Culmullin 220kV Substation

Energia

Project reference: Culmullin 220kV Substation
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16 June 2023

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Quality information

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		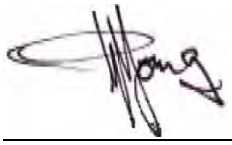	
Graham McEwan Senior Technician	Euan Proudfoot Civil Engineering Designer	C.Graham Young Associate Director	Barry Wall Energy Practice Lead

Revision History

Revision	Revision date	Details	Authorized	Name	Position
0	26.05.22	First Issue	B.Wall	Barry Wall	Energy Lead
1	8.06.23	Second Issue	Bernice Cahill	Bernice Cahill	Associate Director
2	16.06.23	Final	Bernice Cahill	Bernice Cahill	Associate Director

Distribution List

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0	1	Energia Solar Holdings

Prepared for:

Energia
The Liberty Centre, Blanchardstown Retail Park, Dublin 15, D15 YT2H

Prepared by:

Graham McEwan
Senior Technician
E: graham.mcewan@aecom.com

AECOM Ireland Limited
4th Floor
Adelphi Plaza
Georges Street Upper
Dun Laoghaire
Co. Dublin A96 T927
Ireland

T: +353 1 238 3100
aecom.com

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1. Introduction

AECOM has been commissioned by Energia Solar Holdings (the Applicant) to provide engineering consultancy services for the development of a new 220 kilovolt (kV) Air Insulated Switchgear (AIS) substation, looped into the existing Maynooth – Gormanstown 220kV line directly to the west (hereafter referred to as the 'Proposed Development') located in Culmullin, Co. Meath.

This document has been prepared to accompany the planning application for the Proposed Development.

This document outlines the design criteria considered to satisfy planning requirements and the drainage elements considered by AECOM as part of the design of the Proposed Development.

Additionally, supplementary information on the technical specifications of the proposed flow control measures, the proposed full retention separator and proposed foul holding tanks have been provided as an appendix. An equal approved product may be used by the appointed contractor at detailed design stage subject to agreement with all stakeholders.

2. Proposed Development Description

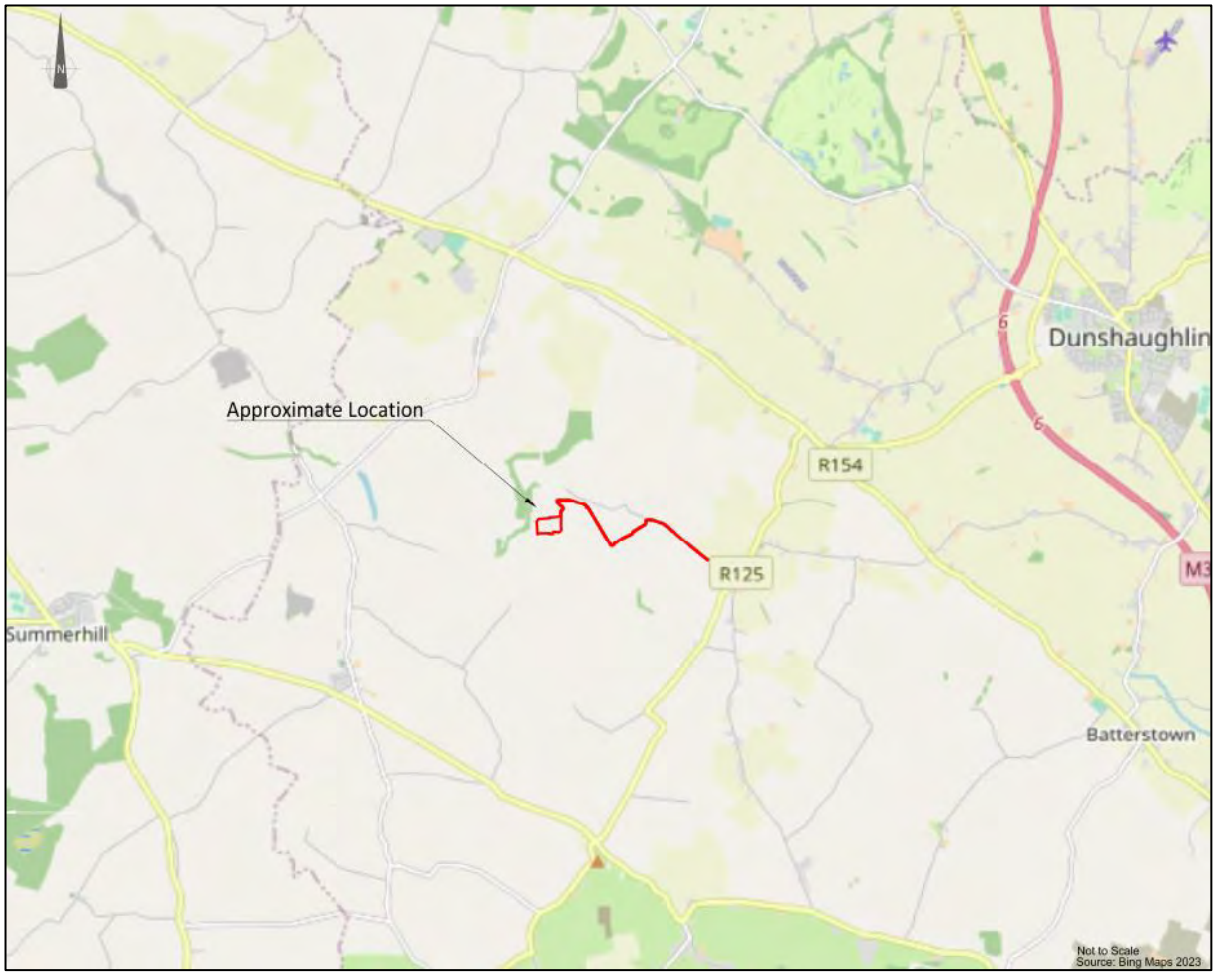
2.1.1 Site Location

The Site of the Proposed Development is located at Woodtown, Co. Meath (Coordinates: 53°29'33.15"N 6°38'37.32"W). The R154 (regional road) (Trim Road) is approximately 2.9km north, R125 is approximately 2.5km east, R156 is approximately 3.3km south and the L2207 local road is approximately 2.7km to the west. Refer to Figure 2-1.

The nearest residential settlements (towns and villages) to the Site are Summerhill, approximately 6km to the southwest, Trim approximately 12km to the northwest, Dunshaughlin, approximately 7km to the northeast, Dunboyne approximately 13.5km southeast.

he redline boundary of the Proposed Development covers an approximate area of 7.3 hectares (ha), with the substation boundary covering approximately 2.24ha and the telecoms mast compound, located adjacent to the substation, is 225m^2.

Figure 2-1 Site Location[1]



2.2 The Proposed Development

The Proposed Development comprises:

- A new 220kV substation compound (approximately 2.24ha) consisting of:
  - Outdoor AIS equipment rated for the system voltage of 220kV equipped with 4 number 220kV cable bays.
  - Two number single storey buildings including an EirGrid standard control building with ancillary services, and a customer Medium Voltage (MV) module.
  - Two 180 megavolt amperes (MVA) oil-filled step-down power transformers within bunded enclosures.
  - 14 lightning protection masts (25m in height).
  - A 2.6m tall palisade fence.
- Two new Line Cable Interface Mast (LCIMs), under existing OHL to facilitate the removal of a short section (approximately 60m) of the existing 220kV lines.
- Approximately 120m of new underground cables to connect the substation to the grid.
- Adjacent telecoms mast area (225m²) for substation communications between Maynooth and Gorman 220kV substations at either end of the existing 220kV OHL.
- Five passing bays on the L62051.

In addition to the above the Proposed Development will include the following:

- New site access off the L62051 and internal site access road.

[1] Source: EPA MAPs, Openstreet Maps (2022).

- Car parking.
- Drainage infrastructure.
- All associated and ancillary site development works.

Refer to AECOM drawing 60657534-ACM-DWG-500 for further details.

3. Existing Drainage

The proposed substation site is currently used as arable land, and the natural topography generally slopes from southwest to northeast. The site falls from approximately 96.7m AOD in the southwest corner of the site to 92.5m AOD to the northeast of the proposed substation site.

The existing greenfield site is likely to be drained by a series of existing field drains discharging to the existing streams and drainage ditches surrounding the proposed development.

The proposed passing bays are located on the L62051 which currently drains to open drains running parallel to the road.

A flood risk assessment[2] has been undertaken by AECOM and forms part of the planning application package. The flood risk has been deemed to be low as there is no flood risks from pluvial, pluvial or groundwater sources.

4. Proposed Drainage Strategy

4.1 Proposed Substation

As part of the substation enabling works, it is proposed that once the initial platform earthworks have been carried out, the contractor will install a series of temporary land drains across the substation platform. These drains are proposed to be temporary only and are intended to provide a degree of platform drainage a period of time between initial platform earthworks and the installation of the proposed granular platform and permanent substation drainage. The temporary land drains should follow the natural site topography and convey surface water run-off to the northeast of the platform. Upon commencement of the main platform construction works, the temporary land drains will be removed by the appointed contractor and replaced with the permanent platform drainage network as designed. The finished substation platform drainage will consist of a generally level platform area made up of superficial granular material places to a minimum depth of 900mm below finished levels. Electrical earth matting and localised reinforced concrete bases supporting electrical equipment will be installed at appropriate locations/spacings throughout the proposed granular platform.

The free-draining granular material will provide a level of SuDS treatment as well as an element of attenuation to the surface water which will reduce the downstream flows to the site disconnecting manholes and Hydro-Brake manhole located to the northeast of the site.

The overland surface water flows will be distributed across the proposed site by a series of perforated drainage pipes and precast concrete manholes with catch pits, with a proposed platform outfall located to the northeast of the site. This outfall location is considered the most feasible option as it mirrors the natural drainage flow paths across the existing site, optimises the pipe diameters of new pipe work required across the drainage network, and provides the most feasible outfall solution for the substation platform.

High-risk areas requiring specialised containment such as the transformers and concrete aprons will be constructed to provide bunding, oil separation and flow controls to ensure the oil is contained and the downstream drainage does not become contaminated.

The transformer bunding will be designed to ensure the drainage flows to a sump located in the corner of the existing containment system. The sump will be fitted with an aquasentry pump to act as a dewatering system to allow the surface water to pass through and the any hydrocarbons to be contained within the proposed bunding system.

The gradients of concrete pavements in the proposed transformer areas will fall towards a series of linear drainage channels and gullies prior to draining towards the oil separators. It is vital these gullies and channels are well maintained and free from silt and debris throughout the lifecycle of the compound.

[2] AECOM Report Reference: 60657534_ACM_RP_EN_CM_009, dated June 2023

The proposed drainage system around the transformers in the customer compound is designed to discharge through a full retention oil separator prior to discharge to the main drainage system. The separator has been sized appropriately to fully contain the full contents of a tanker cell should a rupture occur, resulting in an oil spill. The full contents of one tanker cell is considered to have a volume of 700 litres. The oil separator has been sized to contain the above volume plus 10%. The oil separators will be fitted with an automatic closure device preventing flows passing through the separator in the event the oil containment exceeds the above capacity. The probability of a tanker cell suffering a catastrophic burst or the oil volume exceeding the separator's capacity is extremely low.

Should localised spills occur on site, it is recommended these are contained using approved spill kits where possible, however the customer compound has been designed to drain through the proposed separator to avoid the occurrence of any downstream contamination.

The proposed EirGrid compound layout does not contain areas where contamination from hydrocarbons would be considered high risk, therefore in the unlikely event an oil spillage should occur, this will be managed locally with approved fuel spill kits available on site.

Where the platform is proposed to be in cut to the west/southwest of the site, a filter drain is proposed around the substation perimeter. This will act as a cut-off drain, which will intercept the surface water run-off, and divert water around the platform prior to discharging to the main platform drainage in the EirGrid compound downstream. Refer to Drawing 60657534-ACM-DWG-CM-509 included in this planning application for drainage proposals.

4.1.1 Proposed Outfall to Existing Watercourse

The proposed substation site is surrounded by existing streams and drainage ditches on all sides. The closest watercourse to the proposed substation development is the Derrypatrick River. The localised streams and drainage ditches are not designated as major watercourses in accordance with Ordinance Survey data and OPW flood maps. Refer to Figure 1.

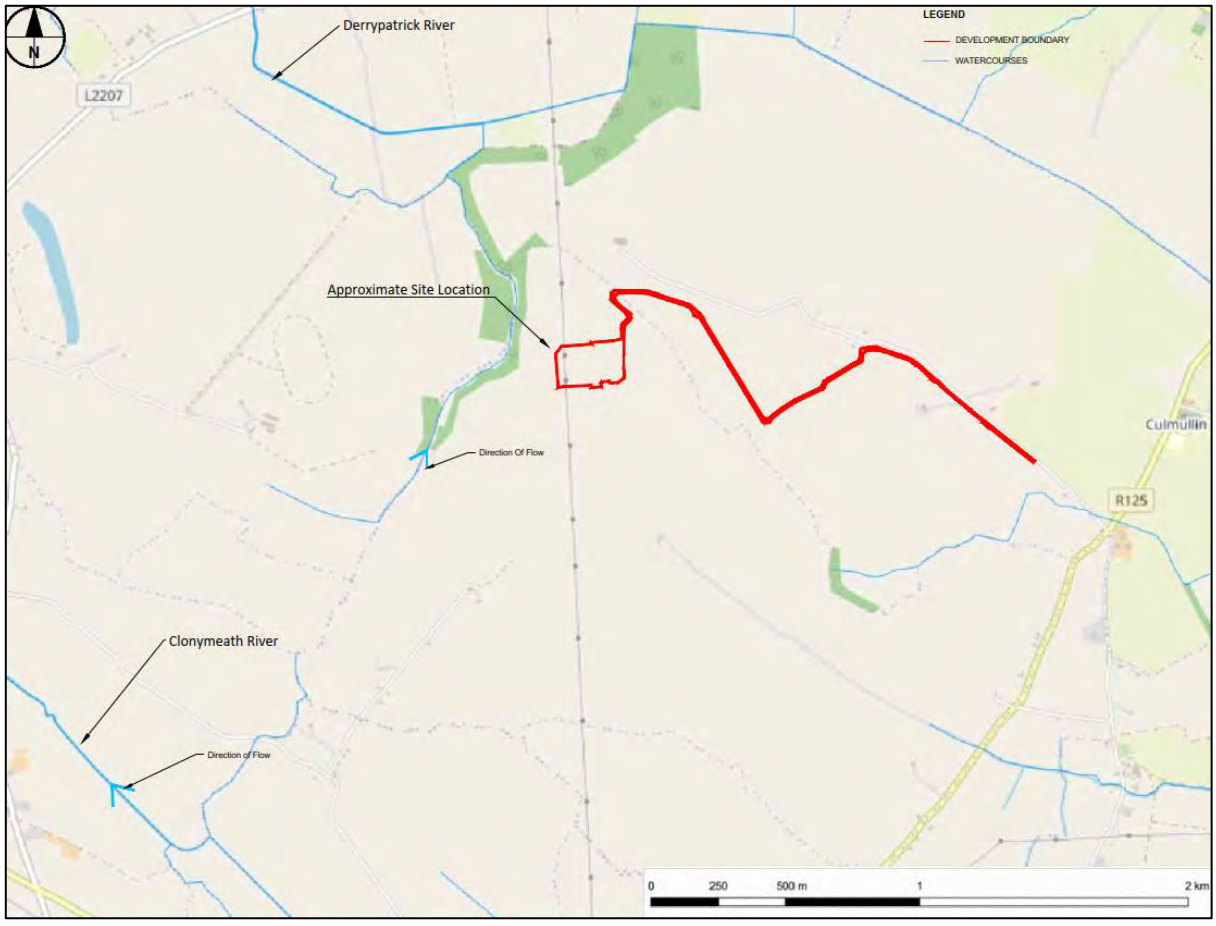


Figure 4-1 Existing Major Watercourses

5. Drainage Design Criteria and Considerations

The drainage proposals as contained in this report have been developed in accordance with the "Greater Dublin Regional Code of Practice for Drainage Works". The table below indicates the design parameters AECOM are required to adhere to in accordance with this document.

Table 5-1 Drainage Design Criteria

Return Period (Years)	Climate Change
100	20

The platform drainage has been designed to accommodate the above rainfall return period and allowance for climate change using the modified rational method. Rainfall intensities were extracted from the Flood Studies Report (FSR) mapping and the drainage proposals designed to accommodate the most onerous critical storm during of 15 minutes based on the above return period criteria and climate change allowance. Based on the above the proposed drainage network and platform has been designed to accommodate a rainfall intensity of 107mm/hr.

The above is in exceedance of the criteria stipulated in EirGrid's "Substation Civil and Building Works" specifications – Document reference XDS-GFS-13-001. The aforementioned drainage document specifies that the proposed drainage network must fully contain rainfall events with a 30 year return period, ensure properties are protected for all rainfall events with a 100 year return period and to provide a network capable of fully containing a minimum rainfall intensity of 75mm/hour. The proposed drainage network and oil/water separation systems are also fully compliant with the above EirGrid documentation.

The below drainage assumptions have been made for the planning drainage design:

- A minimum diameter of 75mm for Hydro-Brake flow control device.
- Discharge rate from the site restricted to 2/l/s/ha, in accordance with Greater Dublin Regional Code of Practice for drainage works, which mirrors the planning criteria.
- Rainfall intensity of 107mm/hr, in accordance with the latest FSR data.
- Pipe roughness *k* value of 0.6mm.
- PIMP (Percentage Impervious)
  - Roads and concrete hardstanding areas = 100%
  - Gravelled and unbound surfaced areas = 95%
  - Grassed areas = 30%

As summarised in section 4, SuDS treatment will be provided through the granular platform infiltration system, in addition to a series of catchpit manholes across the drainage network and a full retention oil separator will be installed in areas where fuelling is required to alleviate the risk of hydrocarbons entering the drainage network downstream.

No ground investigation information is currently available for the proposed site, however ground water monitoring and BRE 365 infiltration tests will be undertaken on site prior to detailed design stage of the project.

A flood risk assessment has previously been undertaken by AECOM[2], and the flood risk has been deemed to be low as there are no flood risks identified from fluvial, pluvial (urban and overland), groundwater or reservoir/artificial sources.

AECOM considers the above criteria and considerations to be appropriate for planning approval stage.

6. Supplementary Information

6.1 Flow Control Device

A Hydro-Brake flow control device (or equal approved) has been proposed for the site compound areas to limit surface water discharge from the proposed platform outfall to 4.8l/s. As described in section 4, the platform drainage is proposed to ultimately outfall to an existing drainage ditch to northeast of the site at the same discharge rate in line with Meath County Council planning requirements of 2l/s/ha.

The technical specification and details of the flow control manhole are contained in Appendix A of this report.

6.2 Full Retention Separators

The proposed full retention separator in the customer platform will be a Klargester NSFA080 type (or equal approved).

A single tanker cell is known to store an oil volume of 700 litres. The separator will therefore be sized to contain the full contents of the tanker cell should it rupture, resulting in an oil spill. The gradients of the pavements in the fuelling area will fall towards a linear channel drain, which will then be directed into the separator.

The separators will be installed with an automatic closure device which will prevent flow passing through the separator when the quantity of oil in the separator exceeds the oil storage volume. The separator will also feature an automatic warning device to provide a visual and audible warning (if necessary) when the level of oil reaches 90 per cent of the oil storage volume under static liquid level conditions. The device should be linked to the proposed communications building BMS system to ensure a warning is communicated to on site personnel as required.

The technical specification and associated drawings for the proposed full retention separators are contained in Appendix B of this report.

6.3 Proposed Foul Holding Tank

For both the EirGrid and customer compounds, contained in the overall substation platform, separate foul holding tanks have been specified to accommodate foul drainage from the proposed control and switchgear buildings respectively. A proposed 38,000 litre cesspool tank by Klargester (or equal approved) is proposed to be installed to accommodate foul discharge from each of the compounds.

In line with Republic of Ireland Environmental Protection Agency code of practice, the cesspool tanks are to be located a minimum of 7.0m from the nearest proposed buildings as these will be inhabited periodically. It is noted, however, that the number of personnel present on site will be low and limited to irregular intervals throughout the year. The tank is also required to be located a minimum of 4m from any onsite roads.

The cesspool tanks will be required to be fitted with high level alarms linked to the control building and switchgear building control rooms through the BMS (building management system). Cesspool tanks will be required to be emptied at regular intervals by an external tanker and removed from site to a licenced waste disposal facility.

The technical specification and associated drawings for the proposed cesspool tank details are contained in Appendix C of this report.

6.4 Proposed Passing Bay Drainage

The proposed drainage system for the passing bays is outlined in the following drawings included in this planning application:

- 60657534-ACM-DWG-CM-003 Proposed Drainage Arrangement Along L62051.
- 60657534-ACM-DWG-CM-004 Proposed Passing Bays (L62051) Layby 1 - Plan & Profile.
- 60657534-ACM-DWG-CM-005 Proposed Passing Bays (L62051) Layby 2 - Plan & Profile.
- 60657534-ACM-DWG-CM-006 Proposed Passing Bays (L62051) Layby 3 - Plan & Profile.
- 60657534-ACM-DWG-CM-007 Proposed Passing Bays (L62051) Layby 4 - Plan & Profile.
- 60657534-ACM-DWG-CM-008 Proposed Passing Bays (L62051) Layby 5 - Plan & Profile.

7. Conclusion

In conclusion, by providing this drainage intent document, it is demonstrated that all appropriate measures have been considered to satisfy planning requirements, the requirements of the “Greater Dublin Regional Code of Practice for Drainage Works” guidelines, and the requirements specified in the EirGrid Substation Civil and Building Works specification.

The proposed drainage has been designed to fully contain a 1:100-year storm event with an allowance for 20% for climate change, in accordance with the requirements stipulated in the above guidance documents. AECOM has incorporated all reasonably practicable measures into the proposed substation design to significantly reduce the risk of silts, debris, metals and hydrocarbons entering the surface water drainage network and downstream drainage ditch in line with the local and SuDs requirements.

Drainage Drawings

Drawing Reference	Title
60657534-ACM-DWG-CM-509	Culmullin 220kV Substation Drainage Layout
60657534-ACM-DWG-CM-003	Proposed Drainage Arrangement Along L62051
60657534-ACM-DWG-CM-004	Proposed Passing Bays (L62051) Layby 1 - Plan & Profile
60657534-ACM-DWG-CM-005	Proposed Passing Bays (L62051) Layby 2 - Plan & Profile
60657534-ACM-DWG-CM-006	Proposed Passing Bays (L62051) Layby 3 - Plan & Profile
60657534-ACM-DWG-CM-007	Proposed Passing Bays (L62051) Layby 4 - Plan & Profile
60657534-ACM-DWG-CM-008	Proposed Passing Bays (L62051) Layby 5 - Plan & Profile

Appendix A Proposed Flow Control Device

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	1.800	4.800
Flush-Flo™	0.405	4.169
Kick-Flo®	0.823	3.341
Mean Flow		3.882

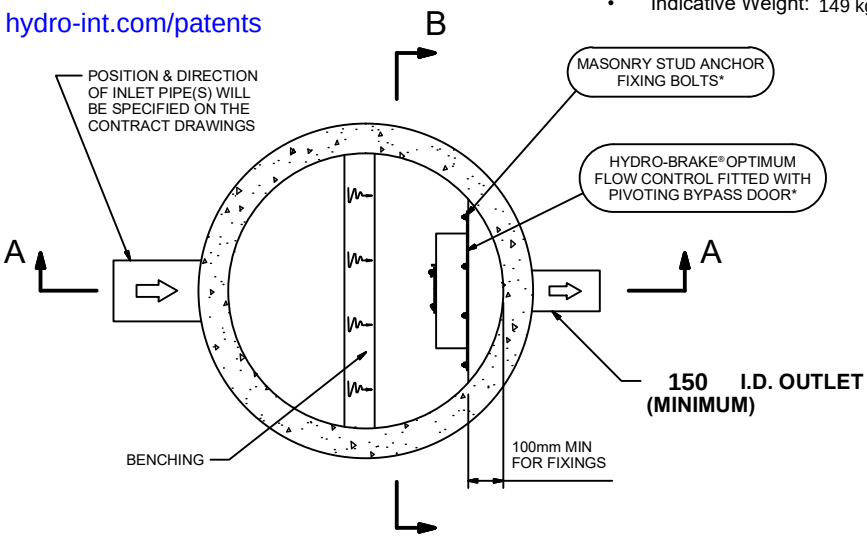
Hydro-Brake® Optimum Flow Control including:

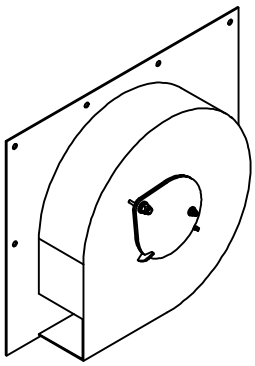
- 3 mm grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, c/w stainless steel operating rope
- Beed blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet
- Indicative Weight: 149 kg

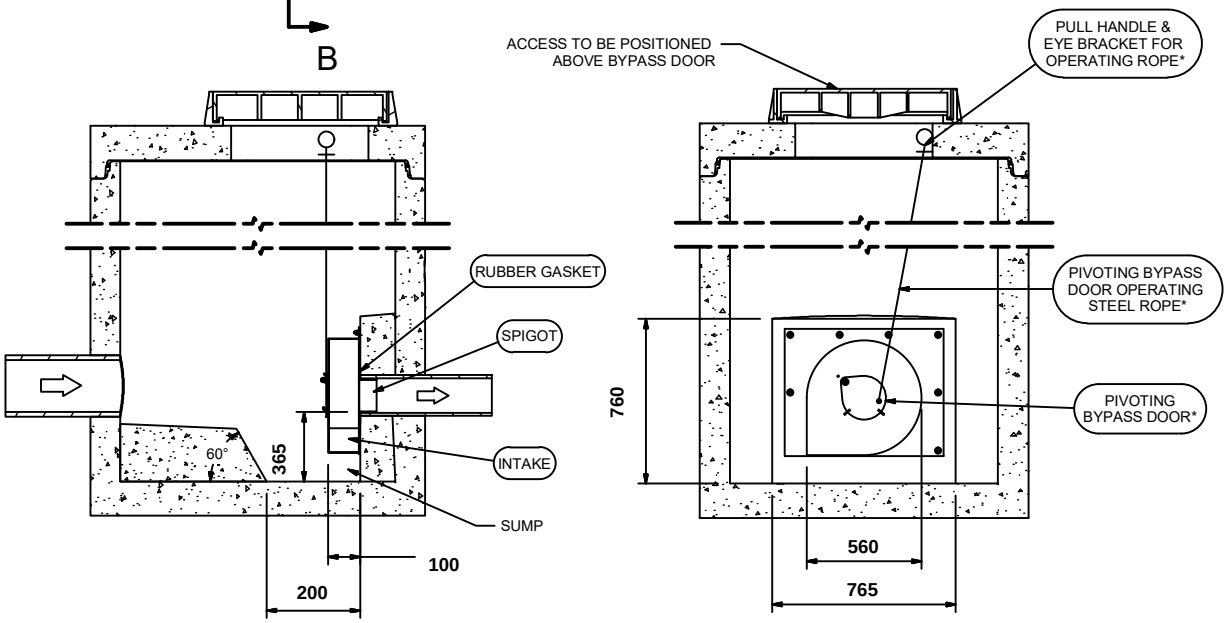
BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 08/4596

WRc Approved PT/329/0412

hydro-int.com/patents







SECTION A-A

SECTION B-B

IMPORTANT:
⬭ LIMIT OF HYDRO INTERNATIONAL SUPPLY
THE DEVICE WILL BE HANDED TO SUIT SITE CONDITIONS
FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
ALL CIVIL AND INSTALLATION WORK BY OTHERS
* WHERE SUPPLIED
HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

DESIGN ADVICE

The head/flow characteristics of this SHE-0092-4800-1800-4800 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro International®

DATE	5/26/2022 2:08 PM
SITE	Culmullin Substation
DESIGNER	Graham McEwan
REF	60657534

SHE-0092-4800-1800-4800
Hydro-Brake® Optimum

graham.mcewan@aecom.com

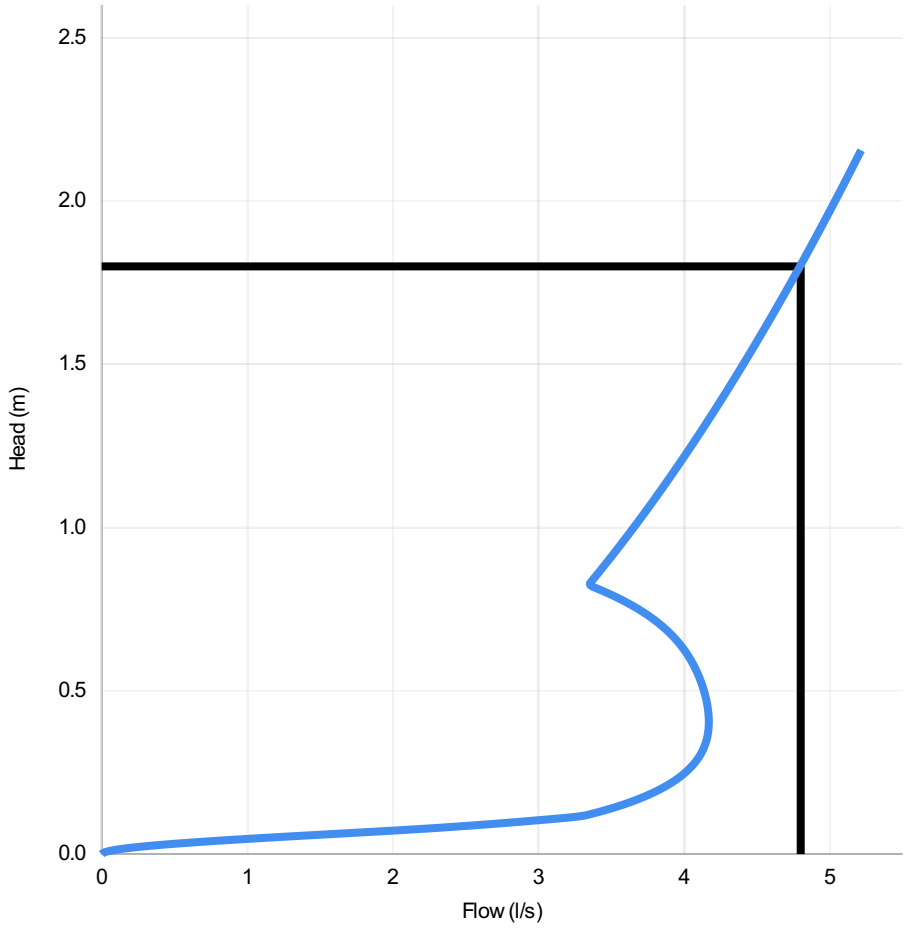
Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	1.800	4.800
Flush-Flo	0.405	4.169
Kick-Flo®	0.823	3.341
Mean Flow		3.882

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE No 08/4596

WRc APPROVED
PT/329/0412

hydro-int.com/patents



Head (m)	Flow (l/s)
0.000	0.000
0.062	1.606
0.124	3.372
0.186	3.778
0.248	4.003
0.310	4.118
0.372	4.164
0.434	4.165
0.497	4.138
0.559	4.087
0.621	4.008
0.683	3.887
0.745	3.705
0.807	3.436
0.869	3.425
0.931	3.535
0.993	3.641
1.055	3.744
1.117	3.844
1.179	3.941
1.241	4.036
1.303	4.128
1.366	4.218
1.428	4.305
1.490	4.391
1.552	4.475
1.614	4.557
1.676	4.638
1.738	4.717
1.800	4.794

DESIGN ADVICE

The head/flow characteristics of this SHE-0092-4800-1800-4800 Hydro-Brake Optimum® Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.

! **The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.**

Hydro International®

DATE	26/05/2022 14:08
Site	Culmullin Substation
DESIGNER	Graham McEwan
Ref	60657534

SHE-0092-4800-1800-4800

Hydro-Brake Optimum®

Appendix B Proposed Full Retention Separator

Appendix C Proposed Foul Holding/Cesspool Tank

Full Retention NSF RANGE

APPLICATION

Full retention separators are used in high risk spillage areas such as:

- Fuel distribution depots.
- Vehicle workshops.
- Scrap Yards

PERFORMANCE

Kingspan Klargester were the first UK manufacturer to have the required range (3-30 l/sec) certified to EN 858-1 in the UK. The NSF number denotes the flow at which the separator operates.

The British Standards Institute (BSI) have witnessed the performance tests of the required range of separators and have certified their performance, in relation to their flow and process performance to ensure that they met the effluent quality requirements of EN 858-1. Larger separator designs have been determined using the formulas extrapolated from the test range.

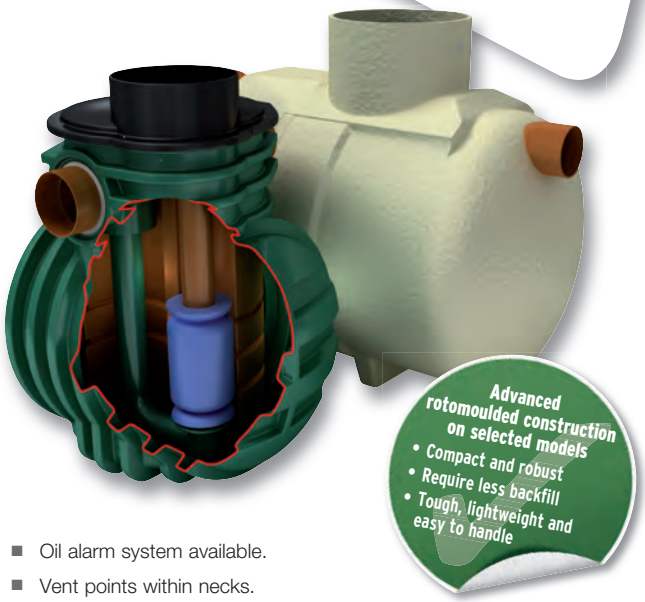
Each full retention separator design includes the necessary volume requirements for:

- Oil separation capacity.
- Silt storage capacity.
- Automatic closure device.
- Oil storage volume.
- Coalescer (Class I units only).

Klargester full retention separators treat the whole of the specified flow.

FEATURES

- Light and easy to install.
- Class I and Class II designs.
- 3-30 l/sec range independently tested and performance sampled, certified by the BSI.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.



- Oil alarm system available.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.
- GRP or rotomoulded construction (subject to model).

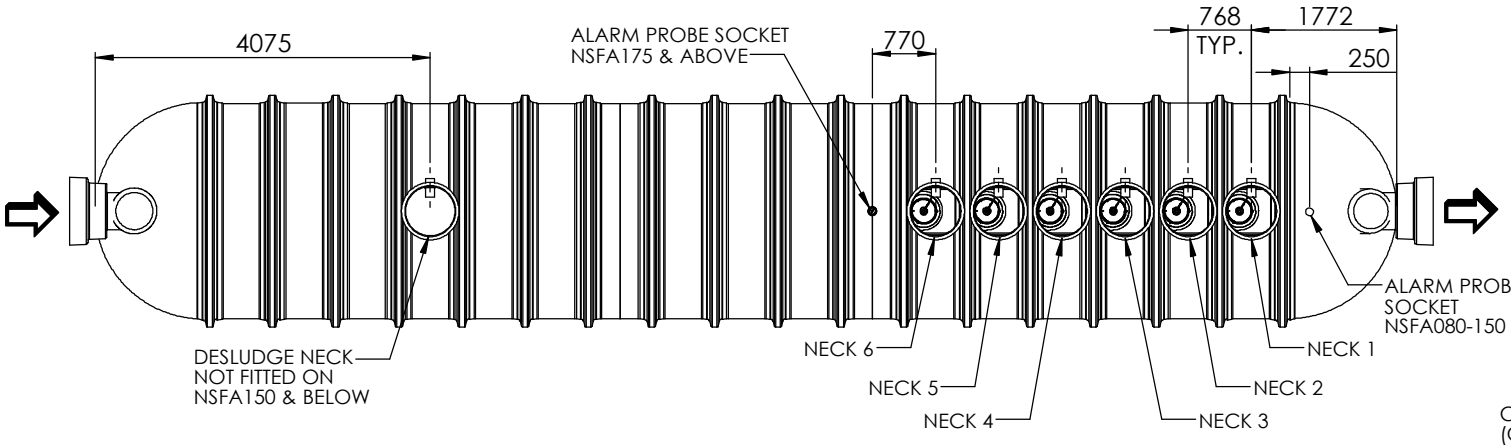
To specify a nominal size full retention separator, the following information is needed:-

- The calculated flow rate for the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the influent is not pumped.
- The required discharge standard. This will decide whether a Class I or Class II unit is required.
- The drain invert inlet depth.
- Pipework type, size and orientation.

SIZES AND SPECIFICATIONS

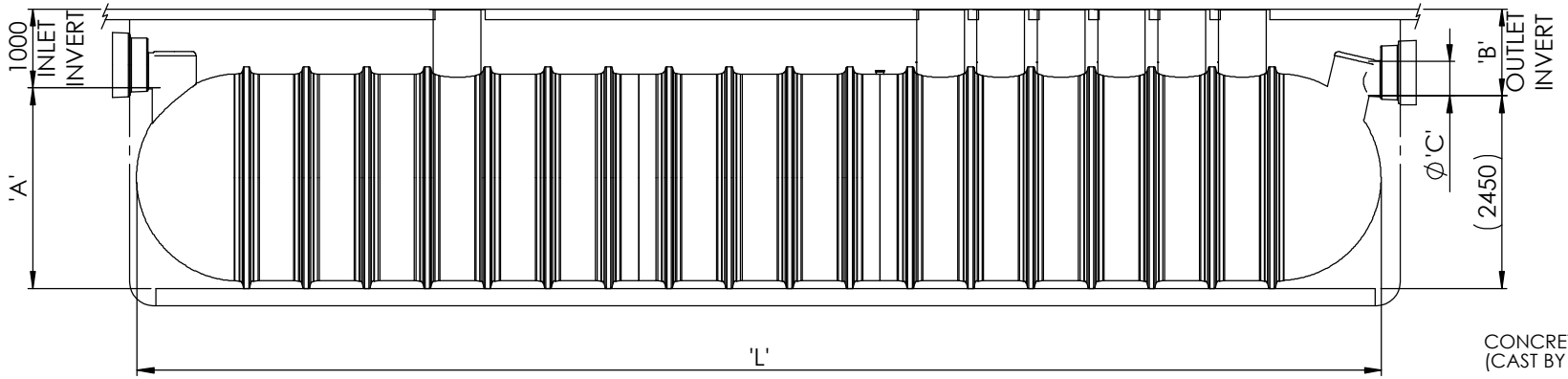
UNIT NOMINAL SIZE	FLOW (l/s)	DRAINAGE AREA (m^2) PPG-3 (0.018)	STORAGE CAPACITY (litres)		UNIT LENGTH (mm)	UNIT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT	MIN. INLET INLET (mm)	STANDARD PIPEWORK DIA. (mm)
			SILT	OIL						
NSFP003	3	170	300	30	1700	1350	1420	1345	500	160
NSFP006	6	335	600	60	1700	1350	1420	1345	500	160
NSFA010	10	555	1000	100	2610	1225	1050	1000	500	200
NSFA015	15	835	1500	150	3910	1225	1050	1000	500	200
NSFA020	20	1115	2000	200	3200	2010	1810	1760	1000	315
NSFA030	30	1670	3000	300	3915	2010	1810	1760	1000	315
NSFA040	40	2225	4000	400	4640	2010	1810	1760	1000	315
NSFA050	50	2780	5000	500	5425	2010	1810	1760	1000	315
NSFA065	65	3610	6500	650	6850	2010	1810	1760	1000	315
NSFA080	80	4445	8000	800	5744	2820	2500	2450	1000	300
NSFA100	100	5560	10000	1000	6200	2820	2500	2450	1000	400
NSFA125	125	6945	12500	1250	7365	2820	2500	2450	1000	450
NSFA150	150	8335	15000	1500	8675	2820	2550	2450	1000	525
NSFA175	175	9725	17500	1750	9975	2820	2550	2450	1000	525
NSFA200	200	11110	20000	2000	11280	2820	2550	2450	1000	600

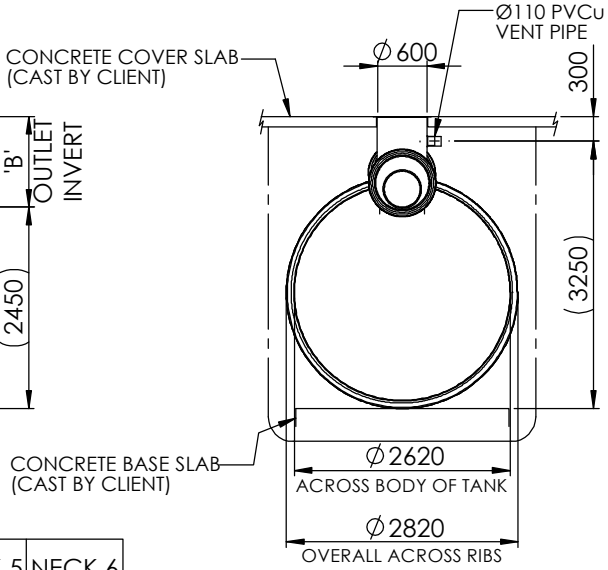
Rotomoulded chamber construction GRP chamber construction



NOTES

1. BS EN 858 STATES MINIMUM CONNECTION SIZES, UNITS ORDERED WITH DIFFERENT SIZE CONNECTIONS ARE NOT FULLY COMPLIANT WITH THE STANDARD. ALTERNATIVE CONNECTORS MAY BE ORDERED.
2. EXTENSION NECKS FOR DEEPER INVERTS CAN BE PROVIDED IN 0.5m INCREMENTS FOR ON SITE ASSEMBLY. MAX 2.0m INVERT RECOMMENDED.
3. ALL UNITS REQUIRE APPROPRIATE COVER & FRAME TO SUIT APPLIED LOADINGS.
4. THIS DRAWING SHOULD BE USED FOR DIMENSIONAL INFORMATION ONLY. IT IS ESSENTIAL THAT THIS DRAWING IS READ IN CONJUNCTION WITH INSTALLATION GUIDELINES SUPPLIED WITH THE UNIT (COPIES ARE AVAILABLE FROM OUR SALES DEPT.).
5. STANDARD PIPE ORIENTATION SHOWN. FOR OTHER AVAILABLE OPTIONS SEE TDS0033.
6. THIS DRAWING IS ALSO AVAILABLE ON OUR WEBSITE www.kingspanenv.com





UNIT REF.	UNIT CLASS	NOMINAL FLOW RATE (L/s)	APPROX. EMPTY WEIGHT (kg)	'L' OVERALL LENGTH	'A' BASE TO INLET INVERT	'B' OUTLET INVERT	'C' STD. PIPE DIA. (GRP)	NECK 1 FITTED	NECK 2 FITTED	NECK 3 FITTED	NECK 4 FITTED	NECK 5 FITTED	NECK 6 FITTED
NSFA080	1	80	1250	5744	2500	1050	300	✓	✓				
NSFA100	1	100	1350	6200	2500	1050	375/400	✓	✓				
NSFA125	1	125	1700	7365	2500	1050	450	✓	✓	✓			
NSFA150	1	150	2000	8675	2550	1100	500/525	✓	✓	✓			
NSFA175	1	175	2400	9975	2550	1100	500/525	✓	✓	✓	✓		
NSFA200	1	200	2700	11280	2550	1100	600	✓	✓	✓	✓		
NSFA210	1	210	2900	11994	2550	1100	600	✓	✓	✓	✓	✓	
NSFA225	1	225	3100	12766	2550	1100	600	✓	✓	✓	✓	✓	
NSFA240	1	240	3300	13582	2550	1100	600	✓	✓	✓	✓	✓	
NSFA255	1	255	3450	14300	2550	1100	600	✓	✓	✓	✓	✓	✓
NSFA270	1	270	3600	15071	2550	1100	600	✓	✓	✓	✓	✓	✓
NSFA285	1	285	3800	15833	2550	1100	600	✓	✓	✓	✓	✓	✓

Please check with Kingspan Environmental For The Latest Issue Of This Drawing

Issue	Date	Drawn by	Description
04	11.03.19	T.Kelly	CC1444 - Units now built to 1.0m Invert First Fix
03	03.04.18	T.Kelly	CC1425 - Units 210 to 285 Added : Class 2 Reference Deleted

Material : n/a	Tolerance : n/a
Finish : n/a	Thickness : n/a
Weight : n/a	Surface Area : n/a

Drawing : DS0896P

NSFA080 - NSFA285 Full Retention Separators

All dimensions in mm

Scale: Not to scale

R:\Drawing Data\02 - Sales Drawings\DS\DS - 08\DS0896P NSFA080-285 Full Retention Separators

NS GRP FULL RETENTION SEPARATORS DECLARATION OF PERFORMANCE

No. KEL-CPR-009

1. Unique identification code of the product-type:

Separator Systems for Light Liquids, GRP Construction
NSFA010 & NSFA285

2. Type, batch or serial number or any other element allowing identification of the construction product as required under Article 11(4) of the CPR:

Serial Number/Works Order Number printed on the Product Information Label & affixed to product

3. Intended use or uses of the construction product, in accordance with the applicable harmonized technical specification, as foreseen by the manufacturer:

Collection & Separation of Light Liquids from Waste Water by means of gravity and/or coalescence

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required under Article 11(5):

Kingspan Environmental Ltd
College Rd North
Aston Clinton, Aylesbury, Buckinghamshire
HP22 5EW

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2):

N/A

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in CPR, Annex V:

System 3

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard:

EN 858-1:2002
BSI, Maylands Avenue, Hemel Hempstead, Herts HP2 4SQ
Has executed initial type testing according to system 3 and delivered the test report

KINGSPAN ENVIRONMENTAL LTD
180 Gilford Road, Portadown
Co. Armagh, BT63 5LF

+44 (0) 28 3836 4400
+44 (0) 28 3836 4445
enquiry@kingspanenv.com
kingspanenv.com

Registered in N. Ireland
Company Reg. No. NI17631

8. Declared performance:

Essential Characteristics		Performance			Harmonised technical specification
Crushing Resistance (vertical load test)		Pass (also wet conditions)			EN 858-1:2002
Structural Behaviour		Pass			
Resistance to fire		Class E			
Water Tightness (water test)		Pass			
Material Durability		MFR (230/2,16) = (5,0± 3,0g)/10 min (EN ISO1133)			
		Density ≥ 905 kg/m³ (EN ISO 1133)			
		Yield Stress ≥ 30 Mpa (EN ISO 527-2)			
		Creep Factor $\alpha_{material}$ = 0,48 (average value)			
		Ageing Factor (β) = 0,46 (average value)			
Treatment Efficiency	Sample	Specified Maximum Light Liquid (mg/l)	Actual Light Liquid (mg/l)		
	1	≤10	<0.100	Pass	
	2	≤10	0.130	Pass	
	3	≤10	<0.100	Pass	
	4	≤10	<0.100	Pass	
	5	≤10	<0.100	Pass	
	Average	≤5	<0.106	Pass	
Electrical Consumption		n/a			

Signed for and on behalf of the manufacturer by:

Paul Copping – Business Unit Director

……

(Name and function)

Aylesbury – 27th April 2018

……

(Place and date of issue)

……

(Signature)

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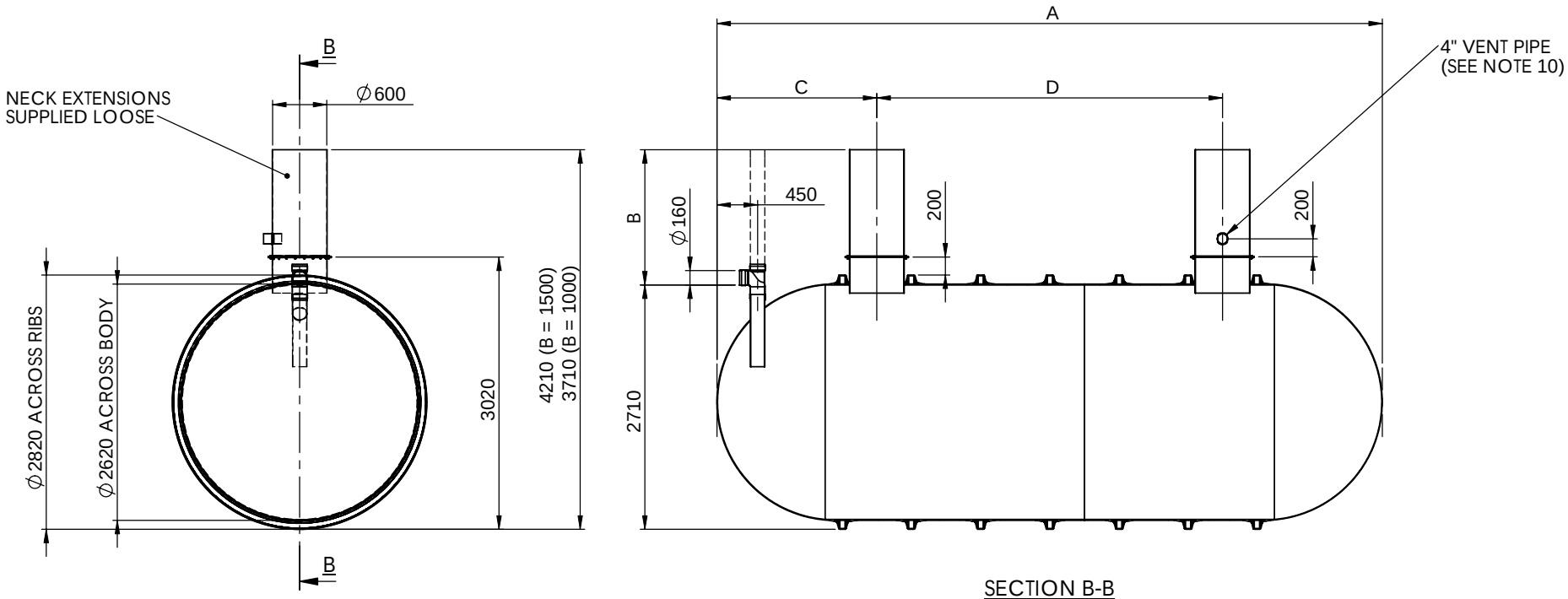

SECTION B-B

Nominal Volume (Litres)	Nominal Volume (Gallons)	Weight (Kg)	Overall Length A	Inlet Invert B = 1.5 Metres	Inlet Invert B = 1.0 Metres	Dimension to neck C	Dimension between necks D
34,000	7,480	1,315	7,376	1,500	1,000	1,772	3,833
38,000	8,360	1,484	8,150	1,500	1,000	1,772	4,606
46,000	10,120	1,888	9,684	1,500	1,000	2,536	4,612

NOTES:-

1. CESSPOOLS AND SILAGE TANKS MUST NOT DISCHARGE IN TO THE ENVIRONMENT AND MUST BE EMPTIED WHEN FULL.
2. THE TANK IS FITTED WITH A 160MM INLET SOCKET. PIPE ADAPTORS CAN BE PROVIDED FOR ANALTERNATIVE SIZE OF 110mm. THESE ARE FITTED EXTERNALLY TO THE TANK.
3. THIS DRAWING IS PROVIDED TO SUPPLY DIMENSIONAL INFORMATION ONLY.
4. THE UNIT MUST BE INSTALLED WITH A CONCRETE SURROUND. PLEASE SEE THE DETAILED INSTALLATION PROCEDURE SUPPLIED WITH EACH UNIT.
5. THE UNIT IS SUPPLIED WITH LOOSE, BOLT ON TANK SHAFTS TO SUIT EITHER 1 OR 1.5 METRE INVERT (SPECIFY WITH ORDER). THEY MUST BE FITTED ON SITE AS PART OF THE INSTALLATION AND CAN BE TRIMMED TO SUIT THE EXACT SIZE OF INVERT.
6. THE UNIT IS PROVIDED WITH 1, 2 OR 3 SHAFTS, DEPENDING ON IT'S VOLUME. TO AID DE-SLUDGING IT IS RECOMMENDED THAT 2 SHAFTS ARE SELECTED FOR TANKS WITH CAPACITES OF 34m3 AND ABOVE. 3 SHAFTS SHOULD BE FITTED TO UNITS OF ABOVE 54m3 (SPECIFY WITH ORDER). ADDITIONAL SHAFTS CAN BE FITTED. UNITS SHOULD NOT BE INSTALLED DEEPER THAN NECESSARY, NOR DEEPER THAN THE INVERT SPECIFIED FOR THE UNIT SUPPLIED.
7. PEDESTRIAN DUTY COVER AND FRAMES TO FIT DIAMETER 600mm NECKS, ARE AVAILABLE FOR PURCHASE.
8. THE WEIGHTS GIVEN ARE FOR HANDLING PURPOSES ONLY AND EXCLUDE THE BOLT ON SHAFTS.
9. THE INLET PIPE SHOULD BE EXTENDED TO GROUND LEVEL. DIAMETER 450mm ACCESS COVERS ARE FOR PURCHASE TO ALLOW FOR RODDING ACCESS.
10. SINGLE NECK TANKS SERVING SINGLE PROPERTIES SHOULD BE VENTED, USING THE SOIL STACK. LARGER TANKS SERVING MULTIPLE PROPERTIES SHOULD HAVE A VENT FITTED TO THE NECK TO ENABLE LOCALISED HIGH LEVEL VENTING.
11. WE RECOMMEND THE PURCHASE AND USE OF A HIGH LEVEL ALARM WITH THESE TANKS.

Material : Various	Tolerance (unless stated) :
Finish :	Thickness : n/a
	Surface Area :

Drawing : DS0963P - Ø2.6 CP - SL

TWIN NECK CESSPOOL / SILAGE TANK

All dimensions in mm

Scale: Not to scale

Kingspan Environmental

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