

The Anchor, Hitchin, SG4 0JH

Drainage Verification Statement

1.0 Introduction

- 1.1 This Drainage Verification Statement has been prepared by Glanville Consultants on behalf of Greene King. It has been prepared to accompany an application for the discharge of a planning condition attached to a planning permission for the erection of a new convenience retail unit at the Anchor, Hitchin.
- 1.2 Condition 5 attached to planning permission reference 23/01947/FP (North Hertfordshire District Council), is as follows:
- “Upon completion of the surface water drainage system, including any SuDS features, and prior to first occupation of the retail unit; a survey and verification report from an suitability qualified surveyor shall be submitted to and approved in writing by the Local Planning Authority. The survey and report shall demonstrate that the surface water drainage system has been constructed in accordance with the details approved pursuant to condition 1. Where necessary, details of corrective works to be carried out along with a timetable for their completion, shall be included for approval in writing by the Local Planning Authority. Any corrective works required shall be carried out in accordance with the approved timetable and subsequently re-surveyed with the findings submitted to and approved in writing by the Local Planning Authority.”
- 1.3 This Verification Statement seeks to provide the information required by Condition 5.
- 1.4 Note that the wording of condition 5 refers to “condition 1”. It is the understanding of the applicant that this is a typographical error in the Decision Notice and that this reference is meant to apply not to condition 1 of planning permission 23/01947/FP (“The development hereby permitted shall be begun before the expiration of 3 years from the date of this permission”) but instead to condition 3 (“Prior to the commencement of development involving the installation of surface water drainage... construction drawings... shall be submitted and agreed in writing by the local planning authority”). The remainder of this report shall treat condition 5 as though it contained the intended reference to condition 3 instead of a reference to condition 1.

2.0 Site Description

- 2.1 The development site is located at the existing Anchor Inn public house, which is located at 84 Cambridge Road in Hitchin. It has approximate grid reference TL 19869 30023 and postcode SG4 0JH.
- 2.2 A topographical survey of the site shows that site is relatively flat, with levels in the existing car park falling generally westward, towards Cambridge Road, from a high point of approximately 56.34m Above Ordnance Datum (AOD) in the north-eastern corner of the site, to 54.93m AOD adjacent to the vehicular access point in the western corner of the site.
- 2.3 Planning permission was granted by North Hertfordshire District Council (NHDC) in March 2024 (reference 23/01947/FP). The permission grants planning consent for the erection of a new convenience retail unit and associated works.

3.0 Surface Water Drainage Design

3.1 Condition 3 of planning permission 23/01946/FP is as follows:

"Prior to the commencement of development involving the installation of surface water drainage in relation to the new retail unit, construction drawings of the surface water drainage network, associated sustainable drainage components and flow control mechanisms and a construction method statement shall be submitted and agreed in writing by the local planning authority. The scheme shall then be constructed as per the agreed drawings, method statement, FRA & Drainage Strategy (Flood Risk Assessment, dated 5 June 2023 Ref: 004_8210658_SM_Flood_Risk_Assessment, and response to Lead Local Flood Authority Comments, Ref: 006_8210658_SM_LLFA_Response) and Drawings (Proposed Drainage Strategy, by Glanville, June 2023, DWG no. 8210658 - SK10 Rev P4) and remaining in perpetuity for the lifetime of the development unless agreed in writing by the Local Planning Authority. No alteration to the agreed drainage scheme shall occur without prior written approval from the Local Planning Authority."

3.3 Condition 3 was discharged by planning application 24/01695/DOC in September 2024.

3.4 The approved drainage strategy proposed that surface water run-off from the site would be attenuated on site in a combination of geocellular attenuation crates, and permeable sub-base, before being released at Greenfield run-off rates to the existing surface water sewer crossing the site and discharging to the River Purwell to the south west of the site.

3.5 Outfall rates are controlled by the provision of 2 no. flow controls within the drainage system.

4.0 Verification of Surface Water Drainage Installation

4.1 The locations of geocellular attenuation crates and sub-base replacement attenuation crates have been verified by measured as-built survey during the construction process. Other elements of the as-built drainage have been verified by photographic records, information from the Contractor, and Glanville's site visit records.

4.2 The survey showing the measured location of below ground geocellular crates is given in Appendix A. It can be seen that the geocellular elements have been constructed within tolerance of the design locations.

4.3 In addition, photographs of the construction of major SuDS elements are presented below.

4.4 Gravel Permeable paving

4.5 Since groundwater is seasonally high at the site, permeable paving has been constructed with an impermeable membrane liner to prevent ingress of groundwater into the system, seen in Figure 1 below.

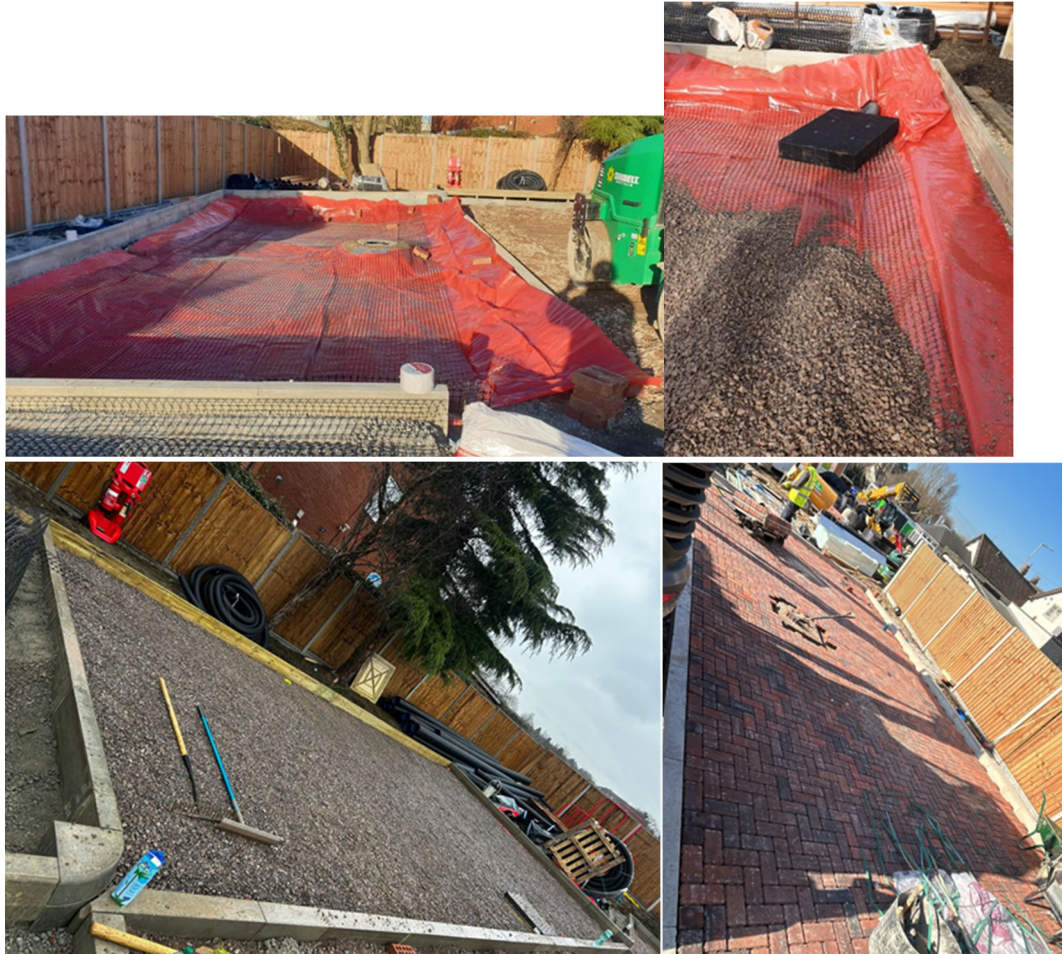


Figure 1: Permeable paving installed with membrane liner and geocellular outlet boxes.

4.6 Permeable paving with sub-base replacement geocellular crates

- 4.7 As with the standard permeable paving, the "Permavoid" system has been constructed with an impermeable membrane liner to prevent ingress of groundwater into the system:

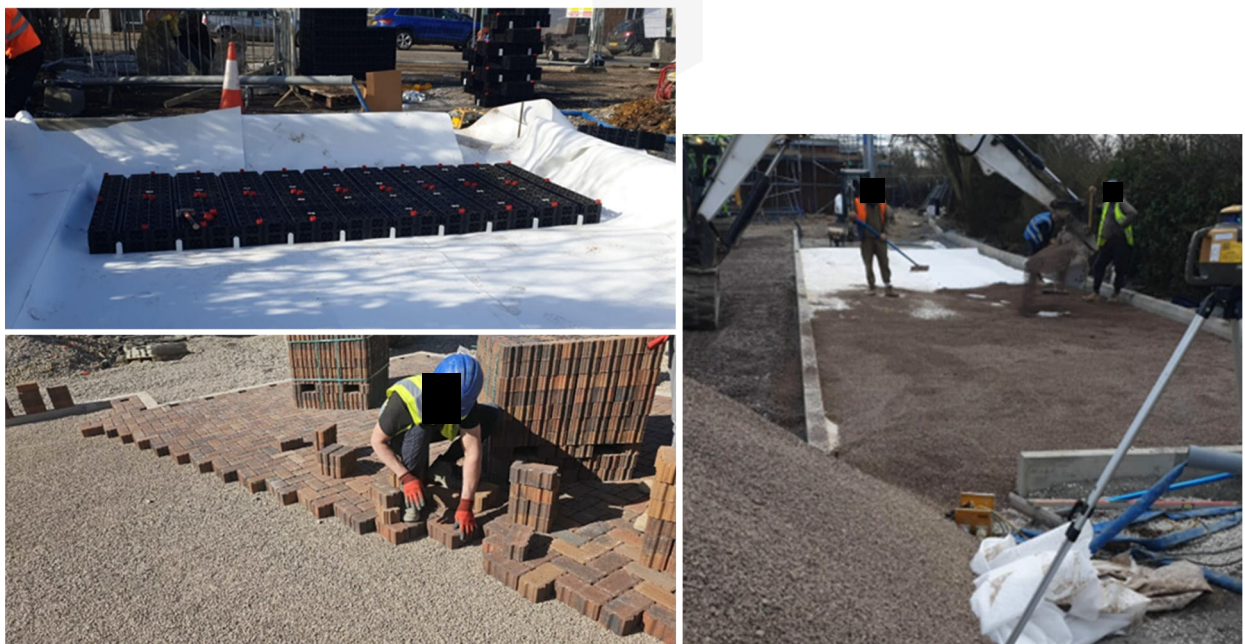


Figure 2: Permeable paving with "Permavoid" crates installed with membrane liner.

4.8 Geocellular attenuation crates

- 4.9 The geocellular attenuation crates have been installed in accordance with the manufacturer's specifications using an impermeable membrane to ensure the integrity of the crates with an additional geotextile fleece liner to protect the membrane from damage.



Figure 3: Geocellular crate attenuation being installed with impermeable liner and protective fleece

4.10 Piped Network

- 4.11 A selection of photographs are included showing the construction of the conventional piped network and catchpit manholes to manage silt:



Figure 4: Piped network during installation

4.12 Flow Controls

4.13 Vortex flow controls have been installed in the system as per the approved design:



Figure 5: Crown vortex flow controls in-situ. Final site control on left and intermediate control on right.

5.0 Products and materials

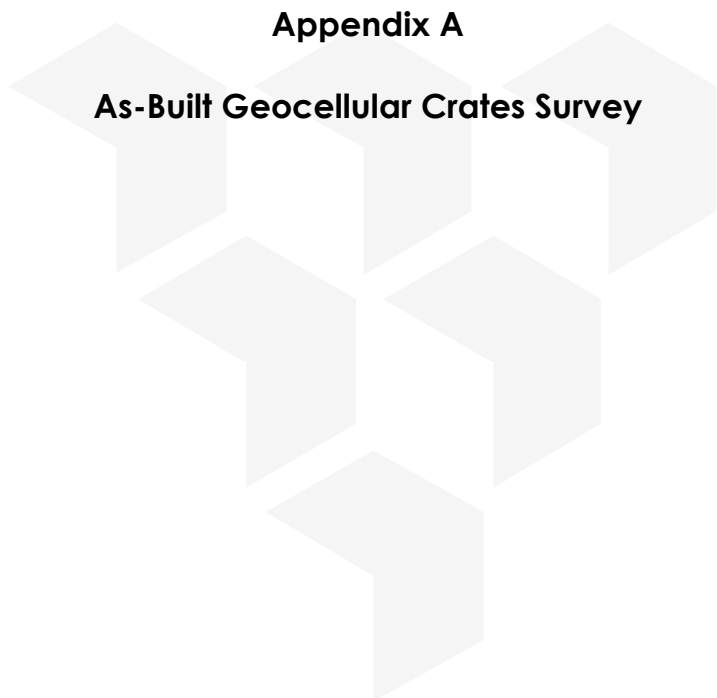
5.1 Appendix B presents the materials data sheets and product specifications from the Contractor's records for the products installed on site.

6.0 Summary

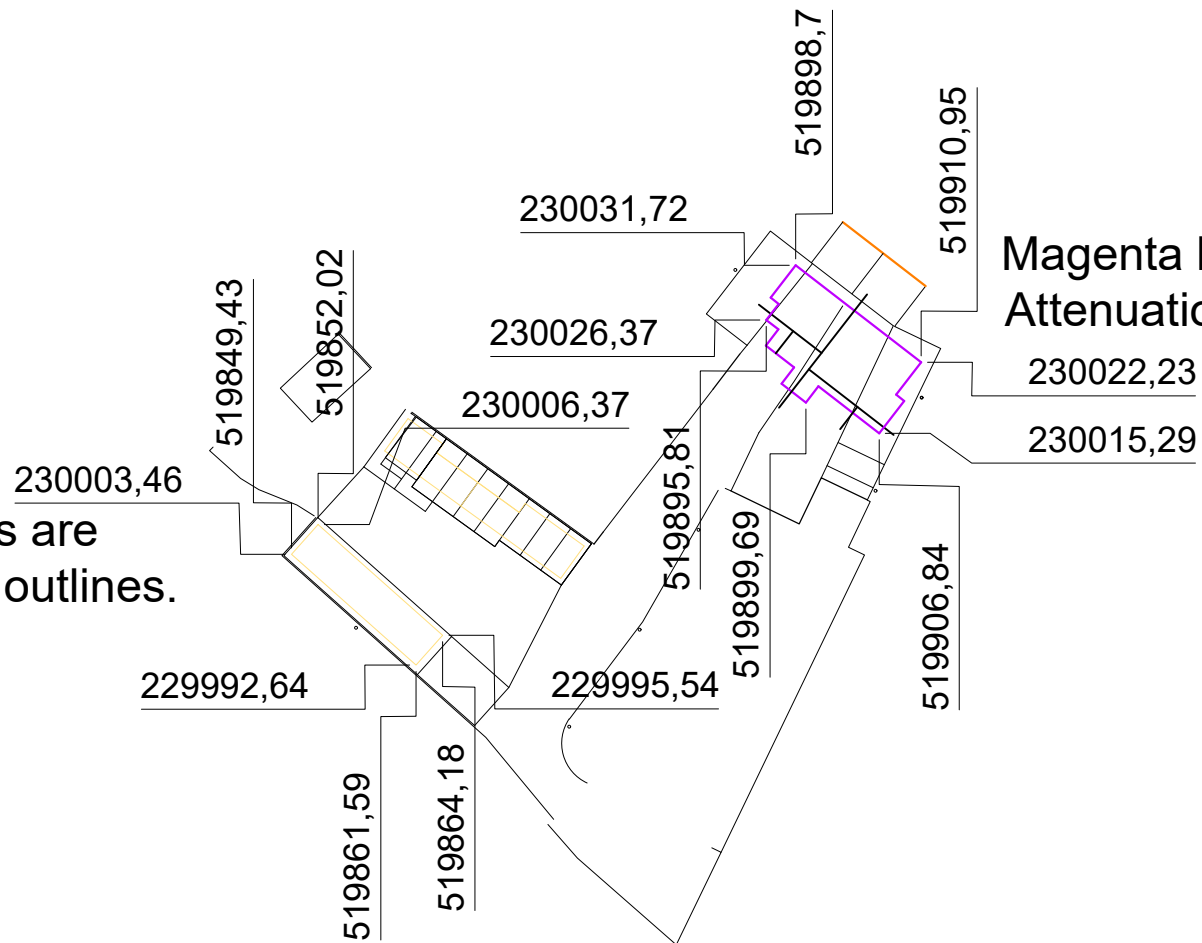
- 6.1 The approved drainage strategy proposed that surface water run-off from the site would be attenuated on site in a combination of geocellular attenuation crates, and permeable sub-base, before being released at Greenfield run-off rates to the existing surface water sewer crossing the site and discharging to the River Purwell to the south west of the site.
- 6.2 This report presents measurements and photographs showing that the drainage system and the SuDS features have been constructed as proposed.

Appendix A

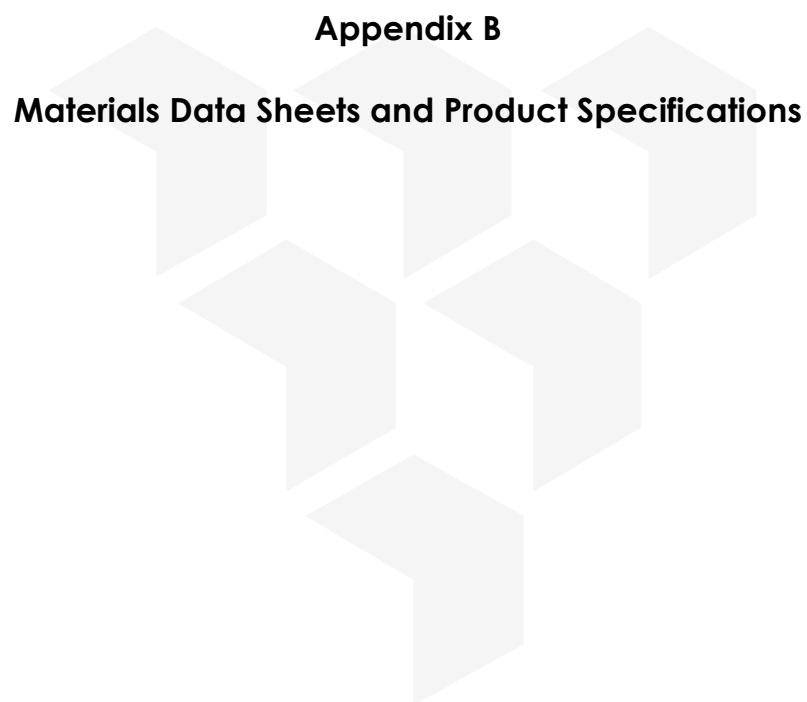
As-Built Geocellular Crates Survey



Yellow lines are
Permavoid outlines.

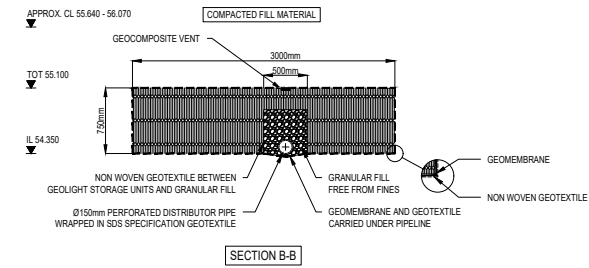
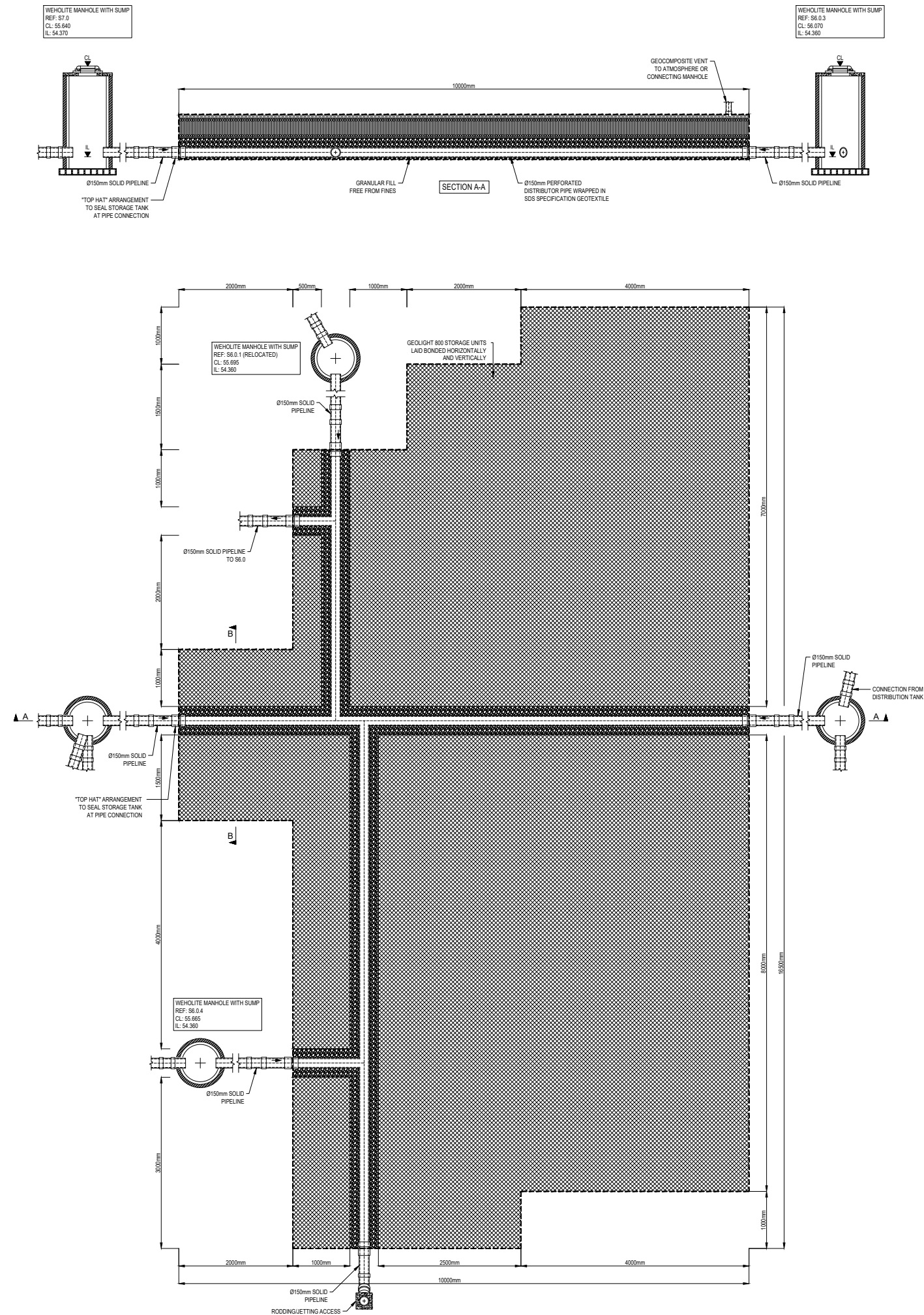


Magenta line is the
Attenuation tank outline.



Appendix B

Materials Data Sheets and Product Specifications



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.

ISSUED FOR APPROVAL	07.10.24
CG SP	Date
Rev	Comments
DRW	CHK



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Castlemills
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BS26 2RE
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[sdslimited.com](https://www.sdslimited.com)

THE ANCHOR INN
HITCHIN

CONLON CONSTRUCTION

ATTENUATION TANK 1 DETAIL

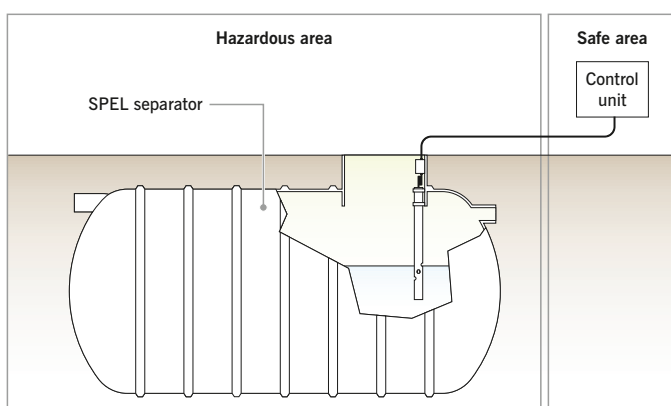
REFERENCE DRAWINGS:			
Drawing Number	Revision	Drawing Title	Date
8240287 - 1201	T1	DRAINAGE LAYOUT	30.04.24

SPEL Automatic Alarm/Monitoring Systems – Overview

The SPEL automatic alarm/monitoring systems provides visual and audible warning when the level of the oil in the SPEL Separator reaches 90% of the storage volume under static liquid level conditions. This is a requirement of the Environment Agency's Pollution Prevention Guidelines PPG3.

The systems comprise a conductive 'fail safe' probe mounted in the main separation chamber which senses when the designed volume of light liquids has accumulated and sends a signal to the electronic control unit activating a red 'empty now' warning light and an audible alarm.

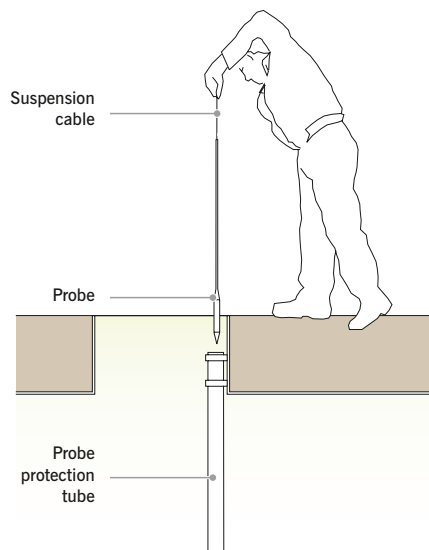
Systems available: AQUASENTRY, SPEL 2000 High Level/Oil, SPEL 2000 HLS, SPEL 2000 OS, SPEL Solar S GSM, SPEL Solar S+B, SPEL Solar S GSM + B



Maintenance

When the separator is maintained, lift the probe out of the probe protection tube, check it operates the alarm (see under Tests Ref. 10.2) and at the same time wipe oil and contaminants from the probe to prevent a fake alarm after re-inserting.

It is a legal req'd in the UK to kit and oil alarm/mon const. prod.reg. trading standards. It is less exp to fix pprot tube at making time.



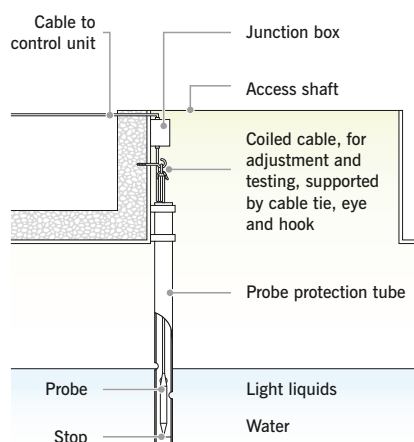
Operation

The probe is freely suspended in the probe protection tube in the separator at the correct level. When the oil-layer or depth of hydrocarbons reaches the predetermined level, the top of the probe will be immersed in the oil, breaking the circuit and activating the alarm. It is a 'fail-safe' system providing complete assurance that it is operative. If a fault occurs it will be signalled immediately.

Installation

Control unit (general positioning)

The control unit has been designed to be located indoors and outdoors, within a non-hazardous area. It should be wall mounted and positioned such that the LED display and push switches on the front panel can be readily seen and accessed. The unit can be secured to the wall by using the four mounting holes provided. Included within the control is an intrinsically safe circuit (approved according to ATEX Directive 94/9/EC), to which the probe unit is connected.



Inserting probe on site

All that is required on site is to undertake the electrical installation in accordance with the instructions provided. Fix the plated hook provided in the position indicated and lower the probe into the probe protection tube until it locates onto the stop at the base. Coil excess cable and secure with the nylon cable-tie provided. The cable-tie eyelet is then hooked onto the hook to maintain the probe in the vertical position just touching the stop.

The probe protection tube is factory fitted and positioned to ensure the probe activates the alarm when the light liquids retained reach 90% of the storage volume the SPEL Separator is designed for.



www.spelproducts.co.uk

+44 (0)1743 445200

SPEL Separator Mains Alarm Type 14400

Installation, Operation & Maintenance

SPEL Automatic Oil Alarm/Monitoring System Model ALARM-DY14400

Ideal for new build sites or where mains supply is readily available, making installation efficient and cost effective. The unit has an audible alarm and mute button. there is provision for a remote low power beacon.

Alarm warnings allow you time to take corrective action ensuring the safe and economic operation of separators preventing oil passing through the separator and polluting watercourses which may result in expensive fines and clean up costs.

Benefits

The alarm system and sensors guarantee an increased level of safety and requires simple installation for bespoke monitoring of oil and petrol separators.

Warn of excessive oil level

Tells you when a separator needs emptying

Reduces waste management costs

Designed to comply with EN858-1 and 2

Can be fitted to interceptors from all manufacturers

Reduces interceptor servicing costs

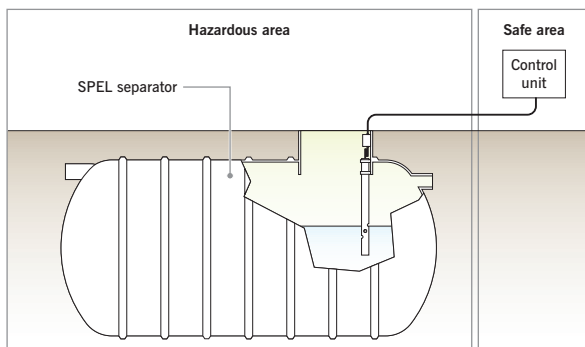
Ensures safe and economic operation of interceptors

Specifications

- Mains powered: 230VAC
- IP65 ABS Enclosure: 180 x 130 x 60mm
- Output: Remote Beacon Only (11volt. 100m Amax)
- Alarm: Audible (local)
- Probe Range: 200 metres max. (dependent on cable style)
- ATEX approved: Baseefa 13ATEX0172
- Specific Marking of Explosion Protection: Ex II (1) G [Ex ia Ga] IIB (-20°C ≤ Ta ≤ 50°C)
- ATEX Directive Marking: Ex II (1) G
- Notified Body: Baseefa 1180 Buxton UK

Compatible probe types:

- High Oil



Universal Tank Alarm

Type 14400

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Universal Tank Alarm Type 14400

Installation, Operation and Maintenance

✚ Declaration of Conformity

The above product meets all the essential safety requirements of the European Directives and standards listed below, and is issued under the sole responsibility of the manufacturer

Name and Address of Manufacturer	Darcy Products Ltd. Unit B7 Chaucer Business Park Watery Lane Kemsing Kent TN15 6QY United Kingdom
Valid for European Directives	94/9/EC until 19 th April 2016 2014/34/EU from 20 th April 2016
Equipment Name and Type	14400 series Universal Tank Alarm
Certificate Number	Baseefa 13ATEX0172
Specific Marking of Explosion Protection	[Ex ia Ga] IIB (-20°C ≤ Ta ≤ +50°C)
ATEX Directive Marking	Ex II (1) G
Notified Body	Baseefa 1180 Buxton UK
CE Mark with Notified Body Number	CE ₁₁₈₀
Harmonised Standards Used	EN 60079-0:2012 EN 60079-11:2012
Serial Number and Year of Manufacture	Displayed underneath the control unit
On behalf of the above named company, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms to all technical and regulatory requirements of the above listed directives. 	
Peter Bowden – Quality Manager	



✚ IMPORTANT

Note: In all cases good, standard electrical practice should be followed, and the installation must conform to the appropriate local code of practice – e.g. BS EN 60079-25 in the UK. In essence, the installation must be such that the intrinsic safety is not compromised by: - exposure to risk of mechanical damage, unauthorised modification or interference, exposure to moisture, dust and foreign bodies, excessive heat, invasion of intrinsically safe circuit by other electrical equipment or circuitry. Please contact Darcy for any advice on 0800 0370 899.

➤ General Description

The unit is designed to monitor a tank for a build-up of oil and sound an alarm and flash a xenon beacon when oil is detected.

➤ General Operation

The unit continuously checks for the presence of oil at the probe by measuring conductivity; however a float switch probe may be used. The probe is normally submersed in water and the LED on the unit will be green. When there is a sufficient build-up of oil at the surface that covers the conductivity probe, a sounder inside the unit sounds intermittently and the attached xenon beacon flashes. The LED on the unit turns red. To silence the sounder and stop the xenon beacon flashing, press the button on the unit. The LED will remain red until the probe detects water once again.

➤ Installation

This product has been designed and certified as being intrinsically safe. It is of paramount importance that the unit should not be modified in any way and the installation be carried out by an approved installer, in accordance with the Environment Agency guidelines (PPG3). Any deviation from this could invalidate the certification warranty and render the unit unsafe for its intended use.

➤ Technical Information

➤ Specifications

Enclosure	180mm(W) 130mm(H) 60.5mm(D) IP66/67 ABS	
Supply Voltage	230VAC $\pm 10\%$, 50/60Hz	
Current Consumption	TBA	
Fusing	FS1	T 250mA H 250V 1500A breaking capacity
	FS2	Littelfuse 0242.050UAT1 50mA 250V 4000A breaking capacity
Max probe cable length	200m (less if values in Table 3 would be exceeded)	
Beacon Output (CN2)	11.2V DC, 100mA maximum	

Table 1 - Specifications

➤ Beacon Output

The beacon output, CN2, must only be connected to a beacon. See notes below for restrictions on its use.

This output is activated when the probe detects a build-up of oil and is deactivated again by pressing the button on the unit.

Notes on the beacon output:

1. $U_m = 0$, i.e. no other source of power must ever be connected directly or indirectly to this output.
2. Cable used must have $\geq 1\text{mm}$ insulation and be $\leq 2\text{m}$ length.
3. Must only be connected to a beacon which is powered entirely from this unit, i.e. this output must not be used as a control signal to a beacon that has its own power supply.
4. The beacon must be isolated from earth.

Input/Output Parameters

U_o	15.8
I_o	175 μA
P_o	< 1mW
C_i	0
L_i	0

Table 2 - Hazardous Area Terminals (CN3)

Group	Capacitance (μF)	Inductance (mH) OR	L/R Ratio ($\mu\text{H}/\Omega$)
IIB	2.88	4463000	206000
IIA	11.6	9287000	412000

Table 3 – CN3 Load Parameters

Probe Cables

The total capacitance and inductance of the cable used between the tank alarm unit and the probe must not exceed that shown in Table 3.

Mechanical

Protection and/or screening of the cable should be taken into account when choosing a suitable cable. The maximum cable length between the probes and the tank alarm unit must not exceed 200 metres, or less if the values in Table 3 would be exceeded.

Probe Terminals

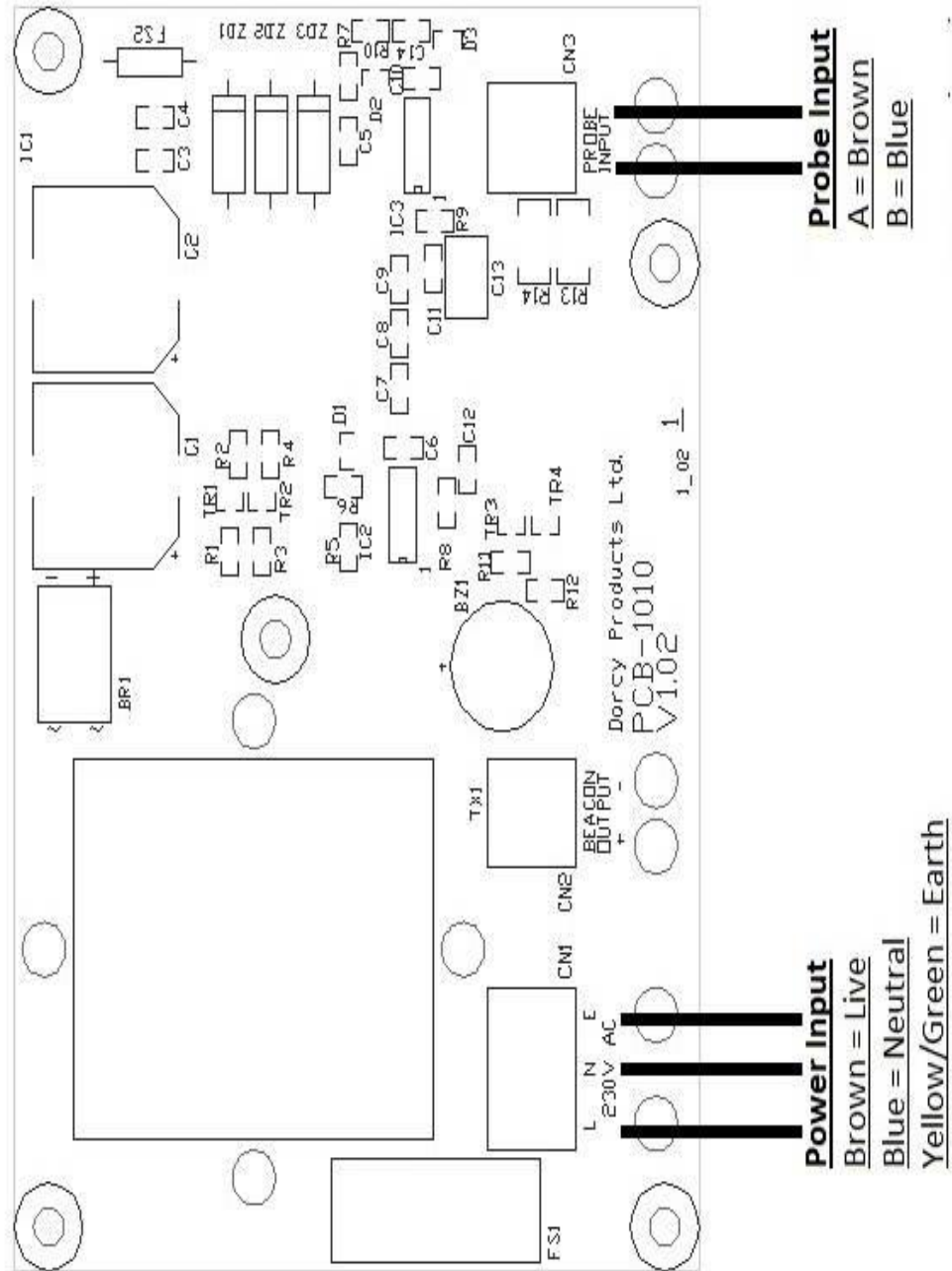
Probe Type	A	B
High Oil	RED	BLUE

Table 4 - Probe Cable Connection Details (CN3)

Beacon Terminals

CN8 Terminal	Connect To
+	Beacon positive terminal
-	Beacon negative terminal

Table 5 - Beacon Cable Connection Details (CN2)



Accessories

➤ **Probe Cable**

Whilst many different cables can be suitable for use with the probe, some customers feel more comfortable with some guidance. A typical example of a suitable cable is shown in Table 6.

Manufacturer	Lapp Kabel
Manufacturer Part No.	0012640
Inductance	0.65mH/km
Capacitance	Core-core: approx. 135nF/km Core-screen: approx. 185nF/km

Table 6 - Typical Probe Cable

➤ **Beacon**

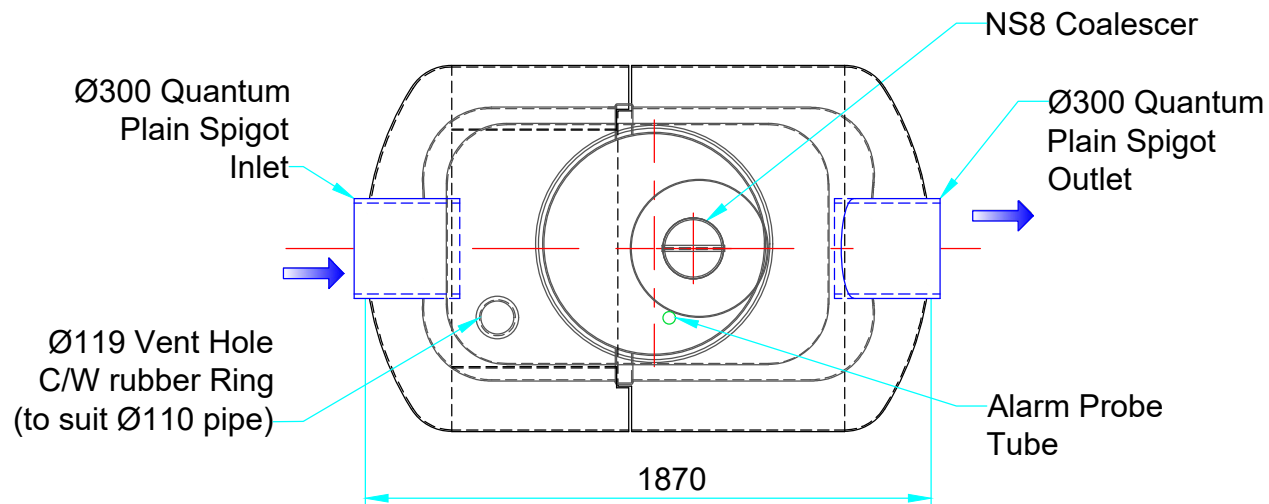
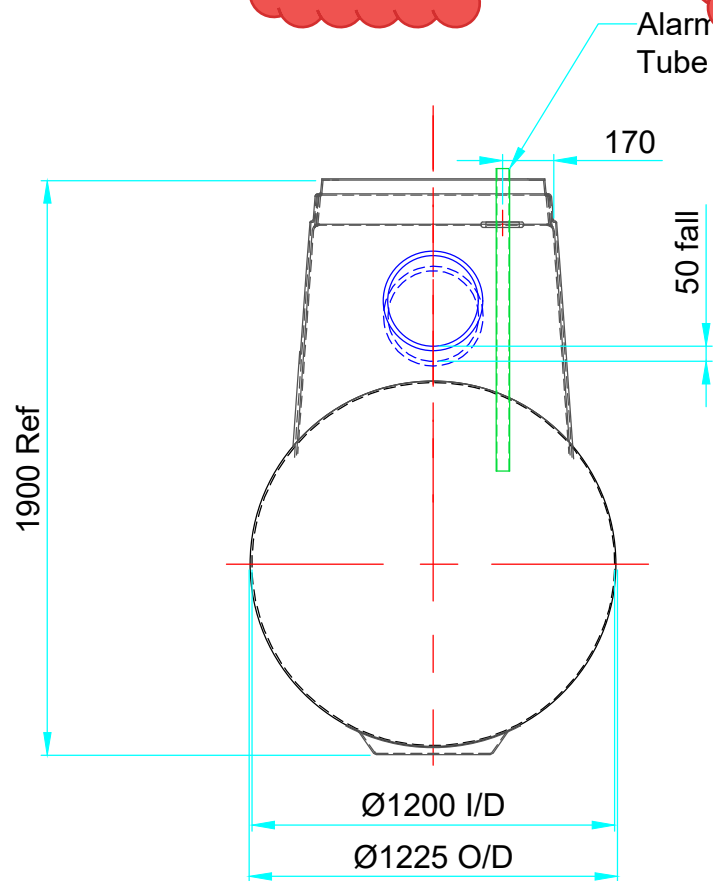
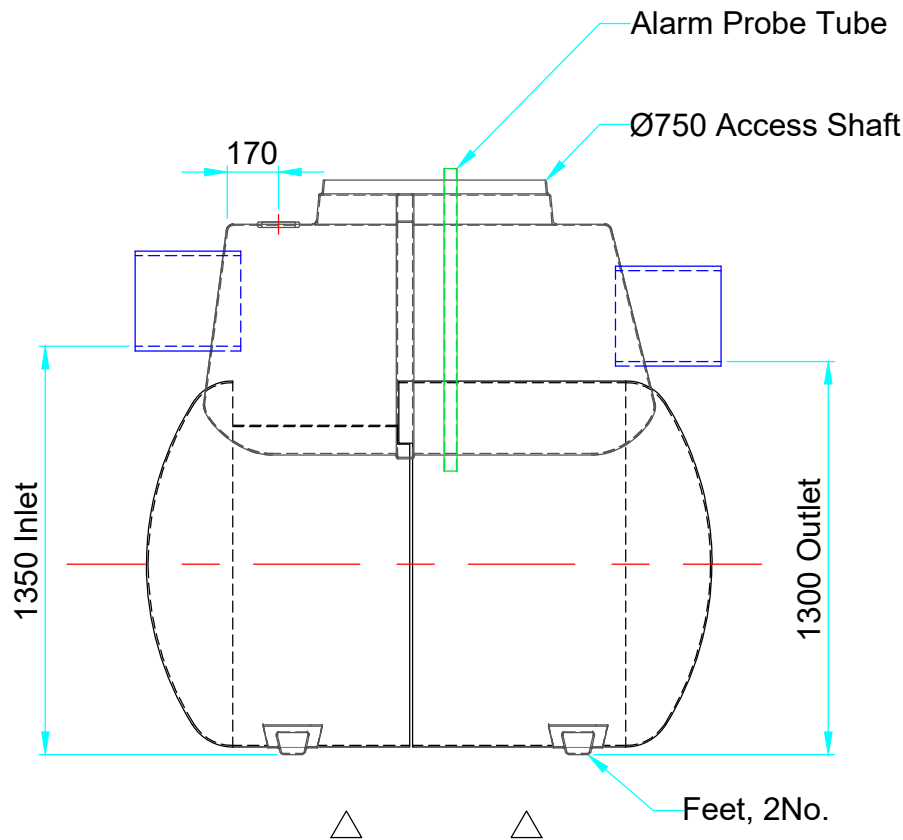
A suitable 12V xenon beacon is detailed in Table 7. It can be ordered from SPEL or from RS Components (<http://www.rs-components.com>) as order code 309-5944.

Manufacturer	Klaxon
Manufacturer Part No.	45-713121
Voltage	12V
Current	60mA (average)
Colour	Amber
IP Rating	IP65

Table 7 – Beacon Specifications

➤ **Maintenance and Repair**

The probes may be installed into harsh environments. It is recommended that you inspect and clean them regularly. The Control Unit contains no parts of which maintenance is likely to be required or carried out by the user.
For repairs, please contact SPEL on +44 (0)1743 445200



Orientation - A
INLET - Ø300 Quantum Plain Spigot
OUTLET - Ø300 Quantum Plain Spigot

NOTE:-
This Tank is to be supplied with:
1 No. Ø750 Access Shaft Extension - 500mm High

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

This drawing is confidential and must not be copied, reproduced or passed to a third party without written permission from SPEL PRODUCTS

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 7 or contact SPEL Products Sales or Technical Department

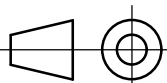
Title: SPEL 200 Series Stormceptor NSB4 Model 204C1/SC Orientation (A)

Contract: Keyline (Nottingham)
New Build Sainsbury's Store SG4 0JH
Order No.: K00061034

Capacity

Tank Specification
STANDARD

Laminate Specification
GP



All sizes in mm
If in doubt ASK!

SPEL
Life in Water
Lancaster Road, Shrewsbury
Shropshire, SY1 3NQ, England
Telephone: +44 (0)1743 445200
www.spelproducts.co.uk

Drawn
CGM

Checked
DRE

Date
23.01.25

Scale
1:25 Sheet A3

TANK SERIAL No.

31939

INTERNAL ORDER No.

26374/001

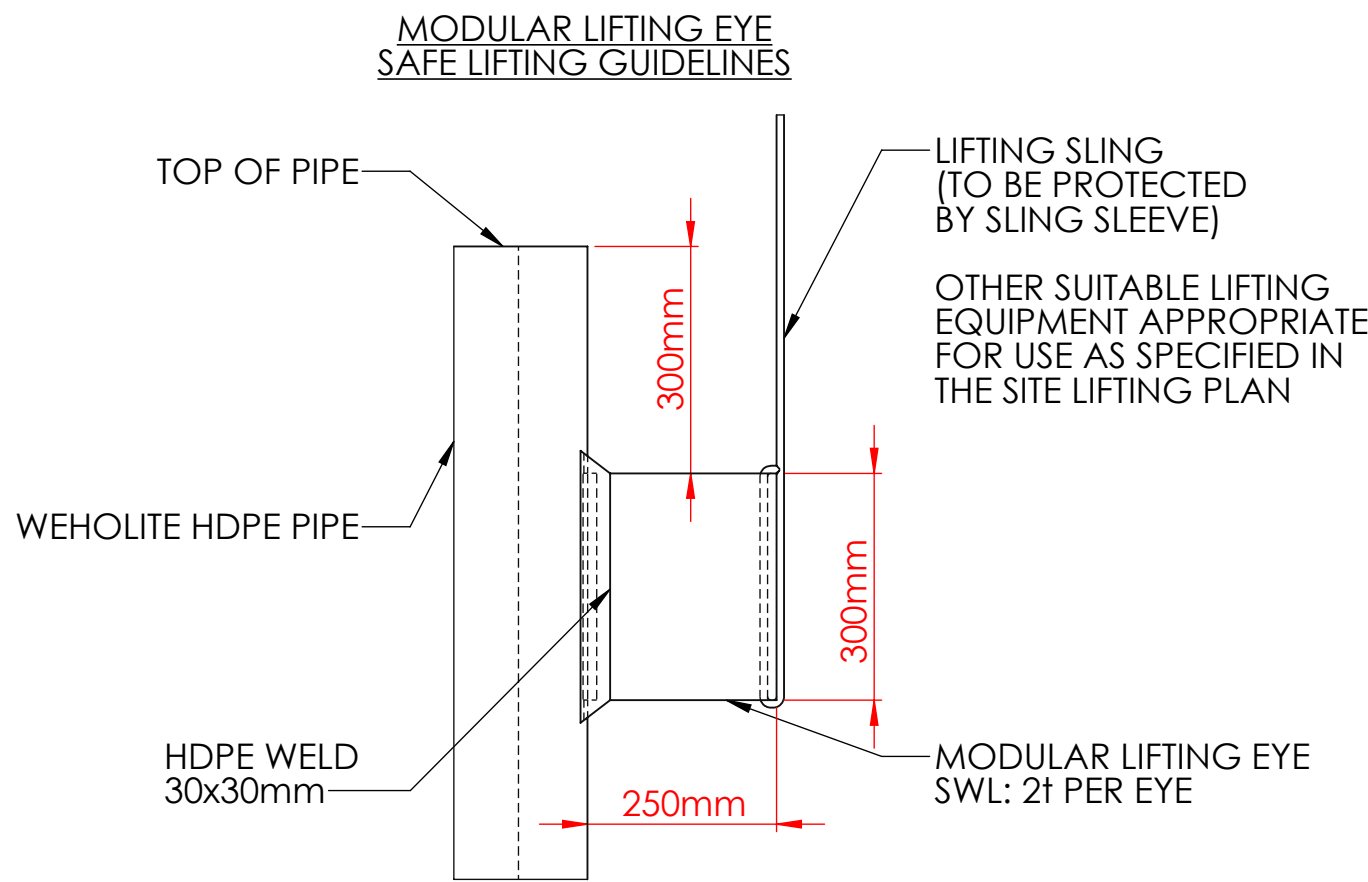
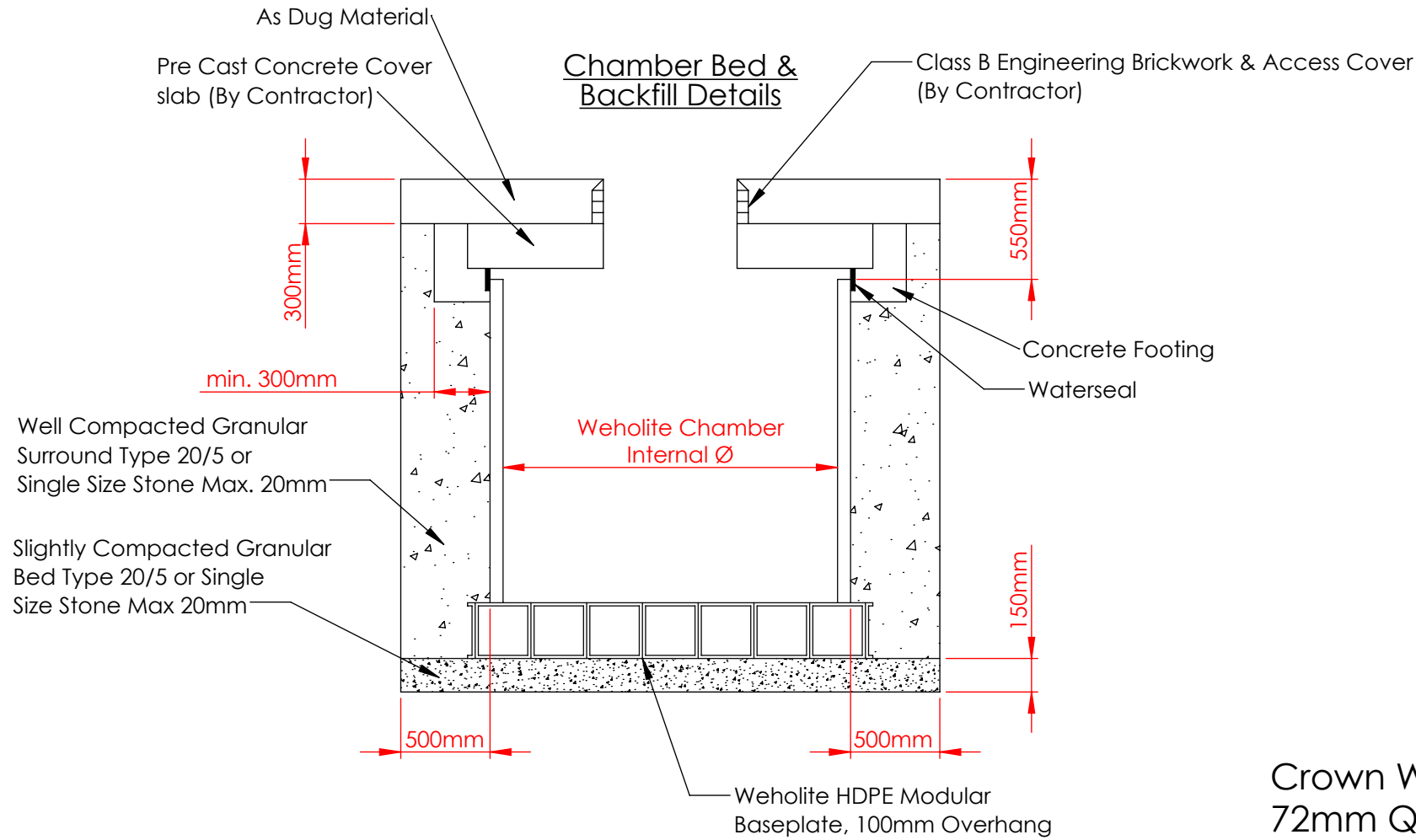
Revision

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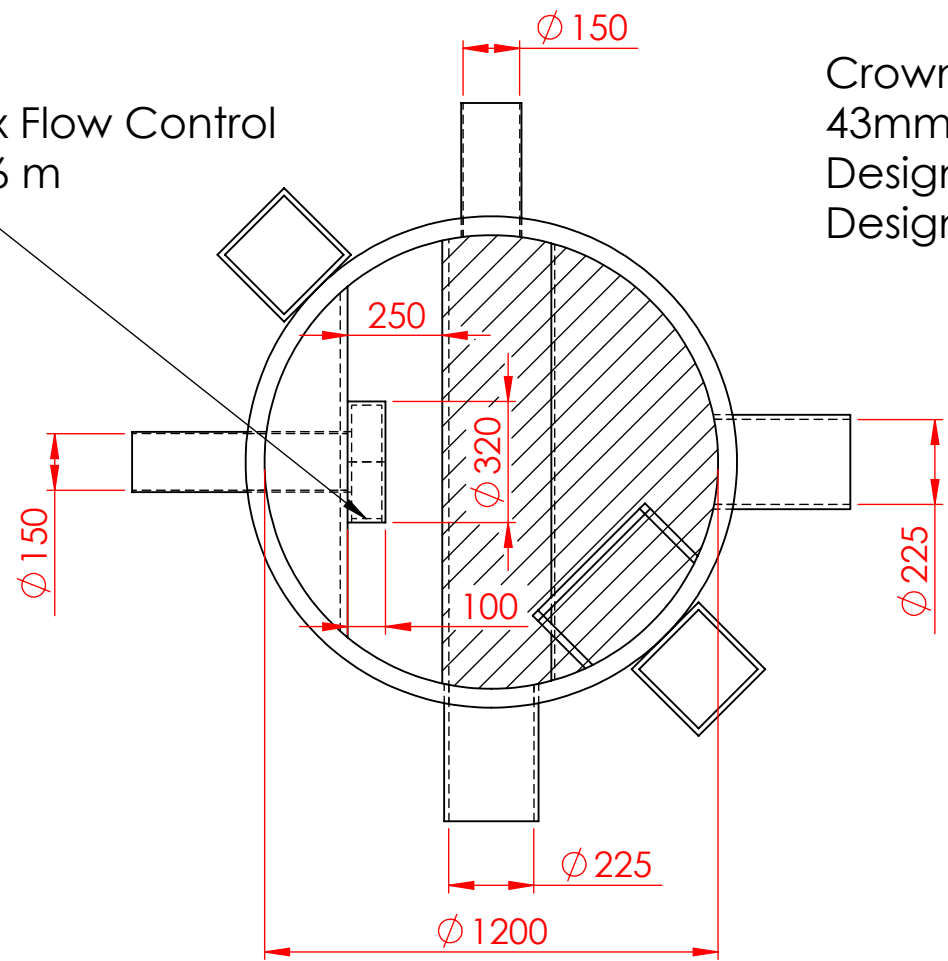
	23.01.25	A	Issued For APPROVAL	CGM
Distribution	Date	Rev	Issued only for purpose indicated	By

W-1119-24 - The Anchor Inn Hitchin

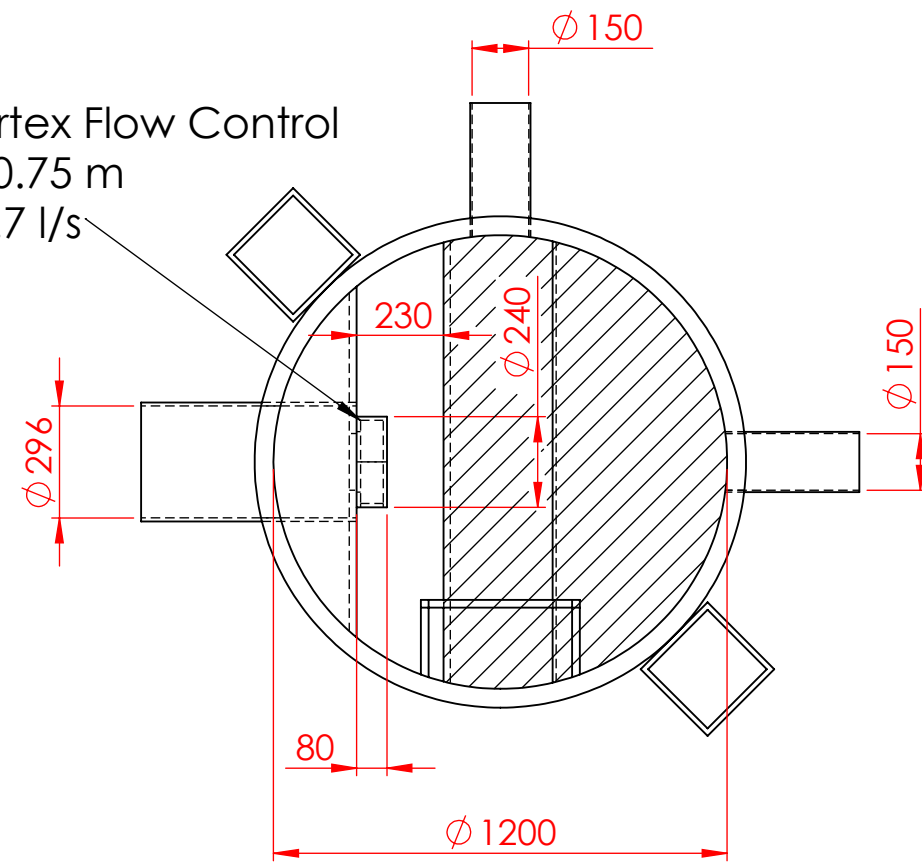
Note.
Manhole Covers and All Buidling Work to be done by others.



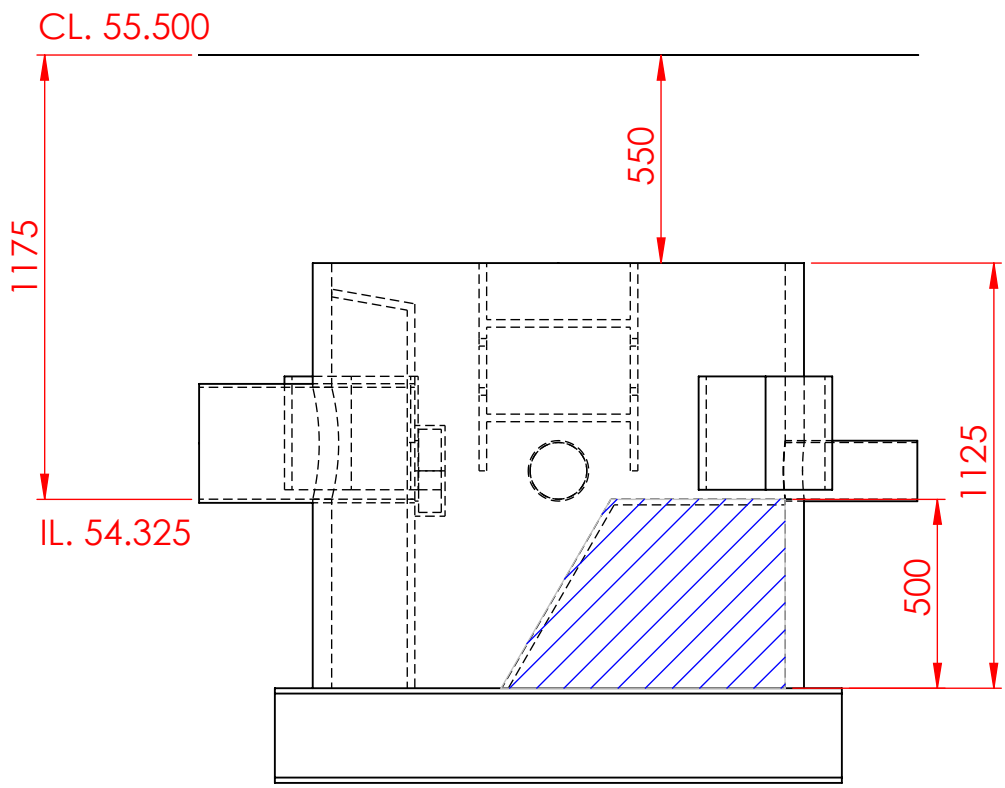
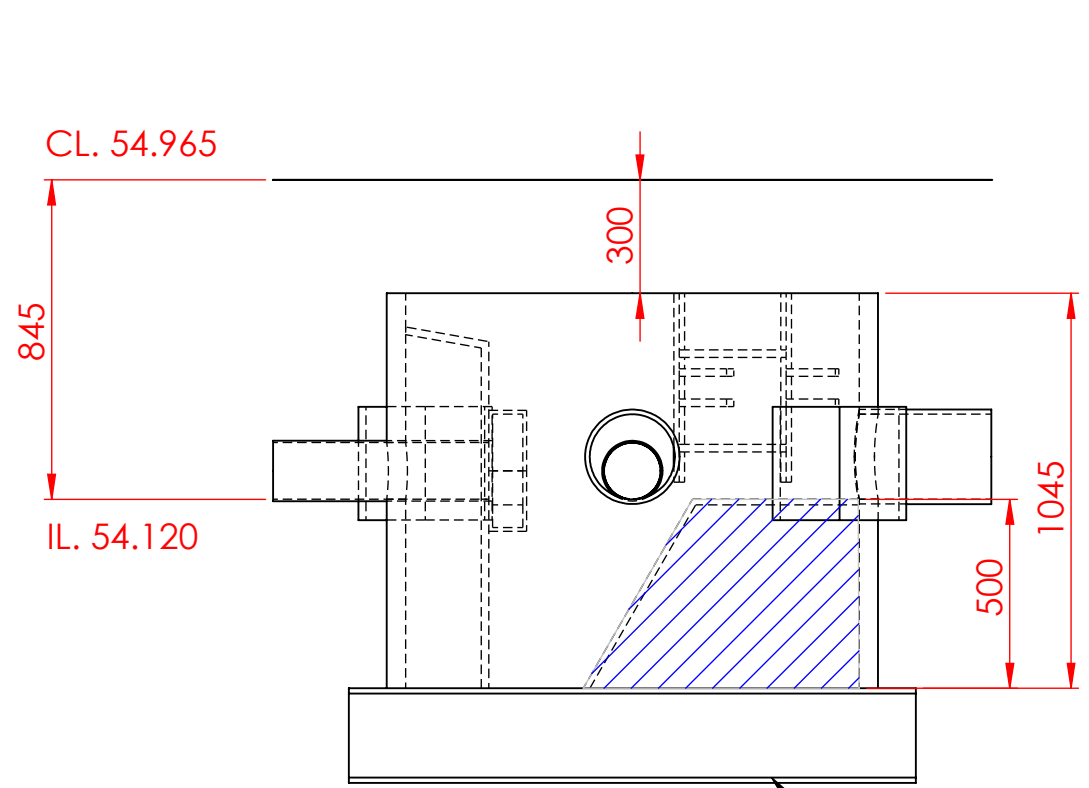
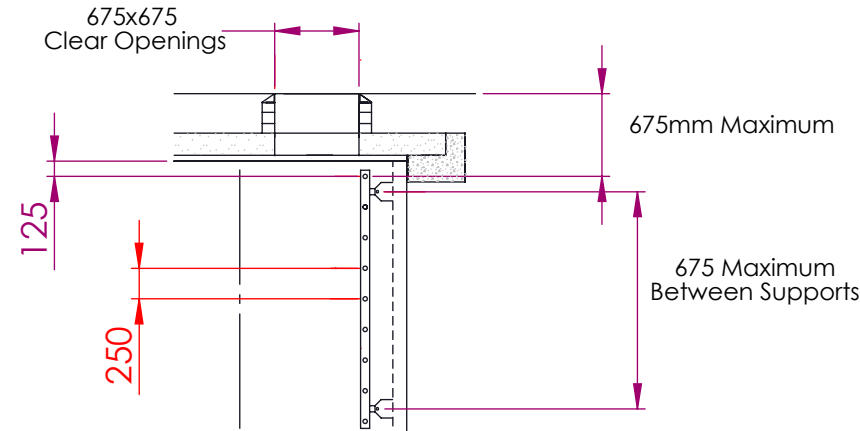
Crown Water
72mm QR4 Vortex Flow Control
Design Head: 0.66 m
Design Flow: 2 l/s



Crown Water
43mm QR5 Vortex Flow Control
Design Head: 0.75 m
Design Flow: 0.7 l/s



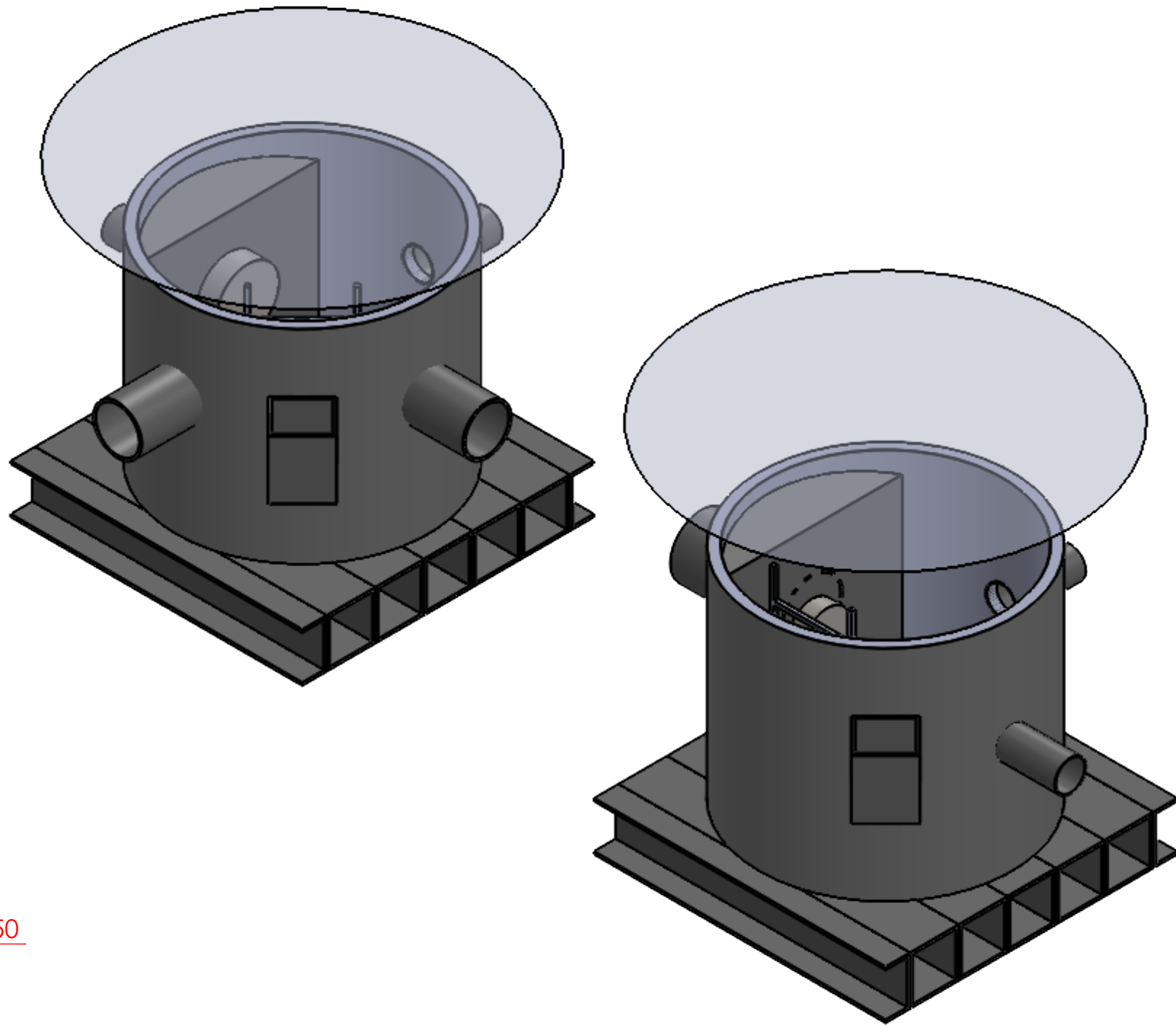
GRP Ladder Detail to BS4211



HDPE Modular Baseplate
100mm Overhang

FULL FLOOR BENCHING
ABOVE FLOOR
(Top View)

FULL FLOOR BENCHING
ABOVE FLOOR
(Front View)



NOTES:
1. This drawing and associated detail including any documents or files, proposal drawings, calculations and specification herein, contain proprietary information and may contain privileged and/or confidential information and are intended only for the person for whom the drawing has been prepared. The drawing and all associated detail previously mentioned are the exclusive confidential property of SDS PIPE SYSTEMS LTD. Copying, disclosure to others or other use is prohibited without the express written authorisation of SDS PIPE SYSTEMS LTD. Any third party is strictly prohibited from reading, using, disclosing, distributing or copying the drawing and all associated detail within it.
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3. This drawing shall be read in conjunction with all related documentation and standard details.
4. Dimensions shall not be scaled from this drawing. All dimensions and levels to be checked and approved in writing by the contractor before manufacture.
5. All dimensions are subject to manufacturing tolerances.
6. All extrusion welding to DVS 2209.
7. Pipes become the responsibility of the contractor as offloading commences.

INSTALLATIONS GUIDELINES

Single Leg:-

1. Bedding and backfill as specified by SDS PIPE SYSTEMS LTD.
2. Ensure no voids in surround under haunches.
3. Balance fill either side as fill commences.
4. Backfill in 250mm layers parallel to structure, with correct compaction if compaction is required.
5. Care should always be taken when removing trench boxes/sheeting. HE-DMRB-D CD 533
6. Do not allow construction equipment over the structure, without adequate protection for minimum 800mm of cover over the crown of the pipe and backfill area.

Multi Leg:-

1. Bulk Excavation to formation.
2. Bedding to be specified by SDS PIPE SYSTEMS LTD.
3. SDS PIPE SYSTEMS LTD. recommends installation from interconnecting section first. Pipe placement can then commence.
4. Place line and level pipes tightening HDPE bands as you progress.
5. Commence the backfill operation starting at the interconnecting end progressing as evenly as possible along the structure.
6. Backfill as per recommending method in pipe laying section of manual.
7. Backfill of suitable material to final formation can then take place.
8. Do not allow construction equipment over the structure, without adequate protection or minimum 800mm of cover over the crown of the pipe and backfill area.

Note:

Further advice can be obtained from SDS PIPE SYSTEMS LTD.'s engineering department.

RESIDUAL RISKS

1. The trench should be excavated to the specified line and levels and the contractor should take all precautions required by statutory regulations, or dictated by actual circumstances, to ensure the safety of the public and the pipe layers. The contractor should also avoid interrupting or damaging public or private utilities encountered during the course of the work.
2. Pipes should always be handled using nylon slings of the appropriate safe working load. Reference should always be made to the Health & Safety Guidelines Manual for information on deliveries and storage on site.
3. Where ground water levels are expected to be above the pipe invert, measures should be taken to maintain structural integrity and counter potential flotation.
4. Where construction traffic may impose loading, temporary or permanent measures should be taken to ensure that there is no detrimental effect on the pipe.
5. A permit to work procedure should always be in use for internal welding on site. Reference should always be made to the H&S Guidelines Manual for information.
5. Advise on site specific requirements should always be sought from SDS PIPE SYSTEMS LTD. using the contact details below.

FABRICATIONS

1. All dimensions are subject to manufacturing tolerances.
2. All dimensions and levels to be checked and approved in writing by the contractor before manufacture.

JOINTING DETAILS

Ø DIA	TYPE	QTY

Application:

DELIVERY ADDRESS:

SITE CONTACT:

NUMBER:

VEHICLE:

DELIVERY DATE:

PIPE SLUNG:

AIR TESTING

WELDED JOINTS:

MECHANICAL COUPLER:

SEALED BOX SECTIONS:

PLATED JOINTS:

MATERIAL:

HDPE



SDS PIPE SYSTEMS LTD
Stephenson Street, Newport, South Wales, NP19 4XH
Web Site: www.weholite.co.uk Email: sales@weholite.co.uk
Tel: 01633 273 081 Fax: 01633 290 519

REVISIONS			
REV.	DESCRIPTION	DATE	INITIALS

SHEET NUMBER: 1 OF 1	REV:
W-1119-24 - The Anchor Inn Hitchin	-

Aggregate Industries Technical Department
Aggregate Specification Datasheet

Material: 2/6 Conc. SS Limestone
 Product Code: EN4233702
 Aggregate Petrographic Group: Limestone
 Supply Plant: Torr

GRADING AND SPECIFICATION

SIEVE SIZE	TYPICAL GRADING	SPECIFICATION LIMITS
14mm	100	100 – 100
10mm	100	98 – 100
8mm	100	-
6,3mm	93	80 – 100
4mm	31	-
2,8mm	11	-
2mm	9	0 – 20
1mm	4	0 – 5
63µm	2.9	0.0 – 4.0

MATERIAL PROPERTIES

Aggregate	Carboniferous Limestone
Water Absorption	1.0%
Oven Dried Relative Density	2.64 Mg/m ³
Saturated Surface Dried Relative Density	2.67 Mg/m ³
Apparent Relative Density	2.71 Mg/m ³
Polished Stone Value	41
Aggregate Abrasion Value	6.2
Los Angeles	21
Micro Deval	17
Magnesium Sulfate Soundness Value	5
pH Value	8.5
Total Sulphur Content	0.10%

Issued by: Chloe Gullock
 Technical Sales Support Manager

Date: 19th June 2024

It is the sole responsibility of the certificate holder to ensure the validity and current status of all information herein

Issued by Ian Phillips (Aggregates Technical Manager) February 2025

Standard	BS EN 12620, BS EN 13242 & BS 7533-13
Size Designation	4/20
Fines Content	f ₄
Shape	Fl ₂₀
Resistance to Fragmentation	LA ₃₀
Resistance to Wear	M _{DE20}
Durability	WA ₂₄₂
	MS ₁₈
Acid Soluble Sulphate Content	AS _{0.2}
Void Content	≥ 30%

Grading

Sieve size (mm)	% Passing
40	100
31.5	98 - 100
20	90 – 100
10	25 – 70
4	0 - 15
2	0 - 5

Give us a call on 0345 155 9208 for more information about our products'

Cemex, Binley Business Park, Harry Weston Road, Binley, CV3 2TY

Aggregate - Evaluation

Product designation: SHW 803 Type 1 0 / 32 OC75 Gp UF9 C90/3

Producer: Torr Quarry

Source: Limestone

Delivery / Sampling

Sampled/ tested

Sample No: SCOA/0138080

12/03/2025 10:00

Sampler: Matthew Glass

Sampling point:

Stockpile

Place of sampling: Quarry

Initiator

Torr Quarry

Weather: Overcast

Project designation:

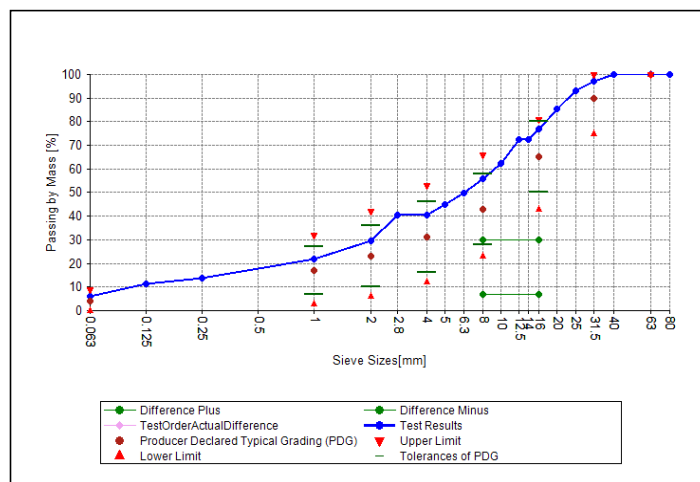
Comments

SAMPLE ANALYSIS

EN 933-1: Particle size distribution, Sieving method

Sieve size	Passing %	Specification limits	Complies?
63 mm	100	100 - 100	yes
31.5 mm	97	75 - 100	yes
16 mm	77	50 - 80	yes
8 mm	56	28 - 58	yes
4 mm	40	16 - 46	yes
2 mm	29	10 - 36	yes
1 mm	22	7 - 27	yes
0.063 mm	6.0	0.0 - 9.0	yes
Water content:	1.4	not specified	-
Uniformity coefficient	86.6	not specified	-
<i>Additional grading requirements:</i>			
passing 16.0mm - ret 8.0mm	21	7 to 30	yes
passing 8.0mm - ret 4.0mm	16	7 to 30	yes

Remark



Somerset, 18/03/2025

L. Sleight

Lee Sleight

CEO

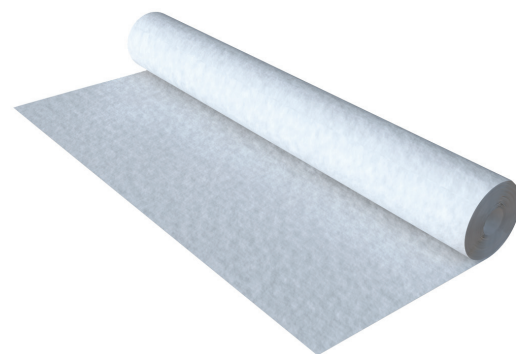
L. Sleight

Lee Sleight

CEO

Product code: PV23002

Permafilter Geotextile is a non-woven, dimpled, needle punched geotextile that has been specifically designed for hydrocarbon pollution treatment in sustainable drainage systems (SuDS) and other civil engineering applications.



Applications

Permafilter Geotextile is suitable for a wide range of applications including podium decks, cycle paths, infiltration tanks, tree protection, bio-retention, swales, permeable paving, filter drain and filter strips.

Key Benefits

- Captures residual hydrocarbons
- Removes pollutants by biodegradation
- Enhances water quality when used as part of a source control sustainable drainage system and eliminates the need for end of line petrol/oil interceptors
- 100% recyclable
- Designed to be self-maintaining for the life of the installation

Performance

The dimpled Geotextile comprises a proprietary blend of polyester fibres that incorporates hydrophilic (water attracting and oil repellent) and hydrophobic (oil attracting and water repellent) properties to achieve superior oil retention. Permafilter Geotextile is capable of retaining oil contamination ranging from daily car drip losses up to catastrophic spillages, i.e. originating from car oil-sump failures. The entrapped hydrocarbons are biodegraded by naturally occurring microorganisms providing a self cleansing mechanism.

Installation

Permafilter will be laid to suit site specific requirements. Overlaps shall be a minimum of 300mm or heat sealed. Ensure geotextile is clean and debris free before installing Permavoid.

Technical Support

Detailed guidance and assistance is available.

For further information, please contact our Technical Team on **+44 (0) 1509 615 100** or email civils@polypipe.com or visit www.polypipe.com/civils-technical-hub

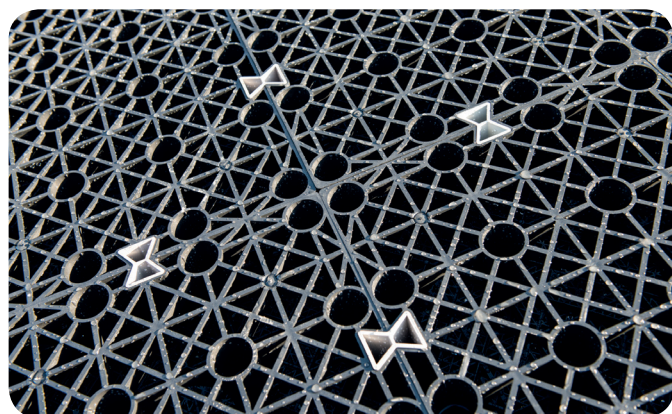
ELEMENT	VALUE
PHYSICAL PROPERTIES	
Weight	300g/m ²
Roll length	100m
Roll width	2.4m
Roll weight	72kg
MECHANICAL PROPERTIES	
Tensile strength EN10319 (md/cmd)	9/12kN/m
Static puncture (CBR test) EN12236	1575N
HYDRAULIC PROPERTIES	
Water permeability EN ISO 11058	57 l/m ² /s
OTHER PROPERTIES	
Air permeability	1000 l/m ² /s
Max. oil retention	6L /10m ²
Effluent discharge at max. spacing oil loading	10ppm
Material	Modified polyester

Permafilter Geotextile can be utilised in these SuDS techniques

TECHNIQUES													
Blue-Green roofs	Podium Decks	Trees	Sports Pitches	Cycle Paths	Permeable Paving (sub base & podium)	Bioretention & Rain Gardens	Attenuation Storage Tanks	Infiltration	Swales	Filter Drains	Detention Basins	Ponds & Wetlands	Filter Strips
	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓

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Permaties

Product code: PVCLIP

Permatie is a patented tapered tie that interlocks the Permavoid geocellular units into a secure and consistent raft. Once connected the ties provide tensile resistance within the Permavoid structure. For use with Permavoid 85, 85² and 150 cells.

ELEMENT	VALUE
PHYSICAL PROPERTIES	
Weight per unit	30g
Length	74mm
Width	45mm
Depth	34mm
OTHER PROPERTIES	
Material	Polypropylene

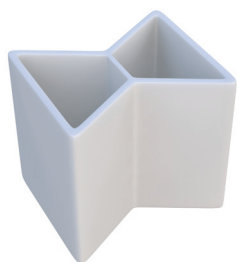


Shear Connector

Product code: PVSC

When two or more layers of Permavoid are used to form a structure, Shear Connectors are inserted between the layers to create stability and shear resistance to prevent lateral movement.

ELEMENT	VALUE
PHYSICAL PROPERTIES	
Weight per unit	10g
Length	40mm
Width	35mm
OTHER PROPERTIES	
Material	Polypropylene



Technical Support

Detailed guidance and assistance is available.

For further information, please contact our Technical Team

on **+44 (0) 1509 615100** or email civils@polypipe.com

or visit www.polypipe.com/civils-technical-hub

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Polypipe Civils,

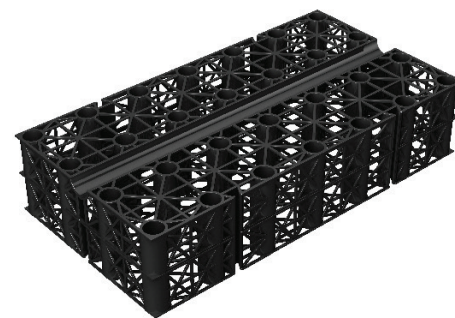
Charnwood Business Park, Loughborough, Leicestershire LE11 1LE

Tel: +44 (0) 1509 615100 Fax: +44 (0) 1509 610215 Email: civils@polypipe.com

www.polypipe.com/wms

Product code: PVPP150

Permavoid is a geocellular interlocking system designed for shallow ground water storage or infiltration, to be used in place of traditional aggregate sub-base, or to provide source control above ground at both roof and podium level, removing the need for heavier and less efficient systems. The system has an exceptionally high compressive and tensile strength and bending resistance with a proprietary jointing system to create a horizontal structural 'raft' within the pavement that is ideal for the shallow attenuation of surface water. The system can also be combined in layers using interlocking shear connectors to increase depth in 85mm and 150mm increments. This is particularly useful in designing infiltration systems, allowing flexibility in balancing the soil permeability/infiltration area of the Permavoid storage units and residual temporary attenuation.



Applications

The Permavoid units are suitable for use as a stormwater attenuation and/or infiltration. The system comprises of single, interconnected cells which can be installed in the ground as part of sub-base formation, or above ground as part of roof or podium attenuation systems for source control. Permavoid is suitable for use in a range of applications including residential, industrial estates, car parks, sports pitches, roofs, basements, pedestrian areas and rainwater harvesting.

Key Benefits

- High strength, high capacity, shallow, sub-base replacement system
- Stormwater attenuation and/or infiltration system
- Used as part of a sustainable drainage system (SuDS) scheme to offer stormwater storage at shallow construction depths
- 100% recyclable
- Units are manufactured from 100% recycled polypropylene (PP)

Performance

The structural load bearing capacity of the Permavoid units have been tested in accordance with the following European Standard: BS 7533-13:2009. The system's structural design life expectancy, based upon creep test data (tested in accordance with CIRIA guidelines) is as follows; for lightly loaded areas such as car parks a design life of 50 years is achievable. For areas with prolonged HGV loading a typical design life may only be 25 years, depending on the design of the pavement surfacing and structural layers over the tank.

Installation

All calculations for Permavoid units are based upon site-specific load cases, pavement construction types and thicknesses, soil cover and ground conditions and the suitability must therefore be approved for each project.

Technical Support

Detailed guidance and assistance is available.

For further information, please contact our Technical Team on +44 (0) 1509 615 100 or email civils@polypipe.com or visit www.polypipe.com/civils-technical-hub

ELEMENT	VALUE
PHYSICAL PROPERTIES	
Weight per unit	3kg
Weight per square metre	12kg
Length	708mm
Width	354mm
Depth	150mm
SHORT TERM COMPRESSIVE STRENGTH	
Vertical	715kN/m ²
Lateral	156kN/m ²
SHORT TERM DEFLECTION	
Vertical	1mm per 126kN/m ²
Lateral	1mm per 15kN/m ²
TENSILE STRENGTH	
Of a single joint	42.4kN/m ²
Of a single joint at (1% secant modulus)	18.8kN/m ²
Bending resistance of unit	0.71kN/m
Bending resistance of single joint	0.16kN/m
OTHER PROPERTIES	
Volumetric void ratio	95%
Average effective perforated surface area	52%
Intrinsic permeability (k)	Minimum 1.0 x 10 ⁻⁵
Ancillary	Permavoid Permatie Permavoid Shear Connector
Material	Polypropylene (PP)

HYDRAULIC PERFORMANCE						
3 units wide, 1 unit deep (1.06m x 0.15m)						
FREE DISCHARGE						
Gradient (%)	0	1	2	3	4	5
Flow Rate (l/m/s)	8	13	15	17	19	21

Permavoid Modular Cell 150 can be utilised in these SuDS techniques

TECHNIQUES													
Blue-Green roofs	Podium Decks	Trees	Sports Pitches	Cycle Paths	Permeable Paving (sub base & podium)	Bioretention & Rain Gardens	Attenuation Storage Tanks	Infiltration	Swales	Filter Drains	Detention Basins	Ponds & Wetlands	Filter Strips
	✓		✓	✓	✓	✓	✓	✓	✓	✓			

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