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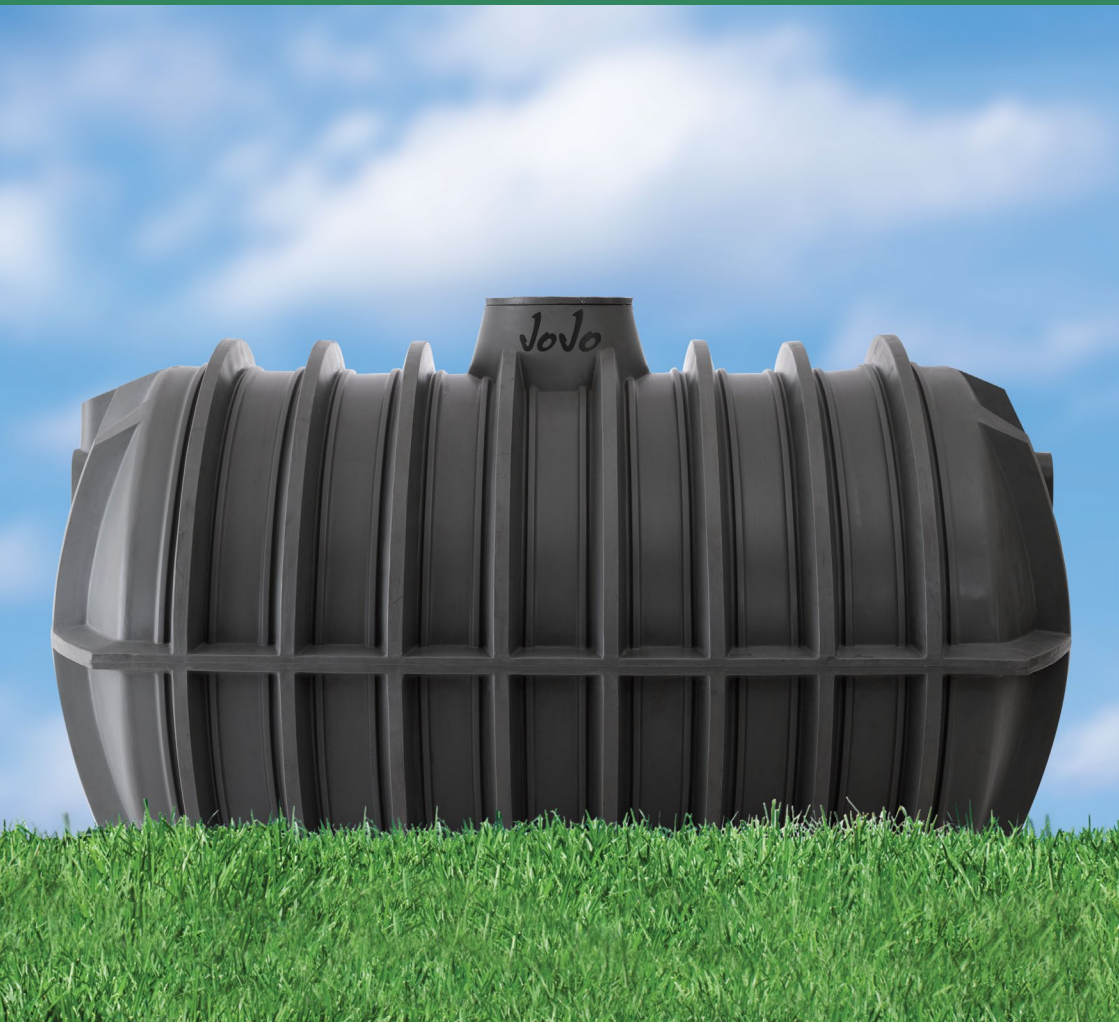
Septic and Conservancy Tank

Installation Guide | April 2021



TAKE CONTROL OF YOUR SANITATION

SIMPLY CHOOSE THE SYSTEM BEST SUITED FOR YOU

SOURCE

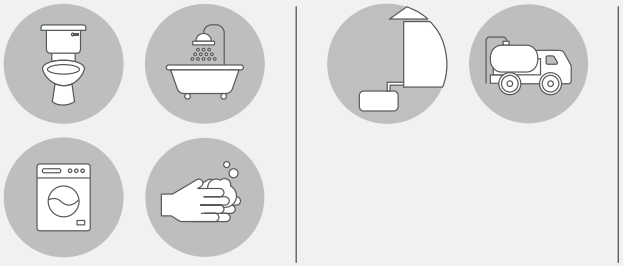
BASIC REQUIREMENTS

01

Conservancy tank

The installation of a conservancy tank used for the disposal of both black and grey water. It requires that the waste be pumped out routinely/whenever the tank is full.

- Tank filled with black & grey water
- Chemical resistant
- Tank used for temporary storage
- Pumped out with honey-sucker, sludge pump or centrifugal pump

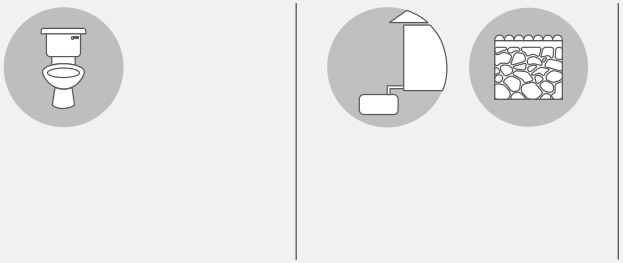


02

Septic tank

The installation of a septic tank used for the disposal of sewerage. It brings about the digestion of organic matter and discharges the black water into a French Drain to soak away into the ground over time.

- Tank filled with sewerage only
- No soap water
- Biodegradation process occurs
- Runs into a French drain



CONSERVANCY & SEPTIC TANK RANGE

6 000L
Septic/Conservancy

Diameter	1 950mm
Height	2 080 mm
Length	3 330 mm

Smaller Range

Size	Diameter	Height	Lid
1 250 L	1 550mm	1 190mm	290mm
1 500 L	1 550mm	1 280mm	290mm
1 750 L	1 550mm	1 390mm	290mm
2 000 L	1 550mm	1 500mm	290mm
2 500 L	1 550mm	1 710mm	290mm

PART 1

1. Tank placement

The location of a septic/conservancy tank should be considered and it must be placed on soil with a bearing capacity greater than 120 kPa.

2. Avoid installing the tank

- In water saturated clay or an area that is frequently flooded
- Where depth to bedrock is less than 2.5m
- In the path of vehicles/heavy equipment
- Where underground services are expected (i.e. electric cables, water and sewer pipes, gas lines, etc.)

If bearing capacity cannot easily be determined, use the provided method of soil classification, which will also assist in determining suitable backfill material.

SOIL CLASSIFICATION TABLE

***This is applicable to both Conservancy and Septic tanks**

Category		Bearing capacity	Visual appearance	Squeezed in hand & pressure released
Rock	✓	- Sufficient	- Rock, Slate, Shale etc.	-
Coarse-grained soil **Gravel**	✓	- Sufficient	- Coarse to very coarse - Small stones & particles - Free-flowing	-
Sand	✓ ✗	- Coarse/ Medium sand is Sufficient - Fine sand is NOT Sufficient	- Granular appearance (individual grain sizes detectable) - Free-flowing when dry - Lighter to brownish colours	- Won't form a cast when dry & falls apart - Wet cast crumbles when lightly touched
Fine-grained soil **Silt**	✗	- NOT Sufficient	- Very little fine sand - Cloddy when dry & soft flourlike feel - Readily pulverises to powder - Darker colours (green, blue & black)	- Cast can be handled without breaking - Readily puddles when wet
Clay	✗	- Hard homogeneous clay may be Sufficient - Clay is mostly NOT Sufficient	- Fine textured, breaks into very hard lumps when dry - Difficult to pulverize into soft flourlike powder - Cohesive when moist & shrinks when drying - Darker colours (green, blue, black & orange)	- Cast can be freely handled without breaking
Highly organic soil	✗	-NOT Sufficient	- High organic content (often decomposed) - Plant remains/woody structure easily recognised - Mineral soil finely divided with fibrous remains - Occur in lowlands, swamps & swales - Dark or black in colour	-

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PART 2

***This is applicable to both Conservancy and Septic tanks**

1. EXCAVATION PROCESS

When excavating be aware of:	Location	Description	Excavation depth
a. The Surroundings Take care not to damage any underground services (telecommunication, electrical cables, water/sewer pipes, gas lines, etc).	Soft in-situ soil	- Fine sand, silt or clay	Min 420mm / max 720mm deeper than the tank's height
b. The Natural Elements If ground water is present in excavation hole, continuously pump out the water during the installation process.	Non-load bearing	- No ground water will affect the tank - No traffic will pass over the site	Min 120mm / max 720mm deeper than the tank's height
	Load bearing	- Ground water will affect the tank - Traffic will pass over the site	Min 420mm / max 720mm deeper than the tank's height

Use the table provided to assist with the appropriate excavation depth relative to the setup.

Allow between 300mm to 600mm on all sides of the tank. Use the table provided to assist with the appropriate excavation depth relative to the setup.

2. PREPARE THE TANK BED

Type	Thickness	Process
a. Rocks/Rocky Soils	- Minimum 150mm crusher dust or a coarse sand/gravel mixture - Bedding to be thicker where hollows or uneven areas are levelled out	- Remove all large/loose rocks and objects that could interfere
b. Dry Installation Gravel/Coarse Sand (no ground water)	- 150mm crusher dust or a coarse sand/gravel mixture - Stabilise bedding layer with 3% cement (1½ bags 50kg cement)	- Spread cement evenly and compact, using mechanical compactor - Do not wet cement, as the natural moisture from the ground will do this over time - If the soil is too dry to form a lump when pressed in your hand, add a little water but ensure lump still crumbles when lightly touched
c. Dry Installation Soft in-situ soil - fine sand, silt or clay (no ground water)	- 2 x layers of 150mm crusher dust or a coarse sand/gravel mixture each - Stabilise bedding layer with 3% cement (1½ bags 50kg cement)	- Spread cement evenly and compact, using mechanical compactor - Do not wet cement, as the natural moisture from the ground will do this over time - If the soil is too dry to form a lump when pressed in your hand, add a little water but ensure lump still crumbles when lightly touched
d. Wet Installation (ground water will affect the tank)	- Drainage bedding layer of 150mm crushed rock (19mm), use crusher dust or a coarse sand to bind, followed by - 150mm crusher dust or a coarse sand/gravel mixture - Stabilise bedding layer with 3% cement (1½ bags 50kg cement)	- Spread cement evenly and compact, using mechanical compactor - Do not wet cement, as the natural moisture from the ground will do this over time - If the soil is too dry to form a lump when pressed in your hand, add a little water but ensure lump still crumbles when lightly touched

The bedding is the foundation on which the tank will be installed. The type and thickness of bedding will vary, choose the correct process relevant to your setup.

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CONSERVANCY TANK

FOR A BASIC SYSTEM YOU WILL REQUIRE THE FOLLOWING

1. Tank
Underground/conservancy tank - size as required. All conservancy tanks come standard excluding fittings.

2. Pipes - 110 mm SV pipes
Lengths will vary based on installation.
2a.From feed from house to the first elbow
2b.From first elbow to elbow extending out of the tank

3.Elbow - 110 mm
According to pipes

Choose a tank	
The volume required will depend on how often the tank will be pumped out and how many people will use the facilities on a daily basis.	
To estimate what size is required:	
Hand/Face wash	± 1 - 4 L
Toilet flush	± 3 - 7 L
Bath	± 50 - 150 L
5 min shower	± 80 L
5 kg laundry	± 80 L

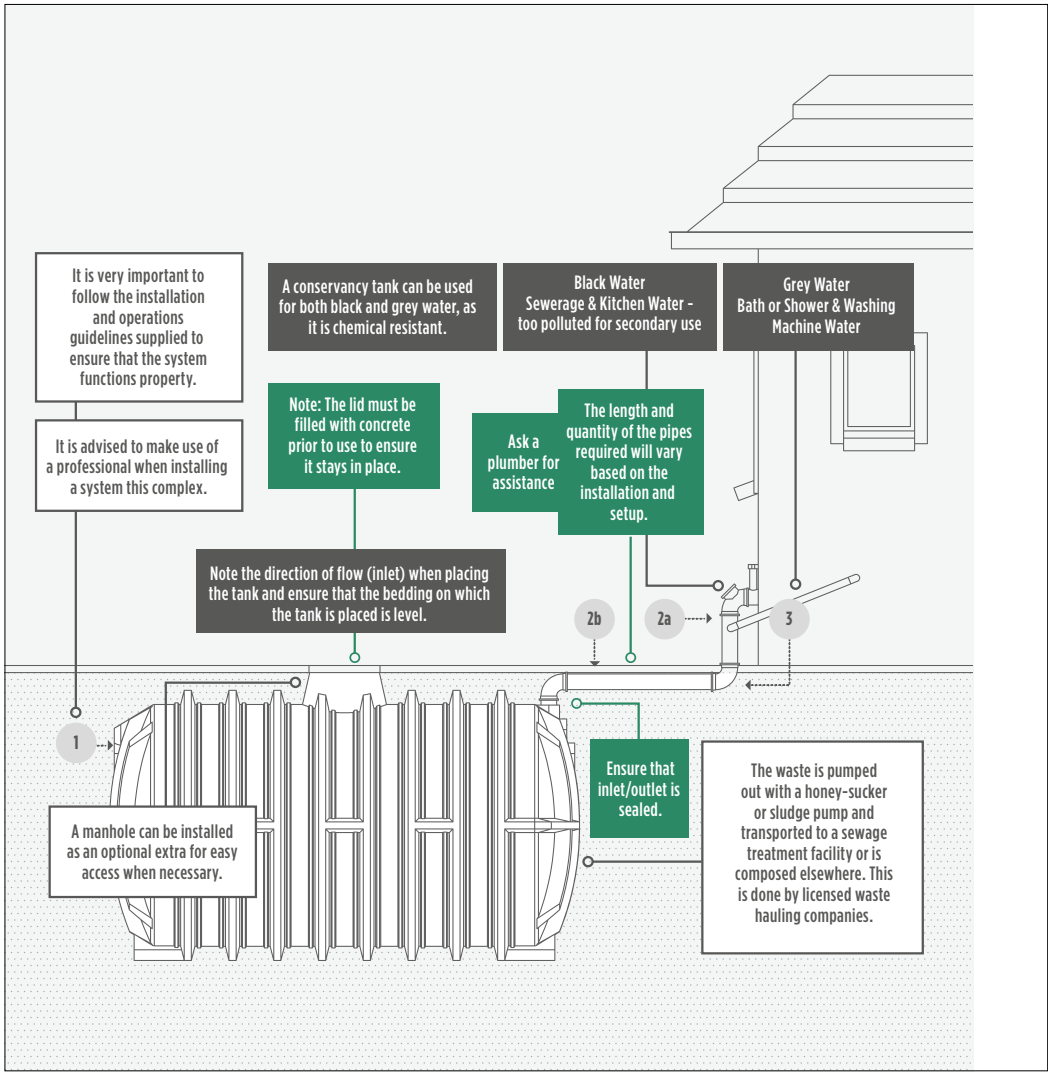
Note: This is a guideline for a basic installation. Each installation will vary based on the setup and personal preference. It is advised to make use of a professional for an installation this complex.

MORE INFORMATION

- **A conservancy system requires two crucial components to function properly, the tank itself and a sludge pump/honey-sucker to pump out the contents once the tank is full.**

  A conservancy tank presents the opportunity of disposing of both black and greywater as it is chemical resistant. The waste inside the tank is pumped out by licensed hauling companies with adequate equipment who transport it to sewage facilities or dispose of it according to current legislation.

SYSTEM COMPONENTS



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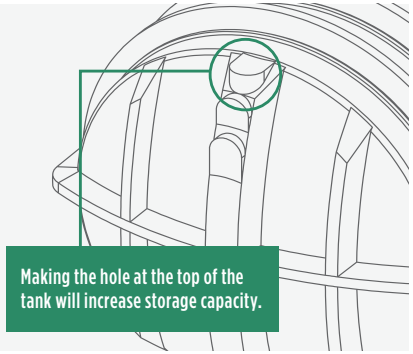
CONSERVANCY TANK: INSTALLATION

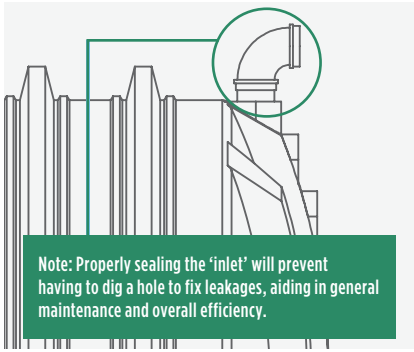
PART 1

1. Drill hole for inlet



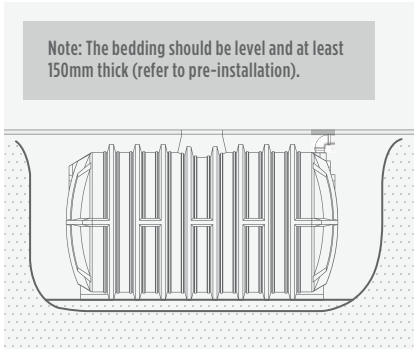
Drill a hole in the designated area (see image above) with 111mm hole saw or a jig saw for pipe to enter at the top of the tank.

2. Inlet connection



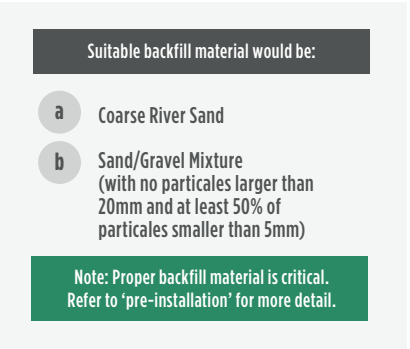
Fit pipe and elbow to inlet and seal with window putty or pan connector sealer to ensure no leakage once final installation is complete.

3. Place the tank



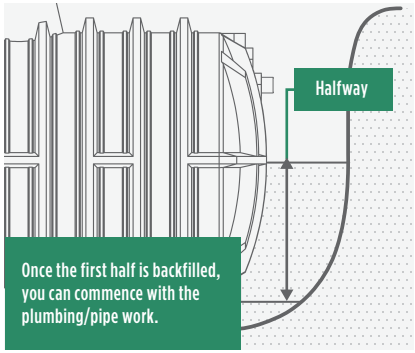
Carefully place the tank on top of the prepared bedding in the designated excavated area.
Note: the direction of flow (inlet) and place according to setup.

4. Backfill preparation



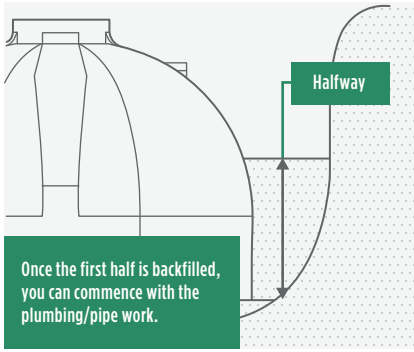
NB: the backfill procedure differs based on the size of the conservancy tank used. It is vital to follow the correct procedure to ensure the tank does not get damaged (*see steps 5 to 6*).

5. Backfill for 6000L



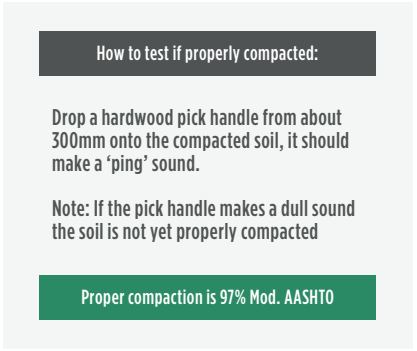
For the 6000L tank - fill the tank with 150mm of water, then backfill 150mm around the perimeter of the tank. Compact the layer and repeat the process until at least half of the hole is filled.

6. Backfill for 1250L-2500L



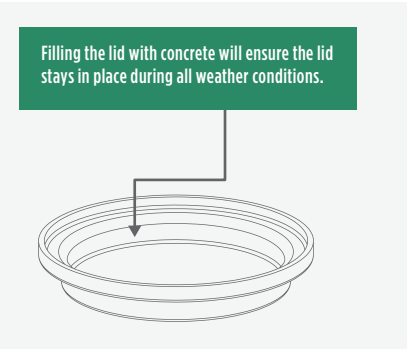
For the smaller range - fill the entire tank with water, then backfill in layers of 150mm around the perimeter of the tank, compacting each layer before laying the next. Continue until halfway.

7. Test compaction



Before commencing with the rest of the installation, it is vital to ensure that the soil is properly compacted.

8. Fill lid with concrete



Fill tank lid with concrete (allow concrete to cure) and put the lid in place.

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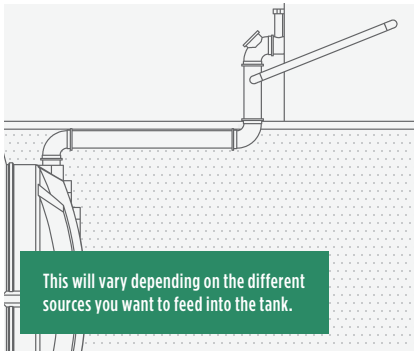
CONSERVANCY TANK: INSTALLATION

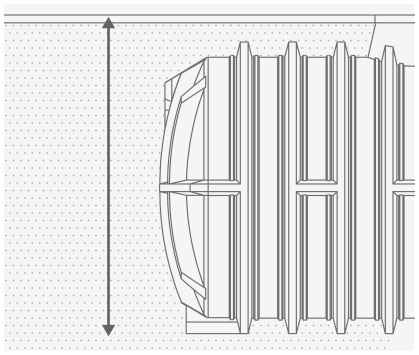
PART 2

9. Plumbing house to tank



Connect feed from house (black and grey water) to the elbow extending from the inlet at the top of the tank. It is advised to make use of a local plumber to handle all plumbing requirements.

10. Backfill 2nd half



Backfill the rest of the hole with suitable backfill material. *Refer to steps 5 to 6 to ensure correct procedure is followed* (depending on the size of the tank).

11. Recommendation

Installing a manhole enables you to:

a. Pump out the content when/as needed without hassle.

b. Easily access the tank for maintenance purposes when necessary.

Suitable material and correct installation is key to ensure proper functionality.

It is advised to install a manhole for easy access when necessary.

12. Recommendation

Locating a local hauling company in advance will:

a. Ensure you are prepared once your tank is full.

b. Avoid any unecessary delays and difficulties whilst making arrangements (as that has already been done).

Find a local licensed hauling company and keep their contact details at hand.

13. DRESSING

Location	Description
Wet Installation	- Ground water present
Non-load bearing	- No ground water will affect the tank - No traffic will pass over the site
Load bearing	- Traffic will pass over the site

The dressing over the tank will depend on various conditions. Use the table above to assist with the appropriate dressing relative to the setup.

Type & thickness	Excavation depth
Compression ballast - 450mm (prevents tank from floating when empty)	Pour 2.8m^3 grade 20 MPa concrete on top of the tank (slump around 80). This will give a ballast +- 450mm thick over the entire area of the tank
Soil - Minimum 200 mm/maximum 750 mm	Shape the soil over the top of the tank to ensure positive drainage
Concrete Slab - 150mm (necessary if vehicles will drive over the tank)	The slab should be 4.2m x 2.9 m and made with 25 MPa concrete, consisting out of two layers

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SEPTIC TANK

FOR A BASIC SYSTEM YOU WILL REQUIRE THE FOLLOWING

1. Tank
Septic tank -size as required. Standard fittings (fitted inlet and outlet) are included in the price.

2.Pipes - 110 mm SV pipes
Lengths will vary based on installation.
2a.From feed from house to the first elbow
2b.From first elbow into the tank

3.Elbow - 110 mm
According to pipes

4.French Drain
Size and backfill material will vary based on installation and preference.
4a.Corrugated iron (size according to the hole)
4b.Stones/rocks that can not disintegrate/crumble or car tyres

Choose a tank		
The volume required will depend on how many people will use the facilities on a daily basis.		
Persons	**Tank**	**Diameter**
2 - 4	1 250 L	1 550 mm
2 - 6	1 500 L	1 550 mm
4 - 6	1 750 L	1 550 mm
4 - 7	2 000 L	1 550 mm
4 - 9	2 500 L	1 550 mm

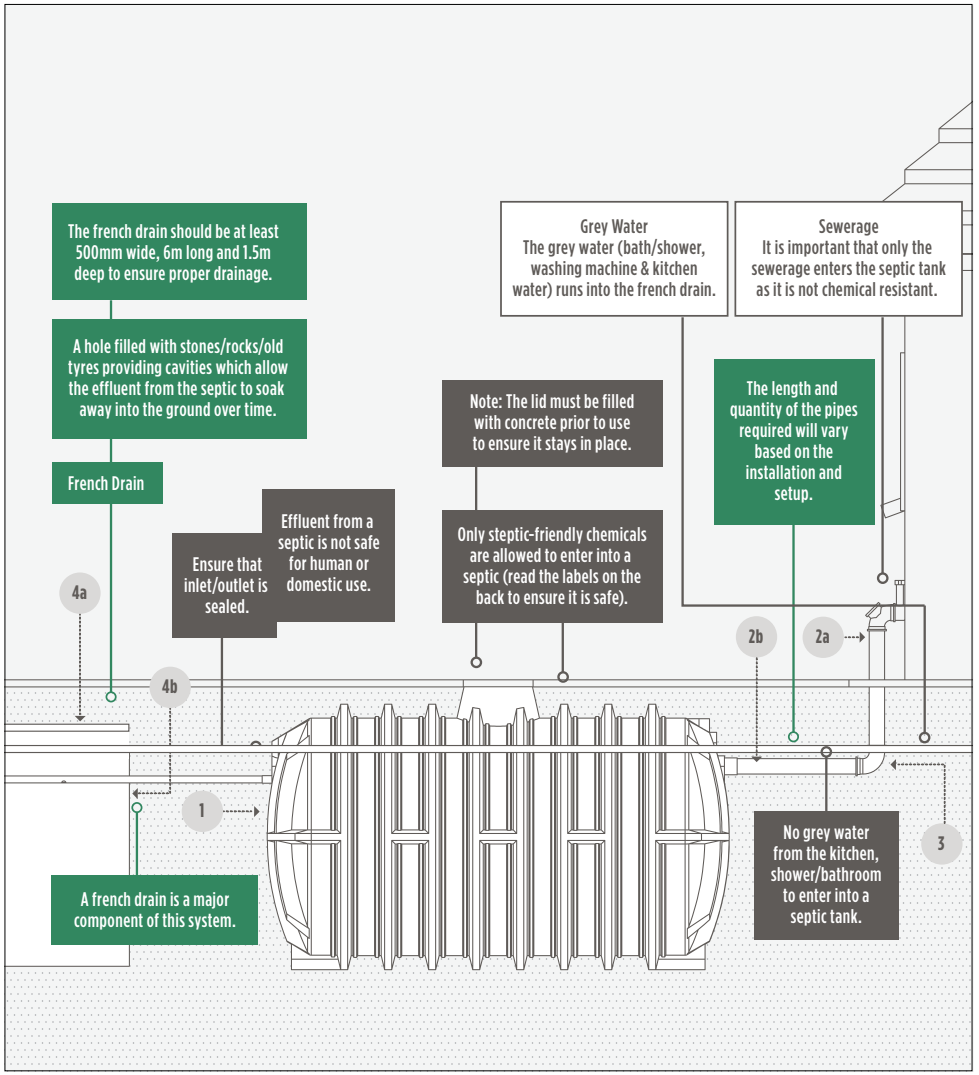
Note: This is a guideline for a basic installation. Each installation will vary based on the setup and personal preference. It is advised to make use of a professional for an installation this complex.

MORE INFORMATION

- **An efficient septic system includes two major components, the tank itself and a French Drain. It needs little maintenance as each component has a specific function and is designed accordingly.**

  The septic tank separates solids from liquids and discharges the remaining liquid into the French Drain, where it is further treated by natural microbiological processes in the soil. It is important that only septic friendly chemicals are used to clean toilets to ensure the biodegradation process functions properly.

SYSTEM COMPONENTS



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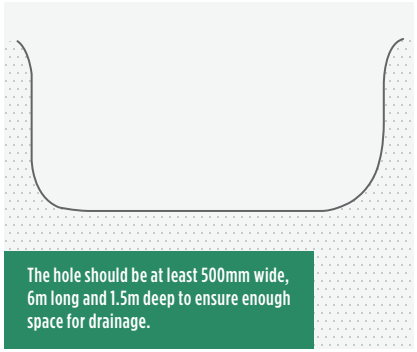
SEPTIC TANK: INSTALLATION

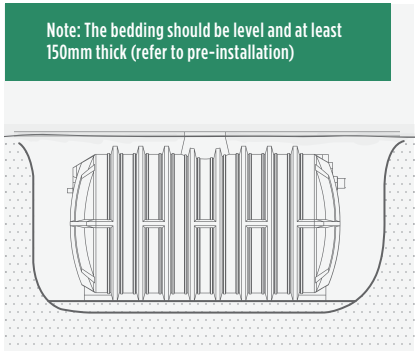
PART 1

1. Hole for French Drain



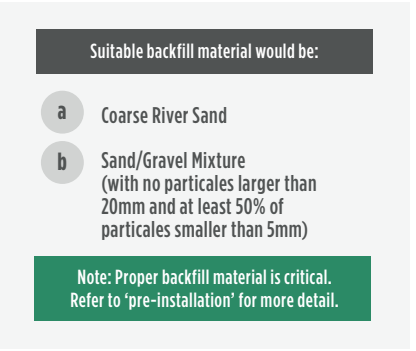
Dig a hole for the French Drain. The hole should be approximately 1 meter away from the designated area for the septic tank. **Note:** the larger the hole the better.

2. Place the tank



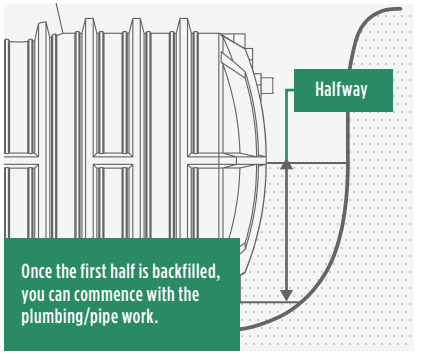
Carefully place the tank on top of the prepared bedding in the designated excavated area. **Note:** the direction of flow (inlet and outlet) and place according to setup.

3. Backfill preparation



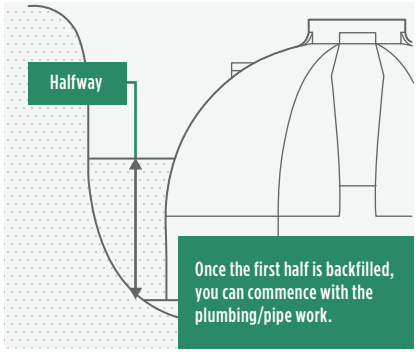
NB: the backfill procedure differs based on the size of the septic tank used. It is vital to follow the correct procedure to ensure the tank does not get damaged (*see steps 4 to 5*).

4. Backfill for 6000L



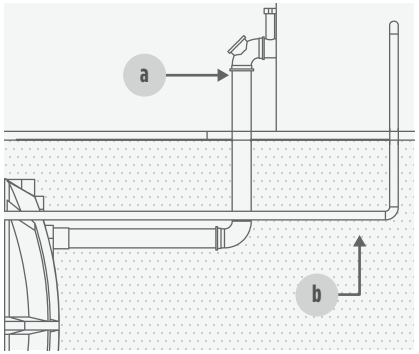
For the 6000L tank - Fill the tank with 150mm of water, then backfill 150mm around the perimeter of the tank. Compact the layer and repeat the process until at least half of the hole is filled.

5. Backfill for 1250L-2500L



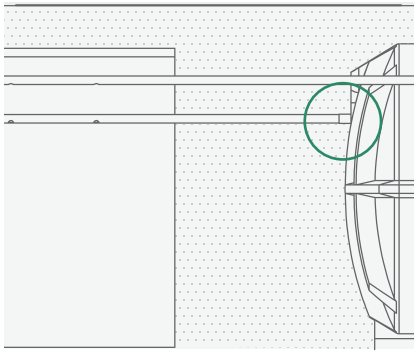
For the smaller range - fill the entire tank with water, then backfill in layers of 150mm around the perimeter of the tank, compacting each layer before laying the next. Continue until halfway.

6. Inlet connection



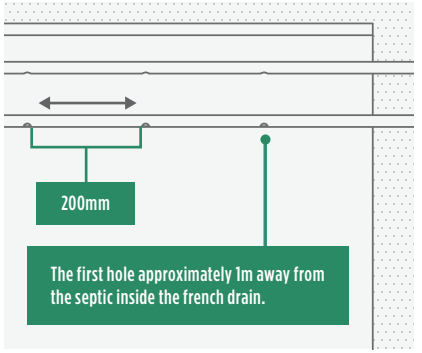
a. Connect a 110mm pipe from the sewerage feed (in house) to the supplied inlet on the tank.
b. Extend grey water feed past the tank and into the French Drain, NOT INTO THE TANK.

7. Outlet connection



Connect a 50 mm pipe (6m long) to the supplied outlet and extend into the French Drain.

8. Pipe to french drain



Drill a few holes into the bottom end of the 50mm pipe starting 1m away from the outlet and spaced approximately 200mm apart. **Note:** the holes will ensure effective drainage.

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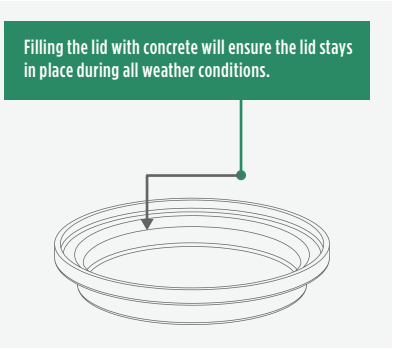
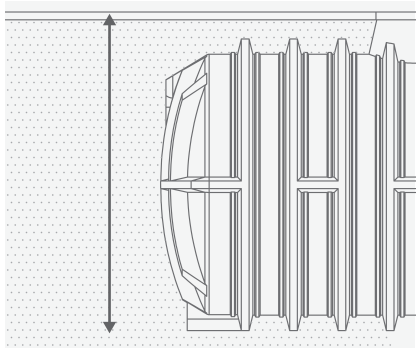
PART 2

9. Fill lid with concrete



Fill tank lid with concrete (allow concrete to cure) and put the lid in place.

10. Backfill 2nd half



Backfill the rest of the hole with suitable backfill material. *Refer to steps 4 to 5 to ensure correct procedure is followed* (depending on the size of the tank).

11. Fill the French Drain

Suitable material woud be:

a. Old car tyres (yield big cavities)

b. Stones/Rocks
(that can't crumble/disintegrate)
Note: Brick, gravel and sand are not sufficient or a french drain.

The correct material yields cavaties which allow enough time for drainage

Fill the French Drain with either stones/rocks or old car tyres. Be careful not to cause damage to the outlet pipe and its connection to the tank. Place corrugated iron over the hole and cover it with soil.

12. Initiate Fermentation

When installing a septic tank:

It is important to contact your local municipality for rules, regulations and the necessary approval before commencing with the installation.

Place a bacteria starter pack into the septic tank to start the fermentation process (bought at a local co-op/camping store). Alternatively a piece of rotten meat is just as effective.

13. DRESSING

Location	Description
Wet Installation	- Ground water present
Non-load bearing	- No ground water will affect the tank - No traffic will pass over the site
Load bearing	- Traffic will pass over the site

The dressing over the tank will depend on various conditions. Use the table above to assist with the appropriate dressing relative to the setup.

Type & thickness	Excavation depth
Compression ballast - 450mm (prevents tank from floating when empty)	Pour 2.8m^3 grade 20 MPa concrete on top of the tank (slump around 80). This will give a ballast +- 450mm thick over the entire area of the tank
Soil - Minimum 200 mm/maximum 750 mm	Shape the soil over the top of the tank to ensure positive drainage
Concrete Slab - 150mm (necessary if vehicles will drive over the tank)	The slab should be 4.2m x 2.9 m and made with 25 MPa concrete, consisting out of two layers

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RECOMMENDED INSTALLERS

JoJo has a list of recommended installers available on our website for those who would prefer to leave the installation to the professionals.

We carefully screened them to ensure they have the right equipment and experience to satisfactorily serve our customers. They were also required to take a range of courses to ensure that they meet our uncompromising criteria.

Kindly contact any of them in your area to recommend and quote an installation that will suit your specific requirements.

Contact us	Phone	Email
National support	+27(0) 861JOJOSA	
Shared Service Centre	+27(0) 11 695 8300	productinfo@jojo.co.za
Groblersdal	+27(0) 13 262 7900	sales@jojo.co.za
Pretoria	+27(0) 12 527 2600	ptasales@jojo.co.za
Camperdown	+27(0) 31 785 2962	camper@jojo.co.za
East London	+27(0) 43 745 0028	ecsales@jojo.co.za
Glencoe	+27(0) 34 393 1091	glendadmin@jojo.co.za
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