JoJo
FOR WATER FOR LIFE

Installation Instructions and Best Practise Guidelines for Underground Tanks.

January 2026

To keep your warranty valid, septic, conservancy, and underground water tanks must be installed, used, and maintained as specified in this document.

Contents

Introduction

JoJo offers a warranty on septic and conservancy tanks used in standard applications to full integrity or retention from the date of purchase for a period of ten (10) years.

To maintain the validity of this warranty, tanks must be installed, used, and maintained strictly according to the guidelines provided in this document. Failure to do so may result in the warranty being voided.

Important: Underground tanks are engineered specifically for below-ground use and should not be installed above ground under any circumstances.

1. Scope of This Document

This document provides installation guidelines and best practices for JoJo tanks designed for underground use, including:

- Septic tanks
- Conservancy tanks
- Underground water storage tanks

2. Background, Context and Disclaimers

2.1. Legal Compliance

It is the client's responsibility to ensure that the JoJo solution complies with all relevant local bylaws, development guidelines, and body corporate regulations. JoJo is available to assist in explaining system functionality and performance to the relevant authorities, if required.

2.2. Geotechnical Disclaimer

The geotechnical information in this document is intended for general guidance only. JoJo does not provide expert geotechnical advice. If there are concerns about non-benign founding conditions—such as a high-water table, clay-rich soil, or poor bearing capacity—the client must consult a qualified civil or geotechnical engineer.

2.3. Depth Restrictions and Overhead Traffic

These installation instructions apply to installations with a maximum burial depth of 500 mm (measured from the surface to the top of the inlet pipe). If a deeper installation is required, appropriate load-bearing structures must be designed and implemented in consultation with a qualified civil or geotechnical engineer.

Underground tanks must also be protected from excessive foot traffic and animals. If this is a concern, install suitable fencing to restrict access. **In addition, underground tanks cannot tolerate vehicular traffic.** Where vehicle access is unavoidable, appropriate loadbearing structures must be installed to handle the additional loading of vehicular traffic.

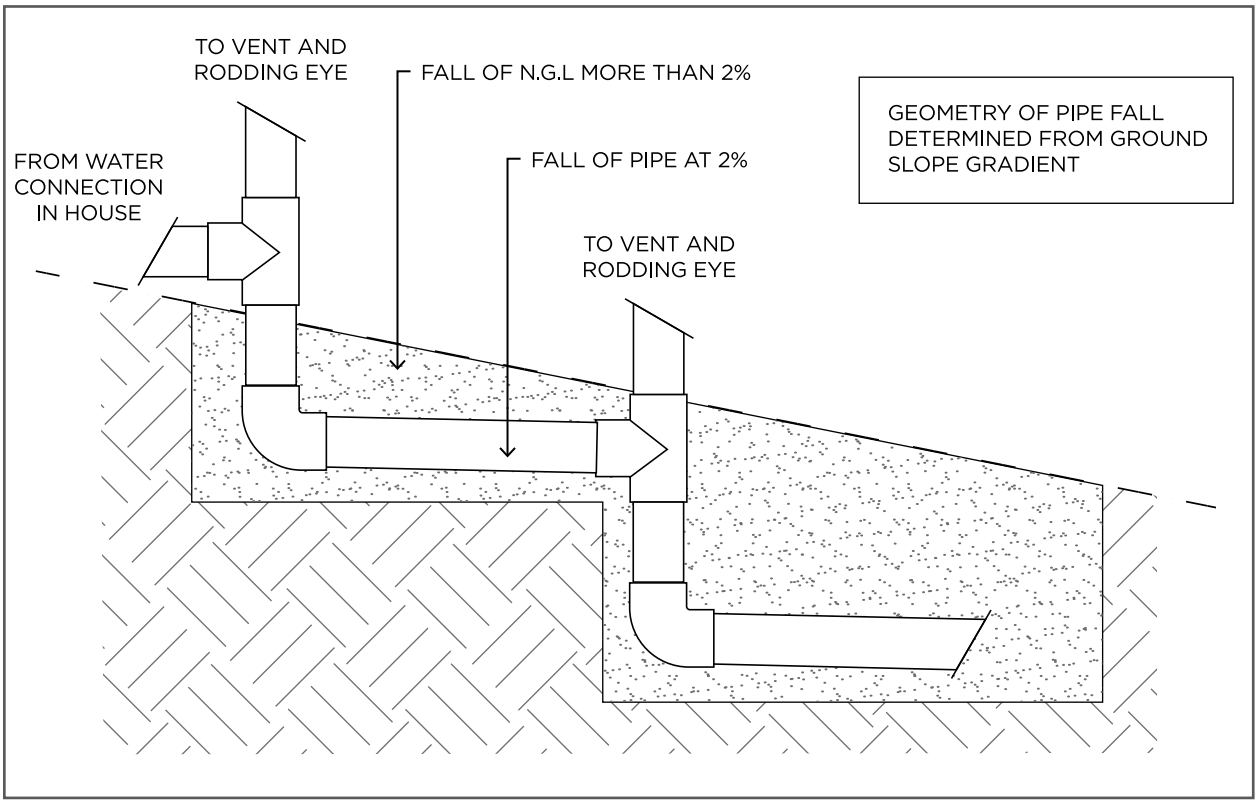
3. The Incoming Sewer Line

Connect the incoming sewer line to the supplied 110 mm inlet using correct workmanship and standard plumbing practices.

3.1. Slope Requirements

- **Proper Slope:** Maintain a consistent downward slope of approximately 2% (i.e., a fall of 1:40 to 1:60) to facilitate gravity flow and prevent blockages. This ensures that liquids and solids flow together.
- **Steeper Slopes:** If the terrain has a fall greater than 2%, refer to the drawing below for guidance on managing the slope to avoid water outrunning solids.

Refer to page 4 for a drawing illustrating the above.



DWG 1 : Solution for dealing with a gradient more than 2%.

3.2. Connection Guidelines

- **Secure Connections:** Use appropriate fittings and couplings to ensure leak-proof, secure connections between the sewer line and the tank inlet.
- **Recommended Materials:** Suitable pipe and fitting materials include uPVC, PVC, and ABS.
- **Installation Tip:** When installing Geberit fittings, use soft soap or a suitable equivalent to reduce the force required for pipe insertion.
- **Glued Joints:** If glued joints are used, always follow the manufacturer's specifications and recommended gluing procedures.

4. Interconnecting Pipework

JoJo supplies the interconnecting pipework from the tank's inlet to its outlet, as defined within the scope of our services.

Any pipework required before the inlet or after the outlet remains the client's responsibility. Please ensure the following:

- **Proper Alignment:** Pipework must be correctly aligned to prevent stress, misalignment, and potential leaks or failures.
- **Correct Couplings and Fittings:** Use appropriate couplings, seals, and fittings to ensure secure, leak-proof connections.
- **Geberit Fittings Installation:** When installing Geberit fittings, use soft soap or a suitable equivalent to reduce the force required for pipe insertion.
- **Glued Joints:** If glued joints are used, always follow the manufacturer's specifications and recommended gluing procedures.

5. Choosing the Site

Careful consideration must be given to the tank's location to ensure safety, accessibility, and long-term performance.

5.1. Coordination with Stakeholders

Engage all relevant stakeholders—including utility providers, property owners, and local authorities—to confirm awareness of the planned excavation and to coordinate accordingly.

5.2. Regulatory Compliance

- Adhere to all local regulations, including minimum setback distances from existing structures and underground services.
- Secure all required permits and approvals before beginning excavation.

5.3. Location and Space Planning

- **Avoid Vehicular Areas:** Do not install tanks where they may be exposed to vehicular or heavy equipment traffic.
- **Identify Underground Services:** Clearly mark any underground utilities (e.g., telecom cables, electrical lines, water and sewer pipes, gas lines) prior to excavation to avoid accidental damage.
- **Spoil Management:** Ensure there is adequate space for both the excavation and for placing spoil piles—at least 1 metre away from the excavation edge.
- **Safe Access:** Plan for safe entry and exit points within the excavation, such as ladders or access ramps.

5.4. Installation on Slopes

When installing tanks on sloped ground, construct **bunt walls** around the tanks to prevent soil erosion and potential landslip. These walls must be built directly on the tank foundation using appropriate, accredited building materials.

Refer to page 6 for a drawing illustrating the above.

5.5. Geotechnical Considerations

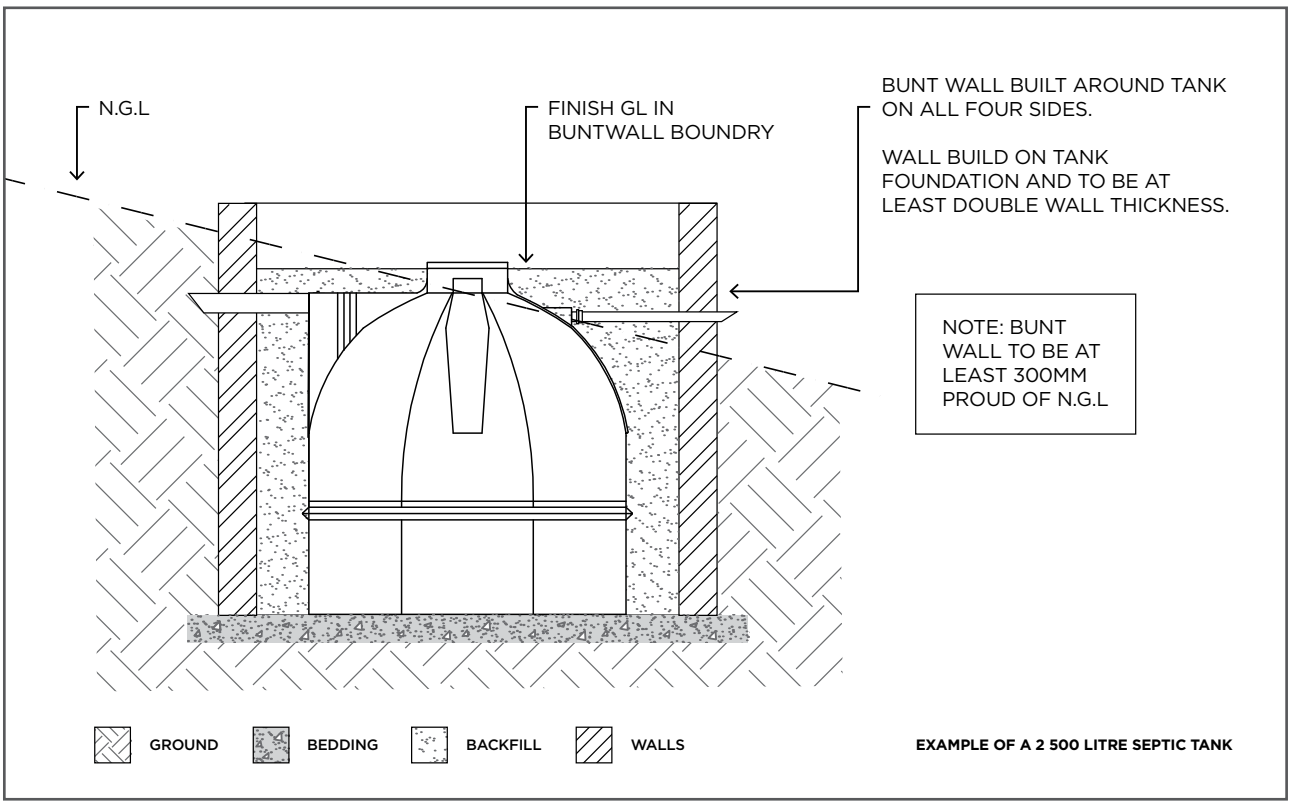
Where possible, avoid installing the tank in the following conditions:

- In water-saturated clay or areas with a high-water table
- In locations prone to frequent flooding
- Where the depth to bedrock is less than 2.5 metres
- The tank must be installed on **soil with a minimum bearing capacity of 120 kPa.**
- If the bearing capacity cannot be accurately determined on site, a basic soil classification method may be used to assess suitability. This classification can also help guide the selection of appropriate backfill material.

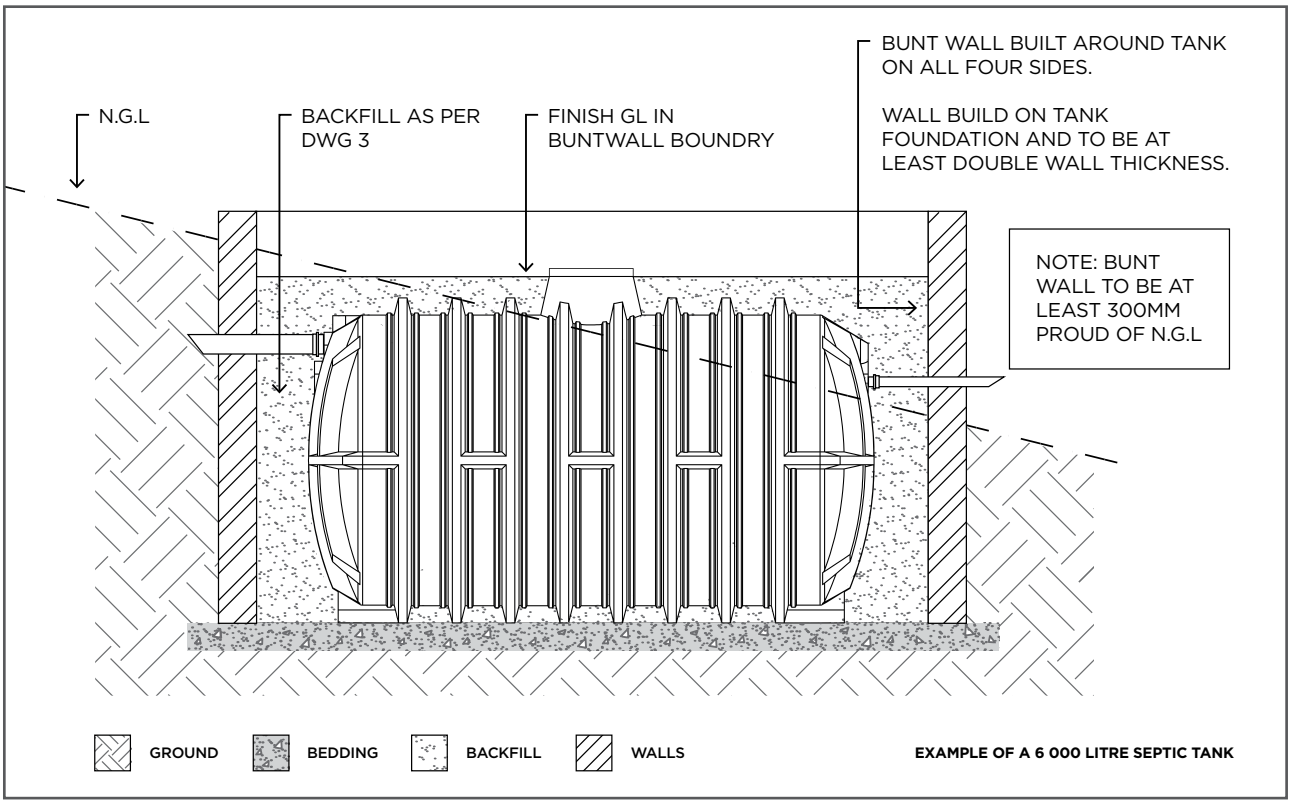
Important: This is advice and guidance and not professional engineering advice, please refer to the disclaimer in paragraph 2.2

5.5.1. Table 1: Soil Classification Table

Category	Visual Appearance	Squeezed in Hand and Pressure Released	Bearing Capacity
Rock	Rock, Slate, Shale, etc.	N/A	Sufficient
Coarse-grained Soils			
Gravel	Coarse to very coarse Small stones and particles	Free-flowing	Sufficient
Sand	Granular appearance Individual grain sizes can be detected Free-flowing when dry Lighter to brownish colours	Will not form a cast when dry and falls apart	Coarse and medium sand is sufficient
		Wet cast will crumble when lightly touched	Fine sand is insufficient
Fine-grained Soils			
Silt	Very little fine sand. Cloddy when dry. Readily pulverizes to powder when dry into soft flourlike feel Darker colours (green, blue, black)	Cast can be handled without breaking Readily puddles when wet	Insufficient
Clay	Fine textured Breaks into very hard lumps when dry Difficult to pulverize into a soft flourlike powder Cohesive when moist Shrink when drying Darker colours (green, blue, black, orange)	Cast can be freely handled without breaking	Hard homogenous clay may be sufficient Clay mostly insufficient
Highly Organic Soil	High organic content (often decomposed) Plant remains or woody structure can easily be recognized Mineral soil finely divided with some fibrous remains Occur in lowlands, in swamps or swales Dark or black in colour		Insufficient



DWG 2 : Solution for an underground tank that needs to be placed on a steep slope_Smaller Septic Tank Range



DWG 3 : Solution for an underground tank that needs to be placed on a steep slope_6000 Litre Septic Tank

6. Excavation

Note: If groundwater is present in the excavation, it must be continuously pumped out throughout the installation process to ensure a stable and dry working environment.

6.1. Excavation Dimensions

- The excavation must be a **minimum of 400 mm (40 cm) wider on all sides** of the tank to allow for safe and proper installation.
- The **maximum installation depth** from natural ground level **(NGL) to the top of the tank inlet must not exceed 500 mm.**

6.2. Bedding Requirements

The type and thickness of bedding will depend on site conditions and the application. Follow the appropriate guidelines below:

A. Rocky Soils / Presence of Large Rocks

- Remove all large and loose rocks or debris that may compromise the tank or bedding.
- Use a minimum of 150 mm of crusher dust or a coarse sand/gravel mix (increase bedding thickness where needed to level out uneven areas).

B. Gravel or Coarse Sand (Dry Installation – No Groundwater)

- Bedding to be 150 mm crusher dust or a coarse sand / gravel mixture.
- Stabilise the bedding using cement in a 1:10 mix ratio — 1 bag of cement to 10 bags of gravel.
- Evenly spread the dry cement mixture, then compact thoroughly using a mechanical compactor.
- Do not wet the cement mixture. Natural soil moisture will activate it over time.
  - If the soil is too dry to form a lump when pressed in your hand, add a small amount of water. The lump should still crumble easily when lightly touched.

C. Soft In-situ Soil (Fine Sand, Silt, or Clay – Dry Installation with No Groundwater)

- Install two 150 mm bedding layers of crusher dust or coarse sand/gravel mix.
- Stabilise each bedding layer using a 1:10 cement mix ratio — 1 bag of cement to 10 bags of gravel.
- Evenly spread the dry cement mixture, then compact thoroughly using a mechanical compactor.
- Do not wet the cement mixture. Natural soil moisture will activate it over time.
  - If the soil is too dry to form a lump when pressed in your hand, add a small amount of water. The lump should still crumble easily when lightly touched.

D. Wet Installation (Presence of Groundwater)

- Start with a 150 mm drainage layer of 19 mm crushed rock, blended with crusher dust or coarse sand.
- Add a 150 mm bedding layer of crusher dust or coarse sand/gravel mix.
- Stabilise each bedding layer using a 1:10 cement mix ratio — 1 bag of cement to 10 bags of gravel.
- Evenly spread the dry cement mixture, then compact thoroughly using a mechanical compactor.
- Do not wet the cement mixture. Natural soil moisture will activate it over time.
  - If the soil is too dry to form a lump when pressed in your hand, add a small amount of water. The lump should still crumble easily when lightly touched.

Important: Ensure the base of the excavation is 100% level and horizontally even in both directions before placing the tank.

6.3. Placing Tanks

Tank Placement

Carefully place the tank on top of the prepared bedding in the designated excavated area. **Note:** the direction of flow (inlet) and place according to setup.

Linking Tanks in Series or Parallel.

Important: For smaller installations, we recommend avoiding mass excavations (one large hole for multiple tanks). For larger or more complex installations, a single excavation is often the most suitable approach. In such cases, please ensure you follow the guidelines provided in this document.

- **Water Storage Applications:**
  Linking two or more tanks is possible and relatively straightforward, allowing increased storage capacity or flexible installation layouts.

- **Septic Tanks:**
  Septic tanks are sometimes connected in series to increase total system capacity, retention time, and overall performance. However, these configurations add complexity and introduce additional risks. Such designs must be completed by a qualified onsite wastewater treatment specialist.
- **Conservancy Tanks:**
  Conservancy tanks may be linked to expand capacity, but multiple connections increase the risk of pipeline blockages and system failure. Designs involving connected conservancy tanks should be undertaken by an expert in onsite wastewater treatment.
- **Tank Spacing:**
  Individual tanks that are not part of a modular tank system must be installed at least 400 mm apart, ensuring adequate space for proper backfilling as outlined in Section 7.

7. Backfill

important: Before commencing the backfilling process, fill the tank with water gradually, following the ratios specified below. **Do not fill the entire tank at once.**

This helps stabilise the tank and prevents movement or deformation during installation. In areas with high water tables, it is strongly recommended to secure the tank with straps to minimise the risk of shifting or flotation during backfilling.

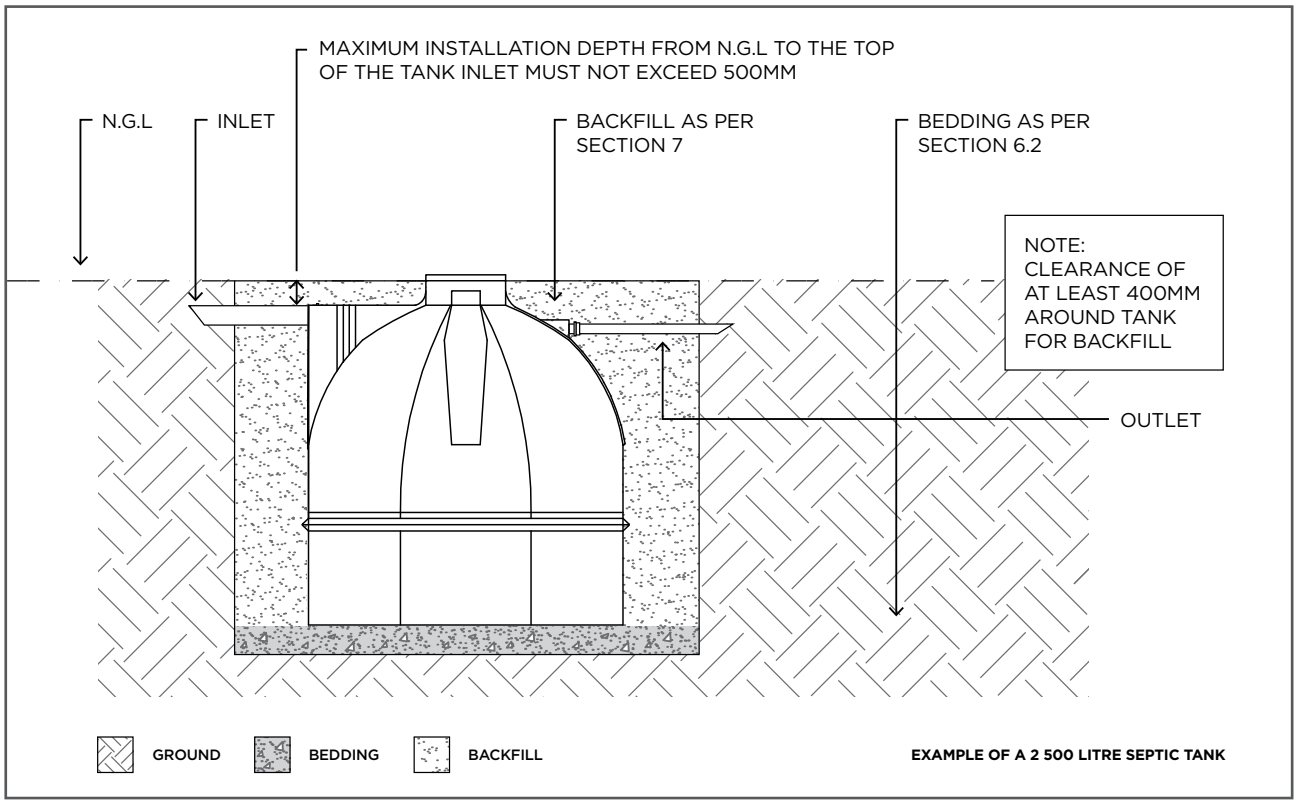
7.1. Backfill Procedure

- **Compaction:** Only hand compaction is permitted. Do not use mechanical compaction equipment, as this may damage the tank.

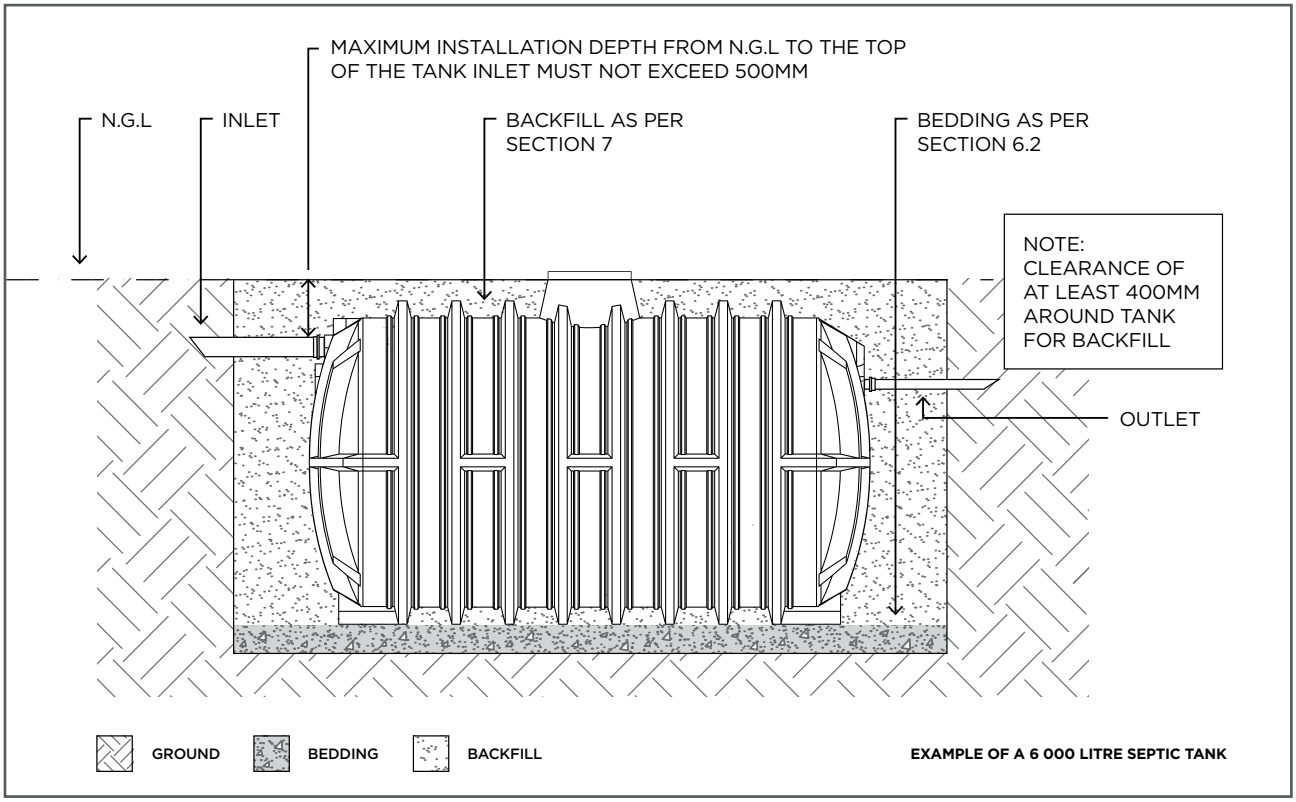
Step-by-Step Process:

- **Step 1:**
  Fill the tank with water to one-third (1/3) of its total capacity. Backfill around the tank up to that same level.
- **Step 2:**
  Fill the tank with water to two-thirds (2/3) of its total capacity. Continue backfilling to match the water level.
- **Step 3:**
  Fill the tank completely to the top with water. Complete the final backfill to cover and secure the tank.

Important: *Refer to section 7.3 for correct backfill process and compaction.*



DWG 4 : Complete installation showing bedding layer and backfill_Smaller Septic Tank Range



DWG 5 : Complete installation showing bedding layer and backfill_6000 Litre Septic Tank

7.2. Backfill Material

One of the most critical aspects of the installation is proper backfill material.

Suitable Material

Use coarse river sand or a sand/gravel mixture with:

- No particles larger than 20 mm
- At least 50% of particles smaller than 5 mm

For Underground Septic Tanks

- Mix 1 part cement with 5–7 parts river sand (dry mix)
- Alternatively, use a soilcrete mix of 5% cement and 95% inert granular material

For Underground Conservancy Tanks

- Mix 1 part cement with 5 parts river sand for the bottom half
- For the top half, use a mix of 1 part cement to 7 parts sand
- Alternatively, use a soilcrete mix of 11% cement and 89% inert granular material

7.3. Process and Compaction

Note: Proper compaction is defined as 93% Mod. AASHTO at Optimum Moisture Content (OMC). Use a hardwood pick handle dropped from 300 mm to test compaction:

- A ‘ping’ sound indicates proper compaction
- A dull sound indicates further compaction is needed

First Layer:

- Fill around the perimeter of the tank with suitable backfill material
- Maximum layer thickness: 300 mm
- Compact to 93% Mod. AASHTO at OMC

Subsequent Layers (up to invert of inlet/outlet pipes)

- Continue in 150 mm layers
- Compact each layer to 93% Mod. AASHTO at OMC

From Invert to Natural Ground Level (NGL):
- Once backfill reaches the underside of the pipes, connect inlet and outlet
- Place tank lids in position
- Continue backfilling until level with the surrounding ground
- Compact carefully by hand only—no machinery
- Ensure a maximum of 300 mm of the lid extensions remains visible above NGL

Final Dressing
- **Important:** Shape the soil over the tank to allow for positive drainage away from the installation.

8. Soakaway

A soakaway (also called a French drain or leach field) allows treated wastewater from a septic system to percolate into the surrounding soil for further biological treatment and sanitation.

The suitability of a septic tank and a soakaway is dependent on several factors, such as soil type, rate of percolation, presence of groundwater and housing density/sewage generation in the area

Important:
- **A soakaway must be properly sized** based on daily wastewater flow (use percolation test per SANS 10400-P)
- **Suitable soil types:** loamy or sandy
- **Unsuitable conditions:** high groundwater table, clay soil, rocky terrain, or dolomitic areas (due to sinkhole risk)

Types of Soakaways
- **Traditional soakaways** consist of one or more trenches excavated into the subsoil that is filled with rocks or other bulky inert matter and a series of pipes punctured with holes. This allows seepage to take place, and the effluent to gradually soak away into the ground.
- **Infiltration Chambers** are more cost-effective and less invasive alternatives, that greatly increase the efficiency of the post septic tank treatment. They allow for the formation of a biological carpet or mat (bio-mat) of bacteria, which further digest any organic material still in the waste stream. As the bio-mat continues to grow, microbes in the soil consume it, developing a mini ecosystem within the subsoil. The result is a highly treated secondary effluent.

Connection of Soakaway to Septic Tank
- Standard practice is to use a 50 mm PVC pipe to connect the septic tank outlet to the soakaway
- Some wastewater practitioners prefer the use of a 110 mm PVC pipe to connect to a soakaway
- The JoJo septic tanks allow for both alternatives

8.1. Guidelines for Traditional Soakaway

Many local practices and unique systems have evolved for the construction and sizing of traditional soakaways. Many of these have been developed by trial and error and subject to local materials available. This document does not provide any recommendations in this regard. JoJo strongly recommends the use of infiltration chambers for Soakaways.

8.2. Infiltration Chamber Guidelines

JoJo recommends the infiltration chamber solution from Envirosan called an EaziSoak™. The information below is replicated from the guidelines provided by Envirosan.

The EaziSoak™ is a modular, easy to install, plug-and-play soakaway system that replaces the conventional fabric, stone, and perforated pipe soakaway, French drain, and leach/drain field application. The EaziSoak™ is designed to generate a much larger percolation area compared to a conventional soakaway system, resulting in improved dispersion of the liquids over a smaller footprint whilst maintaining the required percolation capacity.

Sizing

When sizing the soakaway please refer to the table on page 11 for guidance.

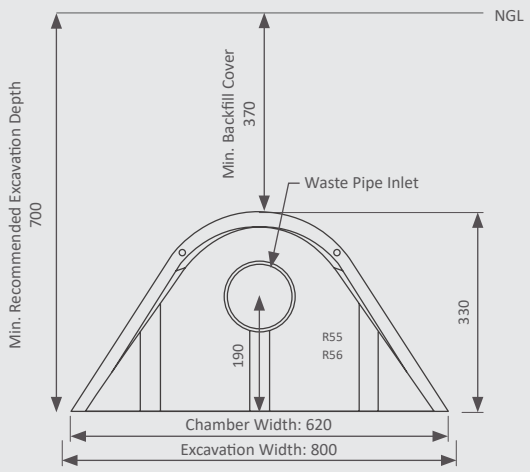
Infiltration Chamber Size Guide

Percolation Rate: Ave. time for a 25mm water level fall measured in minutes (Test hole: 300mm diameter circle or square - min 300mm deep)	Septic Tank for 3 bedroom house with full pressure water connection (900L per day) **Trench Excavation 800mm wide x 700mm deep**		Septic Tank for 5 bedroom house with full pressure water connection (1400L per day) **Trench Excavation 800mm wide x 700mm deep**		Septic Tank for low cost housing (76L per person per day @ 6 occupants) (456L per day) **Trench Excavation 800mm wide x 700mm deep**	
	No. Chambers	**Trench Length (meters)**	**No. Chambers**	**Trench Length (meters)**	**No. Chambers**	**Trench Length (meters)**
0-3min	10	7,00	16	10,72	5	3,90
3-5min	10	7,00	16	10,72	5	3,90
6-10min	12	8,24	18	11,96	6	4,52
11-15min	16	10,72	22	14,44	7	5,14
16-20min	20	13,20	30	19,40	7	5,14
21-26min	24	15,68	40	25,60	8	5,76
27-30min	32	20,64	50	31,80	9	6,38
Over 30min	**NOT RECOMMENDED**					

Installation

- Set out the area for trenching – Excavation width of 800 mm and the estimated length according to the table above.
- Excavate the trenches a depth of no less than 700 mm deep
- Remove any large stones from the bottom of the trench
- Rake the bottom of the trench and ensure that the trench is level/ slightly sloping downwards
- Place the inlet endcap first and cut out the required inlet position where the waste pipe will be connected to the endcap (designed to fit a standard 110 mm or 50 mm waste pipe)

Example of a Typical Installation of EaziSoak



Typical equipment required when installing a soakaway include:

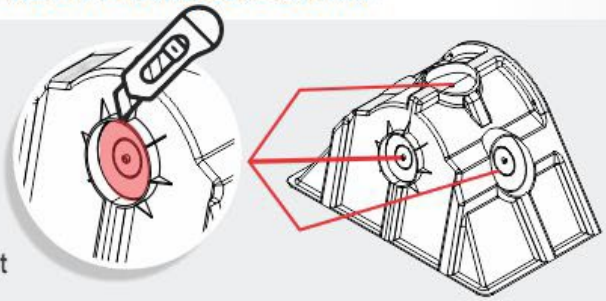
- TLB backhoe or bulldozer
- Levelling and measuring equipment
- Shovel and rake
- Utility knife

When assembling the EaziSoak™ use the schematic on the next page for guidance.

EAZISOAK™

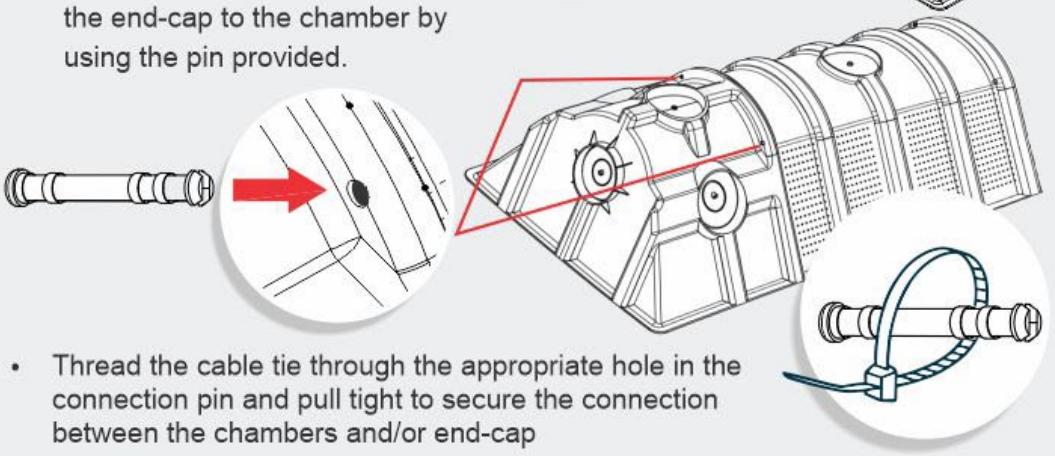
THE ALL-IN-ONE DIY DRAINAGE SOLUTION

INSTALLATION

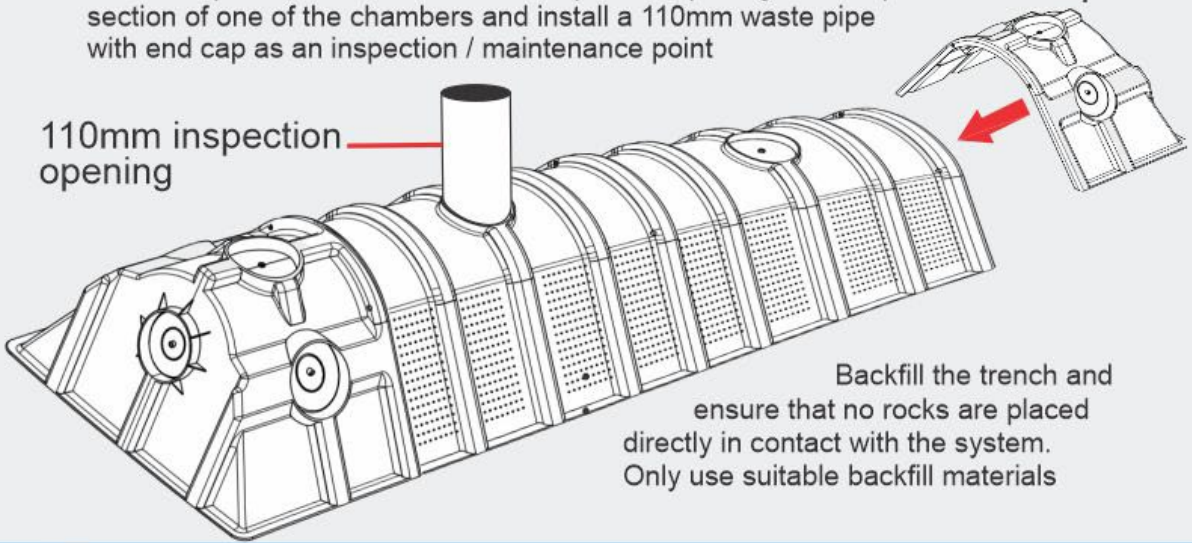


cut out the required inlet position

- Place the chamber and connect the end-cap to the chamber by using the pin provided.



- Thread the cable tie through the appropriate hole in the connection pin and pull tight to secure the connection between the chambers and/or end-cap
- Carry on connecting all required chambers in the same manner as per above and ensure that they are all level or have the prescribed downward slope
- Once all chambers are installed and connected, place the final end-cap in position and connect (Do not cut out any of the 110mm openings if no pipework will be connected)
- Where required, cut out the 110mm inspection opening in the top section of one of the chambers and install a 110mm waste pipe with end cap as an inspection / maintenance point



Backfill the trench and ensure that no rocks are placed directly in contact with the system. Only use suitable backfill materials

Thank you for choosing JoJo. If there is anything that you are unsure about or need assistance with, please do not hesitate to contact us.