

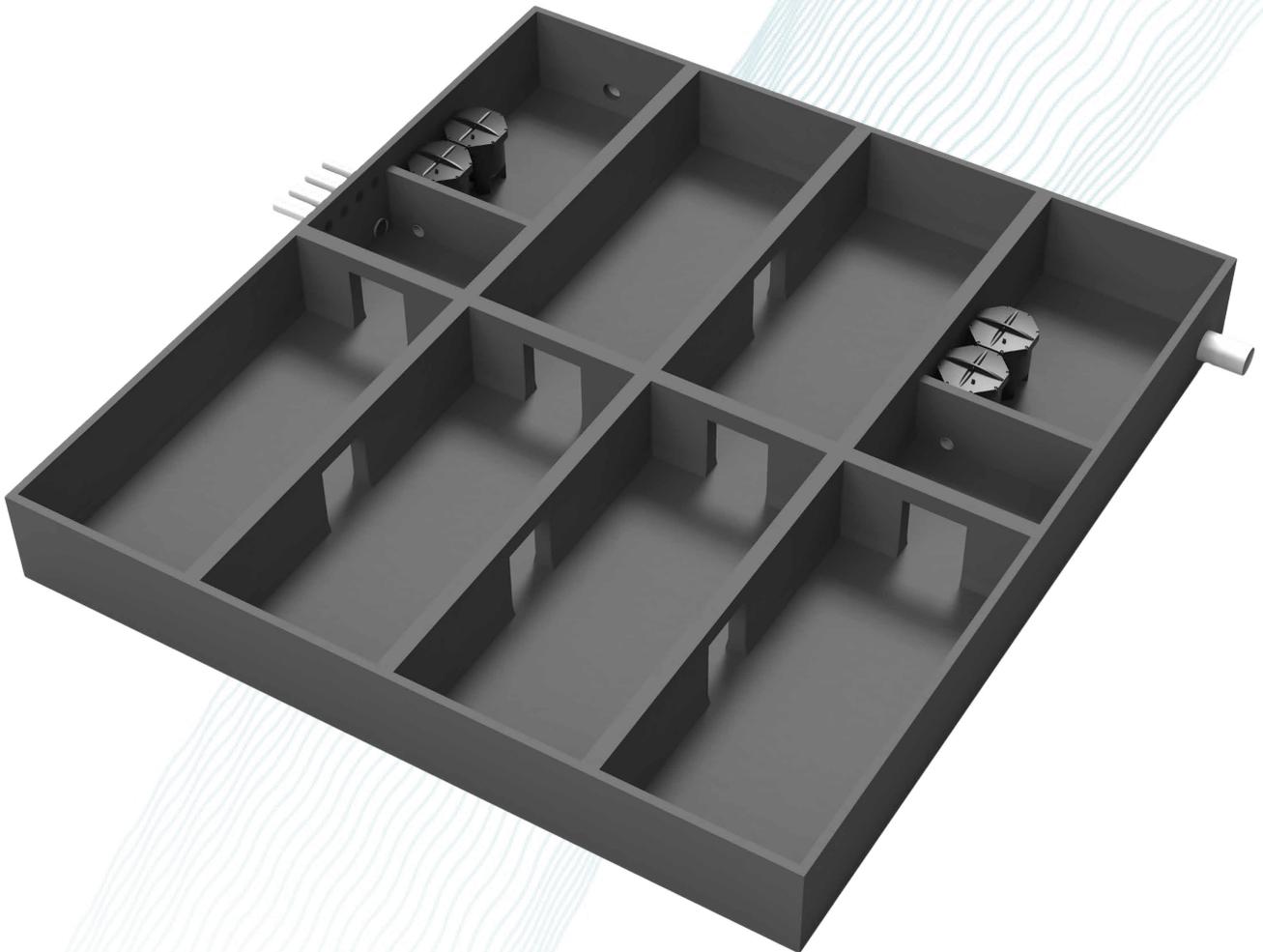


spelstormwater
joy in water

Installation Manual

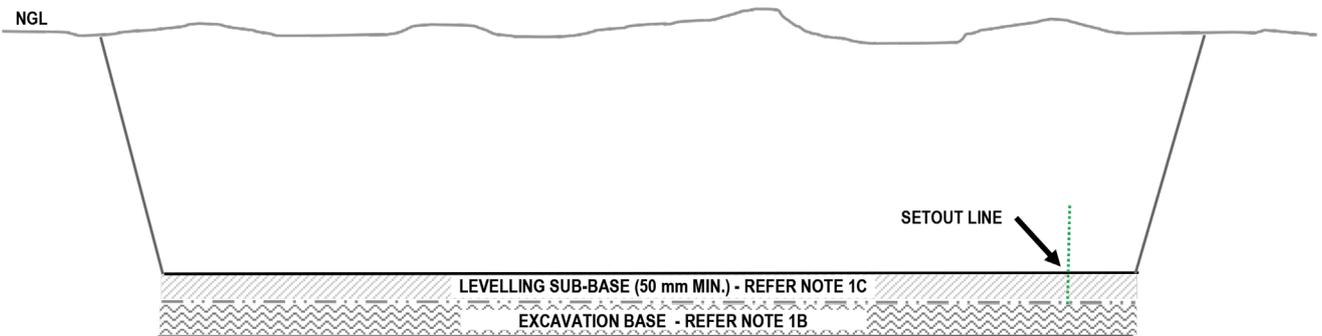
SPEL Vault[®]

Precast Concrete Tank



spel.com.au

PROCEDURE FOR INSTALLATION



NOTE BEFORE

Consult “General Notes” page of the tank plan for full installation information and notes on countering hydrostatic uplift (buoyancy) if required.

1. EXCAVATION PREPARATION

1A. The line of influence from adjacent structures is to be less than 45° from the tank base excavation to structure footing.

1B. Excavated base to be uniform, not to be founded on a cut/fill platform, the base slab is to be wholly founded in either cut or fill, and achieve a bearing capacity as detailed on the general notes page of the tank plan for the tank being installed.

1C. Sub-base levelling layer to be 50mm minimum, compacted sand or road base, that achieves CBR40

when tank is subject to vehicle loading. 5-10mm drainage gravel is an acceptable sub-base material, 10mm Maximum to be strictly adhered to. CBR15 acceptable when tank is not subject to vehicle loading.

1D. Take time to screed sub-base to a laser level, this will save the time of lifting tanks and re-levelling if gaps between tanks are present.

1E. Water can follow inlet pipe bedding, it is recommended that to maintain the tanks sub-base integrity, the tank installation be designed with appropriate excavation drainage, designed and approved by a suitably qualified Civil Engineer.

1F. Mark up base with setout lines. This is particularly important when there are large number of tanks in a modular system to ensure as they are placed they are running straight, so you do not end up hitting the excavation wall.



ALIGN TANK WITH SETOUT LINE



2. LIFTING NOTES

2a. Tank lifting pin arrangement has been approved to 15.0t (SWL) limit as specified on the tank drawing. If additional fixtures are required to increase the total weight above this limit a suitably qualified and experienced Engineer to be consulted for a specific lifting design prior to the tanks fabrication.

2b. The erector shall coordinate with the site Project Engineer for site access, ground conditions and planned lifting equipment prior to the tank delivery.

2c. Rigging arrangement shall ensure the load is evenly distributed between all lifting anchors. If additional fixtures have been install such as concrete weir walls a spreader bar may be required.

2d. Only use lifting pins provided when lifting, damaged lifting pins shall not be used unless capacity is verified and approved by a suitably qualified and experienced Engineer

3. TANK PLACEMENT

3a. Trucks to be pre-arranged for a time to meet your crane.

Tanks to be placed in excavation as per safe lifting protocols of crane company.

Ensure even rigging is being used to prevent tanks bedding into levelling layer unevenly which will cause gaps between tanks.

3b. IMPORTANT NOTE TO PREVENT POINT LOADING OF THE CONCRETE TANK AND CRACKING.

If the tanks are not going to be placed in the hole straight away, (Excavation cave in, hit rock, contaminated soils...) it is imperative that the tanks are only stored on ground that is prepared flat, preferably with a levelling layer of a granular material with a size no greater than 10mm.

Alternatively the tanks can be placed on timbers. Timbers to be aligned approximately under the lifting pins. Tanks cannot be stored, or installed on a concrete base without a levelling separation layer or timbers.

4. MODULAR TANK INSTALLATION—SEALING TANKS TOGETHER

Once first tank is placed, run a thick bead of polyurethane sealant (Sika, adhesion or similar supplied by SPEL), around the rectangular cut-out in the tank wall (Primary Seal).

Lower the second tank to the excavation base and skim the second tank to butt up against the first tank. Enter the tank and inside the void between both tanks seal with sealant (Secondary Seal).

SEALANT PRE APPLIED



PREPARING TO SKIM A TANK INTO PLACE



PRIMARY SEAL



SECONDARY SEAL

SEALING OF TANK LIDS

Place a thick bead of sealant to the outer edge on the top of the tank wall, and then lower the tank lid onto the tank.

The tank lid has a rebated section that will locate into the tank. Final seal to outer edge of lid join if required.



5. BACKFILLING

5a. Backfill around the tank with a well draining granular material in layers no thicker than 500mm.

5b. Compact pavement subgrades above the tank lid with light duty hand operated compaction equipment. Do not use heavy mechanical compaction techniques (such as vibratory or static rollers) above or adjacent to the tank walls within 1500mm of tanks without engineer's approval.

Pavement Subgrades above tank to be as directed by the Project Civil Engineer.

5c. Refer to table below for maximum machine size to be used to shift backfill over tank lids.*

*Machine to be driven in straight forward or straight back in reverse, no turning, or pivoting with the bucket.

*As per 5b light duty hand operated compaction equipment only to be used to achieve compaction of pavement sub-grades.

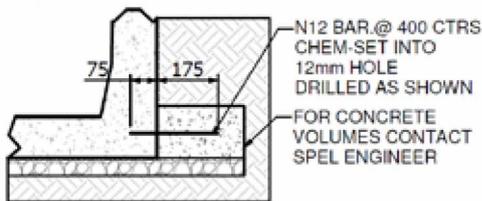
MAXIMUM EXCAVATOR LOADS FOR BACKFILLING OVER 150MM TANK LID*			
UNIFORM LOADS	Nil Cover	200mm Cover	400mm Cover
13.0T EXCAVATOR	OK*	OK*	OK*
15.0T EXCAVATOR	Not Permissible	OK*	OK*
20.0T EXCAVATOR	Not Permissible	OK*	OK*
25.0T EXCAVATOR	Not Permissible	Not Permissible	OK*
30.0T EXCAVATOR	Not Permissible	Not Permissible	OK*

*Machine to be driven in straight forward or straight back in reverse, no turning, or pivoting with the bucket.
 *Light duty hand operated compaction equipment only to be used to achieve compaction of pavement sub-grades

6. HYDROSTATIC SURCHARGE AND UPLIFT

6a. If the tank installation is likely to experience a high water table consult SPEL for a site specific ballasting plan. If this install manual is being read prior to procurement, advise SPEL at quote stage so that the most economical and easy to install ballasting solution can be provided.

Single tanks & Single row tank farms

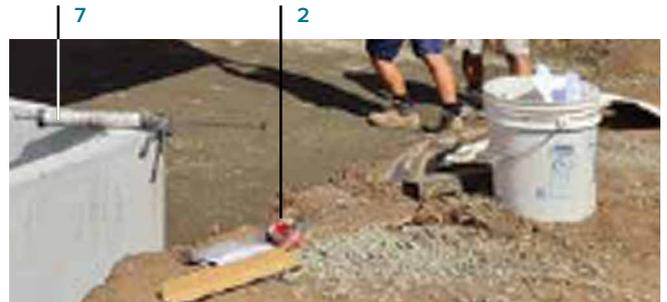


OPTIONAL BALLASTING DETAIL
BOUYANCY CONTROL JOINT

ANTI-BOUYANCY CONTROL ONLY REQUIRED FOR TANKS IN HIGH WATER TABLE REFER TO HYDROSTATIC SURCHARGE AND UPLIFT NOTES

7. SUGGESTED EQUIPMENT

1. Crane & Dogman
2. String line
3. Survey Equipment for level base
4. Shovel for levelling
5. Screed for levelling
6. Excavation Marking Paint
7. Caulking Gun suitable for a 600ml sealant sausage
8. Ladders
9. Tape measure
10. Steel Bar
11. Tank plan, and tank ployout plan



Large Tank Farms

Ballasting rings poured onsite will not be suitable for centre tanks in large tank farm modular solutions.

Contact SPEL prior to procurement so that the most economical and easy to install ballasting solution can be provided.



Installation Manual

SPEL Vault®

<p>NSW HEAD OFFICE 100 Silverwater Rd, Silverwater NSW 2128 PO Box 7138, Silverwater NSW 1811 P: +61 2 8705 0255 P: 1300 773 500 E: nsw.sales@spel.com.au</p>	<p>QLD MAIN OFFICE 130 Sandstone Pl, Parkinson QLD 4115 P: +61 7 3271 6960 P: 1300 773 500 E: qld.sales@spel.com.au</p> <p>QLD SUNSHINE COAST BRANCH 19-27 Fred Chaplin Circuit, Bells Creek, QLD 4551 P: 1300 773 500 E: qld.sales@spel.com.au</p>	<p>VIC & TAS OFFICE 897 Wellington Rd Rowville VIC 3178 P: +61 3 5274 1336 P: 1800 810 139 E: sales@spel.com.au</p> <p>VIC GEELONG BRANCH 70 Technology Close, Corio, P: +61 3 5274 1336 P: 1800 810 139 E: sales@spel.com.au</p>
<p>SA OFFICE 9 Hampden Road, Mount Barker SA 5251 P: 1300 773 500 E: sales@spel.com.au</p>	<p>WA OFFICE 2 Modal Crescent Canning Vale WA 6155 P: +61 8 9350 1000 P: 1800 335 550 E: sales@spel.com.au</p>	<p>NZ OFFICE AUCKLAND 100 Montgomerie Road Airport Oaks P: +64 9 276 9045 E: sales@spel.com.au</p>
<p>NZ OFFICE WANGANUI 43 Heads Road Wanganu New Zealand P: +64 6 349 0088 E: sales@spel.com.au</p>	<p>NZ OFFICE WELLINGTON 41 Raiha St Porirua Wellington New Zealand P: +64 4 239 6006 E: sales@spel.com.au</p>	<p>PHILIPPINES OFFICE METRO MANILA Unit 2210 Lumiere Residences Pasig Boulevard, Pasig City P: +61 2 8705 0255 P: 1300 773 500 E: sales@spel.com.au</p>
<p>SINGAPORE OFFICE 512 Chai Chee Lane, #06-04 Bedok Industrial Estate, Singapore 469028 P: +61 2 8705 0255 P: 1300 773 500 E: sales@spel.com.au</p>	<p>UK OFFICE UNITED KINGDOM Lancaster Rd Shrewsbury SY1 3NQ UK P: +44 (0)1743 445200 E: sales@spel.com.au</p>	<p>USA OFFICE CLEVELAND 4548 Industrial Parkway Cleveland, Ohio 44135 P: +61 2 8705 0255 P: 1300 773 500 E: sales@spel.com.au</p>

We believe clean water is a right not a privilege and we work to ensure a joy in water experience for you with your children and grandchildren.



100 Silverwater Rd, Silverwater NSW 2128 Australia

Phone: (02) 8705 0255

Email: sales@spel.com.au

[spel.com.au](https://www.spel.com.au)

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