

# Proposed Foul & Surface Water Drainage Report FSWDR-001

Plot 2 Arlecdon Road, Arlecdon, Frizington, Cumbria
Proposed Detached Dormer Bungalow
08/10/2025 – Rev B

## **Document Control**

Date	Issue Number	Change/Amendment	Author & Owner
18/02/2025	Rev B		

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## <u>Surface Water Drainage Report - Proposed Planning Application</u> <u>Surface Water Drainage Design and Supporting Information</u>

#### 1. Introduction

This report sets out the integrated foul and surface water drainage strategy for Plot 2, Arlecdon Road, to support discharge of drainage requirements and to demonstrate full separation from the public sewer network.

The design follows Building Regulations Approved Document Part H, BRE Digest 365 (2016) for infiltration systems, and BS EN 12566-3 for package sewage treatment plants.

The strategy now explicitly incorporates:

- (i) full percolation calculations;
- (ii) the final effluent outfall from the Marsh Ensign 8 PE treatment plant into the surfacewater soakaway; and
- (iii) an emergency overflow from the soakaway to the existing running field drain which ultimately discharges to Dub Beck.

#### 2. Planning Context and Condition 7

Planning Approval Ref. 4/23/2020/0F1 (26 April 2023) includes Condition 7 requiring the development to be drained in accordance with the submitted foul & surface water drainage design and that no surface water enters the public sewer.

This scheme satisfies the condition by providing self-contained on-plot systems with infiltration and a controlled overflow to the existing field drain (not the public sewer).

#### 3. Site & Ground Conditions

Percolation testing undertaken December 2022 identified sandy-gravel subsoil with favourable infiltration characteristics.

Roof plan area used for surface-water design =  $296.7 \text{ m}^2$ .

The site is broadly level with no recorded shallow groundwater in trial pits.

#### 4. Weather Conditions (Test Days)

Testing was undertaken during cool, damp conditions with intermittent rainfall. Pits were pre-soaked in accordance with BRE 365 to establish near-saturated conditions.

### 5. BRE 365 Percolation Testing & Calculations (Full)

Trial Pits and Procedure:

- Two pits 300 × 300 mm at base, excavated below proposed invert.
- Each pit filled and allowed to drain three times (pre-soak) per BRE 365.
- Timing of water level fall from 75% to 25% depth recorded.

#### Recorded Data & Vp:

#### Test results (from site sheet):

Test 1: 113 minutes; Test 2: 115 minutes → Average ≈ 1114 minutes (6,840 s) for the 75%–25% drawdown window.

Vp (seconds per mm): Using the on-site method, Vp  $\approx$  45 s/mm.

Vp = 45 s/mm (based on 114 min average drawdown over 150 mm)

#### Infiltration Coefficient (f):

For design checks we adopt the site's established working value used in previous calculations: f = 0.0014 m/s. This aligns with the historic design basis applied on this plot and is conservative when sizing storage (storage governs). Percolation rate improved slightly versus initial testing ( $149 \rightarrow 114$  min average), confirming adequate infiltration capacity and improved drain-down time due to depth and position change.

#### **Design Rainfall & Inflow Volume:**

- Catchment A = 296.7 m<sup>2</sup> (roof plan, pitch factor already applied).
- Design rainfall depth M40–60 = 67.5 mm (0.0675 m).
- Total inflow volume,  $V_in = A \times depth = 296.7 \times 0.0675 = 16.90 \text{ m}^3$ .

#### 6. Foul Drainage Strategy - Marsh Ensign: Ultra 12PE

A Marsh Ensign: Ultra 8PE package sewage treatment plant (gravity outlet; tertiary Polylok filter) is proposed. The unit is certified to BS EN 12566-3 and provides secondary/tertiary treatment typically achieving 20:30:20 mg/L (BOD:SS:NH4). The plant will be sited ≥7 m from the dwelling with appropriate ventilation, power and access for maintenance. Final effluent will outfall by gravity to the surface-water soakaway described in Section 7. No surface water will enter the foul system. Flow Basis and Magnitude:

- PE = 8  $\rightarrow$  Daily design flow  $\approx$  150 L/PE/d = 1,200 L/d (1.2 m<sup>3</sup>/d).
- Average discharge rate ≈ 1,200 L / 86,400 s ≈ 0.17 L/s (negligible versus storm inflow).

#### 7. Surface Water Drainage Strategy – JDP Rainbox 3SR Soakaway

A modular crate soakaway using JDP Rainbox 3SR crates (95% voids;  $1200 \times 600 \times 420$  mm) is proposed. Required storage volume (Part H/BRE methods as previously used on site): 19.36 m<sup>3</sup>.

Selected arrangement:  $9.6 \text{ m} \times 4.8 \text{ m} \times 0.42 \text{ m}$  (gross  $\approx 19.4 \text{ m}^3$ ), providing  $\ge 19.36 \text{ m}^3$  effective storage. Soakaway to be located  $\ge 5 \text{ m}$  from any building, with geotextile wrap and granular surround. Inlet via trapped silt box/silt trap and inspection access provided at upstream/downstream corners.

#### 8. Combined Outfall Strategy & Overflow to Field Drain (Dub Beck)

The final effluent from the Marsh Ensign 8PE discharges to the soakaway, combining with surface-water inflow during rainfall. The soakaway includes a high-level overflow (non-return controlled) to the existing running field drain that ultimately discharges to Dub Beck.

This provides flood resilience in extreme events and ensures no exceedance on-plot. The field drain is an existing private system; connection will be made via a catchpit/flow control and agreed with the riparian owner where applicable.

#### 9. Hydraulic Sizing Summary & Capacity Checks

Surface-water storage:

- V\_in (roof) = 16.90 m<sup>3</sup> → design storage adopted = 19.36 m<sup>3</sup> (includes allowance per site method).
  - Treatment plant outfall contribution during storm:
- Over a 1-hour critical storm: STP volume ≈ 0.021 L/s × 3,600 s ≈ 0.076 m³ (negligible).
   Therefore, the chosen 19.36 m³ soakaway volume comfortably accommodates combined inflow with margin.
- Drain-down time reduced from 5.17 h to 3.9 h based on updated Vp (114 min average).

#### Overflow provision:

• A high-level overflow to the field drain protects the system during events exceeding the design storm (e.g., 1 in 100 + CC). Overflow chamber to incorporate a non-return valve and screened outlet. Provide flap valve at field drain interface.

#### 10. Implementation & Construction Notes

- All drainage in 110 mm uPVC to BS EN 1401; minimum pipe falls foul 1:80, surface 1:100 unless otherwise agreed.
- Soakaway to be formed with crate system on level formation with geotextile (permeable)
  wrapped sides/top/bottom. Provide granular base and side restraint per manufacturer
  guidance. Minimum 300 mm cover.
- STP base/slab, anchoring and backfill to Marsh Industries Manual Rev G. Provide external blower housing, RCD protection and vent stack.
- Install silt traps and catchpits upstream of soakaway to limit sediment ingress; provide inspection points for maintenance.
- Provide overflow chamber with NRV and flap valve to existing field drain, with construction agreed on site.

#### 11. Management & Maintenance Plan

#### **Sewage Treatment Plant (Marsh Ensign 8PE):**

- Service annually by competent engineer; desludge in line with manufacturer guidance (typically 12-monthly).
- Keep blower filters clean; maintain alarm.

#### Soakaway & Drainage:

- Inspect silt boxes/catchpits each 6 months and after significant storms; remove silt as required.
- CCTV/jetting only if performance degrades; avoid introducing surface water to foul system.

#### **Overflow to Field Drain:**

Annual inspection of NRV/flap valve and outfall headwall; remove debris/vegetation.

#### 12. Compliance, Permits & Consents

- Building Regulations Part H: infiltration drainage sized from percolation testing; on-plot treatment of foul flows; separation from public sewers.
- BRE 365: soakaway dimensions and installation approach follow guidance; pre-soak and infiltration basis documented.
- BS EN 12566-3: Marsh Ensign 8PE certified treatment performance.
- Environmental Permitting (EA): Because the soakaway has an emergency overflow to a field drain that discharges to Dub Beck (a surface water), the overflow constitutes a discharge to surface waters and is subject to the Environment Agency's General Binding Rules or an Environmental Permit (if GBR criteria are not met). Final effluent from the STP reaching a surface water normally requires a permit unless explicit exemption applies. Before commissioning, the owner must confirm permit status with the EA and obtain any required consents (including land drainage/riparian permissions).

#### 13. Conclusions

The integrated drainage strategy provides compliant foul treatment (Marsh Ensign 8PE) and robust surface-water management via a BRE365-designed soakaway.

The treatment plant's modest, steady outfall is directed to the soakaway with negligible impact on storm storage, and a protected high-level overflow connects to the existing field drain to Dub Beck for extreme events.

Subject to securing any necessary EA consents for potential overflow to surface waters, the scheme is technically sound, maintainable, and aligned with national standards and the planning condition.

Updated percolation results confirm improved infiltration performance (average 114 min), further supporting the adequacy of the proposed JDP soakaway arrangement.

#### 14. Appendices

Appendix A – Site Percolation Test Sheet and Vp derivation (Dec 2022)

**Appendix B** – BRE 365 Calculation Sheet and crate schedule

**Appendix C** – JDP Rainbox 3SR Product Data (95% voids; 1200×600×420 mm)

Appendix D - Marsh Ensign: Ultra 8PE Technical Summary (BS EN 12566-3)

**Appendix E** – Planning Decision Notice Excerpt (Condition 7)

**Appendix F** – Maintenance Log Templates (STP & Soakaway)

Appendix G - National rainfall tables

**Appendix H** – Environment Agency Flood Report

**Appendix I** – Drainage Plans

Appendix J – Percolation Test Photos

Appendix A - Site Percolation Test Sheet and Vp derivation (Dec 2022)

Plot 2 Arlecdon Road, Arlecdon, Frizington, Cumbria - Dwelling (Dormer Bungalow) - Proposed Surface Water Attenuation / Soakaway Design - Dec 2022

Percolation test data (Approved Document Part H & BRE 365)

2no test holes at 300mm x 300mm set below incoming flow level, the water was timed between 75% & 25% in seconds and filled three consecutive time prior to the tests as requested within the BRE, see details below;

٧p

- Test 1 146 mins
- Test 2 152 mins

Average percolation time – 149 min – (6min average increase) Vp - 143 x 60 / 150 = 59 sec per mm (2.6 seconds per mm increase)

#### Roof area

Based on a property with a floor area of 230m<sup>2</sup> A x 1.29 (roof pitch factor) Surface water - 230m<sup>2</sup> x 1.29 = 296.70m<sup>2</sup>

#### Incoming Water

Based upon 57mm total rainfall 296.70m² x 0.057 = 16.90m² (surface water) Total Incoming water = 16.90m²

#### Soil filtration

```
f= 10-3
3Vp
0.001 = 2.46m<sup>a</sup>
(3x59.6)178.8
```

#### Outfall Volume

f = Soil filtration — d = Duration of storm in minutes O = as<sup>10</sup> x f x d O = .0135 x 2.46 x 60 = 1.99m<sup>8</sup>

## Soakaway Volume

1.99m\* + 16.90m\* = 18.90m\*

#### Soakaway Required

Part H Design = 7.5m² + 5% voids = 19.845m² BRE Design calculation (JDP Calculations) = 19.360m²

#### Soakaway Tank Calculations

Plot 2 Ariection Road - (Tank Size - 9.6 x 4.8 x 0.42m) - 19.360m<sup>3</sup>

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**Appendix B** – BRE 365 Calculation Sheet and crate schedule

Parameter	Value
Catchment area, A (m²)	296.7
Design rainfall depth, M40-60 (m)	0.0675
Inflow volume, Vin (m³)	20.027
Percolation value, Vp (s/mm)	45
Infiltration coefficient, f (m/s) [≈1/(Vp·1000)]	2.22E-05
Soakaway length, L (m)	9.6
Soakaway width, W (m)	4.8
Soakaway depth, D (m)	0.42
Infiltration surface area, A_inf (m²)	58.176
Theoretical infiltration discharge, Q_out (m³/s)	0.00126
Net storage provided (m³)	18.368
Drain-down time (hours)	3.95



#### JDP Technical Support - Project Notes

Project Name: Plot 2 Arlecdon, Arlecdon, Frizington, Cumbria

JDP Project No: 2301-59

JDP Tech Contact Name: Cat Parkinson JDP Tech Contact Number: 07518 291427

#### General Notes

- The take-off, manhole schedule and subsequent BOQ has been based on information provided by Daniel Sowerby on drawing no. P2AR-KM-002.
- 2. The set of documents provided by JDP to the customer are as follows:
  - 2301-59-001 Manhole schedule
  - 2301-59-002 Job Notes
  - 2301-59-003 MicroDrainage Calculations
- All products have been advised based on our understanding of the drawings and schedules provided. Therefore the client must ensure all products are suitable for use before purchase and installation.
- 4. It has been assumed that each manhole base will be cast in-situ with manhole rings beginning 50mm above the soffit of the largest pipe. Exemptions to this are for catchpits/silt traps and flow control chambers where the manhole rings will begin at the base of the sump. Allowances are included for cover slab, brickwork and cover and frame for all concrete chambers. These can vary based on the manhole diameter and the cover and frame loading grade.
- For inspection chambers using 100mm diameter pipe and up to 0.6m deep cover to invert, shallow inspection chambers (SIC) have been advised (loading dependent). For inspection chambers servicing 100 or 150mm diameter pipework and up to 1.2m deep cover to invert level, Polypropylene inspection chambers have been advised (PPIC) (loading dependent).
- We have advised our Axedo 450-2 and Axedo 600 range where an NIC can replace a manhole, or an inspection chamber is required deeper than 1.2m cover to invert level.

#### Surface Water Notes

- All surface water pipe has been advised as uPVC ULTRA-3 sewer pipe.
- 2. All unlabelled surface water pipework has been assumed as 110mm diameter.
- 3. All surface water pipe branches connecting rainwater downpipes have been advised as 110mm diameter.
- All rainwater downpipe connections (RWP) have been advised as bottle gullies.
- We have advised the Rainbox 3SR cellular system as an alternative to the system shown on the attached drawing. This should be checked on site levels permitting.
- The Rainbox 3SR soakaway has been size at 9.6m x 4.8m x 0.42m deep giving 18.38m<sup>3</sup> storage volume and 58.17m<sup>2</sup> infiltration area. This was sized up using MicroDrainage based on the following parameters:
  - 230m²/0.023 Hectare Area
  - 39Vp
  - 0.03076923077 Infiltration Rate
  - CV 1.0
  - 1 in 100 Year Storm Event Plus 40% Climate Change
- The offer of Rainbox 3SR is subject to the minimum cover levels being met for the anticipated loading in the area as per the attached data sheet.
- The chamber upstream of the soakaway tank has been advised as a silt trap to prevent debris from entering the tank.
- All channel drain has been advised based on the specification given. If no specification is available then we have advised based on our best knowledge and loading required.

#### Foul Water Notes

- All foul water pipework has been advised as uPVC ULTRA-3 sewer pipe.
- All unlabelled foul water pipework has been assumed as 110mm diameter.
- All foul water pipe branches into buildings have been advised as 110mm diameter.
- All sewer vent pipes (SVPs) and soil stacks (SS) have been advised as 90° rest bends.
   Due to lack of information and specification we are unable to accurately advise any internal gully pots or grates. Floor finishes and gully functions would be required for us to be able to advise accurately.

JDP Technical Support

01228 794445

Technical.Support@jdpipes.co.uk

John Davidson (Pipes) Limited, Townfoot, Longtown, Carlisle, Cumbria, England CA6 5LY

J D P Limited		Page 1
Townfoot	Rainbox 3SR: 9.6 x 4.8 x 0.42m	
Longtown, Carlisle	Plot 2 Arlecdon Road	4
Cumbria CA6 5LY	Arlecdon, Frizington	Mirco
Date 31/01/2023	Designed by CLP	Designation
File 2301-59 Plot 2 Arlecdon	Checked by GA	Drainage
Micro Drainage	Source Control 2014.1	

## Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 623 minutes.

		Level	Depth	Max Infiltration (1/s)	Volume	
30 60 120 180 240 360 480 600 720 960	min Summer min Summer min Summer min Summer min Summer min Summer min Summer min Summer min Summer	9.118 9.167 9.225 9.288 9.324 9.346 9.369 9.381 9.386 9.390 9.392	0.118 0.167 0.225 0.288 0.324 0.346 0.369 0.381 0.386 0.390 0.392	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	5.2 7.3 9.8 12.6 14.2 15.1 16.2 16.7 16.9 17.1	O K O K O K O K O K
2160 2880 4320 5760 7200 8640 10080	min Summer min Summer min Summer min Summer min Summer min Summer min Summer min Summer	9.368 9.346 9.301 9.259 9.221 9.187 9.158	0.368 0.346 0.301 0.259 0.221 0.187 0.158		16.1 15.1 13.2 11.3 9.7 8.2	0 K 0 K 0 K 0 K

Storm Event		Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	92.442	0.0	19
30 min Summer	66.237	0.0	33
60 min Summer	45.415	0.0	64
120 min Summer	30.173	0.0	122
180 min Summer	23.373	0.0	182
240 min Summer	19.320	0.0	242
360 min Summer	14.633	0.0	360
480 min Summer	12.013	0.0	480
600 min Summer	10.296	0.0	546
720 min Summer	9.069	0.0	604
960 min Summer	7.413	0.0	732
1440 min Summer	5.562	0.0	998
2160 min Summer	4.158	0.0	1424
2880 min Summer	3.375	0.0	1820
4320 min Summer	2.512	0.0	2636
5760 min Summer	2.041	0.0	3408
7200 min Summer	1.738	0.0	4176
8640 min Summer	1.525	0.0	4920
.0080 min Summer	1.366	0.0	5640
15 min Winter	92.442	0.0	18

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J D P Limited		Page 2
Townfoot	Rainbox 3SR: 9.6 x 4.8 x 0.42m	
Longtown, Carlisle	Plot 2 Arlecdon Road	<b>L</b>
Cumbria CA6 5LY	Arlecdon, Frisington	Mitera
Date 31/01/2023	Designed by CLP	Desipage
File 2301-59 Plot 2 Arlecdon	Checked by GA	Dialilade
Micro Drainage	Source Control 2014.1	

Summary of	Results for	or 100	year Return	Perio	d (+40%)
Stor	m Mao	Meac	Meac	Mexic	Status
Even	t Leve	1 Depth	Infiltration	Volume	

Storm	Maria	Meas	Meac	Mexic	Status
Event	Level	Depth	Infiltration	Volume	
	(m)	(m)	(1/s)	(m <sup>3</sup> )	
30 min Winter	9.167	0.167	0.2	7.3	0 K
60 min Winter	9.225	0.225	0.2	9.8	O K
120 min Winter	9.288	0.288	0.2	12.6	O K
180 min Winter	9.324	0.324	0.2	14.2	0 K
240 min Winter	9.347	0.347	0.2	15.2	O K
360 min Winter	9.371	0.371	0.2	16.2	O K
480 min Winter	9.384	0.384	0.2	16.8	ОК
600 min Winter	9.390	0.390	0.2	17.1	ОК
720 min Winter	9.391	0.391	0.2	17.1	ОК
960 min Winter	9.391	0.391	0.2	17.1	O K
1440 min Winter	9.379	0.379	0.2	16.6	ОК
2160 min Winter	9.347	0.347	0.2	15.2	O K
2880 min Winter	9.311	0.311	0.2	13.6	O K
4320 min Winter	9.242	0.242	0.2	10.6	ОК
5760 min Winter	9.181	0.181	0.2	7.9	0 K
7200 min Winter	9.130	0.130	0.2	5.7	0 K
8640 min Winter	9.090	0.090	0.2	3.9	ОК
10080 min Winter	9.061	0.061	0.2	2.7	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m²)	Time-Peak (mins)
30 min Winter	66.237	0.0	33
60 min Winter	45.415	0.0	62
120 min Winter	30.173	0.0	120
180 min Winter	23.373	0.0	178
240 min Winter	19.320	0.0	236
360 min Winter	14.633	0.0	350
480 min Winter	12.013	0.0	460
600 min Winter	10.296	0.0	568
720 min Winter	9.069	0.0	666
960 min Winter	7.413	0.0	752
1440 min Winter	5.562	0.0	1068
2160 min Winter	4.158	0.0	1516
2880 min Winter	3.375	0.0	1960
4320 min Winter	2.512	0.0	2768
5760 min Winter	2.041	0.0	3568
7200 min Winter	1.738	0.0	4256
8640 min Winter	1.525	0.0	4928
10080 min Winter	1.366	0.0	5448

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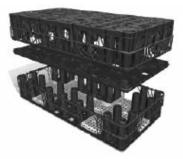
J D P Limited		Page 3		
Townfoot	Rainbox 3SR: 9.6 x 4.8 x 0.42m			
Longtown, Carlisle	Plot 2 Arlecdon Road	٩.		
Cumbria CA6 5LY	Arlecdon, Frisington			
Date 31/01/2023	Designed by CLP	Micio		
File 2301-59 Plot 2 Arlecdon	Checked by GA	Drainage		
Micro Drainage	Source Control 2014.1			
Ra	infall Details			
Rainfall Model	FSR Winter Storms Y	es		
Return Period (years)	100 Cv (Summer) 1.0			
M5-60 (mm)	and and Wales Cv (Winter) 1.0 16.200 Shortest Storm (mins)			
Ratio R	0.250 Longest Storm (mins) 100			
Summer Storms	Yes Climate Change * +	40		
Tir	me Area Diagram			
Total	al Area (ha) 0.023			
I	ime (mins) Area com: To: (ha)			
	0 4 0.023			
01.000	2014 VD Salutions			
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Appendix C – JDP Rainbox 3SR Product Data (95% voids; 1200×600×420 mm)

## Rainbox 3SR

#### Product information sheet

The RAINBOX® 3SR crate, manufactured by JDP's Tessenderlo Group partner DYKA, consists of two half-boxes and a centre plate; assemble these prior to their installation within the crate structure.



Crates are linked by clips	
Crates are linked by clips	100
Inspectable	Yes
Approx Weight	13.5kg
Recyclable	100%
Materials	Recycled Polypropylene
Void Ratio	95%
Storage Volume	287 L
Gross Volume	302 L
Differences	1200 X 600 X 42011111

1200 v COO v 420mm

#### Connection Options

The RAINBOX $^{\circ}$  3SR comes with pre-formed cut-outs for connecting pipework up to 160mm OD. For larger sizes, up to 400mm OD, specially made adaptor plates can be used.

#### Design & Installation Guidance

Vertical loading to the crate structure is determined by the cumulative loads associated with the backfill and any loads linked to operations (vehicular loads (live loads) or permanent structures (dead loads)). Horizontally, loading is determined by the pressure exerted by the earth.

The resulting information determines the minimum and maximum covering height and the maximum excavation depth. Table 1 shows the parameters for different applications.

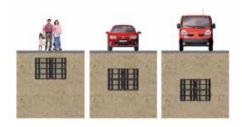


Table 1

	Load (GVW)						
	Pedestrians	Small Vehicles ≤ 3T	Vehicles ≤ 12T	Vehicles ≤ 30T			
(bas	Coverage in m (based on backfill φ' 30° and density 20kN/m²)						
Min.	0.30	0.50	0.9	12			
Max.	250	2.5	2.4	22			
	Max Excavation Depth in m						
with backfill 20°	35	3.3	3.0	3.0			
with backfill 25°	4.00	4.00	3.8	3.8			
with backill 30°	4.00	4.00	4.00	4.00			

The installer of the RAINBOX® 3SR system should ensure that a structural design check in line with CIRIA C680 has been carriedout prior to work commencing.

Details and illustrations in this document are for guidance only. Please contact JOP's Technical Support for more information. JOP reserve the right to make alterations to this document without prior notice or update. Information correct as of 1st Sept 2020.



JDP, Part of DYKA Group

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<sup>\*</sup>Crates with grey inspection channel plates available on request

## PROTOCOL

## **ON PRODUCT TYPE TESTING**



Registration No. 1017 - CPR - 05.686.914, Revision No. 2

In compliance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC, this protocol is issued for the construction product:

#### **Domestic Wastewater Treatment Plant**

Type range: Marsh Uni Ensign; Marsh Uni Ensign Shallow
Types: 6PE, 10PE, 12PE, 16PE, 20PE, 25PE, 30PE, 35PE, 40PE, 45PE, 50PE

#### **MARSH INDUSTRIES LIMITED**

Units 3-13 Little Addington Business Park, Irthlingborough Road, Little Addington, Kettering NN14 4AS United Kingdom VAT Ident. No.: GB866868943

Place of production: See above

TÜV SÜD Czech s.r.o. performed the initial testing of the respective product characteristics described in Annex ZA of the standard

EN 12566-3:2005+A1:2009

The results of the tests are given in the Evaluation Report Reg. No. 05.686.242 from 20 April 2012 and in the Inspection Report No. 06.431.719 from 1 February 2013, which are integral parts of this Protocol on product type testing.

#### Evaluation of tests:

Essential characteristics	Performance			Harmonised TS		
Treatment efficiency on organic daily loading $BOD_6 = 0,49 \text{ kg/day}$	BOD <sub>5</sub> COD <sub>CR</sub> SS N-NH <sub>4</sub> <sup>+</sup> P <sub>Total</sub>	97,4 % 91,0 % 94,1 % 81,0 % 42,0 %	11,5 mg O₂/l 71,5 mg O₂/l 19,2 mg/l 8,4 mg/l 5,7 mg/l	EN 12566-3.2005+A1:2009 Annex B		
Watertightness (water test)	Passed			EN 12566-3.2005+A1:2009		
Structural behaviour (calculation)	Passed			EN 12566-3.2005+A1:2009		
Durability	Passed			EN 12566-3.2005+A1:2009		

This Protocol was first issued on 3 May 2012 as the Protocol on product type testing according to CPD.  $_{\ \ \ \ }$ 

Prague, 11 July 2013



on behalf of Notified Body 1017 Jana Bačinová Head of Certification Department

TÜV SÜD Czech s.r.o. ● Novodvorská 994 ● 142 21 Prague 4 ● Czech Republic ● certification@tuv-sud.cz

Appendix E - Planning Decision Notice Excerpt (Condition 2 & 7)



Cumberland Council
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Carlisle
Cumbria CA1 1RD
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## TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED). NOTICE OF GRANT OF PLANNING PERMISSION

Mr Daniel Sowerby Sowerby House Townhead Dearham Maryport CA15 7JW

APPLICATION No: 4/23/2020/0F1

PROPOSED DORMER BUNGALOW PLOT 2, ARLECDON ROAD, FRIZINGTON

### Mr Kieran McGonagle

The above application dated 23/01/2023 has been considered by the Council in pursuance of its powers under the above mentioned Act and PLANNING PERMISSION HAS BEEN GRANTED subject to the following conditions:

## Standard Conditions

 The development hereby permitted shall be commenced before the expiration of three years from the date of this permission.

#### Reason

To comply with Section 91 of the Town and Country Planning Act 1990 as amended by the Planning and Compulsory Purchase Act 2004.

Permission shall relate to the following plans and documents as received on the respective dates and development shall be carried out in accordance with them: - Proposed site and block plan, scales 1:1250 and 1:500, received 23<sup>rd</sup> January 2023;

Proposed dwelling floor plans, scale 1:50, drawing number P2AR-KM-004, received 20th April 2023;

Proposed Elevations, scale 1:50, drawing number P2AR-KM-003, received 20th April 2023;

Proposed site drainage plan, scale 1:250, drawing number P2AR-KM-002, received 23rd January 2023;

Design and access statement, drawing number DAS-001, received 23rd January 2023;

Drainage Calculations, written by JDP Limited, received 21st January 2023;

Percolation Results, received 21st January 2023;

Visibility Splays, scales 1:500 and 1:1250, drawing number P2AR-KM-001, received 3<sup>rd</sup> April 2023.

#### Reason

To conform with the requirement of Section 91 of the Town and Country Planning Act 1990, as amended by the Planning and Compulsory Purchase Act 2004.

#### Prior to Occupation Conditions

 Prior to the first occupation of the dwelling hereby approved, any windows on the first floor side elevations that are below 1.7 metres above floor level must be fitted with obscure glazing to a minimum of level 5. Once installed the obscure glazing must be retained at all times thereafter and for the lifetime of the development.

#### Reason

To safeguard the amenity of the neighbouring dwellings and in accordance with Policy DM12 of the Copeland Local Plan.

4. Prior to the first occupation of the dwelling hereby approved, the access and parking must be fully constructed and brought into use in accordance with the approved plans. The access and parking must be retained as such at all times during the lifetime of the development.

## Reason

To ensure a minimum standard of construction in the interests of highway safety and in order to ensure that there is no antisocial parking in accordance with Policy DM22 of the Copeland Local Plan.

 Prior to the first occupation of the dwelling hereby approved, a 2 metre high, close boarded boundary fence must be erected on the north and south boundaries. The fence must be retained and maintained at all times for the lifetime of the development.

#### Reason

To ensure that the amenity of the neighbouring dwellings is maintained and in accordance with Policy DM12 of the Copeland Local Plan.

 Prior to the first occupation of the dwelling hereby approved, full details of hard and soft landscaping must be submitted to and approved by the Local Planning Authority. Once approved, the scheme must be implemented in accordance with the approved plans and retained as such at all times thereafter.

#### Reason

To ensure a satisfactory appearance in the interests of visual amenity and in accordance with Policy DM26 of the Copeland Local Plan.

7. The drainage for the development hereby approved, must be carried out in accordance with principles set out in the submitted Foul & Surface Water Drainage Design Drawing P2AR-KM-002- Dated 2 Jan 23. For the avoidance of doubt no surface water will be permitted to drain directly or indirectly into the public sewer. Prior to occupation of the proposed development, the drainage schemes must be completed in accordance with the approved details and retained thereafter for the lifetime of the development.

### Reason

To ensure a satisfactory form of development and to prevent an undue increase in surface water run-off and to reduce the risk of flooding and in accordance with Policies ENV1 and DM24 of the Copeland Local Plan.

#### Statement

26th April 2023

The Local Planning Authority has acted positively and proactively in determining this application by assessing the proposal against all material considerations, including planning policies and any representations that may have been received, and subsequently determining to grant planning permission in accordance with the presumption in favour of sustainable development as set out in the National Planning Policy Framework.

Please read the accompanying notice

Jane Meek Assistant Director

Thriving Place and Investment

Jane E. Teel

## Appendix F – Maintenance Log Templates (STP & Soakaway)

Maintenance Log Templates – STP & Soakaway									
	Plot 2, Arlecdon Road, A			n, Cumbria					
Asset Ov	vner:		ln:	staller:				UP	RN/Asset
ID:									,
A. Sewa	ge Treatment Plant (Ma	arsh Ensign:Ult	tra 1	2PE) – Mainter	nanc	e Log			
Frequen	cy guidance: Visual che	cks monthly, se	ervic	e annually (or p	oer n	nanufactu	rer), de	esludge t	typically
every 12	months or as required.								
Date	Inspector/Company	Checks	hecks Observations/Reading			gs Ac	tions	Next	Signature
		Performed				Ta	ken	Due	
STP Chec	cklist (tick/initial):								
	Item		Dat	ss/Fail			N	otes	
Access o	overs safe, intact,	-		25/1 dii		Notes			
locked	overs sore, muce,	-							
Blower/o	compressor running;								
low-pres	sure alarm clear								
Air filters	s clean; diffusers								
bubbling	(aeration present)								
Media m	ovement (no dead								
zones)									
Sludge le	evel acceptable;								
	ng required?								
	tlet clear; Polylok								
	filter clean								
	I RCD functional; cablin	g 🗆							
sound			_						
	ck unobstructed; odour	-							
normal No suefa	so water inflow to plan	.							
	ce water inflow to plan: e route to soakaway		0						
unobstru	•	-	-						
B. Surface Water Soakaway (JDP Rainbox 3SR) – Inspection Log Frequency guidance: Inspect silt boxes every 6 months and after significant storms. CCTV/jet if capacity/performance reduces.									
Date	Inspector/Compa	ny Inlets/Tra	aps	Sediment	Ob	served	Actio	ns	Next Due
		Checked		Removed	Sta	inding	Take	n	
				(L)		ater			
(Y/N)									
Soakaway Checklist (tick/initial):									
	Item		Pass/Fail			Notes			
-	m silt box/catchpit		0						
emptied									
Gully pot	ts cleaned								

 ${\sf DLS.WSDoc\_DAP001}$ 

Access points/rods clear		
No fine silt carry-over to crates		
No settlement/deformation at		
surface		
No evidence of scour/overflow	0	
activation		
Vegetation managed above		
soakaway		
No traffic loading beyond design		
cover		
Drain-down within 24 hours		
(post-storm)		

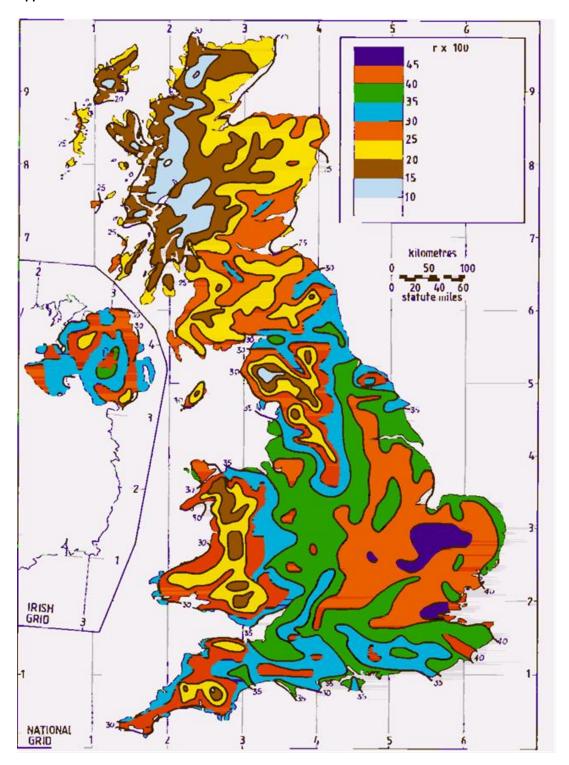
#### C. Overflow to Field Drain (Dub Beck) - Inspection Log

Frequency guidance: Annually and after significant storm events. Confirm non-return devices and flap valves operate freely.

Date	Inspector/Company	NRV	Flap Valve	Outfall/Headwall	Actions	Next
		Condition	Condition	Clear	Taken	Due

D. Annual Service Report – Sewage Treatmer	nt Plant	
Service Provider:	Date:	
Tasks Completed:		
Electrical/RCD check		
Blower service & filter replacement		
Sludge depth measurement		
Polylok tertiary filter clean		
Ventilation check		
Operational test (aeration/recirculation)		
Findings/Readings:		
BOD/SS sample (if taken): Comm	nents:	
Desludging Undertaken: Yes / No - Contracto	r:	Waste Transfer Note Ref:
Recommendations/Actions:		

Appendix G – National rainfall tables



#### Appendix H - Environment Agency Flood Report



## Flood map for planning

Your reference PLOT 2, ARLECDON ROAD Location (easting/northing) Created 304947/518942 12 Jan 2

12 Jan 2023 0:29

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is any of the following:

- bigger that 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its
  development would increase the vulnerability of its use (such as constructing an
  office on an undeveloped site or converting a shop to a dwelling)

#### Notes

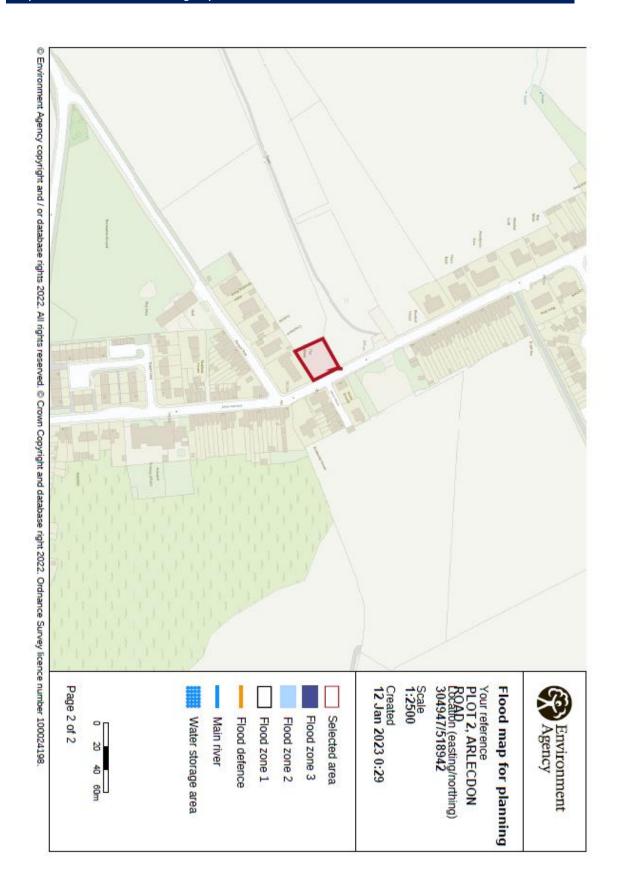
The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

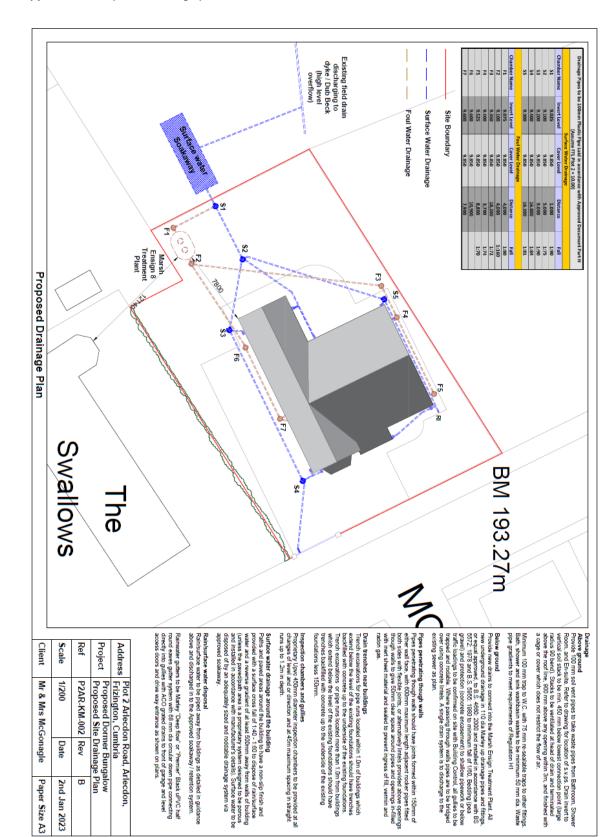
Flood risk data is covered by the Open Government Licence **which** sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2022 OS 100024198. https://flood-map-for-planning.service.gov.uk/os-terms

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Appendix I - Proposed drainage plan



Paper Size A3

2nd Jan 2023

В Plan

## **Appendix J** – Percolation Test Photos

## Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11



## **THE END**