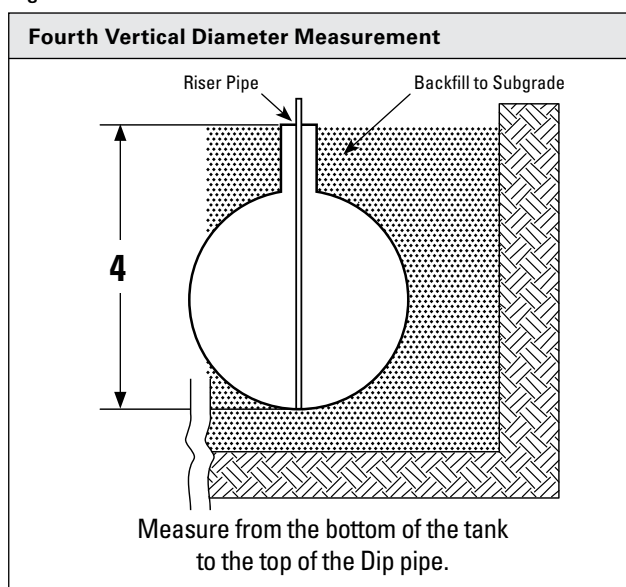
CAUTION

Do not ballast tank until backfill is even with tank top or tank damage can occur.

BACKFILL TO SUBGRADE

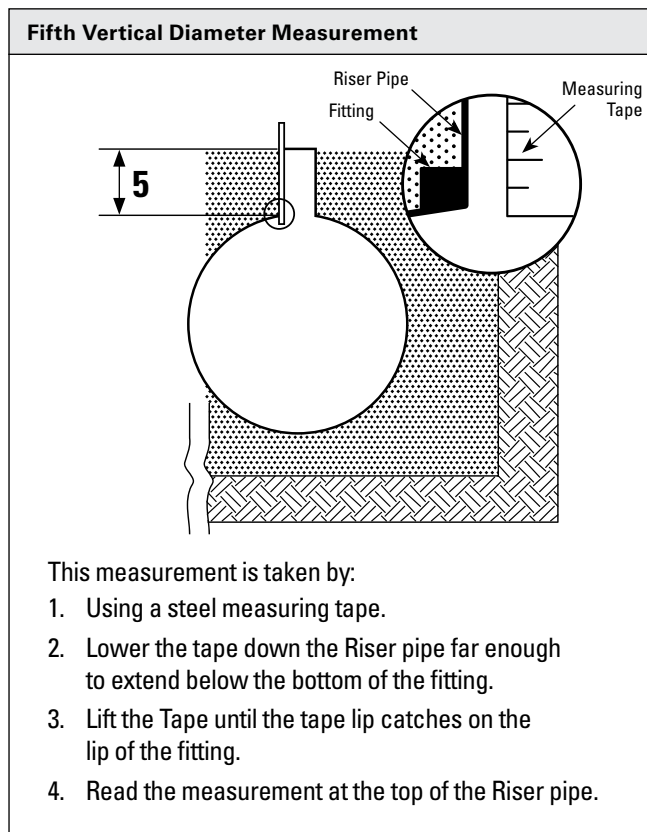
- When the tank has been correctly installed into the excavation and backfill to top of tank and all verified measurements have been taken and all pre-burial system testing has been completed and passed; add the remaining backfill material to sub-grade.
- Always use approved backfill material to replace all excavated (or loose) native soil regardless of the excavation size.
- If alternative smaller or finer backfill material is used above the tank top, filter fabric is required to separate the approved material from this material.
- Once the tank has been backfilled to sub-grade, before placement of concrete pad, take the fourth vertical diameter measurement.
- Record the Deflection Measurement on the Tank Installation Checklist (see Figure F-8).

Figure F-8



- Take the Fifth Vertical Diameter Measurement and record the value on the Tank Installation Checklist (see Figure F-9).

Figure F-9



- The inner diameter deflection is calculated using the “Fourth Vertical Diameter Measurement” and “Fifth Vertical Diameter Measurement”.
- After the final measurement has been recorded, complete the Vertical Diameter Measurement section of the Tank Installation Checklist. Verify the values in Table F-1 have not been exceeded.
- If the final deflection measurement exceeds the values in Table F-1 you should stop the installation, prior to set up and pouring the pavement, and immediately contact Envirotank for directions.

G. ADDING TANKS AT EXISTING LOCATIONS

Additional tanks may be installed at existing locations using one of the following methods, however it is the tank owner that must verify the site conditions as they exist and that the information provided by Envirotank is based on theoretical assumptions and while accurate, Envirotank take no responsibility for the information provided.

PREFERRED METHOD

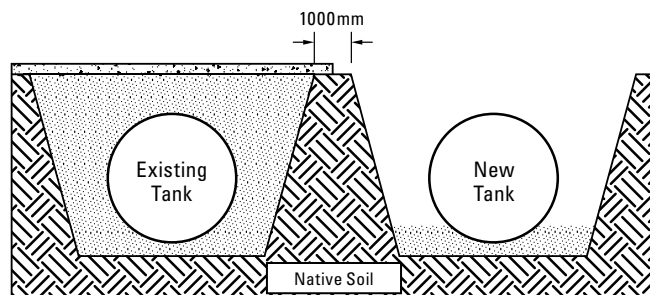
- Install a new tank in a separate hole at least 1.0m from the original excavation.
- Follow procedures outlined in this Installation Manual.

CAUTION

Avoid surface loads that may result in a collapse of the excavation or disturb any existing tanks.

- Maintain a minimum 1.0m at grade of native soil between existing and new installation (see Figure G-1).

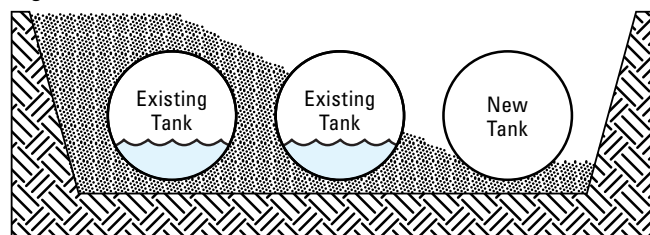
Figure G-1



ALTERNATE METHOD FOR DRY HOLE EXCAVATION

- Lower ballast in existing tanks to less than 20% capacity.
- Remove the surface slab.
- Enlarge the excavation for the new tanks, leaving as much backfill as possible around the existing tanks (see Figure G-2).

Figure G-2



- Install shoring, if necessary, to make sure that existing tanks do not move or roll over and sufficient backfill remains.
- Install all tanks following the instructions outlined in this manual.
- Follow and complete the Tank Installation Checklist for all new and existing tanks.

H. PIPING AND BOTTOM SUMP CLEARANCES

TANKS WITH BOTTOM SUMPS

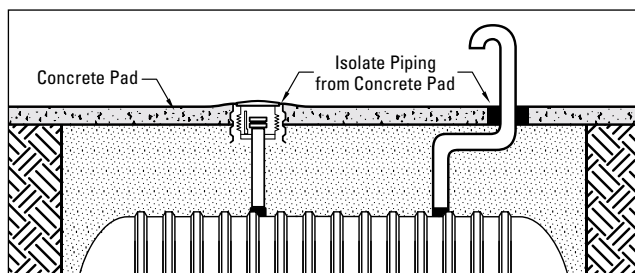
When installing a tank equipped with a bottom sump, excavation and backfill must be modified to provide:

- A hole centred at the sump location.
- Hole should be 300mm larger than the sump in all directions.
- Backfill by hand with approved tank backfill.
- The void around the sump must be hand tamped prior to adding the first 300mm lift of backfill around the tank.

EXTERNAL AND INTERNAL PIPING

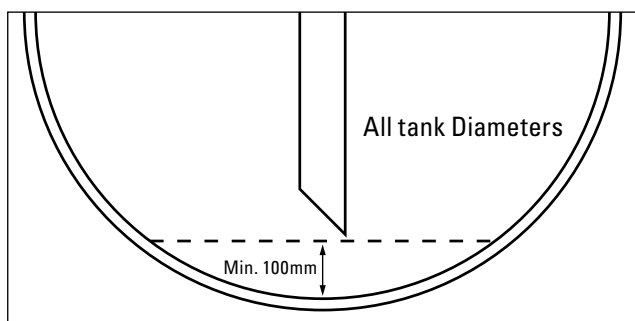
- Attached piping must be free to move with the tank.
- Isolate the piping from the pavement. (see Figure H-1).

Figure H-1



- Take precaution during construction to make sure no damage occurs to the exposed pipe(s).
- Internal piping must terminate a minimum of 100mm from tank bottom for tanks to allow for tank deflection (see Figure H-2).

Figure H-2



CAUTION

Failure to provide adequate clearance may damage the tank and result in environmental contamination.

I. TANK VENTING

VENTING

- Tank must be vented at all times.
- Tanks are designed for operation at atmospheric pressure only.
- The tank's venting system must be adequately sized to ensure that atmospheric pressure is maintained at all times, including when filling and emptying the tank.
- Oil separator tanks must be vented in accordance with AS1940.

CAUTION

Pressurisation from filling a non-vented tank will result in tank damage

J. FILLING TANKS

CAUTION

Pressurized product deliveries are not recommended as tank damage may occur.

- Do not fill or ballast tank until tank has been properly backfilled.
- Ullage must be maintained in the tank.
- Remove filter and ACD unit prior to ballasting separators. (see Appendix D for further information)

CAUTION

Failure to remove filter and ACD unit before adding water ballast will cause the ACD unit to not function.

K. MANWAYS

⚠ WARNING

Do not enter tank without a Confined Space Entry permit. Failure to follow OH&S guidelines for Confined Space may result in death or serious injury.



ASPHYXIATION



FIRE



EXPLOSION

The standard 600mm diameter manway has a total load bearing capacity of 550 kg. Heavy duty manways must be specified on tanks equipped with heavy helical heating coils, agitators or pumps with a total downward load greater than 550 kg.

L. CONTAINMENT COLLARS AND SUMPS

Envirotank containment collars are factory installed to the tank top providing a means of attaching sumps to allow maintenance access to pumps and piping connections to manways. (see Figure L-1).

⚠ WARNING

Do not enter tank sump without consulting Confined Space Entry guidelines. Failure to follow OH&S guidelines for Confined Space may result in death or serious injury.



ASPHYXIATION



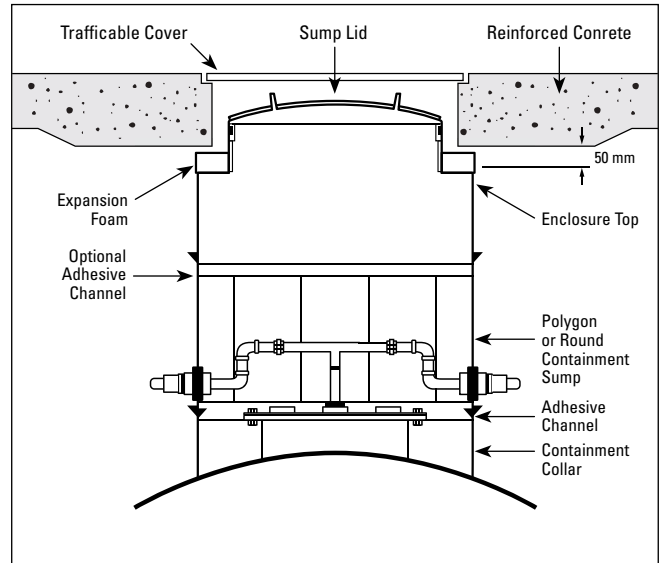
FIRE



EXPLOSION

- All Containment Collars and Sumps must be isolated from direct traffic loading (see Figure L-1).

Figure L-1



CAUTION

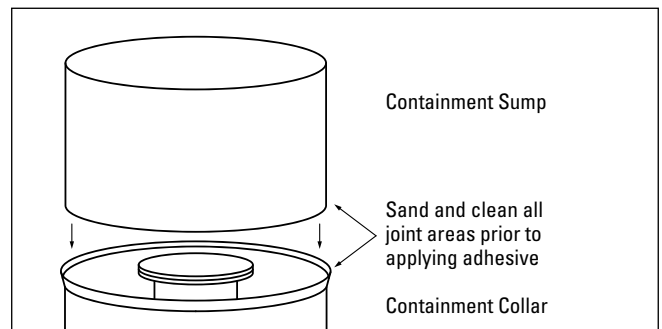
Failure to provide adequate clearance may cause damage to the tank and result in environmental contamination.

Envirotank tank sumps are designed to provide a watertight connection to the containment collar utilizing an adhesive joint or alternatively the joint may be fibreglassed.

ASSEMBLY PROCEDURE

- Lightly sand the bottom 25 mm of the containment sump (exterior) surface using supplied sandpaper.
- Lightly sand inside surface of the containment collar. (see Figure L-2)
- Wipe the collar and sump mating surfaces clean of all foreign material and dust.
- Place sump in collar and check for proper alignment. (see Figure L-3)

Figure L-2



Please Note: All mating surfaces must be sanded until they appear "white" in colour and must be clean and dry and free from of foreign materials, oil grease and dust prior to applying adhesive.

ADHESIVE APPLICATION GUIDELINES

The following guidelines are for the application of adhesives to be used outside in ambient temperatures only.

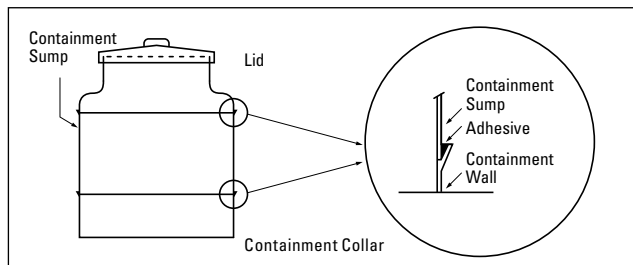
⚠ WARNING

Always wear Protective Clothing, Safety Glasses, Barrier Creams and Rubber Gloves and ensure adequate ventilation of the work area when using adhesives.

Refer to MSDS sheet for additional information.

- Minimum application temperature 5°C, maximum application temperature 40°C.
- For cold weather applications use warm water to preheat the adhesive to 10°C - 25°C to make the application easier.
- Break inner seal at extrusion end of cartridge.
- Affix nozzle to cartridge.
- Cut nozzle tip to size.
- Install cartridge in to caulking gun
- Prior to placing sump apply spots or short beads evenly spaced on the prepared surface of containment collar.
- Place the containment sump in the collar and press down until the mating surfaces are in intimate contact and adhesive is pushed out.
- Place a bead of adhesive a minimum of 7mm wide, bead must be completed within 30 minutes. (see Figure L-3)
- Surface skinning time approx. 45 to 75 minutes dependent on climate.
- Adhesive 70% cure rate min. 24 to 36 hours dependent on climate and bead thickness. Do not disturb mating parts until cured.

Figure L-3



CAUTION

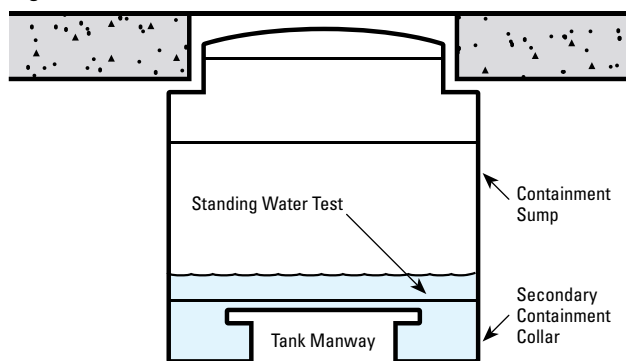
Excessive vacuum may result in containment sump failure.

COLLAR AND SUMP TESTING INSTRUCTIONS

Initial Jobsite Testing

- The installation contractor must test the tank collar and containment sump joints before backfilling is completed around the collars and sumps.
- Test the joints by filling the sump with water 75mm above the tank sump to the secondary containment collar joints. Record the liquid level. After 24 hours, re-measure and record the liquid level.
- A liquid level change of more than 5mm indicates a possible leak (see Figure L-4).

Figure L-4



VACUUM TESTING

Third parting vacuum testing systems can be used to test Envirotank sumps, however the maximum vacuum should not exceed 75mm of mercury.

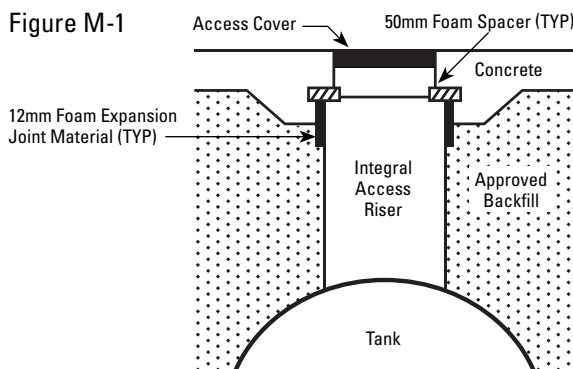
M. INTEGRAL ACCESS RISERS

Envirotank access risers can be factory installed to the tank top and or assembled on-site should transport restrictions apply.

Dependant on the application, integrated risers provide direct access to the tank for maintenance of separator coalesces or for the removal of silts and or oil etc.

Appropriate Clearances must be allowed for when forming and laying concrete up to and around risers to prevent point loading and allow for movement.

Figure M-1



TANK BURIAL DEPTH RECOMMENDATIONS

APPENDIX A

The minimum burial depths from tank top to grade as detailed in Table AA-1 are recommended to achieve a 1.2 safety factor against flotation assuming worst case conditions of water to grade and the tank completely empty with a multiple tank installation.

- When calculating the minimal burial depths required table AA-2 details the additional depth required for the addition of containment turrets to each tank and the removal of trafficable pavement.
- Maximum allowable burial depth 2.1m.

Table AA-1

Tank Diameter	1.2m	1.5m	2.0m	2.5m	3.0m
Concrete Slab Anchor	600	600	600	725	925
Deadman Anchors	600	600	700	950	1125
No Anchoring (Backfill Only)	720	900	1200	1500	1800

Table AA-2

Tank Diameter	1.2m	1.5m	2.0m	2.5m	3.0m
Each 1200 Diameter Riser Per Tank Requires an Additional Burial Depth of;					
With Deadman Anchors Add	+ 50	+ 50	+ 75	+100	+100
No Anchoring (Backfill Only) Add	+ 300	+ 300	+200	+ 150	+ 125
Each 1500 Diameter Riser Per Tank Requires an Additional Burial Depth of;					
With Deadman Anchors Add	+ 60	+ 60	+ 90	+120	+120
No Anchoring (Backfill Only) Add	+ 360	+ 360	+240	+ 180	+ 150
Burial Depth Adjustment Required When;					
No Trafficable Pavement	+ 75	+ 75	+ 75	+ 75	+ 75
Anchor Top Flush with Tank Base	- 50	- 50	- 50	- 50	- 50

Calculation Examples:

2.5m diameter tanks with one (1) 1200 diameter riser using deadman anchors flush with tank base and a trafficable pavement is $950 + 100 - 50 = 1000\text{mm}$ from tank top to finished level.

3.0m diameter tank with two (2) 1500 diameter risers using deadman anchors placed on tank bed with no trafficable pavement is $1125 + 240 + 75 = 1440\text{mm}$ from tank top to finished level.

Note: Please contact Envirotank for site specific Tank Burial Depth requirements prior to tank purchase and or installation.

- The hold-down straps can only be used on the top of all designated ribs as indicated by the (▶◀) markings on the tank.
- Anchor points on the deadman anchors must be aligned with designated (▶◀) ribs ± 25 mm.
- Feed one end of the strap through the anchor bar, over the top of the tank, through the anchor bar on the other side and back over the top of the tank to be clamped to the other end of the strap by the clamping device.
- Ensure the clamp is central on top of a designated (▶◀) rib and guide the strap onto the rib as well.
- Straps can be assembled and buckled on the side of the tank to prevent working at heights or on top of the tank to reduce in excavation time.



1. Feed each end of strap through the clamp plates.



2. Close clamp plates with a hammer protecting the tank with a block of wood.



3. Locate sheet metal channel assy guide under both runs of straps.



4. Insert gal. Bolt Spacer and rotate clamp to take up slack strap. Place guides x (2) on strap.



5. Fit spanners over the ends of the clamp and rotate to snug straps down.



6. After each crank hold position with one spanner and reposition one at a time.



7. Continue rotational tightening until strap is snugged down.



8. Assemble side holding plates over clamp ends, use spanner on the outside to locate & align assy



9. Bolt can be passed through holding plates and spacer and tightened.



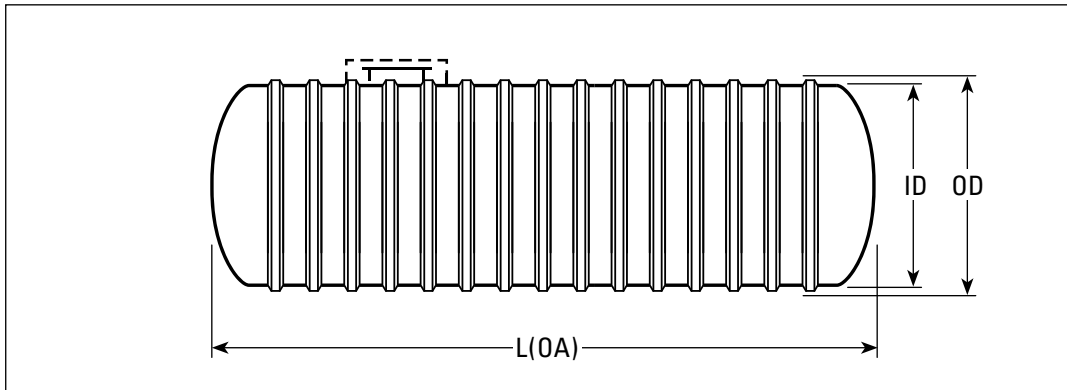
10. Bolt fully tightened and clamp complete.

CAUTION

Anchor straps must be uniformly tightened and should be snugged down to avoid tank deflection.

TANK DIMENSION CHART

APPENDIX C



Nom.Capacity (Litres x 1000)	Length L(OA)	ID-Inside Diameter	OD-Out.Dia. (Including Ribs)	Approx. Weight (Single Wall Tank)
5	4800	1200	1290	350
10	3950	2000	2090	600
20	4700	2500	2590	1000
30	6750	2500	2590	1350
40	8750	2500	2590	1700
45	9750	2500	2590	1850
50	10800	2500	2590	2000
55	11800	2500	2590	2200
60 (2.5m)	12800	2500	2590	2400
60 (3.0m)	9050	3000	3140	2400
70	10600	3000	3140	2600
80	11950	3000	3140	2900
90	13500	3000	3140	3200
100	14850	3000	3140	3500
110	16400	3000	3140	3850

NOTE:

The provided Tank Dimension Chart is for standard tank models and should only be used as a guide. Contact Envirotank for confirmation of tank dimensions and weights.

Actual tank weight is stenciled on tanks.

INTRODUCTION

The primary function of oil/water separator is to separate oil, petrol, diesel etc., from waste water and retain the separated liquids.

These separated liquids must be removed regularly, using a licensed effluent disposal contractor (your contracted service provider), to ensure that the separator operates as efficiently as possible.

The natural oil/water separating process from gravity fed waste water depends on the storage, or 'dwell', time within the separator chamber.

Guidelines have been established for minimum 'dwell' times, and hence, minimum working volumes for separators. These have been applied in tests carried out by third parties for certification, which are based on the maximum flow rate into the separator (l/sec). As the working volume reduces by the accumulation of the separated oil, petrol, diesel etc., so the separating efficiency reduces.

Another major influencing factor on the efficiency of separator systems is sediment. Oil water separators are usually designed as liquid/liquid separators unless the specification has determined a requirement to store a volume of sediment. This can be accommodated within a combined liquid/sediment separator where the storage volume is increased accordingly. However, if the design of the drainage system can allow the sediment to be separated and stored upstream of the oil/water separator, in catch-pits or sediment separators, the system would function more efficiently. Settled sediment must be removed regularly to ensure optimum efficiency.

REGULAR MAINTENANCE OF SEPARATOR EQUIPMENT WILL ENSURE IT OPERATES AS INTENDED WITH MINIMUM RISK OF POLLUTION TO THE ENVIRONMENT.

CAUTION

Failure to properly maintain the separator may cause environmental contamination.

IMPORTANCE OF MAINTENANCE INSPECTIONS

Separators are used in widely varying circumstances where some will require very frequent maintenance and others will have substantially longer intervals before any maintenance (emptying) is required. However, for every separator regular maintenance inspections should be carried out to determine whether or not there is a need to remove the accumulated oil, petrol, Diesel, etc., or sediment.

The owner of the Clereflo™ is responsible for its operation and ensuring that the effluent quality does not breach any discharge standards. It is advisable to set up a 'Service Agreement' with an effluent disposal contractor who can provide 'automatic' and regular maintenance and advise you if any problems with the system occur.

The owner is reminded that the existence of a 'Service Agreement' does not necessarily transfer responsibility for general maintenance which must be conducted in accordance with this guide.

Separators should be inspected at least every six months to establish whether or not emptying is necessary, and a log shall be maintained. Additional equipment for separators provided by Envirotank such as Alarm Systems which will give warning of the accumulation of oil, petrol, diesel, etc. and sediment, must not be used to replace regular inspections.

COMMISSIONING AND MAINTENANCE PROCEDURES

WARNING

Do not enter tank without a Confined Space Entry permit. Failure to follow OH&S guidelines for Confined Space may result in death or serious injury.



ASPHYXIATION



FIRE



EXPLOSION

1.0 OCCUPATIONAL HEALTH AND SAFETY

The maintenance procedures described here should be read and fully understood by the operator (competent person) before commencing any work.

All appropriate PPE (Personal Protective Equipment) should be worn and used at all times including protective gloves and safety glasses or goggles, waterproof and or protective clothing etc.) when performing any works on open separators including handling filters and internal components which have been in contact with oil and oily sediment.

Before any work commences all appropriate permits and site approvals must be completed.

Identify the separator and its associated access covers, and erect safety barriers and safety signage around the entire work area to protect the work area and prevent any unauthorised entry.

All maintenance works should and can be completed aboveground preventing confined space entry.

NOTE: UNDER NO CIRCUMSTANCES SHOULD YOU ENTER THE SEPARATOR WITHOUT A CONFINED SPACE PERMIT.

2.0 COMMISSIONING THE SEPARATOR

- 2.1 Sediment and other construction debris may have accumulated in the separator during the installation process and whilst other associated works are in progress. If this has occurred, isolate the separator from the drainage system remove the sediment.
- 2.2 Slowly lift out the combined coalescing filter and automatic closure device assembly.
- 2.3 Remove any debris from the tank.
- 2.4 Fill the separator with clean water up to the outlet invert level.
- 2.5 Whilst ensuring that the ACD (Automatic Closure Device) is captive inside the housing tube, and the retaining cap is in place at the top of the tube, slowly lower the filter/closure assembly into the separator until it is firmly located inside the filter seating on the bottom of the tank.

NOTE: Ensure all trapped air is expelled from filter unit during installation.

CAUTION

Do not lower the filter/closure assembly into the separator before it has been filled with water as the ACD will be held in the closed position and the separator will not function in this mode.

3.0 MAINTENANCE

- 3.1 a) If following maintenance inspections, the separator is found to be storing the maximum volume of oil, petrol or diesel etc. or the maximum volume of sediment, inform your licensed effluent disposal contractor who will arrange emptying.

The following are guidelines only for determining the maximum storage volumes of oil and sediment.

Forecourt separators will have a hydrocarbon maximum storage volume of 8,000 litres, unless otherwise stated.

- b) Where no specific sediment volumes have been determined for the separator, or where no sediment has been expected to accumulate in the system, the maximum stored depth of sediment should not exceed 20% of the depth of the separator barrel e.g. a 2.0m diameter separator should not store more than 400mm depth of sediment.

- 3.2 Apply the OH&S requirements detailed in Section 1 before commencing any work.
- 3.3 Isolate the separator from the drainage system either by closing pre-installed valves in the upstream and downstream manholes or by securely fitting proprietary pipeline stoppers.
- 3.4 Slowly lift out the combined coalescing filter and automatic closure device assembly. This should be lifted slowly at a rate of 20mm per second (1.2m per

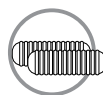
WARNING

Failure to use proper lifting equipment and or procedures may lead to personal injury.

minute), until clear of the water, ensuring that most of the residual water is drained from the coalescing filter. This will also reduce the combined overall weight of the assembly.

NOTE: This assembly could weigh as much as 55kgs and should be lifted with a mechanical hoist.

- 3.5 Remove the filter assembly and place on a spill tray for safe keeping.
- 3.6 Using a licensed effluent disposal contractor (and or your contracted service provider) carry out the following:
 - 3.6.1 Move the filter/closure assembly to a convenient position upstream of the separator so that any polluted water washed from the filter will be directed back to the separator.
 - 3.6.2 Remove the filter from the housing tube and wash the filter using a low pressure hose. If the filter has become 'blinded' with sediment or it is too dirty to clean or has become damaged, replace it. Contact Envirotank for replacement parts.



Tank Installation Validation Checklist

For Fibreglass Underground Water Storage and Oil Separator Tanks

This checklist must be completed and retained for the lifetime of the tank installation with any copies of any written authorizations for variations and/or deviations received from Envirotank.

Tank Owner _____ Date of Installation _____

Site Address _____

Installation Contractor _____

Tank Owner's Representative _____

General Site Procedures

	Completed	N/A
1. Backfill material meets Envirotank specification (Quarry sieve analysis is attached). Indicate which material you used: <input type="checkbox"/> Naturally Rounded Gravel <input type="checkbox"/> Crushed Stone <input type="checkbox"/> Other (Envirotank approval letter attached)	_____ _____ _____	_____ _____ _____
2. Backfill above tank top. Indicate which material you used: <input type="checkbox"/> Same backfill material used as above <input type="checkbox"/> Other (Envirotank approval letter attached)	_____ _____	_____ _____
3. Excavation and tank clearance meet Section C. <input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____
4. Filter fabric used to line excavation <input type="checkbox"/> Yes <input type="checkbox"/> No	_____	_____
5. Indicate excavation condition: <input type="checkbox"/> Dry hole (Water is not anticipated to reach tank – area is not subject to flooding) <input type="checkbox"/> Wet hole (Excavation may trap water – area may be subject to flooding)	_____ _____	_____ _____
6. Anchoring performed in accordance with installation instructions: Indicate which method you used <input type="checkbox"/> Deadman Anchors <input type="checkbox"/> Anchor Pad <input type="checkbox"/> No mechanical anchoring	_____	_____
7. Depth of approved backfill under tank _____ millimetres	_____	_____
8. All deflection measurements are recorded on reverse side.	_____	_____
9. Approved backfill placed in 300mm lifts & probed as described in Section F.	_____	_____
10. Tank burial depth complies with the requirements of Section D.	_____	_____
11. Tank burial depth complies with the requirements of Section F.	_____	_____
12. Piping and bottom sump clearances according to Section H.	_____	_____

Tank Specific Information

TANK NUMBER	1	2	3	4	5
13. Tank serial number.	_____	_____	_____	_____	_____
14. Tank type.* Indicate SWT, SWT-OWS, or DWT-OWS for each tank)	_____	_____	_____	_____	_____
15. Tank capacity. (Indicate unit of measurement and record the capacities for each tank)	_____	_____	_____	_____	_____
16. Tank free of visual damage. (Delivery Document attached to this form)	_____	_____	_____	_____	_____

Tank Specific Information

TANK NUMBER	1	2	3	4	5
1. First Vertical Diameter Measurement (Section F, Figure F-2)	—	—	—	—	—
2. Second Vertical Diameter Measurement (Section F, Figure F-3)	—	—	—	—	—
3. Third Vertical Diameter Measurement (Section F, Figure F-7) Measurement A - Tank deflection with backfill at tank top (subtract Measurement 3 from Measurement 1 above) <i>Refer to Table I-1 for max. deflection values.</i>	—	—	—	—	—
4. Fourth Vertical Diameter Measurement (Section F, Figure F-8)	—	—	—	—	—
5. Fifth Vertical Diameter Measurement (Section F, Figure F-9)	—	—	—	—	—
6. Calculate the final vertical diameter measurement (subtract Measurement 5 from Measurement 4 above) Measurement B - Tank deflection at sub-grade (subtract Calculated Value (6) from Measurement 1 above) <i>Refer to Table I-1 for max. deflection values.</i>	—	—	—	—	—

CAUTION

If any of the measurements taken exceed the values shown in Table I-1, immediately contact Envirotank prior to proceeding with the installation.

Table I-1

Tank Diameter	Maximum Allowable Vertical Deflection
1.2m & 1.5m	12mm
2.0m	20mm
2.5m	32mm
3.0m	38mm

Certification that Tank Installation was in accordance with Tank Installation Instructions (INST INS WT SEP).

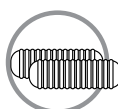
 Tank Owner Representative (Print Name) Date Contractor Representative (Print Name) Date

 Tank Owner Representative (Signature) Date Contractor Representative (Signature) Date

Copyright © 2011 Envirotank
 All Rights Reserved
 Pub No. INST CKWT

Envirotank Australia 1800-818-354
 Envirotank New Zealand 9-573-0548

www.envirotank.com.au
 www.envirotank.co.nz

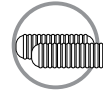


ENVIROTANK



AUSTRALIA
PO Box 558, Mt.Waverley
Victoria 3149
MELBOURNE
(03) 9550 0800

NEW ZEALAND
PO BOX 11, 185
Eilerslie
AUCKLAND
(9) 573 0548



ENVIROTANK



Quality
ISO 9001

Tank Delivery Inspection Checklist

For Fibreglass Underground Storage Tanks

Customer name (tank owner): _____ Location: _____

Tank size: _____ Date & Time unloaded: _____

Method of unloading: Crane Other (specify): _____

Tank inspection after unloading: Are tanks free of damage? Yes No

Describe damage if any: (Notify your despatcher and Envirotank plant if there is any damage) _____

Describe any problems in making this delivery and/or in unloading: _____

Items Delivered: Number of tanks / Number of sumps / Number of dipsticks / Number of lids
 Number of straps / Number of other accessories / Total pieces delivered including tanks

Reservoir readings: Tank 1: _____ Tank 2: _____ Tank 3: _____ Tank 4: _____ Tank 5: _____ Tank 6: _____
(for Double Wall Tanks only)

Chocking Used: Foam Other (describe): _____

If customer or representative is at delivery site, obtain signature on delivery receipt: Yes No Signature: _____

Customer Note: If your representative was not at job site at the time of delivery, inspect your tank(s) immediately and report any shortage or damage to carrier or Envirotank within 24 hours after delivery.

Customer: Please inspect your tank thoroughly for noticeable damage and complete this section.

1. Agree with driver's report above?

Yes No

2. Ribs crushed or broken?

Yes No

3. Are stones or other hard debris at unloading spot in contact with tank shell wall?

Yes No

4. End caps inspected for apparent damage?

Yes No

5. Acceptance of tank(s)?

A. in apparent good condition Yes

or B. with definition of damage Yes

Please sign below:

Customer's Representative: _____

Customer's Representative: _____

Title: _____

Company: _____

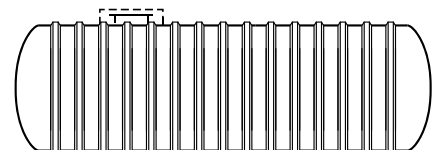
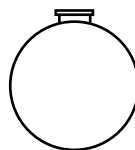
If damaged:

Indicate position of damage:

Tank No. _____

Tank Size: _____

If damaged between ribs, which ribs? _____



(e.g. between 2nd and 3rd ribs near manhole end of tank.)

Driver's signature: _____ Driver's name (please print): _____ Date: _____

Carrier: _____