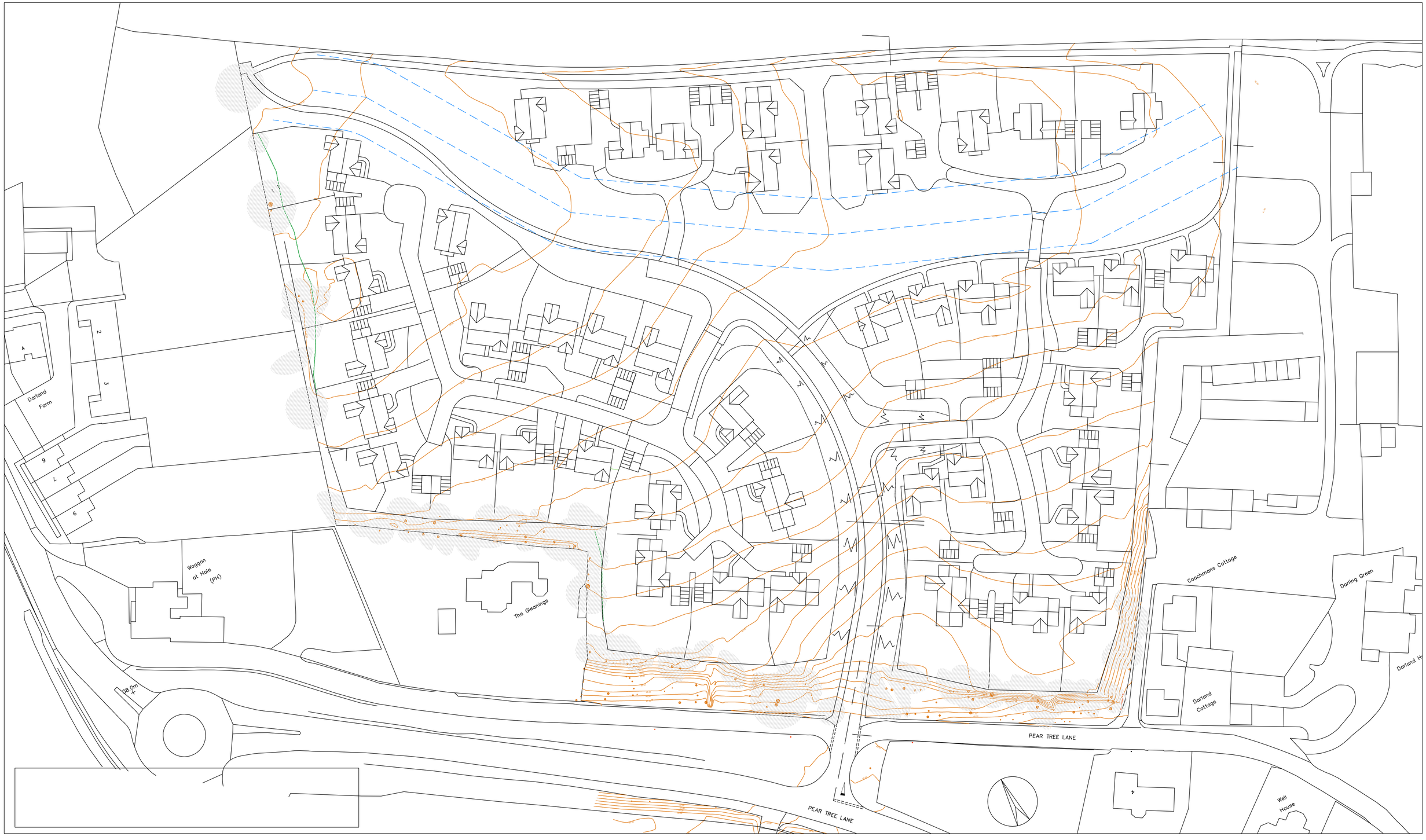
Appendix A.1 – Drawings



Rev.	Description	Int.	Date

Client
HUME PLANNING CONSULTANTS

Job Title
PROPOSED HOUSES AT
DARLAND FARM

CDP Architecture Ltd
22-23 North Lane,Canterbury
Kent,CT2 7EE

Tel: 01227 458181 Fax: 01227 451543
enquiries@architectscanterbury.com www.architectscanterbury.com
studio@thinkcdp.com www.thinkcdp.com

1:500 scale bar
0m 10m 20m 30m 40m
CDP original printed to scale. Prints from PDF's could distort

Drawing Title
ANOTATED SITE PLAN

Scale @ A1	1:500
Drawn	MW
Date	
Checked	

STATUS:

Preliminary	
Comment	
Planning	
Tender	
Construction	
As built	

712 :L(--) 03

A1

LEGEND

B	BOLLARD
BL	BASE LEVEL
CATV	CABLE TV COVER
CL	COVER LEVEL
DHL	DOOR HEAD LEVEL
DP	DOWN PIPE
EIC	ELECTRICAL INSPECTION COVER
EP	ELECTRICITY POLE
FH	FIRE HYDRANT
FL	FLOOR LEVEL
G	GULLY
GIC	GAS SERVICE INSPECTION COVER
IC	INSPECTION COVER
IL	INVERT LEVEL
JB	JUNCTION BOX
LC	LIGHTING COLUMN
MH	MANHOLE COVER
	(S) STORM, (F) FOUL, (C) COMBINED
P	POST
RE	RODDING EYE
RNP	ROAD NAME PLATE
RS	ROAD SIGN
RWP	RAINWATER PIPE
SC(G)	STOP COCK (GAS)
SC(W)	STOP COCK (WATER)
STN	SURVEY STATION WITH LEVEL
SV	STOP VALVE
SVP	SOIL VENT PIPE
TCB	TELEPHONE CALL BOX
THL	THRESHOLD LEVEL
TIC	TELEPHONE INSPECTION COVER
TOW	TOP OF WALL
TP	TELECOM POLE
TS	TREE STUMP
US	UNDERSIDE
WCL	WINDOW CILL LEVEL
WHL	WINDOW HEAD LEVEL
WM	WATER METER
WIC	WATER SERVICE INSPECTION COVER

TREE DESCRIPTON

SYCAMORE	= SPECIES
ht=12m	= TREE HEIGHT
2 BOLES	= EXTRA INFORMATION
SYC= SYCAMORE	
UNK= UNKNOWN SPECIES	

NOTES

1. ALL LEVELS RELATED TO ORDNANCE SURVEY DATUM DERIVED FROM GPS OBSERVATIONS.
2. SURVEY GRID IS RELATED TO ORDNANCE SURVEY GRID DERIVED FROM GPS OBSERVATIONS AND WITH A SCALE FACTOR OF 1.
3. NO RESPONSIBILITY CAN BE TAKEN FOR THE INCORRECT IDENTIFICATION OF TREE, HEDGE OR VEGETATION SPECIES.
4. TREE BOLE AND AVERAGE CANOPY SPREADS HAVE BEEN SHOWN TO SCALE AND WHERE POSSIBLE THE EXTENT OF TREE CANOPIES HAVE BEEN SURVEYED.

SURVEY STATIONS

Name	Easting	Northing	Height	Remark
1	578129.826	165642.028	47.802	Survey Nail
2	578143.874	165779.210	38.974	Peg
3	578228.217	165724.357	40.330	Peg
4	578304.496	165769.424	41.946	Peg
5	578203.194	165604.658	48.668	Survey Nail
6	578111.081	165635.859	47.975	Survey Nail
7	578100.993	165631.061	47.751	Survey Nail
8	577989.231	165714.897	41.730	Survey Nail

ORDNANCE SURVEY DIGITAL DATA SHOWN IN GREY

ANSurveys Ltd
3 Sleigh Road, Sturry, Kent, CT2 0HR
Tel. 01227 710316
email. alan@ansurveys.co.uk
WWW.ansurveys.co.uk

Drawing Title

TOPOGRAPHICAL SURVEY OF LAND AT
PEAR TREE LANE, GILLINGHAM, KENT, ME7 3PP

Client

K.D.ATTWOOD & PARTNERS

Drawing Number	1 of 6
Original Sheet Size and Scale	A0 at 1/500
Drawn By: A.Nicholson	Cad Filename PEAR TREE LANE 2D.DWG
Date : 15\02\2016	Revision :

Appendix A.2 – ReFH2 Outputs

UK Design Flood Estimation

Generated on 08 April 2016 14:59:30 by HC0203
Printed from the ReFH Flood Modelling software package, version 2.1.5798.30211

Summary of estimate using the Flood Estimation Handbook revitalised flood hydrograph method (ReFH)

Site details Checksum: D286-A877

Site name: FEH

Easting: 578050

Northing: 165850

Country: England, Wales or Northern Ireland

Catchment Area (km²): 5.5

Using plotscale calculations: No

Site description: None

Model run: 100 year

Summary of results

Rainfall - FEH 1999 (mm):	84.54	Total runoff (ML):	63.35
Total Rainfall (mm):	57.29	Total flow (ML):	114.71
Peak Rainfall (mm):	15.58	Peak flow (m³/s):	2.22

Parameters

** Where the user has overriden a system-generated value, this original value is shown in square brackets after the value used.*

Rainfall parameters (Rainfall - FEH 1999 model)

Name	Value	User-defined?
Duration (hr)	9	No
Timestep (hr)	1	No
SCF(Seasonal correction factor)	0.7	No
ARF(Areal reduction factor)	0.97	No
Seasonality	Winter	n/a

Loss model parameters

Name	Value	User-defined?
Cini (mm)	92.04	No
Cmax (mm)	775.43	No
Use alpha correction factor	Yes	No
Alpha correction factor	0.91	No

Routing model parameters

Name	Value	User-defined?
Tp (hr)	5.06	No
Up	0.65	No
Uk	0.8	No

Baseflow model parameters

Name	Value	User-defined?
BF0 (m^3/s)	0.11	No
BL (hr)	61.92	No
BR	1.71	No

Urbanisation parameters

Name	Value	User-defined?
Urban area (km^2)	1.87	No
Urbext 2000	0.22	No
Urban runoff factor	0.7	No
Imperviousness factor	0.3	No
Tp scaling factor	0.5	No
Sewered area (km^2)	0.00	Yes
Sewer capacity (m^3/s)	0.00	Yes

Time series data

Time (hh:mm)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
00:00	1.637	0.000	0.276	0.000	0.109	0.109
01:00	3.072	0.000	0.527	0.015	0.107	0.122
02:00	5.712	0.000	1.009	0.071	0.106	0.177
03:00	10.434	0.000	1.940	0.204	0.104	0.308
04:00	15.581	0.000	3.132	0.451	0.104	0.555
05:00	10.434	0.000	2.255	0.877	0.106	0.983
06:00	5.712	0.000	1.288	1.427	0.111	1.538
07:00	3.072	0.000	0.708	1.891	0.120	2.011
08:00	1.637	0.000	0.382	2.082	0.134	2.216
09:00	0.000	0.000	0.000	2.042	0.151	2.193
10:00	0.000	0.000	0.000	1.851	0.171	2.022
11:00	0.000	0.000	0.000	1.569	0.191	1.760
12:00	0.000	0.000	0.000	1.249	0.210	1.459
13:00	0.000	0.000	0.000	0.952	0.226	1.178
14:00	0.000	0.000	0.000	0.710	0.240	0.950
15:00	0.000	0.000	0.000	0.539	0.251	0.790
16:00	0.000	0.000	0.000	0.423	0.259	0.681
17:00	0.000	0.000	0.000	0.339	0.265	0.604
18:00	0.000	0.000	0.000	0.274	0.269	0.543
19:00	0.000	0.000	0.000	0.218	0.271	0.489
20:00	0.000	0.000	0.000	0.165	0.272	0.437
21:00	0.000	0.000	0.000	0.115	0.271	0.386
22:00	0.000	0.000	0.000	0.070	0.270	0.340
23:00	0.000	0.000	0.000	0.037	0.267	0.303
24:00	0.000	0.000	0.000	0.016	0.263	0.280
25:00	0.000	0.000	0.000	0.006	0.259	0.265
26:00	0.000	0.000	0.000	0.001	0.255	0.257
27:00	0.000	0.000	0.000	0.000	0.251	0.251
28:00	0.000	0.000	0.000	0.000	0.247	0.247
29:00	0.000	0.000	0.000	0.000	0.243	0.243
30:00	0.000	0.000	0.000	0.000	0.239	0.239
31:00	0.000	0.000	0.000	0.000	0.235	0.235
32:00	0.000	0.000	0.000	0.000	0.232	0.232
33:00	0.000	0.000	0.000	0.000	0.228	0.228
34:00	0.000	0.000	0.000	0.000	0.224	0.224

Time (hh:mm)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
35:00	0.000	0.000	0.000	0.000	0.221	0.221
36:00	0.000	0.000	0.000	0.000	0.217	0.217
37:00	0.000	0.000	0.000	0.000	0.214	0.214
38:00	0.000	0.000	0.000	0.000	0.210	0.210
39:00	0.000	0.000	0.000	0.000	0.207	0.207
40:00	0.000	0.000	0.000	0.000	0.204	0.204
41:00	0.000	0.000	0.000	0.000	0.200	0.200
42:00	0.000	0.000	0.000	0.000	0.197	0.197
43:00	0.000	0.000	0.000	0.000	0.194	0.194
44:00	0.000	0.000	0.000	0.000	0.191	0.191
45:00	0.000	0.000	0.000	0.000	0.188	0.188
46:00	0.000	0.000	0.000	0.000	0.185	0.185
47:00	0.000	0.000	0.000	0.000	0.182	0.182
48:00	0.000	0.000	0.000	0.000	0.179	0.179
49:00	0.000	0.000	0.000	0.000	0.176	0.176
50:00	0.000	0.000	0.000	0.000	0.173	0.173
51:00	0.000	0.000	0.000	0.000	0.170	0.170
52:00	0.000	0.000	0.000	0.000	0.168	0.168
53:00	0.000	0.000	0.000	0.000	0.165	0.165
54:00	0.000	0.000	0.000	0.000	0.162	0.162
55:00	0.000	0.000	0.000	0.000	0.160	0.160
56:00	0.000	0.000	0.000	0.000	0.157	0.157
57:00	0.000	0.000	0.000	0.000	0.155	0.155
58:00	0.000	0.000	0.000	0.000	0.152	0.152
59:00	0.000	0.000	0.000	0.000	0.150	0.150
60:00	0.000	0.000	0.000	0.000	0.147	0.147
61:00	0.000	0.000	0.000	0.000	0.145	0.145
62:00	0.000	0.000	0.000	0.000	0.143	0.143
63:00	0.000	0.000	0.000	0.000	0.140	0.140
64:00	0.000	0.000	0.000	0.000	0.138	0.138
65:00	0.000	0.000	0.000	0.000	0.136	0.136
66:00	0.000	0.000	0.000	0.000	0.134	0.134
67:00	0.000	0.000	0.000	0.000	0.132	0.132
68:00	0.000	0.000	0.000	0.000	0.130	0.130
69:00	0.000	0.000	0.000	0.000	0.127	0.127
70:00	0.000	0.000	0.000	0.000	0.125	0.125

Time (hh:mm)	Rain (mm)	Sewer Loss (mm)	Net Rain (mm)	Runoff (m^3/s)	Baseflow (m^3/s)	Total Flow (m^3/s)
71:00	0.000	0.000	0.000	0.000	0.123	0.123
72:00	0.000	0.000	0.000	0.000	0.121	0.121
73:00	0.000	0.000	0.000	0.000	0.119	0.119
74:00	0.000	0.000	0.000	0.000	0.118	0.118
75:00	0.000	0.000	0.000	0.000	0.116	0.116
76:00	0.000	0.000	0.000	0.000	0.114	0.114
77:00	0.000	0.000	0.000	0.000	0.112	0.112
78:00	0.000	0.000	0.000	0.000	0.110	0.110

Appendix

Catchment descriptors

Name	Value	User-defined value used?
Area (km²)	5.5	No
ALTBAR	114	No
ASPBAR	349	No
ASPVAR	0.43	No
BFIHOST	0.73	No
DPLBAR (km)	3.47	No
DPSBAR (mkm-¹)	55.4	No
FARL	1	No
LDP	6.93	No
PROPWET (mm)	0.26	No
RMED1H	12.3	No
RMED1D	32.3	No
RMED2D	40.5	No
SAAR (mm)	688	No
SAAR4170 (mm)	708	No
SPRHOST	27.76	No
Urbext2000	0.22	No
Urbext1990	0.18	No
URBCONC	0.88	No
URBLOC	0.88	No
Urban Area (km²)	1.87	No
DDF parameter C	-0.03	No
DDF parameter D1	0.31	No
DDF parameter D2	0.39	No
DDF parameter D3	0.28	No
DDF parameter E	0.32	No
DDF parameter F	2.56	No
DDF parameter C (1km grid value)	-0.03	No
DDF parameter D1 (1km grid value)	0.3	No
DDF parameter D2 (1km grid value)	0.38	No
DDF parameter D3 (1km grid value)	0.28	No
DDF parameter E (1km grid value)	0.32	No
DDF parameter F (1km grid value)	2.56	No

Appendix A.3 – Indicative Drainage Layout

Soakaway Details

Zone A - Eleven Ring Soakaways
2m (diameter) x 1.5m (deep)

Zone B - Fourteen Ring Soakaways
1.8m (diameter) x 1.5m (deep)

Zone C - Sixteen Ring Soakaways
1.8m (diameter) x 1.5m (deep)

Zone D - Three Ring Soakaways
1.8m (diameter) x 1.5m (deep)

This drawing provides and indicative layout only and does not constitute detailed drainage design. It is recommended that further site investigations are undertaken to confirm the exact layout and dimensions of any existing surface and foul water drainage.

DRAINAGE LAYOUT

Darland Farm, Chatham

Key:

- Roads, carparking and Hardstanding areas: - Permeable Paving on 200mm open-graded sub-base.
- Roof Area
- Ring Soakaways
- Indicative Drainage Connections
- Site Boundary

Drainage Zones and Infiltration

- Zone A - 0.09m/hr
- Zone B - 0.24m/hr
- Zone C - 0.16m/hr
- Zone D - 0.12m/hr

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tel: +44 (0)1227 833855
e-mail: enquiries@herringtonconsulting.co.uk

Drawn:	SAH	Date:	21/06/2016	Scale:	Not to scale
Checked:	SMB	Date:	21/06/2016		
Approved:	SMB	Date:	21/06/2016	Original @	A3
Drawing Number:	1424/SAH/02	Revision No.	1	Sheet Number:	1 of 1
				Status:	Final

Appendix A.4 – Soakage Test Report

ASHDOWN SITE INVESTIGATION
L•I•M•I•T•E•D

GEOTECHNICAL
AND
ENVIRONMENTAL
ENGINEERS

The Old Dairy
Swanborough Farm
Lewes
East Sussex
BN7 3PF

Telephone
01273 483119

Website
www.AshdownSI.co.uk

Email
contact@AshdownSI.co.uk

Date: 10th May 2016 **Our Ref:** R16-11391

Kevin Attwood
K D Attwood & Partners
Down Court Farm
Down Court Road
Doddington
Sittingbourne
Kent
ME9 0AT

Dear Kevin,

Darland Farm, Pear Tree Lane, Medway, Kent
In Situ Soakage Tests

Outlined below are the findings from the recent soil infiltration tests carried out at the site.

The objectives of the works were to:
a) investigate the shallow ground and groundwater conditions at the test locations; and
b) Provide advice to assist others in undertaking the design of soakaways.

The scope of the commission and the terms and conditions under which the work was undertaken are set out within the offer letter Q16-4731 dated 12th April 2016. The instruction to proceed was received from the client in an email dated 13th April 2016.

The analysis and discussions contained in this report are based on the ground and groundwater conditions encountered during the site work and in situ testing procedures. The possibility of a variation in ground and groundwater conditions away from the points investigated should not be overlooked. Groundwater conditions can vary both seasonally and due to other effects.

It is noted that the groundworks were undertaken and the report was prepared specifically for the Client's project and the recommendations given may not be appropriate to alternative schemes. The copyright for the report and licence for use shall remain vested in Ashdown Site Investigation Ltd (the Company) who disclaim all responsibility or liability (whether at common law or under the express or implied terms of the Contract between the Company and the Client) for any loss or damage of whatever nature in the event that this report is relied on by a third party, or is issued in circumstances or for projects for which it was not originally commissioned, or where the exploratory records and test results contained therein are interpreted by anyone other than the Company.

Company Registration Number
242 6786

Site Works

Four trial pits (designated TP1 to TP4) were dug by mechanical excavator to depths of between 2.80m and 3.30m below ground level. A site location plan and site plan showing the trial pit locations are presented as Figure 1 and Figure 2 respectively.

Falling head soakage tests were undertaken within each of the trial pits within the natural soils. The tests were carried out in general accordance with Building Research Establishment (BRE) Digest 365 (1991.

Ground Conditions

The exploratory hole logs and in situ test results are attached to this report. Notes to assist in the interpretation of the records are also attached.

Stratigraphy

Each of the exploratory holes was excavated through a surface cover of topsoil some 100mm to 200mm in thickness.

Made ground, generally comprising sandy gravelly clay and clayey gravelly sand was recorded to depths of between 1.00m and 2.25m below ground level. The gravel fraction comprised variable quantities of flint, brick, chalk, glass, slate, bituminous-like material, charcoal-like material and wood.

Underlying the made ground, the investigation progressed into undisturbed silty sandy gravelly clay deposits, with the gravel fraction being composed of flint and chalk. These undisturbed soils, considered to represent the Head deposits indicated on the published geological map for the area, continued to the full depth of the excavation.

Groundwater and Stability

Each of the exploratory holes was recorded as being dry and stable during the course of the investigation.

It is possible that heavy precipitation during construction could lead to the ingress of perched groundwater or surface water run-off into excavations. In such circumstances it would be expected that water entering into excavations would be adequately managed by pumping from sumps or natural drainage, or a combination of the two.

All made ground exposed in excavations should be assumed to be unstable, even in the short term. Whilst fine grained natural soils may remain stable for a short period of time if not subjected to surcharge loads (such as may be imposed by existing foundations, traffic or storage of materials), the stability of these soils if left unsupported should be assumed to have the potential to deteriorate. Where stable excavations are required, excavations should either be suitably supported or side slopes should be battered back to a safe angle of repose.

All excavations requiring human entry must be shored or battered as necessary to conform to current best practice, as accepted by the Health and Safety Executive (HSE); relevant guidance is given on the HSE website (www.hse.gov.uk). Current legislation requires that where personnel access is required into any excavation a competent person must inspect excavation supports or battering of slopes at the start of the working shift and at other specified times. No work should take place until the excavation is safe. Excavations should also be inspected after any event that may have affected their stability, such as a significant weather event, changes in surcharge loadings imposed by temporary storage of materials or changes in site traffic plans or alteration of support systems. Inspections should be formally recorded and any faults that are found should be corrected immediately.

Stormwater Infiltration Systems

In situ soakage testing was carried out in general accordance with the requirements of BRE 365 'Soakaway Design'. From the results of the soakage tests, calculations were made to determine the infiltration rate that could be expected for soakaways constructed into the underlying Head deposits.

For the tests undertaken within trial pit TP4 the soil infiltration rate (f) was calculated by dividing the volume of water lost between 75% and 25% of the initial test depth by the sum of the average surface area of the sides of the trial pit in contact with the water during the test monitoring period (time taken for the water level to fall between 75% and 25% of the initial test depth), and its base area. This figure was then divided by the test duration to give the soil infiltration rate in metres per second.

During the tests performed within trial pits TP1, TP2 and TP3, the water level within the test pits did not fall below 25% of the initial test depth and calculation of the soil infiltration rates in accordance with the BRE digest was not possible. For these tests, the soil infiltration rate has therefore been calculated by dividing the volume of water lost during the test by the product of the average surface area of the trial pit in contact with water during the test period and the test duration in seconds.

The infiltration rates derived from the tests are summarised in the following table.

Exploratory Hole	Test Response Zone Depth (m)		Stratum	Infiltration Rate (m/sec)
	Top	Bottom		
TP1- Test 1	2.20	3.30	Head	6.4×10^{-5}
TP1- Test 2	2.35	3.30	Head	3.8×10^{-5}
TP1- Test 3	2.33	3.30	Head	3.4×10^{-5}
TP2- Test 1	1.62	2.80	Head	6.9×10^{-5}
TP2- Test 2	1.75	2.80	Head	5.8×10^{-5}
TP2- Test 3	1.75	2.80	Head	4.6×10^{-5}
TP3- Test 1	1.65	2.90	Head	2.9×10^{-5}

Exploratory Hole	Test Response Zone Depth (m)		Stratum	Infiltration Rate (m/sec)
	Top	Bottom		
TP3- Test 2	1.60	2.90	Head	3.6×10^{-5}
TP3- Test 3	1.75	2.90	Head	2.4×10^{-5}
TP4- Test 1	2.10	2.85	Head	2.3×10^{-4}
TP4- Test 2	2.16	2.85	Head	7.7×10^{-5}
TP4- Test 3	2.14	2.85	Head	6.9×10^{-5}

The value 'f' is equivalent to the soil infiltration coefficient 'q' quoted in the Construction Industry Research and Information Association (CIRIA) Report 156.

The results from the infiltration tests indicate that the Head soils are likely to be capable of disposing of storm runoff to the ground using infiltration systems.

To minimise the risk of subsidence, and in view of the presence of chalk deposits shown to underly the site soakaways should be constructed a minimum of 10.0m away from proposed or existing buildings.

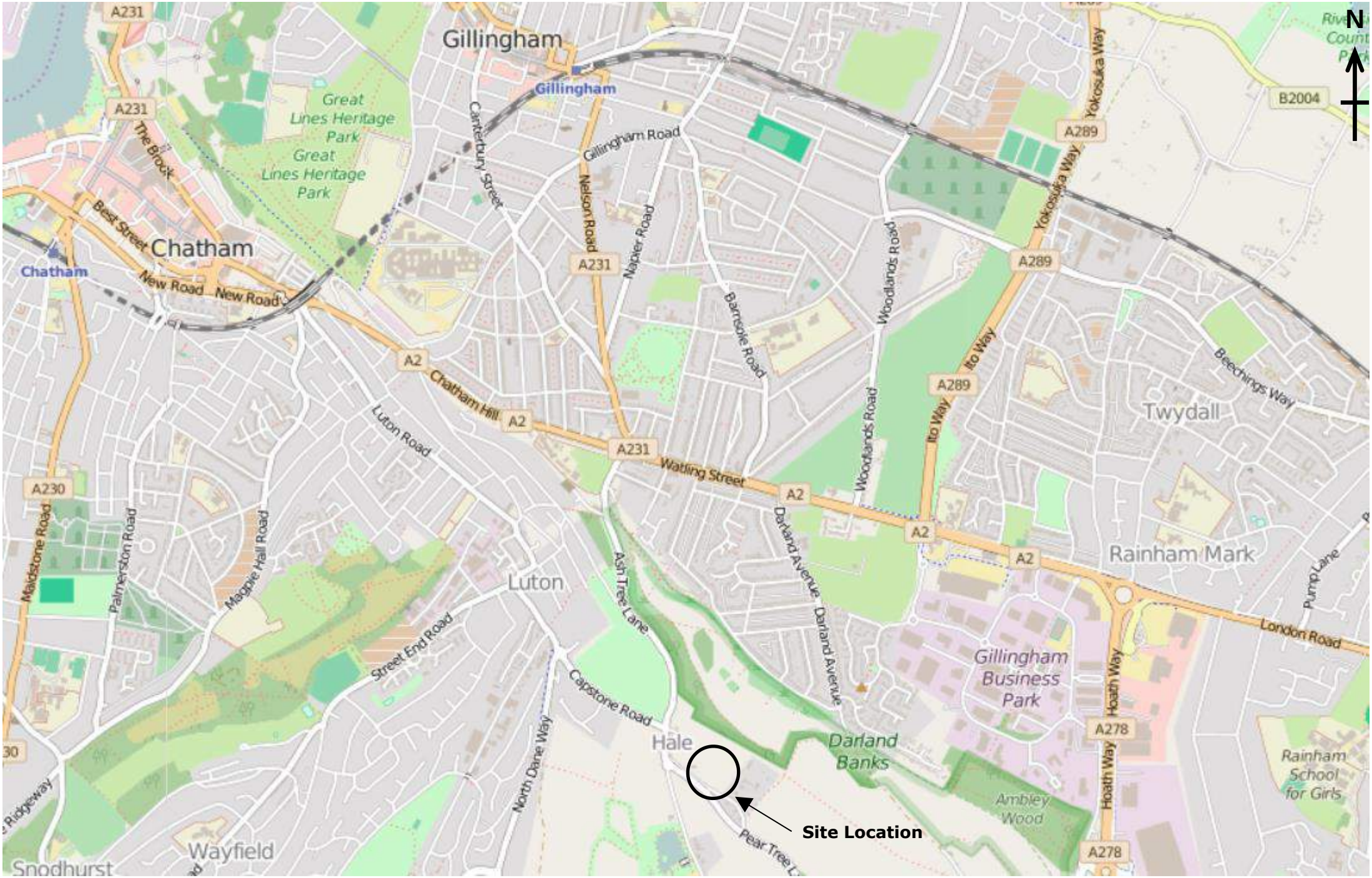
In the event that discharge to ground via infiltration systems is proposed, it is recommended that designers the system provides for the prevention of pollution of groundwater. In this regard appropriate consideration should be given to whether there is a need for inclusion of interceptors and oil separators. The Local Authority and/or relevant water company should be consulted in relation to consent for discharge of water from rooftops, areas of hardstanding and roadways to drains.

If you have any questions regarding the above, please do not hesitate to contact us.

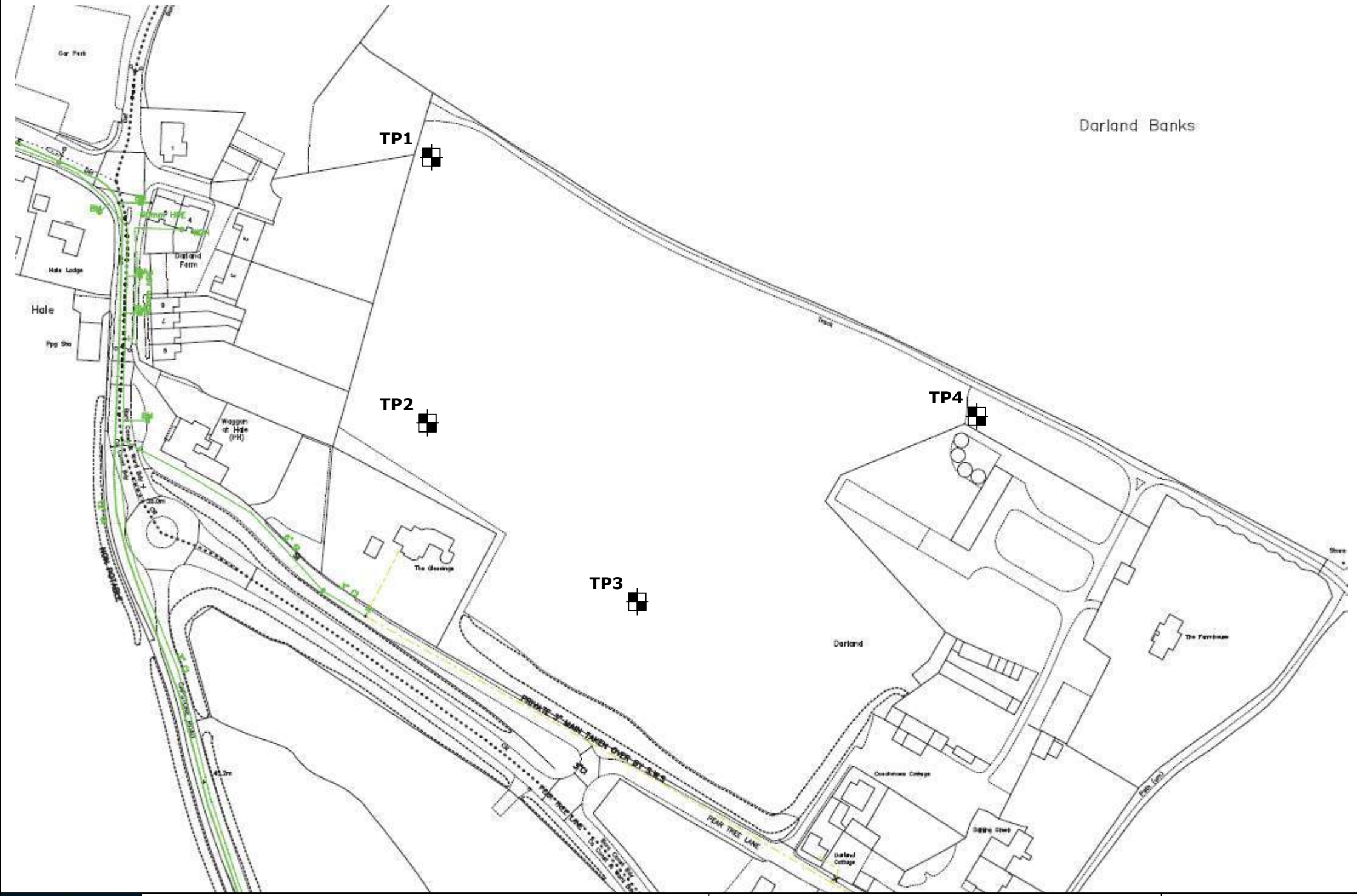
Yours sincerely

R Webb

Rebecca Webb
for Ashdown Site Investigation Limited
encl.



ASHDOWN SITE INVESTIGATION LIMITED	Site: Darland Farm, Pear Tree Lane, Medway, Kent	Site Location Plan. Not To Scale	Figure 1 R16-11391



ASHDOWN SITE INVESTIGATION LIMITED	Site: Darland Farm, Pear Tree Lane, Medway, Kent	Site Plan- Not To Scale

Figure 2
R16-11391

NOTES FOR THE INTERPRETATION OF EXPLORATORY HOLE RECORDS

1 Symbols and abbreviations

Samples

U 'Undisturbed' Sample: - also known as 'U100' or 'U4' - 100mm diameter by 450mm long. The number of blows to drive in the sampling tube is shown after the test index letter in the SPT column.
Uo Sample not obtained.
U* Full penetration of sample not obtained.
Pi Piston Sample: 'Undisturbed' sample 100mm diameter by 600mm long.
D Disturbed Sample.
R Root Sample.
B Bulk Disturbed Sample.
W Water Sample.
J Jar Sample (sample taken in amber glass jar fitted with gas tight lid)
T Tub Sample
Vi Vial Sample

In situ Testing

S Standard penetration test (SPT): In the borehole record the depth of the test is that at the start of the normal 450mm penetration. The number of blows per 75mm penetration is recorded, with the initial 150mm for seating blows being recorded followed by the blows recorded for the remaining 300mm of the test. The total blows to achieve the standard penetration of 300mm, discounting the seating blows, is noted as the N value on the log. Where the full penetration of the test cannot be achieved (a refusal) the number of blows achieved and the penetration achieved will be reported.

C Standard Penetration Test (SPT) conducted usually in coarse grained soils or weak rocks using the same procedure as for the SPT but with a 50mm diameter, 60º apex solid cone fitted in place of the sampler. Variations in test results are indicated by the same symbols as for the SPT (above).

V Shear Vane Test: Undrained shear strength (cohesion) (kN/m^2) shown within the Vane/Pen Test and N Value column.

H Hand penetrometer Test: Undrained shear strength (cohesion) (kN/m^2) shown within the Vane/Pen Test and N Value column.

P Perth Penetrometer Test: See "In Situ Testing Notes" for full description. Number of blows for 300mm penetration shown under Vane/Pen Test and N Value column. In sand the number of blows is approximately equivalent to the SPT "N" value.

Excavation Method

CP Cable Percussion Borehole
WLS Dynamic Sampler Borehole using windowless sampler tubes
WS Dynamic Sampler Borehole using window sampler tubes
TP Trial Pit excavated using mechanic excavator
HDP Trial Pit excavated using hand tools

2 Soil Description

Description and classification of soils has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of soil, Part 1 Identification and description (BS EN ISO 14688-1:2002+A1:2013) and Part 2 Principles of classification (BS EN 14688-2:2004+A1:2013) as well as the BS5930:2015 code of Practice for Ground Investigations.

Fine Grained Soils

The consistency of fine grained soils given in the report is based on visual inspection of the samples and the strength is based on results of in situ and/or laboratory undrained shear strength tests when carried out.

The consistency is determined on the following basis:

Consistency	**Manual Test**
Very Soft	Soil exudes between fingers when squeezed in hand
Soft	Soils can be moulded by light finger pressure
Firm	Cannot be moulded by finger but rolled to 3mm threads without breaking/crumbling
Stiff	Crumbles/breaks when rolled to 3mm thick threads but can be moulded into a lump again
Very Stiff	Cannot be moulded and crumbles under pressure, can be indented by thumbnail

The terms used for the designation of the undrained shear strength are as follows:

Undrained Shear Strength	
Extremely to Very Low	<20 kPa
Low	20-40 kPa
Medium	40-75 kPa
High	75-150 kPa
Very High	150-300 kPa
Extremely high	300-600 kPa

Note: The undrained shear strength of the soils is measured either by laboratory testing or in the field using hand shear vane.

It is recognised that any coarse grained soil that has in excess of approximately 35% fine grained soil (clay and silt) can often be expected to behave as a fine grained soil despite the dominance of coarse grained material within the soil mass. To reflect this, it is the soil type that dominates the behaviour of the soil mass that appears on the exploratory hole records.

Coarse Grained Soils

The relative densities of coarse grained soils (sand and gravel) given in the report are based on field estimations and the results of the Standard Penetration Test (SPT) and equivalent correlation from other testing. The classification in terms of "N" Values is as follows:

SPT 'N' Value	**Relative Density**
0-4	Very Loose
4-10	Loose
10-30	Medium Dense
30-50	Dense
Greater than 50	Very Dense

3 Rock Description

Description and classification of rocks has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of rock, Part 1 Identification and classification (BS EN ISO 14689-1:2003) as well as the BS5930:2015 code of Practice for Ground Investigations.

The description of rock mass includes the type of rock, structure, discontinuities and weathering.

The unconfined compressive strength of rock material is determined on the following basis:

Term	**Field Identification**	**Unconfined Compressive Strength (MPa)**
Extremely Weak	Indented by thumbnail	Less than 1
Very Weak	Crumbles under firm blows with point of geological hammer, peeled by pocket knife	1 to 5
Weak	Peeled by pocket knife with difficulty, shallow indentations made by firm blow with geological hammer	5 to 25
Medium Strong	Cannot be peeled or scraped with knife, can be fractured with single firm blow of geological hammer	25 to 50
Strong	Requires more than one blow of geological hammer to fracture	50 to 100
Very Strong	Requires may blows of geological hammer to fracture it	100 to 250
Extremely Strong	Can only be chipped with geological hammer	Greater and 250

The terms describing discontinuity and bedding spacing are as follows:

Bedding Thickness	
Very Thick	>2000mm
Thick	2000-600mm
Medium	600-200mm
Thin	200-60mm
Very Thin	60-20mm
Thickly Laminated	20-6mm
Thinly Laminated	<6mm

Discontinuity Spacing	
Very Wide	>2000mm
Wide	2000-600mm
Medium	600-200mm
Close	200-60mm
Very Close	60-20mm
Extremely Close	<20mm

Chalk

Chalk description is based on BS EN ISO 14688, BS EN ISO 14689 and BS5930. The classification of chalk generally follows the guidance offered by the Construction Industry Research and Information Association (CIRIA) C574, 'Engineering in Chalk'. This is based on assessment of chalk density, discontinuity and aperture spacing, and the proportion of intact chalk to silt of chalk. See additional chalk classification notes.

ASHDOWN SITE INVESTIGATION LIMITED

Site: Darland Farm, Pear Tree Lane, Medway, Kent	Report No.: R16-11391 Sheet No.: 1 of 4

SUMMARY OF TRIAL PIT FALLING HEAD SOAKAGE TEST RESULTS

Trial Pit **TP1** **Test 1**	
Time (mins)	Depth to water (m bgl)
0	2.20
1	2.24
2	2.30
4	2.35
8	2.41
16	2.49
32	2.62
60	2.90
Pit Length – 2.10m Pit Width – 1.15m Pit Depth – 3.30m bgl	

Trial Pit **TP1** **Test 2**	
Time (mins)	Depth to water (m bgl)
0	2.35
1	2.40
2	2.41
4	2.43
8	2.46
16	2.51
32	2.60
60	2.76
Pit Length – 2.10m Pit Width – 1.15m Pit Depth – 3.30m bgl	

Trial Pit **TP1** **Test 3**	
Time (mins)	Depth to water (m bgl)
0	2.33
1	2.35
2	2.37
4	2.40
8	2.43
16	2.49
32	2.60
60	2.71
Pit Length – 2.10m Pit Width – 1.15m Pit Depth – 3.30m bgl	

Remarks: bgl - below ground level.

ASHDOWN SITE INVESTIGATION LIMITED

Site: Darland Farm, Pear Tree Lane, Medway, Kent	Report No.: R16-11391 Sheet No.: 2 of 4

SUMMARY OF TRIAL PIT FALLING HEAD SOAKAGE TEST RESULTS

Trial Pit **TP2** **Test 1**	
Time (mins)	Depth to water (m bgl)
0	1.62
1	1.68
2	1.75
4	1.80
8	1.94
16	2.16
32	2.25
60	2.45
Pit Length – 2.40m Pit Width - 0.90m Pit Depth – 2.80m bgl	

Trial Pit **TP2** **Test 2**	
Time (mins)	Depth to water (m bgl)
0	1.75
1	1.80
2	1.84
4	1.90
8	1.98
16	2.05
32	2.20
60	2.42
Pit Length – 2.40m Pit Width - 0.90m Pit Depth – 2.80m bgl	

Trial Pit **TP2** **Test 3**	
Time (mins)	Depth to water (m bgl)
0	1.75
1	1.75
2	1.79
4	1.82
8	1.88
16	1.97
32	2.10
60	2.31
Pit Length – 2.40m Pit Width - 0.90m Pit Depth – 2.80m bgl	

Remarks: bgl - below ground level.

ASHDOWN SITE INVESTIGATION LIMITED

Site: Darland Farm, Pear Tree Lane, Medway, Kent	Report No.: R16-11391 Sheet No.: 3 of 4

SUMMARY OF TRIAL PIT FALLING HEAD SOAKAGE TEST RESULTS

Trial Pit **TP3** **Test 1**	
Time (mins)	Depth to water (m bgl)
0	1.65
1	1.68
2	1.75
4	1.75
8	1.82
16	1.85
32	1.95
60	2.10
Pit Length – 2.10m Pit Width - 0.90m Pit Depth – 2.90m bgl	

Trial Pit **TP3** **Test 2**	
Time (mins)	Depth to water (m bgl)
0	1.60
1	1.70
2	1.71
4	1.73
8	1.78
16	1.90
32	1.98
60	2.15
Pit Length – 2.10m Pit Width - 0.90m Pit Depth – 2.90m bgl	

Trial Pit **TP3** **Test 3**	
Time (mins)	Depth to water (m bgl)
0	1.75
1	1.78
2	1.80
4	1.82
8	1.86
16	1.93
32	2.00
60	2.10
Pit Length – 2.10m Pit Width - 0.90m Pit Depth – 2.90m bgl	

Remarks: bgl - below ground level.

ASHDOWN SITE INVESTIGATION LIMITED

Site: Darland Farm, Pear Tree Lane, Medway, Kent	Report No.: R16-11391 Sheet No.: 4 of 4

SUMMARY OF TRIAL PIT FALLING HEAD SOAKAGE TEST RESULTS

Trial Pit **TP4** **Test 1**	
Time (mins)	Depth to water (m bgl)
0	2.10
1	2.24
2	2.27
4	2.37
8	2.52
16	2.68
32	2.70
60	Dry
Pit Length – 2.00m Pit Width – 1.05m Pit Depth – 2.85m bgl	

Trial Pit **TP4** **Test 2**	
Time (mins)	Depth to water (m bgl)
0	2.16
1	2.24
2	2.28
4	2.33
8	2.39
16	2.49
32	2.61
60	2.81
Pit Length – 2.00m Pit Width – 1.05m Pit Depth – 2.85m bgl	

Trial Pit **TP4** **Test 3**	
Time (mins)	Depth to water (m bgl)
0	2.14
1	2.19
2	2.23
4	2.28
8	2.35
16	2.43
32	2.58
60	2.74
Pit Length – 2.00m Pit Width – 1.05m Pit Depth – 2.85m bgl	

Remarks: bgl - below ground level.

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Site Name: Darland Farm, Pear Tree Lane, Medway, Kent

Job Number: R16-11391

Start Date: 27/04/2016

End Date: 27/04/2016

Trial Pit Number: **TP1**

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
					0.00	Topsoil.
					0.20	MADE GROUND: Grey brown slightly sandy gravelly clay. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse brick, chalk, flint, glass and slate.
D	0.80					
					1.25	MADE GROUND: Brown slightly gravelly slightly sandy clay. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint, chalk, brick, slate, bituminous-like material and glass.
D	1.80					
					2.25	Brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and chalk. (Head)
D	2.40					
B	2.60					
D	3.00					
					3.30	End of trial pit at 3.30m

Remarks

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method:	TP
Pit Length:	2.10m
Pit Width:	1.15m
Made By:	SA

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Job Number: R16-11391

Start Date: 27/04/2016

End Date: 27/04/2016

Trial Pit Number: **TP2**

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
					0.00	Topsoil.
					0.20	MADE GROUND: Brown slightly sandy slightly gravelly clay. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse brick, flint and charcoal-like material.
D	0.50					
					1.00	Light brown slightly sandy gravelly CLAY. Sand is fine to coarse. Grave is angular to subrounded fine to coarse flint and chalk. (Head)
D	1.20					
B	2.00					
D	2.80				2.80	End of trial pit at 2.80m

Remarks

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method:	TP
Pit Length:	2.40m
Pit Width:	0.90m
Made By:	SA

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Site Name: Darland Farm, Pear Tree Lane, Medway, Kent

Job Number: R16-11391

Start Date: 27/04/2016

End Date: 27/04/2016

Trial Pit Number: **TP3**

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
					0.00	Topsoil.
					0.10	MADE GROUND: Brown slightly clayey slightly gravelly fine to medium sand. Gravel is subangular to subrounded fine to coarse brick, chalk, flint and wood.
D	0.50					
					1.50	
D	1.60					Brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk. (Head)
B	1.80					
					2.20	
D	2.30					Light brown gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse chalk and flint. (Head)
B	2.60					
D	2.80					
					2.90	End of trial pit at 2.90m

Remarks

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method:	TP
Pit Length:	2.10m
Pit Width:	0.90m
Made By:	SA

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Site Name: Darland Farm, Pear Tree Lane, Medway, Kent

Job Number: R16-11391

Start Date: 28/04/2016

End Date: 28/04/2016

Trial Pit Number: **TP4**

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
					0.00	Topsoil.
					0.10	MADE GROUND: Dark brown slightly gravelly sandy clay. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse brick, flint, glass, wood and chalk.
D	0.50					
D	1.00					
					1.50	
D	1.60					Brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse flint and rare chalk. (Head)
B	2.00					
D	2.40					
					2.85	End of trial pit at 2.85m

Remarks

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method:	TP
Pit Length:	2.00m
Pit Width:	1.05m
Made By:	SA

Appendix A.5 – Surface Water Management Calculations

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	8.740	0.740	729.9	2.7	O K
30 min Summer	8.668	0.668	633.4	2.2	O K
60 min Summer	8.546	0.546	451.0	1.6	O K
120 min Summer	8.454	0.454	292.4	1.1	O K
180 min Summer	8.384	0.384	218.9	0.8	O K
240 min Summer	8.342	0.342	175.6	0.7	O K
360 min Summer	8.293	0.293	128.0	0.5	O K
480 min Summer	8.259	0.259	102.3	0.4	O K
600 min Summer	8.237	0.237	85.9	0.4	O K
720 min Summer	8.221	0.221	74.4	0.3	O K
960 min Summer	8.196	0.196	59.1	0.3	O K
1440 min Summer	8.166	0.166	43.0	0.2	O K
2160 min Summer	8.138	0.138	30.5	0.2	O K
2880 min Summer	8.118	0.118	24.3	0.2	O K
4320 min Summer	8.097	0.097	17.5	0.1	O K
5760 min Summer	8.086	0.086	13.9	0.1	O K
7200 min Summer	8.079	0.079	11.7	0.1	O K
8640 min Summer	8.074	0.074	9.9	0.1	O K
10080 min Summer	8.070	0.070	8.8	0.1	O K
15 min Winter	8.739	0.739	729.2	2.6	O K
30 min Winter	8.605	0.605	547.8	1.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	119.239	0.0	282.8	10
30 min Summer	78.022	0.0	370.1	17
60 min Summer	48.611	0.0	461.2	32
120 min Summer	29.258	0.0	555.2	62
180 min Summer	21.452	0.0	610.6	92
240 min Summer	17.111	0.0	649.4	122
360 min Summer	12.405	0.0	706.2	184
480 min Summer	9.873	0.0	749.4	242
600 min Summer	8.265	0.0	784.2	306
720 min Summer	7.145	0.0	813.5	360
960 min Summer	5.674	0.0	861.2	474
1440 min Summer	4.093	0.0	932.0	710
2160 min Summer	2.948	0.0	1007.0	1092
2880 min Summer	2.334	0.0	1062.8	1428
4320 min Summer	1.676	0.0	1145.2	2176
5760 min Summer	1.325	0.0	1206.4	2856
7200 min Summer	1.103	0.0	1255.4	3608
8640 min Summer	0.949	0.0	1296.5	4256
10080 min Summer	0.836	0.0	1332.0	5088
15 min Winter	119.239	0.0	316.8	10
30 min Winter	78.022	0.0	414.5	17

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	8.493	0.493	356.3	1.3	O K
120 min Winter	8.382	0.382	216.8	0.8	O K
180 min Winter	8.328	0.328	160.4	0.6	O K
240 min Winter	8.293	0.293	128.0	0.5	O K
360 min Winter	8.247	0.247	93.4	0.4	O K
480 min Winter	8.221	0.221	74.0	0.3	O K
600 min Winter	8.202	0.202	62.3	0.3	O K
720 min Winter	8.186	0.186	53.7	0.3	O K
960 min Winter	8.166	0.166	43.0	0.2	O K
1440 min Winter	8.138	0.138	30.7	0.2	O K
2160 min Winter	8.112	0.112	22.3	0.1	O K
2880 min Winter	8.098	0.098	17.8	0.1	O K
4320 min Winter	8.082	0.082	12.7	0.1	O K
5760 min Winter	8.075	0.075	10.2	0.1	O K
7200 min Winter	8.071	0.071	8.9	0.1	O K
8640 min Winter	8.066	0.066	7.5	0.1	O K
10080 min Winter	8.063	0.063	6.5	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
60 min Winter	48.611	0.0	516.6	32
120 min Winter	29.258	0.0	621.8	60
180 min Winter	21.452	0.0	683.8	92
240 min Winter	17.111	0.0	727.3	120
360 min Winter	12.405	0.0	790.9	182
480 min Winter	9.873	0.0	839.3	244
600 min Winter	8.265	0.0	878.3	298
720 min Winter	7.145	0.0	911.1	366
960 min Winter	5.674	0.0	964.6	478
1440 min Winter	4.093	0.0	1043.9	734
2160 min Winter	2.948	0.0	1127.8	1084
2880 min Winter	2.334	0.0	1190.4	1440
4320 min Winter	1.676	0.0	1282.6	2204
5760 min Winter	1.325	0.0	1351.2	2808
7200 min Winter	1.103	0.0	1406.1	3640
8640 min Winter	0.949	0.0	1452.1	4296
10080 min Winter	0.836	0.0	1491.9	5096

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 1.265

Time (mins) From:	To:	Area (ha)
0	4	1.265

Model Details

Storage is Online Cover Level (m) 10.000

Pipe Structure

Diameter (m) 1.000 Length (m) 5.000
Slope (1:X) 10.000 Invert Level (m) 8.000

Pipe Outflow Control

Diameter (m) 1.000 Entry Loss Coefficient 0.500
Slope (1:X) 10.0 Coefficient of Contraction 0.600
Length (m) 5.000 Upstream Invert Level (m) 8.000
Manning's n 0.015

Summary of Results for 100 year Return Period (+20%)

Half Drain Time : 21 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	9.871	0.071	62.5	106.1	O K
30 min Summer	9.886	0.086	62.5	129.1	O K
60 min Summer	9.893	0.093	62.5	138.9	O K
120 min Summer	9.884	0.084	62.5	126.4	O K
180 min Summer	9.871	0.071	62.5	106.4	O K
240 min Summer	9.859	0.059	62.5	88.8	O K
360 min Summer	9.846	0.046	57.2	68.9	O K
480 min Summer	9.839	0.039	48.4	58.4	O K
600 min Summer	9.834	0.034	42.2	50.8	O K
720 min Summer	9.830	0.030	37.8	45.2	O K
960 min Summer	9.825	0.025	30.9	37.2	O K
1440 min Summer	9.819	0.019	23.4	27.9	O K
2160 min Summer	9.814	0.014	17.2	20.3	O K
2880 min Summer	9.811	0.011	13.4	16.3	O K
4320 min Summer	9.808	0.008	9.7	11.7	O K
5760 min Summer	9.806	0.006	7.8	9.2	O K
7200 min Summer	9.805	0.005	6.6	7.6	O K
8640 min Summer	9.805	0.005	5.9	6.8	O K
10080 min Summer	9.804	0.004	5.3	6.0	O K
15 min Winter	9.883	0.083	62.5	123.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	119.239	0.0	15
30 min Summer	78.022	0.0	25
60 min Summer	48.611	0.0	42
120 min Summer	29.258	0.0	76
180 min Summer	21.452	0.0	106
240 min Summer	17.111	0.0	136
360 min Summer	12.405	0.0	194
480 min Summer	9.873	0.0	254
600 min Summer	8.265	0.0	314
720 min Summer	7.145	0.0	376
960 min Summer	5.674	0.0	494
1440 min Summer	4.093	0.0	736
2160 min Summer	2.948	0.0	1100
2880 min Summer	2.334	0.0	1468
4320 min Summer	1.676	0.0	2204
5760 min Summer	1.325	0.0	2888
7200 min Summer	1.103	0.0	3632
8640 min Summer	0.949	0.0	4392
10080 min Summer	0.836	0.0	5104
15 min Winter	119.239	0.0	16

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	9.899	0.099	62.5	148.9	O K
60 min Winter	9.903	0.103	62.5	154.8	O K
120 min Winter	9.886	0.086	62.5	129.6	O K
180 min Winter	9.866	0.066	62.5	98.7	O K
240 min Winter	9.851	0.051	62.5	76.0	O K
360 min Winter	9.839	0.039	49.0	58.6	O K
480 min Winter	9.832	0.032	40.3	48.0	O K
600 min Winter	9.827	0.027	34.1	40.7	O K
720 min Winter	9.824	0.024	29.7	35.5	O K
960 min Winter	9.819	0.019	24.1	28.5	O K
1440 min Winter	9.814	0.014	17.2	20.6	O K
2160 min Winter	9.810	0.010	12.8	15.0	O K
2880 min Winter	9.808	0.008	9.7	12.0	O K
4320 min Winter	9.806	0.006	7.2	8.3	O K
5760 min Winter	9.805	0.005	5.9	6.8	O K
7200 min Winter	9.804	0.004	4.7	5.4	O K
8640 min Winter	9.803	0.003	4.1	4.6	O K
10080 min Winter	9.803	0.003	3.4	4.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	78.022	0.0	27
60 min Winter	48.611	0.0	46
120 min Winter	29.258	0.0	82
180 min Winter	21.452	0.0	112
240 min Winter	17.111	0.0	138
360 min Winter	12.405	0.0	198
480 min Winter	9.873	0.0	258
600 min Winter	8.265	0.0	318
720 min Winter	7.145	0.0	378
960 min Winter	5.674	0.0	498
1440 min Winter	4.093	0.0	740
2160 min Winter	2.948	0.0	1088
2880 min Winter	2.334	0.0	1496
4320 min Winter	1.676	0.0	2120
5760 min Winter	1.325	0.0	2976
7200 min Winter	1.103	0.0	3672
8640 min Winter	0.949	0.0	4272
10080 min Winter	0.836	0.0	4976

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 0.728

Time (mins) From:	To:	Area (ha)
0	4	0.728

Model Details

Storage is Online Cover Level (m) 10.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.09000	Width (m)	70.7
Membrane Percolation (mm/hr)	1000	Length (m)	70.7
Max Percolation (l/s)	1388.5	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	9.800	Membrane Depth (m)	0

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

Half Drain Time : 27 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	9.887	0.087	62.5	130.8	O K
30 min Summer	9.906	0.106	62.5	159.1	O K
60 min Summer	9.914	0.114	62.5	171.2	O K
120 min Summer	9.906	0.106	62.5	158.8	O K
180 min Summer	9.891	0.091	62.5	136.3	O K
240 min Summer	9.876	0.076	62.5	114.4	O K
360 min Summer	9.855	0.055	62.5	82.5	O K
480 min Summer	9.845	0.045	56.5	68.2	O K
600 min Summer	9.840	0.040	49.7	59.4	O K
720 min Summer	9.835	0.035	44.0	52.7	O K
960 min Summer	9.829	0.029	35.9	43.4	O K
1440 min Summer	9.822	0.022	27.2	32.5	O K
2160 min Summer	9.816	0.016	19.7	24.0	O K
2880 min Summer	9.813	0.013	15.9	18.9	O K
4320 min Summer	9.809	0.009	11.6	13.6	O K
5760 min Summer	9.807	0.007	9.1	10.7	O K
7200 min Summer	9.806	0.006	7.8	9.1	O K
8640 min Summer	9.805	0.005	6.6	7.6	O K
10080 min Summer	9.805	0.005	5.9	6.8	O K
15 min Winter	9.901	0.101	62.5	151.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	139.112	0.0	16
30 min Summer	91.026	0.0	26
60 min Summer	56.713	0.0	44
120 min Summer	34.134	0.0	78
180 min Summer	25.027	0.0	110
240 min Summer	19.963	0.0	140
360 min Summer	14.472	0.0	196
480 min Summer	11.519	0.0	254
600 min Summer	9.643	0.0	314
720 min Summer	8.336	0.0	376
960 min Summer	6.619	0.0	494
1440 min Summer	4.775	0.0	736
2160 min Summer	3.440	0.0	1104
2880 min Summer	2.723	0.0	1468
4320 min Summer	1.956	0.0	2196
5760 min Summer	1.545	0.0	2888
7200 min Summer	1.287	0.0	3672
8640 min Summer	1.107	0.0	4376
10080 min Summer	0.975	0.0	4984
15 min Winter	139.112	0.0	16

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	9.923	0.123	62.5	184.2	O K
60 min Winter	9.929	0.129	62.5	193.4	O K
120 min Winter	9.912	0.112	62.5	168.3	O K
180 min Winter	9.888	0.088	62.5	132.3	O K
240 min Winter	9.867	0.067	62.5	100.2	O K
360 min Winter	9.846	0.046	57.2	68.3	O K
480 min Winter	9.837	0.037	46.5	55.9	O K
600 min Winter	9.832	0.032	39.7	47.6	O K
720 min Winter	9.828	0.028	34.7	41.4	O K
960 min Winter	9.822	0.022	27.8	33.2	O K
1440 min Winter	9.816	0.016	20.3	24.0	O K
2160 min Winter	9.812	0.012	14.7	17.3	O K
2880 min Winter	9.809	0.009	11.6	13.6	O K
4320 min Winter	9.807	0.007	8.4	9.8	O K
5760 min Winter	9.805	0.005	6.6	7.7	O K
7200 min Winter	9.804	0.004	5.3	6.4	O K
8640 min Winter	9.804	0.004	4.7	5.4	O K
10080 min Winter	9.803	0.003	4.1	4.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	91.026	0.0	29
60 min Winter	56.713	0.0	46
120 min Winter	34.134	0.0	84
180 min Winter	25.027	0.0	116
240 min Winter	19.963	0.0	146
360 min Winter	14.472	0.0	198
480 min Winter	11.519	0.0	258
600 min Winter	9.643	0.0	318
720 min Winter	8.336	0.0	378
960 min Winter	6.619	0.0	500
1440 min Winter	4.775	0.0	734
2160 min Winter	3.440	0.0	1096
2880 min Winter	2.723	0.0	1440
4320 min Winter	1.956	0.0	2152
5760 min Winter	1.545	0.0	2848
7200 min Winter	1.287	0.0	3680
8640 min Winter	1.107	0.0	4304
10080 min Winter	0.975	0.0	5056

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.728

Time (mins) From:	To:	Area (ha)
0	4	0.728

Model Details

Storage is Online Cover Level (m) 10.000

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.09000	Width (m)	70.7
Membrane Percolation (mm/hr)	1000	Length (m)	70.7
Max Percolation (l/s)	1388.5	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	9.800	Membrane Depth (m)	0

Summary of Results for 100 year Return Period (+20%)

Half Drain Time : 380 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.579	0.579	1.0	31.2	O K
30 min Summer	8.748	0.748	1.2	40.3	O K
60 min Summer	8.907	0.907	1.5	48.9	O K
120 min Summer	9.035	1.035	1.7	55.8	O K
180 min Summer	9.080	1.080	1.8	58.2	O K
240 min Summer	9.091	1.091	1.8	58.8	O K
360 min Summer	9.099	1.099	1.8	59.2	O K
480 min Summer	9.100	1.100	1.8	59.3	O K
600 min Summer	9.095	1.095	1.8	59.0	O K
720 min Summer	9.086	1.086	1.8	58.5	O K
960 min Summer	9.061	1.061	1.8	57.2	O K
1440 min Summer	9.000	1.000	1.6	53.9	O K
2160 min Summer	8.910	0.910	1.5	49.0	O K
2880 min Summer	8.832	0.832	1.4	44.9	O K
4320 min Summer	8.712	0.712	1.2	38.4	O K
5760 min Summer	8.625	0.625	1.0	33.7	O K
7200 min Summer	8.558	0.558	0.9	30.1	O K
8640 min Summer	8.505	0.505	0.8	27.2	O K
10080 min Summer	8.463	0.463	0.8	24.9	O K
15 min Winter	8.648	0.648	1.1	34.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	119.239	0.0	19
30 min Summer	78.022	0.0	33
60 min Summer	48.611	0.0	62
120 min Summer	29.258	0.0	122
180 min Summer	21.452	0.0	180
240 min Summer	17.111	0.0	224
360 min Summer	12.405	0.0	280
480 min Summer	9.873	0.0	344
600 min Summer	8.265	0.0	410
720 min Summer	7.145	0.0	480
960 min Summer	5.674	0.0	616
1440 min Summer	4.093	0.0	884
2160 min Summer	2.948	0.0	1280
2880 min Summer	2.334	0.0	1672
4320 min Summer	1.676	0.0	2420
5760 min Summer	1.325	0.0	3168
7200 min Summer	1.103	0.0	3896
8640 min Summer	0.949	0.0	4664
10080 min Summer	0.836	0.0	5352
15 min Winter	119.239	0.0	19

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.838	0.838	1.4	45.2	O K
60 min Winter	9.017	1.017	1.7	54.8	O K
120 min Winter	9.163	1.163	1.9	62.7	O K
180 min Winter	9.216	1.216	2.0	65.6	O K
240 min Winter	9.232	1.232	2.0	66.4	O K
360 min Winter	9.231	1.231	2.0	66.4	O K
480 min Winter	9.227	1.227	2.0	66.1	O K
600 min Winter	9.213	1.213	2.0	65.4	O K
720 min Winter	9.193	1.193	2.0	64.3	O K
960 min Winter	9.147	1.147	1.9	61.8	O K
1440 min Winter	9.051	1.051	1.7	56.6	O K
2160 min Winter	8.923	0.923	1.5	49.8	O K
2880 min Winter	8.821	0.821	1.4	44.2	O K
4320 min Winter	8.670	0.670	1.1	36.1	O K
5760 min Winter	8.567	0.567	0.9	30.6	O K
7200 min Winter	8.492	0.492	0.8	26.5	O K
8640 min Winter	8.436	0.436	0.7	23.5	O K
10080 min Winter	8.391	0.391	0.6	21.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	78.022	0.0	33
60 min Winter	48.611	0.0	62
120 min Winter	29.258	0.0	118
180 min Winter	21.452	0.0	176
240 min Winter	17.111	0.0	228
360 min Winter	12.405	0.0	288
480 min Winter	9.873	0.0	362
600 min Winter	8.265	0.0	440
720 min Winter	7.145	0.0	514
960 min Winter	5.674	0.0	664
1440 min Winter	4.093	0.0	950
2160 min Winter	2.948	0.0	1360
2880 min Winter	2.334	0.0	1756
4320 min Winter	1.676	0.0	2512
5760 min Winter	1.325	0.0	3280
7200 min Winter	1.103	0.0	4032
8640 min Winter	0.949	0.0	4752
10080 min Winter	0.836	0.0	5456

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 0.142

Time (mins) From:	To:	Area (ha)
0	4	0.142

Model Details

Storage is Online Cover Level (m) 10.000

Lined Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.00
Infiltration Coefficient Side (m/hr)	0.09000	Pit Multiplier	1.5
Safety Factor	2.0	Number Required	11
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.000

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

Half Drain Time : 380 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.675	0.675	1.1	36.4	O K
30 min Summer	8.872	0.872	1.4	47.0	O K
60 min Summer	9.058	1.058	1.7	57.0	O K
120 min Summer	9.208	1.208	2.0	65.1	O K
180 min Summer	9.259	1.259	2.1	67.9	O K
240 min Summer	9.272	1.272	2.1	68.6	O K
360 min Summer	9.282	1.282	2.1	69.1	O K
480 min Summer	9.284	1.284	2.1	69.2	O K
600 min Summer	9.278	1.278	2.1	68.9	O K
720 min Summer	9.267	1.267	2.1	68.3	O K
960 min Summer	9.238	1.238	2.0	66.7	O K
1440 min Summer	9.166	1.166	1.9	62.8	O K
2160 min Summer	9.061	1.061	1.8	57.2	O K
2880 min Summer	8.971	0.971	1.6	52.3	O K
4320 min Summer	8.831	0.831	1.4	44.8	O K
5760 min Summer	8.729	0.729	1.2	39.3	O K
7200 min Summer	8.651	0.651	1.1	35.1	O K
8640 min Summer	8.589	0.589	1.0	31.8	O K
10080 min Summer	8.540	0.540	0.9	29.1	O K
15 min Winter	8.756	0.756	1.2	40.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	139.112	0.0	19
30 min Summer	91.026	0.0	33
60 min Summer	56.713	0.0	62
120 min Summer	34.134	0.0	122
180 min Summer	25.027	0.0	180
240 min Summer	19.963	0.0	226
360 min Summer	14.472	0.0	280
480 min Summer	11.519	0.0	344
600 min Summer	9.643	0.0	410
720 min Summer	8.336	0.0	480
960 min Summer	6.619	0.0	616
1440 min Summer	4.775	0.0	884
2160 min Summer	3.440	0.0	1280
2880 min Summer	2.723	0.0	1672
4320 min Summer	1.956	0.0	2420
5760 min Summer	1.545	0.0	3168
7200 min Summer	1.287	0.0	3896
8640 min Summer	1.107	0.0	4664
10080 min Summer	0.975	0.0	5352
15 min Winter	139.112	0.0	19

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.978	0.978	1.6	52.7	O K
60 min Winter	9.187	1.187	2.0	64.0	O K
120 min Winter	9.357	1.357	2.2	73.1	O K
180 min Winter	9.419	1.419	2.3	76.5	O K
240 min Winter	9.437	1.437	2.4	77.5	O K
360 min Winter	9.437	1.437	2.4	77.4	O K
480 min Winter	9.431	1.431	2.4	77.1	O K
600 min Winter	9.415	1.415	2.3	76.2	O K
720 min Winter	9.392	1.392	2.3	75.0	O K
960 min Winter	9.338	1.338	2.2	72.1	O K
1440 min Winter	9.226	1.226	2.0	66.1	O K
2160 min Winter	9.077	1.077	1.8	58.1	O K
2880 min Winter	8.957	0.957	1.6	51.6	O K
4320 min Winter	8.782	0.782	1.3	42.1	O K
5760 min Winter	8.662	0.662	1.1	35.7	O K
7200 min Winter	8.574	0.574	0.9	31.0	O K
8640 min Winter	8.508	0.508	0.8	27.4	O K
10080 min Winter	8.456	0.456	0.8	24.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	91.026	0.0	33
60 min Winter	56.713	0.0	62
120 min Winter	34.134	0.0	118
180 min Winter	25.027	0.0	176
240 min Winter	19.963	0.0	230
360 min Winter	14.472	0.0	288
480 min Winter	11.519	0.0	362
600 min Winter	9.643	0.0	440
720 min Winter	8.336	0.0	514
960 min Winter	6.619	0.0	664
1440 min Winter	4.775	0.0	950
2160 min Winter	3.440	0.0	1360
2880 min Winter	2.723	0.0	1756
4320 min Winter	1.956	0.0	2512
5760 min Winter	1.545	0.0	3280
7200 min Winter	1.287	0.0	4032
8640 min Winter	1.107	0.0	4752
10080 min Winter	0.975	0.0	5456

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.142

Time (mins) From:	To:	Area (ha)
0	4	0.142

Model Details

Storage is Online Cover Level (m) 10.000

Lined Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	2.00
Infiltration Coefficient Side (m/hr)	0.09000	Pit Multiplier	1.5
Safety Factor	2.0	Number Required	11
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.000

Summary of Results for 100 year Return Period (+20%)

Half Drain Time : 133 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.583	0.583	3.4	37.0	O K
30 min Summer	8.735	0.735	4.2	46.7	O K
60 min Summer	8.848	0.848	4.9	53.9	O K
120 min Summer	8.900	0.900	5.2	57.2	O K
180 min Summer	8.911	0.911	5.2	57.8	O K
240 min Summer	8.905	0.905	5.2	57.4	O K
360 min Summer	8.875	0.875	5.0	55.6	O K
480 min Summer	8.840	0.840	4.8	53.3	O K
600 min Summer	8.804	0.804	4.6	51.0	O K
720 min Summer	8.769	0.769	4.4	48.8	O K
960 min Summer	8.706	0.706	4.1	44.8	O K
1440 min Summer	8.607	0.607	3.5	38.6	O K
2160 min Summer	8.505	0.505	2.9	32.1	O K
2880 min Summer	8.435	0.435	2.5	27.6	O K
4320 min Summer	8.343	0.343	2.0	21.8	O K
5760 min Summer	8.286	0.286	1.6	18.1	O K
7200 min Summer	8.245	0.245	1.4	15.6	O K
8640 min Summer	8.216	0.216	1.2	13.7	O K
10080 min Summer	8.193	0.193	1.1	12.3	O K
15 min Winter	8.654	0.654	3.8	41.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	119.239	0.0	18
30 min Summer	78.022	0.0	32
60 min Summer	48.611	0.0	60
120 min Summer	29.258	0.0	96
180 min Summer	21.452	0.0	128
240 min Summer	17.111	0.0	162
360 min Summer	12.405	0.0	230
480 min Summer	9.873	0.0	298
600 min Summer	8.265	0.0	364
720 min Summer	7.145	0.0	430
960 min Summer	5.674	0.0	558
1440 min Summer	4.093	0.0	808
2160 min Summer	2.948	0.0	1188
2880 min Summer	2.334	0.0	1556
4320 min Summer	1.676	0.0	2288
5760 min Summer	1.325	0.0	3000
7200 min Summer	1.103	0.0	3744
8640 min Summer	0.949	0.0	4416
10080 min Summer	0.836	0.0	5152
15 min Winter	119.239	0.0	18

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.825	0.825	4.8	52.4	O K
60 min Winter	8.956	0.956	5.5	60.7	O K
120 min Winter	9.009	1.009	5.8	64.1	O K
180 min Winter	9.013	1.013	5.8	64.3	O K
240 min Winter	8.994	0.994	5.7	63.1	O K
360 min Winter	8.940	0.940	5.4	59.7	O K
480 min Winter	8.884	0.884	5.1	56.1	O K
600 min Winter	8.830	0.830	4.8	52.7	O K
720 min Winter	8.781	0.781	4.5	49.6	O K
960 min Winter	8.697	0.697	4.0	44.3	O K
1440 min Winter	8.572	0.572	3.3	36.3	O K
2160 min Winter	8.452	0.452	2.6	28.7	O K
2880 min Winter	8.375	0.375	2.2	23.8	O K
4320 min Winter	8.282	0.282	1.6	17.9	O K
5760 min Winter	8.228	0.228	1.3	14.4	O K
7200 min Winter	8.192	0.192	1.1	12.2	O K
8640 min Winter	8.166	0.166	1.0	10.5	O K
10080 min Winter	8.147	0.147	0.8	9.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	78.022	0.0	32
60 min Winter	48.611	0.0	60
120 min Winter	29.258	0.0	98
180 min Winter	21.452	0.0	136
240 min Winter	17.111	0.0	174
360 min Winter	12.405	0.0	246
480 min Winter	9.873	0.0	318
600 min Winter	8.265	0.0	386
720 min Winter	7.145	0.0	454
960 min Winter	5.674	0.0	588
1440 min Winter	4.093	0.0	840
2160 min Winter	2.948	0.0	1212
2880 min Winter	2.334	0.0	1584
4320 min Winter	1.676	0.0	2312
5760 min Winter	1.325	0.0	3048
7200 min Winter	1.103	0.0	3752
8640 min Winter	0.949	0.0	4488
10080 min Winter	0.836	0.0	5240

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 0.174

Time (mins) From:	To:	Area (ha)
0	4	0.174

Model Details

Storage is Online Cover Level (m) 10.000

Lined Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	1.80
Infiltration Coefficient Side (m/hr)	0.24000	Pit Multiplier	1.5
Safety Factor	2.0	Number Required	16
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.000

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

Half Drain Time : 132 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.778	0.778	3.9	43.2	O K
30 min Summer	8.980	0.980	4.9	54.4	O K
60 min Summer	9.131	1.131	5.7	62.8	O K
120 min Summer	9.201	1.201	6.1	66.7	O K
180 min Summer	9.215	1.215	6.1	67.5	O K
240 min Summer	9.206	1.206	6.1	67.0	O K
360 min Summer	9.167	1.167	5.9	64.8	O K
480 min Summer	9.120	1.120	5.6	62.2	O K
600 min Summer	9.072	1.072	5.4	59.5	O K
720 min Summer	9.025	1.025	5.2	56.9	O K
960 min Summer	8.941	0.941	4.7	52.3	O K
1440 min Summer	8.810	0.810	4.1	45.0	O K
2160 min Summer	8.673	0.673	3.4	37.4	O K
2880 min Summer	8.579	0.579	2.9	32.2	O K
4320 min Summer	8.457	0.457	2.3	25.4	O K
5760 min Summer	8.381	0.381	1.9	21.2	O K
7200 min Summer	8.327	0.327	1.6	18.2	O K
8640 min Summer	8.288	0.288	1.5	16.0	O K
10080 min Summer	8.258	0.258	1.3	14.3	O K
15 min Winter	8.872	0.872	4.4	48.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	139.112	0.0	18
30 min Summer	91.026	0.0	32
60 min Summer	56.713	0.0	60
120 min Summer	34.134	0.0	96
180 min Summer	25.027	0.0	128
240 min Summer	19.963	0.0	162
360 min Summer	14.472	0.0	230
480 min Summer	11.519	0.0	298
600 min Summer	9.643	0.0	364
720 min Summer	8.336	0.0	430
960 min Summer	6.619	0.0	558
1440 min Summer	4.775	0.0	808
2160 min Summer	3.440	0.0	1188
2880 min Summer	2.723	0.0	1556
4320 min Summer	1.956	0.0	2288
5760 min Summer	1.545	0.0	3000
7200 min Summer	1.287	0.0	3744
8640 min Summer	1.107	0.0	4416
10080 min Summer	0.975	0.0	5152
15 min Winter	139.112	0.0	18

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	9.100	1.100	5.5	61.1	O K
60 min Winter	9.274	1.274	6.4	70.8	O K
120 min Winter	9.346	1.346	6.8	74.8	O K
180 min Winter	9.350	1.350	6.8	75.0	O K
240 min Winter	9.326	1.326	6.7	73.6	O K
360 min Winter	9.253	1.253	6.3	69.6	O K
480 min Winter	9.178	1.178	5.9	65.5	O K
600 min Winter	9.107	1.107	5.6	61.5	O K
720 min Winter	9.041	1.041	5.2	57.9	O K
960 min Winter	8.929	0.929	4.7	51.6	O K
1440 min Winter	8.763	0.763	3.8	42.4	O K
2160 min Winter	8.603	0.603	3.0	33.5	O K
2880 min Winter	8.501	0.501	2.5	27.8	O K
4320 min Winter	8.376	0.376	1.9	20.9	O K
5760 min Winter	8.303	0.303	1.5	16.9	O K
7200 min Winter	8.255	0.255	1.3	14.2	O K
8640 min Winter	8.221	0.221	1.1	12.3	O K
10080 min Winter	8.196	0.196	1.0	10.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	91.026	0.0	32
60 min Winter	56.713	0.0	60
120 min Winter	34.134	0.0	98
180 min Winter	25.027	0.0	136
240 min Winter	19.963	0.0	174
360 min Winter	14.472	0.0	246
480 min Winter	11.519	0.0	318
600 min Winter	9.643	0.0	386
720 min Winter	8.336	0.0	454
960 min Winter	6.619	0.0	588
1440 min Winter	4.775	0.0	840
2160 min Winter	3.440	0.0	1212
2880 min Winter	2.723	0.0	1584
4320 min Winter	1.956	0.0	2296
5760 min Winter	1.545	0.0	3048
7200 min Winter	1.287	0.0	3752
8640 min Winter	1.107	0.0	4496
10080 min Winter	0.975	0.0	5240

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.174

Time (mins) From:	To:	Area (ha)
0	4	0.174

Model Details

Storage is Online Cover Level (m) 10.000

Lined Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	1.80
Infiltration Coefficient Side (m/hr)	0.24000	Pit Multiplier	1.5
Safety Factor	2.0	Number Required	14
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.000

Summary of Results for 100 year Return Period (+20%)

Half Drain Time : 195 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.679	0.679	2.4	40.4	O K
30 min Summer	8.866	0.866	3.1	51.6	O K
60 min Summer	9.025	1.025	3.7	61.0	O K
120 min Summer	9.114	1.114	4.0	66.3	O K
180 min Summer	9.135	1.135	4.1	67.6	O K
240 min Summer	9.140	1.140	4.1	67.8	O K
360 min Summer	9.128	1.128	4.1	67.1	O K
480 min Summer	9.105	1.105	4.0	65.8	O K
600 min Summer	9.076	1.076	3.9	64.0	O K
720 min Summer	9.045	1.045	3.8	62.2	O K
960 min Summer	8.984	0.984	3.5	58.6	O K
1440 min Summer	8.876	0.876	3.2	52.1	O K
2160 min Summer	8.752	0.752	2.7	44.8	O K
2880 min Summer	8.661	0.661	2.4	39.4	O K
4320 min Summer	8.537	0.537	1.9	32.0	O K
5760 min Summer	8.455	0.455	1.6	27.1	O K
7200 min Summer	8.396	0.396	1.4	23.6	O K
8640 min Summer	8.352	0.352	1.3	21.0	O K
10080 min Summer	8.317	0.317	1.1	18.9	O K
15 min Winter	8.761	0.761	2.7	45.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	119.239	0.0	18
30 min Summer	78.022	0.0	33
60 min Summer	48.611	0.0	62
120 min Summer	29.258	0.0	114
180 min Summer	21.452	0.0	142
240 min Summer	17.111	0.0	174
360 min Summer	12.405	0.0	242
480 min Summer	9.873	0.0	310
600 min Summer	8.265	0.0	378
720 min Summer	7.145	0.0	446
960 min Summer	5.674	0.0	578
1440 min Summer	4.093	0.0	838
2160 min Summer	2.948	0.0	1212
2880 min Summer	2.334	0.0	1588
4320 min Summer	1.676	0.0	2332
5760 min Summer	1.325	0.0	3056
7200 min Summer	1.103	0.0	3752
8640 min Summer	0.949	0.0	4496
10080 min Summer	0.836	0.0	5240
15 min Winter	119.239	0.0	18

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.972	0.972	3.5	57.9	O K
60 min Winter	9.152	1.152	4.1	68.6	O K
120 min Winter	9.259	1.259	4.5	74.9	O K
180 min Winter	9.273	1.273	4.6	75.7	O K
240 min Winter	9.271	1.271	4.6	75.7	O K
360 min Winter	9.240	1.240	4.5	73.8	O K
480 min Winter	9.195	1.195	4.3	71.2	O K
600 min Winter	9.147	1.147	4.1	68.3	O K
720 min Winter	9.100	1.100	4.0	65.5	O K
960 min Winter	9.011	1.011	3.6	60.2	O K
1440 min Winter	8.865	0.865	3.1	51.5	O K
2160 min Winter	8.709	0.709	2.6	42.2	O K
2880 min Winter	8.602	0.602	2.2	35.8	O K
4320 min Winter	8.464	0.464	1.7	27.6	O K
5760 min Winter	8.379	0.379	1.4	22.6	O K
7200 min Winter	8.322	0.322	1.2	19.2	O K
8640 min Winter	8.280	0.280	1.0	16.7	O K
10080 min Winter	8.249	0.249	0.9	14.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	78.022	0.0	32
60 min Winter	48.611	0.0	60
120 min Winter	29.258	0.0	116
180 min Winter	21.452	0.0	146
240 min Winter	17.111	0.0	182
360 min Winter	12.405	0.0	258
480 min Winter	9.873	0.0	332
600 min Winter	8.265	0.0	404
720 min Winter	7.145	0.0	476
960 min Winter	5.674	0.0	614
1440 min Winter	4.093	0.0	880
2160 min Winter	2.948	0.0	1260
2880 min Winter	2.334	0.0	1644
4320 min Winter	1.676	0.0	2376
5760 min Winter	1.325	0.0	3112
7200 min Winter	1.103	0.0	3824
8640 min Winter	0.949	0.0	4576
10080 min Winter	0.836	0.0	5248

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 0.187

Time (mins) From:	To:	Area (ha)
0	4	0.187

Model Details

Storage is Online Cover Level (m) 10.000

Lined Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	1.80
Infiltration Coefficient Side (m/hr)	0.16000	Pit Multiplier	1.5
Safety Factor	2.0	Number Required	15
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.000

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

Half Drain Time : 195 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.743	0.743	2.9	47.2	O K
30 min Summer	8.947	0.947	3.6	60.2	O K
60 min Summer	9.121	1.121	4.3	71.2	O K
120 min Summer	9.219	1.219	4.7	77.4	O K
180 min Summer	9.242	1.242	4.8	78.8	O K
240 min Summer	9.246	1.246	4.8	79.1	O K
360 min Summer	9.233	1.233	4.7	78.3	O K
480 min Summer	9.208	1.208	4.6	76.7	O K
600 min Summer	9.177	1.177	4.5	74.7	O K
720 min Summer	9.143	1.143	4.4	72.6	O K
960 min Summer	9.076	1.076	4.1	68.3	O K
1440 min Summer	8.958	0.958	3.7	60.8	O K
2160 min Summer	8.823	0.823	3.2	52.2	O K
2880 min Summer	8.724	0.724	2.8	45.9	O K
4320 min Summer	8.587	0.587	2.3	37.3	O K
5760 min Summer	8.498	0.498	1.9	31.6	O K
7200 min Summer	8.433	0.433	1.7	27.5	O K
8640 min Summer	8.385	0.385	1.5	24.4	O K
10080 min Summer	8.347	0.347	1.3	22.0	O K
15 min Winter	8.833	0.833	3.2	52.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	139.112	0.0	18
30 min Summer	91.026	0.0	33
60 min Summer	56.713	0.0	62
120 min Summer	34.134	0.0	114
180 min Summer	25.027	0.0	142
240 min Summer	19.963	0.0	174
360 min Summer	14.472	0.0	242
480 min Summer	11.519	0.0	310
600 min Summer	9.643	0.0	378
720 min Summer	8.336	0.0	446
960 min Summer	6.619	0.0	578
1440 min Summer	4.775	0.0	838
2160 min Summer	3.440	0.0	1212
2880 min Summer	2.723	0.0	1588
4320 min Summer	1.956	0.0	2332
5760 min Summer	1.545	0.0	3056
7200 min Summer	1.287	0.0	3752
8640 min Summer	1.107	0.0	4496
10080 min Summer	0.975	0.0	5240
15 min Winter	139.112	0.0	18

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	9.063	1.063	4.1	67.5	O K
60 min Winter	9.260	1.260	4.8	80.0	O K
120 min Winter	9.376	1.376	5.3	87.4	O K
180 min Winter	9.392	1.392	5.3	88.4	O K
240 min Winter	9.390	1.390	5.3	88.3	O K
360 min Winter	9.356	1.356	5.2	86.1	O K
480 min Winter	9.307	1.307	5.0	83.0	O K
600 min Winter	9.255	1.255	4.8	79.7	O K
720 min Winter	9.203	1.203	4.6	76.4	O K
960 min Winter	9.105	1.105	4.2	70.2	O K
1440 min Winter	8.946	0.946	3.6	60.1	O K
2160 min Winter	8.775	0.775	3.0	49.2	O K
2880 min Winter	8.658	0.658	2.5	41.8	O K
4320 min Winter	8.507	0.507	1.9	32.2	O K
5760 min Winter	8.415	0.415	1.6	26.3	O K
7200 min Winter	8.352	0.352	1.4	22.4	O K
8640 min Winter	8.307	0.307	1.2	19.5	O K
10080 min Winter	8.272	0.272	1.0	17.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	91.026	0.0	32
60 min Winter	56.713	0.0	60
120 min Winter	34.134	0.0	116
180 min Winter	25.027	0.0	146
240 min Winter	19.963	0.0	182
360 min Winter	14.472	0.0	258
480 min Winter	11.519	0.0	332
600 min Winter	9.643	0.0	404
720 min Winter	8.336	0.0	476
960 min Winter	6.619	0.0	614
1440 min Winter	4.775	0.0	880
2160 min Winter	3.440	0.0	1260
2880 min Winter	2.723	0.0	1644
4320 min Winter	1.956	0.0	2376
5760 min Winter	1.545	0.0	3112
7200 min Winter	1.287	0.0	3824
8640 min Winter	1.107	0.0	4576
10080 min Winter	0.975	0.0	5248

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.187

Time (mins) From:	To:	Area (ha)
0	4	0.187

Model Details

Storage is Online Cover Level (m) 10.000

Lined Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	1.80
Infiltration Coefficient Side (m/hr)	0.16000	Pit Multiplier	1.5
Safety Factor	2.0	Number Required	16
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.000

Summary of Results for 100 year Return Period (+20%)

Half Drain Time : 255 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.604	0.604	0.3	7.2	O K
30 min Summer	8.775	0.775	0.4	9.2	O K
60 min Summer	8.929	0.929	0.5	11.1	O K
120 min Summer	9.034	1.034	0.6	12.3	O K
180 min Summer	9.058	1.058	0.6	12.6	O K
240 min Summer	9.065	1.065	0.6	12.7	O K
360 min Summer	9.066	1.066	0.6	12.7	O K
480 min Summer	9.056	1.056	0.6	12.6	O K
600 min Summer	9.040	1.040	0.6	12.4	O K
720 min Summer	9.020	1.020	0.6	12.1	O K
960 min Summer	8.976	0.976	0.5	11.6	O K
1440 min Summer	8.891	0.891	0.5	10.6	O K
2160 min Summer	8.784	0.784	0.4	9.3	O K
2880 min Summer	8.700	0.700	0.4	8.3	O K
4320 min Summer	8.581	0.581	0.3	6.9	O K
5760 min Summer	8.499	0.499	0.3	5.9	O K
7200 min Summer	8.439	0.439	0.2	5.2	O K
8640 min Summer	8.393	0.393	0.2	4.7	O K
10080 min Summer	8.356	0.356	0.2	4.2	O K
15 min Winter	8.677	0.677	0.4	8.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	119.239	0.0	19
30 min Summer	78.022	0.0	33
60 min Summer	48.611	0.0	62
120 min Summer	29.258	0.0	120
180 min Summer	21.452	0.0	158
240 min Summer	17.111	0.0	188
360 min Summer	12.405	0.0	252
480 min Summer	9.873	0.0	322
600 min Summer	8.265	0.0	390
720 min Summer	7.145	0.0	458
960 min Summer	5.674	0.0	594
1440 min Summer	4.093	0.0	854
2160 min Summer	2.948	0.0	1236
2880 min Summer	2.334	0.0	1616
4320 min Summer	1.676	0.0	2376
5760 min Summer	1.325	0.0	3112
7200 min Summer	1.103	0.0	3824
8640 min Summer	0.949	0.0	4576
10080 min Summer	0.836	0.0	5248
15 min Winter	119.239	0.0	18

Summary of Results for 100 year Return Period (+20%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	8.869	0.869	0.5	10.3	O K
60 min Winter	9.042	1.042	0.6	12.4	O K
120 min Winter	9.165	1.165	0.6	13.9	O K
180 min Winter	9.193	1.193	0.6	14.2	O K
240 min Winter	9.194	1.194	0.6	14.2	O K
360 min Winter	9.185	1.185	0.6	14.1	O K
480 min Winter	9.161	1.161	0.6	13.8	O K
600 min Winter	9.129	1.129	0.6	13.4	O K
720 min Winter	9.096	1.096	0.6	13.0	O K
960 min Winter	9.027	1.027	0.6	12.2	O K
1440 min Winter	8.905	0.905	0.5	10.8	O K
2160 min Winter	8.764	0.764	0.4	9.1	O K
2880 min Winter	8.660	0.660	0.4	7.9	O K
4320 min Winter	8.521	0.521	0.3	6.2	O K
5760 min Winter	8.431	0.431	0.2	5.1	O K
7200 min Winter	8.369	0.369	0.2	4.4	O K
8640 min Winter	8.323	0.323	0.2	3.8	O K
10080 min Winter	8.288	0.288	0.2	3.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	78.022	0.0	32
60 min Winter	48.611	0.0	62
120 min Winter	29.258	0.0	118
180 min Winter	21.452	0.0	170
240 min Winter	17.111	0.0	192
360 min Winter	12.405	0.0	268
480 min Winter	9.873	0.0	344
600 min Winter	8.265	0.0	418
720 min Winter	7.145	0.0	492
960 min Winter	5.674	0.0	634
1440 min Winter	4.093	0.0	908
2160 min Winter	2.948	0.0	1300
2880 min Winter	2.334	0.0	1676
4320 min Winter	1.676	0.0	2424
5760 min Winter	1.325	0.0	3168
7200 min Winter	1.103	0.0	3896
8640 min Winter	0.949	0.0	4656
10080 min Winter	0.836	0.0	5344

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+20

Time Area Diagram

Total Area (ha) 0.033

Time (mins) From:	To:	Area (ha)
0	4	0.033

Model Details

Storage is Online Cover Level (m) 10.000

Lined Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	1.80
Infiltration Coefficient Side (m/hr)	0.12000	Pit Multiplier	1.5
Safety Factor	2.0	Number Required	3
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.000

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

Half Drain Time : 255 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	8.705	0.705	0.4	8.4	O K
30 min Summer	8.905	0.905	0.5	10.8	O K
60 min Summer	9.084	1.084	0.6	12.9	O K
120 min Summer	9.207	1.207	0.7	14.4	O K
180 min Summer	9.234	1.234	0.7	14.7	O K
240 min Summer	9.243	1.243	0.7	14.8	O K
360 min Summer	9.244	1.244	0.7	14.8	O K
480 min Summer	9.232	1.232	0.7	14.7	O K
600 min Summer	9.213	1.213	0.7	14.4	O K
720 min Summer	9.190	1.190	0.6	14.2	O K
960 min Summer	9.139	1.139	0.6	13.6	O K
1440 min Summer	9.039	1.039	0.6	12.4	O K
2160 min Summer	8.914	0.914	0.5	10.9	O K
2880 min Summer	8.817	0.817	0.4	9.7	O K
4320 min Summer	8.678	0.678	0.4	8.1	O K
5760 min Summer	8.582	0.582	0.3	6.9	O K
7200 min Summer	8.513	0.513	0.3	6.1	O K
8640 min Summer	8.458	0.458	0.2	5.5	O K
10080 min Summer	8.416	0.416	0.2	4.9	O K
15 min Winter	8.790	0.790	0.4	9.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	139.112	0.0	19
30 min Summer	91.026	0.0	33
60 min Summer	56.713	0.0	62
120 min Summer	34.134	0.0	120
180 min Summer	25.027	0.0	158
240 min Summer	19.963	0.0	188
360 min Summer	14.472	0.0	252
480 min Summer	11.519	0.0	322
600 min Summer	9.643	0.0	390
720 min Summer	8.336	0.0	458
960 min Summer	6.619	0.0	594
1440 min Summer	4.775	0.0	854
2160 min Summer	3.440	0.0	1236
2880 min Summer	2.723	0.0	1616
4320 min Summer	1.956	0.0	2376
5760 min Summer	1.545	0.0	3112
7200 min Summer	1.287	0.0	3824
8640 min Summer	1.107	0.0	4576
10080 min Summer	0.975	0.0	5248
15 min Winter	139.112	0.0	18

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	9.014	1.014	0.5	12.1	O K
60 min Winter	9.216	1.216	0.7	14.5	O K
120 min Winter	9.360	1.360	0.7	16.2	O K
180 min Winter	9.392	1.392	0.8	16.6	O K
240 min Winter	9.393	1.393	0.8	16.6	O K
360 min Winter	9.382	1.382	0.7	16.5	O K
480 min Winter	9.354	1.354	0.7	16.1	O K
600 min Winter	9.318	1.318	0.7	15.7	O K
720 min Winter	9.278	1.278	0.7	15.2	O K
960 min Winter	9.199	1.199	0.6	14.3	O K
1440 min Winter	9.056	1.056	0.6	12.6	O K
2160 min Winter	8.891	0.891	0.5	10.6	O K
2880 min Winter	8.770	0.770	0.4	9.2	O K
4320 min Winter	8.607	0.607	0.3	7.2	O K
5760 min Winter	8.503	0.503	0.3	6.0	O K
7200 min Winter	8.430	0.430	0.2	5.1	O K
8640 min Winter	8.377	0.377	0.2	4.5	O K
10080 min Winter	8.336	0.336	0.2	4.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	91.026	0.0	32
60 min Winter	56.713	0.0	62
120 min Winter	34.134	0.0	118
180 min Winter	25.027	0.0	170
240 min Winter	19.963	0.0	192
360 min Winter	14.472	0.0	268
480 min Winter	11.519	0.0	344
600 min Winter	9.643	0.0	418
720 min Winter	8.336	0.0	492
960 min Winter	6.619	0.0	634
1440 min Winter	4.775	0.0	908
2160 min Winter	3.440	0.0	1300
2880 min Winter	2.723	0.0	1676
4320 min Winter	1.956	0.0	2424
5760 min Winter	1.545	0.0	3168
7200 min Winter	1.287	0.0	3896
8640 min Winter	1.107	0.0	4664
10080 min Winter	0.975	0.0	5344

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.408	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.033

Time (mins) From:	To:	Area (ha)
0	4	0.033

Model Details

Storage is Online Cover Level (m) 10.000

Lined Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00000	Ring Diameter (m)	1.80
Infiltration Coefficient Side (m/hr)	0.12000	Pit Multiplier	1.5
Safety Factor	2.0	Number Required	3
Porosity	0.30	Cap Volume Depth (m)	0.000
Invert Level (m)	8.000	Cap Infiltration Depth (m)	0.000