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St Joan of Arc School, High Street, Rickmansworth WD3 1HG

Drainage Maintenance Plan

For
Kier Construction Plan

Project No.
12970-R01

Date
November 2023

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Document Details

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CONTENTS

APPENDICES

1.0 SCHEDULE OF MAINTENANCE

1.1 Brief

1.1.1 This maintenance plan has been prepared to support an application for the discharge of Condition 9 of Planning Permission 21/2747/FUL, in regard to the drainage strategy for the approved development at St Joan of Arc School.

1.1.2 This document should be read alongside the approved Flood Risk Assessment (Ref: 12970-R01-CRH-XX-XX-RP-C-0001 P03) and approved drainage plan PSBP2-186-12970-CRH-XX-00-DR-C-5050 P4.

1.2 Introduction

1.2.1 The maintenance of the drainage features and components is vital to ensuring that they work as efficiently as they set out to do. Maintenance activities can be broadly defined as:

- Regular maintenance – basic tasks carried out regularly.
- Occasional maintenance – tasks that are required periodically but on a much less frequent basis.
- Remedial maintenance – tasks required when a fault needs rectifying and often includes unforeseen or exceptional events.

1.2.2 The following sections set out the maintenance requirements of the drainage features for the site. A summary of the intended function for each drainage device is prefixed to the maintenance requirements for clarity.

1.2.3 The drainage system should be monitored on a 3-month basis. This monitoring is intended to inform any maintenance requirements and can then be adjusted to reflect findings. Monitoring will be by the onsite school maintenance operative/supervisor overseeing general maintenance of the facilities.

1.2.4 During heavy storm events, some minor flooding of the drainage network may be experienced, as is currently the case for the school facilities.

1.2.5 During construction, vehicles and equipment not directly involved with the works are to be kept away from the existing moat. Silt fences, staged excavation works and temporary drainage swales/bunds to divert runoff away from exposed areas should be considered and utilised, as appropriate, to manage the risks associated with, and to intercept the discharge of, sediment laden runoff prior to its discharge to the nearby moat. Excavations for the attenuation tank should aim to be undertaken in times of dry weather where possible, to prevent mobilisation of sediments during rainfall events. Silt management is important during construction to minimise the risk of mobilising and transfer of silt to downstream waterbodies.

1.3 Maintenance Responsibility

1.3.1 Responsibility for ongoing maintenance and upkeep for the site including the drainage system will rest with the St Joan of Arc School maintenance team and their appointed agents.

1.3.2 The drainage network within the curtilage of the school is to remain private and under the control of St Joan of Arc School.

1.4 Existing Moat

1.4.1 There is an existing moat running along the middle of the school site. The moat primarily serve to convey water from the existing buildings, main access roads, car parking areas as well as now serving as discharge point for the new drainage system (pumped system) for the school extension. The moat provides water quality improvement to runoff and an element of attenuation (storage) in large storm events. There is an existing lake to the south of site into which the site discharges.

1.4.2 A grille is proposed for the outfall from the moat to minimise the risk of small debris entering the downstream pipe. The grille is to have an overflow system. The grille is to be in accordance with CIRIA's Culvert, Screen and Outfall Manual (C786).

1.4.3 Table 1 below shows the operation and maintenance requirements for the moat, taken from the CIRIA C753 SuDS Manual.

Table 1: Operation and maintenance requirements for watercourses (CIRIA C753, 2015)

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass around the edges - to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets for silt accumulation, establish appropriate silt removal frequencies	Half yearly
	Inspect manholes and catchpits for blockages and failure.	Half yearly
	Inspect existing moat and remove any new self-seeded saplings/seedlings to prevent tree growth	Quarterly
	Outfall pipe jetting/ rodding	Annual clearing, after fall to remove any potential blockages from leaves and other small debris
Occasional maintenance	Inspect outlet/ grille and remove any debris and leaves	As required prior to forecast heavy rainfall event or following heavy rainfall events

Remedial actions	Repair erosion along the bank or other damage by re-turfing or reseeding	As required visual inspection to be carried out half yearly
	CCTV survey of outfall and any pipe repair	As required following report of a blockage to return outfall to serviceable condition
	Relevel uneven surfaces and reinstate design levels	As required - visual inspection to be carried out half yearly
	Remove and dispose of oils or petrol residues using safe standard practices	As required - visual inspection to be carried out half yearly

1.5 SDS GEOlight Attenuation Tank

1.5.1 SDS GEOlight storage tank system has been used to provide attenuation and installed as per the manufacturer's recommendation.

1.5.2 Table 2 below shows the operation and maintenance requirements for the attenuation tanks, taken from the CIRIA C753 SuDS Manual. All actions should be undertaken in line with the supplier's guidance and where necessary undertaken by suitably qualified operatives.

Table 2: Operation and maintenance requirements for attenuation storage tanks (CIRIA C753, 2015)

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	Remove sediment from catchpits/ gullies/ sumps.	Annually, or as required
Occasional maintenance	Removal of sediment from tank distributor pipe via jetting and vacuum pumping (if appropriate)	As required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey the pipe distribution system for silt accumulations-up and remove if necessary	Every two years or as required

1.6 Proprietary Treatment Systems

1.6.1 The proprietary treatment systems include conventional pipework, gullies, catchpits, manholes, flow control and ACO channels.

1.6.2 The maintenance schedule for the aforementioned components has been adopted from the SuDS Manual C753 and are summarised in Table 3.

Table 3: Maintenance and Operation of Proprietary Treatment Systems (CIRIA C753, 2015)

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Monitoring	Inspect monthly
	Check flow control device and other mechanical parts – grease and keep clear of debris and other obstructions	Half yearly
Occasional maintenance	Sediment management	Annually or as required when buildup of sediment is noticeable. All silt removed from drainage features should be responsibly disposed of
Remedial maintenance	Structure rehabilitation/repair	As required based on the results of monitoring
	Replace flow control device and other mechanical device	Subject to regular monitoring and maintenance – if mechanical device shows sign of corrosion or serviceability, impaired device to be replaced based upon original specification

1.7 Foul Water Pump System and Emergency Storage Tank

1.7.1 The SPEL pumping station and storage tank is to be installed and maintained in line with SPEL's requirements. General pumping station maintenance is summarised in Table 4, however, the supplier's specific maintenance recommendations and service agreement should be followed.

Table 4: Maintenance and Operation for pumps

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove solids debris (rags and other non-biodegradable debris)	Monthly (or as required)
	Monitoring	Inspect monthly
	Pump service	Annually or as specified by supplier
	Control Panel – electrical testing	Annually
Occasional maintenance	Check floats, alarms, vents and telemetry	Annually or as specified by supplier
	Remove sediment from pumping chamber and tank	Half yearly or as required

	Empty/flush settled water/settlement and tanker away	Subject to monitoring and on account of any blockage or malfunction
Remedial maintenance	Structure rehabilitation/repair	As required based on the results of monitoring
	Replacement of components/pump elements	As required based on the results of monitoring. Replacement of parts subject to terms specified by the service type provided by supplier

1.8 Surface Water Pumping Station

1.8.1 The Edincare Pumps surface water pumping station is to be installed and maintained in line with Edincare Pumps requirements. General pumping station maintenance is summarised in Table 5, however, the supplier's specific maintenance recommendations and service agreement should be followed.

Table 5: Maintenance and Operation for surface water pump

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove solids debris	Monthly (or as required)
	Monitoring	Inspect monthly
	Pump service	Annually or as specified by supplier
	Control Panel – electrical testing	Annually
Occasional maintenance	Check floats, alarms, vents and telemetry	As specified by supplier
	Remove sediment from pumping chamber and tank	Half yearly or as required
	Empty/flush settled water/settlement and tanker away	Subject to monitoring and on account of any blockage or malfunction
	Pump service	Following prolonged period of dry weather and pump remaining idle.
Remedial maintenance	Structure rehabilitation/repair	As required based on the results of monitoring
	Replacement of components/pump elements	As required based on the results of monitoring. Replacement of parts subject to terms specified by the service type provided by supplier
	Inspection for blockages or debris	Following heavy rainfall events to minimise risk of failure

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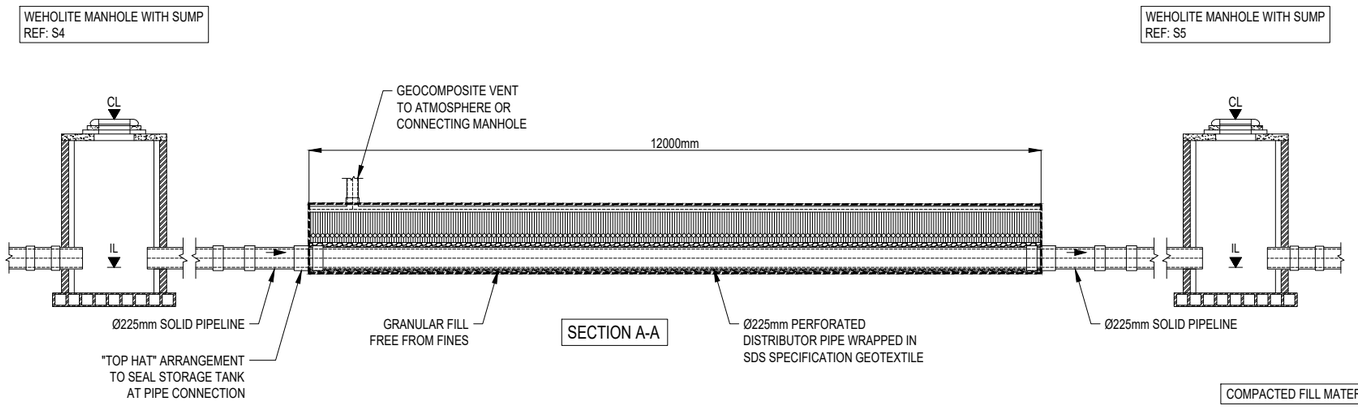
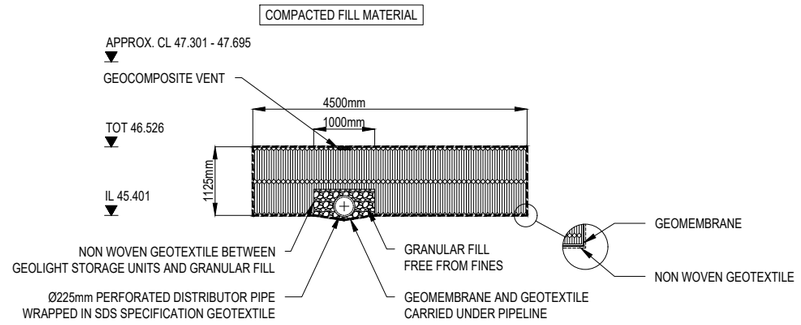
Appendix 1

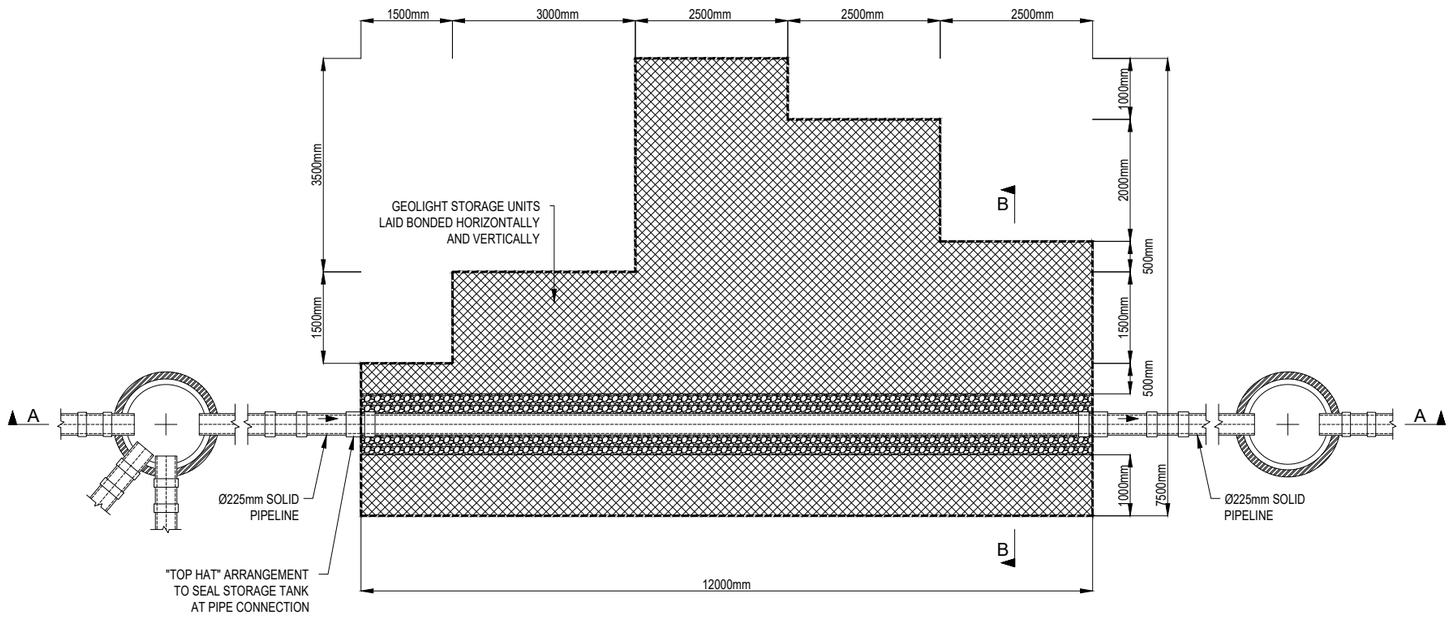
E04422_1_A – ATT1 – Joan of Ark School

Appendix





SECTION B-B



Notes:

This Drawing is to be read in conjunction with all relevant Architect's Engineer's and specialists' drawings and specifications.

Do not scale from this drawing in either paper or digital form. Use written dimensions only.

SDS to leave solid stub only, exiting tank for connection by others.

All external Manholes, Access Points, Junctions & Pipe are shown for guidance only and not part of the SDS program unless otherwise agreed.

REFERENCE DRAWINGS:

Drawing Number	Revision	Drawing Title	Date
5050	C5	PROPOSED DRAINAGE PLAN	18.07.23

Rev	Comments	Date	DRW	CHK
A	NEW TANK LAYOUT	19.09.23	SP	SP
	ISSUED FOR APPROVAL			
-	ISSUED FOR APPROVAL	05.07.23	SP	SP

Water Infrastructure Systems

Clearwater House
Castlemills
Biddisham
Somerset
BS26 2RE
+44 (0)1934 751303

sdslimited.com

Project: ST JOAN OF ARC SCHOOL

Client: ROCHFORD LTD

Title: ATTENUATION TANK 1 DETAIL

Scale: NTS | Date: 05.07.23

Drawing No: E04422_1_-_ | Rev: A

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Appendix 2

P31851 23395_012 Issue C VPPS235
SPEC GP George Lines (Merchants) Ltd
St Joan of Arc School Rickmansworth

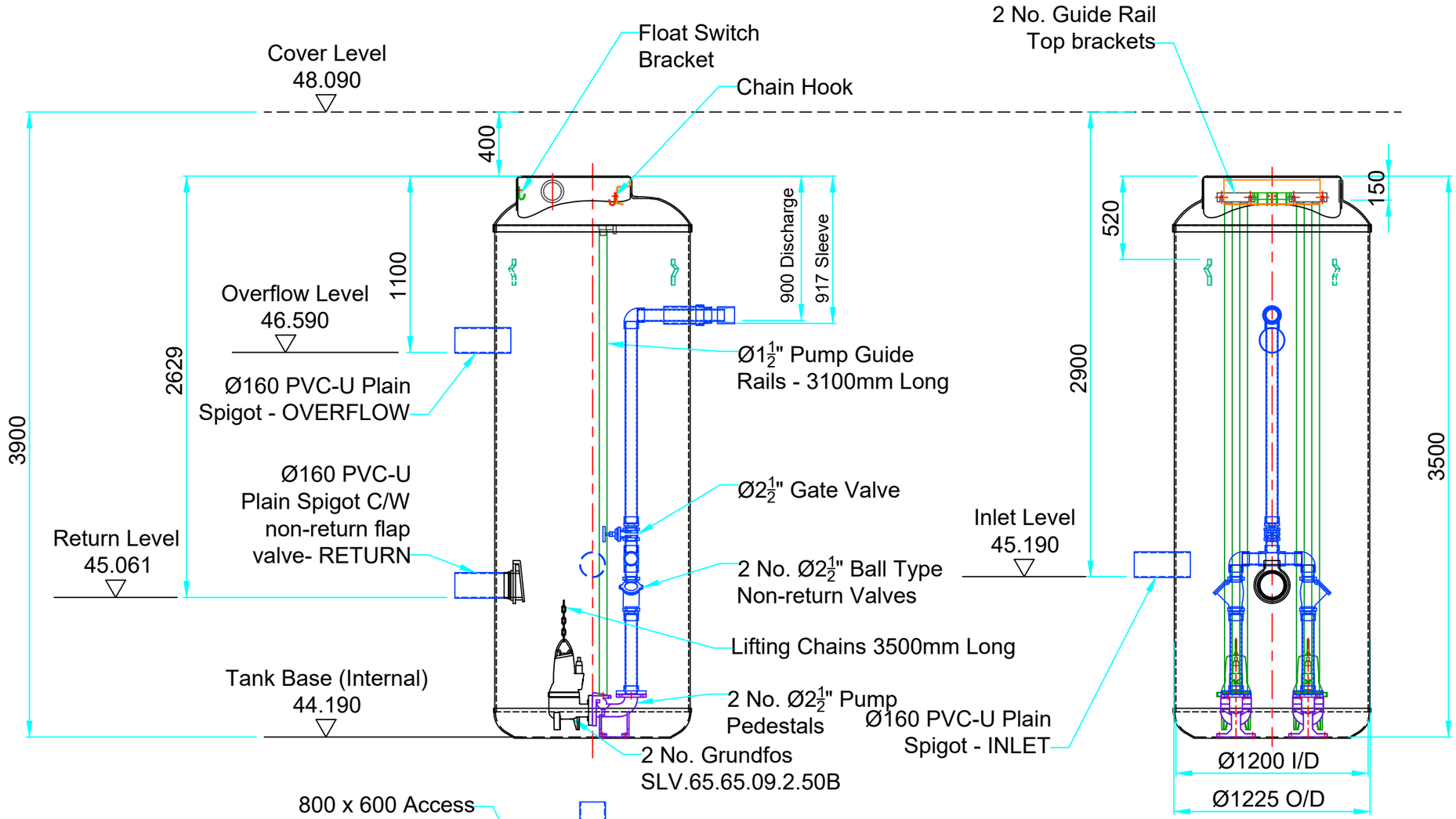
P31852 23395_012 Issue B TS300_5860
EXHVY GP George Lines (Merchants) Ltd
St Joan of Arc School Rickmansworth

Section 9 SPEL Package Pumping Stations

Section 13 Installation

SPEL General Conditions of Sale

CUSTOMER APPROVAL
Date
Approved By (Print)
Signed



WRc Approved				Date	Checked (SPD)
Technical Assessment Complete				06.07.23	PCA
	24.07.23	C	Tank specification now 'SPECIAL' Issued For APPROVAL		
	06.07.23	B	Site levels revised, Pipes connections re-positioned. Issued For APPROVAL		
	16.06.23	A	Issued For APPROVAL		
Distribution	Date	Rev	Issued only for purpose indicated	Date	Appr'd

Key to Symbols: △ Lifting Point | ○ | ○ Hold- down strap rib locations where mechanical anchoring is required | Manufacturing Joint | ◯ BoQ's reference no.

DIMENSIONS ARE SUBJECT TO DIMENSIONAL TOLERANCES. If critical, check physically prior to installation

Water table & Burial Depth: The customer must check tank specification is compatible with ground water table level (in winter) and burial depth. If in doubt refer to SPEL Data Manual Section 4 or contact SPEL Products Sales or Technical Department

Title: SPEL 200 Series Mini XSPEL WRc Approved Package Pumping Station V235

Contract:
George Lines (Merchants) Ltd
St Joan of Arc School Rickmansworth
Order No.: 03D17808

Capacity --

Tank Specification SPECIAL

Laminate Specification GP

All sizes in mm
If in doubt ASK!

SPEL Products
Lancaster Road, Shrewsbury
Shropshire, SY1 3NQ, England
Telephone: +44 (0)1743 445200
Facsimile: +44 (0) 1743 465442

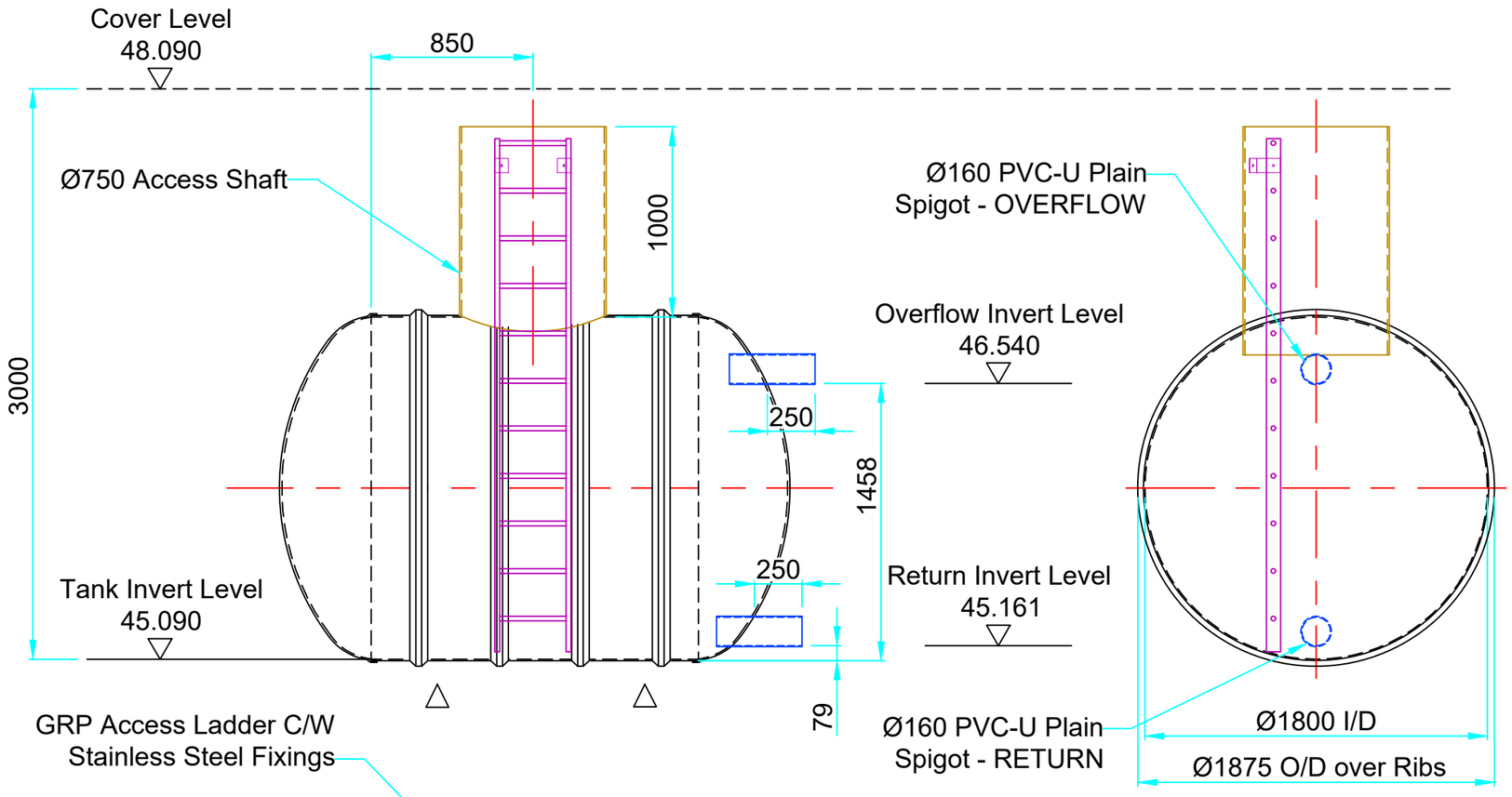
Drawn NP
Checked SRB
Date 16.06.23
Scale 1:30 Sheet A3

Internal Customer Ref P31851 23395/012

Drawing No. P31851 23395_012

Rev C

CUSTOMER APPROVAL
Date
Approved By (Print)
Signed



Key to Symbols: △ Lifting Point | ○ ○ Hold- down strap rib locations where mechanical anchoring is required | Manufacturing Joint | ◯ BoQ's reference no.

	24.07.23	B	Tank specification now 'EXTRA HEAVY'. Ribs added. Issued For APPROVAL	
	16.06.23	A	Issued For APPROVAL	
Distribution	Date	Rev	Issued only for purpose indicated	Date / Appr'd

DIMENSIONS ARE SUBJECT TO DIMENSIONAL TOLERANCES. If critical, check physically prior to installation

Water table & Burial Depth: The customer must check tank specification is compatible with ground water table level (in winter) and burial depth. If in doubt refer to SPEL Data Manual Section 13 or contact SPEL Products Sales or Technical Department

Title: SPEL 300 Series Tankstor Underground Storage Tank

Contract:
George Lines (Merchants) Ltd
St Joan of Arc School Rickmansworth
Order No.: 03D17808

Capacity 5,860 Ltrs.

Tank Specification EXTRA HEAVY

Laminate Specification GP

All sizes in mm
If in doubt ASK!

SPEL Products
Lancaster Road, Shrewsbury
Shropshire, SY1 3NQ, England
Telephone: +44 (0)1743 445200
Facsimile: +44 (0) 1743 465442

Drawn NP
Checked SRB
Date 16.06.23
Scale 1:30 - Sheet A3

Internal Customer Ref
T31852 23395/012

Drawing No.
T31852
23395_012

Rev
B

SECTION

9

SPEL Package Pumping Stations

SPEL Package Pumping Stations
V SERIES - VERTICAL

SPEL Package Pumping Stations
H SERIES - HORIZONTAL

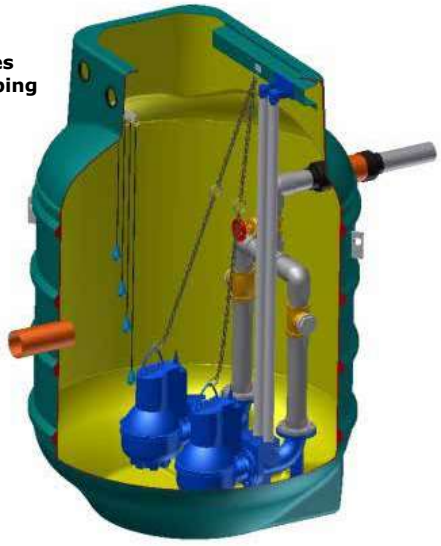
wrc approved PT/429/0818

SPEL

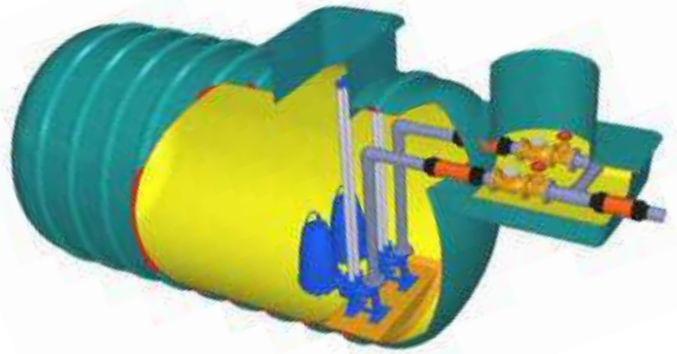
The range of SPEL Package Pumping Stations

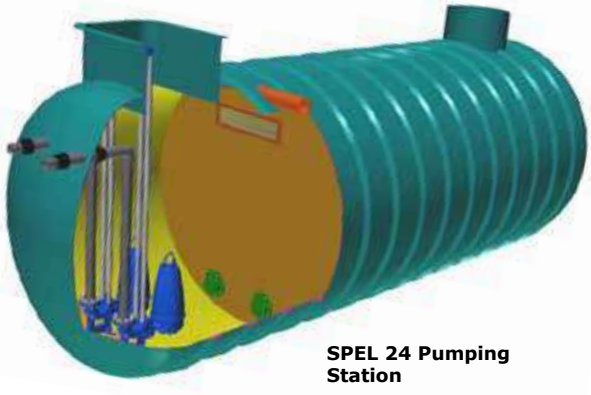
SPEL 'H' Series Horizontal Package Pumping Stations

SPEL 'V' Series Vertical Pumping Stations



SPEL 'Integral' Pumping Stations





SPEL 24 Pumping Station

SPEL 'H' Series Horizontal Package Pumping Stations

*Off*site - built & tested

The way forward for the construction industry

Introduction

Off-site built and tested, SPEL Package Pumping Stations are the most efficient and economical solution for both the client and the contractor. With all pipework, valves, pedestals, guide rails and controls factory fitted and tested under controlled conditions. The completed chamber only requires simple installing and final commissioning.

SPEL products have been supplying package pumping stations for over 40 years and during that time have developed them to include the latest technology in controls.

The pumping chambers can be vertical as with 'V' series or horizontal with 'H' series and capacities up to 300,000 litres. They are sealed 'one piece' chambers incorporating the valves in an integral valve chamber to meet the Sewers for Adoption requirements.

With SPEL you can be assured of long trouble free operation with the quality components selected and specified to achieve that result. Our policy is not to cut quality to reduce the initial cost as this usually results in high maintenance and higher life cycle costs (LCC). It is the long term customer relationship we value the most.

SPEL package pumping stations incorporate all pumping equipment, valves, pump pedestals and guide rails all factory fitted and tested.

Expensive site work is reduced to the minimum and 'confined space' operations eliminated. Final commissioning is undertaken by SPEL engineers.

When choosing the right pumping station 3 elements are critical to consider:

1. The right pump
2. A quality assured WRc approved chamber. Filament wound in GRP with smooth chemical resistant internal surface and **30 year Warranty**
3. Quality internal pipework, valves, level controls - factory fitted and tested (test certificate supplied).

SPEL pumping chambers are manufactured in GRP by the filament winding process, are lightweight, immensely strong, corrosion resistant and self-cleaning.

Important considerations

Design & specification

To ensure most economical operation, low maintenance and low life cycle cost.

To be designed for surface water or sewage in accordance with the Water Industry Specifications (WISs), Sewers for Adoption and the relevant Water Authority's specific requirements.

Technical details required include incoming peak design flow, storage capacity to ensure flooding does not occur at or upstream of the chamber during plant or power failure, typically 24hr emergency storage. Pumps need to be sized to cover the peak flows and ensure the minimum flow velocity in the rising main.

Benching design and the internal surface finish are very important to ensure sludge does not accumulate. The SPEL chambers have smooth sloping internal surfaces for superior self-cleansing and to maintain turbulence for keeping solids in suspension. This is important as sludge tends to settle when the pipes are idle and then clogs the pumps during subsequent operation.

Applications

SPEL Package Pumping Stations are used for many applications including raw sewage, surface water, rain water harvesting (SPEL RainSave System®), surface water attenuation etc.

Extensive SPEL range

Today the range of vertical and horizontal package pumping stations is extensive with five diameters and capacities from 2000 to 300,000 litres

Capacities

'V' series vertical chambers range from 2,000 litres to 100,000 litres capacity in diameters 1.2, 1.8, 2.6, 3.5, & 4m.

'H' series horizontal pumping chambers are available from 2,000 up to 300,000 litres in five diameters as above.

Siting

Siting of the wet well needs to be a minimum distance from habitable buildings according to incoming flows (0.25 l/s = 5m, over 0.25 l/s = 10m, over 1 l/s = 15m)

9.2 SPEL Package Pumping Station

Offsite - built & tested *The package pumping station with a difference that excels over others*

SPEL pumping stations are manufactured and assembled in our factory and delivered to site ready to be placed in a suitable excavation and connected to the relevant drainage pipework.

A simple commissioning visit is all that is necessary for the system to be put into operation. Pipework, valves, pedestals and pump guide rails are factory fitted, inspected and tested under controlled conditions. This eliminates expensive 'confined space' installation on site, which is usually carried out under adverse conditions. They can be buried to depths of 6m and more and offer very good resistance to corrosive chemicals and effluent fluids.

The pumps are mounted on a superior self-cleaning geometric base which reduces silt and sludge build up to a minimum. Single or dual pump systems are available with the option of PVC or stainless steel pipework.

Valves are epoxy coated cast iron and can be mounted either in the tank or in a separate valve chamber with over-pumping connection as required. Level control can be by ultrasonics, float switches or probes and a wide choice of control panels and enclosures completes the package.

A full 'Sewers for Adoption' package can be offered to meet the specific needs of your water authority.

Our pump package is the first to have received WRc approval in recognition of the quality and system design.

Manufacturing standards

SPEL tanks are manufactured to BS EN 13121 under a strict quality control system with checks at all stages of construction. The chop-hoop filament winding process produces not only circumferential strength but also strong longitudinal strength. After a long evaluation process our package pump systems have been awarded the coveted WRc approval which signifies compliance with BS EN 752-6 for SPEL Package Pumping Stations and 'Sewers for Adoption'.

Choosing the right pump/s and operation

SPEL Package Pumping Stations are normally fitted with a submersible pump or pumps. The twin pump installations can be for duty/standby or duty/assist or three pumps, duty/assist and standby.

Duty/standby allows for a pump failure and for the pumps to run alternately for even usage and wear. Duty/assist allows for a situation where there are varying flow rates as in the case of the difference between average rainfall flows and storm flows.

To cater for varying flow rates and for a possible pump failure it may be prudent to install three pumps, duty/assist and standby.

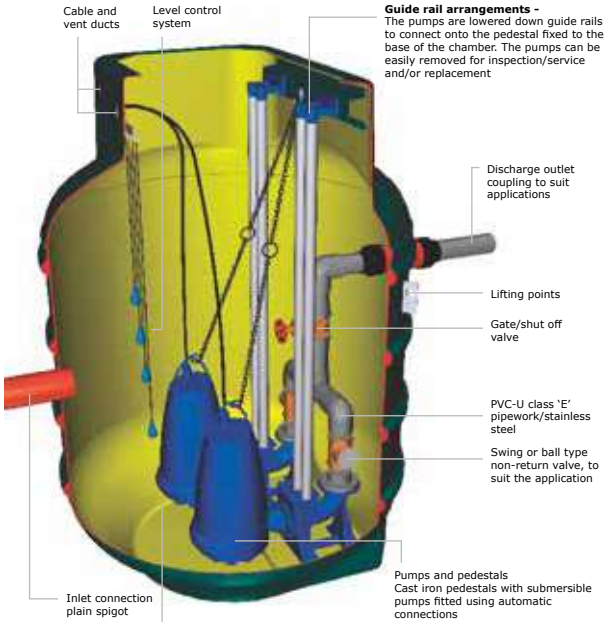
Although there are many different types of pumps, some very cheap, SPEL prefer to supply Grundfos, Lowora or ITT Flygt pumps to ensure long service life, good maintenance and parts service.

Typical sites

Domestic properties, housing estates/flats, offices/commercial, land fill sites, industry, transport infrastructure, construction sites.

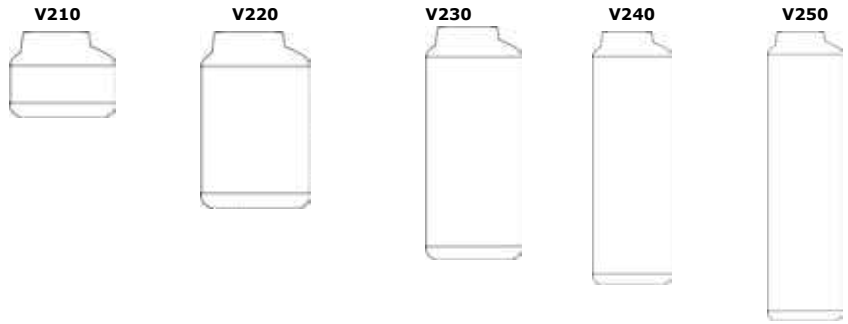
Features

- Superior self-cleaning geometric base – efficiently expels the solids and prevents silt build-up
- Smooth self-cleaning internal surface
- Filament wound GRP construction (to BS EN 13121 as appropriate)
- Longer time between inspections
- Quality, efficient pumping systems by Grundfos or ITT Flygt.
- Factory fitted and tested pipework, valves etc. with a test certificate.
- Long life and corrosion resistance using top quality resins
- 25 year warranty or WRC 30 years
- Shell life expectancy – over 50 yrs



 T. +44 (0)1743 445200 F. +44 (0)1743 465442 E. info@spelproducts.co.uk

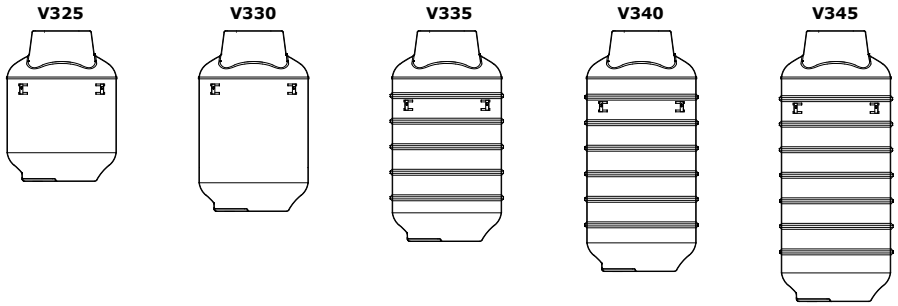
There is a model to meet your requirements, with or without 'integral' valve chambers



'Xspel®' V200

1.2m diameter
2.0m - 4.0m high
(in 500mm increments)

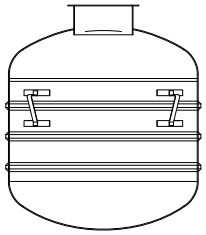
Models V220 - V240



'Xspel®' V300

1.8m diameter
2.5m - 4.5m high
(in 500mm increments)

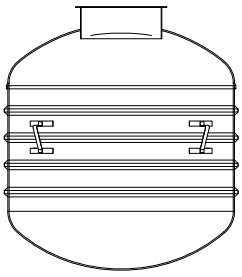
Models V325 - V345



V400

2.6m diameter
3.0m - 8.0m high
(in 500mm increments)

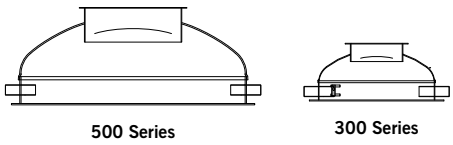
Models V430 - V480



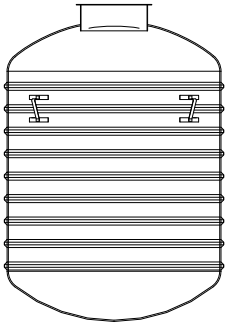
V500

3.5m diameter
4.0m - 8.0m high
(in 500mm increments)

Models V540 - V580



Separate valve chambers are available in each range.



V600

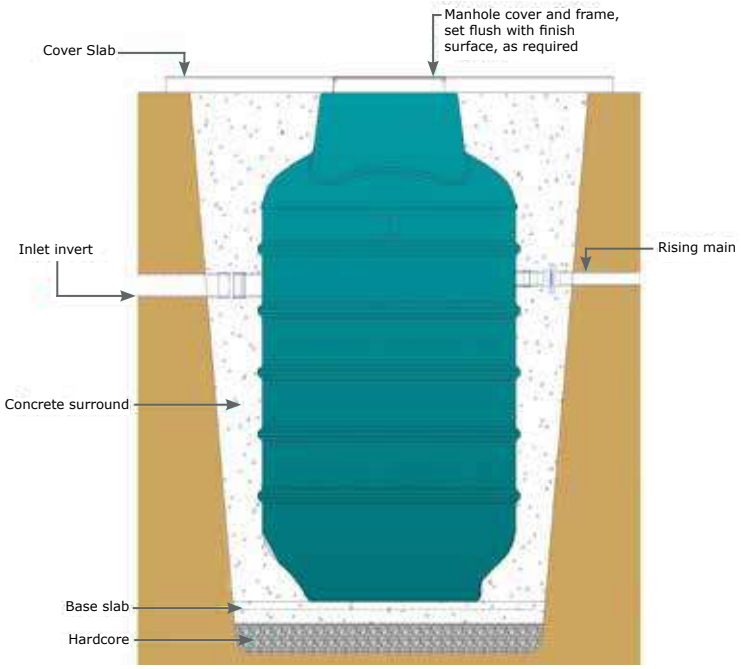
4.0m diameter
4.0m - 9.0m high
(in 500mm increments)

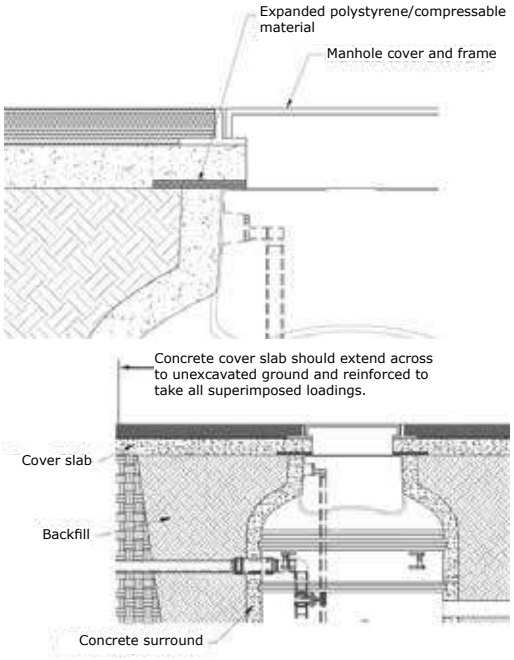
Models V640 - V690

Connections: Sizes and orientation to suit site requirements.

Access openings: Circular or rectangular in range of sizes (see 2.13).

9.4 SPEL Package Pumping Station Installation





These instructions shall be read in conjunction with the Installation Instructions:- Section 13

Preliminary

Determine the size of the excavation from the dimensions of the tank and the incoming drain invert depth allowing for a minimum of 200-250mm (250-300mm for 500/600 Series tanks) of concrete all round the tank. Where difficult ground conditions or the possibility of external loading exist, the concrete surround should be designed accordingly, i.e. extra thickness and/or the use of reinforcing.

Excavation

Excavate allowing for easy placing of the tank and concrete and for consolidating concrete around the bottom half of the tank when backfilling. Allowance should be made for any timbering or sheeting that may be required. If the base of the excavation is of unstable ground – loose gravel, running sand, landfill type areas, peat, swamp or in clay areas subject to swelling/shrinking etc., excavate to allow for 250-300mm of hardcore and cover with a polythene membrane prior to placing concrete.

Procedure

1. Pour concrete base to correct depth and level off. Base to be reinforced as necessary.

2. When this concrete has set sufficiently, place the tank in position, check for levels including inlet/outlet inverts and fill with water in accordance with table below. Ensure concrete slab is clean ready for placing concrete surround. Surround should preferably be placed within 48hrs of casting the base slab.

3. Place backfill concrete (ST4 mix) up to the depth of the water in the tank ensuring the concrete is properly consolidated under the tank to prevent voids. Consolidate by hand – do not use vibrating pokers.

4. Continue by placing concrete around the tank at the same time filling with water to equalise pressure and resist floatation. Where the tank is divided into chambers ensure all chambers are filled equally.

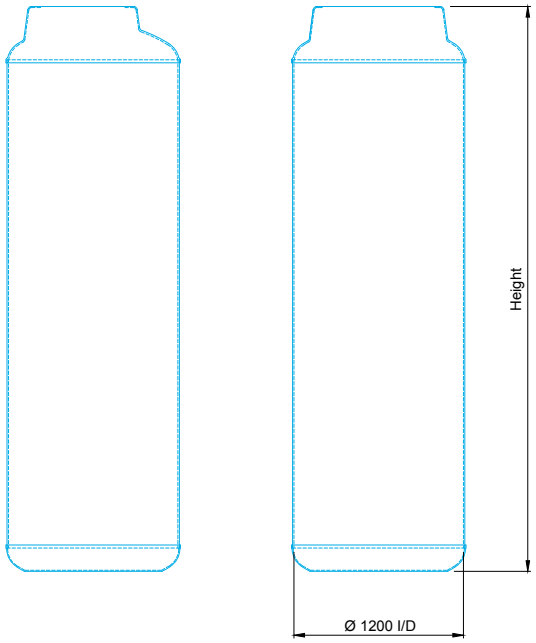
5. Connect up pipework, seat access shaft into socket and apply waterproof mastic/adhesive, or as applicable.

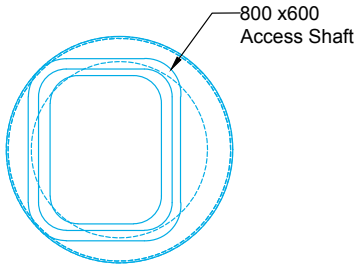
6. Top up the tank with water to inlet/outlet invert level and place remainder of concrete to a depth of approximately 250mm above the top of the tank. Where extension access shafts are fitted, these can be surrounded in concrete once the main tank surround concrete has set. Important: Before surrounding circular or rectangular shafts with concrete, shutter to safeguard against distortion.

7. Where the concrete slab over the tank is to take vehicle loading, it should be reinforced in accordance with good practice to take the maximum load and should be extended onto unexcavated ground. It is important that vehicle loading is not transferred to the tank itself.

8. Incorporate inspection cover frames in the normal manner.

Excavation details (mm)	Series 100/200	Series 300*	Series 400	Series 500	Series 600
Minimum hardcore thickness - dependent on ground conditions	100	200	250	300	300
Concrete base slab thickness	150	150	220-240	240-300	250-300
Concrete surround thickness - dependent on ground conditions	100-150	150	200-250	250-300	250-300
Maximum initial water fill depths prior to backfilling	200	300	400	500	500
Tank internal diameters	1200	1800	2600	3500	4000
Tank external diameter including ribs	1250	1875	2700	3650	4150

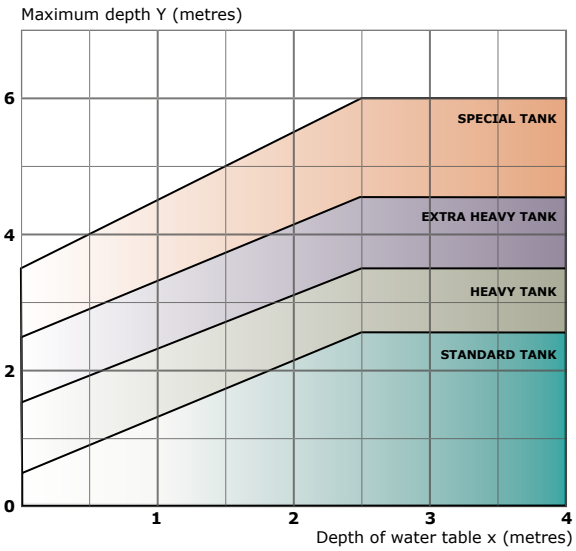


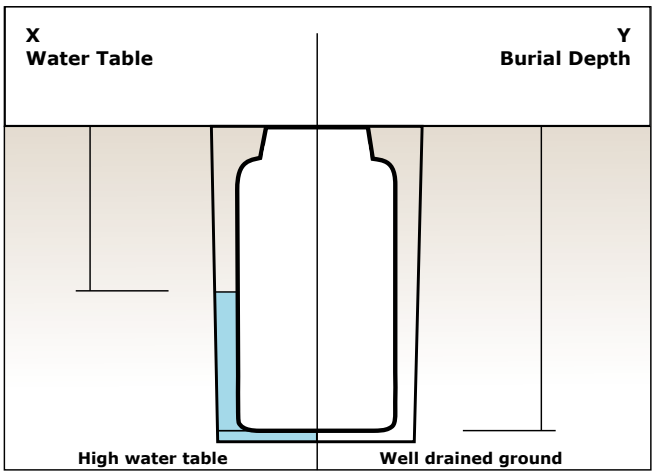


Model	o/a height mm	Gross capacity - liters
V220	2000	1700
V225	2500	2250
V230	3000	2800
V235	3500	3400
V240	4000	4000
V245	4500	4500
V250	5000	5000

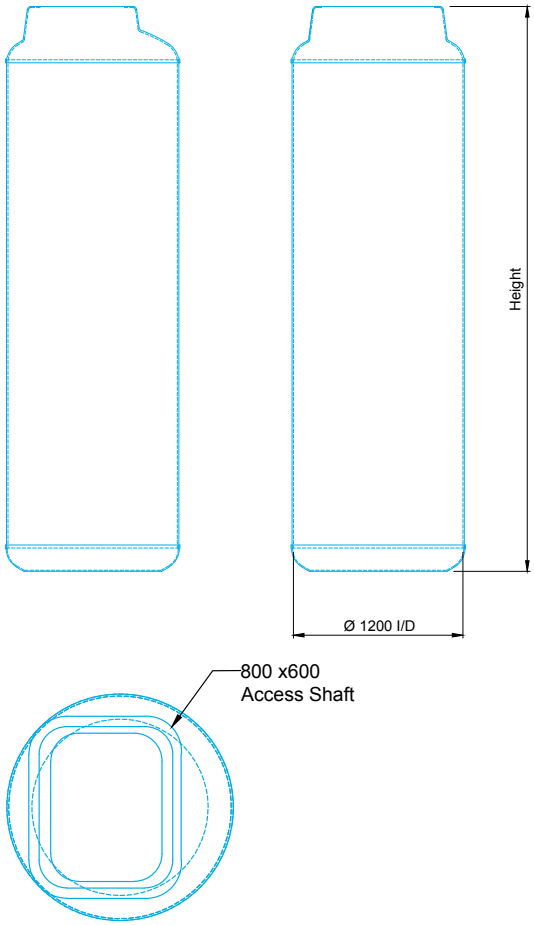
Specification

Specifications to suit chamber invert depth and water table (in winter) with concrete surround





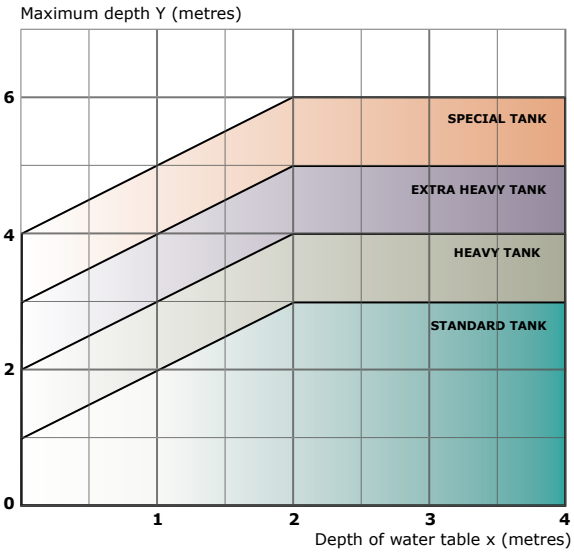
9.6 Xspel® V200 Series - Pumping Chambers

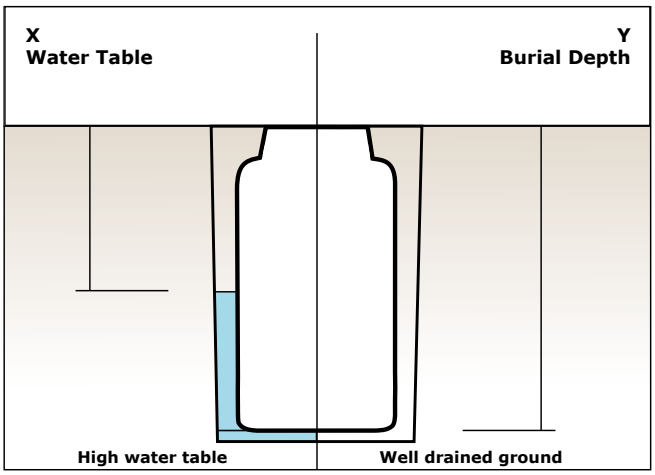


Model	o/a height mm	Gross capacity - litres
V220	2000	1700
V225	2500	2250
V230	3000	2800
V235	3500	3400
V240	4000	4000
V245	4500	4500
V250	5000	5000

Specification

Specifications to suit chamber invert depth and water table (in winter) with concrete surround





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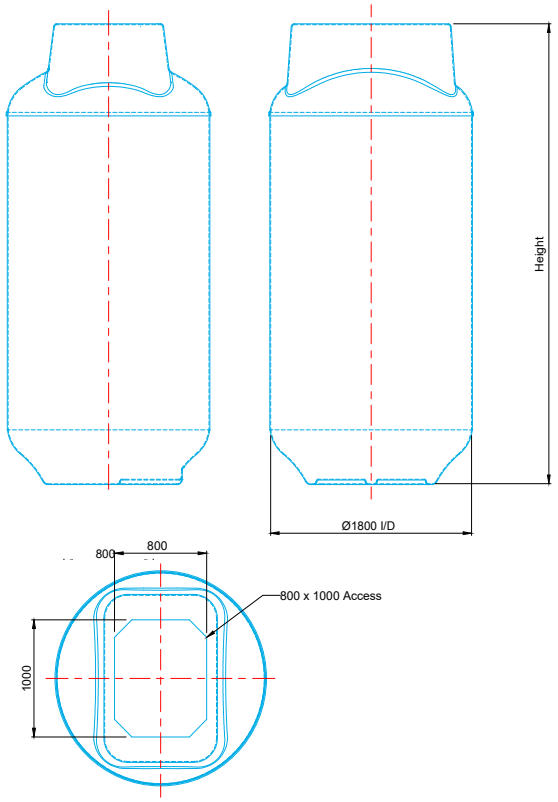
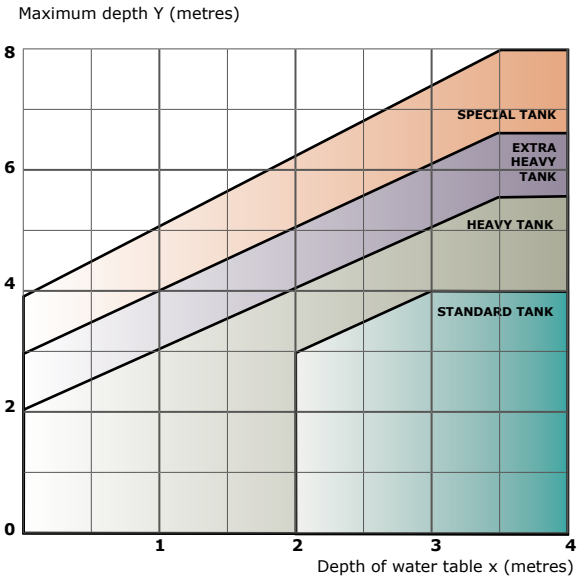
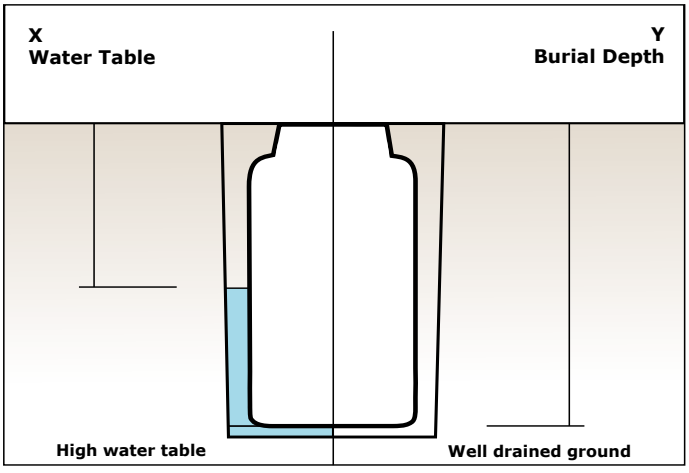


Model	o/a height mm	Gross capacity - litres
V325	2500	5000
V330	3000	6250
V335	3500	7500
V340	4000	8750
V345	4500	10000
V350	5000	11250
V355	5500	13000
V360	6000	13750
V365	6500	15000

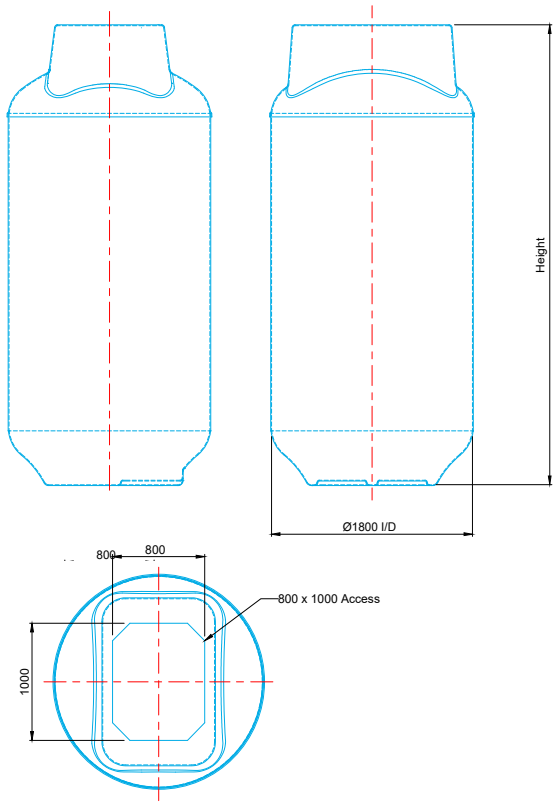
Specification

Specifications to suit chamber invert depth and water table (in winter) with concrete surround





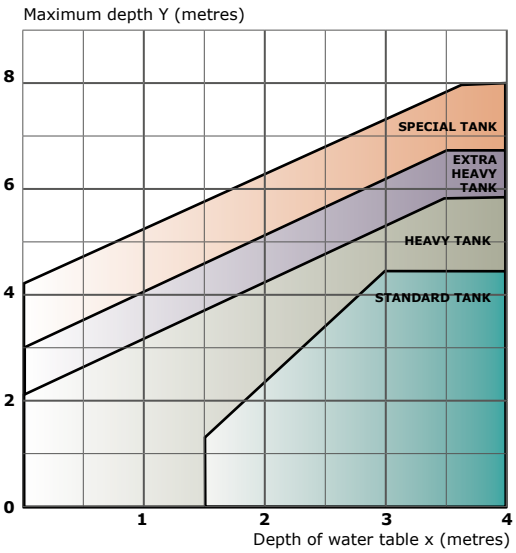
9.8 Xspel® SPEL V300 Series - Pumping Chambers

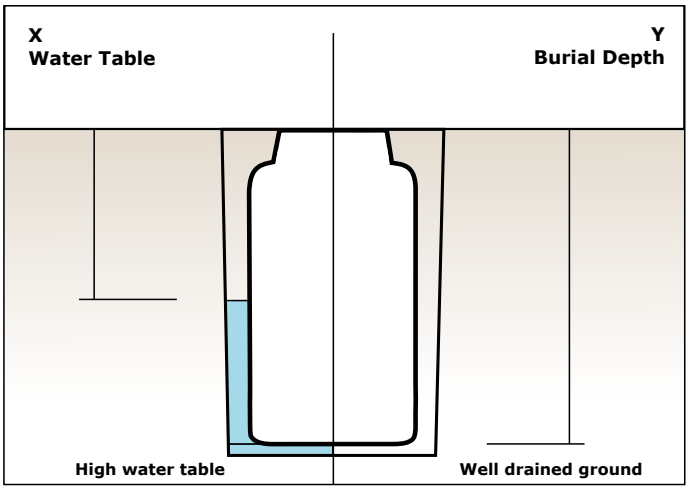


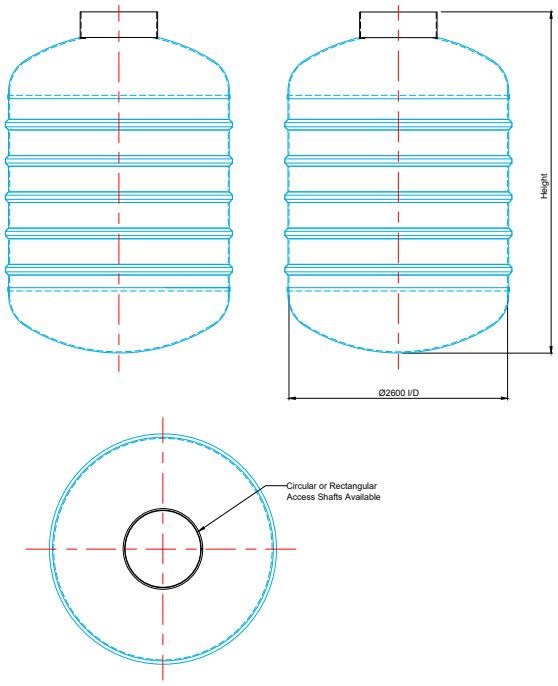
Model	o/a height mm	Gross capacity - litres
V325	2500	5000
V330	3000	6250
V335	3500	7500
V340	4000	8750
V345	4500	10000
V350	5000	11250
V355	5500	13000
V360	6000	13750
V365	6500	15000

Specification

Specifications to suit chamber invert depth and water table (in winter) with concrete surround



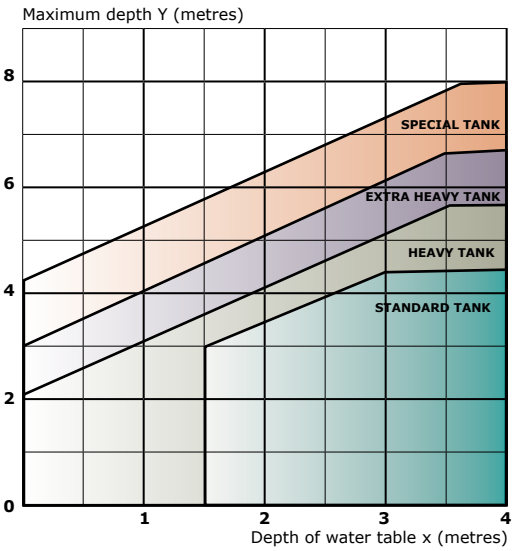


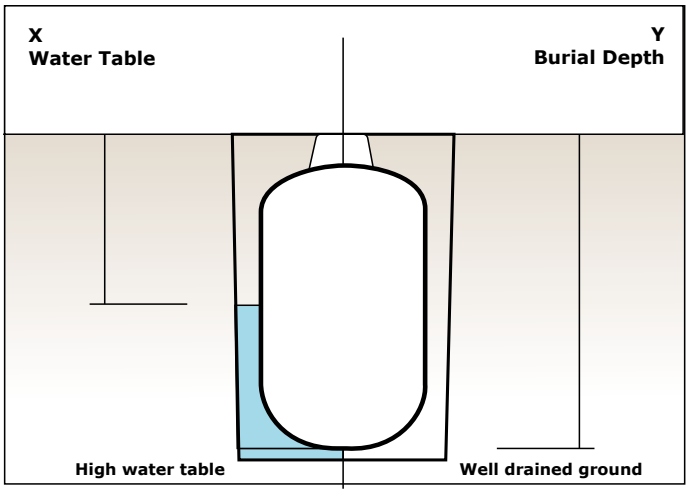


Model	o/a height mm	Gross capacity - litres
V430	3000	10000
V435	3500	12800
V440	4000	15500
V445	4500	18000
V450	5000	20000
V455	5500	23000
V460	6000	26000
V465	6500	28750
V470	7000	31000
V475	7500	34000
V480	8000	36500

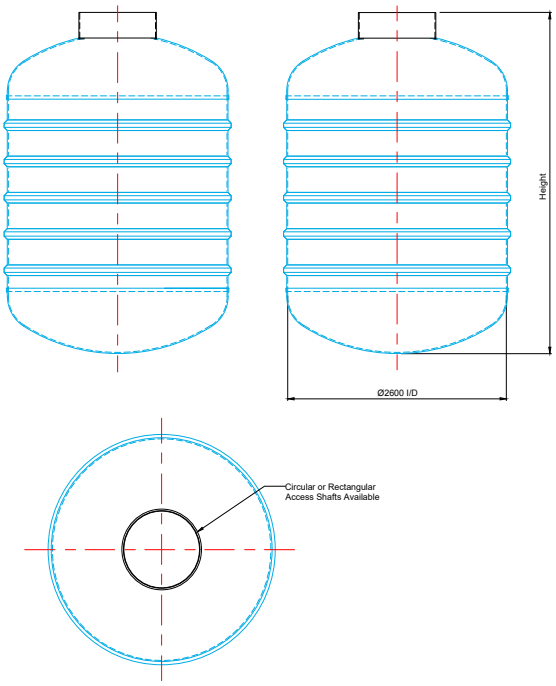
Specification

Specifications to suit chamber invert depth and water table (in winter) with concrete surround





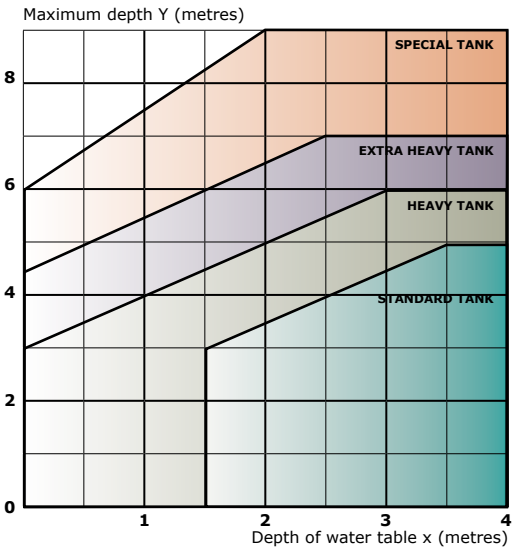
9.10 SPEL V400 Series - Pumping Chambers

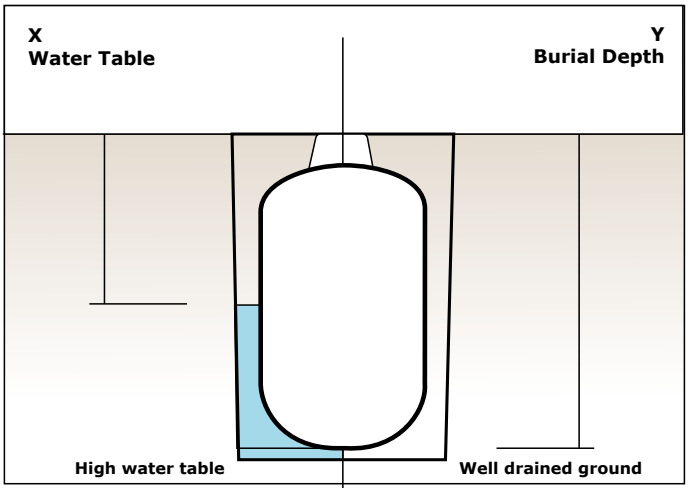


Model	o/a height mm	Gross capacity - litres
V430	3000	10000
V435	3500	12800
V440	4000	15500
V445	4500	18000
V450	5000	20000
V455	5500	23000
V460	6000	26000
V465	6500	28750
V470	7000	31000
V475	7500	34000
V480	8000	36500

Specification

Specifications to suit chamber invert depth and water table (in winter) with concrete surround





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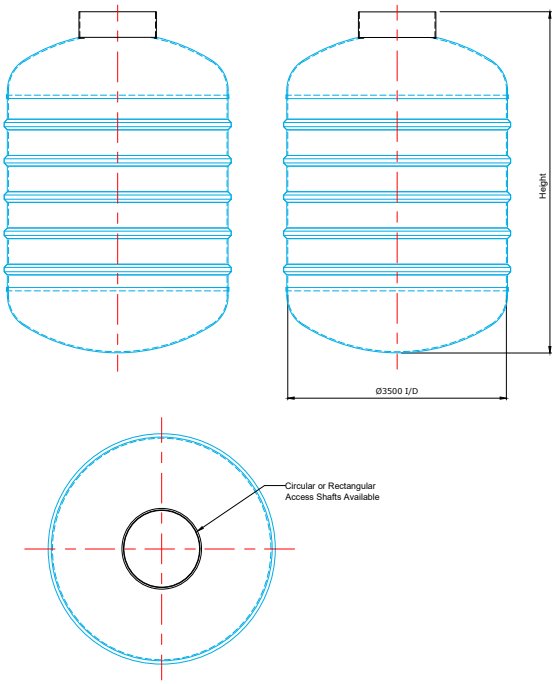
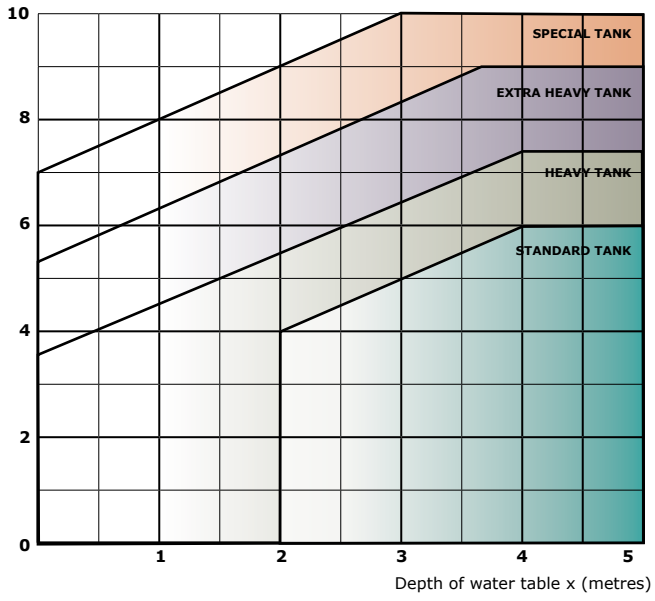
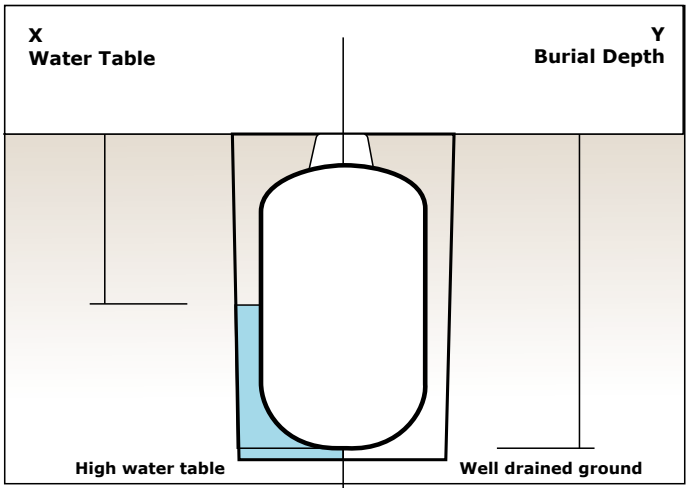


Model	o/a height mm	Gross capacity - litres
540	4000	50400
545	4500	55368
550	5000	60330
555	5500	65290
560	6000	70250
565	6500	75210
570	7000	80170
575	7500	85130
580	8000	90100

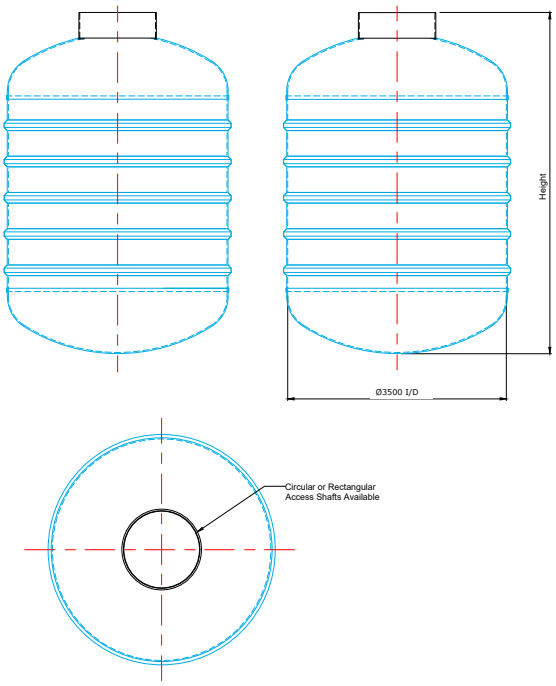
Specification

Specifications to suit chamber invert depth and water table (in winter) with concrete surround





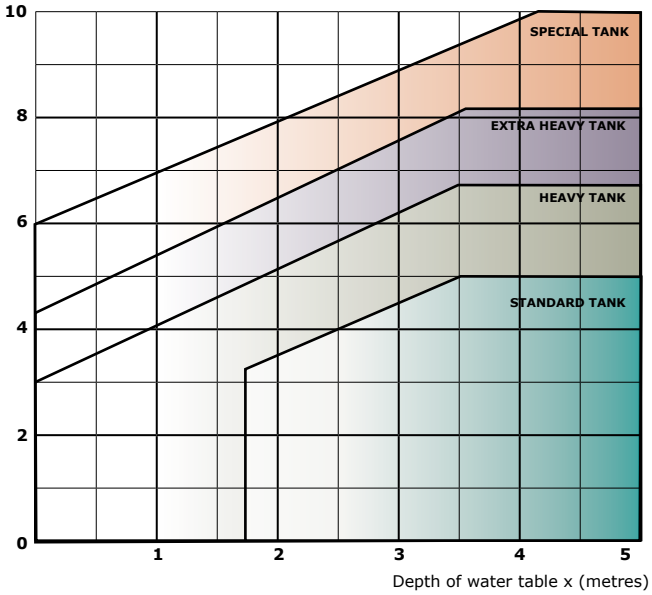
9.12 SPEL 500 Series - Pumping Chambers

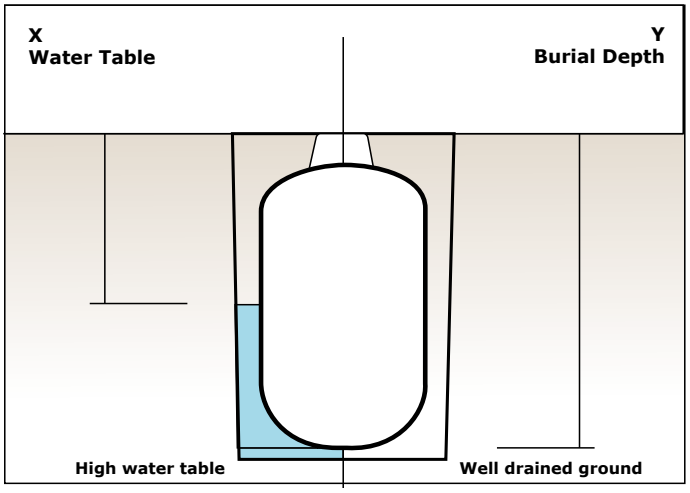


Model	o/a height mm	Gross capacity - litres
540	4000	50400
545	4500	55368
550	5000	60330
555	5500	65290
560	6000	70250
565	6500	75210
570	7000	80170
575	7500	85130
580	8000	90100

Specification

Specifications to suit chamber invert depth and water table (in winter) with concrete surround





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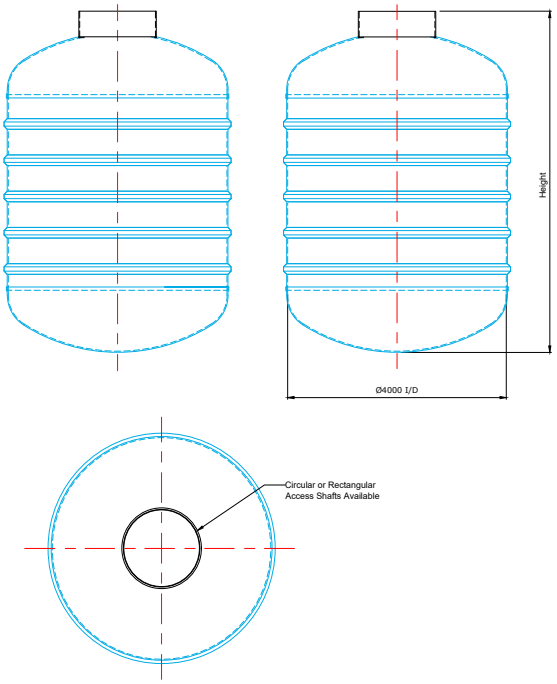
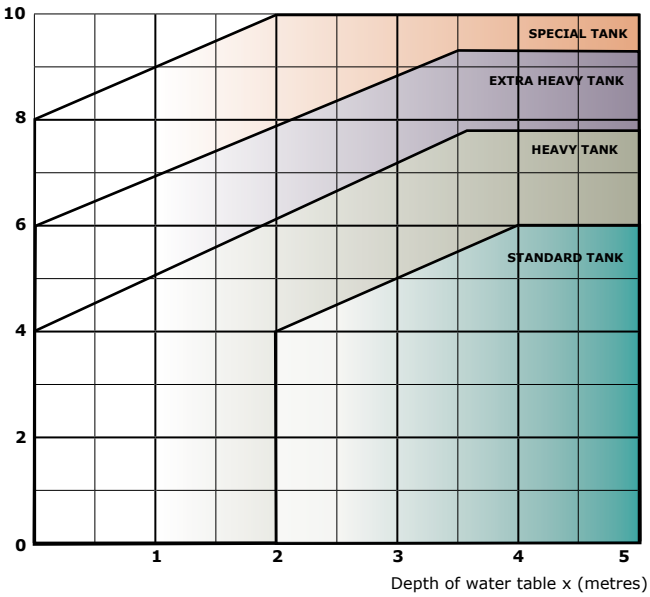


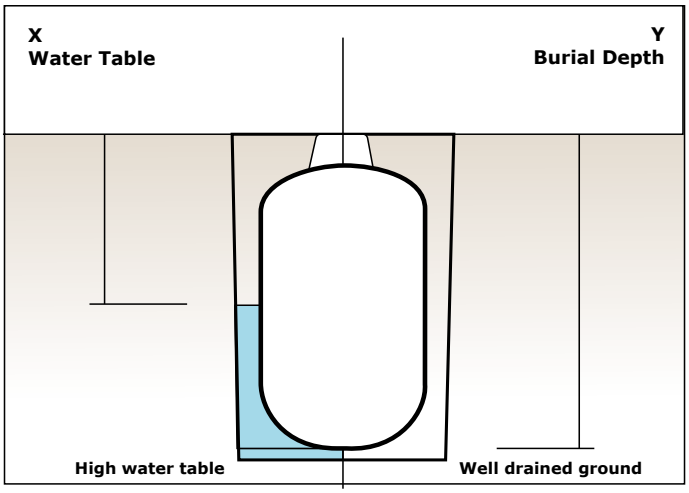
Model	o/a height mm	Gross capacity - litres
640	4000	65668
645	4500	71950
650	5000	78234
655	5500	84517
660	6000	90800
665	6500	97080
670	7000	103370
675	7500	109650
680	8000	115930

Specification

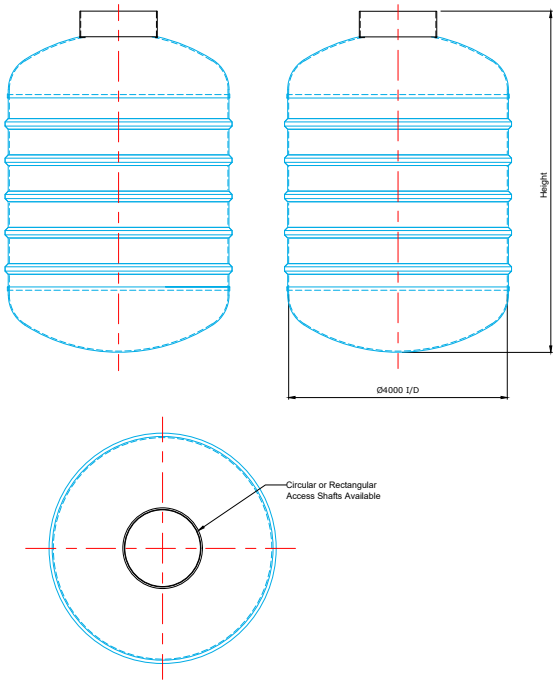
Specifications to suit chamber invert depth and water table (in winter) with concrete surround

Maximum depth Y (metres)





9.14 SPEL V600 Series - Pumping Chambers

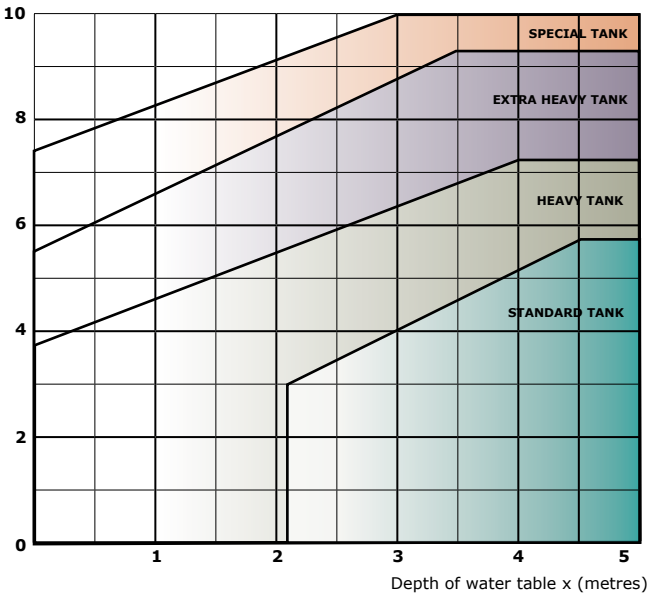


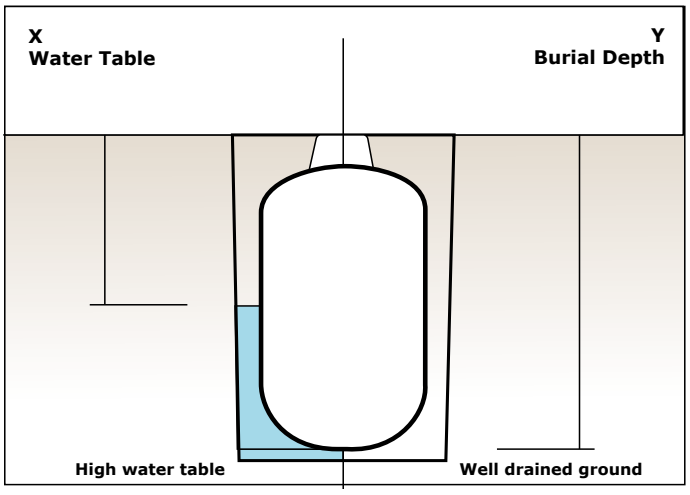
Model	o/a height mm	Gross capacity - litres
640	4000	65668
645	4500	71950
650	5000	78234
655	5500	84517
660	6000	90800
665	6500	97080
670	7000	103370
675	7500	109650
680	8000	115930

Specification

Specifications to suit chamber invert depth and water table (in winter) with concrete surround

Maximum depth Y (metres)





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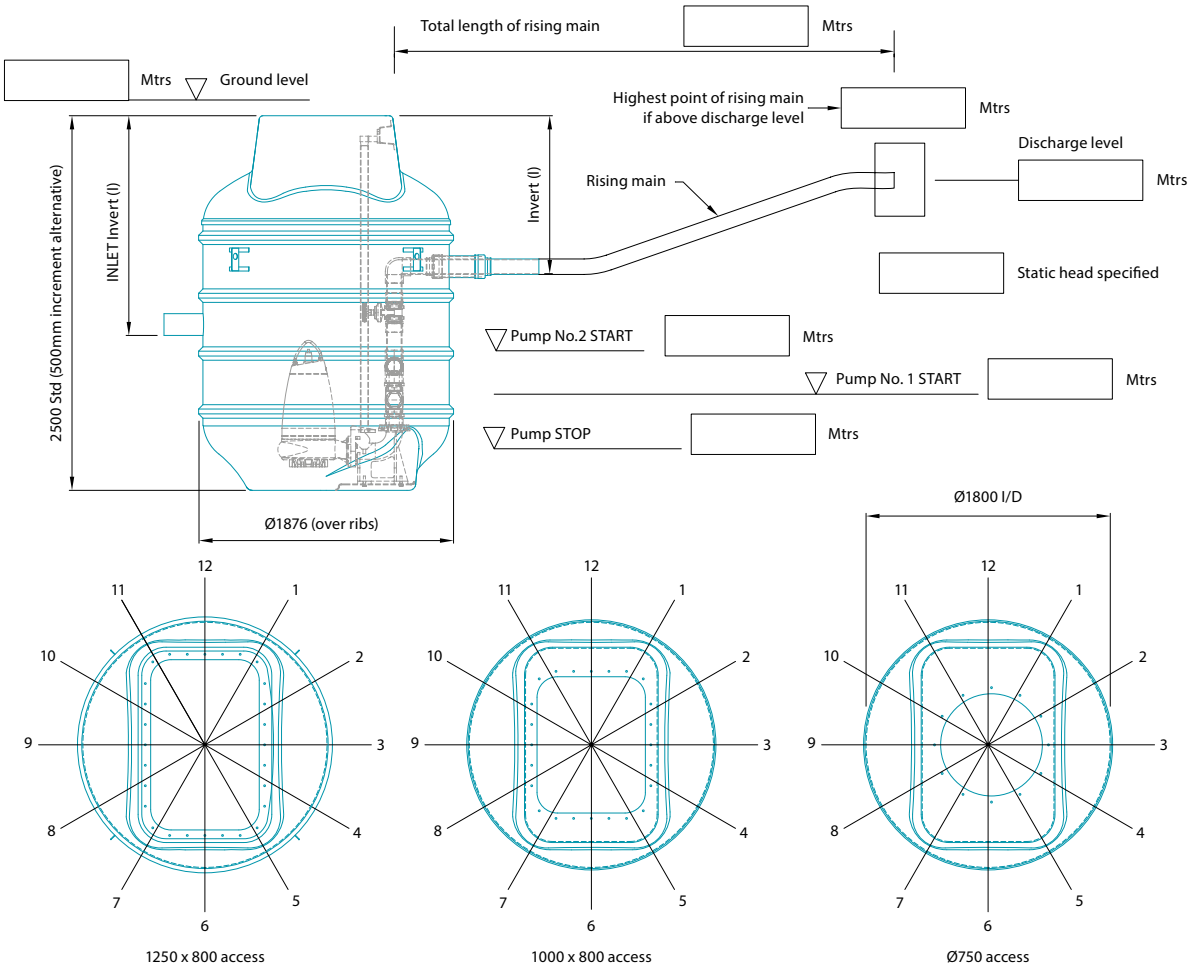


SPEL Xspel® V300 (400-600 Series have circular access shafts)
Pumping station levels = distance

Please complete this table so we can supply an accurate quotation.

Description	Position 1-12	Invert level (1)	Pipe size
Discharge pipe	3		--
Inlet pipe A			
Inlet pipe B			
Inlet pipe C			
Inlet pipe D			
Air vent			
Cable duct			

Media to pump:

Rate:

L/sec

Electrical supply available

◯ Single phase (230 Volts)
◯ 3 Phase (415 Volts)

To adoptable standard

◯ YES ◯ NO

WRC approved ◯

Distance from panel to tank

◯ 10m ◯ 20m or Other:

m

Water table

Maximum level:

m

Options

9.16 SPEL H-Series Horizontal Pumping Stations

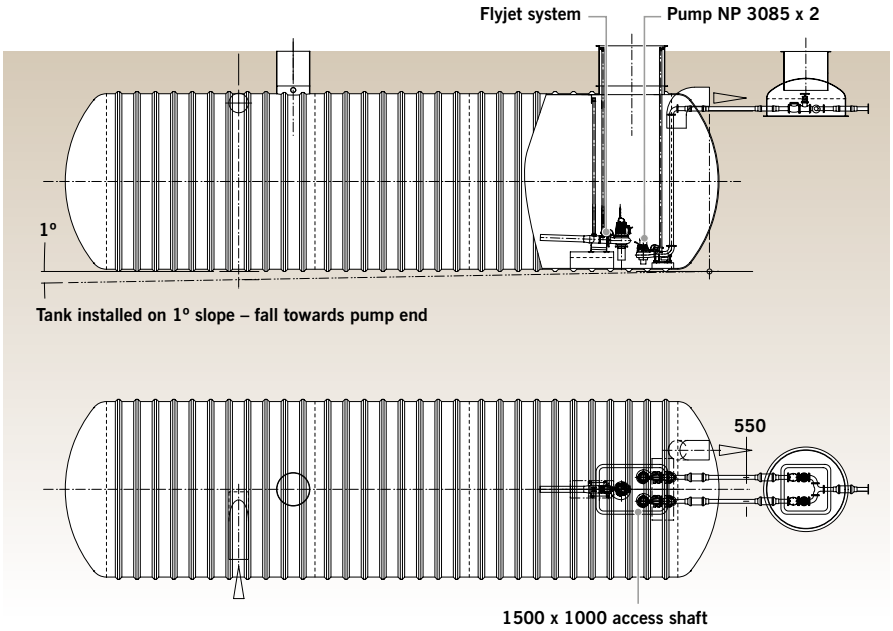
There are many applications where underground tanks are used with pumps, eg. stormwater buffer storage or attenuation, sprinkler fire fighting reservoirs, grey and rainwater storage and utilisation systems (SPEL RainSave System®), surface water and/or sewage pumping stations.

SPEL design and build complete pumping systems for water and local authorities, industrial and commercial developments.

SPEL H-series package pumping stations incorporate all pumping equipment; pipework, valves, pedestals and guide rails are factory fitted and tested. Expensive sitework installing pumping equipment under difficult conditions is eliminated. The only sitework is final commissioning by expert engineers which is a simple and efficient operation with no 'confined space' requirements.

For a quality package providing long, trouble free service all component parts must be selected and specified to achieve that end result. Cutting component quality to reduce cost will result in high maintenance costs and higher life cycle cost (LCC).

For the range of tank capacities and examples of internal components refer to SPEL Tankstor® tanks in Section 2.



SPEL 600 series 180,000 litre capacity incorporating ITT Flygt pumps, Flyjet unit, separate valve chamber with stainless steel pipework, to meet Sewers for Adoption 5th edition. Fortrose and Rosemarkie WWTW Ross-shire, Scotland

Typical SPEL 'H' series package pumping station

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This range is designed to meet the requirements of The Building Regulations 2002 edition for foul water pumping stations.

The unit provides a standard sized pumping chamber with overflow to emergency storage sized to contain the required 24-hour inflow allowance for disruption of service.

Designed and built for efficiency and durability.

The basic shell is chop-hoop filament wound in glass reinforced plastics as a one piece unit to the British Standard BS4994 and ISO 976.

Pumps incorporated can be ITT Flygt or Grundfos to suit specific site requirements. The pipework and valves are factory fitted and tested enabling the unit to be connected up on site with the minimum amount of site labour.

The valves can be incorporated in a separate valve chamber to comply with 'Sewers for Adoption' requirements. (See 9.18)

Reliability

SPEL Products have been manufacturing for over 45 years and pumping stations since the 1970's. The SPEL Package Pumping Stations have been supplied to Scottish Water Solutions, St Andrews Golf Course, Yorwaste Ltd, Avana Bakeries, hospitals, hotels, universities, fire stations, RNAS Yeovilton, Robert Wiseman Dairies, Ashford Traincare etc..

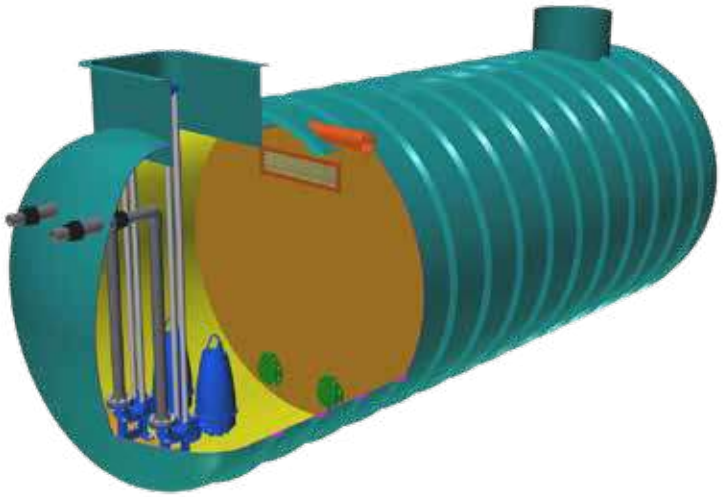
Warranty

The shell carries a 25 year warranty, whilst WRc approved models include a 30 year warranty.

Features

- Generously sized pumping chamber with curved and smooth base that is self cleansing.
- Quality pipework in Class E PVC-U or stainless steel.
- Mesh screen to overflow to prevent solids being transferred to emergency storage.
- Two quality non-return flap valves to allow emergency storage overflow to return to the pumping chamber after reinstatement of power.
- Orientations and sizes of connections to serve specific site requirements.

Site commissioning available.



Sizing

The minimum daily discharge of foul drainage should be taken as 150 litres per head per day for domestic use.

For other types of building, the capacity of the receiving chamber should be based on the calculated daily demand of the intake for the building. Where only a proportion of the foul sewage is to be pumped, then the capacity should be based pro-rata.

The controls are arranged to optimise pump operation.

Site dimensions for site specific unit

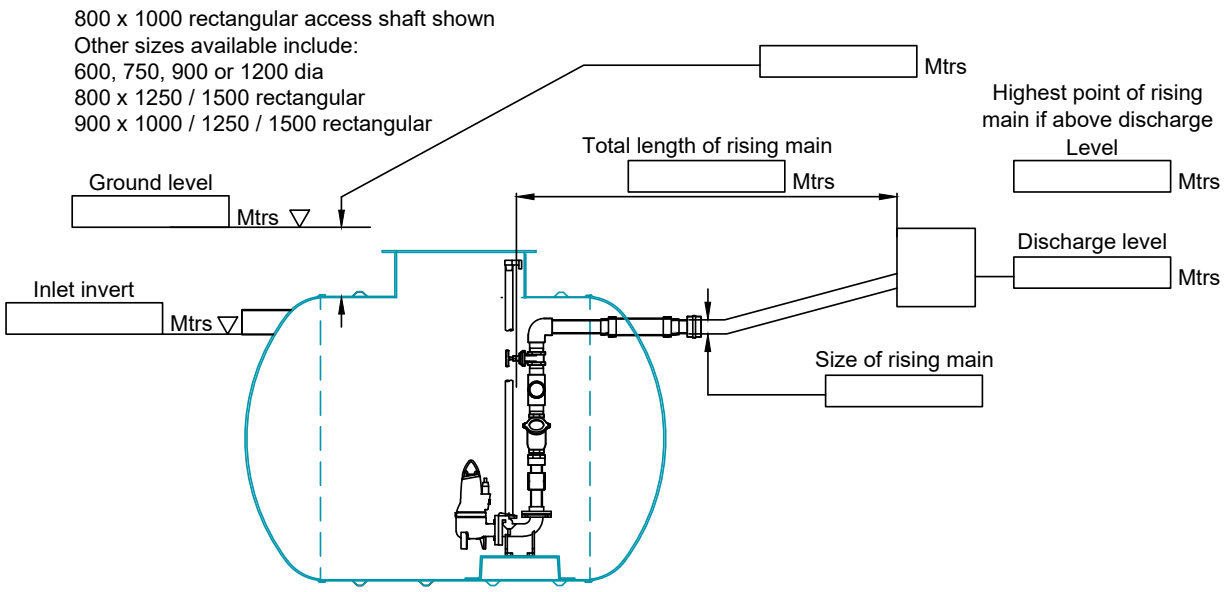
The sewer invert levels and location/ direction, their sizes together with the distance to pump and the invert level of the receiving manhole chamber will be required.

Installation

Installation is a simple and quick operation. Instructions are contained in the Installation Instructions TS11 (supplied with the tank or available on request).

Model	Gross capacity (litres)	Overall length (m)	Storage capacity (max.litres)
400/18	18,200	4.00	17,400
400/20	20,000	4.40	19,400
400/25	25,000	5.25	24,250
400/27	27,000	5.70	26,500
400/30	30,000	6.17	29,000
400/36	36,400	7.40	35,000
400/40	40,600	8.20	39,000
400/45	45,500	9.05	43,500
400/50	50,000	9.95	48,000
400/60	60,000	11.83	57,000
400/70	70,000	13.71	67,000
400/75	75,000	14.70	72,000
400/80	80,000	15.60	77,000

Questionnaire for SPEL pumping station



Pumping station levels = distance

Please complete this table so we can supply an accurate quotation.

Media to pump:

Rate:

L/sec

Electrical supply available

- ◯ Single phase (230 Volts)
- ◯ 3 Phase (415 Volts)

To adoptable standard

◯ YES ◯ NO

WRC approved ◯

Pump/s arrangement

- ◯ Duty only
- ◯ Duty/Standby (fixed discharge rate)
- ◯ Duty Assist (variable discharge rate)

	Size	Level (mtrs)
Inlet pipe A		
Inlet pipe B		
Inlet pipe C		
Inlet pipe D		

Water table level (max)	**Mtrs**

Standard Control Panel (3 phase DOL)

Steel construction with ingress protection rating IP54 and concealed hinges provides for hours run, ammeters, pump running/tripped, hand/auto/off, high level and cancel alarm.

Distance from panel to tank

◯ 10m ◯ 20m or Other: m

Options

Commissioning - if you require SPEL to commission please indicate when you will require this:

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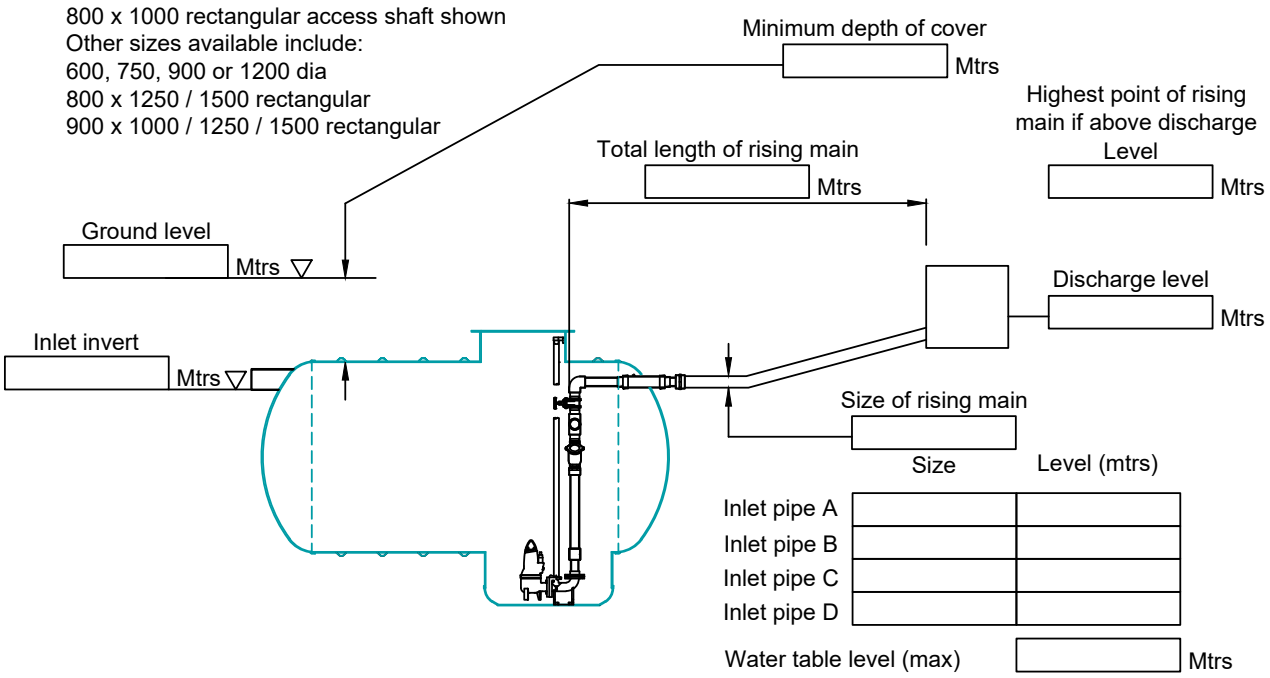
Questionnaire for SPEL pumping station (with sump)



Please complete this table so we can supply an accurate quotation.

Media to pump:

Rate:

L/s

Electrical supply available

- ◯ Single phase (230 Volts)
- ◯ 3 Phase (415 Volts)

To adoptable standard

◯ YES ◯ NO

WRC approved ◯

Pump/s arrangement

- ◯ Duty only
- ◯ Duty/Standby (fixed discharge rate)
- ◯ Duty Assist (variable discharge rate)

	Size	Level (mtrs)
Inlet pipe A		
Inlet pipe B		
Inlet pipe C		
Inlet pipe D		

Water table level (max)	**Mtrs**

Standard control panel

Steel construction with ingress protection rating IP54 and concealed hinge. To include: hours run counter, ammeters, pump running/ tripped, hand/auto/off, high level and cancel alarm.

Distance from panel to tank

◯ 10m ◯ 20m or Other:

Options

Commissioning - if you require commissioning please indicate site location.

Valve chamber required

◯ YES ◯ NO

Tank volume required

Ltrs

Please supply a site reference for correspondence

Examples of site specialist applications

SPEL H-series horizontal pumping stations are also designed to meet customers' specific requirements. The illustrations on these pages include a variety of pumping station designs supplied.

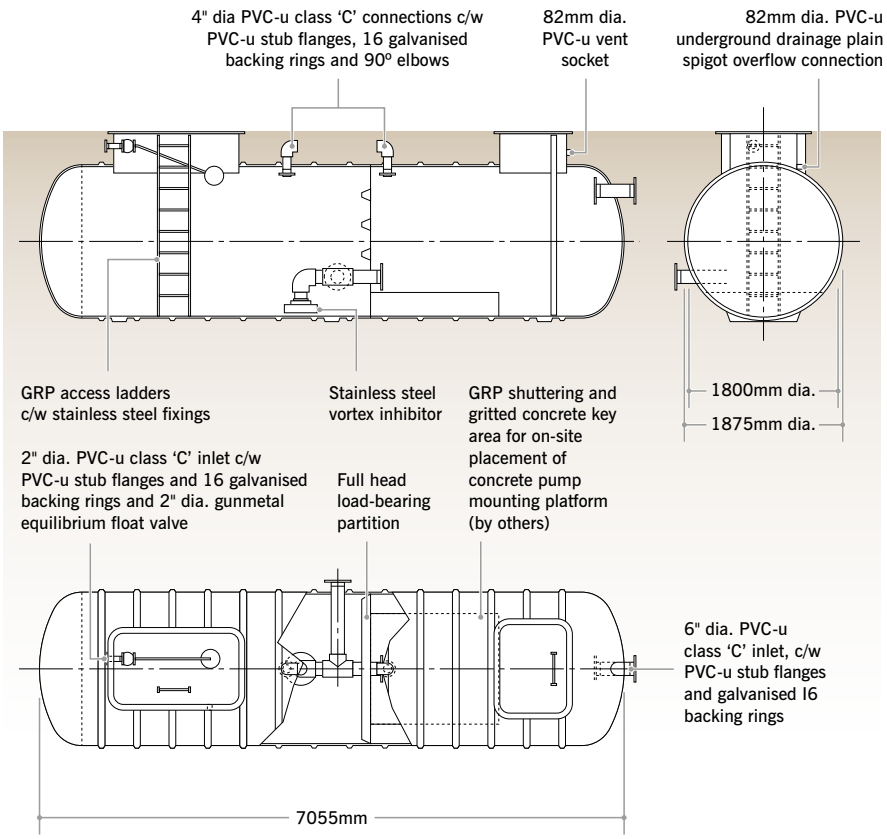
Where tanks are divided into several chambers that could empty alternately, domed partitions are included for the larger diameter 500 and 600 series tanks. For the smaller tanks load bearing partitions are incorporated.

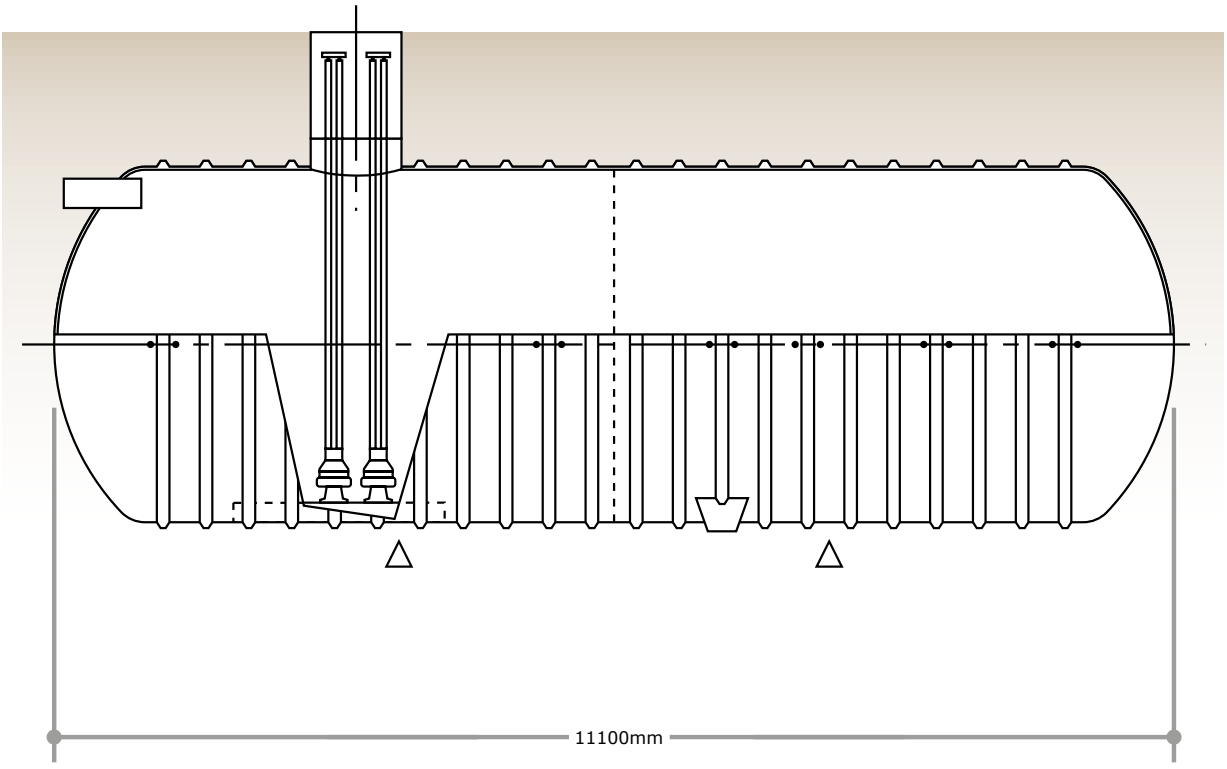
The tanks are normally supplied complete with internal pipework, pump pedestals, any valves required, access ladders etc. for simple installation and connecting on site.

Commissioning after installation and ongoing regular servicing is available by fully trained and skilled engineers.

Right: Fire fighting sprinkler reservoir tank, Leeds School PFI project.

Below: Stormwater attenuation tank with pumping to two separate outfalls.





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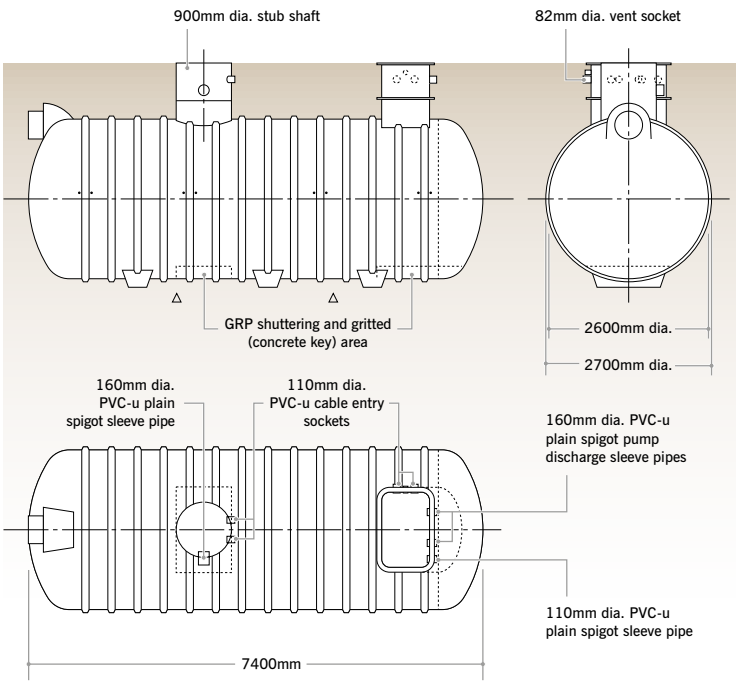
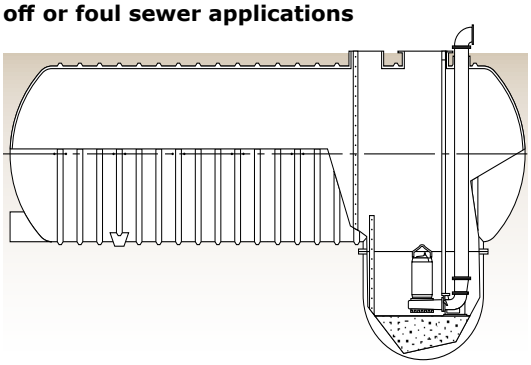
Typical package pumping station

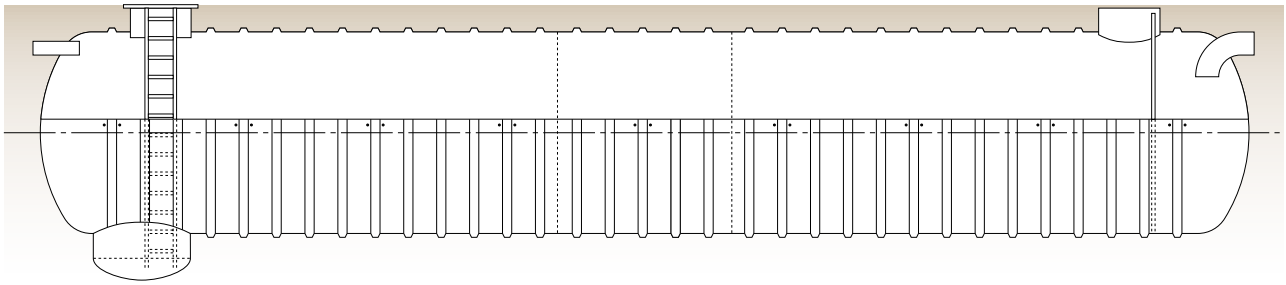


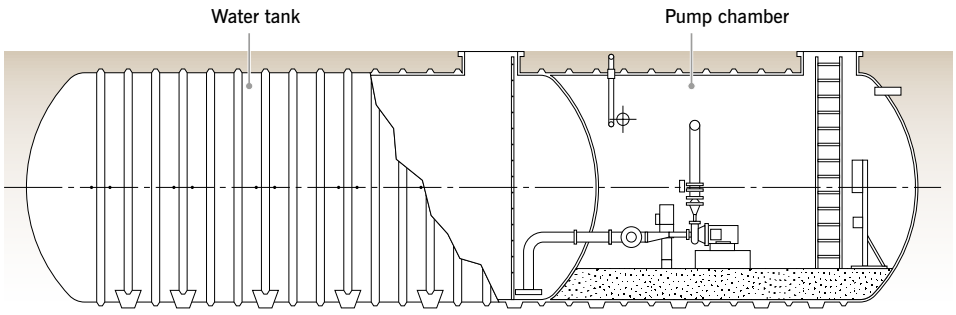
Large sump for handling surface water run off or foul sewer applications



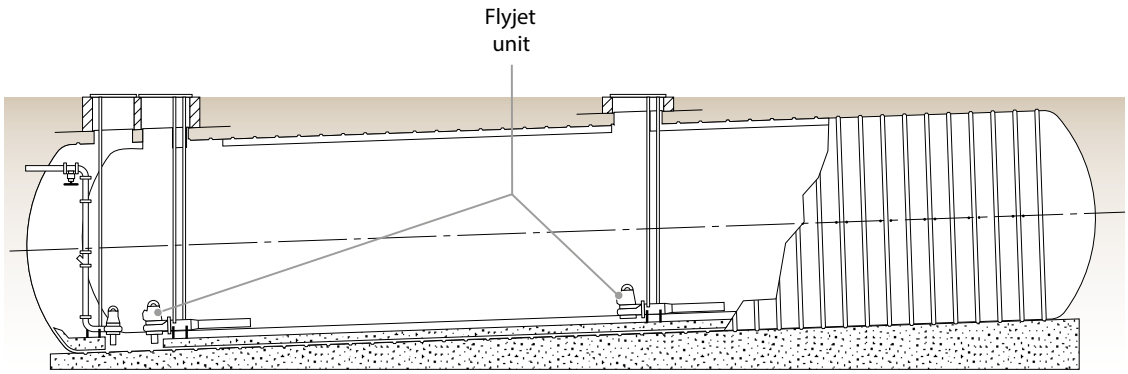
Sumps

For applications requiring 100% drain, a sump can be incorporated to suit pumps, flow rates, media to be pumped etc.





Package pumping station incorporating a dry pump chamber e.g. water reservoirs for fire fighting sprinkler system.



Where silt, grit or other particles present in waste or process liquids are to be kept in suspension.

9.22 SPEL Valve Chambers

Separate valve chambers allow for easier access for maintenance and are required for pumping stations designed for adoption in accordance with 'Sewers for Adoption' which includes the following:

1. The valve chamber should be separate from the wet well to accommodate different settlement. (Particularly in relation to conventional concrete chamber constructed chambers.)

2. The valve chamber should house the following:

• One gate valve per pump mounted horizontally in the pumpset outlet pipework and arranged to isolate the pumpsets from the rising main;

• One check valve per pump mounted horizontally in the pumpset outlet upstream of the gate valves and arranged to prevent mass flow reversal under normal operating conditions; and

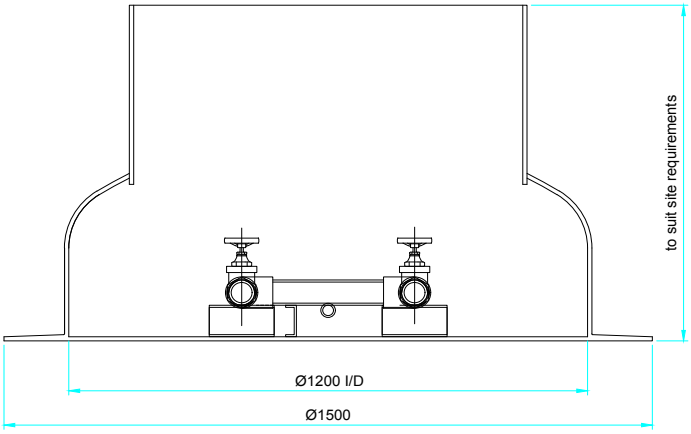
• A gate valve and 100 mm diameter female Bauer coupling, mounted vertically in a Tee piece in the rising main, downstream of the gate and check valves, and suitable for connecting to a flexible hose pumping out the wet well by mobile pump/tanker during plant maintenance or failure.

3. The valve chamber should be provided with a gravity drain into the wet well.

Other requirements include the specification for the valves, access opening, protection against surface water entry, the type of covers, venting etc. SPEL Products can advise in the design to meet specific requirements.

SPEL Valve Chambers are available as separate units in different sizes or, where convenient, can be supplied as an 'integral' part of the main unit, saving installation time on site and with the benefits of a factory fitted and tested 'one piece' unit.

Typical Valve Chamber



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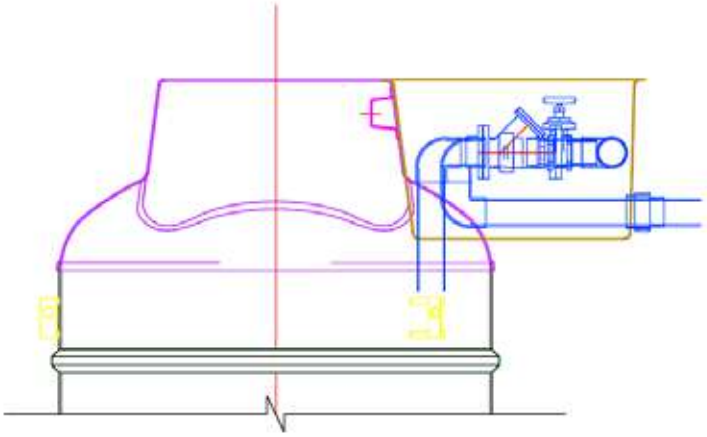
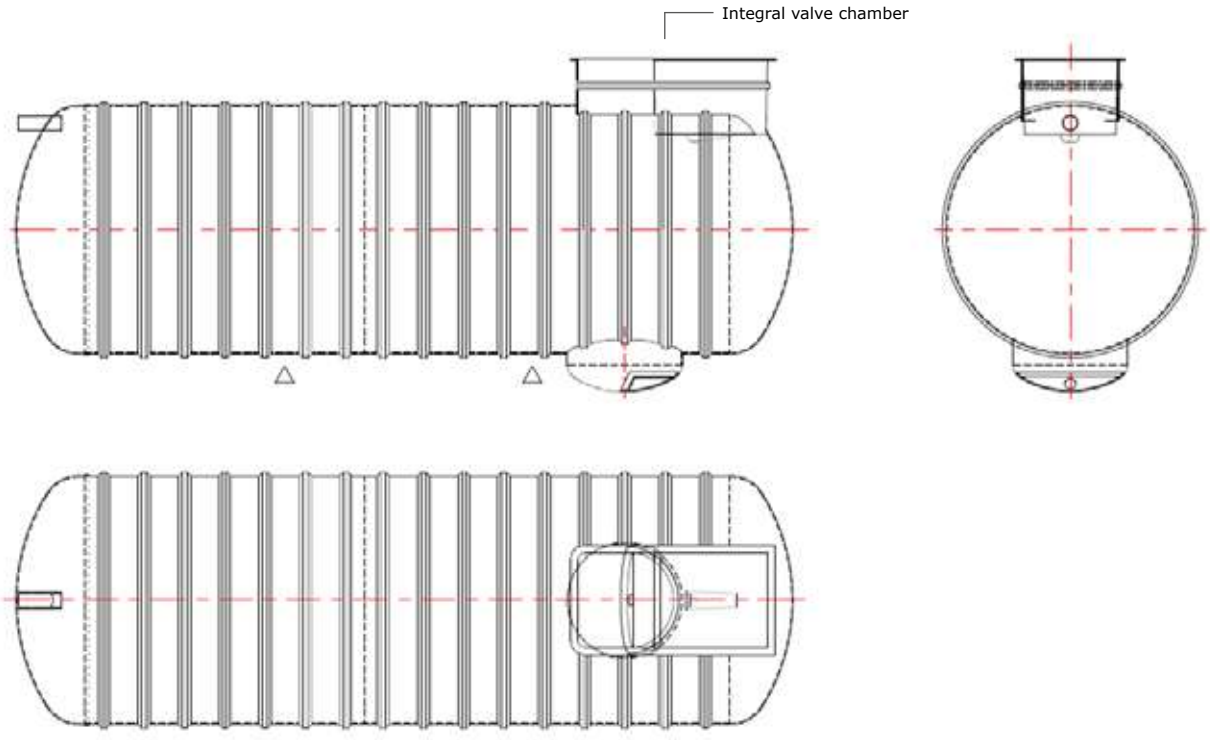
SPEL 'Integral' Package Pumping Stations

Where appropriate 'Integral' valve chambers eliminate site connection to a separate valve chamber and saves on installation costs. Examples of SPEL 'Integral' Package Pumping Stations are shown below:

Vertical



Horizontal



9.24 SpelGuard Servicing®

Investing in a SPEL system means the customer appreciates the superior quality of our systems and will expect after service of equal quality.

As with all systems regular inspection and servicing is recommended to maintain the system's operation and efficiency and avoid breakdowns and any accompanying emergency.

SPEL engineers are trained to service the many systems (SPEL Package Pumping Stations, SPEL DrainGuard, SPEL Econoskim® light liquid skimming and separate containment Systems, SPEL Monitoring & Containment Systems etc.)

For emergencies we endeavour to attend within 48 hrs but this depends on the location. However, we will attend to emergencies as quickly as possible and liaise accordingly.

Two types of service are available as follows:-

SpelGuard® – *Premium*

This agreement covers all parts that regularly require replacement (as listed per system) and labour. Parts that are found damaged that are not normally replaced in a service will be subject to a special quotation for supply and fitting. Where a pump is faulty and within the warranty period it will be subject to the manufacturers' warranty.

SpelGuard® – *Standard*

This service includes the above but all parts requiring replacement are extra. This may involve a second visit if parts are not immediately available and require ordering.

Service check list

The installation will be inspected and checked for any damage, malfunctioning and the sump condition reported on. The specific items as follows:-

1. Pumps

1.1. Check operation of pumps
1.2. Flow rate
1.3. Lifting chains
1.4. Valves

2. Level control

2.1. Condition check
2.2. Level settings

3. System controls

3.1. Earthing on all items
3.2. Function of all components
3.3. Check electronic logic control programme as applicable
3.4. Insulation test of motors
3.5. Running current check of motors
3.6. Winding resistance check of motors
3.7. All electrical connections for tightness

4. Apply labelling/warning signs etc. if applicable.

On completion of installation and commissioning this must be passed to the site operator or facilities management to ensure ongoing servicing requirements are met.

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Aldi Distribution Centre

CASE STUDY

Project: **Aldi Distribution Centre**

Client: **Aldi**

Consultant/Contractor: **Craddy Pitchers/Moortown**

Products:

SPEL Puraceptor® Class 1 Two Chamber Separators:

2 No. P100 2C/SC
1 No. P400 2C/SC
1 No. P150 2C/SC
1 No. P125 1C/SC
2 No. FS2 SC

SPEL Package Pumping Stations:

1 No. 'H' Series PS500/39500
1 No. 'H' Series PS400/25000
1 No. 'H' Series PS400/30500
1 No. 'V' Series V340
1 No. 'V' Series V440

This new regional distribution centre and offices for discount supermarket chain Aldi on the outskirts of Cardiff will create more than 400 new jobs and is being backed with financial support from the Welsh Government.

It is anticipated the investment in the new centre could result in the opening of up to 10 new stores in Wales over the next five years with the potential to create a further 500 jobs.

The new centre will supply stores in South Wales and the South West of England, creating 414 jobs in a variety of roles from graduate level to senior management and operational roles.

The £59.m investment is supported by the Welsh Government with £4.5m business finance which ensured the project was secured for Wales.

Funding support is towards the abnormal land development costs of more than £5m to get the site ready for construction.

National Football Centre Burton-on-Trent

CASE STUDY

Project: **National Football Centre**

Client: **Football Association**

Consultant/Contractor: **Bowmer & Kirkland**

Products:

1 No. SPEL Stormceptor® Class 1 By-pass Separator 215C1/SC
2 No. SPEL Tankstor® Underground Rainwater Storage Tank 300 Series 10,000 litres capacity
1 No. SPEL RainSave® Underground Debris Filter Tank RSDC 450 300 Series
SPEL RainSave System®
SPEL 'H' Series Package Pumping Station with 60,000 litres tank and SPEL 15850 litres Swimming Pool Filter Backwash tank and pumps.


Image Credit: FA

The FA's National Football Centre, St George's Park, set in 330 acres of beautifully landscaped park land, is the training base for the 24 England teams and will provide a platform for the communication of The Future Game Philosophy, which outlines a vision for the development of English football.

"Everything is the best; there is the best equipment, the best facilities, the best medical facilities, the best food and hotels. Every one of the pitches is of the highest quality of anywhere in the world"
(Sir Bobby Charlton CBE).

The Future Game will be brought to life in the football centre which includes a full-sized indoor third generation football pitch equipped with a viewing gallery for up to 200 people, a 60mx40m multi-purpose indoor sports hall, 11 full size outdoor pitches and one elite DESSO training pitch which is an exact replica of Wembley.

This world class facility is available for use by national and international football clubs, as well as other sports and business organisations to drive excellence in performance.

Stoke Gifford Train Maintenance Centre

CASE STUDY

Project: **Stoke Gifford Train Maintenance Centre**

Client: **VolkerFitzpatrick**

Contractor: **Network Rail**

Products:

SPEL 'H' Series Horizontal Package Pumping Stations

PS 300/30,000 Litre
PS 300/18,200 Litre

'V' Series Vertical Package Pumping Station V460
'V' Series Vertical Package Pumping Station V340

SPEL Puraceptor® Class 1 Fuel/Oil Separators:
P150/1CSC
P040/1CSC
P065/1CSC
P200/1CSC

The Bristol based depot is one of three Hitachi Rail Europe depots to house a fleet of long-distance InterCity Express trains that operate on the Great Western.

The state of the art, purpose-built facility incorporates a ten-car storage maintenance depot, a carriage wash building, an associated rail infrastructure and three connections to the Great Western Main line.

The type of work being carried out at the Stoke Gifford depot includes readying trains for passenger services as well as inspecting and servicing the fleet.

SECTION

13

Installation Instructions for SPEL Tankstor®, Separators & Other Underground Tanks

13.1 SPEL Underground Tanks

Introduction to Installation

SPEL Separators (Stormceptor® by-pass separators, Puraceptor® class 1 separators and full retention class 2 separators) and SPEL Tankstor® underground tanks, septic/settlement tanks, cesspools and stormwater attenuation tanks, etc.) must be installed according to these instructions and the SPEL Tankstor® and Separator installation instructions TSII (supplied with every tank).

The local authority and the local region of the Environment Agency should also be consulted as to whether any particular code applies to installation. Failure to follow these installation instructions will make our warranty void and may result in tank failure.

Site access and conditions

It is the responsibility of the contractor to ensure suitable access to good hard ground that is safe and suitable for off-loading.

Wide/long loads

Where the tank is of such size that police/private escort is required delivery times given are estimates only. In the event of delays outside our control e.g. police re-routing or escort delays, the extra charges that result will be forwarded to the contractor.

Off-loading/handling

The contractor is responsible for off-loading. Tank handling during off-loading must be carried out with care to prevent rolling off the vehicle. Care must also be exercised to prevent accidental damage from impact or contact with sharp objects.

Do not drag tanks along the ground for any distance and avoid jarring or bumps. Tanks should be lifted using slings, not chains or wire ropes. For large tanks a spreader bar may be required. Use guidelines when craning long tanks. Do not lift with water in the tank (see page 2).

Note: Where transport height restrictions prevent the tank being loaded in the vertical position on the transport vehicle, the tank will be loaded at 45 degrees or as required to keep within the restrictions. In such cases it will be necessary for the tank to be off loaded onto a level area or well supported planks positioned adjacent to the 'lift' points and supporting at least four ribs. The area must allow room to enable the tank to be rolled into the vertical position before lifting the tank into the excavation.

Storage

Set the tank on smooth ground free of bricks and sharp objects. Chock/tie down to prevent rolling and movement especially in high winds. (See 13.2).

Tank dimensions

Dimensions given on drawings and literature shall be subject to manufacturing tolerances and should be physically checked prior to installation. This applies to overall length, connection positions, their size and invert dimensions. Also check the correct way the tank shall be installed and alignment with site drainage.

Installation procedures

The alternative methods of installation depend on the ground conditions, water table and the tank's location.

Installation should be carried out by a competent contractor in accordance with the above procedures, Health & Safety at Work legislation and good building practice.

It is recommended to cover the access shaft openings with polythene or plywood sheets to prevent concrete and debris entering the tank.

It is not possible to cover every condition in these instructions, therefore if in doubt contact us.

Tank specification

Check that you have received the correct specification tank.
SPEL underground tanks are available in specifications to suit invert depths, concrete or pea gravel surround and ground water conditions, the specification options are Standard, Heavy, Extra Heavy and Special. (See pages 13.4 and 13.5). For most applications the standard or heavy specifications are adequate. If the tank invert depth and/or water table depth is outside the range specified we shall be pleased to advise accordingly.

Siting SPEL septic tanks

British Standard BS 6297: 1983 recommends that sewage treatment works should be as far from habitable buildings as is economically practicable. The direction of the prevailing wind should be considered in relation to any properties when siting the works.

In accordance with the Building Regulations 2000. H2 2002 edition SPEL septic tanks should be sited at least 7m from any habitable parts of buildings, and preferably downslope.

The tank should not be installed near a road or driveway, where it could be subjected to high external loads, unless the installation is designed to withstand such loadings, so they are not transferred to the tank shell.

Where the tank is to be emptied using a tanker, it should be sited within 30m of a vehicle access, provided that the invert level of the septic tank is no more than 3m below the level of the vehicle access. This distance may need to be reduced where the depth to the invert of the tank is more than 3m. There should also be a clear route for the hose such that the tank can be emptied and cleaned without hazard to the building occupants and without the contents being taken through a dwelling or place of work.

Siting SPEL cesspools

SPEL cesspools should be sited at least 7m from any habitable building and preferably downslope. They should, however, be sited within 30m of a sludge removal tanker access and at such levels and position to operate without hazard to the building occupants.

Access openings

It is recommended that the access openings are covered prior to back filling to keep the internal shell and fittings clean.

Extension access shafts

Check if extension shafts are required.

These are available in 500mm high increments with socket joints or if required, flanged joints with neopreme gaskets.

Prior to surrounding in concrete, if required, ensure rectangular access shafts are shuttered internally to support the sides and prevent distortion. This is especially important when guide rails are installed for pumps or coalescer units.

With high water table ensure all joints are double sealed to prevent ingress of water.

Note: Where coalescer units or pumps are incorporated that require guide rails, or ladders are fitted, the height of the extension access shaft/s should be measured accurately before ordering.

Health and safety

Installation should be carried out by a competent contractor in accordance with the above procedures, Health & Safety at Work legislation and good building practice.

A warning notice should be visible at the top of each access shaft – 'danger, harmful fumes' and 'respirators must be worn in this tank'. Before entering persons must be qualified in accordance with 'confined space' requirements.

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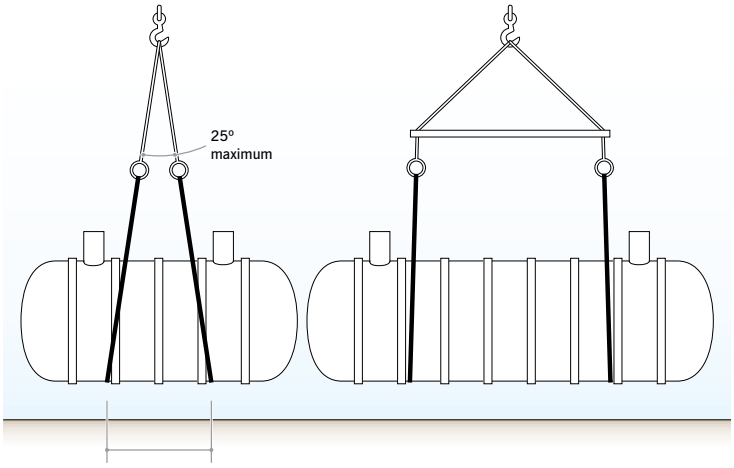
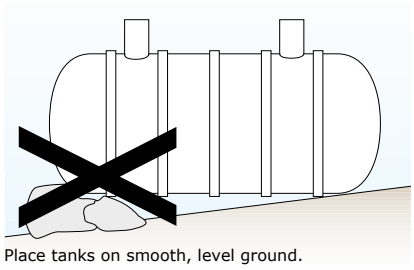
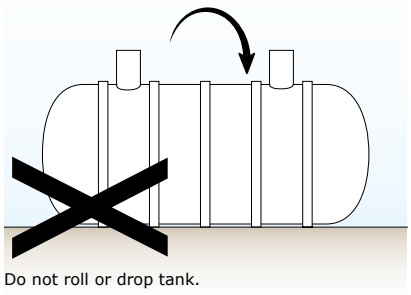
Lifting, handling and storage

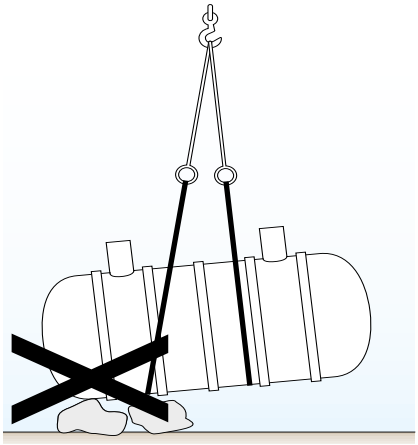
Lifting and handling - preferable methods

- Do not roll or drop tanks. Only move tanks by lifting. Rolling tanks could damage fittings
- Tanks can be lifted using slings/webbing straps as illustrated.
- Where necessary a spreader bar should be used.
- Guide the tank with guide lines.
- Never use chains or steel cables around tank shell.
- Do not drag tanks along ground for any distance.
- Avoid jarring or bumps.
- Do not lift with liquid in the tank.
- Set tanks on smooth ground, free of rocks or other sharp objects.




Place tanks on smooth, level ground.

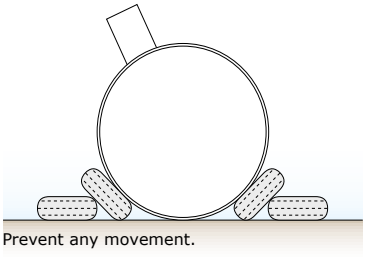

Do not roll or drop tank.

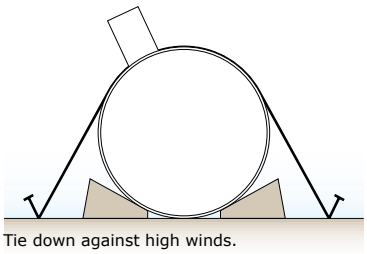

Never drag along the ground or lift unevenly.

Storage

If tanks have to be stored temporarily prior to installation, they should be located:

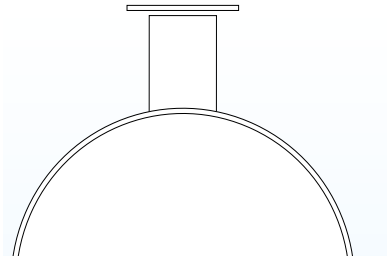
- In an area where the chance of accidental damage or vandalism will be minimised.
- On a flat surface free from small or sharp objects.
- With efficient temporary anchorage to prevent high winds causing damage.

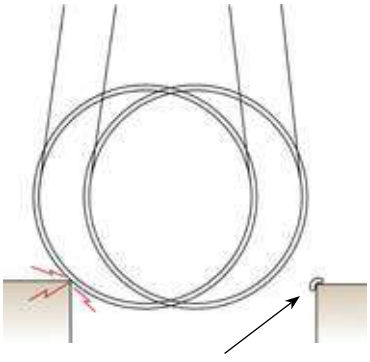

Prevent any movement.


Tie down against high winds.

Protecting the tank internally during the installation

Use a board or polythene to cover the access shaft/s to prevent concrete / backfill falling into the tank (particularly where the internal fittings eg. Pump guide rails, Separator automatic closure device (ACD) are present).

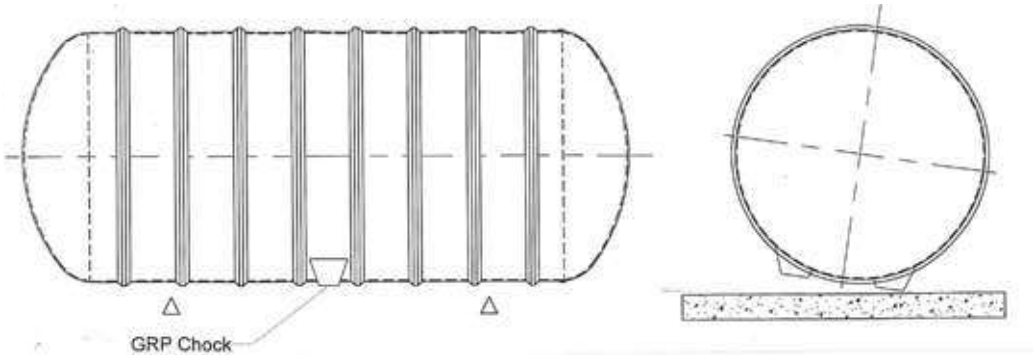

Protect tank opening with board or polythene.


Fender to protect the tank

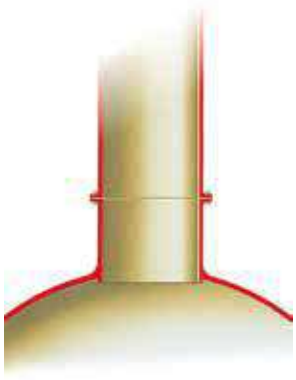
When lowering tanks into shored excavations ensure:

- Lower carefully using two guidelines,one each end, to avoid contact with piling sheets or projections.
- It is recommended that 'fenders' are placed over projecting shoring braces etc.

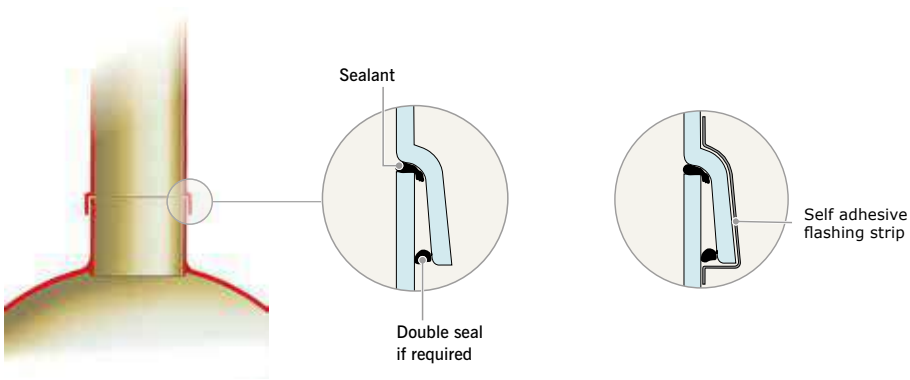
Stabilising Chocks



Chocks can be fitted to maintain the tank in a truly vertical position on a flat base slab. These chocks are not load-bearing. If fitted, the tank should be handled with care to ensure the tank is lowered squarely onto the flat base slab. Avoid lowering the tank at an angle with a chock impacting on the base slab and taking the full weight of the tank as this impact could damage both the shell and the chock.



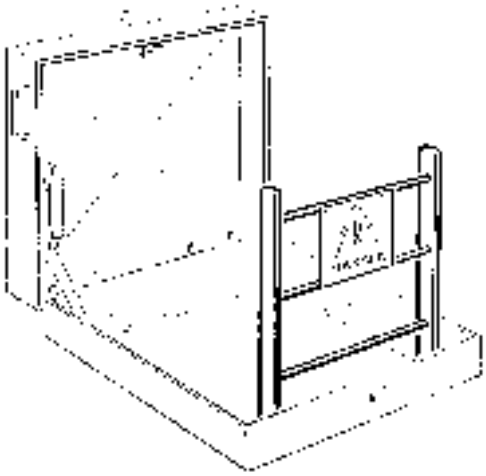
Flanged joint stub access shaft with extension shaft
600, 750 and 900mm diameter.



Socket joint stub access shaft
with extension shaft
600, 750, 900 and 1200mm diameter.

Manhole Covers and Frames

Where access to a tank or package pumping station is required for routine maintenance a fall protection and security locking is recommended. The double skinned covers are predominantly used for the protection of potable water and single skin covers for most other applications, including waste water pumping stations.



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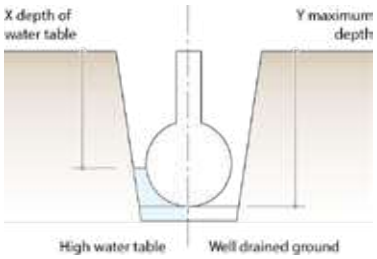
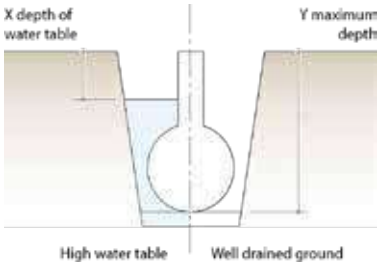
Specifications to suit invert depths and ground water conditions - pea gravel and concrete surrounds

Standard tanks

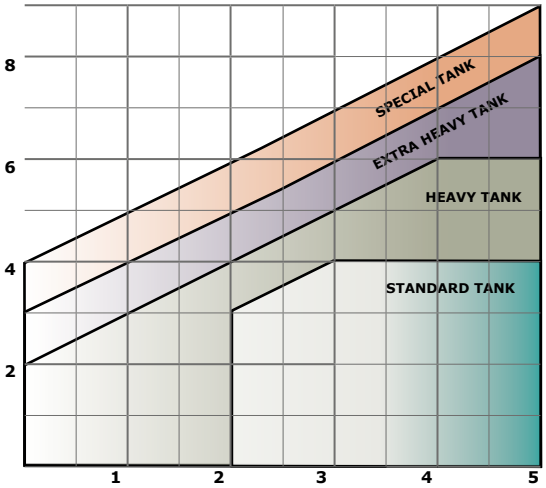


Heavy, Extra Heavy & Special tanks



100 & 200 Series with concrete surround

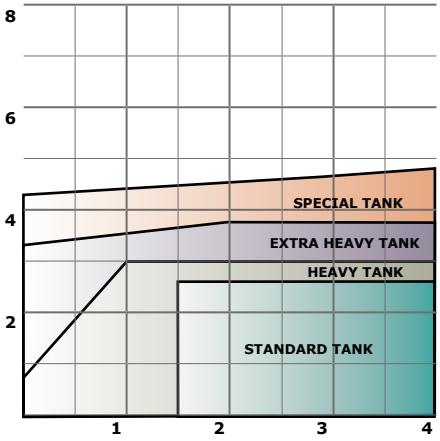
Maximum depth Y (metres)



Depth of water table X (metres)

300 Series with pea gravel surround

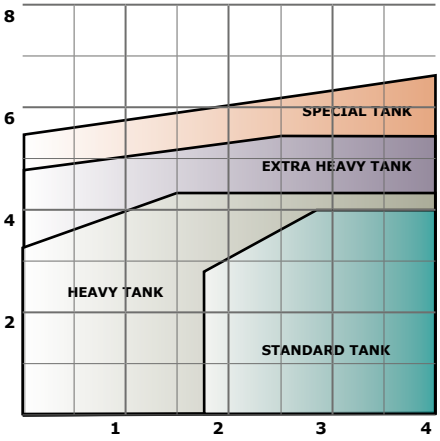
Maximum depth Y (metres)



Depth of water table X (metres)

400 Series with pea gravel surround

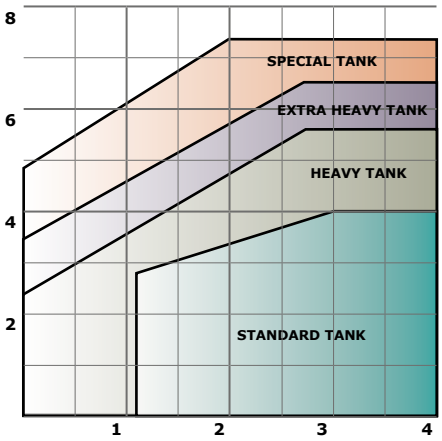
Maximum depth Y (metres)



Depth of water table X (metres)

300 Series with concrete surround

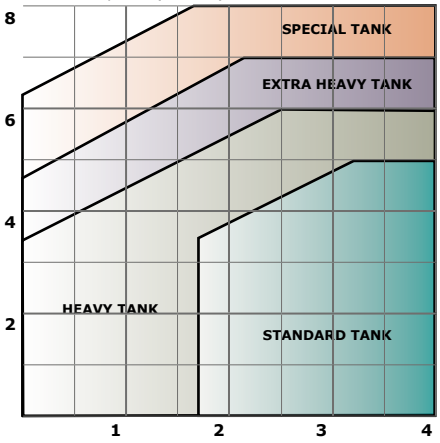
Maximum depth Y (metres)



Depth of water table X (metres)

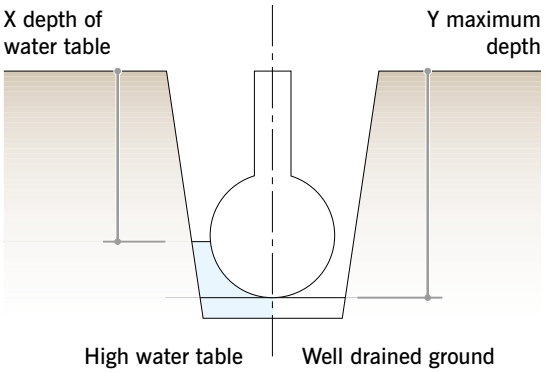
400 Series with concrete surround

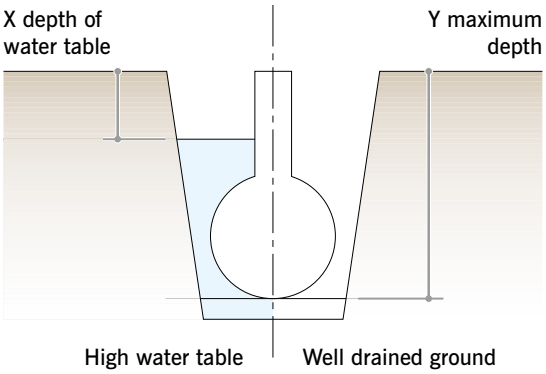
Maximum depth Y (metres)



Depth of water table X (metres)

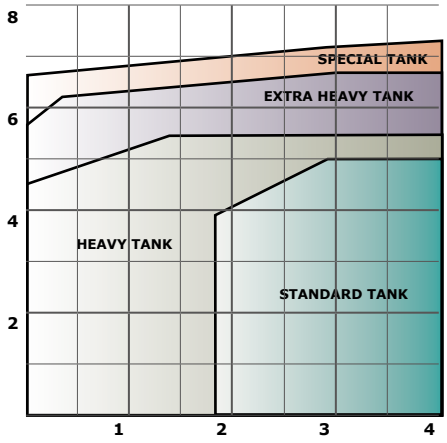
Specifications to suit invert depths and ground water conditions - pea gravel and concrete surrounds





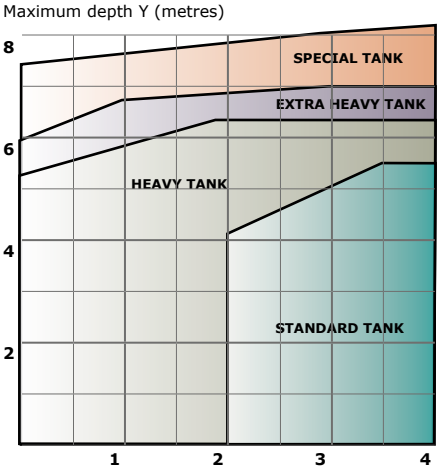
500 Series with pea gravel surround

Maximum depth Y (metres)



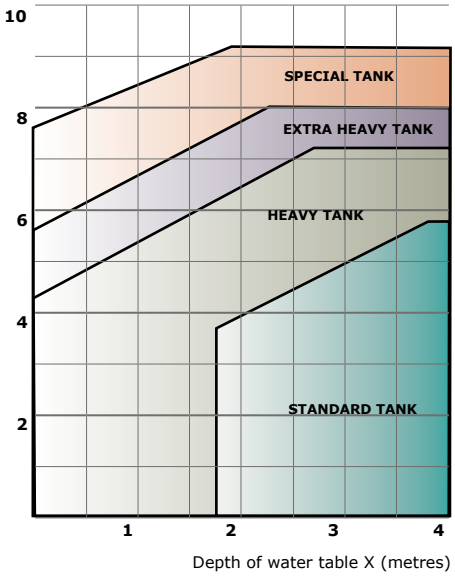
600 Series with pea gravel surround

Maximum depth Y (metres)



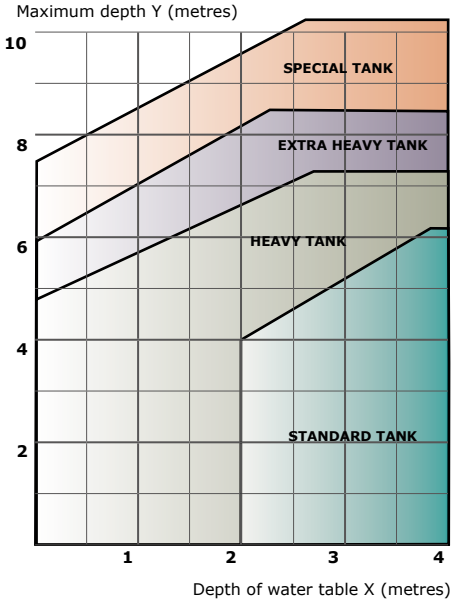
500 Series with concrete surround

Maximum depth Y (metres)



600 Series with concrete surround

Maximum depth Y (metres)



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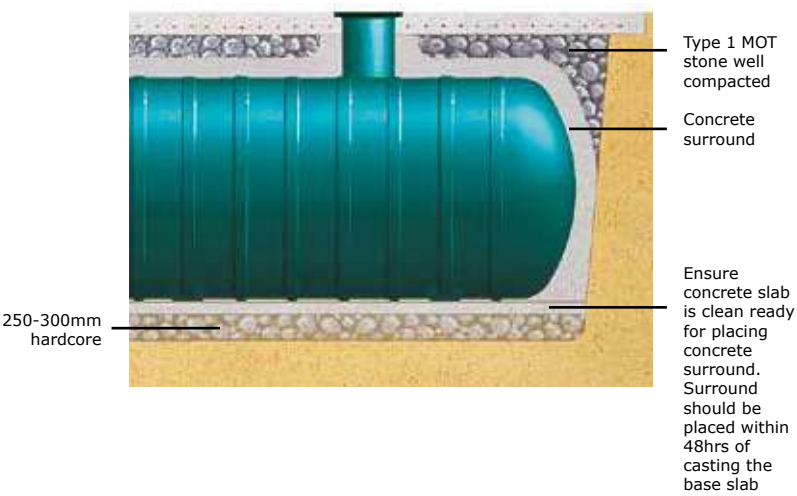
Typicalinstallation of a SPEL tank

Installation with feet/chocks

Installation of SPEL Tankstor® tank with chocks and load bearing cover slab.



Excavation details for concrete surround			Series 100/200	Series 300	Series 400	Series 500	Series 600
Max. burial depths (m) For your specific requirements refer to burial depth and water table depth charts on pages 13.4 and 13.5	Standard	dry excavation	4.0	4.0	5.0	5.7	6.2
	Heavy	dry excavation	6.0	5.6	6.00	7.25	7.3
		high water table	-	3.0	3.75	5.0	5.2
	Extra heavy	dry excavation	-	6.5	7.0	8.0	8.4
	Special	dry excavation	-	7.3	8.0	9.2	10.2
Minimum hardcore (mm), dependent on ground conditions			150	200	250	300	300
Concrete base slab (mm)	Slab thickness		100-150*	150*	220-240	240-300	250-300
Concrete surround (mm), dependent on ground conditions			100-150	150	200-250	250-300	250-300
Maximum initial water fill depths, prior to backfilling (mm)			**200**	**300**	**400**	**500**	**500**
Tank internal diameter (mm)			1250/1200	1800	2600	3500	4000
Tank external diameter (mm)			1300/1225	1875	2700	3650	4150

**If using SPEL mechanical anchoring straps, a 220mm concrete base slab is required.*

Preliminary

Dimensions given on the drawings and literature are subject to manufacturing tolerances and should be physically checked prior to installation. This applies to overall length, connection positions, their size and invert dimensions. Also check the correct way the tank shall be installed and alignment with site drainage.

Determine the size of the excavation from the dimensions of the tank and the incoming drain invert depth allowing for a minimum of 200-250mm (250-300mm for 500/600 Series tanks) of concrete all round the tank. Where difficult ground conditions or the possibility of external loading exist, the concrete surround should be designed accordingly, ie. extra thickness and/or the use of reinforcing.

Wet hole procedure

Where there is water entering the excavation, the water level should be maintained below the foundation level by pumping with or without the aid of a pump well in one corner of the excavation.

Excavation

Excavate allowing for easy placing of the tank and concrete and for consolidating concrete around the bottom half of the tank when backfilling. Allowance should be made for any timbering or sheeting that may be required. If the base of the excavation consists of unstable ground – loose gravel, running sand, landfill type areas, peat, swamp or in clay areas subject to swelling/shrinking etc., excavate to allow for 250-300mm of hardcore and cover with a polythene membrane prior to placing concrete.

Procedure

Where the level of the tank is important, chocks can be fitted during manufacture to enable the tank to be placed on a flat concrete base and levelled up prior to surrounding with concrete.

Note: It is recommended to cover the access shaft openings with polythene or plywood sheets to prevent concrete and debris entering the tank.

1. Pour concrete base to correct depth and level off. Base should be reinforced as necessary.

2. When the concrete is set sufficiently, place the tank in position and check for level. Place the initial fill of water to a depth of 300mm – 500mm depending on the tank diameter to provide ballast for the first concrete pour.

Continued overleaf

13.7 Installation of Tanks Surrounded in Concrete

3. Place the initial water fill depth in accordance with chart above.

4. Place back-fill concrete up to the depth of the water in the tank ensuring the concrete is properly consolidated under the tank to prevent voids. Consolidate by hand – do not use vibrating pokers.

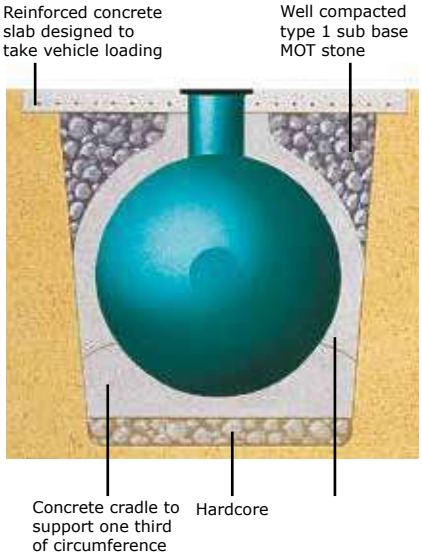
5. Connect up pipework, fix extension access shaft with waterproof mastic/adhesive or bolt to the stub access shaft as appropriate.
(see below).

6. Fit extension shafts if required:
Extension access shafts are available in 500mm increments with socket joints or if required, flanged joints with neoprene gaskets. Prior to surrounding in concrete if required, ensure rectangular access shafts are shuttered internally to support the sides and prevent distortion. This is especially important when guide rails are installed for pumps or coalescer units. With a high water table ensure all joints are double sealed to prevent ingress of water.

7. Top up the tank with water to invert level and place remainder of concrete.

8. Where the concrete slab over the tank is to take vehicle loading it should be reinforced in accordance with good practice to take the maximum load and should be extended onto unexcavated ground. It is important that vehicle loading is not transferred to the tank itself.

9. Incorporate inspection cover frames in the normal manner.



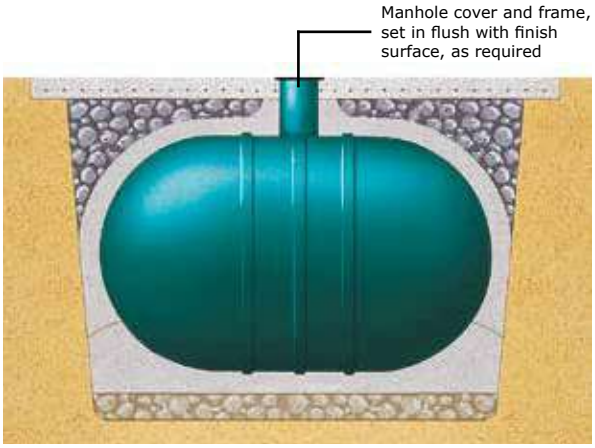
For smaller tanks e.g. cesspools, with concrete cradle

1. Place concrete along the centre of the excavation base and lower the tank into position 'puddling' it into the concrete to form a cradle. Consolidate under the tank to prevent voids. Consolidate by hand – do not use vibrating pokers.

2. Check the tank is truly vertical and level.

3. After the concrete has reached its initial set, fill with water to approximately 500mm deep.

Installation with feet/chocks



Cesspool tanks/silage tanks etc.
When the concrete surround has fully cured, cesspools should be completely emptied ready for use.

4. As per instructions 4-9 on page 13.6, or if suitable, the tank can be surrounded in pea gravel or approved free flowing crushed rock. (See under tanks installed with granular backfill) When the concrete surround has fully cured, cesspools should be completely emptied ready for use.

Venting SPEL septic tanks and cesspools

Adequate ventilation of the septic tank and the inlet pipework shall be provided to prevent the accumulation of fermentation gases.

Venting SPEL Separators

SPEL Separators should be vented in accordance with BS EN 752 (BS8301:1985 Building Drainage) or Health and Safety Guidance Notice HS (G) 41 for filling stations, subject to local authority requirements. In multiple chamber separators, vent pipework must not be combined into a common stack below a point where pollutants contained could be transferred to other chambers.

SPEL Separator automatic alarm/monitoring systems

The SPEL automatic alarm/monitoring system provides continuous monitoring of the separator contents by sensing when the light liquid within the separator has filled to a predetermined level (with design safety margins), and provides a simple audio-visual warning to alert the operator that the separator needs to be emptied.

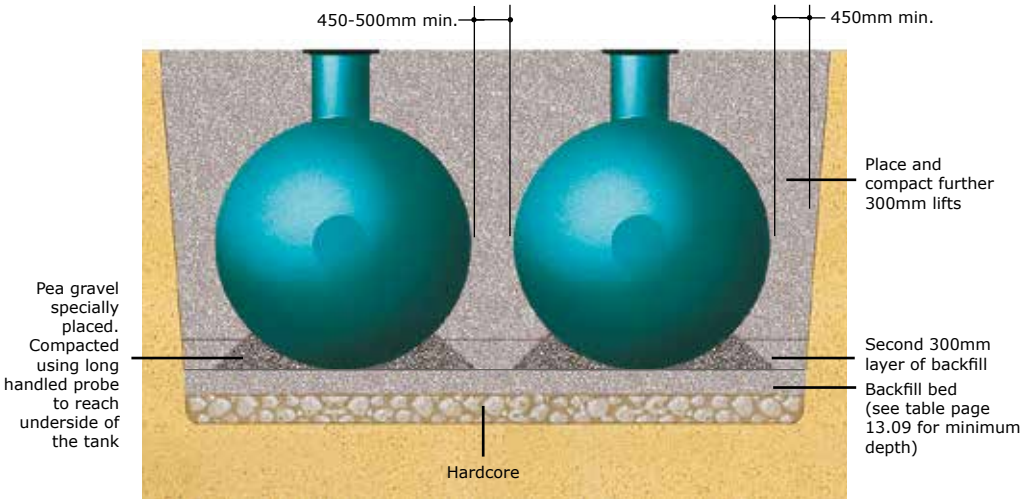
The system comprises 2 parts: a compact control unit and a probe unit. The control unit is installed in a non-hazardous area remote from the probe. It is self-contained and requires only a normal 240v AC electrical supply. The control incorporates an ATEX approved intrinsically safe circuit, which enables the probe unit to be used in Zone Zero Environments. For technical and installation details see Section 13.

Tank dimensions

Dimensions given on the drawings and literature are subject to manufacturing tolerances and should be physically checked prior to installation. This applies to overall length, connection positions, their size and invert dimensions. Also check the correct way the tank shall be installed and alignment with site drainage

If you have an installation situation that is not covered by this Data Manual please contact our technical services department.

It is important that only properly trained and experienced contractors perform this method of installation.



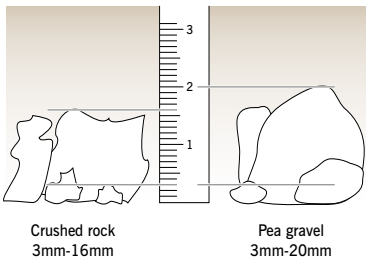
Backfill material

Pea gravel or crushed rock is preferred as backfill material.

Requirements for backfill material are:

- Clean and washed.
- Non-cohesive, inert material.
- Pea gravel or crushed rock.
- Particle not larger than 20mm.
- Material free from rocks, ice, snow or organic material.

Approved backfill material for tanks and pipes



Excavation size - unstable ground conditions

Where the ground is unstable, eg. landfill type areas, peat, swamp or in clay areas subject to swelling/ shrinking, the width of the backfill must be increased to a minimum of half the tank diameter between the tank sides and the ends of excavation.
If the base of the excavation is also of unstable ground, allow for 250-300mm of hardcore. After placing the hardcore, consolidate to ensure a firm base for the backfill.

Excavating - general

Excavate allowing for easy placing of the tank and backfill around the bottom half of the tank. Allowance should be made for any timbering or sheeting that may be required.

Filter fabric

Where there is a risk of the migration of pea gravel with the native soil, an approved filter fabric/ geotextile is recommended.

Filling tanks

Do not fill tanks until backfill is to the top of the tank. (Exception; Wet Hole see page 13.9).

Where the tank is divided into chambers ensure all chambers are filled equally.

Note: Where the chambers may require to be separated by load bearing partitions to accommodate different liquid levels the tank must be surrounded in concrete.

Depth of cover for standard and heavy specification tanks

No vehicle loads

100/200/300/400 series tanks are designed for a minimum cover of 600mm of backfill or 300mm plus 100mm reinforced concrete slab.

500/600 series 1100mm backfill or 900mm backfill plus 100-150mm reinforced concrete slab.

Vehicle loads

100/200/300/400 series tanks subjected to vehicle loading must have a minimum cover of 600mm of backfill plus a minimum 150mm reinforced concrete slab designed to take the maximum load without such loadings being transferred to the tank itself.

500/600 series as above but 1000mm backfill plus a minimum 150mm reinforced concrete slab as above.

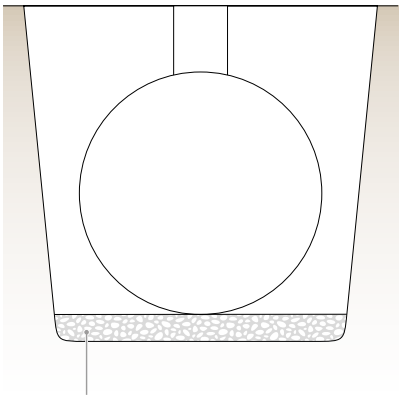
The maximum depth of the cover is governed by the maximum drain invert depth and periodic high water table when encountered.

For the depth of cover for Extra Heavy and special specification tanks, contact our technical services department.

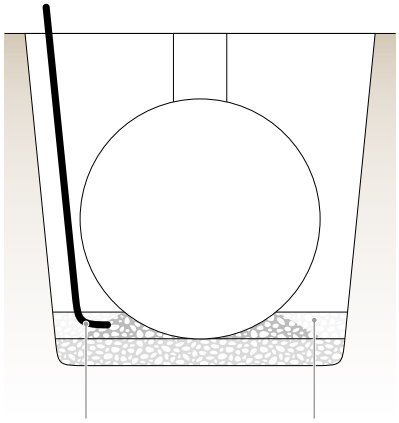
SPEL Mechanical Anchoring System

If you are using this system and a concrete base slab, the tank must be bedded on pea gravel - see 13.11.

13.9 Installation of Tanks Surrounded with Pea Gravel Backfiill

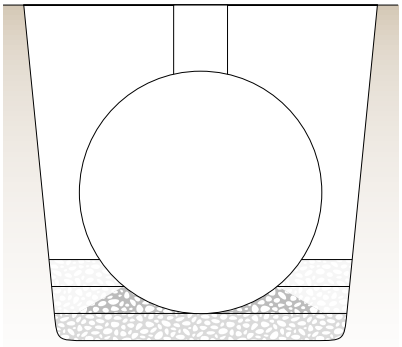


300mm bed



Curved, long handled probe to reach underside of the tank

Second 300mm layer of backfill



Installation - Dry hole

1. Place a minimum of 150-300mm of approved backfill over the excavation bottom. Refer to table below.

2. Position the tank carefully onto backfill bed and check for levels including inlet/outlet inverts.

3. It is recommended to cover access shafts with polythene or plywood to prevent backfill entering the tank.

4. Place first 300mm lift of backfill evenly around the tank by shovelling and pushing beneath the tank bottom, between ribs and end domes to ensure complete support and to eliminate voids. (Where access is confined, long handled probes, curved to enable reaching the underside of the tank, can be used). Place and compact further 300mm lifts, as above, to a minimum depth of 1/3rd of the tank diameter. The remainder of the backfill can be poured without consolidation except where required to support a cover slab.

5. Connect up inlet, outlet and vent pipework, seat access shaft into socket and apply waterproof mastic/ adhesive or as applicable.

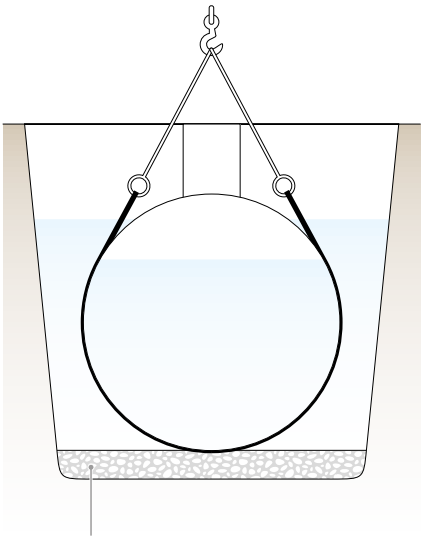
6. Where a concrete slab is to be constructed over the tank to take vehicle loading, it should be reinforced in accordance with good practice to take the maximum load and should be extended onto unexcavated ground. It is important that vehicle loading or any superimposed loads are not transferred to the tank itself.

Important: Before surrounding circular or rectangular shafts with backfill, shutter internally to support the sides and safeguard against distortion.

7. Incorporate inspection cover frames in the normal manner.

Wet hole procedure

Where there is water entering the excavation, the water level should be maintained below the foundation level by pumping with or without the aid of a pump well in one corner of the excavation.



300mm bed

If the water level cannot be lowered you will need to ballast the tank very carefully. Place the tank in the excavation adding only enough water ballast to sink it. The water level in the tank must never exceed the water level in the excavation. While adding then ballast use only a lifting strap to keep the tank in position.

It is essential the backfill is distributed evenly round the base of the tank and thoroughly consolidated with the aid of long handled probes to eliminate any voids as set out in point 4 'Dry hole procedure'.

To prevent flotation, mechanical anchoring may be required.
See page 13.12.

Backfill bed

Please refer to this table for the minimum amount of approved backfill to be used over the excavation bottom for your series tank.

Tank	min backfill bed
100 Series	150mm
200 Series	150mm
300 Series	200mm
400 Series	250mm
500 Series	300mm
600 Series	300mm

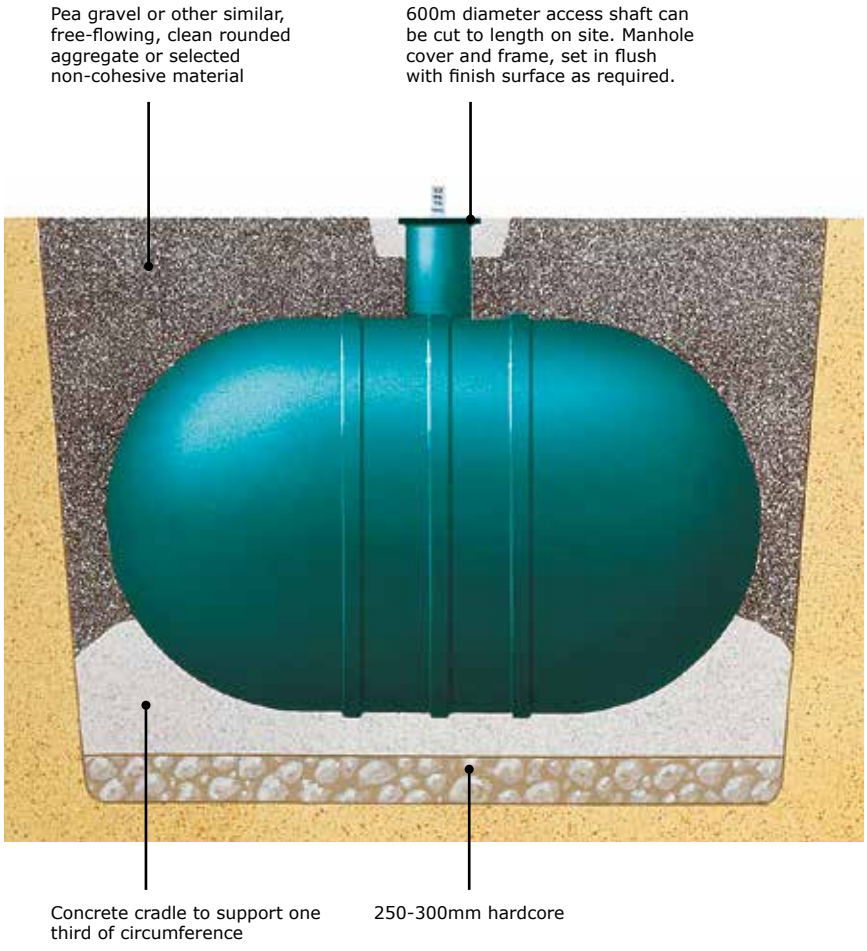
This method of installation combines the economy of pea gravel backfill and the safety of a concrete cradle. For the less experienced contractor this is a safer option than bedding on pea gravel.

Excavation size – stable ground conditions

Determine the size of the excavation from the dimensions of the tank and the incoming drain invert depth, allowing for a minimum of 450mm of backfill between the tank sides and the ends of the excavation.

Excavation size – unstable ground conditions

Where the ground is unstable, eg. landfill type areas, peat, swamp or in clay areas subject to swelling/shrinking, the width of the backfill must be increased to a minimum of half the tank diameter between the tank sides and the ends of the excavation.



If the base of the excavation is also of unstable ground, allow for 250-300mm of hardcore. After placing the hardcore, consolidate and cover with a polythene membrane prior to placing concrete.

Note: If mechanical anchoring is required, sinkers will need to be cast into the concrete cradle. See mechanical anchoring on page 13.11 and 13.12.

1. Place concrete along the centre of the excavation base and lower the tank into position 'puddling' it into the concrete to form a cradle. Consolidate under the tank to prevent voids. Consolidate by hand – do not use vibrating pokers.

2. Check the tank is truly vertical, level and inlet/outlet invert levels are correct.

3. Place first 300mm lift of backfill evenly around the tank by shovelling and pushing around the tank sides, between ribs and end domes to ensure complete support and to eliminate voids. (Where access is confined long handled probes, curved to enable reaching the underside of the tank, can be used). After placing first lift of backfill the remainder of the backfill can be poured without further consolidation by hand.

4. Connect up inlet, outlet and vent pipework, seat access shaft into socket and apply waterproof mastic/adhesive or as applicable. (see page 2.13).

5. Where the concrete slab is to be constructed over the tank to take vehicle loading it should be reinforced in accordance with good practice to take the maximum load and should be extended onto unexcavated ground. It is important that vehicle loading is not transferred to the tank itself.

6. Incorporate inspection cover frames in the normal manner.

Note: Where the tank is divided into chambers ensure all chambers are filled equally. Where the chambers may require to be separated by load bearing partitions to accommodate different liquid levels the tank must be surrounded in concrete.

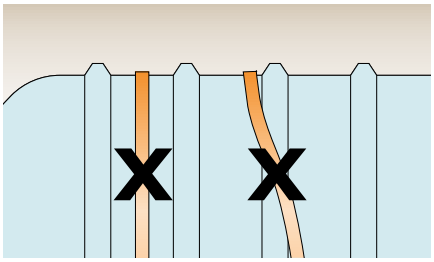
13.11 SPEL Underground Tanks Mechanical Anchoring

Minimum burial depth

The following table shows minimum burial depths when mechanical anchoring is not required.

Tank Series	Dia. (mm)	No cover slab (mm)	150mm cover slab (mm)
300	1800	1200	1100
400	2600	1500	1400
500	3500	1800	1700
600	4000	2100	2000

Do not strap here



Straps must not be placed between the ribs or passed over from one side to the other as stress will be transferred to the weakest part of the tank wall. Unless the SPEL system is used and positioned correctly the 25 year warranty will be nullified.

The 'holding down' ribs are indicated on the tank by a 'strap' label

SPEL mechanical anchoring system

Mechanical anchoring is required where the tank is to be surrounded in pea gravel and where water could enter into the excavation (underground water table, rainwater run-off etc.) or where the tank is to be surrounded in concrete and it is imperative the tank does not shift during the placement of this concrete.

SPEL mechanical anchoring straps are available for all tanks. These are located over the designated ribs and held in position by locators positioned over the said ribs. Cables or straps should not be used between the ribs on the tank.

It is the responsibility of the tank owner or their technical representative to determine if mechanical anchoring is required for a specific installation.

If water could enter the excavation (underground water table, rainwater run-off etc.) we recommend the tank is mechanically anchored unless the minimum depth from tank top is, as in table on left.

The weight of over burden on top of the concrete anchor pad provides the anchoring force.

The pad is to prevent buoyancy but should be designed taking into account soil conditions eg. thickness and reinforcement.

Anchor points should be spaced equal to the tank diameter plus 300mm on each side of the tank regardless of tank diameter. The anchor points must be aligned in accordance with the designated ribs plus or minus 25mm.

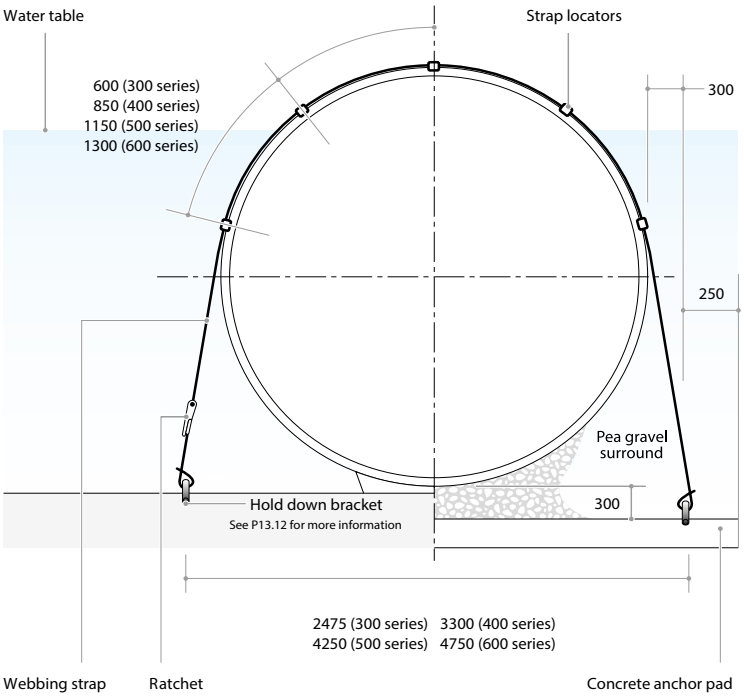
All anchor straps must be uniformly tightened with the ratchets. Straps should be a tight, snug fit to the ribs but must not cause the tank to deflect. It is recommended that the ratchets are positioned on alternate sides of the tank to ensure the tank remains vertical during tensioning.

Check the tanks internal diameter before and after tensioning the straps with a gauge rod to ensure against deflection.

Do not fill with product or water until backfill is level with top of tank except when backfilling with concrete.

When backfilling with concrete, we advise that the tank is filled with water to a corresponding level with the concrete to equalise pressure. Where the tank is divided into chambers, ensure all chambers are filled equally. See installation procedure for surrounding in concrete.

Figure 1



Procedure for 'anchoring' tanks down

1. Check contents of kit.

2. Hold-down Brackets:

   a) Position brackets so they line up with the ribs of the tank as indicated by 'strap' label. Check position from side of tank and edge of slab as shown in Figure 1 on previous page.

   b) Thread loop of short length through hold-down bracket (see Sketch 1). *Note: the arm of the ratchet should be facing outwards.* (Do the same for long length on opposite side of the tank.)

   c) Drill a 20mm dia x 150mm deep hole in concrete slab.

   d) Clear the hole of dust and hammer in the anchor bolt.

   e) Drill the second hole and hammer in the second anchor bolt.

   f) Tighten the nuts to 200Nm.

   NB. For strength the bolts must be at least 130mm deep into the slab and the concrete strength C25/30 or higher.

3. Then throw the remaining length of the long length of webbing over the tank, making sure that the webbing is not twisted.

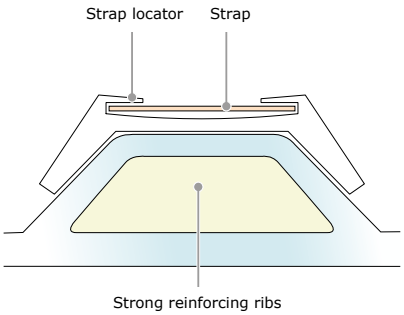
4. Position the 'long' length of webbing over the designated rib and 'clip in' the strap locators underneath the webbing and position as shown in the drawing (see Figure 1 previous page).

5. Taking the end of the 'long' length of webbing, thread it through the slot of the ratchet (see Sketch 1) and tighten up using the ratchet arm to give required tension.

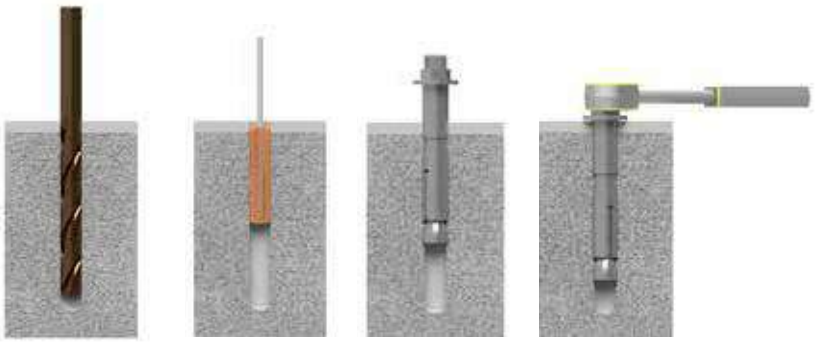
6. On completion the ratchet tensioners should be well wrapped in 'DENSO' or similar tape for long-term protection if the tank is surrounded in pea gravel or similar backfill.

Sketch 1

Sketch 2



Anchoring kit contents for 300 series:	**Anchoring kit contents for 400, 500 and 600 series:**
Ratchet c/w short length of webbing x 1	Ratchet c/w short length of webbing x 1
Long length of webbing x 1	Long length of webbing x 1
Hold-down brackets x 2	Hold-down brackets x 2
GRP strap locators x 3	GRP strap locators x 5
Bolts x 4	Bolts x 4

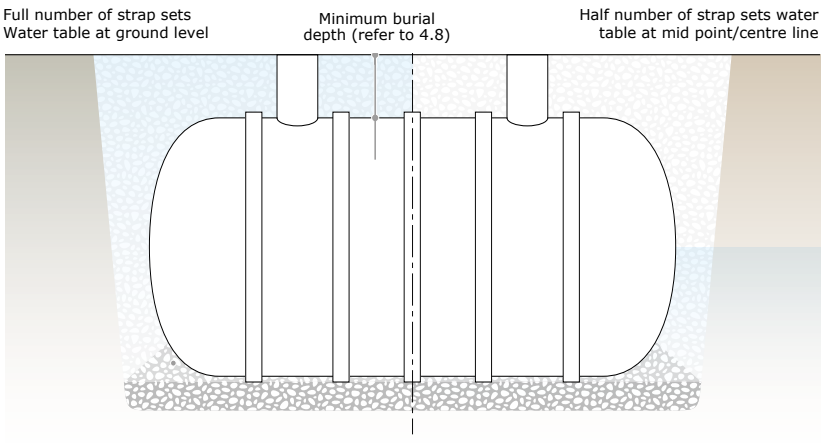


Position fixture and drill correct diameter hole to correct depth

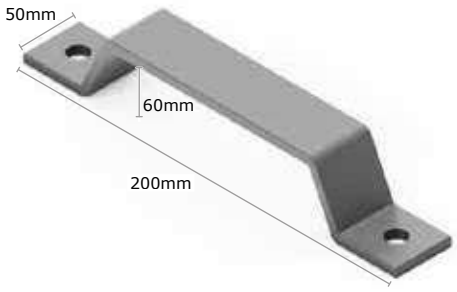
Clean hole by brushing and blowing to remove dust and drilling debris

Insert assembled anchor through fixture into concrete

Tightern with torque wrench to Insallation Torque



Hold-down Brackets



13.13 SPEL Underground Tanks Wellpoint Dewatering & Long Excavations

Wellpoint dewatering

Where sandy, permeable ground is saturated with water, wellpoint dewatering is a technique that lowers the ground water level over a defined area. This is achieved by simultaneously pumping from a number of wellpoints inserted into the water table.

Without wellpoint dewatering the contractor would be trying to work or dig in ground that is virtually quicksand. The sides of the excavated hole would keep collapsing and any sand removed would be replaced by more sand running in, thus, filling up the hole. This can result in danger to men, adjacent structures, roads, etc.

Once the wellpoints have been installed and the system has been running for some time, the contractor can then excavate in stable conditions.

As a general rule, any dewatering system must be kept running 24 hours a day because the water removed from the ground is replaced from the surrounding areas.

Modular bracing systems

Where excavations exceed 4m and extend to 22m or more, a propriety bracing system, where no internal cross bracing is required, should be used.

Systems available comprise telescopic, hydraulic and rough adjustment walling modules connected to fixed length extension beams designed to provide support to interlocking sheet piling.

Where excavations are 20m or more in length a goal post arrangement is normally required to provide cross bracing support at the central point. This arrangement enables the SPEL tank to be passed under and into the excavation.

For up to 20m long excavations, temporary bracing can be provided by Mabey Hire Ltd. to provide a clear opening for installing the SPEL Tankstor® or separator as illustrated.

Dewatering at RAF Coningsby

SPEL Separator being installed at an RAF base.

T. +44 (0)1743 445200 F. +44 (0)1743 465442 E. info@spelproducts.co.uk

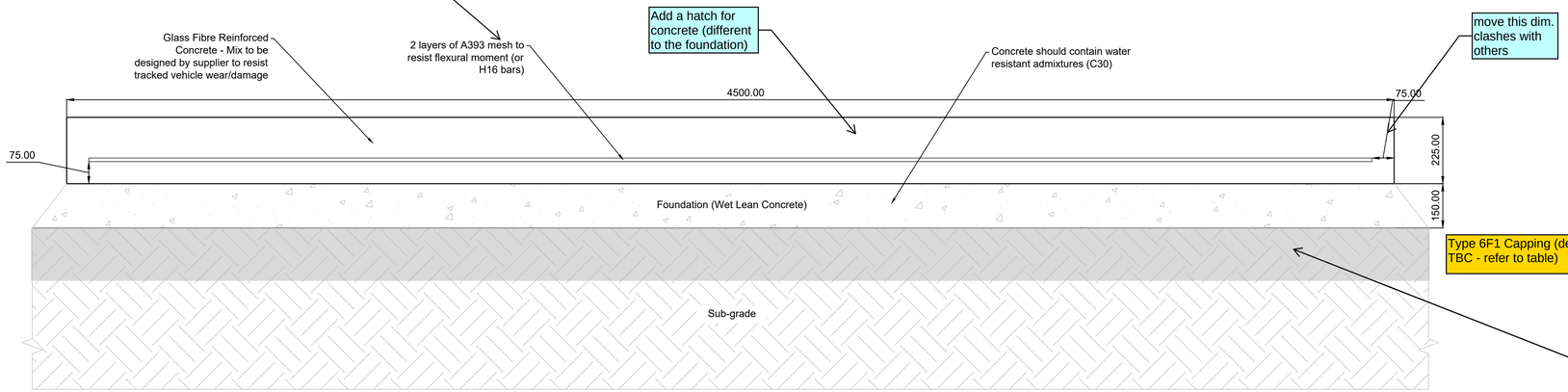
CampbellReith
consulting engineers

Appendix 3

Edincare SW Pump Details

Appendix

Do we need to have a layer at top and bottom? Rather than two next to each other? Check with Franklin/structures and update to suit

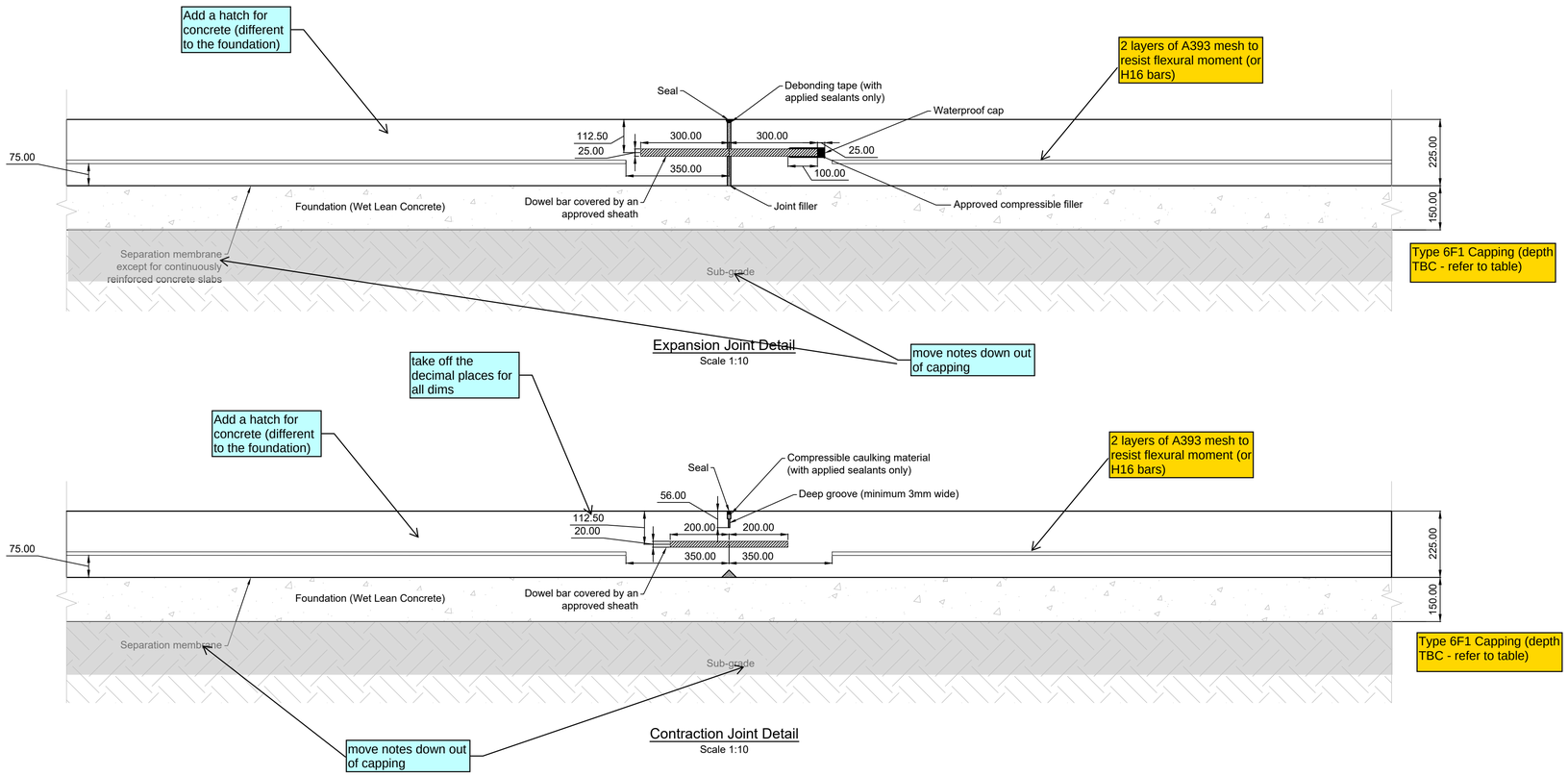


	CBR Table - Foundations for Rigid Pavements			
Formation	150mm CBM2 or Wet Lean Concrete (C10) Sub-base			
Subgrade	CBR < 2%	2% < CBR < 5%	5% < CBR < 15%	CBR > 15%
(Optional Capping Thickness)	600mm	350mm	150mm	No capping

NOTE: individual slab span to be no greater than 4.5m between joints. Refer to slab layout plan *31-MN0613-18-GA-P5-200* for details.

what CBR are we assuming? Do we need to show capping here and put (layer TBC)

Structural Slab Cross Section
Scale 1:10



Expansion Joint Detail
Scale 1:10

move notes down out of capping

Contraction Joint Detail
Scale 1:10

move notes down out of capping

Notes:

1. Slab design based on assumed Long Term Modulus of 15% CBR and Sub-grade Reaction of 0.1N/mm2/mm. Where sub-grade improvement measures are not being proposed, capping will be required in line with Table Above.

2. Area susceptible to frost. A minimum of 450mm frost resistant build-up is required to mitigate frost ingress. If sub-grade is non-frost resistant, the contractor is to over-dig a minimum of 225mm below the underside of concrete foundations and backfill with frost resistant MOT Type1 compacted in layers of no thicker than 150mm to a minimum CBR of 15%

3. GRC Slab to be C30 water resistant concrete. Mix to be designed to reduce wear from track vehicle scrub. Design by supplier.

NOTES

1. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH CURRENT CAMPBELL REITH S2 SPECIFICATIONS.

2. FOR GENERAL NOTES REFER TO DRAWING No. 31-MN0613-18-NB-S2-0901

3. Minimum 450mm pavement build-up required to mitigate frost ingress. If sub-grade is non frost resistant, contractor is to over dig minimum 225mm and backfill with wet lean foundation or frost resistant MOT Type 1.

Figured dimensions only are to be taken from this drawing. All dimensions are to be checked on site before any work is put in hand.

Rev	Description	Drn	Date	Chk'd	App'd
P1	Issued for Information	LB	16.11.23	AD	AD

KBR Aspire defence
Aspire House - Princes Avenue - Aldershot - GU11 2LF
Tel: 01980 885500 - Fax: 01980 886698
www.aspiredefence.co.uk

PROJECT
ALLENBY/CONNAUGHT

Originator	CRH
Discipline	Civil
Site	ABP Aldershot
Facility	WORKSHOP
Drawing Title	Pavement Details Sheet 1 of 2
Scale	AS SHOWN @ A1
Drawn	LB
Checked	AD
Date	NOV. 23
Site Asset Facility Type Orig. Doc No. Rev	31-MN0613-18-GA-P5-201 P1
Status	IDC

Noel Harrison
Rochford Construction Limited
Kerry House
Fourth Way
Wembley
Middlesex
HA9 0LH

Dear Noel,

Re: Packaged Pumping Station

Thank you for your enquiry. I have received your specification and now take pleasure in providing a quotation for the following project:

Project Name: St Joan of Arc School **Our Ref:** MM1124

Two packaged pumping stations are required to pump foul water and surface water separately from a new development to high level.

Our chamber for foul water packaged pumping station offers a storage of 5,000L below the lowest incoming invert at 2,400mm from the top of the chamber. Our pump selection offers a flow of 4.4 l/s along a total head of 4.517m through a 90mm OD rising main.

Our pump selection for surface water packaged pumping station offers a flow rate of 2 l/s through a 63mm OD rising main.

We recommend that this quotation be presented to the appropriate regulatory board for their approval. Based on the requirements provided to date, please find below my recommendation. I have attached technical specifications, selection, scope of supply, price, and terms.

I trust you find our offer of interest. Please do not hesitate to contact me should you require further assistance.

Yours sincerely,

Melvin Mathew
Edincare Pumps
Email: mmathew@edincare.com
Tel: 01442 211554

Technical Specifications – Surface Water Pumping Station

We have based our quotation on the following parameters:

Static Head	2.5m
Horizontal Run	25m
Total Head	3.946m
Rising main Diameter	63mm OD
Flow rate Required	2 l/s
Distance From Pump to Panel	<10 metres
Power Available	Three Phase
Single Or Dual	Dual Pump, Duty&Standby

Selection

Pump Model	Ama-Porter 501ND
Impeller Type	Vortex
Rated Power P2	.75 kW
Number of Pumps	Two

Scope of Supply – MagnaPro 1250–2500-G-2-2-3

2 no. Ama-Porter 501ND (manual, 400 V, 10 m cable)
2 no. DN50 Pedestal
2 no. Guide Rails
1 no. PE Pump Tank 1,250mm dia. x 2,500mm deep (outside diameter add 100mm), clear opening 900mm x 600mm Tank grade polyethylene, Single piece construction, strengthening ribs located throughout the body of the chamber providing reinforcement and anchoring. 60° benching to base. Lifting eyes are incorporated within the top of the chamber for assisting with off-loading and positioning.
1 no. Internal Galvanised Steel Pipework 2”
1 no. Control Panel: - Direct Online Start
IP54 Enclosure
Hand/Off/Auto selector switches
High Level Audible Alarm with Mute Button
Door Locking Isolator
Visual Indication for: Pumps Running, Pumps Tripped & High Level
Volt Free Contact for common fault monitoring

1 no. Gate valve
2 no. Non-return valves
4 no. Float switch (10m cable)
2 no. Lifting chains
4 no. Shackles ‘D’
1 no. 110mm Cable Duct (IL 200mm from top of the tank)
1 no. 110mm Vent Duct (IL 200mm from top of the tank)
(All pumping stations must be vented to atmosphere with a minimum 110mm duct. The vent pipe can be dedicated or a common SVP. This is to allow air to be drawn in and expelled when the tank is filling and emptying and to prevent smells.)
1 no. 63mm OD Outlet (IL 500mm from top of tank)
1 no. 110mm Inlet (IL 2050mm from Top of tank)

Edincare Pumps
Unit 8 Heron Business Park, Eastman Way, Hemel Hempstead, Hertfordshire HP2 7FW
Tel: 01442 211554 Fax: 01442 211553 Email: info@edincare.com Web: www.edincare.com

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FABRICATION SHEET

MagnaPro 1250–2500

2020 CN SPECIALISTS AWARDS WINNER

CHAMBER (Front and side view A and B)

ITEM	INDEX	DEPTH (mm)	DIAMETER (mm)	CLOCK POSITION
Inlet	C1			
Inlet	C2			
Inlet	C3			
Inlet	C4			
Discharge	D1			12
Cable duct			100	
Vent duct			100	
Slab (depth inc. cover)	E			

DISCHARGE POSITION

The DISCHARGE must always been positioned on the reinforced discharge face shown in BLUE.

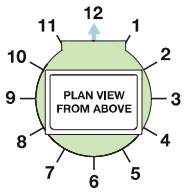
Number of discharges:

☐ One ☐ Two

INLET POSITIONS

Inlets must be positioned in the GREEN areas only.

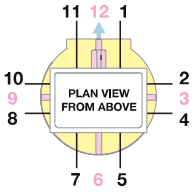
With the DISCHARGE set at 12 o'clock, indicate the positions for INLETS, as if on a clock face.



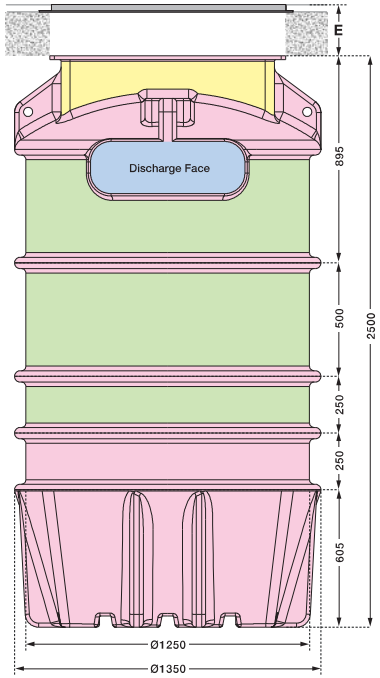
DUCT AND VENT POSITIONS

Cable ducts and vents (if applicable) must be positioned in the YELLOW areas only, avoiding the ribs for the lifting eyes.

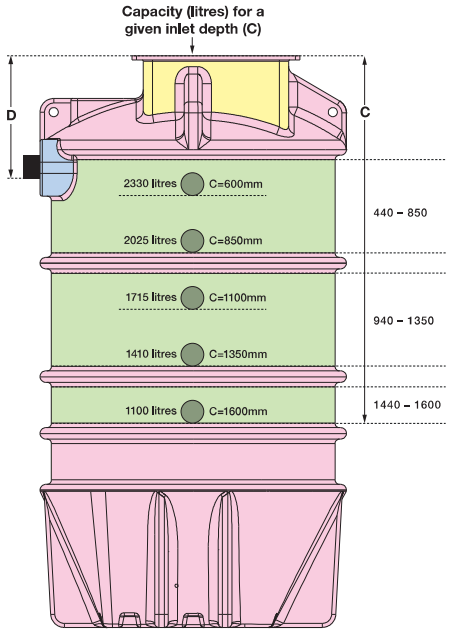
With the DISCHARGE set at 12 o'clock, indicate the positions for CABLE DUCTS and VENTS, as per the diagram.



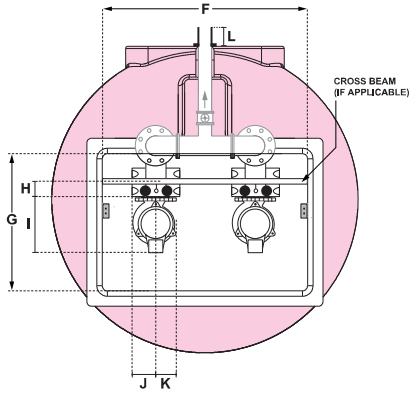
FRONT VIEW (A)



SIDE VIEW (B)



PLAN VIEW (C)



INVERT LEVEL

All dimensions are in millimetres (mm) and are to the invert level (bottom of pipe).
When positioning the inlet please take into account the diameter of the pipe.

KEY	Discharge only	Inlet location allowed	Cable ducts and vents only	No drilling allowed

CLEAR OPENING (Plan View (C)

ITEM	INDEX	DIMENSIONS (mm)
Clear opening length	F	900
Clear opening width	G	600
Top bracket depth	H	
Pump depth	I	
Left width of pump	J	
Right width of pump	K	
Discharge type		
Discharge spigot length	L	
Access cover type		

CUSTOMER NAME		PRODUCT NAME			
PROJECT NAME		SALES ORDER NO.			
PROJECT ADDRESS		DRAWING VERSION		DRAWN BY	
		DATE		CHECKED BY	

PLEASE NOTE THAT THIS DOCUMENT MUST BE READ IN CONJUNCTION WITH THE INSTALLATION & OPERATING GUIDELINES. DRAWING NOT TO SCALE.

+44 (0)1442 211554
info@edincare.com
www.edincare.com
edincarepumps

Unit 8 Heron Business Park,
Eastman Way,
Hemel Hempstead,
HP2 7FW

edincare® PUMPS

ACCESSORIES

Ama-Porter 501ND

The state of the art Ama-Porter 501ND is designed for high operating reliability and is designed to give top performance due to a generously sized motor, thermal overload protection. The pump comes in a manual, automatic, single and three phase versions.

The submersible pump with a 45mm solids clearance offers reliable and effective dewatering. The compact shape and small sump requirements ensure a quick and cost effective installation of the pump. Can be supplied free standing, or pedestal mounted for permanent installations.

APPLICATION

- Factories and warehouses
- Housing developments
- Commercial buildings
- Retail and leisure
- Domestic properties

SUITABLE FOR

- Ground water
- Surface water
- Storm water
- Grey water

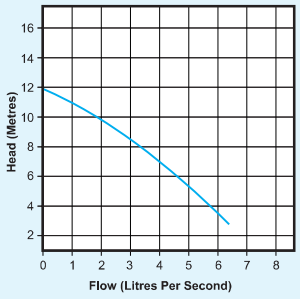
IMPELLOR TYPE

- Vortex

KEY FEATURES

- Trouble free operation; clogging is prevented by a free flow impeller
- Easy installation and removal with an automatic bolt-free connection
- Internal overload protection
- Long service life due to a shaft made of corrosion-resistant stainless steel and a bi-rotational mechanical seal

PUMP CURVE



DIMENSIONS

AmaPorter 501ND	
Height	393mm inc. feet
Width	198mm
Length	328mm inc. outlet

TECHNICAL SPECIFICATIONS

AmaPorter 501ND	Three Phase
Power Supply	415V AC
Rated Current	2.8A
Motor Rating	750W
Frequency	50Hz
Revolutions Per Minute	2900rpm
Max. Vertical Output	12m
Max. Flow Rate	6.3l/s
Max. Liquid Temperature	<40°C
Discharge Size	DN50
Free Passage	45mm
Cable Length	10m
Weight	23kg
Colour	Blue
Impellor Type	Vortex
Control	Manual

edincare® PUMPS

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Hemel Hempstead, Hertfordshire, HP2 7FW

Terms and conditions for the supply of goods and services

Omni Pump International Limited t/a Edincare Pumps and Edincare Drains Standard Terms and Conditions for the Supply of Goods and Services.

The Customer's attention is drawn in particular to the provisions of clause 15.

1. Interpretation

1.1 Definitions:

In these Terms and Conditions the following expressions shall have the following meanings:

"**Business Day**": a day (other than a Saturday, Sunday or public holiday) when banks in London are open for business.

"**Customer**": the person or firm who purchases the Goods and/or Services from Edincare.

"**Conditions**": the terms and conditions set out in this document as amended from time to time in accordance with clause 22.3.

"**Contract**": the contract between Edincare and the Customer for the sale and purchase of the Goods and/or Services in accordance with these Conditions and any Service Agreement between Edincare and the Customer.

"**Deliverables**": the deliverables set out in the Order produced by Edincare for the Customer.

"**Edincare**": Omni Pump International Limited t/a Edincare Pumps and Edincare Drains (registered in England and Wales with company number 02812959 and having its registered office at 52 High Street, Pinner, Middlesex HA5 5PW.

"**Edincare Materials**": has the meaning given in clause 11.1.8.

"**Equipment Schedule**": the Equipment Schedule that forms part of the Service Agreement.

"**Force Majeure Event**": an event or circumstance beyond a party's reasonable control.

"**Goods**": the goods (or any part of them) set out in the Order.

"**Intellectual Property Rights**:" patents, rights to inventions, copyright and related rights, trade marks, business names and domain names, rights in get-up, goodwill and the right to sue for passing off, rights in designs, database rights, rights to use, and protect the confidentiality of, confidential information (including know-how) and all other intellectual property rights, in each case whether registered or unregistered and including all applications and rights to apply for and be granted, renewals or extension of, and rights to claim priority from, such rights and all similar or equivalent rights or forms of protection which subsist or will subsist now or in the future in any part of the world.

"**Order**": the Customer's order for the Goods and/or Services as set out in either the Customer's purchase order form, the telephone order placed by the Customer, the Customer's written acceptance of Edincare's quotation, the Service Agreement or such other form of order, as the case may be.

"**Service Agreement**": the Edincare Service Agreement issued by Edincare to the Customer pursuant to which the Customer can enter into a fixed term agreement for Edincare to provide ongoing Services to the Customer.

"**Service Call Report**": means the report completed by Edincare staff while on site providing the Services.

"**Services**"; the services including but not limited to tankering, waste removal, jetting, drainage CCTV, installations, refurbishments, planned servicing and emergency call-outs, commissioning, including the Deliverables, supplied by Edincare to the Customer further details of which are set out in the Service Specification.

"**Service Specification**"; the description or specification of the Services provided by Edincare to the Customer which is set out in the Service Agreement including, but not limited, to the Schedule of Works which forms part of the Service Agreement and/or any other literature of Edincare which sets out details of the Services.

"**Special Orders and And "Bespoke Items**": include items (a) not listed in Edincare's catalogue or other Edincare literature; or (b) products or goods where a tailored solution is required due to the non-standard functionality of the system or (c) products manufactured specifically to Customer requirements including but not limited to custom size tanks, non-stock pumps/control equipment, inlet size and positions.

"**Tariff Schedule**"; means Edincare's price list including its hourly rates as displayed at www.edincare.com which price list may be updated by Edincare from time to time.

1.2 Interpretation:

1.2.1 a reference to a statute or statutory provision is a reference to such statute or provision as amended or re-enacted. A reference to a statute or statutory provision includes any subordinate legislation made under that statute or statutory provision, as amended or re-enacted.

1.2.2 any phrase introduced by the terms **including, include, in particular** or any similar expression shall be construed as illustrative and shall not limit the sense of the words preceding those terms.

1.2.3 a reference to **writing** or **written** includes faxes and emails.

2. Basis of contract

2.1 These Conditions apply to the Contract to the exclusion of any other terms that the Customer seeks to impose or incorporate, or which are implied by trade, custom, practice or course of dealing.

2.2 An Order constitutes an offer by the Customer to purchase Goods and/or Services in accordance with these Conditions. The Customer is responsible for ensuring that the terms of any Order and any applicable specification or custom requirements that the Customer has given to Edincare are complete and accurate.

2.3 An Order shall only be deemed to be accepted when Edincare issues a written acceptance of the Order, at which point the Contract shall come into existence.

2.4 Where a Service Agreement is issued to a Customer by Edincare it constitutes a quotation only and shall not constitute an offer. The return by the Customer of a signed Service Agreement shall constitute an offer to Edincare by the Customer to purchase the Services on the terms contained in the Service Agreement and these Conditions. The offer shall only be deemed accepted when Edincare issues written confirmation to the Customer or commences to provide the Services, whichever is the earlier.

2.5 All of the provisions of these Conditions shall apply to the supply of both Goods and Services except where the application to one or the other is specified.

2.6 The Customer waives any right it might otherwise have to rely on any term endorsed upon, delivered with or contained in any documents of the Customer that is inconsistent with these Conditions.

2.7 Any samples, drawings or advertising produced by Edincare and any descriptions or illustrations contained in Edincare's literature including but not limited to catalogues or brochures are produced for the sole purpose of giving an approximate idea of the Goods and/or Services referred to in them. They shall not form part of the Contract nor have any contractual force.

2.8 All weights, measurements, dimensions, drawings, capacities, specifications and other particulars contained in Edincare's literature or other information or technical assistance given by Edincare is given in good faith and by way of general guidance only. No information supplied by Edincare constitutes a warranty or guarantee or recommendation as to the suitability of the Goods and/or Services for any purpose whatsoever.

2.9 A quotation for the Goods and/or Services given by Edincare shall not constitute an offer. A quotation shall only be valid for the period stated in that quotation or if no period is stated then for a period of 20 Business Days from its date of issue.

3. Goods

3.1 The Goods are described in Edincare's literature including but not limited to the respective product catalogue or brochure as modified by any applicable specification provided by the Customer or any custom requirements of the Customer.

3.2 Edincare reserves the right to amend the specification of the Goods if required by any applicable statutory or regulatory requirements or for the purposes of product development.

3.3 It is the responsibility of the Customer to ensure that any specification or details provided by the Customer for Special Orders or Bespoke Products is correct and to ensure any such Special Orders or Bespoke Products will be suitable for the Customer's purposes.

3.4 The Customer acknowledges in purchasing the Goods that the Customer is relying on its own skill and judgement and has not relied for this purpose on the skill or judgment or any representations of Edincare. The Customer acknowledges that the Goods are fit for the purpose for which they are intended to be used in reliance on the Customer's own skill and judgment and the Customer will indemnify Edincare against all liabilities, costs, expenses, damages and losses (including any direct, indirect or consequential losses, loss of profit, loss of reputation and all interest, penalties and legal and other professional costs and expenses) suffered or incurred by Edincare in connection with any claim made against Edincare that the goods are not fit for purpose by any Customer or sub-customer of the Customer.

4. Special orders, bespoke products and customer specifications

4.1 If Goods are supplied in accordance with the Customer's specifications the Customer shall be solely responsible for the accuracy and suitability of such specifications. If Edincare is making the Goods to specifications that the Customer has supplied the Customer shall be responsible for ensuring that any such specifications are correct and suitable for the Customer's purpose.

4.2 To the extent that the Goods are to be manufactured in accordance with a specification supplied by the Customer, the Customer shall indemnify Edincare against all liabilities, costs, expenses, damages and losses (including any direct, indirect or consequential losses, loss of profit, loss of reputation and all interest, penalties and legal and other professional costs and expenses) suffered or incurred by Edincare in connection with any claim made against Edincare for actual or alleged infringement of a third party's Intellectual Property Rights arising out of or in connection with Edincare's use of any specification or product requirements or details provided by the Customer. This Clause 4.2 shall survive termination of the Contract.

5. Compliance with regulatory or other approvals for the use or installation of the goods and the provision of the services

The Customer acknowledges that the use or installation of the Goods and the provision of the Services may require consent from a local authority or other regulatory body or a licence, permit or consent and it is the Customer's sole responsibility to establish whether such consent, approval, licence, permission or certification is required and to obtain the same.

6. Delivery of goods

6.1 Edincare shall ensure that each delivery of the Goods is accompanied by a delivery note that shows the date of the Order and, if the Goods are being delivered by instalments, the outstanding balance of Goods remaining to be delivered.

6.2 Edincare shall deliver the Goods to the location set out in the Order or such other location as the parties may agree ("**Delivery Address**") at any time after Edincare notifies the Customer that the Goods are ready.

6.3 If the Customer wishes to collect the Goods then collection can be arranged by contacting Edincare prior to despatch of the Goods and making arrangements for their collection by the Customer.

6.4 Delivery is completed on the arrival of the Goods at the Delivery Address or at the time of collection by the Customer where the Customer collects the Goods. The Customer is responsible for the unloading of the Goods at the Delivery Address.

6.5 Any dates quoted for delivery are approximate only, and the time of delivery is not of the essence.

6.6 If Edincare fails to deliver the Goods, its liability shall be limited to refunding the purchase price to the Customer to the extent the Customer has paid the purchase price to Edincare PROVIDED that Edincare shall have no liability for any failure to deliver the Goods to the extent that such failure is caused by a Force Majeure Event affecting the Customer or the Customer's failure to provide Edincare with adequate delivery instructions or any other instructions that are relevant to the supply of the Goods.

6.7 If the Customer fails to take delivery of the Goods within three Business Days of Edincare notifying the Customer that the Goods are ready, then:

6.7.1 delivery of the Goods shall be deemed to have been completed at 9.00 am on the third Business Day after the day on which Edincare notified the Customer that the Goods were ready; and

6.7.2 Edincare shall store the Goods until delivery takes place, and charge the Customer for all related costs and expenses (including insurance).

6.8 If ten Business Days after the day on which Edincare notified the Customer that the Goods were ready for delivery the Customer has not taken delivery of them, Edincare may resell or otherwise dispose of part or all of the Goods and, after deducting reasonable storage and selling costs, account to the Customer for any excess over the price of the Goods or charge the Customer for any shortfall below the price of the Goods.

6.9 Edincare may deliver the Goods by instalments, which shall be invoiced and paid for separately. Any delay in delivery or defect in an instalment shall not entitle the Customer to cancel any other instalment.

6.10 The Customer shall inspect the Goods as soon as possible after delivery and shall inform Edincare within 24 hours of delivery of the Goods of any missing parts, defective components or faulty products.

7. Guarantee relating to goods

7.1 Edincare warrants that on delivery, and for a period of 12 months from the date of invoice ("**guarantee period**"), the Goods shall:

7.1.1 conform in all material respects with their description and any applicable specification provided by the Customer which has been agreed by Edincare; and

7.1.2 be free from material defects in design, material and workmanship.

7.2 Subject to clause 7.3, if:

7.2.1 the Customer gives notice in writing to Edincare during the guarantee period and within a reasonable time of discovery that some or all of the Goods do not comply with the guarantee set out in clause 7.1; and

7.2.2 Edincare is given a reasonable opportunity of examining such Goods; and

7.2.3 the Customer (if asked to do so by Edincare) returns such Goods to Edincare's place of business at the Customer's cost,

Edincare shall, at its option, repair or replace the defective Goods, or refund the price of the defective Goods in full.

7.3 Edincare shall not be liable to the Customer whether pursuant to the guarantee or otherwise for the Goods' failure to comply with the warranty set out in clause 7.1 or for any other liability relating to the Goods in any of the following events:

7.3.1 the Customer makes any further use of such Goods after giving notice in accordance with clause 7.2;

7.3.2 the defect arises because the Customer failed to follow Edincare's oral or written instructions as to the storage, commissioning, installation, use and maintenance of the Goods or (if there are none) good trade practice regarding the same;

7.3.3 the defect arises or is caused in whole or in part because of the Customer's failure to service or inspect the Goods in accordance with Edincare's guidelines for servicing and inspection or (if there are none) the Customer's failure to follow good trade practice.

7.3.4 the defect arises as a result of the Customer failing to make repairs when identified and/or when advised by Edincare;

7.3.5 the defect arises or is exacerbated due to the Customer altering or repairing such Goods without the written consent of Edincare;

7.3.6 the defect arises as a result of fair wear and tear, wilful damage, negligence, or abnormal storage or working conditions; or

7.3.7 the Goods differ from their description as a result of changes made to ensure they comply with applicable statutory or regulatory requirements; or

7.3.8 the Goods which have been selected and ordered by the Customer are not the correct Goods to achieve the purpose(s) for which the Customer ordered them.

7.4 Except as provided in this clause 7 Edincare shall have no liability to the Customer in respect of the Goods' failure to comply with the guarantee set out in clause 7.1.

7.5 The terms implied by sections 13 to 15 of the Sale of Goods Act 1979 are, to the fullest extent permitted by law, excluded from the Contract.

7.6 These Conditions shall apply to any repaired or replacement Goods supplied by Edincare as well as to all new Goods.

8. Title and risk

8.1 The risk in the Goods shall pass to the Customer on completion of delivery.

8.2 Title to the Goods shall not pass to the Customer until Edincare receives payment in full (in cash or cleared funds) for the Goods and any other goods that Edincare has supplied to the Customer in respect of which payment has become due, in which case title to the Goods shall pass at the time of payment of all such sums. Until such time as property in the Goods passes to the Customer the Customer shall hold the Goods as Edincare's fiduciary agent and bailee, and shall keep the Goods separate from those of the Customer and third parties and properly stored, protected and insured and identified as Edincare's property.

8.3 If before title to the Goods passes to the Customer the Customer becomes subject to any of the events listed in clause 14.1, then, without limiting any other right or remedy Edincare may have Edincare may at any time:

8.3.1 require the Customer to deliver up all Goods in its possession that have not been resold, or irrevocably incorporated into another product; and

8.3.2 if the Customer fails to do so promptly, enter any premises of the Customer or of any third party where the Goods are stored in order to recover them.

9. Supply of services

9.1 Edincare shall supply the Services to the Customer in accordance with the Service Specification in all material respects.

9.2 Edincare shall use its reasonable endeavours to meet any performance dates for the Services specified in the Service Agreement or an Order, but any such dates shall be estimates only and time shall not be of the essence for the performance of the Services.

9.3 Where the Customer wishes to cancel any Services the Customer must give Edincare not less than three (3) Business Days notice of cancellation prior to any scheduled service visit. Failure to give not less than three (3) Business Days notice of cancellation shall result in the full cost of the Services being due from the Customer to Edincare

9.4 Edincare reserves the right to amend the Service Specification if necessary to comply with any applicable law or statutory requirement, or if the amendment will not materially affect the nature or quality of the Services, and Edincare shall notify the Customer in any such event.

9.5 Edincare warrants to the Customer that the Services will be provided using reasonable care and skill.

9.6 Edincare shall provide the Customer with a Service Call Report in respect of the Services undertaken for the Customer.

10. Service agreements

10.1 Any Service Agreement that is entered into between Edincare and the Customer will commence on the date set out in that Service Agreement and will, subject to clause 14 and clause 18 of these Terms and Conditions, continue for the duration set out in the Service Agreement (**Initial Term**) and thereafter will continue automatically for further periods equal to the Initial Term (**Additional Term**) unless terminated:

10.1.1 by either party giving to the other not less than three months' prior written notice to terminate the Contract at the end of the Initial Term, or, as the case may be, the relevant Additional Term; or

10.1.2 by the Customer at any time giving written notice to Edincare and paying to Edincare the Service Charge calculated to the end of the Initial Term or the Additional Term as the case may be together with any sums outstanding at the date of termination.

10.2 It is the responsibility of the Customer to contact Edincare in order to book service visits at the intervals set out in the Service Agreement.

10.3 The servicing undertaken pursuant to the Service Agreement is limited to the routine servicing of the equipment set out in the Equipment Schedule in accordance with the Schedule of Works which shall be undertaken at the site address and at the intervals specified in the Service Agreement and such servicing does not include matters which are not routine servicing including but not limited to defects caused by incorrect fitting or erection, usage of third party equipment, abnormal conditions of working, accident, misuse, neglect or interference or attempted repairs or servicing by a third party. Works which are not routine servicing will not be undertaken by Edincare pursuant to the Service Agreement and the cost of such works will charged for on a time and materials basis as set out in clause 12.2.

11. Customer's obligations

11.1 The Customer shall:

11.1.1 ensure the terms of the Service Agreement and/or Order and any information it provides are complete and accurate;

11.1.2 co-operate with Edincare in all matters relating to the Services;

11.1.3 provide Edincare, its employees, agents, consultants and subcontractors, with access to the Customer's premises or the site at which the Services are to be undertaken, office accommodation and other facilities as reasonably required by Edincare to supply the Services and keep all contact details given to Edincare up to date in order to facilitate the provision of the Services;

11.1.4 provide Edincare with such information and materials as Edincare may reasonably require in order to supply the Services, and ensure that such information is complete and accurate in all material respects;

11.1.5 if required by the Customer, prepare the Customer's premises or the site at which the Services are to be supplied for the supply of the Services in accordance with any instructions given by Edincare;

11.1.6 obtain and maintain all necessary licences, permissions and consents which may be required for the Services before the date on which the Services are to start;

11.1.7 comply with all applicable laws, including health and safety laws;

11.1.8 keep all materials, equipment, documents and other property of Edincare (Edincare Materials) at the Customer's premises in safe custody at its own risk, maintain the Edincare Materials in good condition until returned to Edincare, and not dispose or use the Edincare Materials other than in accordance with Edincare's written instructions or authorisation;

11.1.9 comply with all additional obligations set out in the Service Specification; and

11.1.10 Carry out in a timely manner any remedial work recommended by Edincare.

11.1.11 If Edincare's performance of any of its obligations under the Contract is prevented or delayed by any act or omission by the Customer or failure by the Customer to perform any relevant obligation (Customer Default) then:

11.1.12 without limiting or affecting any other right or remedy available to it, Edincare shall have the right to suspend the provision of the Services until the Customer remedies the Customer Default, and to rely on the Customer Default to relieve it from the performance of any of its obligations in each case to the extent the Customer Default prevents or delays Edincare's performance of any of its obligations;

11.1.13 Edincare shall not be liable for any costs or losses sustained or incurred by the Customer arising directly or indirectly from Edincare's failure or delay to perform any of its obligations set out in this clause 10.2;

11.1.14 Edincare may charge the Customer for any re-arranged site visit or emergency call out following a Customer Default; and

11.1.15 The Customer shall reimburse Edincare on written demand for any costs or losses sustained or incurred by Edincare arising directly or indirectly from the Customer Default.

12. Price and payment

12.1 The price of the Goods:

12.1.1 Shall be the price set out in the Order, or, if no price is quoted, the price as set out in Edincare's published price list and any quotation then in force as at the date of delivery.

12.1.2 excludes amounts in respect of value added tax (VAT), which the Customer shall additionally be liable to pay to Edincare at the prevailing rate, subject to the receipt of a valid VAT invoice;

12.1.3 shall be due in accordance with the terms of these Conditions in respect of all Goods ordered by the Customer regardless of whether they are delivered to the Customer or whether they are stored by Edincare until such time as the Customer requests that they are delivered; and

12.1.4 excludes the costs and charges of packaging, insurance and transport of the Goods, which shall be invoiced to the Customer and shall be payable by the Customer in addition to the price.

12.2 The charges for the Services shall be the subscription price set out in the Service Agreement of which these Conditions form part or where no Service Agreement has been entered or the subscription price does not cover the Services to be provided the charges shall calculated on a time and materials basis on the basis of the hourly rates as set out in Edincare's Tariff Schedule and as such charges may be amended from time to time provided:

12.2.1 the charges for the Services do not include the labour and parts cost of replacing or repairing any parts which require repair or replacement and the Customer hereby authorises Edincare to undertake any such repairs or replacements which Edincare considers are necessary up to a value of £250 plus VAT per service visit.

12.2.2 where the cost of a repair or replacement part exceeds £250 plus VAT then Edincare shall not undertake such work without confirmation from the Customer that the Customer agrees to pay the cost of such repair

or replacement provided that the Customer agrees and acknowledges that where the Customer does not consent to such cost during the site visit where the work is recommended that additional cost will be incurred by the Customer if Edincare is required to re-visit the site in order to undertake such repair and replacement.

12.2.3 The cost of waste disposal is determined depending on strength, viscosity and constituent make up, and as such rates stated are subject to change. Edincare reserves the right to pass on fluctuations in cost and rates with immediate effect without prior written notification. All waste is subject to acceptance at the disposal site, rejection of any load will result in storage costs and additional travelling costs to another suitable disposal site.

12.2.4 Waste disposal will be charged in full tonnes, and any part of a tonne will be rounded up to the next nearest whole tonne.

12.3 The annual Service Charge set out in the Service Agreement shall be paid in advance on either a monthly or annual basis as specified in the Service Agreement and shall be paid for the duration of the Service Agreement.

12.4 Edincare reserves the right to increase the charges for the Services on an annual basis with effect from the anniversary of these Conditions in line with the percentage increase in the Retail Prices Index in the preceding 12 month period and any such increase shall be based on the latest available figure for the percentage increase in the Retail Prices Index.

12.5 Edincare may invoice the Customer for the Goods on or at any time after Edincare accepts the Customer's order. In respect of the Services, Edincare shall invoice Customers who have entered into a fixed term contract on an ongoing basis and in accordance with the terms of any Service Agreement and for those Customers who are not on a fixed term contract Edincare may invoice the Customer prior to or on conclusion of the Services at the sole discretion of Edincare.

12.6 Where Edincare has agreed to extend credit terms to the Customer the Customer shall pay the invoice in full and in cleared funds within 30 days of the date of the invoice. Where credit terms have not been extended to the Customer then in the case of Goods payment shall be made by cleared funds on receipt by the Customer of an invoice. Payment shall be made to the bank account nominated in writing by Edincare. Time for payment is of the essence. Edincare reserves the right to grant, refuse, restrict, cancel or alter credit terms at its sole discretion at any time.

12.7 If the Customer fails to make any payment due to Edincare under the Contract by the due date for payment, then the Customer shall pay interest on the overdue amount at the rate of 4% per annum above Barclays Bank PLC's base rate from time to time. Such interest shall accrue on a daily basis from the due date until actual payment of the overdue amount, whether before or after judgment. The Customer shall pay the interest together with the overdue amount.

12.8 The Customer shall pay all amounts due under the Contract in full without any set-off, counterclaim, deduction or withholding (except for any deduction or withholding required by law). Edincare may at any time, without limiting any other rights or remedies it may have, set off any amount owing to it by the Customer against any amount payable by Edincare to the Customer.

12.9 If payment of the price is not made by the due date for payment then Edincare shall be entitled to:

12.9.1 require payment in advance of delivery in respect of any Goods and/or Services not already delivered or provided;

12.9.2 refuse to make delivery or provide any undelivered Goods and/Services whether ordered under the Contract or not and without incurring any liability whatsoever to the Customer for non-delivery or non-provision or any delay in delivery or provision;

12.9.3 appropriate any payment made by the Customer to such of the Goods and/or Services (or goods and/or services supplied under any other contract) as Edincare may think fit;

12.9.4 terminate the Contract by giving notice in writing.

13. Returns

13.1 This clause 13 applies to Goods which the Customer wants to return and which are not defective or faulty or where the Customer wants to cancel an Order for Goods prior to receiving the Goods save that where the Customer is a consumer that in addition to the rights set out in this clause 13 the Customer shall have the rights set out in clause 18 in respect of the cancellation of orders placed by the Customer.

13.2 No returns or order cancellations are accepted by Edincare save with its prior consent and all returns and order cancellations must be made strictly in accordance with Edincare's returns policy which is available on request from Edincare or at www.edincare.com.

13.3 Returns are only accepted on Goods in perfect unopened condition and which are returned to Edincare within seven (7) days of the goods being delivered to the Customer. Where the Customer wishes to return Goods outside the period of seven (7) days following their delivery to the Customer the Customer must obtain consent in writing from Edincare to any such return which consent may be granted or declined in Edincare's sole discretion.

13.4 Any delivery or carriage costs on returns are the cost of the Customer.

13.5 Any refund on a returns or a cancelled Order is subject to a deduction for a 30% restocking charge regardless of whether or not the Goods have been despatched.

13.6 No Special Orders or Bespoke Items will be accepted for return.

14. Termination

14.1 Without limiting its other rights or remedies, either party may terminate this Contract with immediate effect by giving written notice to the other party if:

14.1.1 the other party commits a material breach of any term of the Contract and (if such a breach is remediable) fails to remedy that breach within seven (7) days of that party being notified in writing to do so;

14.1.2 the other party takes any step or action in connection with its entering administration, provisional liquidation or any composition or arrangement with its creditors (other than in relation to a solvent restructuring), being wound up (whether voluntarily or by order of the court, unless for the purpose of a solvent restructuring), having a receiver appointed to any of its assets or ceasing to carry on business or, if the step or action is taken in another jurisdiction, in connection with any analogous procedure in the relevant jurisdiction;

14.1.3 the other party suspends, threatens to suspend, ceases or threatens to cease to carry on all or a substantial part of its business; or

14.1.4 the other party's financial position deteriorates to such an extent that in the terminating party's opinion the Customer's capability to adequately fulfil its obligations under the Contract has been placed in jeopardy.

14.2 Without limiting its other rights or remedies, Edincare may suspend provision of the Goods and/or Services under the Contract or any other contract between the Customer and Edincare if the Customer becomes subject to any of the events listed in clause 14.1.1 to clause 14.1.4, or Edincare reasonably believes that the Customer is about to become subject to any of them, or if the Customer fails to pay any amount due under this Contract on the due date for payment.

14.3 Without limiting its other rights or remedies, Edincare may terminate the Contract with immediate effect by giving written notice to the Customer if the Customer fails to pay any amount due under the Contract on the due date for payment.

14.4 On termination of the Contract for any reason the Customer shall immediately pay to Edincare all of Edincare's outstanding unpaid invoices and interest and in respect of Goods and Services supplied but for which no invoice has been submitted, Edincare shall submit an invoice, which shall become payable by the Customer immediately on receipt.

14.5 Termination of the Contract shall not affect any of the parties' rights and remedies that have accrued as at termination, including the right to claim damages in respect of any breach of this Contract that existed at or before the date of termination.

14.6 Any provision of the Contract that expressly or by implication is intended to come into or continue in force on or after termination shall remain in full force and effect.

15. Limitation of liability

15.1 Nothing in these Conditions shall limit or exclude Edincare's liability for:

15.1.1 death or personal injury caused by its negligence, or the negligence of its employees, agents or subcontractors (as applicable);

15.1.2 fraud or fraudulent misrepresentation;

15.1.3 breach of the terms implied by section 12 of the Sale of Goods Act 1979 and section 2 and sections 3 and 5 of the Supply of Goods and Services Act 1982 (title and quiet possession); or

15.1.4 defective products under the Consumer Protection Act 1987; or

15.1.5 any matter in respect of which it would be unlawful for Edincare to exclude or restrict liability.

15.2 Subject to clause 15.1:

15.2.1 Edincare shall under no circumstances whatsoever be liable to the Customer, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any loss of profit, or any indirect or consequential loss arising under or in connection with the Contract; and

15.2.2 Edincare's total liability to the Customer in respect of all other losses arising under or in connection with the Contract, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, shall in no circumstances exceed the higher of (1) the amount paid by the Customer to Edincare pursuant to this Contract and (2) any amount recoverable under Edincare's insurance policies which provide cover for such liability in place from time to time (less any excess payable by Edincare under such policies).

16. Intellectual property rights

16.1 All Intellectual Property Rights in or arising out of or in connection with the Services (other than Intellectual Property Rights in any materials provided by the Customer) shall be owned by Edincare.

16.2 To the extent necessary for the use of the Services, Edincare grants to the Customer a fully paid-up, non-exclusive, royalty-free licence to copy the Deliverables (excluding materials provided by the Customer) for the purpose of receiving and using the Services and the Deliverables.

16.3 The Customer shall not sub-license, assign or otherwise transfer the rights granted by clause 16.2.

16.4 The Customer grants to the Supplier a fully paid-up, non-exclusive, royalty-free non-transferable licence to copy and modify any materials provided by the Customer to Edincare for the purpose of providing the Services to the Customer.

17. Dealing as a consumer

17.1 Any terms in this Contract which seek:

17.1.1 to exclude or limit the liability of Edincare for breach of the terms included in a contract by the Consumer Rights Act 2015; or

17.1.2 to restrict or exclude the right of a consumer to enforce any remedy provided by the Consumer Rights Act 2015; or

17.1.3 seek to exclude or limit any liability which cannot be so excluded or limited where the Customer is a consumer; or

17.1.4 to restrict or exclude the right to cancel any provisions relating to the right to cancel or to enforce any of the provisions relating to the right to cancel in the Consumer Contracts (Information, Cancellation and Additional Charges) Regulations 2013 shall not apply where the Customer is a consumer.

17.2 Any provision in this Contract where delivery is stated to be made by delivery to a courier shall not apply to a Customer who is a consumer.

18. Consumers right to cancel where they change their mind

18.1 This clause 18 does not apply to business customers.

18.2 Subject to clause 18.3 below, where you are a consumer and you have purchased the Goods and/or Services over the telephone, by mail order or by exchange of emails you have a legal right to change your mind within 14 days ("Cancellation Period") and receive a refund although this refund may be subject to deductions and you will have to pay the costs of return of any Goods.

18.3 The date on which the Cancellation Period commences depends on whether you have purchased Goods or Services and is calculated as follows:

18.3.1 where you have purchased Services the period of 14 days commences on the day Edincare confirms that your Order is accepted;

18.3.2 where you have purchased Goods the 14 day period commences the day after you or someone you nominate receives the Goods; and

18.3.3 if your Goods are spilt into several deliveries over different days the 14 day period commences on the day after the day you (or someone you nominate) receives the last delivery.

18.3.4 Your right to change your mind does not apply where the Goods are Special Orders or Bespoke Items

18.3.5 Your right to change your mind does not apply where we have provided Services to you within the Cancellation Period and you have signed a written

waiver of your rights in respect of the Cancellation Period.

18.3.6 Where Services have already been provided to you we may deduct from any refund an amount for the supply of the Services for the period for which it was supplied, ending with the time you advised us that you had changed your mind. The amount will be in proportion to what has been supplied, in comparison with the full coverage of the Contract.

18.3.7 In order to change your mind within the 14 day period you will need to complete the cancellation form available on our website at www.edincare.com and return it to Edincare by post to Edincare, Unit 8 Heron Business Park, Eastman Way, Hemel Hempstead, Hertfordshire HP2 7FW or by email to info@edincare.com or by hand. If you are unable to download the form from our website please contact us for assistance at info@edincare.com.

18.3.8 Where you have exercised your right to change your mind and you have purchased Goods from us you must return the Goods to Edincare at your cost within 14 days of notifying Edincare you wish to end the contract.

18.3.9 The rights of business customers and the additional rights of consumers to terminate or cancel this Contract are contained in clause 14.

19. Force majeure

Neither party shall be in breach of this Contract nor liable for delay in performing, or failure to perform, any of its obligations under this Contract if such delay or failure result from a Force Majeure Event. If the period of delay or non-performance continues for two (2) months, the party not affected may terminate this Contract by giving five (5) Business Days written notice to the affected party.

20. Confidentiality

20.1 Each party undertakes that it shall not at any time disclose to any person any confidential information concerning the business, affairs, customers, clients or suppliers of the other party each as permitted by this clause 20.

20.2 For the purposes of this clause 20 confidential information shall include the contents of any quotation or pricing given to the Customer by Edincare.

20.3 Each party may disclose the other party's confidential information:
(i) to its employees, officers, representatives, subcontractor or advisers who need to know such information for the purposes of carrying out the party's obligations under this Contract. Each party shall ensure that its employees, officers, representatives, subcontractor or advisers to who it discloses the other party's confidential information comply with this clause 20;
(ii) as may be required by law, a court of competent jurisdiction or any governmental or regulatory authority.

20.4 Neither party shall use the other party's confidential information for any purpose other than to perform its obligations under this Contract.

21. How Edincare may use your personal information

21.1 Edincare will use the personal information you provide to us:
21.1.1 to supply the Goods and Services to you;
21.1.2 to process your payment for the Goods and Services; and
21.1.3 if you agreed to this during the order process, to give you information about similar products that we provide, but you may stop receiving this at any time by contacting us.

21.2 Where we extend credit to you we may pass your personal information to credit reference agencies and they may keep a record of any search that they do.

21.3 Edincare will only give your personal information to third parties where the law either requires or allows us to do so.

22. General

22.1 Assignment and other dealings
22.1.1 Edincare may at any time assign, transfer, mortgage, charge, subcontract or deal in any other manner with all or any of its rights or obligations under the Contract.
22.1.2 The Customer may not assign, transfer, mortgage, charge, subcontract, declare a trust over or deal in any other manner with any or all of its rights or obligations under the Contract without the prior written consent of Edincare.

22.2 Entire agreement
22.2.1 This Contract constitutes the entire agreement between the parties and supersedes and extinguishes all previous agreements, promises, assurances, warranties, representations and understandings between them, whether written or oral, relating to its subject matter.
22.2.2 Each party agrees that it shall have no remedies in respect of any statement, representation, assurance or warranty (whether made innocently or negligently) that is not set out in this Agreement. Each party agrees that it shall have no claim for innocent or negligent misrepresentation or negligent misstatement based on any statement in this Agreement.

22.3 Variation
No variation of this Contract shall be effective unless it is in writing and signed by the parties (or their authorised representatives). The Customer acknowledges that this Contract will only apply to subsequent purchases made by the Customer where this Contract still forms Edincare's then current terms and conditions of purchase. Where the Customer has made a subsequent purchase from Edincare and has not been provided with Edincare's then current terms and conditions the Customer agrees that it is the Customer's responsibility to download the then current terms and conditions from www.edincare.com to ensure the Customer has the current terms and conditions which shall apply to any such subsequent purchase.

22.4 Waiver
No failure or delay by a party to exercise any right or remedy provided under the Contract or by law shall constitute a waiver of that or any other right or remedy, nor shall it prevent or restrict the further exercise of that or any other right or remedy. No single or partial exercise of such right or remedy shall prevent or restrict the further exercise of that or any other right or remedy.

22.5 Severance
If any provision or part-provision of the Contract is or becomes invalid, illegal or unenforceable, it shall be deemed modified to the minimum extent necessary to make it valid, legal and enforceable. If such modification is not possible, the relevant provision or part-provision shall be deemed deleted. Any modification to or deletion of a provision or part-provision under this clause shall not affect the validity and enforceability of the rest of the Contract.

22.6 Notices
22.6.1 Any notice or other communication given to a party under or in connection with the Contract shall be in writing, addressed to that party at its registered office (if it is a company) or its principal place of business (in any other case) or to address given on the Order in the case of a consumer or in the case of Edincare to Unit 8, The Heron Business Park, Eastman Way, Hemel Hempstead, Hertfordshire HP2 7FW or such other address as that party may have specified to the other party in writing in accordance with this clause, and shall be delivered personally, sent by pre-paid first class post or other next working day delivery service, commercial courier, or fax or email.
22.6.2 A notice or other communication shall be deemed to have been received: if delivered personally, when left at the address referred to in clause 22.6.1; if sent by pre-paid first class post or other next working day delivery service, at 9.00 am on the second Business Day after posting; if delivered by commercial courier, on the date and at the time that the courier's delivery receipt is signed; or, if sent by fax or email, one Business Day after transmission.
22.6.3 The provisions of this clause shall not apply to the service of any proceedings or other documents in any legal action.

22.7 Third party rights
No one other than a party to this Contract and their permitted assignees shall have any right to enforce any of its terms.

22.8 Governing law
The Contract, and any dispute or claim (including non-contractual disputes or claims) arising out of or in connection with it or its subject matter or formation, shall be governed by and construed in accordance with the law of England and Wales.

22.9 Jurisdiction
Each party irrevocably agrees that the courts of England and Wales shall have exclusive jurisdiction to settle any dispute or claim (including non-contractual disputes or claims) arising out of or in connection with this Contract or its subject matter or formation.

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