

reside.

**LAND WEST OF FONTWELL AVENUE
FRA AND DRAINAGE STRATEGY
NOVEMBER 2021**



LAND

RESIDENTIAL DEVELOPMENT
LAND WEST OF FONTWELL AVENUE

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

CONTROLLED DOCUMENT

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Revision Record					
Rev.	Date	By	Summary of Changes	Chkd	Aprvd
2	28.10.2021	CLP	Appendix A and D updated	CJL	RW
3	05.11.2021	CLP	Revised site layout	CJL	RW
4	25.11.2021	CLP	Updated to suit achieved infiltration rates	CJL	RW

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This

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associates

RESIDENTIAL DEVELOPMENT
LAND WEST OF FONTWELL AVENUE

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

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Appendices

- Appendix A: Site Layout
- Appendix B: UK SuDS Greenfield Runoff Rates Estimation Reports
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1. INTRODUCTION

- 1.1 This Flood Risk Assessment (FRA) and Drainage Strategy has been prepared by Paul Basham Associates on behalf of Reside Developments Ltd to support an outline planning application for a residential site. The land is located to the west of Fontwell Avenue (A29), Eastergate, Arun. The nearest postcode is PO20 3RX, and the grid reference is 494644,106146.

2. SITE DETAILS

- 2.1 The plot size is approximately 0.38ha and the land is currently arable farmland with associated out buildings and dwellings. The topographical survey shows the site has a high point of 16.41mAOD at the north-west of the site, with a level of 15.95mAOD in the south-east. This shows a rather gentle fall over 75m, giving a gradient of 1:163. See **Figure 1** for site location.
- 2.2 The development aspirations are for up to 8 residential dwellings with the associated hardstanding and landscaping. See **Appendix A** for the site layout.



Figure 1: Site Location Plan

Site Geology

- 2.3 A review of the British Geological Survey (BGS) mapping indicates that the bedrock geology beneath the site is Lambeth Group - Clay, silt and sand. Sedimentary bedrock formed between 59.2 and 47.8 million years ago during the Palaeogene period.
- 2.4 There also superficial deposits of Head - Gravel, sand, silt and clay. Sedimentary superficial deposit formed between 2.588 million years ago and the present during the Quaternary period. See **Figure 2** for the BGS map extract.

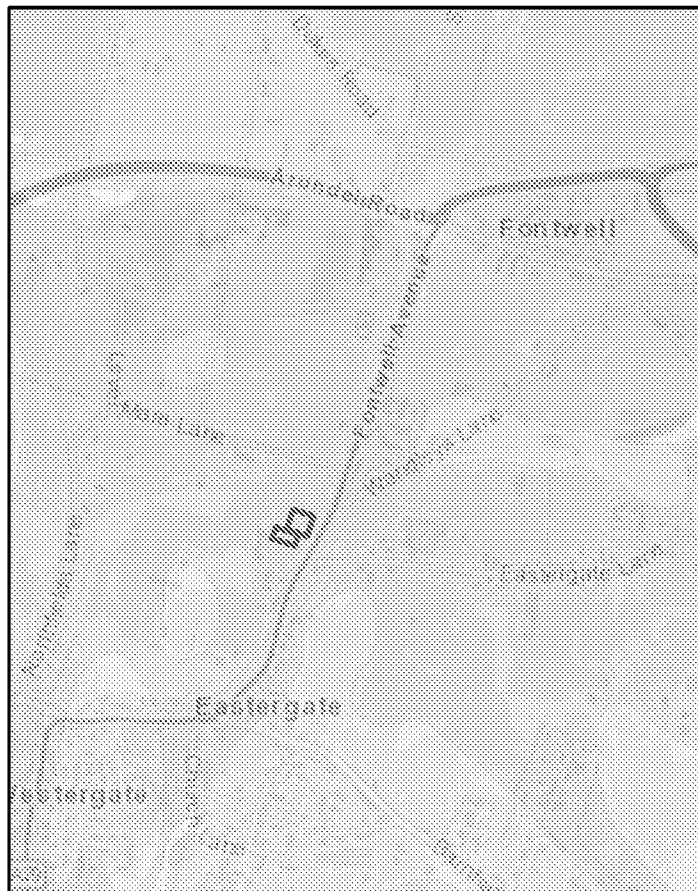


Figure 2: BGS bedrock mapping

- 2.5 Site Investigation was undertaken by Soils Limited in October 2021 (**Report reference: 19756**) as shown in **Appendix F** confirming the infiltration rates achieved, ranged from 1.514×10^{-4} to 1.646×10^{-4} .

3. EXISTING DRAINAGE

Existing Surface Water Drainage

- 3.1 There appears to be no existing surface water drainage provisions proximate to the site.
- 3.2 The greenfield run-off rates for the existing site have been estimated using the HR Wallingford online calculator on the UK SuDS website. The run-off rates are shown in **Figure 3** below. See **Appendix B** for a copy of the full report.

Greenfield runoff rates	Default	Edited
Over 90%	0.07	0.07
1 in 1 year (1%)	0.06	0.06
1 in 30 years (3%)	0.16	0.16
1 in 100 year (1%)	0.22	0.22
1 in 200 years (0.5%)	0.26	0.26

Figure 3: Greenfield runoff rates

- 3.3 The developed area impermeable area has been calculated at 0.14ha, which provides the developed area greenfield rates as shown in **Figure 4**. The developed area is all the impermeable areas added together (roofs, driveways, internal road, footway, and a nominal patio allowance of 3.0x3.0m) with an addition 10% allowance for urban creep. **Appendix B** for a copy of the full report.

Figure 4: Developed area greenfield runoff rates

Existing Foul Water Drainage

- 3.4 The existing foul water drainage provisions are a Southern Water foul sewer within the adjacent site to the north, flowing southbound. See **Appendix C** for

4. FLOOD RISK

Fluvial/tidal flooding

4.1 Flood mapping obtained from the Environment Agency's

Long term flood risk from rivers, seas and reservoirs

- 4.2 The long-term flood risk and from rivers, seas and reservoirs mapping shows that the site is not considered to be at long-term risk of flooding from rivers and seas. See **Figure 6** below for a snip of the long-term risk of from rivers and seas map

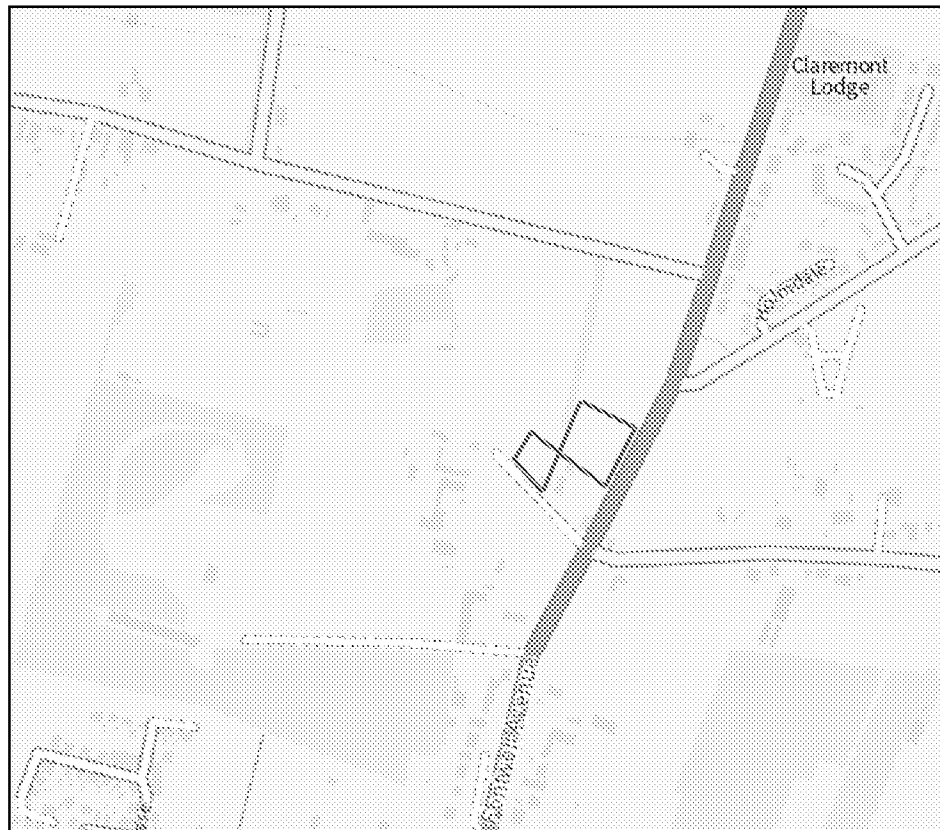


Figure 6: Long-term flood risk from rivers, seas and reservoirs map

Long-term surface water flood risk

- 4.3 Surface water or 'pluvial' flooding results from rainfall running over ground before eventually entering a watercourse or sewer. It is usually associated with high intensity rainfall events but can also occur with lower intensity rainfall or melting snow where the ground is already saturated, frozen, developed (for example in an urban setting), or otherwise has low permeability.

- 4.4 The surface water flood risk map is shown in **Figure 7** and indicates that the site is considered to have a very low risk of long-term surface water flooding. However, it is noted that Fontwell Avenue (A29) has a medium risk of flooding which is defined as land having a chance of flooding between 1% and 3.3% in any year.



Figure 7: Long term flood risk from surface water

National Planning Policy Framework (NPPF)

- 4.5 This report has been prepared considering the National Planning Policy Framework (NPPF) Technical Guidance and the Environment Agency's (EA) flood risk standing advice.
- 4.6 Table 3 from the NPPF Technical Guidance has been included as **Figure 8** below. This provides the classes of development (based on flood risk vulnerability) that are permitted within each of the flood zones. The

Groundwater Flooding

- 4.7 Groundwater flooding occurs when groundwater levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys and in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels.
- 4.8 Magic Map by Defra uses the same base information as BGS and shows that the site is at low risk of ground-water flooding. Groundwater monitoring will be required to be undertaken to confirm this.
- 4.9 Magic Map by Defra uses the same base information as BGS and shows that the site is classed as a Secondary A Aquifer, which comprises layers that support local water supplies, and may form an important source of base flow to rivers.
- 4.10 The groundwater flooding risk for the site is considered to be low. Four-month groundwater monitoring was completed for the adjacent site to the north (**planning ref: BN/50/20/PL**) by Forge Environmental Management Ltd in September 2020. The results showed the water level ranged to from 2.96m bgl to 3.51m bgl; these values can be considered to not put the site at risk of groundwater flooding.
- 4.11 Soils Limited have begun undertaken groundwater monitoring in October 2021 at the proposed development site and note that no ground water was located during the installation of the monitoring stations.

5. DRAINAGE STRATEGY

Potential Surface Water Drainage Strategy

- 5.1 In line with the Building Regulations Part H3, surface water shall discharge to one of the following, listed in order of priority:
- An adequate infiltration system: or, where not reasonably practicable,
 - A watercourse; or, where not reasonably practicable,
 - A sewer.
- 5.2 The infiltration rate for this site is based on the achieved value of 1.514×10^{-4} , which is the worst-case scenario for the trial pits that were undertaken.
- 5.3 The main roads, parking courts and private drives will all be managed through permeable paving with all roof areas being conveyed to cellular crate soakaways within the rear gardens.
- 5.4 The proposed Surface Water drainage strategy is shown in **Appendix D**.

MicroDrainage Calculations

- 5.5 Microdrainage calculations have been undertaken for the cellular soakaways and show that in both the 10yr and 100yr (+40%) storm events there is no flooding and that the half drain time criteria are met. The results are shown in **Appendix E**.

Potential Foul Water Drainage Strategy

- 5.6 The proposals for the foul drainage are to discharge to the existing foul sewer adjacent Fontwell Avenue, via the proposed infrastructure within the development to the north.
- 5.7 The proposals require that the sewer levels within the adjacent development are designed as to facilitate a gravity connection from this proposed development.
- 5.8 The proposed Foul Water drainage proposals are shown in **Appendix D**.
- 5.9 Based on the Sewerage Sector Guidance, a foul flow of 4000litres of water per property per day has been used for the foul water drainage design, therefore the design flow is 0.37l/s for up to 8 residential dwellings. A pipe of 100mm diameter is to be specified in the design for 10 properties or less.

6. SUMMARY AND CONCLUSION

- 6.1 This FRA has been prepared by Paul Basham Associates to help assess the suitability of the site for development located to the west of Fontwell Avenue, Eastergate, Arun.
- 6.2 There is no increase in flood risk, either on site or downstream, as a result of the proposed development and no flood reduction measures are required based on the assumptions made in this report.
- 6.3 It has been identified that the site lies wholly with Flood Zone 1 and has a very low risk of flooding. The proposed drainage system has been designed for the 1:100year storm event with an additional 40% allowance for climate change.
- 6.4 The site has also been assessed for all sources of flood risk such as rivers, groundwater, canals, reservoirs, surface water (pluvial flooding) and sewer, and it is concluded that the site is not a risk of any means of flooding.

Drainage Strategy

- 6.5 In accordance with the Environment Agency, National Planning Policy Framework and current best practices, it is intended to attenuate the run-off at source using a number of different SuDS techniques, which also help improving the water quality prior to discharge into the ground.
- 6.6 In this instance, given the underlying geology consists of silty/clayey GRAVEL, it is assumed that infiltration devices will be suitable at this location.
- 6.7 The drainage strategy employed will comprise the following:
- Surface water via infiltration with a combination of soakaways and permeable pavements
 - Piped networks for foul water with the strategy via gravity and through the adjacent site
 - The new foul sewers will be connected to the existing network via an agreement with Southern Water under Section 106 of the Water Industry Act 1991
- 6.8 The proposed foul drainage strategy comprises a gravity drain network made up of 100mm diameter pipes running in the main access roads and landscaping through the site. Sewage will then be drained into the existing foul sewers based on the guidance within the Sewerage Sector Guidance.

- 6.9 Based on the Sewerage Sector Guidance, a foul flow of 4000litres of water per property per day has been used for the foul water drainage design, therefore the design flow is 0.37l/s for up to 8 residential dwellings.

General

- 6.10 It is important to note that the surface and foul water strategies outlined in this report may not necessarily form the final design. It is simply a demonstration of the most suitable and technically feasible designs for the proposed development, based on the information available at present. Site constraints and economic appraisals undertaken as part of the design stage may result in suitable amendments to the current strategies.
- 6.11 This FRA has been prepared considering the National Planning Policy Framework Technical Guidance and the EA Flood Risk Standing Advice. This report has quantified the flood risk posed to the proposed development as being More Vulnerable which is a suitable development type for Flood Zone 1.

Appendix



Appendix

Calculated by: Claire Pritchard

Site name: Land at Fontwell Avenue

Site location: 8 Unit Development

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude: 50.84704° N

Longitude: 0.65671° W

Reference: 2184763750

Date: Oct 15 2021 11:18

Runoff estimation approach: IH124

Site characteristics

Total site area (ha): 0.37

Methodology

Q_{BAR} estimation method: Calculate from SPR and SAAR

SPR estimation method: Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	1	1
HOST class:	N/A	N/A
SPR/SPRHOST:	0.1	0.1

Hydrological characteristics

	Default	Edited
SAAR (mm):	778	778
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Notes

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is $SPR/SPRHOST \leq 0.3$?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	0.07	0.07
1 in 1 year (l/s):	0.06	0.06
1 in 30 years (l/s):	0.16	0.16
1 in 100 year (l/s):	0.22	0.22
1 in 200 years (l/s):	0.26	0.26

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Calculated by: Claire Pritchard

Site name: Land at Fontwell Avenue

Site location: 8 Unit Development

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude: 50.84704° N

Longitude: 0.65671° W

Reference: 1596107105

Date: Oct 15 2021 11:23

Runoff estimation approach: IH124

Site characteristics

Total site area (ha): .144

Methodology

Q_{BAR} estimation method: Calculate from SPR and SAAR

SPR estimation method: Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	1	1
HOST class:	N/A	N/A
SPR/SPRHOST:	0.1	0.1

Hydrological characteristics

	Default	Edited
SAAR (mm):	778	778
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Notes

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is $SPR/SPRHOST \leq 0.3$?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

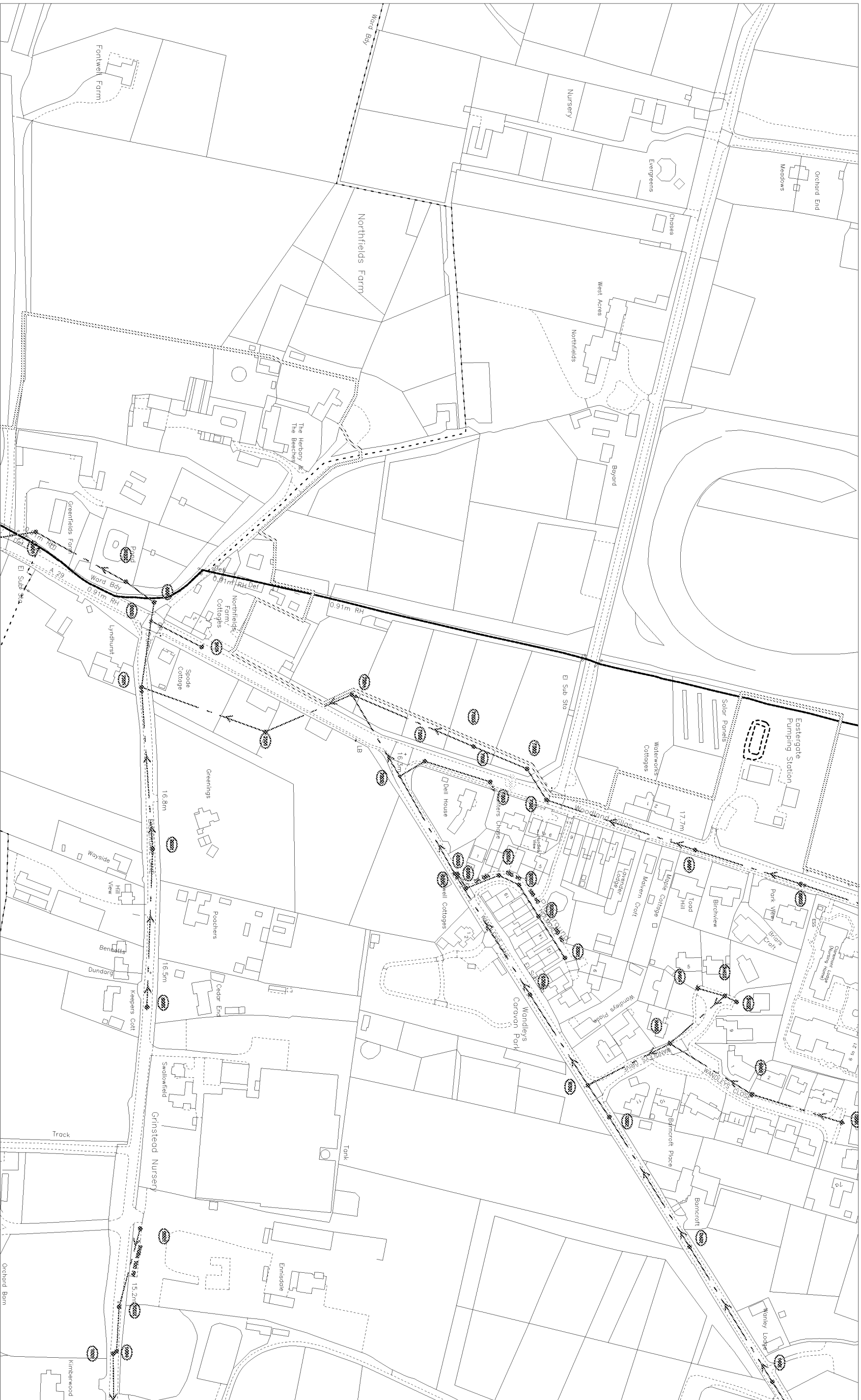
Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	0.03	0.03
1 in 1 year (l/s):	0.02	0.02
1 in 30 years (l/s):	0.06	0.06
1 in 100 year (l/s):	0.09	0.09
1 in 200 years (l/s):	0.1	0.1

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Appendix

106547



105969

O.S. REF.

SU9406SE

Title: 284436_Land at Northfield Cott

Drawn by: okuneyf

Scale: 1:2500

Date: 09/03/2018

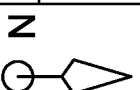
The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy.

The actual positions should be determined on site

STATISTICS: Data were constructed of bonded business community

Abstracts of the 1996 American College of Obstetrics and Gynecology Conference

Based upon Ordnance Survey Digital Data with the permission of the controller of H.M.S.O. Crown Copyright Reserved
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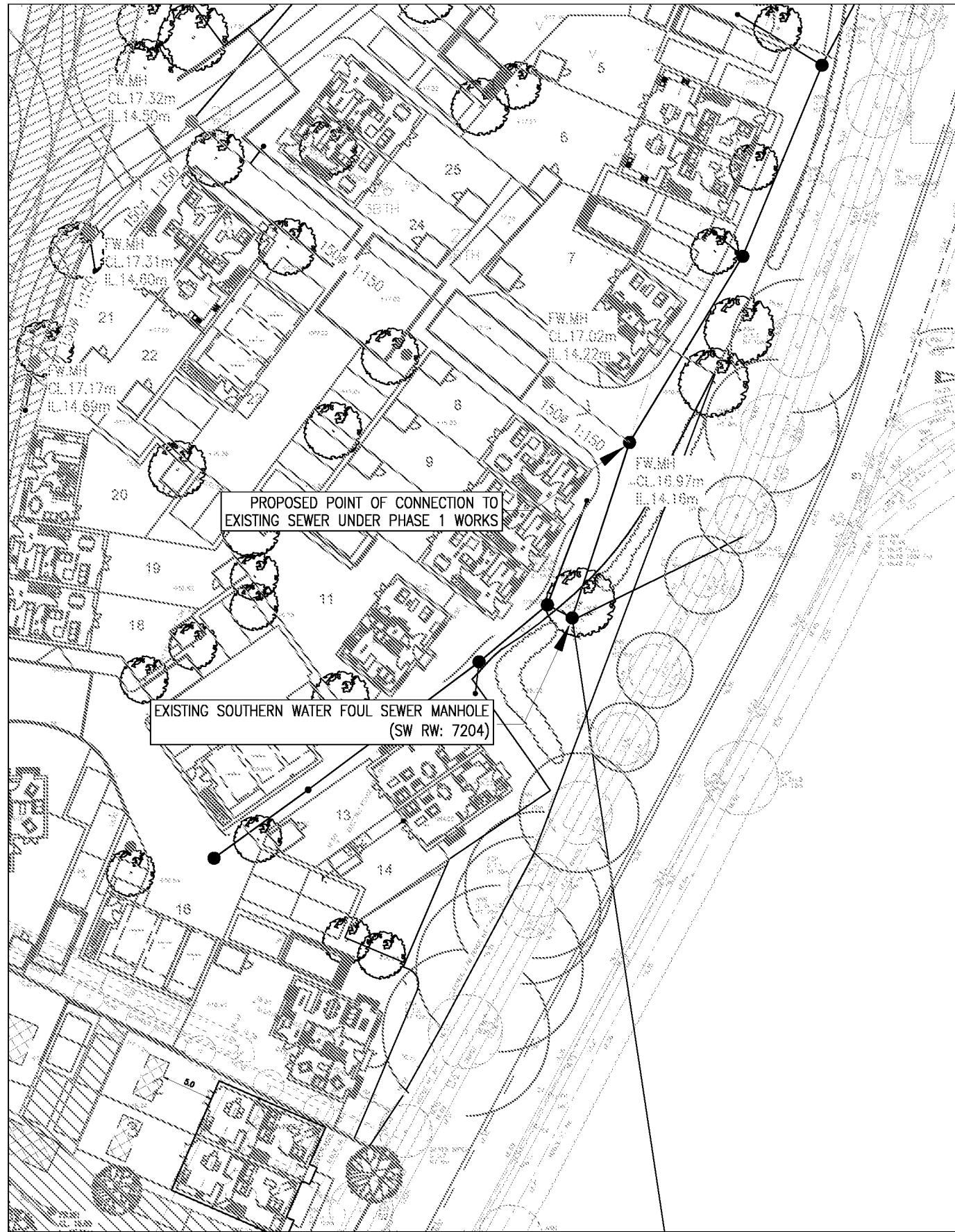
495197

SEWER RECORDS PAGE 2 OF 2

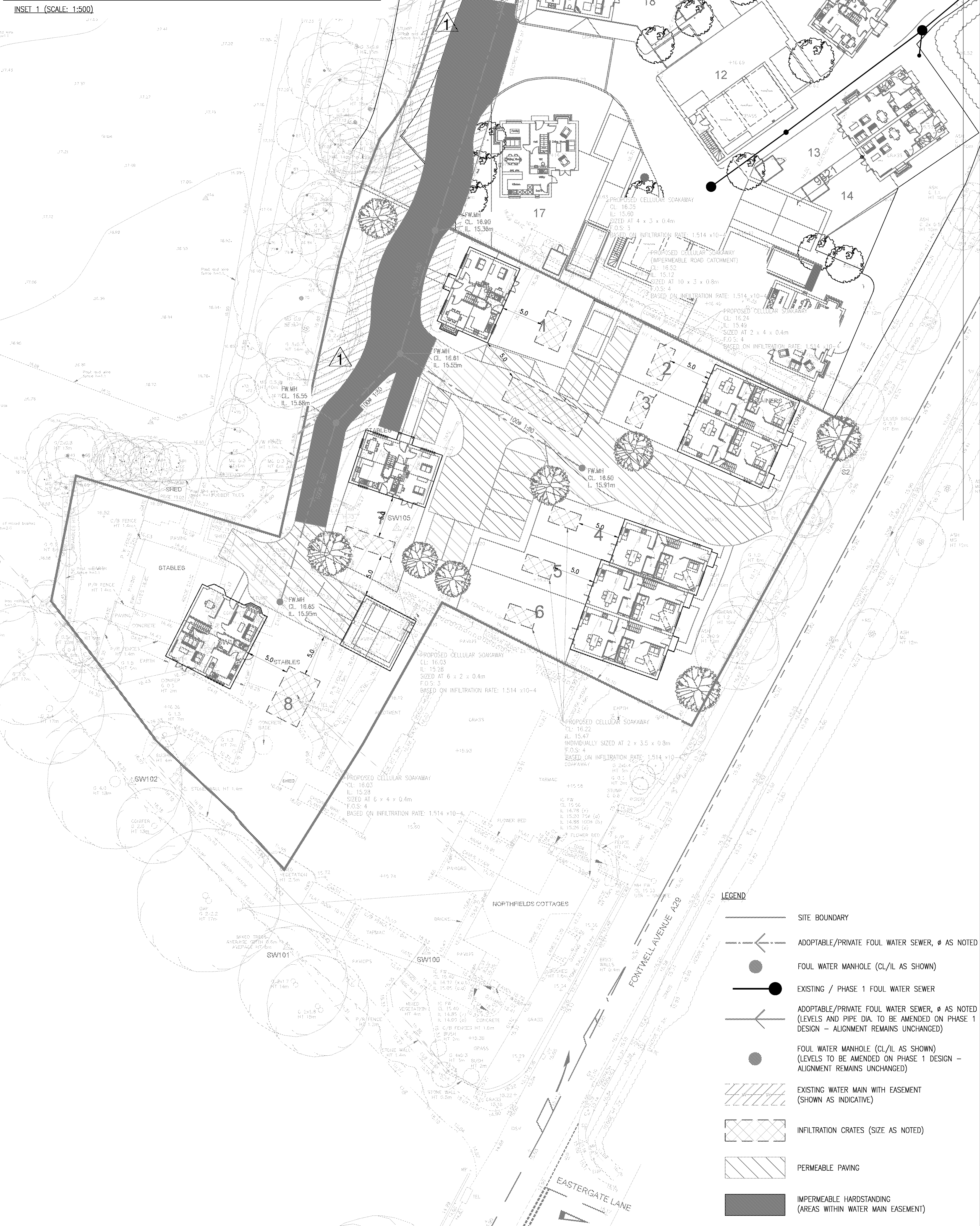
Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape
0001X	18.42		100	PF	CIRC												
0301X	19.05	17.58	150	VC	CIRC												
0401X	21.39	20.19	150	VC	CIRC												
0501X	15.19	13.38	175	VC	CIRC												
1001X			150	PF	CIRC												
1003X			150	VC	CIRC												
1004X			150	VC	CIRC												
1401X	20.48	18.61	150	VC	CIRC												
6001X	14.81	13.09	225	VC	CIRC												
6002X	15.11	12.93	225	VC	CIRC												
600DX	14.93		225	VC	CIRC												
6101X	15.31		100	VC	CIRC												
6901X	15.42	12.92	225	VC	CIRC												
7001X	15.8		225	VC	CIRC												
7101X	16.11	13.73	225	VC	CIRC												
7201X	16.79	15.6	100	VC	CIRC												
7202X	16.54	14.58	100	VC	CIRC												
7203X	16.58	15.01	225	VC	CIRC												
7204X	16.38	13.89	225	VC	CIRC												
720DX	16.45	14.1	150	VC	CIRC												
7301X	17.02	15.74	225	VC	CIRC												
7302X	17.23	15.65	225	VC	CIRC												
7303X	16.92	15.72	100	CI	CIRC												
8001X	16.89	14.63	150	VC	CIRC												
8201X	17.01	14.67	150	VC	CIRC												
8202X	17.34	14.82	150	VC	CIRC												
8203X	17.07	14.73	150	VC	CIRC												
8301X	16.72	15.67	150	VC	CIRC												
8302X	16.37	15.23	150	VC	CIRC												
8303X	16.8	15.07	150	VC	CIRC												
8304X	16.8	14.96	150	VC	CIRC												
8401X	17.98	16.17	225	VC	CIRC												
8503X	19.36	16.8	225	VC	CIRC												
9001X	16.24	15.21	150	VC	CIRC												
9301X	18.26	16.84	150	VC	CIRC												
9302X	18.25	16.48	150	VC	CIRC												
9401X	20.11	18.79	150	VC	CIRC												
9402X	19.17	19.16	150	VC	CIRC												
9403X	19.16	17.83	150	VC	CIRC												
9404X	19.1	17.99	150	VC	CIRC												
9405X	18.76	17.33	150	VC	CIRC												

[illegible]

Appendix



INSET 1 (SCALE: 1:500)



LEGEND

- SITE BOUNDARY
- ADOPTABLE/PRIVATE FOUL WATER SEWER, Ø AS NOTED
- FOUL WATER MANHOLE (CL/L AS SHOWN)
- EXISTING / PHASE 1 FOUL WATER SEWER
- ADOPTABLE/PRIVATE FOUL WATER SEWER, Ø AS NOTED (LEVELS AND PIPE DIA. TO BE AMENDED ON PHASE 1 DESIGN – ALIGNMENT REMAINS UNCHANGED)
- FOUL WATER MANHOLE (CL/L AS SHOWN) (LEVELS TO BE AMENDED ON PHASE 1 DESIGN – ALIGNMENT REMAINS UNCHANGED)
- EXISTING WATER MAIN WITH EASEMENT (SHOWN AS INDICATIVE)
- INFILTRATION CRATES (SIZE AS NOTED)
- PERMEABLE PAVING
- IMPERMEABLE HARDSTANDING (AREAS WITHIN WATER MAIN EASEMENT)

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CDM Regulations 2015 : Reg. 9

None of the below is deemed to relieve any contractor of his obligations under all applicable health and safety legislation.

In preparing the design shown on this and related drawings Paul Basham Associates has considered and, where reasonably practicable, eliminated foreseeable risks. Any further abnormal or unusual risks, which remain, are numbered below and identified thus (A) and should be given particular attention by all those carrying out construction or of future maintenance works.

1. Existing water mains present
- 2.
- 3.

GENERAL NOTES

1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES – THIS MUST BE TREATED AS INDICATIVE ONLY.
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DRAINAGE

1. SURFACE WATER INFILTRATION CALCULATIONS BASED ON FOLLOWING ARUN DC FACTORS OF SAFETY FOR "MINOR INCONVENIENCE" CONSEQUENCES OF FAILURE:
AREA TO BE DRAINED <100m² : Cv=0.75 ; FOS OF 3
AREA TO BE DRAINED 100m²–1000m² : Cv=0.75 ; FOS OF 4
2. SOAKAWAYS IN OPEN SPACES/GARDENS SHOWN AS HAVING c.300mm OF COVER FROM PROPOSED GROUND LEVEL TO TOP OF STRUCTURE.
3. SOAKAWAY OFFSETS TO BE 5m FROM ALL FOUNDATIONS
4. INFILTRATION RATES HAVE BEEN BASED ON THE WORST CASE SCENARIO FOR THE DEVELOPMENT SITE TO THE NORTH. THE INFILTRATION RATE USED IS 1.514 x 10⁻⁴.
5. EXISTING GROUND WATER TAKEN AS 2.96m BGL.



PRELIMINARY

DRAWING/DESIGN IS STILL 'IN DEVELOPMENT'
YOU ARE ADVISED TO MAKE DUE ALLOWANCE

C	UPDATED TO SUIT INFILTRATION TESTING RESULTS	25.11.2021	CLP	C.J.L.
B	SITE LAYOUT UPDATED	05.11.21	CLP	C.J.L.
A	UPDATED APPLICATION BOUNDARY	28.10.21	CLP	C.J.L.
Rev	Description	Date	By	Chkd



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info@paulbashamassociates.com www.paulbashamassociates.com

Client:

reside.

Project Name
LAND WEST OF FONTWELL AVENUE
EASTERGATE, ARUN

Title
OUTLINE DRAINAGE STRATEGY

Project Phase
PRELIMINARY

Checked By	Checked Date	Drawn By	Drawn Date
C.J.L.	20.10.2021	CLP	18.10.2021
Client Drawing No	-	Scale	(AT A1 SIZE)
PBA Drawing No	020.5762.021	Revision	C

Appendix

Paul Basham Associates		Page 1
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Access Road Permpaving	
Date 25/11/2021 11:11 File 020.5762 Access Road Perm	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Half Drain Time : 5 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
15 min Summer	15.805	0.035	13.9	5.5	OK
30 min Summer	15.810	0.040	15.9	6.3	OK
60 min Summer	15.807	0.037	14.9	5.9	OK
120 min Summer	15.800	0.030	11.9	4.7	OK
180 min Summer	15.794	0.024	9.7	3.8	OK
240 min Summer	15.791	0.021	8.3	3.2	OK
360 min Summer	15.786	0.016	6.3	2.5	OK
480 min Summer	15.783	0.013	5.3	2.1	OK
600 min Summer	15.781	0.011	4.5	1.8	OK
720 min Summer	15.780	0.010	4.1	1.6	OK
960 min Summer	15.778	0.008	3.3	1.3	OK
1440 min Summer	15.776	0.006	2.5	1.0	OK
2160 min Summer	15.774	0.004	1.7	0.7	OK
2880 min Summer	15.774	0.004	1.5	0.6	OK
4320 min Summer	15.773	0.003	1.1	0.4	OK
5760 min Summer	15.772	0.002	0.9	0.3	OK
7200 min Summer	15.772	0.002	0.7	0.3	OK
8640 min Summer	15.772	0.002	0.7	0.3	OK
10080 min Summer	15.772	0.002	0.7	0.3	OK
15 min Winter	15.809	0.039	15.5	6.1	OK
30 min Winter	15.811	0.041	16.5	6.5	OK
60 min Winter	15.805	0.035	14.1	5.6	OK
120 min Winter	15.795	0.025	10.1	4.0	OK
180 min Winter	15.790	0.020	7.9	3.1	OK

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time- Peak (mins)
15 min Summer	125.658	0.0	12
30 min Summer	85.511	0.0	20
60 min Summer	55.544	0.0	36
120 min Summer	34.763	0.0	66
180 min Summer	25.981	0.0	96
240 min Summer	20.983	0.0	126
360 min Summer	15.545	0.0	188
480 min Summer	12.541	0.0	246
600 min Summer	10.607	0.0	308
720 min Summer	9.245	0.0	368
960 min Summer	7.435	0.0	490
1440 min Summer	5.457	0.0	732
2160 min Summer	3.995	0.0	1100
2880 min Summer	3.197	0.0	1456
4320 min Summer	2.331	0.0	2124
5760 min Summer	1.863	0.0	2856
7200 min Summer	1.567	0.0	3656
8640 min Summer	1.360	0.0	4184
10080 min Summer	1.207	0.0	5072
15 min Winter	125.658	0.0	13
30 min Winter	85.511	0.0	21
60 min Winter	55.544	0.0	36
120 min Winter	34.763	0.0	68
180 min Winter	25.981	0.0	98

Paul Basham Associates		Page 2
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Access Road Permpaving	
Date 25/11/2021 11:11 File 020.5762 Access Road Perm	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
240 min Winter	15.786	0.016	6.5	2.6	O K
360 min Winter	15.782	0.012	4.9	1.9	O K
480 min Winter	15.780	0.010	3.9	1.6	O K
600 min Winter	15.778	0.008	3.3	1.3	O K
720 min Winter	15.777	0.007	2.9	1.2	O K
960 min Winter	15.776	0.006	2.5	1.0	O K
1440 min Winter	15.774	0.004	1.7	0.7	O K
2160 min Winter	15.773	0.003	1.3	0.5	O K
2880 min Winter	15.773	0.003	1.1	0.4	O K
4320 min Winter	15.772	0.002	0.9	0.3	O K
5760 min Winter	15.772	0.002	0.7	0.3	O K
7200 min Winter	15.771	0.001	0.5	0.2	O K
8640 min Winter	15.771	0.001	0.5	0.2	O K
10080 min Winter	15.771	0.001	0.5	0.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)
240 min Winter	20.983	0.0	128
360 min Winter	15.545	0.0	186
480 min Winter	12.541	0.0	252
600 min Winter	10.607	0.0	314
720 min Winter	9.245	0.0	370
960 min Winter	7.435	0.0	498
1440 min Winter	5.457	0.0	738
2160 min Winter	3.995	0.0	1100
2880 min Winter	3.197	0.0	1388
4320 min Winter	2.331	0.0	2172
5760 min Winter	1.863	0.0	2680
7200 min Winter	1.567	0.0	3488
8640 min Winter	1.360	0.0	4200
10080 min Winter	1.207	0.0	4464

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Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Access Road Permeable Paving	
Date 25/11/2021 11:11 File 020.5762 Access Road Perm	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.600	Shortest Storm (mins)	15
Ratio R	0.325	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.054

Time (mins)	Area
From	To: (ha)
0	4 0.054

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Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Access Road Perm Paving	
Date 25/11/2021 11:11 File 020.5762 Access Road Perm	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 16.220

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.54500	Width (m)	52.8
Membrane Percolation (mm/hr)	1000	Length (m)	10.0
Max Percolation (l/s)	146.7	Slope (1:X)	0.0
Safety Factor	4.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	15.770	Membrane Depth (m)	0

Paul Basham Associates		Page 1
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Main Access Rd Cellular Soak	
Date 25/11/2021 11:35 File 020.5762 Main Access Road	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Half Drain Time : 383 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
15 min Summer	14.851	0.301	0.2	8.6	OK
30 min Summer	14.954	0.404	0.3	11.5	OK
60 min Summer	15.062	0.512	0.4	14.6	OK
120 min Summer	15.159	0.609	0.5	17.4	OK
180 min Summer	15.199	0.649	0.5	18.5	OK
240 min Summer	15.215	0.665	0.6	19.0	OK
360 min Summer	15.235	0.685	0.6	19.5	OK
480 min Summer	15.246	0.696	0.6	19.8	OK
600 min Summer	15.251	0.701	0.6	20.0	OK
720 min Summer	15.252	0.702	0.6	20.0	OK
960 min Summer	15.245	0.695	0.6	19.8	OK
1440 min Summer	15.219	0.669	0.6	19.1	OK
2160 min Summer	15.172	0.622	0.5	17.7	OK
2880 min Summer	15.127	0.577	0.5	16.4	OK
4320 min Summer	15.053	0.503	0.4	14.3	OK
5760 min Summer	14.998	0.448	0.4	12.8	OK
7200 min Summer	14.955	0.405	0.3	11.5	OK
8640 min Summer	14.920	0.370	0.3	10.6	OK
10080 min Summer	14.892	0.342	0.3	9.8	OK
15 min Winter	14.887	0.337	0.3	9.6	OK
30 min Winter	15.003	0.453	0.4	12.9	OK
60 min Winter	15.124	0.574	0.5	16.4	OK
120 min Winter	15.234	0.684	0.6	19.5	OK
180 min Winter	15.281	0.731	0.6	20.8	OK

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time- Peak (mins)
15 min Summer	125.658	0.0	19
30 min Summer	85.511	0.0	33
60 min Summer	55.544	0.0	62
120 min Summer	34.763	0.0	122
180 min Summer	25.981	0.0	180
240 min Summer	20.983	0.0	232
360 min Summer	15.545	0.0	286
480 min Summer	12.541	0.0	348
600 min Summer	10.607	0.0	414
720 min Summer	9.245	0.0	484
960 min Summer	7.435	0.0	618
1440 min Summer	5.457	0.0	894
2160 min Summer	3.995	0.0	1296
2880 min Summer	3.197	0.0	1672
4320 min Summer	2.331	0.0	2424
5760 min Summer	1.863	0.0	3176
7200 min Summer	1.567	0.0	3896
8640 min Summer	1.360	0.0	4664
10080 min Summer	1.207	0.0	5352
15 min Winter	125.658	0.0	19
30 min Winter	85.511	0.0	33
60 min Winter	55.544	0.0	62
120 min Winter	34.763	0.0	120
180 min Winter	25.981	0.0	176

Paul Basham Associates		Page 2
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Main Access Rd Cellular Soak	
Date 25/11/2021 11:35 File 020.5762 Main Access Road	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
240 min Winter	15.302	0.752	0.6	21.4	O K
360 min Winter	15.318	0.768	0.6	21.9	O K
480 min Winter	15.327	0.777	0.6	22.1	O K
600 min Winter	15.327	0.777	0.6	22.2	O K
720 min Winter	15.323	0.773	0.6	22.0	O K
960 min Winter	15.304	0.754	0.6	21.5	O K
1440 min Winter	15.256	0.706	0.6	20.1	O K
2160 min Winter	15.184	0.634	0.5	18.1	O K
2880 min Winter	15.122	0.572	0.5	16.3	O K
4320 min Winter	15.026	0.476	0.4	13.6	O K
5760 min Winter	14.959	0.409	0.3	11.7	O K
7200 min Winter	14.910	0.360	0.3	10.2	O K
8640 min Winter	14.872	0.322	0.3	9.2	O K
10080 min Winter	14.841	0.291	0.2	8.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)
240 min Winter	20.983	0.0	230
360 min Winter	15.545	0.0	292
480 min Winter	12.541	0.0	366
600 min Winter	10.607	0.0	442
720 min Winter	9.245	0.0	518
960 min Winter	7.435	0.0	666
1440 min Winter	5.457	0.0	952
2160 min Winter	3.995	0.0	1364
2880 min Winter	3.197	0.0	1760
4320 min Winter	2.331	0.0	2548
5760 min Winter	1.863	0.0	3288
7200 min Winter	1.567	0.0	4032
8640 min Winter	1.360	0.0	4760
10080 min Winter	1.207	0.0	5544

Paul Basham Associates		Page 3
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Main Access Rd Cellular Soak	
Date 25/11/2021 11:35 File 020.5762 Main Access Road	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.600	Shortest Storm (mins)	15
Ratio R	0.325	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.037

Time (mins)	Area
From	To: (ha)
0	4 0.037

Paul Basham Associates		Page 4
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Main Access Rd Cellular Soak	
Date 25/11/2021 11:35 File 020.5762 Main Access Road	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 15.950

Cellular Storage Structure

Invert Level (m) 14.550 Safety Factor 4.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.54500

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	30.0	30.0	0.800	30.0	47.5	0.801	0.0	47.5

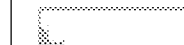
Paul Basham Associates		Page 1
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 1 Cellular Soakaway	
Date 25/11/2021 11:15 File 020.5762 Plot 1 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Half Drain Time : 38 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
15 min Summer	15.801	0.201	0.5	1.5	OK
30 min Summer	15.845	0.245	0.5	1.9	OK
60 min Summer	15.869	0.269	0.6	2.0	OK
120 min Summer	15.863	0.263	0.6	2.0	OK
180 min Summer	15.842	0.242	0.5	1.8	OK
240 min Summer	15.818	0.218	0.5	1.7	OK
360 min Summer	15.775	0.175	0.5	1.3	OK
480 min Summer	15.738	0.138	0.5	1.1	OK
600 min Summer	15.709	0.109	0.5	0.8	OK
720 min Summer	15.686	0.086	0.5	0.7	OK
960 min Summer	15.656	0.056	0.4	0.4	OK
1440 min Summer	15.640	0.040	0.3	0.3	OK
2160 min Summer	15.630	0.030	0.3	0.2	OK
2880 min Summer	15.624	0.024	0.2	0.2	OK
4320 min Summer	15.618	0.018	0.2	0.1	OK
5760 min Summer	15.614	0.014	0.1	0.1	OK
7200 min Summer	15.612	0.012	0.1	0.1	OK
8640 min Summer	15.610	0.010	0.1	0.1	OK
10080 min Summer	15.609	0.009	0.1	0.1	OK
15 min Winter	15.829	0.229	0.5	1.7	OK
30 min Winter	15.882	0.282	0.6	2.1	OK
60 min Winter	15.907	0.307	0.6	2.3	OK
120 min Winter	15.893	0.293	0.6	2.2	OK
180 min Winter	15.858	0.258	0.6	2.0	OK

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time- Peak (mins)
15 min Summer	125.658	0.0	16
30 min Summer	85.511	0.0	29
60 min Summer	55.544	0.0	46
120 min Summer	34.763	0.0	80
180 min Summer	25.981	0.0	114
240 min Summer	20.983	0.0	148
360 min Summer	15.545	0.0	212
480 min Summer	12.541	0.0	272
600 min Summer	10.607	0.0	332
720 min Summer	9.245	0.0	390
960 min Summer	7.435	0.0	500
1440 min Summer	5.457	0.0	736
2160 min Summer	3.995	0.0	1100
2880 min Summer	3.197	0.0	1452
4320 min Summer	2.331	0.0	2180
5760 min Summer	1.863	0.0	2864
7200 min Summer	1.567	0.0	3632
8640 min Summer	1.360	0.0	4400
10080 min Summer	1.207	0.0	4992
15 min Winter	125.658	0.0	16
30 min Winter	85.511	0.0	30
60 min Winter	55.544	0.0	48
120 min Winter	34.763	0.0	86
180 min Winter	25.981	0.0	124

Paul Basham Associates		Page 2
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 1 Cellular Soakaway	
Date 25/11/2021 11:15 File 020.5762 Plot 1 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
240 min Winter	15.820	0.220	0.5	1.7	O K
360 min Winter	15.757	0.157	0.5	1.2	O K
480 min Winter	15.706	0.106	0.5	0.8	O K
600 min Winter	15.669	0.069	0.4	0.5	O K
720 min Winter	15.650	0.050	0.4	0.4	O K
960 min Winter	15.640	0.040	0.3	0.3	O K
1440 min Winter	15.630	0.030	0.3	0.2	O K
2160 min Winter	15.622	0.022	0.2	0.2	O K
2880 min Winter	15.618	0.018	0.2	0.1	O K
4320 min Winter	15.613	0.013	0.1	0.1	O K
5760 min Winter	15.610	0.010	0.1	0.1	O K
7200 min Winter	15.609	0.009	0.1	0.1	O K
8640 min Winter	15.608	0.008	0.1	0.1	O K
10080 min Winter	15.607	0.007	0.1	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)
240 min Winter	20.983	0.0	158
360 min Winter	15.545	0.0	222
480 min Winter	12.541	0.0	282
600 min Winter	10.607	0.0	336
720 min Winter	9.245	0.0	374
960 min Winter	7.435	0.0	492
1440 min Winter	5.457	0.0	734
2160 min Winter	3.995	0.0	1100
2880 min Winter	3.197	0.0	1460
4320 min Winter	2.331	0.0	2128
5760 min Winter	1.863	0.0	2912
7200 min Winter	1.567	0.0	3600
8640 min Winter	1.360	0.0	4352
10080 min Winter	1.207	0.0	5080

Paul Basham Associates		Page 3
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 1 Cellular Soakaway	
Date 25/11/2021 11:15 File 020.5762 Plot 1 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

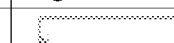
Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.600	Shortest Storm (mins)	15
Ratio R	0.325	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.008

Time (mins)	Area
From To:	(ha)
0	4 0.008

Paul Basham Associates		Page 4
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 1 Cellular Soakaway	
Date 25/11/2021 11:15 File 020.5762 Plot 1 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

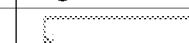
Model Details

Storage is Online Cover Level (m) 16.350

Cellular Storage Structure

Invert Level (m) 15.600 Safety Factor 3.0
Infiltration Coefficient Base (m/hr) 0.54500 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.54500

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	8.0	8.0	0.400	8.0	12.5	0.401	0.0	12.5

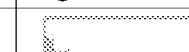
Paul Basham Associates		Page 1
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 2 & 3 Cellular Soakaway	
Date 25/11/2021 11:40 File 020.5762 Plot 2 & 3 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Half Drain Time : 347 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
15 min Summer	15.632	0.142	0.1	3.2	OK
30 min Summer	15.681	0.191	0.1	4.3	OK
60 min Summer	15.731	0.241	0.2	5.5	OK
120 min Summer	15.775	0.285	0.2	6.5	OK
180 min Summer	15.792	0.302	0.2	6.9	OK
240 min Summer	15.798	0.308	0.2	7.0	OK
360 min Summer	15.807	0.317	0.2	7.2	OK
480 min Summer	15.811	0.321	0.2	7.3	OK
600 min Summer	15.813	0.323	0.2	7.4	OK
720 min Summer	15.812	0.322	0.2	7.3	OK
960 min Summer	15.808	0.318	0.2	7.2	OK
1440 min Summer	15.793	0.303	0.2	6.9	OK
2160 min Summer	15.769	0.279	0.2	6.4	OK
2880 min Summer	15.747	0.257	0.2	5.9	OK
4320 min Summer	15.712	0.222	0.2	5.1	OK
5760 min Summer	15.687	0.197	0.1	4.5	OK
7200 min Summer	15.667	0.177	0.1	4.0	OK
8640 min Summer	15.651	0.161	0.1	3.7	OK
10080 min Summer	15.639	0.149	0.1	3.4	OK
15 min Winter	15.649	0.159	0.1	3.6	OK
30 min Winter	15.704	0.214	0.2	4.9	OK
60 min Winter	15.760	0.270	0.2	6.2	OK
120 min Winter	15.810	0.320	0.2	7.3	OK
180 min Winter	15.830	0.340	0.3	7.8	OK

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time- Peak (mins)
15 min Summer	125.658	0.0	19
30 min Summer	85.511	0.0	33
60 min Summer	55.544	0.0	62
120 min Summer	34.763	0.0	122
180 min Summer	25.981	0.0	180
240 min Summer	20.983	0.0	216
360 min Summer	15.545	0.0	274
480 min Summer	12.541	0.0	338
600 min Summer	10.607	0.0	408
720 min Summer	9.245	0.0	476
960 min Summer	7.435	0.0	614
1440 min Summer	5.457	0.0	882
2160 min Summer	3.995	0.0	1276
2880 min Summer	3.197	0.0	1668
4320 min Summer	2.331	0.0	2420
5760 min Summer	1.863	0.0	3168
7200 min Summer	1.567	0.0	3888
8640 min Summer	1.360	0.0	4592
10080 min Summer	1.207	0.0	5344
15 min Winter	125.658	0.0	19
30 min Winter	85.511	0.0	33
60 min Winter	55.544	0.0	62
120 min Winter	34.763	0.0	118
180 min Winter	25.981	0.0	174

Paul Basham Associates		Page 2
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 2 & 3 Cellular Soakaway	
Date 25/11/2021 11:40 File 020.5762 Plot 2 & 3 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
240 min Winter	15.838	0.348	0.3	7.9	OK
360 min Winter	15.845	0.355	0.3	8.1	OK
480 min Winter	15.848	0.358	0.3	8.2	OK
600 min Winter	15.847	0.357	0.3	8.1	OK
720 min Winter	15.843	0.353	0.3	8.0	OK
960 min Winter	15.833	0.343	0.3	7.8	OK
1440 min Winter	15.807	0.317	0.2	7.2	OK
2160 min Winter	15.772	0.282	0.2	6.4	OK
2880 min Winter	15.742	0.252	0.2	5.7	OK
4320 min Winter	15.698	0.208	0.2	4.7	OK
5760 min Winter	15.667	0.177	0.1	4.0	OK
7200 min Winter	15.645	0.155	0.1	3.5	OK
8640 min Winter	15.628	0.138	0.1	3.1	OK
10080 min Winter	15.615	0.125	0.1	2.8	OK

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)
240 min Winter	20.983	0.0	228
360 min Winter	15.545	0.0	284
480 min Winter	12.541	0.0	360
600 min Winter	10.607	0.0	436
720 min Winter	9.245	0.0	512
960 min Winter	7.435	0.0	656
1440 min Winter	5.457	0.0	938
2160 min Winter	3.995	0.0	1344
2880 min Winter	3.197	0.0	1732
4320 min Winter	2.331	0.0	2508
5760 min Winter	1.863	0.0	3240
7200 min Winter	1.567	0.0	3968
8640 min Winter	1.360	0.0	4752
10080 min Winter	1.207	0.0	5448

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Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 2 & 3 Cellular Soakaway	
Date 25/11/2021 11:40 File 020.5762 Plot 2 & 3 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

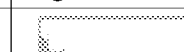
Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.600	Shortest Storm (mins)	15
Ratio R	0.325	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.014

Time (mins)	Area
From	To: (ha)
0	4 0.014

Paul Basham Associates		Page 4
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 2 & 3 Cellular Soakaway	
Date 25/11/2021 11:40 File 020.5762 Plot 2 & 3 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

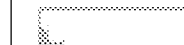
Model Details

Storage is Online Cover Level (m) 16.240

Cellular Storage Structure

Invert Level (m) 15.490 Safety Factor 4.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.54500

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	24.0	24.0	0.400	24.0	31.8	0.401	0.0	31.8

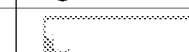
Paul Basham Associates		Page 1
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 1 Cellular Soakaway	
Date 25/11/2021 11:43 File 020.5762 Plot 4 - 6 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Half Drain Time : 321 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
15 min Summer	15.313	0.243	0.2	4.9	OK
30 min Summer	15.396	0.326	0.2	6.5	OK
60 min Summer	15.481	0.411	0.3	8.2	OK
120 min Summer	15.554	0.484	0.3	9.7	OK
180 min Summer	15.581	0.511	0.4	10.2	OK
240 min Summer	15.592	0.522	0.4	10.4	OK
360 min Summer	15.606	0.536	0.4	10.7	OK
480 min Summer	15.613	0.543	0.4	10.8	OK
600 min Summer	15.614	0.544	0.4	10.9	OK
720 min Summer	15.613	0.543	0.4	10.8	OK
960 min Summer	15.604	0.534	0.4	10.6	OK
1440 min Summer	15.576	0.506	0.4	10.1	OK
2160 min Summer	15.533	0.463	0.3	9.2	OK
2880 min Summer	15.495	0.425	0.3	8.5	OK
4320 min Summer	15.435	0.365	0.3	7.3	OK
5760 min Summer	15.392	0.322	0.2	6.4	OK
7200 min Summer	15.359	0.289	0.2	5.8	OK
8640 min Summer	15.333	0.263	0.2	5.2	OK
10080 min Summer	15.312	0.242	0.2	4.8	OK
15 min Winter	15.342	0.272	0.2	5.4	OK
30 min Winter	15.435	0.365	0.3	7.3	OK
60 min Winter	15.531	0.461	0.3	9.2	OK
120 min Winter	15.615	0.545	0.4	10.9	OK
180 min Winter	15.647	0.577	0.4	11.5	OK

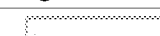
Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time- Peak (mins)
15 min Summer	125.658	0.0	19
30 min Summer	85.511	0.0	33
60 min Summer	55.544	0.0	62
120 min Summer	34.763	0.0	122
180 min Summer	25.981	0.0	180
240 min Summer	20.983	0.0	208
360 min Summer	15.545	0.0	268
480 min Summer	12.541	0.0	334
600 min Summer	10.607	0.0	404
720 min Summer	9.245	0.0	470
960 min Summer	7.435	0.0	608
1440 min Summer	5.457	0.0	880
2160 min Summer	3.995	0.0	1276
2880 min Summer	3.197	0.0	1648
4320 min Summer	2.331	0.0	2416
5760 min Summer	1.863	0.0	3168
7200 min Summer	1.567	0.0	3888
8640 min Summer	1.360	0.0	4584
10080 min Summer	1.207	0.0	5344
15 min Winter	125.658	0.0	18
30 min Winter	85.511	0.0	33
60 min Winter	55.544	0.0	62
120 min Winter	34.763	0.0	118
180 min Winter	25.981	0.0	174

Paul Basham Associates		Page 2
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 1 Cellular Soakaway	
Date 25/11/2021 11:43 File 020.5762 Plot 4 - 6 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
240 min Winter	15.658	0.588	0.4	11.7	O K
360 min Winter	15.670	0.600	0.4	12.0	O K
480 min Winter	15.673	0.603	0.4	12.0	O K
600 min Winter	15.670	0.600	0.4	12.0	O K
720 min Winter	15.662	0.592	0.4	11.8	O K
960 min Winter	15.642	0.572	0.4	11.4	O K
1440 min Winter	15.597	0.527	0.4	10.5	O K
2160 min Winter	15.534	0.464	0.3	9.3	O K
2880 min Winter	15.483	0.413	0.3	8.2	O K
4320 min Winter	15.409	0.339	0.2	6.8	O K
5760 min Winter	15.358	0.288	0.2	5.7	O K
7200 min Winter	15.321	0.251	0.2	5.0	O K
8640 min Winter	15.293	0.223	0.2	4.5	O K
10080 min Winter	15.272	0.202	0.1	4.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)
240 min Winter	20.983	0.0	226
360 min Winter	15.545	0.0	280
480 min Winter	12.541	0.0	356
600 min Winter	10.607	0.0	432
720 min Winter	9.245	0.0	506
960 min Winter	7.435	0.0	654
1440 min Winter	5.457	0.0	936
2160 min Winter	3.995	0.0	1340
2880 min Winter	3.197	0.0	1728
4320 min Winter	2.331	0.0	2504
5760 min Winter	1.863	0.0	3232
7200 min Winter	1.567	0.0	3968
8640 min Winter	1.360	0.0	4680
10080 min Winter	1.207	0.0	5448

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Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 1 Cellular Soakaway	
Date 25/11/2021 11:43 File 020.5762 Plot 4 - 6 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

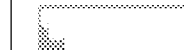
Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.600	Shortest Storm (mins)	15
Ratio R	0.325	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.021

Time (mins)	Area
From	To: (ha)
0	4 0.021

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Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 1 Cellular Soakaway	
Date 25/11/2021 11:43 File 020.5762 Plot 4 - 6 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

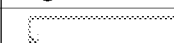
Model Details

Storage is Online Cover Level (m) 16.220

Cellular Storage Structure

Invert Level (m) 15.070 Safety Factor 4.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.54500

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	21.0	21.0	0.800	21.0	35.7	0.801	0.0	35.7

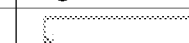
Paul Basham Associates		Page 1
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 7 Cellular Soakaway	
Date 25/11/2021 11:45 File 020.5762 Plot 7 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Half Drain Time : 191 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
15 min Summer	15.440	0.160	0.1	1.8	OK
30 min Summer	15.492	0.212	0.1	2.4	OK
60 min Summer	15.541	0.261	0.2	3.0	OK
120 min Summer	15.575	0.295	0.2	3.4	OK
180 min Summer	15.586	0.306	0.2	3.5	OK
240 min Summer	15.591	0.311	0.2	3.5	OK
360 min Summer	15.595	0.315	0.2	3.6	OK
480 min Summer	15.592	0.312	0.2	3.6	OK
600 min Summer	15.587	0.307	0.2	3.5	OK
720 min Summer	15.580	0.300	0.2	3.4	OK
960 min Summer	15.566	0.286	0.2	3.3	OK
1440 min Summer	15.539	0.259	0.2	3.0	OK
2160 min Summer	15.506	0.226	0.2	2.6	OK
2880 min Summer	15.481	0.201	0.1	2.3	OK
4320 min Summer	15.445	0.165	0.1	1.9	OK
5760 min Summer	15.421	0.141	0.1	1.6	OK
7200 min Summer	15.404	0.124	0.1	1.4	OK
8640 min Summer	15.391	0.111	0.1	1.3	OK
10080 min Summer	15.381	0.101	0.1	1.2	OK
15 min Winter	15.459	0.179	0.1	2.0	OK
30 min Winter	15.518	0.238	0.2	2.7	OK
60 min Winter	15.574	0.294	0.2	3.3	OK
120 min Winter	15.613	0.333	0.2	3.8	OK
180 min Winter	15.623	0.343	0.2	3.9	OK

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time- Peak (mins)
15 min Summer	125.658	0.0	18
30 min Summer	85.511	0.0	33
60 min Summer	55.544	0.0	62
120 min Summer	34.763	0.0	114
180 min Summer	25.981	0.0	142
240 min Summer	20.983	0.0	172
360 min Summer	15.545	0.0	240
480 min Summer	12.541	0.0	310
600 min Summer	10.607	0.0	378
720 min Summer	9.245	0.0	444
960 min Summer	7.435	0.0	578
1440 min Summer	5.457	0.0	838
2160 min Summer	3.995	0.0	1212
2880 min Summer	3.197	0.0	1584
4320 min Summer	2.331	0.0	2332
5760 min Summer	1.863	0.0	3056
7200 min Summer	1.567	0.0	3752
8640 min Summer	1.360	0.0	4496
10080 min Summer	1.207	0.0	5240
15 min Winter	125.658	0.0	18
30 min Winter	85.511	0.0	32
60 min Winter	55.544	0.0	60
120 min Winter	34.763	0.0	116
180 min Winter	25.981	0.0	144

Paul Basham Associates		Page 2
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 7 Cellular Soakaway	
Date 25/11/2021 11:45 File 020.5762 Plot 7 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
240 min Winter	15.627	0.347	0.2	4.0	OK
360 min Winter	15.625	0.345	0.2	3.9	OK
480 min Winter	15.617	0.337	0.2	3.8	OK
600 min Winter	15.607	0.327	0.2	3.7	OK
720 min Winter	15.596	0.316	0.2	3.6	OK
960 min Winter	15.574	0.294	0.2	3.3	OK
1440 min Winter	15.535	0.255	0.2	2.9	OK
2160 min Winter	15.492	0.212	0.1	2.4	OK
2880 min Winter	15.462	0.182	0.1	2.1	OK
4320 min Winter	15.422	0.142	0.1	1.6	OK
5760 min Winter	15.398	0.118	0.1	1.3	OK
7200 min Winter	15.381	0.101	0.1	1.1	OK
8640 min Winter	15.369	0.089	0.1	1.0	OK
10080 min Winter	15.359	0.079	0.1	0.9	OK

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)
240 min Winter	20.983	0.0	182
360 min Winter	15.545	0.0	258
480 min Winter	12.541	0.0	332
600 min Winter	10.607	0.0	404
720 min Winter	9.245	0.0	476
960 min Winter	7.435	0.0	614
1440 min Winter	5.457	0.0	880
2160 min Winter	3.995	0.0	1256
2880 min Winter	3.197	0.0	1640
4320 min Winter	2.331	0.0	2376
5760 min Winter	1.863	0.0	3112
7200 min Winter	1.567	0.0	3824
8640 min Winter	1.360	0.0	4576
10080 min Winter	1.207	0.0	5248

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Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 7 Cellular Soakaway	
Date 25/11/2021 11:45 File 020.5762 Plot 7 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

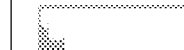
Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.600	Shortest Storm (mins)	15
Ratio R	0.325	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.008

Time (mins)	Area
From To:	(ha)
0	4 0.008

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Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 7 Cellular Soakaway	
Date 25/11/2021 11:45 File 020.5762 Plot 7 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 16.030

Cellular Storage Structure

Invert Level (m) 15.280 Safety Factor 3.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.54500

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	12.0	12.0	0.400	12.0	17.5	0.401	0.0	17.5

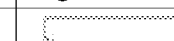
Paul Basham Associates		Page 1
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 8 Access Road Perm Paving	
Date 25/11/2021 11:20 File 020.5762 Plot 8 Perm Paving	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Half Drain Time : 4 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
15 min Summer	15.671	0.041	4.2	1.2	OK
30 min Summer	15.675	0.045	4.5	1.3	OK
60 min Summer	15.669	0.039	4.0	1.2	OK
120 min Summer	15.660	0.030	3.1	0.9	OK
180 min Summer	15.654	0.024	2.4	0.7	OK
240 min Summer	15.650	0.020	2.0	0.6	OK
360 min Summer	15.646	0.016	1.6	0.5	OK
480 min Summer	15.643	0.013	1.3	0.4	OK
600 min Summer	15.641	0.011	1.1	0.3	OK
720 min Summer	15.640	0.010	1.0	0.3	OK
960 min Summer	15.638	0.008	0.8	0.2	OK
1440 min Summer	15.636	0.006	0.6	0.2	OK
2160 min Summer	15.634	0.004	0.4	0.1	OK
2880 min Summer	15.634	0.004	0.4	0.1	OK
4320 min Summer	15.633	0.003	0.3	0.1	OK
5760 min Summer	15.632	0.002	0.2	0.1	OK
7200 min Summer	15.632	0.002	0.2	0.1	OK
8640 min Summer	15.632	0.002	0.2	0.1	OK
10080 min Summer	15.631	0.001	0.1	0.0	OK
15 min Winter	15.675	0.045	4.5	1.3	OK
30 min Winter	15.675	0.045	4.5	1.3	OK
60 min Winter	15.666	0.036	3.6	1.1	OK
120 min Winter	15.655	0.025	2.5	0.8	OK
180 min Winter	15.649	0.019	1.9	0.6	OK

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time- Peak (mins)
15 min Summer	125.658	0.0	12
30 min Summer	85.511	0.0	20
60 min Summer	55.544	0.0	36
120 min Summer	34.763	0.0	66
180 min Summer	25.981	0.0	96
240 min Summer	20.983	0.0	126
360 min Summer	15.545	0.0	186
480 min Summer	12.541	0.0	246
600 min Summer	10.607	0.0	306
720 min Summer	9.245	0.0	368
960 min Summer	7.435	0.0	490
1440 min Summer	5.457	0.0	716
2160 min Summer	3.995	0.0	1084
2880 min Summer	3.197	0.0	1444
4320 min Summer	2.331	0.0	2196
5760 min Summer	1.863	0.0	2832
7200 min Summer	1.567	0.0	3664
8640 min Summer	1.360	0.0	4432
10080 min Summer	1.207	0.0	4952
15 min Winter	125.658	0.0	12
30 min Winter	85.511	0.0	20
60 min Winter	55.544	0.0	36
120 min Winter	34.763	0.0	66
180 min Winter	25.981	0.0	96

Paul Basham Associates		Page 2
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 8 Access Road Perm Paving	
Date 25/11/2021 11:20 File 020.5762 Plot 8 Perm Paving	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
240 min Winter	15.646	0.016	1.6	0.5	O K
360 min Winter	15.642	0.012	1.2	0.3	O K
480 min Winter	15.640	0.010	1.0	0.3	O K
600 min Winter	15.638	0.008	0.8	0.2	O K
720 min Winter	15.637	0.007	0.7	0.2	O K
960 min Winter	15.636	0.006	0.6	0.2	O K
1440 min Winter	15.634	0.004	0.4	0.1	O K
2160 min Winter	15.633	0.003	0.3	0.1	O K
2880 min Winter	15.633	0.003	0.3	0.1	O K
4320 min Winter	15.632	0.002	0.2	0.1	O K
5760 min Winter	15.632	0.002	0.2	0.1	O K
7200 min Winter	15.631	0.001	0.1	0.0	O K
8640 min Winter	15.631	0.001	0.1	0.0	O K
10080 min Winter	15.631	0.001	0.1	0.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)
240 min Winter	20.983	0.0	124
360 min Winter	15.545	0.0	184
480 min Winter	12.541	0.0	246
600 min Winter	10.607	0.0	304
720 min Winter	9.245	0.0	362
960 min Winter	7.435	0.0	480
1440 min Winter	5.457	0.0	722
2160 min Winter	3.995	0.0	1040
2880 min Winter	3.197	0.0	1528
4320 min Winter	2.331	0.0	2120
5760 min Winter	1.863	0.0	2704
7200 min Winter	1.567	0.0	3584
8640 min Winter	1.360	0.0	4768
10080 min Winter	1.207	0.0	5216

Paul Basham Associates		Page 3
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 8 Access Road Perm Paving	
Date 25/11/2021 11:20 File 020.5762 Plot 8 Perm Paving	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.600	Shortest Storm (mins)	15
Ratio R	0.325	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.013

Time (mins)	Area
From	To: (ha)
0	4 0.013

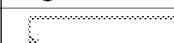
Paul Basham Associates		Page 4
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 8 Access Road Perm Paving	
Date 25/11/2021 11:20 File 020.5762 Plot 8 Perm Paving	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 16.080

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.54500	Width (m)	10.0
Membrane Percolation (mm/hr)	1000	Length (m)	10.0
Max Percolation (l/s)	27.8	Slope (1:X)	0.0
Safety Factor	3.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	15.630	Membrane Depth (m)	0

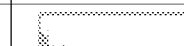
Paul Basham Associates		Page 1
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 8 Cellular Soakaway	
Date 25/11/2021 11:46 File 020.5762 Plot 8 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Half Drain Time : 347 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
15 min Summer	15.352	0.152	0.1	3.5	OK
30 min Summer	15.404	0.204	0.2	4.7	OK
60 min Summer	15.458	0.258	0.2	5.9	OK
120 min Summer	15.505	0.305	0.2	7.0	OK
180 min Summer	15.523	0.323	0.2	7.4	OK
240 min Summer	15.530	0.330	0.2	7.5	OK
360 min Summer	15.540	0.340	0.3	7.7	OK
480 min Summer	15.544	0.344	0.3	7.9	OK
600 min Summer	15.546	0.346	0.3	7.9	OK
720 min Summer	15.545	0.345	0.3	7.9	OK
960 min Summer	15.541	0.341	0.3	7.8	OK
1440 min Summer	15.525	0.325	0.2	7.4	OK
2160 min Summer	15.499	0.299	0.2	6.8	OK
2880 min Summer	15.476	0.276	0.2	6.3	OK
4320 min Summer	15.438	0.238	0.2	5.4	OK
5760 min Summer	15.411	0.211	0.2	4.8	OK
7200 min Summer	15.390	0.190	0.1	4.3	OK
8640 min Summer	15.373	0.173	0.1	3.9	OK
10080 min Summer	15.359	0.159	0.1	3.6	OK
15 min Winter	15.370	0.170	0.1	3.9	OK
30 min Winter	15.429	0.229	0.2	5.2	OK
60 min Winter	15.489	0.289	0.2	6.6	OK
120 min Winter	15.543	0.343	0.3	7.8	OK
180 min Winter	15.564	0.364	0.3	8.3	OK

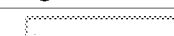
Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time- Peak (mins)
15 min Summer	125.658	0.0	19
30 min Summer	85.511	0.0	33
60 min Summer	55.544	0.0	62
120 min Summer	34.763	0.0	122
180 min Summer	25.981	0.0	180
240 min Summer	20.983	0.0	216
360 min Summer	15.545	0.0	274
480 min Summer	12.541	0.0	338
600 min Summer	10.607	0.0	408
720 min Summer	9.245	0.0	476
960 min Summer	7.435	0.0	614
1440 min Summer	5.457	0.0	882
2160 min Summer	3.995	0.0	1276
2880 min Summer	3.197	0.0	1668
4320 min Summer	2.331	0.0	2420
5760 min Summer	1.863	0.0	3168
7200 min Summer	1.567	0.0	3888
8640 min Summer	1.360	0.0	4592
10080 min Summer	1.207	0.0	5344
15 min Winter	125.658	0.0	19
30 min Winter	85.511	0.0	33
60 min Winter	55.544	0.0	62
120 min Winter	34.763	0.0	118
180 min Winter	25.981	0.0	174

Paul Basham Associates		Page 2
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 8 Cellular Soakaway	
Date 25/11/2021 11:46 File 020.5762 Plot 8 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
240 min Winter	15.573	0.373	0.3	8.5	OK
360 min Winter	15.581	0.381	0.3	8.7	OK
480 min Winter	15.583	0.383	0.3	8.7	OK
600 min Winter	15.582	0.382	0.3	8.7	OK
720 min Winter	15.578	0.378	0.3	8.6	OK
960 min Winter	15.567	0.367	0.3	8.4	OK
1440 min Winter	15.540	0.340	0.3	7.8	OK
2160 min Winter	15.502	0.302	0.2	6.9	OK
2880 min Winter	15.470	0.270	0.2	6.2	OK
4320 min Winter	15.423	0.223	0.2	5.1	OK
5760 min Winter	15.390	0.190	0.1	4.3	OK
7200 min Winter	15.366	0.166	0.1	3.8	OK
8640 min Winter	15.348	0.148	0.1	3.4	OK
10080 min Winter	15.334	0.134	0.1	3.0	OK

Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)
240 min Winter	20.983	0.0	228
360 min Winter	15.545	0.0	284
480 min Winter	12.541	0.0	360
600 min Winter	10.607	0.0	436
720 min Winter	9.245	0.0	512
960 min Winter	7.435	0.0	656
1440 min Winter	5.457	0.0	938
2160 min Winter	3.995	0.0	1344
2880 min Winter	3.197	0.0	1732
4320 min Winter	2.331	0.0	2508
5760 min Winter	1.863	0.0	3240
7200 min Winter	1.567	0.0	4032
8640 min Winter	1.360	0.0	4752
10080 min Winter	1.207	0.0	5448

Paul Basham Associates		Page 3
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 8 Cellular Soakaway	
Date 25/11/2021 11:46 File 020.5762 Plot 8 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

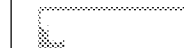
Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.600	Shortest Storm (mins)	15
Ratio R	0.325	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.015

Time (mins)	Area
From	To: (ha)
0	4 0.015

Paul Basham Associates		Page 4
Lancaster Court Fareham Hampshire, PO15 5TU	Land West of Fontwell Ave 8 Unit Development Plot 8 Cellular Soakaway	
Date 25/11/2021 11:46 File 020.5762 Plot 8 Soakaway	Designed by C Pritchard Checked by C Longhurst	
Innovyze	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 15.950

Cellular Storage Structure

Invert Level (m) 15.200 Safety Factor 4.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.54500

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	24.0	24.0	0.400	24.0	31.8	0.401	0.0	31.8

Appendix



Thomas Telford House, Sun Valley Business Park
Winnell Close
Winchester
SO23 0LB

01962 673 330
soilslimited.co.uk

Reside Developments Ltd

Via email only: Andrew Munton

18th November 2021

Our Ref.: 19756/LR

Dear Andrew,

Re: Land west of Fontwell Avenue, Eastergate, Chichester, West Sussex PO20 3RX

We are writing regarding the intrusive investigation undertaken at the above-named site.

Brief

The Soils Limited quotation (reference Q25386 dated 13th October 2021) set the scope of the investigation. The investigation was to comprise:

- ¿ 2no. machine excavated trial pits and infiltration testing in accordance with the principles of BRE DG365:2016;
- ¿ Up to 4no up to 4m deep windowless sampler boreholes;
- ¿ 2no well installations to allow groundwater monitoring;
- ¿ Groundwater monitoring on 6no. occasions between October 2021 - March 2022;
- ¿ Soakage letter report;
- ¿ Groundwater Monitoring report, to be issued upon completion of groundwater monitoring.

General

The site was located on Land west of Fontwell Avenue, Eastergate, Chichester, West Sussex PO20 3RX SO17 1BJ, a site location plan has been included as Figure 1.

Anticipated Geology

The 1:50,000 LMB Geology map showed the site to be situated on the superficial Head over the bedrock of the London Clay Formation, which overlies the soils of the Lambeth Group that was noted to the immediate north of the site.

Head

Head deposits are drifts produced by solifluxion, the downslope movement of debris outwash during the periglacial period, and characteristically comprise poorly sorted sands gravels and chalk of local derivation.

London Clay Formation

The London Clay Formation in the Hampshire region comprises silty and sandy clay, clayey and sandy silt, silty sand; sporadic claystones and thin beds of flint pebbles. The formation includes the Bognor Sand, Whitecliff Sand, Durley Sand, Portsmouth Sand and Nursling Sand Members. Crystals of gypsum (Selenite) are often found within the weathered part of the London Clay, and precautions against sulphate attack to concrete are sometimes required.

The lowest part of the London Clay Formation rests on the Reading Formation (Lambeth Group).

Lambeth Group

The Lambeth Group, formerly known as the Woolwich and Reading Beds, occurs in the London and Hampshire Basins, where it directly overlies the Chalk or Thanet Sand Formation, and is succeeded by the Harwich and London Clay Formations. Although generally less than 50 metres thick, its lithological variability and position beneath much of London has concerned tunnelling engineers since the early 19th century.

The relationship between the different depositional environments is seen in central and south-east London, where deposits of fine-grained sand, flint gravel beds, mottled clay, shell beds and altered beds form a complex interdigitating sequence, which is divided into three formations, the Woolwich and the Reading Formation, depending on the local succession, both overlying the Upnor Formation.

Vertically and laterally variable sequences mainly of clay, some silty or sandy, with some sands and gravels, minor limestones and lignites and occasional sandstone and conglomerate.

Woolwich Formation:

Variable - largely grey to grey-brown, interlaminated fine-grained sands, silts and clays (also known as "Striped loams" (eg Dewey and others, 1924). Common plant debris concentrated locally in thin allochthonous lignites. Sporadic burrows throughout; bioturbation more common in higher beds, where sparse glauconite has been recorded. Shelly beds, particularly in the basal 2m, dominated by brackish water shells in dark grey clay matrix ("Woolwich Shell Bed"). Other lithofacies of local occurrence are limestone beds such as the "Paludina Limestone" (eg Berry and Cooper, 1977) at the top of the formation, and ferruginous sand and pebble beds (Ellison, 1983). Woolwich Formation not shown previously on maps.

Reading Formation:

Dominantly clay, mottled by pedogenetic processes in a humid environment (Buurman, 1980). Red hues dominate with a more or less equal proportion of blue-grey and brown. Red sediments decrease towards the east where there were

shorter periods of subaerial weathering, and reducing conditions in ephemeral lagoons. The proportion of sand beds varies greatly, and may constitute more than half the formation, dominantly in the basal part (eg Crane and Goldring, 1991).

Upnor Formation:

Typically composed of variably but commonly abundant glauconitic fine- to coarse-grained sand with variable clay and silt content, and with beds, lenses and stringers of well-rounded, black flint gravel, and minor thin clays, commonly interbedded with glauconitic sand laminae and lenses. When fresh, the sands are dark grey-brown to dark green depending on proportion of glauconite grains which may be more than 25%. In south-east London there is a persistent pebble bed at the top. The sands weather pale grey-brown to yellow-brown but the glauconite remains dark green. In the central and northern London Basin pedogenic processes during deposition of the overlying Reading Formation modified the sands, resulting in development of carbonate concretions, clay enrichment and colour mottling that exceptionally extend through the formation. Oysters are common in unweathered sections.

The top of the Lambeth Group is marked by the eroded or interburrowed surface at the base of the overlying Thames Group. The uppermost part of the Lambeth Group can be the Reading Formation or the Woolwich Formation, depending on the local succession, or the Upnor Formation, depending on the depth of pre-Thames Group erosion. The Lambeth Group is overlain by sands, silts, clays or gravel beds of the Harwich Formation, depending on the local sequences, or gravely sandy clays at the base of the London Clay Formation.

The base of the Lambeth Group is taken at the base of the Upnor Formation. In the Hampshire Basin and the west of the London Basin, the Lambeth Group overlies the Chalk Group. In the centre and east of the London Basin it overlies the Thanet Formation, and in Suffolk the Ormesby Clay Member of the Lista Formation.

Site Works

Site works were undertaken on the 29th October 2021 and comprised the machine excavation of two (2no.) trial pits, identified as SA1 and SA2B to depths ranging between 1.10m (SA2B) and 1.40m below ground level (bgl) (SA1). Location SA2B was agreed with the client at the time of the investigation as the original location (SA2) had to be altered due to restricted access and live buried services.

Three (3no.) windowless sampler boreholes (WS 1-WS 3) were drilled, using a Premier Compact Series 110 rig, to a maximum depth of 4.00m bgl.

The trial pits were backfilled with arisings and mounded to allow for subsequent settlement. Two of the windowless sampler boreholes (WS 1-WS 2) were backfilled with gravel and bentonite following the installation of a monitoring well; the remaining windowless sampler borehole was backfilled with gravel.

The installation details are as follows:

- 2 Ground level to 1.0m below ground level (bgl) - plain 25mm pipework/bentonite backfill;
- 2 From 1.0m bgl to a depth of 4.00m bgl perforated 25mm pipework/gravel backfill with bentonite seal at depth.

The trial hole locations and depths of the trial pits were selected by the client prior to arrival on the site; as above SK2B was altered and agreed with the client at the time of the investigation. The borehole locations were selected by Soils Limited.

Prior to excavation/drilling, service clearance using a CAT and Genny was performed on all trial hole locations.

A trial hole location plan is included as Figure 2.

Ground Conditions

The ground conditions encountered during the site investigation have been summarised in Table 1 and field logs are presented in Appendix A.

Made Ground (MG) Head (HEAD)

Table 1 - Summary of Ground Conditions

Strata	Depth Encountered (m bgl)		Typical Description
	Top	Base	
MG	0.00	0.20 - 1.10 ¹	Dark brown changing to light brown, slightly clayey GRAVEL. Gravel is angular to sub rounded fine to coarse flint, chalk, clinker and brick. Rare blue plastic material and rare wooden plank.
HEAD	0.20 - 1.10	1.40 ¹ - 4.00 ¹	Light orangish brown clayey GRAVEL and light brown slightly sandy gravely to very gravelly CLAY/SILT. Gravel is angular to sub rounded fine to coarse flint. Sand is medium to coarse. Occasional rootlets.

Notes: ¹ encountered to base of trial hole

Groundwater

No groundwater was encountered within the trial holes.

Changes in groundwater level occur for a number of reasons including seasonal effects and variations in drainage. The investigation was conducted in October (2021), when groundwater levels are rising from their annual minimum (lowest) elevation, which typically occurs around September. Groundwater levels are expected to rise to their annual maximum (highest) elevation, which typically occurs around March.

Infiltration Testing

Following the construction of the trial pit, infiltration testing in accordance with the principles of BRE DG 365:2016 was carried out in SA1; no infiltration testing was undertaken in SA2B, as Made Ground was found for its full depth, following agreement with the client at the time of the investigation. Thus, following recommendations from Soils Limited and agreement with the client, 3no. falling head tests were instead undertaken in WS3, which was drilled near SA2B.

Infiltration testing was performed in order to provide guidance on the suitability of the ground for the adoption of a surface water drainage system. The tests were undertaken within the soils of the Head.

The test comprised piping fresh water via a water tanker into the open trial pit, the drop in water level over time was then recorded to give an indication of soakage potential. BRE 365 requires that each test pit be tested three times in quick succession. In accordance with BRE 365, full compliance was achieved within SA1, as three tests (SA1a-SA1c) were performed. In order for a test to be complete, the head of water needs to be decreased by at least 75, which occurred in all 3no. tests.

Table 2 outlines the infiltration rates for SA1a-SA1c. The test data is presented within Appendix A and the minimum infiltration rate from the successive tests must be adopted, as shown in bold in Table 2.

Table 2 - Infiltration Rates

Trial Hole	Test No.	Stratum	Infiltration Rate (m/s)
SA1	A	HEAD	1.51E-04
	B		1.65E-04
	C		1.62E-04

Indicative soakage rates were also calculated for 3no. falling head tests undertaken in windowless sampler borehole WS3 that was drilled in the proximity of SA2B that ranged between 1.5E-02 lit/sec and 2.8E-02 lit/sec.

Based on the above infiltration rates, soakaways were expected to perform satisfactorily subject to site-specific drainage requirements and the presence of low-permeable cohesive bands within the soils of the Head that are generally characterised by variable lithological disposition.

The following attachments make up the remainder of this letter report.

Figure 1. Site Location Plan

Figure 2. Trial Hole Location Plan

Appendix A. Field Data

Should you have any further questions please do not hesitate to contact the undersigned.

Yours sincerely,

Nikos Sidironoulos BSc MSc CEng MIMMM



For and on behalf of Soils Limited.

Enc.



Figure 1 ' Site location Plan

Figure number	Title
1	Site Location Plan
Project	Date
Land west of Fontwell Avenue, Eastergate, Chichester, West Sussex, PO 20 3RX	November 2021
Client	Reference
Reside Developments Ltd	19756

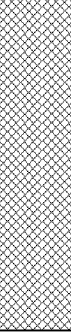


Figure 2. Trial Hole Location Plan

Figure number 2	Title Trial Hole Location Plan
Project Land west of Fontwell Avenue, Eastergate, Chichester, West Sussex, PO 20 3RX	Date November 2021
Client Reside Developments Ltd	Reference 19756

Appendix A. Field Data - Logs and Calculations

		Soils Limited Newton House, Cross Road, Tadworth KT20 5SR Tel: 01737 814221 Email: admin@soilslimited.co.uk			Trial Pit Log		Trial Pit No. SA1 Sheet 1 of 1	
Project Name:		Land west of Fontwell Avenue, Chichester		Project No.: 19756		Method: Hand excavated		Hole Type TP
Location:		Land west of Fontwell Avenue, Eastergate, Chichester, West Sussex, PO20 3RX				Plant: Hand Tools		
						Support: None		Scale 1:25
Client:				Trial Pit Length: m		Trial Pit Width: m		Logged By GB
Dates:		29-10-2021		Level:		Co-ords:		
Water Strike	Samples & In Situ Testing			Depth (m)	Level (mAOD)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	D		0.30			Dark brown sandy GRAVEL. Gravel is angular to sub angular, fine to coarse brick, flint. Request rootlets . MADE GROUND	
	0.30	D					Dark orangish brown slightly clayey GRAVEL. Gravel is angular to sub rounded fine to coarse flint. Frequent rootlets. HEAD	
	0.50	D		0.50			Light orangish brown clayey GRAVEL. Gravel is angular to sub rounded, fine to coarse flint. Frequent rootlets. HEAD	
	1.00	D					Light brown slightly sandy gravelly CLAY. Gravel is angular to sub rounded fine to coarse flint. Sand is medium to coarse. Occasional rootlets. HEAD	
	1.20	D		1.40				
							End of Pit at 1.400m	
General Remarks: Maximum root depth 1.40m bgl. No groundwater was recorded. Sample Type D: Disturbed B: Bulk J: Jar W: Water								
Groundwater Remarks:								

		Soils Limited Newton House, Cross Road, Tadworth KT20 5SR Tel: 01737 814221 Email: admin@soilslimited.co.uk			Trial Pit Log		Trial Pit No. SA2B Sheet 1 of 1		
Project Name:		Land west of Fontwell Avenue, Chichester		Project No.: 19756		Method:		Hand excavated	
Location:		Land west of Fontwell Avenue, Eastergate, Chichester, West Sussex, PO20 3RX				Plant:		Hand Tools	
						Support:		None	
Client:				Trial Pit Length:		m	Trial Pit Width:		
						m			
Dates:		29-10-2021		Level:		Co-ords:		Logged By	
								GB	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (mAOD)	Legend	Stratum Description		
	Depth	Type	Results						
	0.30	D		1.10			Dark brown changing to light brown with depth ~0.7m, slightly clayey GRAVEL. Gravel is angular to sub rounded fine to coarse flint and brick. Rare blue plastic material and rare wooden plank. MADE GROUND		
	0.60	D							
	0.90	D							
				End of Pit at 1.100m					
General Remarks: No roots or groundwater was recorded.									
Groundwater Remarks:								Sample Type D: Disturbed B: Bulk J: Jar W: Water	

Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks: No roots or groundwater was recorded.					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)						
Chiselling					Installation				Water Strikes					
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	1.00	PLAIN	33				0	0.00	No groundwater encountered.
					1.00	4.00	SLOTTED	33						
Hand vane (HV), Hand penetrometer (HP) reported in kPa. PID reported in ppm.														

Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks:					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)						
Chiselling					Installation				Water Strikes					
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
					0.00	1.00	PLAIN	33				0	0.00	No groundwater encountered.
					1.00	4.00	SLOTTED	33						
Hand vane (HV), Hand penetrometer (HP) reported in kPa. PID reported in ppm.														



Contract Name: Land west of Fontwell Avenue, Chichester			Client:			Hole ID: WS3					
Contract Number: 19756		Start and End Date: 29-10-21		Logged By: DW		Checked By:		Status:		Hole Type: WS	
Easting:		Northing:		Ground Level:		Plant Used: Premier 2		Print Date: 19-11-2021		Scale: 1:50	

Weather:			Termination:						Sheet 1 of 1		
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Samples & In Situ Testing			Strata Details						Groundwater	
Depth	Type	Results	Level (mAOD)	Depth (m) (Thickness)	Legend	Strata Description			Water Strike	Backfill/Installation
				(0.30)		Low recovery. Soft greyish brown dark brown and brown mottled, slightly sandy slightly gravelly silty CLAY. Gravel is angular to sub-angular fine to coarse flint, and rare chalk and clinker. Rare rootlets. MADE GROUND				
				0.30						
				(0.60)		Low recovery. Soft brown mottled dark brown, slightly sandy slightly gravelly silty CLAY. Gravel is angular to sub-angular fine to coarse flint. Moderately bioturbated. Rare rootlets. Very rare coarse sand sized brick (<5%) MADE GROUND				
				0.90						
				(0.70)		Soft to firm brown mottled greyish brown slightly sandy gravelly CLAY. Gravel is angular to sub-angular fine to coarse flint. Rare rootlets. HEAD			1	
				1.60						
				(0.55)		Firm yellowish brown mottled brown, slightly gravelly, slightly sandy silty CLAY. Gravel is angular to sub-angular, fine to coarse flint. Occasional odourless black speckling and mottling. HEAD			2	
				2.15						
				(0.35)		Firm yellowish brown mottled brown, slightly sandy very gravelly CLAY. Gravel is angular to sub-angular, fine to coarse flint. Occasional odourless black speckling and mottling. HEAD				
				2.50		End of Borehole at 2.50m				
									3	
									4	
									5	
									6	
									7	
									8	
									9	
									10	

Start & End of Shift Observations					Borehole Diameter		Casing Diameter		Remarks: Maximum root depth 1.60m bgl. No groundwater was recorded.					
Date	Time	Depth (m)	Casing (m)	Water (m)	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)						
Chiselling					Installation				Water Strikes					
From (m)	To (m)	Duration	Remarks		Top (m)	Base (m)	Type	Dia (mm)	Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks
												0	0.00	No groundwater encountered.
Hand vane (HV), Hand penetrometer (HP) reported in kPa. PID reported in ppm.														

Soakaway Calculations

Soakaway Test No.	TPSA1a
Contract	Land west of Fontwell Avenue, Eastergate, Chichester, West Sussex, PO20 3RX
Contract No.	19756

Field Test

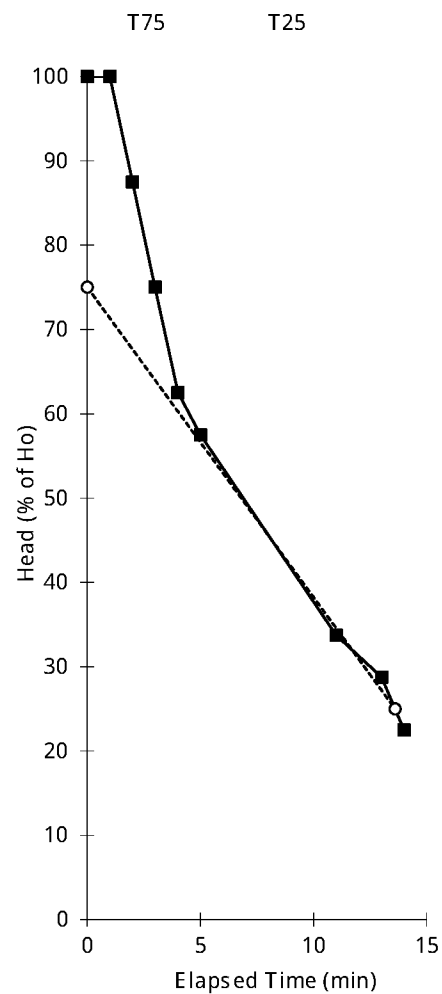
Trial Pit Log (include details of groundwater):

See trial Pit record

Depth of Pit	1.40 m
Width of Pit	0.60 m
Length of Pit	1.40 m
Depth of Pit Soaked	0.60 m
ap50	2.04 m ²
Vp75-25	0.252 m ³
t75-25	13.6 min
water used	0.5040 m ³
i	1.514E-04 m/sec.

Field Data

Depth to Water	Elapsed Time	Head of Water	Head of Water
(m)	(min)	(% of Ho)	(m)
0.60	0	100	0.8
0.60	1	100	0.80
0.70	2	88	0.70
0.80	3	75	0.60
0.90	4	63	0.50
0.94	5	58	0.46
1.13	11	34	0.27
1.17	13	29	0.23
1.22	14	23	0.18
T75	0.000	75	
T25	13.600	25	
T75-25	13.600	Derived from Best Fit	



Comments

Values in red are inferred in order to achieve the 25% head of water.

SOILS LIMITED

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Surrey, KT20 5SR

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Soakaway Calculations

Soakaway Test No.	TPSA1b
Contract	Land west of Fontwell Avenue, Eastergate, Chichester, West Sussex, PO20 3RX
Contract No.	19756

Field Test

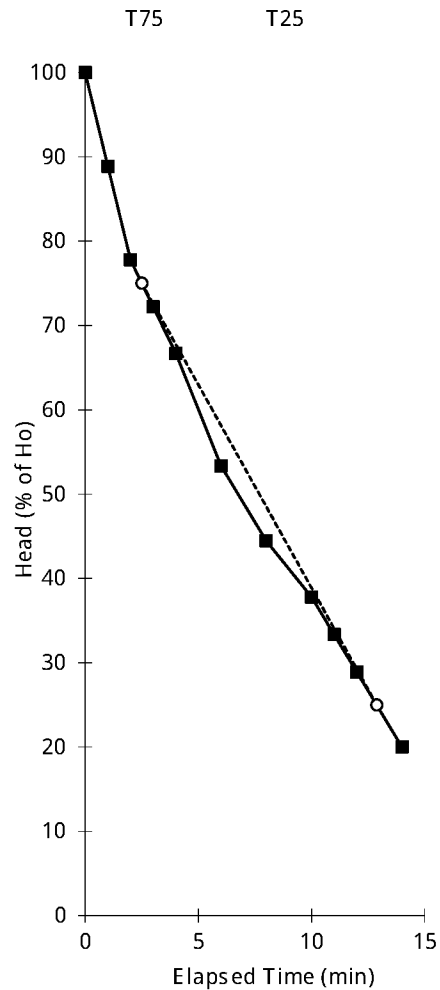
Trial Pit Log (include details of groundwater):

See trial Pit record

Depth of Pit	1.30 m
Width of Pit	0.60 m
Length of Pit	1.40 m
Depth of Pit Soaked	0.40 m
ap_{50}	1.64 m ²
Vp_{75-25}	0.168 m ³
t_{75-25}	10.4 min
water used	0.3360 m ³
i	1.64E-04 m/sec.

Field Data

Depth to Water	Elapsed Time	Head of Water	Head of Water
(m)	(min)	(% of Ho)	(m)
0.40	0	100	0.9
0.50	1	89	0.80
0.60	2	78	0.70
0.65	3	72	0.65
0.70	4	67	0.60
0.82	6	53	0.48
0.90	8	44	0.40
0.96	10	38	0.34
1.00	11	33	0.30
1.04	12	29	0.26
1.12	14	20	0.18
T75	2.500	75	
T25	12.875	25	
T75-25	10.375	Derived from Best Fit	



Comments

Values in red are inferred in order to achieve the 25% head of water.

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Soakaway Calculations

Soakaway Test No.	TPSA1c
Contract	Land west of Fontwell Avenue, Eastergate, Chichester, West Sussex, PO20 3RX
Contract No.	19756

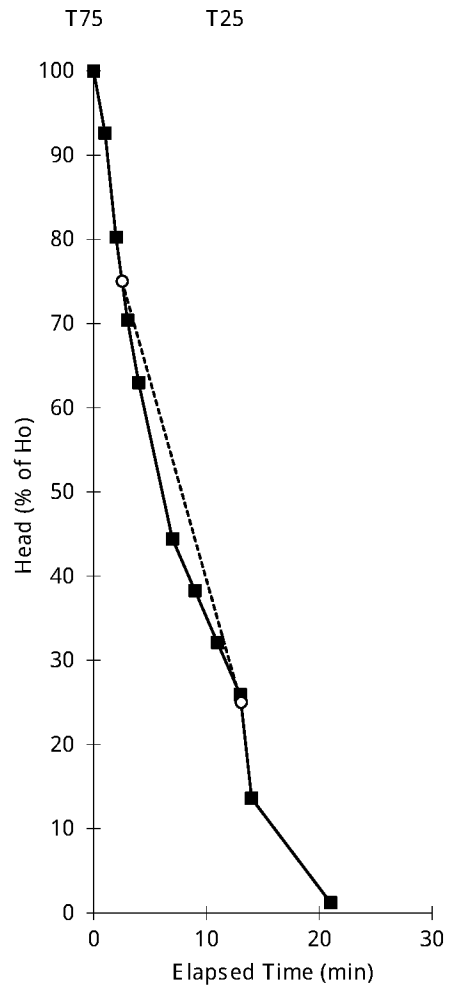
Field Test

Trial Pit Log (include details of groundwater):

See trial Pit record

Depth of Pit	1.21 m
Width of Pit	0.60 m
Length of Pit	1.40 m
Depth of Pit Soaked	0.40 m
ap50	1.64 m ²
Vp75-25	0.168 m ³
t75-25	10.5 min
water used	0.3360 m ³
i	1.619E-04 m/sec.

Field Data

[illegible]

Comments

Values in red are inferred in order to achieve the 25% head of water.

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