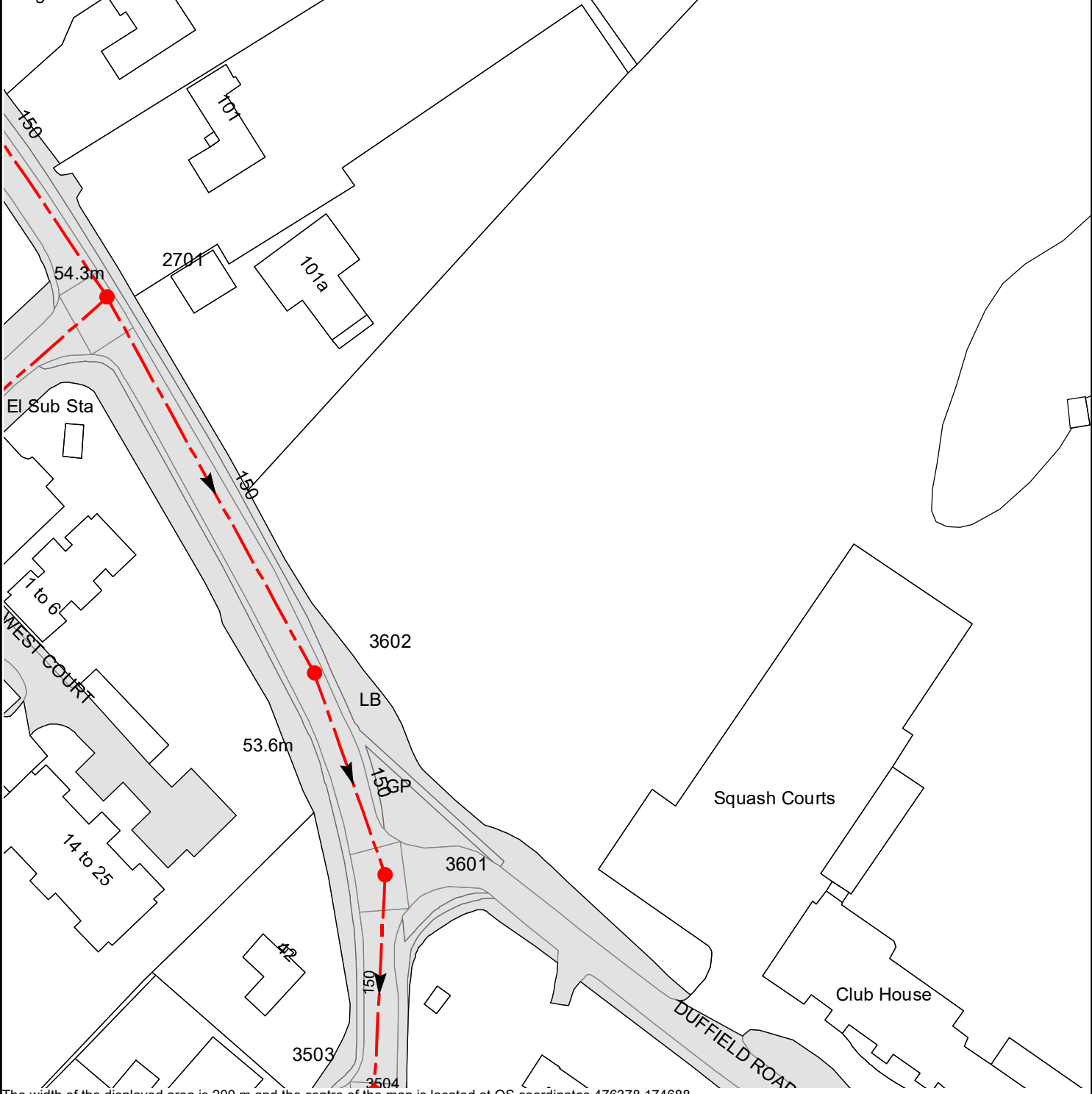


APPENDIX A

THAMES WATER SEWER RECORDS



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 476378,174688

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

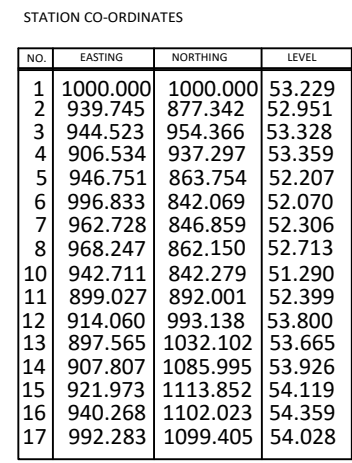
Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
3601	53.84	52.08
3602	54.03	52.27
2701	54.31	52.54
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.		

APPENDIX B

SITE SURVEY



- 1.1 Do not scale from this drawing.
- 1.2 All dimensions are in m unless otherwise specified.
- 1.3 In case of any discrepancies in drawings or details refer to engineer for clarification. Unilateral decisions by the contractor will not be accepted.
- 1.4 This drawing is to be read in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.
- 1.5 The Contractor is to ensure that all design drawings and information are read concurrently and any discrepancies or omissions reported directly to Aventus Design.
- 1.6 This drawing is based upon the survey by KND Surveys Ltd, reference A03 15 Revision 1, dated 28th April 2008 provided in digital format.
- 1.7 Levels are related to Ordnance Survey by a minimum of 4HRS GPS Observation.
- 1.8 The grid relates to a local datum.

AV	AIR VALVE
B	BOLLARD
CL	COVER LEVEL
DK	DROP KERB
DPB	DAMP PROOF COURSING
EBC	ELECTRIC CABLE CABINET
ECP	ELECTRIC CABLE PIT
EP	ELECTRICITY POLE
ER	EARTH ROD
FAI	FRESH AIR INLET
FH	FIRE HYDRANT
GU	GULLY
GC	GAS COCK
IL	INVERT LEVEL
L	LAMP COLUMN
MC	SERVICE MARKER
MH	MANHOLE COVER
OH/C	OVERHEAD CABLES
RS	ROAD SURFACE
RWP	RAIN WATER PIPE
SC	STOP COCK
SV	STOP VALVE
SVP	SOIL AND VENT PIPE
TBM	TEMPORARY BENCH MARK
TCB	TELEPHONE CABLE CABINET
TEP	TELEPHONE CABLE PIT
TP	TELEPHONE POLE
TOS	TOP OF SILT
TOW	TOP OF WALL
TW	CABLE T. V.
UTL	UNABLE TO LIFT
VP	VENT PIPE
WL	WATER LEVEL
WM	WATER METER
WO	WASH OUT

Aventus Design have considered and where reasonably practicable avoided foreseeable risks in the preparation of the design shown on this and related drawings. Significant risks which remain and associated control measures are identified in the Risk Register and should be given particular attention by the main contractor on site.

RISKS RELATING TO THIS DRAWING:

RISK NUMBERS ? & ? on Risk Register

NOTE : The Risk Register records only those elements considered unusual, difficult to manage or outside the anticipated expertise of a competent contractor.

C	07.07.22	Client name updated.	CU	-
B	04.03.20	Sewer Records added.	SU	-
A	04.02.20	Survey revised to suit Survey that was carried out on 28.04.08.	CU	-
REV.	DATE	DESCRIPTION	CHK	AP

Aventus Design Ltd
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Tel: 01296 770066

Aventus
DESIGN
Civil & Structural Engineers
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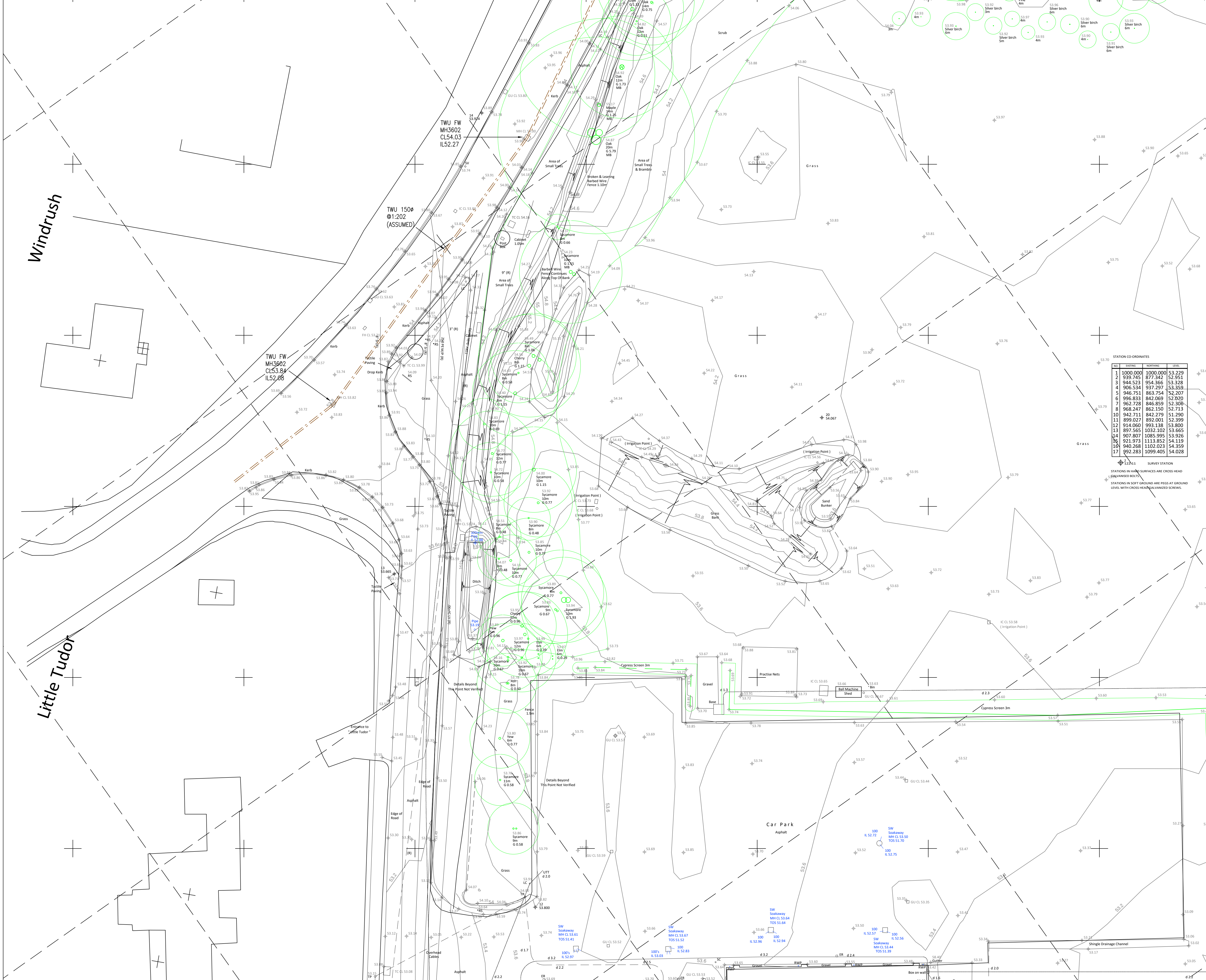
Client:	Savista Developments
Site:	Sonning Golf Club, Duffield Road, Sonning, Reading. RG4 6GJ

Title: Site Survey

Drawing no.		H1342 - 400-1	
Issue:	Scale: 1:250 @ A1	Checked: -	Date: -
C	Dwn: C.U.	Date: Dec '19	Approv: -

ORIGINAL SIZE - A1

250mm 200mm 150mm 100mm 50mm



Notes:

1.1 Do not scale from this drawing.

1.2 All dimensions are in m unless otherwise specified.

1.3 In case of any discrepancies in drawings or details refer to engineer for clarification. Unilateral decisions by the contractor will not be accepted.

1.4 This drawing is to be read in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.

1.5 The Contractor is to ensure that all design drawings and information are read concurrently and any discrepancies or omissions reported directly to Aventus Design.

1.6 This drawing is based upon the survey by KND Surveys Ltd, reference A03 15 Revision 1, dated 28th April 2008 provided in digital format.

1.7 Levels are related to Ordnance Survey by a minimum of 4HRS GPS Observation.

1.8 The grid relates to a local datum.

ABBREVIATION LIST

AV	AIR VALVE
B	BOLLARD
CL	COVER LEVEL
DK	DROP KERB
DPC	DAMP PROOF COURSING
ECB	ELECTRIC CABLE CABINET
ECP	ELECTRIC CABLE PIT
EP	ELECTICITY POLE
ER	EARTH ROD
FAI	FRESH AIR INLET
FH	FIRE HYDRANT
GU	GULLY
GC	GAS COCK
IL	INVERT LEVEL
LC	LAMP COLUMN
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MH	MANHOLE COVER
OHC	OVERHEAD CABLES
RS	ROAD SIGN
RWP	RAIN WATER PIPE
SC	STOP COCK
SV	STOP VALVE
SVP	SOIL AND VENT PIPE
TBM	TEMPORARY BENCH MARK
TCB	TELEPHONE CABLE CABINET
TC	TELEPHONE CABLE PIT
TP	TELEPHONE POLE
TOS	TOP OF SILT
TOW	TOP OF WALL
TV	CABLE T. V.
U/L	UNABLE TO LIFT
VP	VENT PIPE
WL	WATER LEVEL
WM	WATER METER
WO	WASH OUT

STATION CO-ORDINATES

NO.	EASTING	NORTHING	LEVEL
1	1000.000	1000.000	53.229
2	939.745	877.342	52.951
3	944.523	954.366	53.328
4	906.534	937.297	53.350
5	946.751	863.754	52.207
6	996.833	842.069	52.070
7	962.728	846.859	52.300
8	968.247	862.150	52.713
10	942.711	842.279	51.290
11	899.027	892.001	52.399
12	914.060	993.138	53.800
13	897.565	1032.102	53.665
14	907.807	1085.995	53.926
16	921.973	1113.852	54.119
18	940.268	1102.023	54.359
17	992.283	1099.405	54.028

STATIONS IN HAND SURFACES ARE CROSS HEAD
STATIONS IN SOFT GROUND ARE PEGS AT GROUND LEVEL WITH CROSS HEAD GALVANIZED SCREWS

CDM REGULATIONS 2015
Aventus Design have considered and where reasonably practicable avoided foreseeable risks in the preparation of the design shown on this and related drawings. Significant risks which remain and associated control measures are identified in the Risk Register and should be given particular attention by the main contractor on site.

RISKS RELATING TO THIS DRAWING:
RISK NUMBERS ? & ? on Risk Register
NOTE: The Risk Register records only those elements considered unusual, difficult to manage or outside the anticipated expertise of a competent contractor.

Drawing Status	PRELIMINARY ISSUE	☒
----------------	--------------------------	-------------------------------------

A	07.07.22	Client name updated.	CU	-
REV.	DATE	DESCRIPTION	CHK	APP

Aventus Design Ltd
Unit 5 - Leaches Farm
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Tel: 01296 770066

Aventus DESIGN
Civil & Structural Engineers
Email: mail@aventusdesign.co.uk
Web: www.aventusdesign.co.uk

Client: Savista Developments

Site: Sonning Golf Club,
Duffield Road, Sonning,
Reading. RG4 6GJ

Title: Site Survey Sheet 2

Drawing no. H1342 - 400-2

Issue:	Scale: 1:200 @ A1	Checked: -	Date: -
A	Dwn: C.U.	Date: Dec '19	Approve: -

50mm

100mm

150mm

200mm

250mm

ORIGINAL SIZE - A1

APPENDIX C

SCHEMATIC DRAINAGE LAYOUT

Private Drainage Key

Rodding Eye	FOUL	STORM
Shallow Inspection Chamber		
450Ø Inspection Chamber		
450Ø IC with 300mm sump		
450Ø IC Restricted Access		
Cellular Crate Storage / Soakaway		
Permeable Pavement		
Soakaway Overflow/link pipe		
Soil and Vent Pipe		
Stub Stack		
Rainwater Pipe		
Overland Floodflow		
Permavoid Distribution box		

NOTE:
Drainage design is modelled on the 1:100year storm + 40% for climate change and been checked to ensure flooding of buildings does not occur.

PRIVATE DRAINAGE NOTES

- All private drainage works to be in accordance with Part H of the current Building Regulations and BS 8301.
- All private drainage to be either:-
PVCu to BS EN 1401-1 (BS 4660/5481) by Osma, Marley or similar.
OR
Vitrified Clayware to BS 65 and BS EN 295.
OR
Concrete to BS 5911 and flexibly jointed.
The drainage design shown on this drawing has been based upon a PVCu drainage system.
- All private drainage to be 100mm diameter unless noted otherwise. Gully laterals to be sized to suit gully outlets. Connections to public sewers to be 150mm dia unless noted otherwise.
- Foundations Adjacent to drain runs are to be constructed so that the difference between the formation level of the foundation and invert level of any drain must not exceed the horizontal distance minus 500mm.
- Where foul and surface water sewers cross and there is less than 100mm clearance short lengths of both runs are to be encased in concrete.
- All RWP, SVP and foul drainage positions are to be confirmed by the Architect.
- Where RWP's are connected direct to drain, rodding access plates are to be provided.
- For pipe bedding and backfill details refer to drawing number H1342/432.
- Inspection chambers shown thus IC, are not part of the critical drainage run. Depth to invert to be generally 550>750mm.

SOAKAWAY NOTES

- The Site investigation has identified River Terrace Deposits from depths of 700mm to 2m below ground. Following onsite testing, in the areas of SA04-SA08, an infiltration rate of 1x10-5m/s has been recorded. SA04-SA08 have been sized to drain roof areas from all 13 plots. Soakaways have been designed to accord with BRE365 & Ciria Report 156 utilising this value.
- Soakage tests (to BRE365) are to be undertaken at the location of each soakaway in order to confirm that the design infiltration rate is achieved. Any discrepancy in the infiltration rate must be reported immediately to Aventus Design Civils' Department.
- All soakaways to be sited 5m minimum from any building or wall, existing or proposed, or any other soakaway.
- No soakaway bases to penetrate water table level.
- No soakaway to be constructed in contaminated ground.

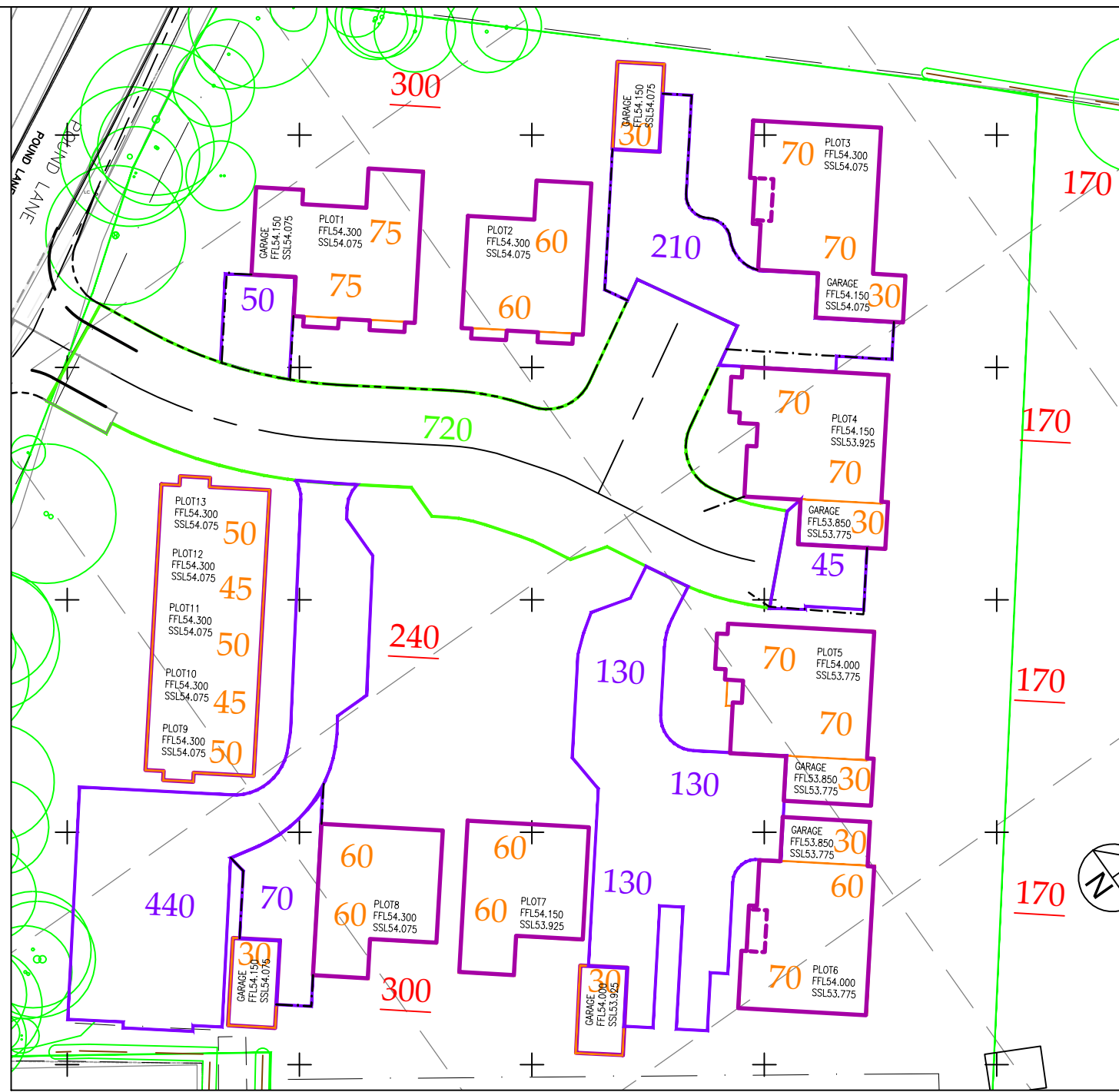
NOTE:
Full sized BRE365 Soakage testing required to verify the design, refer to note 4.2 above.

Adoptable Drainage Key

	Foul Water Sewer
	Concrete Protection to Sewer
	Foul Sewer Easement

ADOPTABLE DRAINAGE NOTES

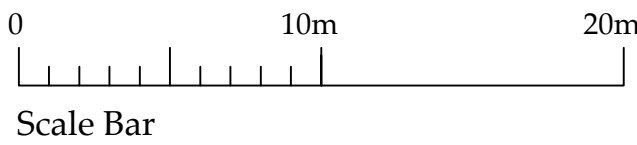
- All adoptable drainage works to be in accordance with the Sewerage Sector Guidance (SSG)
- All adoptable drainage to be either:-
Vitrified Clayware to BS 65 and BS EN 295.
OR
Concrete to BS 5911 Part 100 Class M loading and flexibly jointed (Class 3 Sulphate resistant cement).
Contractor to confirm the approval for the type of pipe and bedding being used with the adopting Authority prior to any construction commencing.
- All precast concrete units are to be to BS 5911 (Class 3 Sulphate resistant cement).
- All manhole covers and frames are to be to BS EN 124 and kite marked (refer to schedule for load class) and badged 'FW' or 'SW' as appropriate.
- Where foul and surface water sewers cross and there is less than 100mm clearance short lengths of both runs are to be encased in concrete.



DRAINED AREAS (Scale 1:500)

Notes:

- Do not scale from this drawing.
- All dimensions are in m unless otherwise specified.
- In case of any discrepancies in drawings or details refer to engineer for clarification. Unilateral decisions by the contractor will not be accepted.
- This drawing is to be read in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.
- The Contractor is to ensure that all design drawings and information are read concurrently and any discrepancies or omissions reported directly to Aventus Design.
- This drawing is based upon the survey by KND Surveys Ltd, reference B1308-T-S1-56 dated 12th March 2008.
- Levels are related to Ordnance Survey by a minimum of 4hrs GPS observation.
- The grid relates to a local datum.
- The Contractor must check the levels of all existing drainage outfalls prior to construction of any drainage, unless otherwise agreed, to ensure the proposed design may be achieved. Any discrepancies must be reported immediately to Aventus Design.
- Sulphates have been determined as class 1 (DS-1) for design purposes in accordance with BRE Special Digest 1 (2001). Buried Concrete to be in accordance with ACEC Site Class AC-1s. Sulphates to be confirmed.
- All adoptable highway works to be in accordance with the Local Authorities Specifications.
- All adoptable drainage works to be in accordance with the Water Authorities standard guidelines for connections etc.
- Formation to road/hardstanding to be proof rolled and any soft spots in subgrade of road/Hardstanding areas are to be excavated and replaced with well compacted sub-base or free draining granular material to Department of Transport Specification for Highway Works Part 2' Table 6/1 Class 1 (General Granular Fill) and compacted in accordance with Table 6/4.



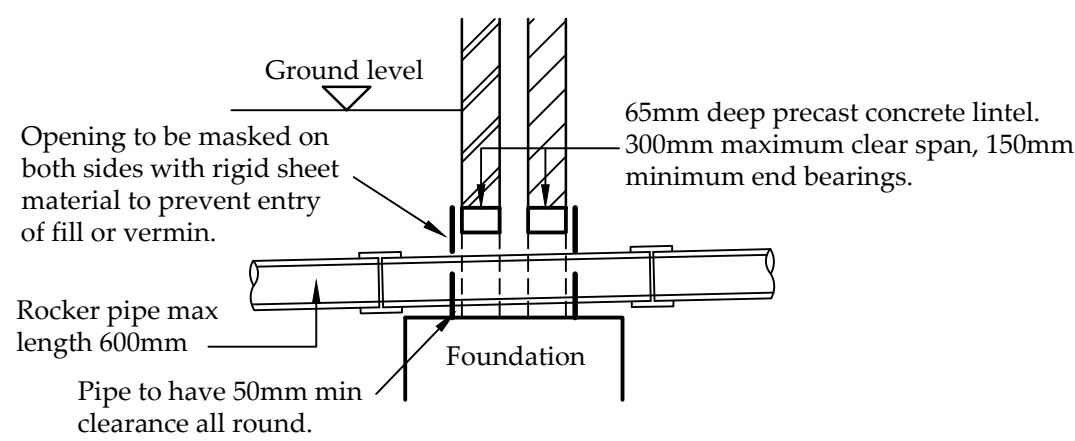
PLANNING ISSUE

NOTE:
The foul drainage is design at critical gradients and the contractor must ensure that lasers are employed to ensure accuracy is maintained. The contractor shall work from the drainage outfall and work upstream in accordance with best practice.

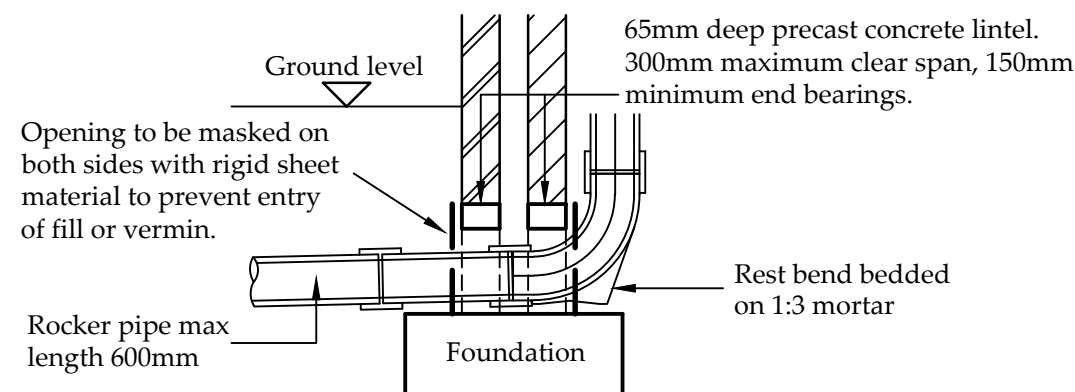
C	09.07.25	Layout & Scheme updated.	SU	-
B	01.09.22	Footpath tie-in to Pound Lane amended.	SU	-
A	07.07.22	Client name updated.	CU	-
REV.	DATE	DESCRIPTION	CHK	APP
Aventus Design Ltd Unit 5 - Leaches Farm Business Centre Bicester Road Kingswood Aylesbury Bucks HP18 0RF Tel: 01296 770066 Email: mail@aventusdesign.co.uk Web: www.aventusdesign.co.uk				
Client:	Darcliffe Homes			
Site:	Land Adj. Golf Club, Pound Lane, Sonning. RG4 6GG			
Title:	Site Layout & Drainage			
Drawing no.	H1342 - 430			
Issue:	Scale: 1:250 @ A1	Checked: -	Date: -	
C	Dwg: S.U.	Date: May '20	Approve: -	Date: -

APPENDIX D

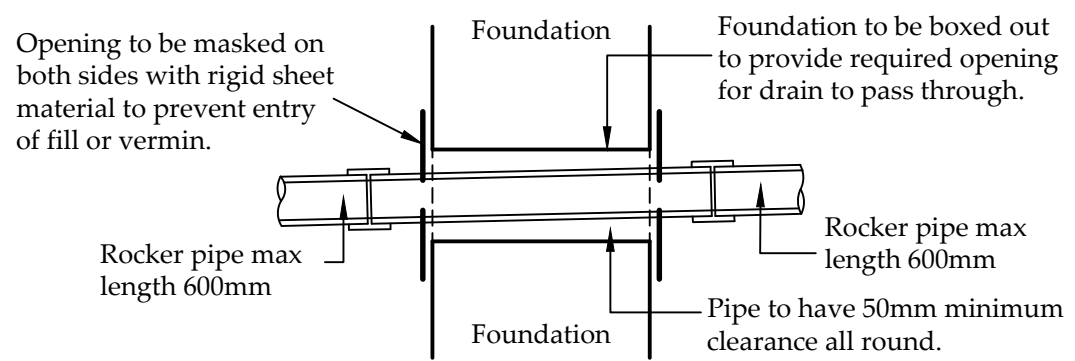
CONSTRUCTION DETAILS



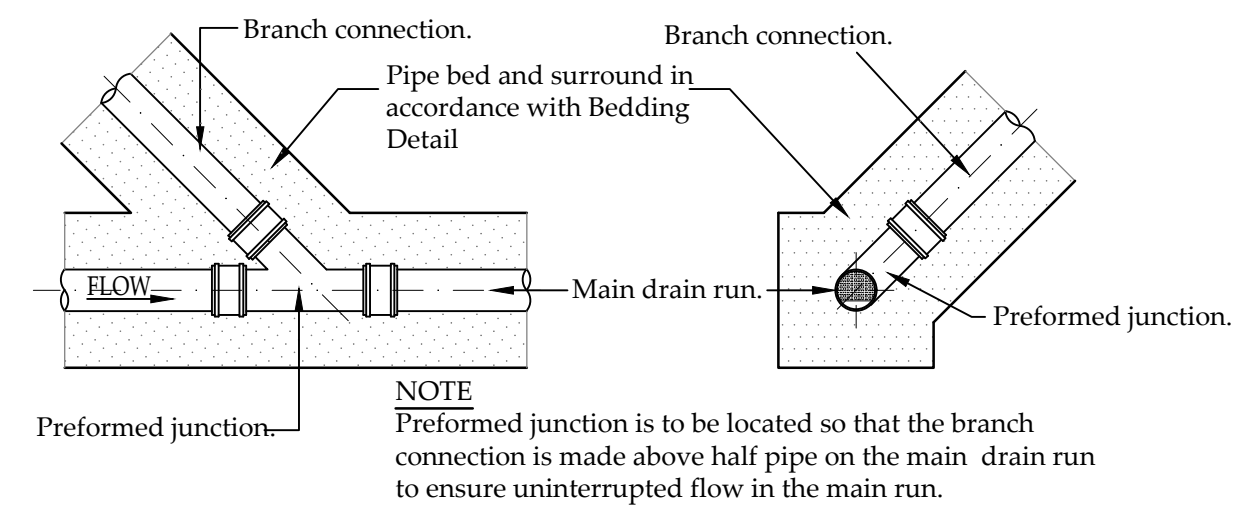
Detail Where Drain
Passes Through Wall



Detail Where SVP & Rest bend
Passes Through Wall

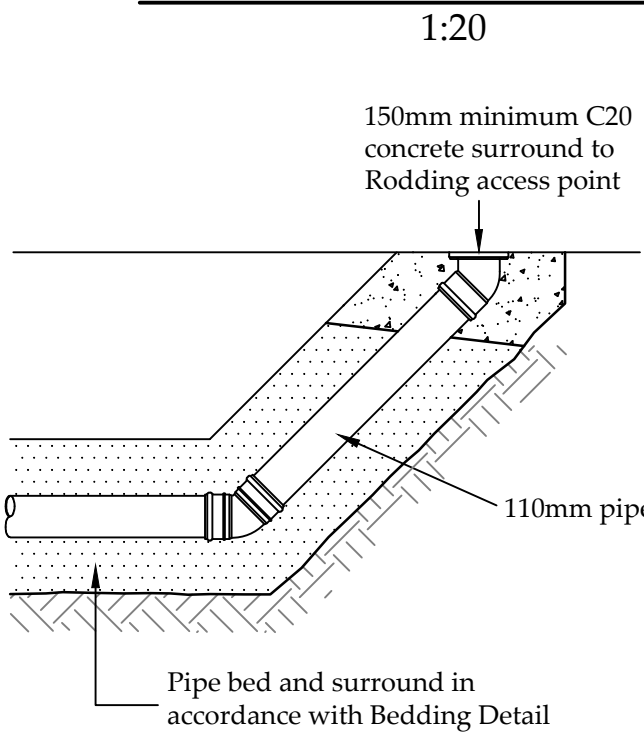


Detail Where Drain Passes
Through Foundation

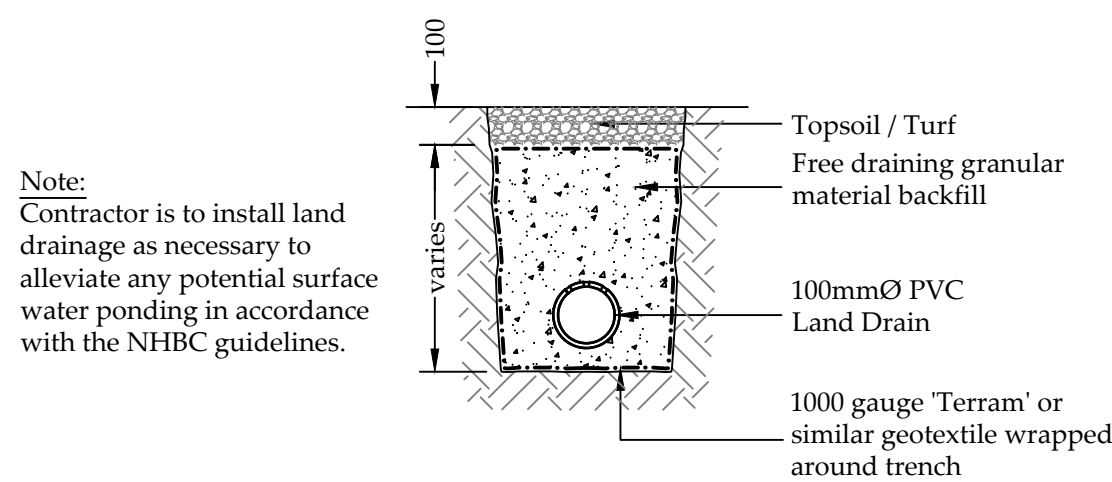


Plan Section

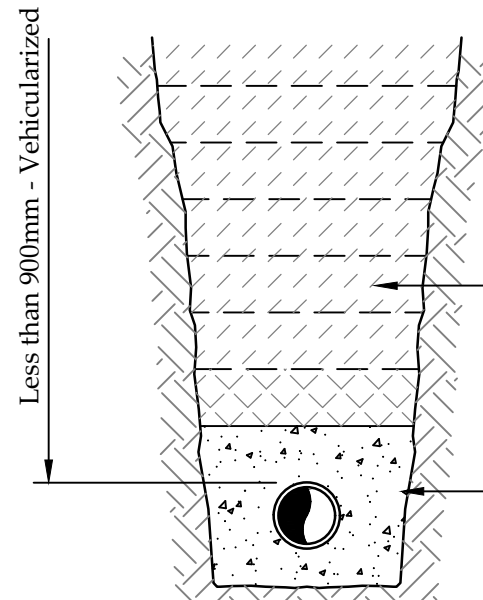
Preformed Junction Detail



Typical Rodding Eye Detail



Land Drain Detail

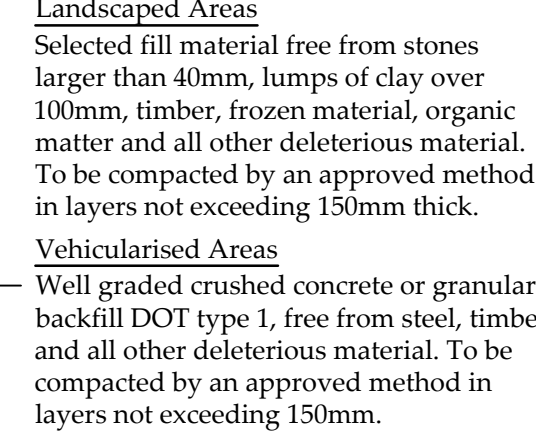


Under 900mm

Pipe Materials:
Vitrified Clay to BS65 & BS EN 295
PVCu to BS EN 1401

Granular materials for Pipe Bedding
Single sized or graded aggregate
complying with Table 4 of BS882 and
BS EN 1610 Annex B Table B.15

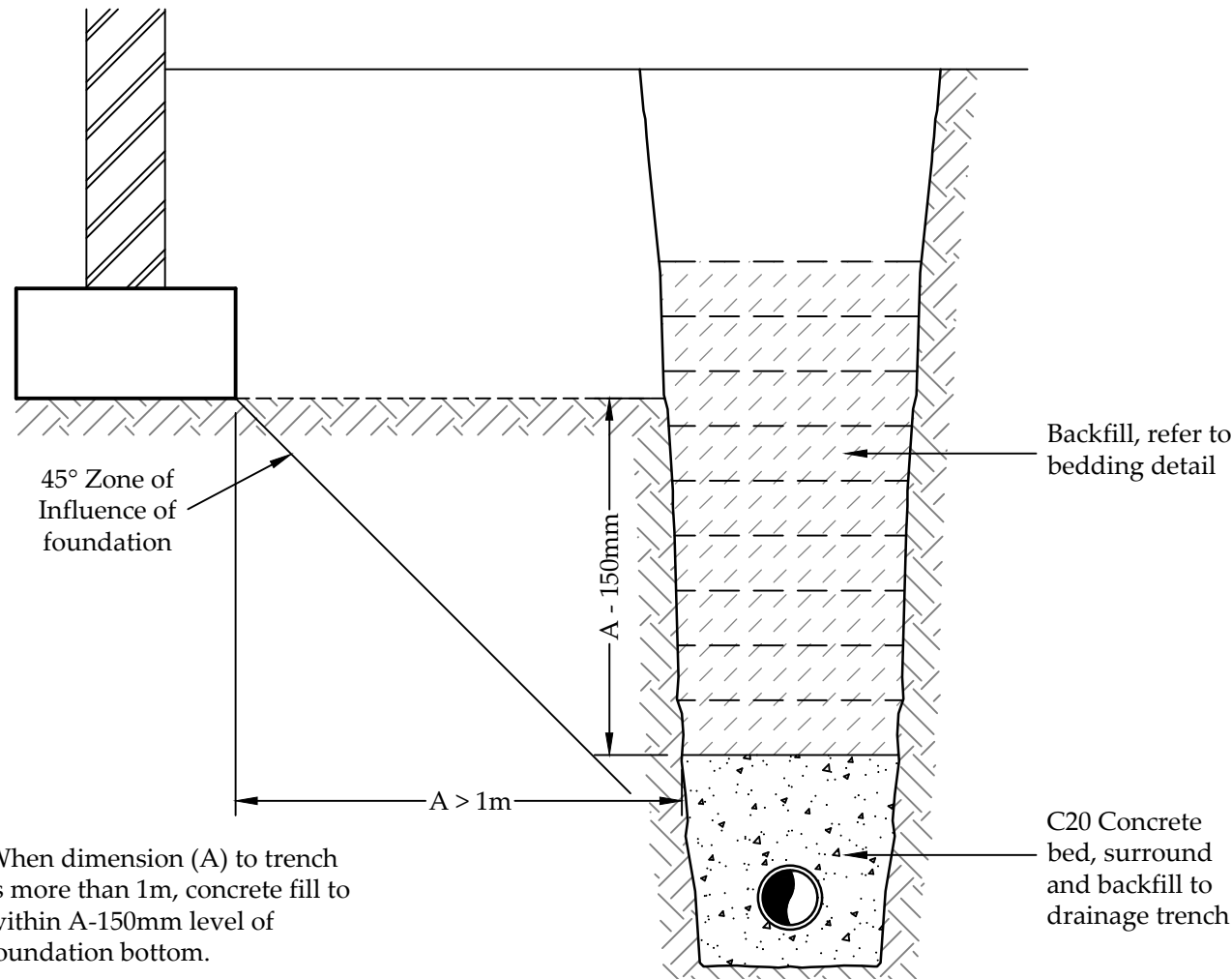
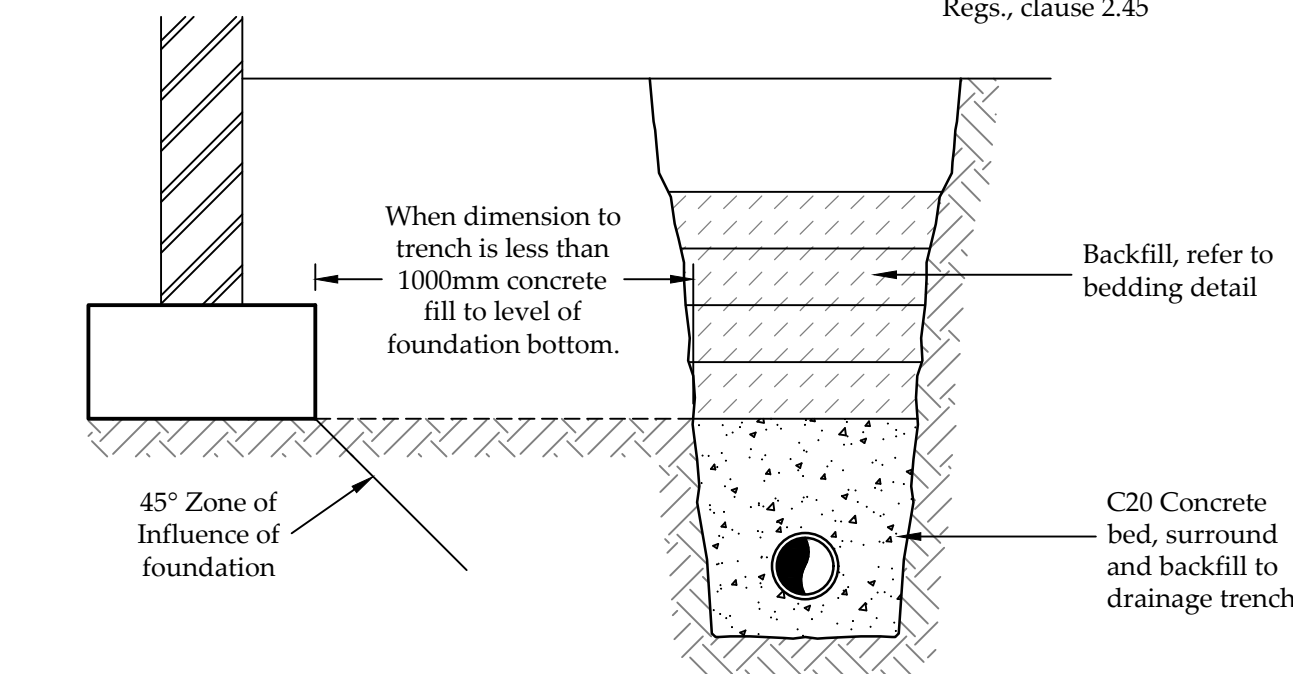
Pipe Size	Material Size
100mm	5-10mm
150mm	14mm
150-600mm	20mm
+600mm	40mm



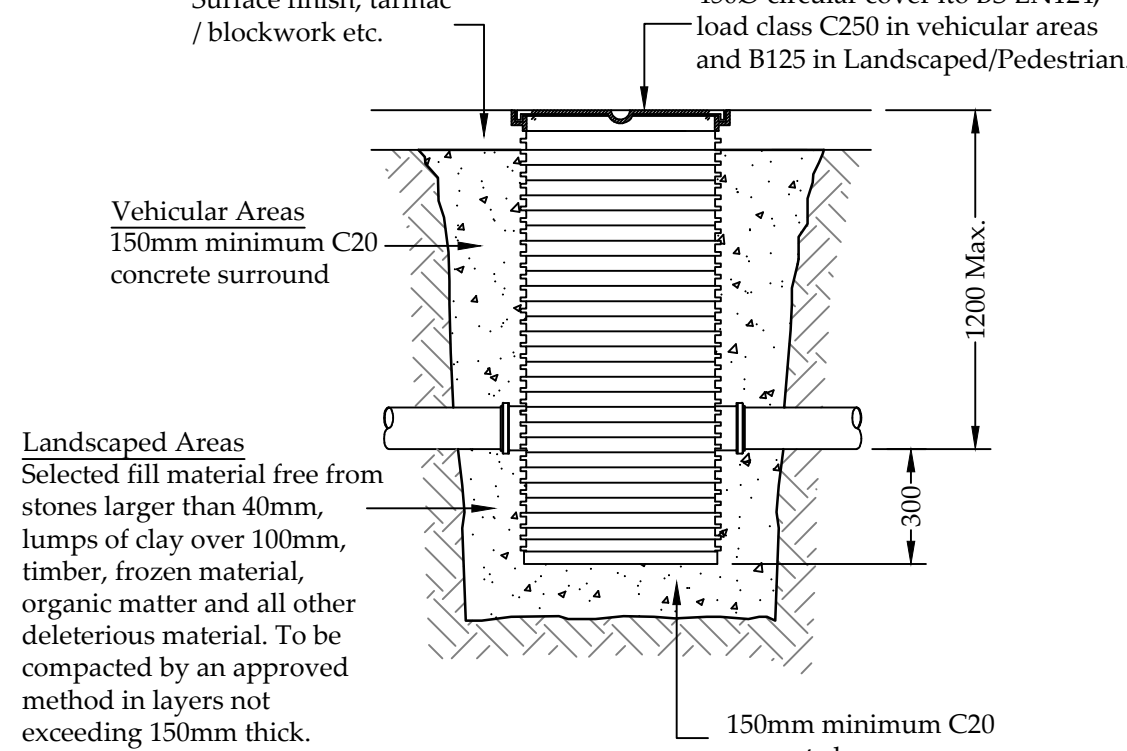
Over 900mm-Vehicular
Landscaped

Pipe Bedding Details
Clay & PVCu Pipes
Private

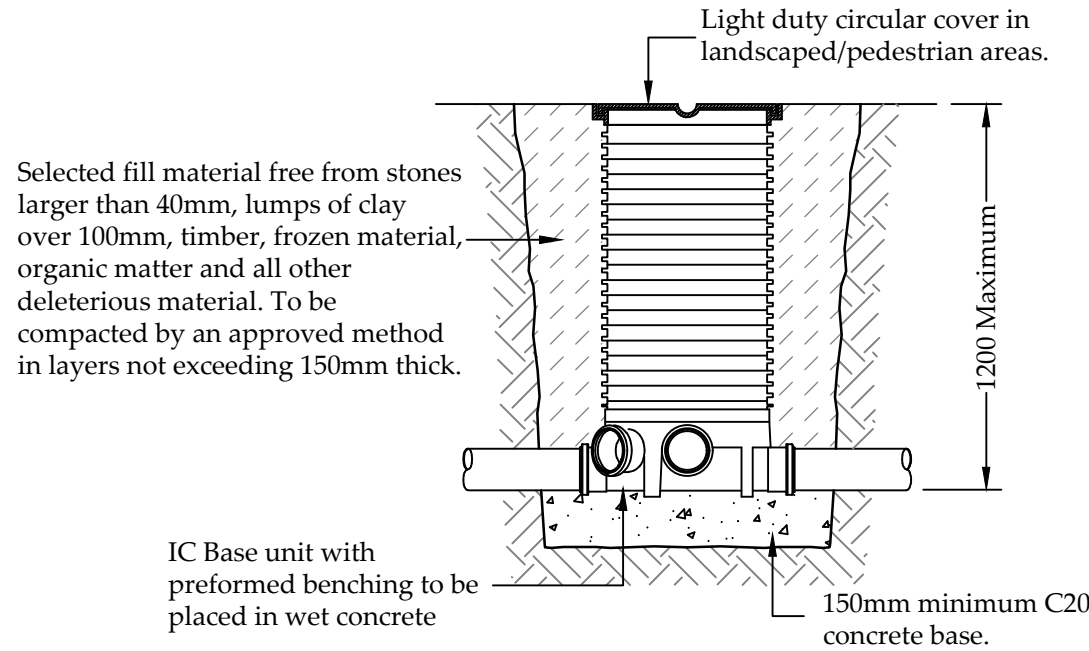
NOTE:
Concrete protection detailed to be
installed where pipes are near
foundations and as above in
accordance with Part H of Building
Regs., clause 2.45



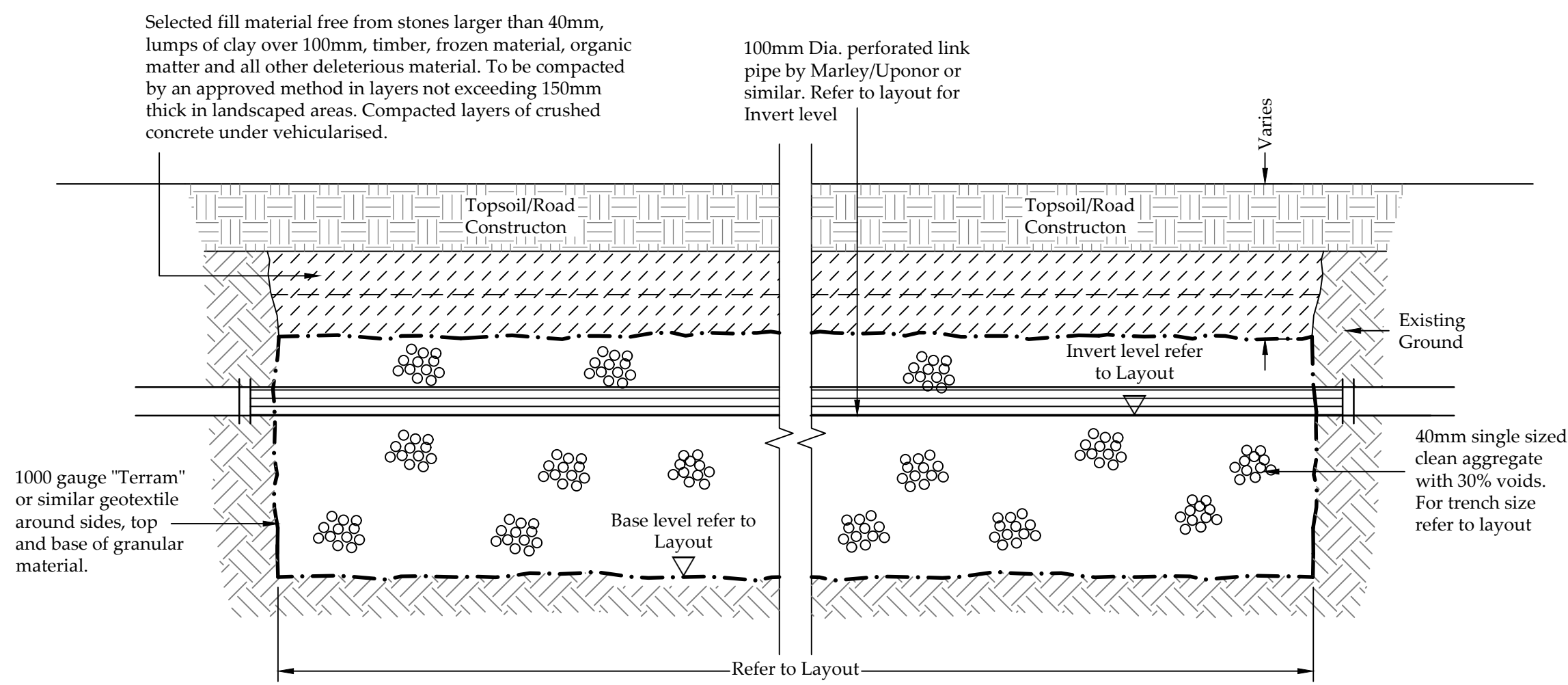
Pipe Runs Near Buildings



450Ø Dia Plastic Inspection
Chamber, Catchpit



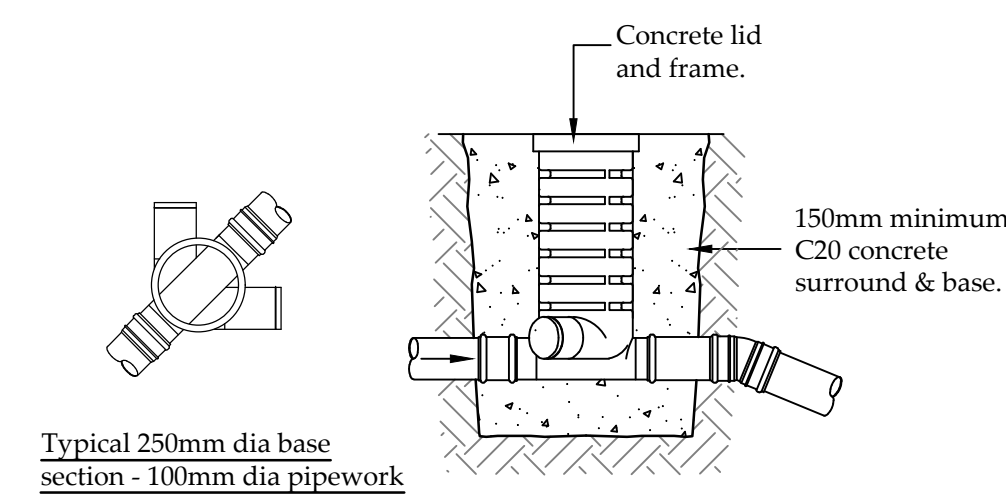
450 Dia Plastic Inspection
Chamber Detail For Use in
Landscaped/Pedestrian Areas



Trench Soakaway Detail

Designed in accordance with BRE Digest 365.

- SOAKAWAY NOTES
- The Site investigation has identified River Terrace Deposits from depths of 700mm to 2m below ground. For the purposes of the design an infiltration rate of 3x10-6m/s is assumed. Soakaways have been designed to accord with BRE365 & Ciria Report 156 utilising this value.
 - Soakage tests (to BRE365) are to be undertaken at the location of each soakaway in order to confirm that the design infiltration rate is achieved. Any discrepancy in the infiltration rate must be reported immediately to Aventus Design Civils' Department.
 - All soakaways to be sited 5m minimum from any building or wall, existing or proposed, or any other soakaway.
 - No soakaway bases to penetrate water table level.
 - No soakaway to be constructed in contaminated ground.



250 Dia Shallow Inspection
Chamber Detail

Notes:

- Do not scale from this drawing.
- All dimensions are in m unless otherwise specified.
- In case of any discrepancies in drawings or details refer to engineer for clarification. Unilateral decisions by the contractor will not be accepted.
- This drawing is to be read in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.
- The Contractor is to ensure that all design drawings and information are read concurrently and any discrepancies or omissions reported directly to Aventus Design.
- This drawing is based upon the survey by KND Surveys Ltd, reference B1308-T-S1-S6 dated 12th March 2008.
- Levels are related to Ordnance Survey by a minimum of 4hrs GPS observation.
- The grid relates to a local datum.
- The Contractor must check the levels of all existing drainage outfalls prior to construction of any drainage, unless otherwise agreed, to ensure the proposed design may be achieved. Any discrepancies must be reported immediately to Aventus Design.
- Sulphates have been determined as class 1 (DS-1) for design purposes in accordance with BRE Special Digest 1 (2001). Buried Concrete to be in accordance with ACEC Site Class AC-1. Sulphates to be confirmed.
- All adoptable highway works to be in accordance with the Local Authorities Specifications.
- All adoptable drainage works to be in accordance with the Water Authorities standard guidelines for connections etc.
- Formation to road/hardstanding to be proof rolled and any soft spots in subgrade of road/Hardstanding areas are to be excavated and replaced with well compacted sub-base or free draining granular material to Department of Transport Specification for Highway Works Part 2' Table 6/1 Class 1 (General Granular Fill) and compacted in accordance with Table 6/4.

Drawing Status PLANNING ISSUE

REV.	DATE	DESCRIPTION	CHK	APP
A	07.07.22	Client name updated.	CU	-

Aventus Design Ltd
Unit 5 - Leaches Farm
Business Centre
Bicester Road
Kingswood
Aylesbury
Bucks HP18 0RF
Tel: 01296 770066
Email: mail@aventusdesign.co.uk
Web: www.aventusdesign.co.uk

Client: Savista Developments

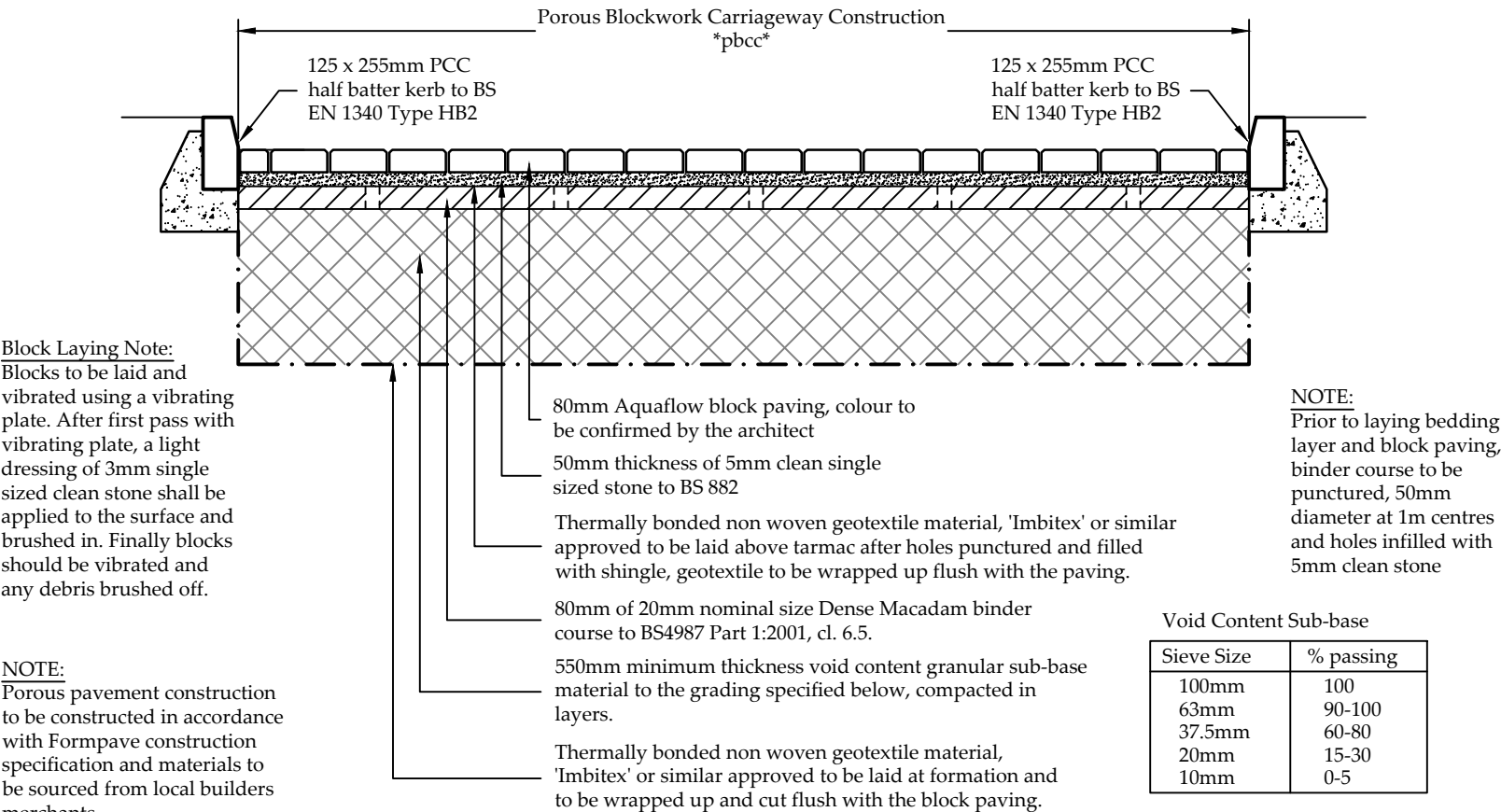
Site: Sonning Golf Club,
Duffield Road, Sonning,
Reading. RG4 6GJ

Title: Drainage Details

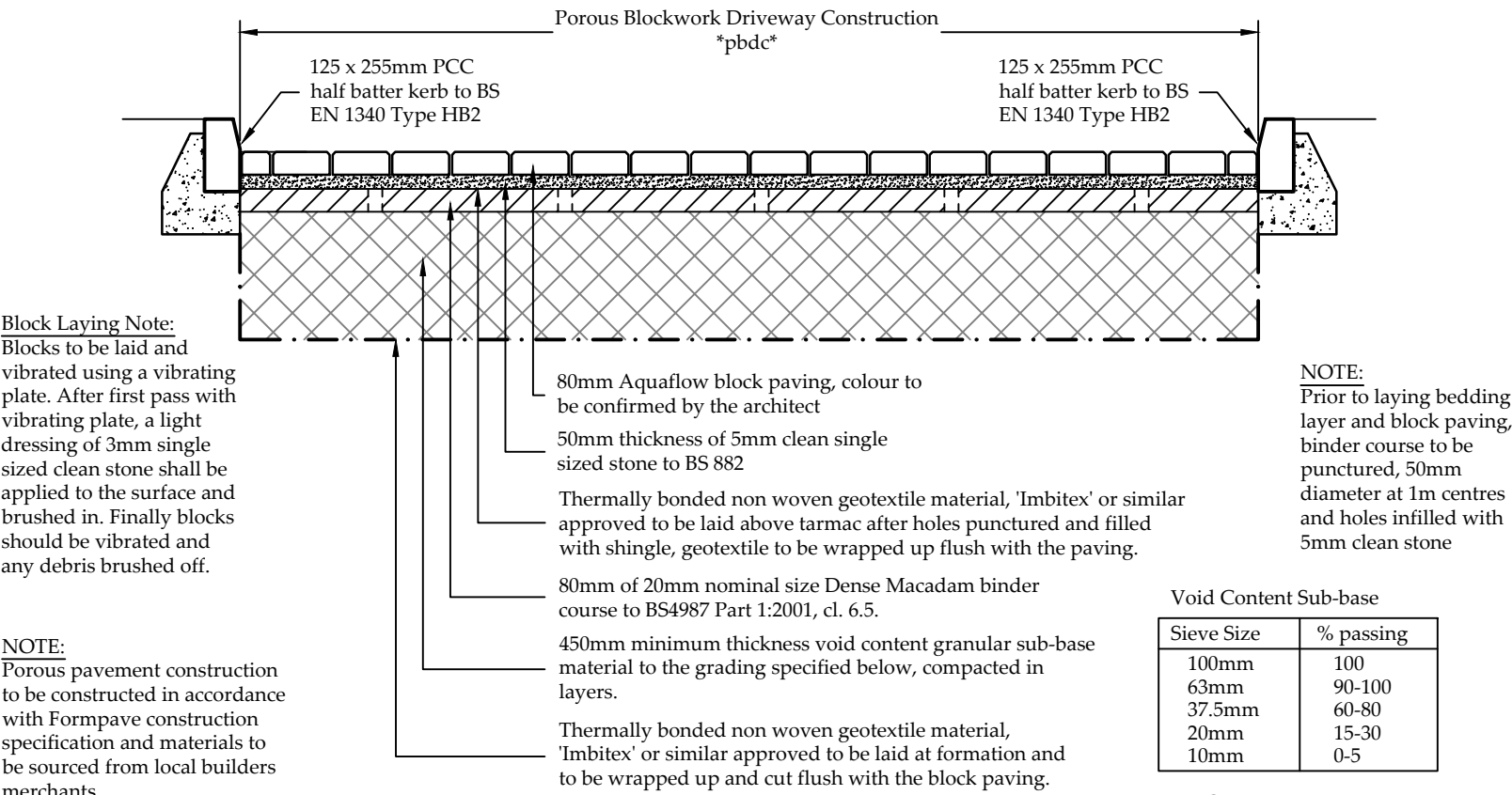
Drawing no. H1342 - 432

Issue:	Scale:	1:20 @ A1	Checked:	-	Date:	-
A	Dr: S.U.	Date: May '20	Approve:	-	Date:	-

50mm
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9900mm
9950mm
10000mm



Porous Blockwork Carriageway Construction *pbcc*
(1:25)



Porous Blockwork Driveway Construction *pbpc*
(1:25)

- Notes:
- 1.1 Do not scale from this drawing.
 - 1.2 All dimensions are in m unless otherwise specified.
 - 1.3 In case of any discrepancies in drawings or details refer to engineer for clarification. Unilateral decisions by the contractor will not be accepted.
 - 1.4 This drawing is to be read in conjunction with all related Architects, Consultants & Sub-Contractors drawings and specifications.
 - 1.5 The Contractor is to ensure that all design drawings and information are read concurrently and any discrepancies or omissions reported directly to Aventus Design.
 - 1.6 This drawing is based upon the survey by KND Surveys Ltd, reference B1308-T-S1-S6 dated 12th March 2008.
 - 1.7 Levels are related to Ordnance Survey by a minimum of 4hrs GPS observation.
 - 1.8 The grid relates to a local datum.
 - 1.9 The Contractor must check the levels of all existing drainage outfalls prior to construction of any drainage, unless otherwise agreed, to ensure the proposed design may be achieved. Any discrepancies must be reported immediately to Aventus Design.
 - 1.10 Sulphates have been determined as class 1 (DS-1) for design purposes in accordance with BRE Special Digest 1 (2001). Buried Concrete to be in accordance with ACEC Site Class AC-1. Sulphates to be confirmed.
 - 1.11 All adoptable highway works to be in accordance with the Local Authorities Specifications.
 - 1.12 All adoptable drainage works to be in accordance with the Water Authorities standard guidelines for connections etc.
 - 1.13 Formation to road/hardstanding to be proof rolled and any soft spots in subgrade of road/Hardstanding areas are to be excavated and replaced with well compacted sub-base or free draining granular material to Department of Transport Specification for Highway Works Part 2' Table 6/1 Class 1 (General Granular Fill) and compacted in accordance with Table 6/4.

Drawing Status	PLANNING ISSUE				
A	07.07.22	Client name updated.	CU	-	
REV.	DATE	DESCRIPTION	CHK	APP	
Aventus Design Ltd Unit 5 - Leaches Farm Business Centre Bicester Road Kingswood Aylesbury Bucks HP18 0RF Tel: 01296 770066 Civil & Structural Engineers Email: mail@aventusdesign.co.uk Web: www.aventusdesign.co.uk					
Client: Savista Developments					
Site: Sonning Golf Club, Duffield Road, Sonning, Reading. RG4 6GJ					
Title: Highway Details					
Drawing no. H1342 - 433					
Issue: A	Scale: 1:20 @ A3	Checked: -	Date: -	Dm: S.U. Date: May '20 Approv: - Date: -	

APPENDIX E

MICRO DRAINAGE CALCULATIONS

Aventus Design Limited				Page 1																																																																																																																																																																																																																			
Unit 7, Leaches Farm Bus. Ce...		Sonning Golf Club																																																																																																																																																																																																																					
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Summer</td><td>53.629</td><td>0.629</td><td>0.1</td><td>17.9</td><td>O K</td></tr><tr><td>600 min Summer</td><td>53.637</td><td>0.637</td><td>0.1</td><td>18.2</td><td>O K</td></tr><tr><td>720 min Summer</td><td>53.639</td><td>0.639</td><td>0.1</td><td>18.2</td><td>O K</td></tr><tr><td>960 min Summer</td><td>53.634</td><td>0.634</td><td>0.1</td><td>18.1</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>53.618</td><td>0.618</td><td>0.1</td><td>17.6</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>53.591</td><td>0.591</td><td>0.1</td><td>16.8</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>53.562</td><td>0.562</td><td>0.1</td><td>16.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>53.508</td><td>0.508</td><td>0.1</td><td>14.5</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>53.460</td><td>0.460</td><td>0.1</td><td>13.1</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>53.417</td><td>0.417</td><td>0.1</td><td>11.9</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>53.377</td><td>0.377</td><td>0.1</td><td>10.8</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>53.342</td><td>0.342</td><td>0.1</td><td>9.7</td><td>O K</td></tr><tr><td>15 min Winter</td><td>53.301</td><td>0.301</td><td>0.1</td><td>8.6</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>138.153</td><td>0.0</td><td>27</td></tr><tr><td>30 min Summer</td><td>90.705</td><td>0.0</td><td>41</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>0.0</td><td>70</td></tr><tr><td>120 min Summer</td><td>34.246</td><td>0.0</td><td>130</td></tr><tr><td>180 min Summer</td><td>25.149</td><td>0.0</td><td>188</td></tr><tr><td>240 min Summer</td><td>20.078</td><td>0.0</td><td>248</td></tr><tr><td>360 min Summer</td><td>14.585</td><td>0.0</td><td>366</td></tr><tr><td>480 min Summer</td><td>11.622</td><td>0.0</td><td>484</td></tr><tr><td>600 min Summer</td><td>9.738</td><td>0.0</td><td>604</td></tr><tr><td>720 min Summer</td><td>8.424</td><td>0.0</td><td>722</td></tr><tr><td>960 min Summer</td><td>6.697</td><td>0.0</td><td>916</td></tr><tr><td>1440 min Summer</td><td>4.839</td><td>0.0</td><td>1142</td></tr><tr><td>2160 min Summer</td><td>3.490</td><td>0.0</td><td>1524</td></tr><tr><td>2880 min Summer</td><td>2.766</td><td>0.0</td><td>1940</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>2768</td></tr><tr><td>5760 min Summer</td><td>1.573</td><td>0.0</td><td>3576</td></tr><tr><td>7200 min Summer</td><td>1.311</td><td>0.0</td><td>4392</td></tr><tr><td>8640 min Summer</td><td>1.129</td><td>0.0</td><td>5184</td></tr><tr><td>10080 min Summer</td><td>0.994</td><td>0.0</td><td>5952</td></tr><tr><td>15 min Winter</td><td>138.153</td><td>0.0</td><td>26</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	53.269	0.269	0.1	7.7	O K	30 min Summer	53.351	0.351	0.1	10.0	O K	60 min Summer	53.435	0.435	0.1	12.4	O K	120 min Summer	53.516	0.516	0.1	14.7	O K	180 min Summer	53.557	0.557	0.1	15.9	O K	240 min Summer	53.583	0.583	0.1	16.6	O K	360 min Summer	53.613	0.613	0.1	17.5	O K	480 min Summer	53.629	0.629	0.1	17.9	O K	600 min Summer	53.637	0.637	0.1	18.2	O K	720 min Summer	53.639	0.639	0.1	18.2	O K	960 min Summer	53.634	0.634	0.1	18.1	O K	1440 min Summer	53.618	0.618	0.1	17.6	O K	2160 min Summer	53.591	0.591	0.1	16.8	O K	2880 min Summer	53.562	0.562	0.1	16.0	O K	4320 min Summer	53.508	0.508	0.1	14.5	O K	5760 min Summer	53.460	0.460	0.1	13.1	O K	7200 min Summer	53.417	0.417	0.1	11.9	O K	8640 min Summer	53.377	0.377	0.1	10.8	O K	10080 min Summer	53.342	0.342	0.1	9.7	O K	15 min Winter	53.301	0.301	0.1	8.6	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	138.153	0.0	27	30 min Summer	90.705	0.0	41	60 min Summer	56.713	0.0	70	120 min Summer	34.246	0.0	130	180 min Summer	25.149	0.0	188	240 min Summer	20.078	0.0	248	360 min Summer	14.585	0.0	366	480 min Summer	11.622	0.0	484	600 min Summer	9.738	0.0	604	720 min Summer	8.424	0.0	722	960 min Summer	6.697	0.0	916	1440 min Summer	4.839	0.0	1142	2160 min Summer	3.490	0.0	1524	2880 min Summer	2.766	0.0	1940	4320 min Summer	1.989	0.0	2768	5760 min Summer	1.573	0.0	3576	7200 min Summer	1.311	0.0	4392	8640 min Summer	1.129	0.0	5184	10080 min Summer	0.994	0.0	5952	15 min Winter	138.153	0.0	26
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Aventus Design Limited				Page 2	
Unit 7, Leaches Farm Bus. Ce...		Sonning Golf Club			
Bicester Road		Pound Lane			
Kingswood, Aylesbury, Bucks ...		Sonning. RG4 6GJ			
Date 09/07/2025 15:50		Designed by S.U.			
File H1342-SA01-A.SRCX		Checked by			
Elstree Computing Ltd		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	53.394	0.394	0.1	11.2	O K
60 min Winter	53.488	0.488	0.1	13.9	O K
120 min Winter	53.580	0.580	0.1	16.5	O K
180 min Winter	53.628	0.628	0.1	17.9	O K
240 min Winter	53.658	0.658	0.1	18.7	O K
360 min Winter	53.694	0.694	0.2	19.8	O K
480 min Winter	53.715	0.715	0.2	20.4	O K
600 min Winter	53.726	0.726	0.2	20.7	O K
720 min Winter	53.731	0.731	0.2	20.8	O K
960 min Winter	53.731	0.731	0.2	20.8	O K
1440 min Winter	53.710	0.710	0.2	20.2	O K
2160 min Winter	53.676	0.676	0.1	19.3	O K
2880 min Winter	53.638	0.638	0.1	18.2	O K
4320 min Winter	53.561	0.561	0.1	16.0	O K
5760 min Winter	53.492	0.492	0.1	14.0	O K
7200 min Winter	53.431	0.431	0.1	12.3	O K
8640 min Winter	53.376	0.376	0.1	10.7	O K
10080 min Winter	53.327	0.327	0.1	9.3	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	90.705	0.0	41		
60 min Winter	56.713	0.0	70		
120 min Winter	34.246	0.0	128		
180 min Winter	25.149	0.0	186		
240 min Winter	20.078	0.0	244		
360 min Winter	14.585	0.0	360		
480 min Winter	11.622	0.0	474		
600 min Winter	9.738	0.0	590		
720 min Winter	8.424	0.0	702		
960 min Winter	6.697	0.0	922		
1440 min Winter	4.839	0.0	1196		
2160 min Winter	3.490	0.0	1632		
2880 min Winter	2.766	0.0	2100		
4320 min Winter	1.989	0.0	2988		
5760 min Winter	1.573	0.0	3864		
7200 min Winter	1.311	0.0	4688		
8640 min Winter	1.129	0.0	5528		
10080 min Winter	0.994	0.0	6264		
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Unit 7, Leaches Farm Bus. Ce...	Sonning Golf Club	
Bicester Road	Pound Lane	
Kingswood, Aylesbury, Bucks ...	Sonning. RG4 6GJ	
Date 09/07/2025 15:50	Designed by S.U.	
File H1342-SA01-A.SRCX	Checked by	
Elstree Computing Ltd	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)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.030

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To:	From:	To:	From:	To:
	(ha)		(ha)		(ha)
0	4 0.010	4	8 0.010	8	12 0.010

Aventus Design Limited		Page 4
Unit 7, Leaches Farm Bus. Ce...	Sonning Golf Club	
Bicester Road	Pound Lane	
Kingswood, Aylesbury, Bucks ...	Sonning. RG4 6GJ	
Date 09/07/2025 15:50	Designed by S.U.	
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Elstree Computing Ltd	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 54.150

Cellular Storage Structure

Invert Level (m) 53.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.01820 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.01820

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	30.0	30.0	0.900	0.0	64.4
0.800	30.0	64.4			

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<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 1427 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>53.086</td><td>0.286</td><td>0.1</td><td>4.3</td><td>O K</td></tr><tr><td>30 min Summer</td><td>53.174</td><td>0.374</td><td>0.1</td><td>5.7</td><td>O K</td></tr><tr><td>60 min Summer</td><td>53.263</td><td>0.463</td><td>0.1</td><td>7.0</td><td>O K</td></tr><tr><td>120 min Summer</td><td>53.350</td><td>0.550</td><td>0.1</td><td>8.4</td><td>O K</td></tr><tr><td>180 min Summer</td><td>53.395</td><td>0.595</td><td>0.1</td><td>9.0</td><td>O K</td></tr><tr><td>240 min Summer</td><td>53.423</td><td>0.623</td><td>0.1</td><td>9.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>53.457</td><td>0.657</td><td>0.1</td><td>10.0</td><td>O K</td></tr><tr><td>480 min Summer</td><td>53.477</td><td>0.677</td><td>0.1</td><td>10.3</td><td>O K</td></tr><tr><td>600 min Summer</td><td>53.487</td><td>0.687</td><td>0.1</td><td>10.4</td><td>O K</td></tr><tr><td>720 min Summer</td><td>53.492</td><td>0.692</td><td>0.1</td><td>10.5</td><td>O K</td></tr><tr><td>960 min Summer</td><td>53.490</td><td>0.690</td><td>0.1</td><td>10.5</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>53.474</td><td>0.674</td><td>0.1</td><td>10.2</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>53.446</td><td>0.646</td><td>0.1</td><td>9.8</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>53.417</td><td>0.617</td><td>0.1</td><td>9.4</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>53.362</td><td>0.562</td><td>0.1</td><td>8.5</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>53.313</td><td>0.513</td><td>0.1</td><td>7.8</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>53.268</td><td>0.468</td><td>0.1</td><td>7.1</td><td>O K</td></tr><tr><td>8640 min 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Summer	20.078	0.0	248	360 min Summer	14.585	0.0	366	480 min Summer	11.622	0.0	484	600 min Summer	9.738	0.0	604	720 min Summer	8.424	0.0	722	960 min Summer	6.697	0.0	960	1440 min Summer	4.839	0.0	1186	2160 min Summer	3.490	0.0	1564	2880 min Summer	2.766	0.0	1968	4320 min Summer	1.989	0.0	2808	5760 min Summer	1.573	0.0	3632	7200 min Summer	1.311	0.0	4408	8640 min Summer	1.129	0.0	5192	10080 min Summer	0.994	0.0	5968	15 min Winter	138.153	0.0	26
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File H1342-SA02-A.SRCX		Checked by			
Elstree Computing Ltd		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	53.219	0.419	0.1	6.4	O K
60 min Winter	53.320	0.520	0.1	7.9	O K
120 min Winter	53.418	0.618	0.1	9.4	O K
180 min Winter	53.470	0.670	0.1	10.2	O K
240 min Winter	53.503	0.703	0.1	10.7	O K
360 min Winter	53.544	0.744	0.1	11.3	O K
480 min Winter	53.568	0.768	0.1	11.7	O K
600 min Winter	53.582	0.782	0.1	11.9	O K
720 min Winter	53.590	0.790	0.1	12.0	O K
960 min Winter	53.594	0.794	0.1	12.1	O K
1440 min Winter	53.576	0.776	0.1	11.8	O K
2160 min Winter	53.542	0.742	0.1	11.3	O K
2880 min Winter	53.504	0.704	0.1	10.7	O K
4320 min Winter	53.427	0.627	0.1	9.5	O K
5760 min Winter	53.356	0.556	0.1	8.5	O K
7200 min Winter	53.292	0.492	0.1	7.5	O K
8640 min Winter	53.234	0.434	0.1	6.6	O K
10080 min Winter	53.182	0.382	0.1	5.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	90.705	0.0	41		
60 min Winter	56.713	0.0	70		
120 min Winter	34.246	0.0	128		
180 min Winter	25.149	0.0	186		
240 min Winter	20.078	0.0	244		
360 min Winter	14.585	0.0	360		
480 min Winter	11.622	0.0	476		
600 min Winter	9.738	0.0	590		
720 min Winter	8.424	0.0	704		
960 min Winter	6.697	0.0	926		
1440 min Winter	4.839	0.0	1336		
2160 min Winter	3.490	0.0	1664		
2880 min Winter	2.766	0.0	2132		
4320 min Winter	1.989	0.0	3032		
5760 min Winter	1.573	0.0	3920		
7200 min Winter	1.311	0.0	4760		
8640 min Winter	1.129	0.0	5544		
10080 min Winter	0.994	0.0	6360		
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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	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.017

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To:	From:	To:	From:	To:
0	4 0.006	4	8 0.006	8	12 0.005

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Model Details

Storage is Online Cover Level (m) 54.000

Cellular Storage Structure

Invert Level (m) 52.800 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.01820 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.01820

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	16.0	16.0	0.900	0.0	32.0
0.800	16.0	32.0			

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Date 09/07/2025 16:34		Designed by S.U.			
File H1342-SA03-A.SRCX		Checked by			
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<u>Summary of Results for 100 year Return Period (+40%)</u>					
Half Drain Time : 1427 minutes.					
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240 min Summer	53.423	0.623	0.1	9.5	O K
360 min Summer	53.457	0.657	0.1	10.0	O K
480 min Summer	53.477	0.677	0.1	10.3	O K
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960 min Summer	6.697	0.0	960		
1440 min Summer	4.839	0.0	1186		
2160 min Summer	3.490	0.0	1564		
2880 min Summer	2.766	0.0	1968		
4320 min Summer	1.989	0.0	2808		
5760 min Summer	1.573	0.0	3632		
7200 min Summer	1.311	0.0	4408		
8640 min Summer	1.129	0.0	5192		
10080 min Summer	0.994	0.0	5968		
15 min Winter	138.153	0.0	26		
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240 min Winter	20.078	0.0	244			
360 min Winter	14.585	0.0	360			
480 min Winter	11.622	0.0	476			
600 min Winter	9.738	0.0	590			
720 min Winter	8.424	0.0	704			
960 min Winter	6.697	0.0	926			
1440 min Winter	4.839	0.0	1336			
2160 min Winter	3.490	0.0	1664			
2880 min Winter	2.766	0.0	2132			
4320 min Winter	1.989	0.0	3032			
5760 min Winter	1.573	0.0	3920			
7200 min Winter	1.311	0.0	4760			
8640 min Winter	1.129	0.0	5544			
10080 min Winter	0.994	0.0	6360			
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Unit 7, Leaches Farm Bus. Ce...	Sonning Golf Club	
Bicester Road	Pound Lane	
Kingswood, Aylesbury, Bucks ...	Sonning. RG4 6GJ	
Date 09/07/2025 16:34	Designed by S.U.	
File H1342-SA03-A.SRCX	Checked by	
Elstree Computing Ltd	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)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.017

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To:	From:	To:	From:	To:
0	4 0.006	4	8 0.006	8	12 0.005

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Unit 7, Leaches Farm Bus. Ce...	Sonning Golf Club	
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File H1342-SA03-A.SRCX	Checked by	
Elstree Computing Ltd	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 54.000

Cellular Storage Structure

Invert Level (m) 52.800 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.01820 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.01820

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	16.0	16.0	0.900	0.0	32.0
0.800	16.0	32.0			

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Unit 7, Leaches Farm Bus. Ce...		Sonning Golf Club																																																																																																																																																																																																																					
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<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 1427 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>52.936</td><td>0.286</td><td>0.1</td><td>4.3</td><td>O K</td></tr><tr><td>30 min Summer</td><td>53.024</td><td>0.374</td><td>0.1</td><td>5.7</td><td>O K</td></tr><tr><td>60 min Summer</td><td>53.113</td><td>0.463</td><td>0.1</td><td>7.0</td><td>O K</td></tr><tr><td>120 min Summer</td><td>53.200</td><td>0.550</td><td>0.1</td><td>8.4</td><td>O K</td></tr><tr><td>180 min Summer</td><td>53.245</td><td>0.595</td><td>0.1</td><td>9.0</td><td>O K</td></tr><tr><td>240 min Summer</td><td>53.273</td><td>0.623</td><td>0.1</td><td>9.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>53.307</td><td>0.657</td><td>0.1</td><td>10.0</td><td>O K</td></tr><tr><td>480 min Summer</td><td>53.327</td><td>0.677</td><td>0.1</td><td>10.3</td><td>O K</td></tr><tr><td>600 min Summer</td><td>53.337</td><td>0.687</td><td>0.1</td><td>10.4</td><td>O K</td></tr><tr><td>720 min Summer</td><td>53.342</td><td>0.692</td><td>0.1</td><td>10.5</td><td>O K</td></tr><tr><td>960 min Summer</td><td>53.340</td><td>0.690</td><td>0.1</td><td>10.5</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>53.324</td><td>0.674</td><td>0.1</td><td>10.2</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>53.296</td><td>0.646</td><td>0.1</td><td>9.8</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>53.267</td><td>0.617</td><td>0.1</td><td>9.4</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>53.212</td><td>0.562</td><td>0.1</td><td>8.5</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>53.163</td><td>0.513</td><td>0.1</td><td>7.8</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>53.118</td><td>0.468</td><td>0.1</td><td>7.1</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>53.077</td><td>0.427</td><td>0.1</td><td>6.5</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>53.040</td><td>0.390</td><td>0.1</td><td>5.9</td><td>O K</td></tr><tr><td>15 min Winter</td><td>52.970</td><td>0.320</td><td>0.1</td><td>4.9</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>138.153</td><td>0.0</td><td>27</td></tr><tr><td>30 min Summer</td><td>90.705</td><td>0.0</td><td>41</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>0.0</td><td>70</td></tr><tr><td>120 min Summer</td><td>34.246</td><td>0.0</td><td>130</td></tr><tr><td>180 min Summer</td><td>25.149</td><td>0.0</td><td>188</td></tr><tr><td>240 min Summer</td><td>20.078</td><td>0.0</td><td>248</td></tr><tr><td>360 min Summer</td><td>14.585</td><td>0.0</td><td>366</td></tr><tr><td>480 min Summer</td><td>11.622</td><td>0.0</td><td>484</td></tr><tr><td>600 min Summer</td><td>9.738</td><td>0.0</td><td>604</td></tr><tr><td>720 min Summer</td><td>8.424</td><td>0.0</td><td>722</td></tr><tr><td>960 min Summer</td><td>6.697</td><td>0.0</td><td>960</td></tr><tr><td>1440 min Summer</td><td>4.839</td><td>0.0</td><td>1186</td></tr><tr><td>2160 min Summer</td><td>3.490</td><td>0.0</td><td>1564</td></tr><tr><td>2880 min Summer</td><td>2.766</td><td>0.0</td><td>1968</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>2808</td></tr><tr><td>5760 min Summer</td><td>1.573</td><td>0.0</td><td>3632</td></tr><tr><td>7200 min Summer</td><td>1.311</td><td>0.0</td><td>4408</td></tr><tr><td>8640 min Summer</td><td>1.129</td><td>0.0</td><td>5192</td></tr><tr><td>10080 min Summer</td><td>0.994</td><td>0.0</td><td>5968</td></tr><tr><td>15 min Winter</td><td>138.153</td><td>0.0</td><td>26</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	52.936	0.286	0.1	4.3	O K	30 min Summer	53.024	0.374	0.1	5.7	O K	60 min Summer	53.113	0.463	0.1	7.0	O K	120 min Summer	53.200	0.550	0.1	8.4	O K	180 min Summer	53.245	0.595	0.1	9.0	O K	240 min Summer	53.273	0.623	0.1	9.5	O K	360 min Summer	53.307	0.657	0.1	10.0	O K	480 min Summer	53.327	0.677	0.1	10.3	O K	600 min Summer	53.337	0.687	0.1	10.4	O K	720 min Summer	53.342	0.692	0.1	10.5	O K	960 min Summer	53.340	0.690	0.1	10.5	O K	1440 min Summer	53.324	0.674	0.1	10.2	O K	2160 min Summer	53.296	0.646	0.1	9.8	O K	2880 min Summer	53.267	0.617	0.1	9.4	O K	4320 min Summer	53.212	0.562	0.1	8.5	O K	5760 min Summer	53.163	0.513	0.1	7.8	O K	7200 min Summer	53.118	0.468	0.1	7.1	O K	8640 min Summer	53.077	0.427	0.1	6.5	O K	10080 min Summer	53.040	0.390	0.1	5.9	O K	15 min Winter	52.970	0.320	0.1	4.9	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	138.153	0.0	27	30 min Summer	90.705	0.0	41	60 min Summer	56.713	0.0	70	120 min Summer	34.246	0.0	130	180 min Summer	25.149	0.0	188	240 min Summer	20.078	0.0	248	360 min Summer	14.585	0.0	366	480 min Summer	11.622	0.0	484	600 min Summer	9.738	0.0	604	720 min Summer	8.424	0.0	722	960 min Summer	6.697	0.0	960	1440 min Summer	4.839	0.0	1186	2160 min Summer	3.490	0.0	1564	2880 min Summer	2.766	0.0	1968	4320 min Summer	1.989	0.0	2808	5760 min Summer	1.573	0.0	3632	7200 min Summer	1.311	0.0	4408	8640 min Summer	1.129	0.0	5192	10080 min Summer	0.994	0.0	5968	15 min Winter	138.153	0.0	26
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																		
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Kingswood, Aylesbury, Bucks ...		Sonning. RG4 6GJ			
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File H1342-SA04-A.SRCX		Checked by			
Elstree Computing Ltd		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	53.069	0.419	0.1	6.4	O K
60 min Winter	53.170	0.520	0.1	7.9	O K
120 min Winter	53.268	0.618	0.1	9.4	O K
180 min Winter	53.320	0.670	0.1	10.2	O K
240 min Winter	53.353	0.703	0.1	10.7	O K
360 min Winter	53.394	0.744	0.1	11.3	O K
480 min Winter	53.418	0.768	0.1	11.7	O K
600 min Winter	53.432	0.782	0.1	11.9	O K
720 min Winter	53.440	0.790	0.1	12.0	O K
960 min Winter	53.444	0.794	0.1	12.1	O K
1440 min Winter	53.426	0.776	0.1	11.8	O K
2160 min Winter	53.392	0.742	0.1	11.3	O K
2880 min Winter	53.354	0.704	0.1	10.7	O K
4320 min Winter	53.277	0.627	0.1	9.5	O K
5760 min Winter	53.206	0.556	0.1	8.5	O K
7200 min Winter	53.142	0.492	0.1	7.5	O K
8640 min Winter	53.084	0.434	0.1	6.6	O K
10080 min Winter	53.032	0.382	0.1	5.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	90.705	0.0	41		
60 min Winter	56.713	0.0	70		
120 min Winter	34.246	0.0	128		
180 min Winter	25.149	0.0	186		
240 min Winter	20.078	0.0	244		
360 min Winter	14.585	0.0	360		
480 min Winter	11.622	0.0	476		
600 min Winter	9.738	0.0	590		
720 min Winter	8.424	0.0	704		
960 min Winter	6.697	0.0	926		
1440 min Winter	4.839	0.0	1336		
2160 min Winter	3.490	0.0	1664		
2880 min Winter	2.766	0.0	2132		
4320 min Winter	1.989	0.0	3032		
5760 min Winter	1.573	0.0	3920		
7200 min Winter	1.311	0.0	4760		
8640 min Winter	1.129	0.0	5544		
10080 min Winter	0.994	0.0	6360		
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File H1342-SA04-A.SRCX	Checked by	
Elstree Computing Ltd	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)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.017

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To:	(ha)	From:	To:	(ha)
0	4	0.006	4	8	0.006
				8	12
					0.005

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Bicester Road	Pound Lane	
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File H1342-SA04-A.SRCX	Checked by	
Elstree Computing Ltd	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 53.850

Cellular Storage Structure

Invert Level (m) 52.650 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.01820 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.01820

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	16.0	16.0	0.900	0.0	32.0
0.800	16.0	32.0			

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<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 1427 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>52.936</td><td>0.286</td><td>0.1</td><td>4.3</td><td>O K</td></tr><tr><td>30 min Summer</td><td>53.024</td><td>0.374</td><td>0.1</td><td>5.7</td><td>O K</td></tr><tr><td>60 min Summer</td><td>53.113</td><td>0.463</td><td>0.1</td><td>7.0</td><td>O K</td></tr><tr><td>120 min Summer</td><td>53.200</td><td>0.550</td><td>0.1</td><td>8.4</td><td>O K</td></tr><tr><td>180 min Summer</td><td>53.245</td><td>0.595</td><td>0.1</td><td>9.0</td><td>O K</td></tr><tr><td>240 min Summer</td><td>53.273</td><td>0.623</td><td>0.1</td><td>9.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>53.307</td><td>0.657</td><td>0.1</td><td>10.0</td><td>O K</td></tr><tr><td>480 min Summer</td><td>53.327</td><td>0.677</td><td>0.1</td><td>10.3</td><td>O K</td></tr><tr><td>600 min Summer</td><td>53.337</td><td>0.687</td><td>0.1</td><td>10.4</td><td>O K</td></tr><tr><td>720 min Summer</td><td>53.342</td><td>0.692</td><td>0.1</td><td>10.5</td><td>O K</td></tr><tr><td>960 min Summer</td><td>53.340</td><td>0.690</td><td>0.1</td><td>10.5</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>53.324</td><td>0.674</td><td>0.1</td><td>10.2</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>53.296</td><td>0.646</td><td>0.1</td><td>9.8</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>53.267</td><td>0.617</td><td>0.1</td><td>9.4</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>53.212</td><td>0.562</td><td>0.1</td><td>8.5</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>53.163</td><td>0.513</td><td>0.1</td><td>7.8</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>53.118</td><td>0.468</td><td>0.1</td><td>7.1</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>53.077</td><td>0.427</td><td>0.1</td><td>6.5</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>53.040</td><td>0.390</td><td>0.1</td><td>5.9</td><td>O K</td></tr><tr><td>15 min Winter</td><td>52.970</td><td>0.320</td><td>0.1</td><td>4.9</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>138.153</td><td>0.0</td><td>27</td></tr><tr><td>30 min Summer</td><td>90.705</td><td>0.0</td><td>41</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>0.0</td><td>70</td></tr><tr><td>120 min Summer</td><td>34.246</td><td>0.0</td><td>130</td></tr><tr><td>180 min Summer</td><td>25.149</td><td>0.0</td><td>188</td></tr><tr><td>240 min Summer</td><td>20.078</td><td>0.0</td><td>248</td></tr><tr><td>360 min Summer</td><td>14.585</td><td>0.0</td><td>366</td></tr><tr><td>480 min Summer</td><td>11.622</td><td>0.0</td><td>484</td></tr><tr><td>600 min Summer</td><td>9.738</td><td>0.0</td><td>604</td></tr><tr><td>720 min Summer</td><td>8.424</td><td>0.0</td><td>722</td></tr><tr><td>960 min Summer</td><td>6.697</td><td>0.0</td><td>960</td></tr><tr><td>1440 min Summer</td><td>4.839</td><td>0.0</td><td>1186</td></tr><tr><td>2160 min Summer</td><td>3.490</td><td>0.0</td><td>1564</td></tr><tr><td>2880 min Summer</td><td>2.766</td><td>0.0</td><td>1968</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>2808</td></tr><tr><td>5760 min Summer</td><td>1.573</td><td>0.0</td><td>3632</td></tr><tr><td>7200 min Summer</td><td>1.311</td><td>0.0</td><td>4408</td></tr><tr><td>8640 min Summer</td><td>1.129</td><td>0.0</td><td>5192</td></tr><tr><td>10080 min Summer</td><td>0.994</td><td>0.0</td><td>5968</td></tr><tr><td>15 min Winter</td><td>138.153</td><td>0.0</td><td>26</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	52.936	0.286	0.1	4.3	O K	30 min Summer	53.024	0.374	0.1	5.7	O K	60 min Summer	53.113	0.463	0.1	7.0	O K	120 min Summer	53.200	0.550	0.1	8.4	O K	180 min Summer	53.245	0.595	0.1	9.0	O K	240 min Summer	53.273	0.623	0.1	9.5	O K	360 min Summer	53.307	0.657	0.1	10.0	O K	480 min Summer	53.327	0.677	0.1	10.3	O K	600 min Summer	53.337	0.687	0.1	10.4	O K	720 min Summer	53.342	0.692	0.1	10.5	O K	960 min Summer	53.340	0.690	0.1	10.5	O K	1440 min Summer	53.324	0.674	0.1	10.2	O K	2160 min Summer	53.296	0.646	0.1	9.8	O K	2880 min Summer	53.267	0.617	0.1	9.4	O K	4320 min Summer	53.212	0.562	0.1	8.5	O K	5760 min Summer	53.163	0.513	0.1	7.8	O K	7200 min Summer	53.118	0.468	0.1	7.1	O K	8640 min Summer	53.077	0.427	0.1	6.5	O K	10080 min Summer	53.040	0.390	0.1	5.9	O K	15 min Winter	52.970	0.320	0.1	4.9	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	138.153	0.0	27	30 min Summer	90.705	0.0	41	60 min Summer	56.713	0.0	70	120 min Summer	34.246	0.0	130	180 min Summer	25.149	0.0	188	240 min Summer	20.078	0.0	248	360 min Summer	14.585	0.0	366	480 min Summer	11.622	0.0	484	600 min Summer	9.738	0.0	604	720 min Summer	8.424	0.0	722	960 min Summer	6.697	0.0	960	1440 min Summer	4.839	0.0	1186	2160 min Summer	3.490	0.0	1564	2880 min Summer	2.766	0.0	1968	4320 min Summer	1.989	0.0	2808	5760 min Summer	1.573	0.0	3632	7200 min Summer	1.311	0.0	4408	8640 min Summer	1.129	0.0	5192	10080 min Summer	0.994	0.0	5968	15 min Winter	138.153	0.0	26
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Kingswood, Aylesbury, Bucks ...		Sonning. RG4 6GJ			
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File H1342-SA05-A.SRCX		Checked by			
Elstree Computing Ltd		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	53.069	0.419	0.1	6.4	O K
60 min Winter	53.170	0.520	0.1	7.9	O K
120 min Winter	53.268	0.618	0.1	9.4	O K
180 min Winter	53.320	0.670	0.1	10.2	O K
240 min Winter	53.353	0.703	0.1	10.7	O K
360 min Winter	53.394	0.744	0.1	11.3	O K
480 min Winter	53.418	0.768	0.1	11.7	O K
600 min Winter	53.432	0.782	0.1	11.9	O K
720 min Winter	53.440	0.790	0.1	12.0	O K
960 min Winter	53.444	0.794	0.1	12.1	O K
1440 min Winter	53.426	0.776	0.1	11.8	O K
2160 min Winter	53.392	0.742	0.1	11.3	O K
2880 min Winter	53.354	0.704	0.1	10.7	O K
4320 min Winter	53.277	0.627	0.1	9.5	O K
5760 min Winter	53.206	0.556	0.1	8.5	O K
7200 min Winter	53.142	0.492	0.1	7.5	O K
8640 min Winter	53.084	0.434	0.1	6.6	O K
10080 min Winter	53.032	0.382	0.1	5.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	90.705	0.0	41		
60 min Winter	56.713	0.0	70		
120 min Winter	34.246	0.0	128		
180 min Winter	25.149	0.0	186		
240 min Winter	20.078	0.0	244		
360 min Winter	14.585	0.0	360		
480 min Winter	11.622	0.0	476		
600 min Winter	9.738	0.0	590		
720 min Winter	8.424	0.0	704		
960 min Winter	6.697	0.0	926		
1440 min Winter	4.839	0.0	1336		
2160 min Winter	3.490	0.0	1664		
2880 min Winter	2.766	0.0	2132		
4320 min Winter	1.989	0.0	3032		
5760 min Winter	1.573	0.0	3920		
7200 min Winter	1.311	0.0	4760		
8640 min Winter	1.129	0.0	5544		
10080 min Winter	0.994	0.0	6360		
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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	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.017

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To:	From:	To:	From:	To:
0	4 0.006	4	8 0.006	8	12 0.005

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Model Details

Storage is Online Cover Level (m) 53.850

Cellular Storage Structure

Invert Level (m) 52.650 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.01820 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.01820

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	16.0	16.0	0.900	0.0	32.0
0.800	16.0	32.0			

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Summary of Results for 100 year Return Period (+40%) Half Drain Time : 1534 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>52.919</td><td>0.269</td><td>0.1</td><td>7.7</td><td>O K</td></tr><tr><td>30 min Summer</td><td>53.002</td><td>0.352</td><td>0.1</td><td>10.0</td><td>O K</td></tr><tr><td>60 min Summer</td><td>53.086</td><td>0.436</td><td>0.1</td><td>12.4</td><td>O K</td></tr><tr><td>120 min Summer</td><td>53.168</td><td>0.518</td><td>0.1</td><td>14.8</td><td>O K</td></tr><tr><td>180 min Summer</td><td>53.211</td><td>0.561</td><td>0.1</td><td>16.0</td><td>O K</td></tr><tr><td>240 min Summer</td><td>53.238</td><td>0.588</td><td>0.1</td><td>16.8</td><td>O K</td></tr><tr><td>360 min Summer</td><td>53.271</td><td>0.621</td><td>0.1</td><td>17.7</td><td>O K</td></tr><tr><td>480 min Summer</td><td>53.290</td><td>0.640</td><td>0.1</td><td>18.3</td><td>O K</td></tr><tr><td>600 min Summer</td><td>53.301</td><td>0.651</td><td>0.1</td><td>18.6</td><td>O K</td></tr><tr><td>720 min Summer</td><td>53.307</td><td>0.657</td><td>0.1</td><td>18.7</td><td>O K</td></tr><tr><td>960 min Summer</td><td>53.307</td><td>0.657</td><td>0.1</td><td>18.7</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>53.291</td><td>0.641</td><td>0.1</td><td>18.3</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>53.264</td><td>0.614</td><td>0.1</td><td>17.5</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>53.236</td><td>0.586</td><td>0.1</td><td>16.7</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>53.184</td><td>0.534</td><td>0.1</td><td>15.2</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>53.138</td><td>0.488</td><td>0.1</td><td>13.9</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>53.095</td><td>0.445</td><td>0.1</td><td>12.7</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>53.055</td><td>0.405</td><td>0.1</td><td>11.6</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>53.019</td><td>0.369</td><td>0.1</td><td>10.5</td><td>O K</td></tr><tr><td>15 min Winter</td><td>52.952</td><td>0.302</td><td>0.1</td><td>8.6</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>138.153</td><td>0.0</td><td>27</td></tr><tr><td>30 min Summer</td><td>90.705</td><td>0.0</td><td>41</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>0.0</td><td>70</td></tr><tr><td>120 min Summer</td><td>34.246</td><td>0.0</td><td>130</td></tr><tr><td>180 min Summer</td><td>25.149</td><td>0.0</td><td>190</td></tr><tr><td>240 min Summer</td><td>20.078</td><td>0.0</td><td>248</td></tr><tr><td>360 min Summer</td><td>14.585</td><td>0.0</td><td>368</td></tr><tr><td>480 min Summer</td><td>11.622</td><td>0.0</td><td>486</td></tr><tr><td>600 min Summer</td><td>9.738</td><td>0.0</td><td>604</td></tr><tr><td>720 min Summer</td><td>8.424</td><td>0.0</td><td>724</td></tr><tr><td>960 min Summer</td><td>6.697</td><td>0.0</td><td>960</td></tr><tr><td>1440 min Summer</td><td>4.839</td><td>0.0</td><td>1228</td></tr><tr><td>2160 min Summer</td><td>3.490</td><td>0.0</td><td>1604</td></tr><tr><td>2880 min Summer</td><td>2.766</td><td>0.0</td><td>1996</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>2816</td></tr><tr><td>5760 min Summer</td><td>1.573</td><td>0.0</td><td>3640</td></tr><tr><td>7200 min Summer</td><td>1.311</td><td>0.0</td><td>4464</td></tr><tr><td>8640 min Summer</td><td>1.129</td><td>0.0</td><td>5272</td></tr><tr><td>10080 min Summer</td><td>0.994</td><td>0.0</td><td>6048</td></tr><tr><td>15 min Winter</td><td>138.153</td><td>0.0</td><td>26</td></tr></table>							Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	52.919	0.269	0.1	7.7	O K	30 min Summer	53.002	0.352	0.1	10.0	O K	60 min Summer	53.086	0.436	0.1	12.4	O K	120 min Summer	53.168	0.518	0.1	14.8	O K	180 min Summer	53.211	0.561	0.1	16.0	O K	240 min Summer	53.238	0.588	0.1	16.8	O K	360 min Summer	53.271	0.621	0.1	17.7	O K	480 min Summer	53.290	0.640	0.1	18.3	O K	600 min Summer	53.301	0.651	0.1	18.6	O K	720 min Summer	53.307	0.657	0.1	18.7	O K	960 min Summer	53.307	0.657	0.1	18.7	O K	1440 min Summer	53.291	0.641	0.1	18.3	O K	2160 min Summer	53.264	0.614	0.1	17.5	O K	2880 min Summer	53.236	0.586	0.1	16.7	O K	4320 min Summer	53.184	0.534	0.1	15.2	O K	5760 min Summer	53.138	0.488	0.1	13.9	O K	7200 min Summer	53.095	0.445	0.1	12.7	O K	8640 min Summer	53.055	0.405	0.1	11.6	O K	10080 min Summer	53.019	0.369	0.1	10.5	O K	15 min Winter	52.952	0.302	0.1	8.6	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	138.153	0.0	27	30 min Summer	90.705	0.0	41	60 min Summer	56.713	0.0	70	120 min Summer	34.246	0.0	130	180 min Summer	25.149	0.0	190	240 min Summer	20.078	0.0	248	360 min Summer	14.585	0.0	368	480 min Summer	11.622	0.0	486	600 min Summer	9.738	0.0	604	720 min Summer	8.424	0.0	724	960 min Summer	6.697	0.0	960	1440 min Summer	4.839	0.0	1228	2160 min Summer	3.490	0.0	1604	2880 min Summer	2.766	0.0	1996	4320 min Summer	1.989	0.0	2816	5760 min Summer	1.573	0.0	3640	7200 min Summer	1.311	0.0	4464	8640 min Summer	1.129	0.0	5272	10080 min Summer	0.994	0.0	6048	15 min Winter	138.153	0.0	26
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																			
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Unit 7, Leaches Farm Bus. Ce...		Sonning Golf Club			
Bicester Road		Pound Lane			
Kingswood, Aylesbury, Bucks ...		Sonning. RG4 6GJ			
Date 09/07/2025 16:37		Designed by S.U.			
File H1342-SA06-A.SRCX		Checked by			
Elstree Computing Ltd		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	53.045	0.395	0.1	11.2	O K
60 min Winter	53.140	0.490	0.1	14.0	O K
120 min Winter	53.233	0.583	0.1	16.6	O K
180 min Winter	53.282	0.632	0.1	18.0	O K
240 min Winter	53.313	0.663	0.1	18.9	O K
360 min Winter	53.353	0.703	0.1	20.0	O K
480 min Winter	53.377	0.727	0.1	20.7	O K
600 min Winter	53.392	0.742	0.1	21.1	O K
720 min Winter	53.400	0.750	0.1	21.4	O K
960 min Winter	53.405	0.755	0.1	21.5	O K
1440 min Winter	53.392	0.742	0.1	21.2	O K
2160 min Winter	53.358	0.708	0.1	20.2	O K
2880 min Winter	53.323	0.673	0.1	19.2	O K
4320 min Winter	53.251	0.601	0.1	17.1	O K
5760 min Winter	53.183	0.533	0.1	15.2	O K
7200 min Winter	53.121	0.471	0.1	13.4	O K
8640 min Winter	53.064	0.414	0.1	11.8	O K
10080 min Winter	53.012	0.362	0.1	10.3	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	90.705	0.0	41		
60 min Winter	56.713	0.0	70		
120 min Winter	34.246	0.0	128		
180 min Winter	25.149	0.0	186		
240 min Winter	20.078	0.0	244		
360 min Winter	14.585	0.0	360		
480 min Winter	11.622	0.0	476		
600 min Winter	9.738	0.0	592		
720 min Winter	8.424	0.0	706		
960 min Winter	6.697	0.0	932		
1440 min Winter	4.839	0.0	1356		
2160 min Winter	3.490	0.0	1692		
2880 min Winter	2.766	0.0	2160		
4320 min Winter	1.989	0.0	3072		
5760 min Winter	1.573	0.0	3928		
7200 min Winter	1.311	0.0	4768		
8640 min Winter	1.129	0.0	5624		
10080 min Winter	0.994	0.0	6448		
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Unit 7, Leaches Farm Bus. Ce...	Sonning Golf Club	
Bicester Road	Pound Lane	
Kingswood, Aylesbury, Bucks ...	Sonning. RG4 6GJ	
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Elstree Computing Ltd	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)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.030

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0 4	0.010	4 8	0.010	8 12	0.010

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Model Details

Storage is Online Cover Level (m) 53.850

Cellular Storage Structure

Invert Level (m) 52.650 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.01820 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.01820

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	30.0	30.0	0.900	0.0	53.2
0.800	30.0	53.2			

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Unit 7, Leaches Farm Bus. Ce...		Sonning Golf Club																																																																																																																																																																																																																					
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<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 1420 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>52.919</td><td>0.269</td><td>0.1</td><td>6.1</td><td>O K</td></tr><tr><td>30 min Summer</td><td>53.002</td><td>0.352</td><td>0.1</td><td>8.0</td><td>O K</td></tr><tr><td>60 min Summer</td><td>53.086</td><td>0.436</td><td>0.1</td><td>9.9</td><td>O K</td></tr><tr><td>120 min Summer</td><td>53.167</td><td>0.517</td><td>0.1</td><td>11.8</td><td>O K</td></tr><tr><td>180 min Summer</td><td>53.210</td><td>0.560</td><td>0.1</td><td>12.8</td><td>O K</td></tr><tr><td>240 min Summer</td><td>53.236</td><td>0.586</td><td>0.1</td><td>13.4</td><td>O K</td></tr><tr><td>360 min Summer</td><td>53.268</td><td>0.618</td><td>0.1</td><td>14.1</td><td>O K</td></tr><tr><td>480 min Summer</td><td>53.286</td><td>0.636</td><td>0.1</td><td>14.5</td><td>O K</td></tr><tr><td>600 min Summer</td><td>53.295</td><td>0.645</td><td>0.1</td><td>14.7</td><td>O K</td></tr><tr><td>720 min Summer</td><td>53.299</td><td>0.649</td><td>0.1</td><td>14.8</td><td>O K</td></tr><tr><td>960 min Summer</td><td>53.297</td><td>0.647</td><td>0.1</td><td>14.7</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>53.281</td><td>0.631</td><td>0.1</td><td>14.4</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>53.253</td><td>0.603</td><td>0.1</td><td>13.8</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>53.225</td><td>0.575</td><td>0.1</td><td>13.1</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>53.173</td><td>0.523</td><td>0.1</td><td>11.9</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>53.125</td><td>0.475</td><td>0.1</td><td>10.8</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>53.082</td><td>0.432</td><td>0.1</td><td>9.9</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>53.043</td><td>0.393</td><td>0.1</td><td>9.0</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>53.007</td><td>0.357</td><td>0.1</td><td>8.1</td><td>O K</td></tr><tr><td>15 min Winter</td><td>52.951</td><td>0.301</td><td>0.1</td><td>6.9</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>138.153</td><td>0.0</td><td>27</td></tr><tr><td>30 min Summer</td><td>90.705</td><td>0.0</td><td>41</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>0.0</td><td>70</td></tr><tr><td>120 min Summer</td><td>34.246</td><td>0.0</td><td>130</td></tr><tr><td>180 min Summer</td><td>25.149</td><td>0.0</td><td>190</td></tr><tr><td>240 min Summer</td><td>20.078</td><td>0.0</td><td>248</td></tr><tr><td>360 min Summer</td><td>14.585</td><td>0.0</td><td>366</td></tr><tr><td>480 min Summer</td><td>11.622</td><td>0.0</td><td>486</td></tr><tr><td>600 min Summer</td><td>9.738</td><td>0.0</td><td>604</td></tr><tr><td>720 min Summer</td><td>8.424</td><td>0.0</td><td>722</td></tr><tr><td>960 min Summer</td><td>6.697</td><td>0.0</td><td>960</td></tr><tr><td>1440 min Summer</td><td>4.839</td><td>0.0</td><td>1186</td></tr><tr><td>2160 min Summer</td><td>3.490</td><td>0.0</td><td>1564</td></tr><tr><td>2880 min Summer</td><td>2.766</td><td>0.0</td><td>1968</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>2808</td></tr><tr><td>5760 min Summer</td><td>1.573</td><td>0.0</td><td>3632</td></tr><tr><td>7200 min Summer</td><td>1.311</td><td>0.0</td><td>4400</td></tr><tr><td>8640 min Summer</td><td>1.129</td><td>0.0</td><td>5192</td></tr><tr><td>10080 min Summer</td><td>0.994</td><td>0.0</td><td>5960</td></tr><tr><td>15 min Winter</td><td>138.153</td><td>0.0</td><td>26</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	52.919	0.269	0.1	6.1	O K	30 min Summer	53.002	0.352	0.1	8.0	O K	60 min Summer	53.086	0.436	0.1	9.9	O K	120 min Summer	53.167	0.517	0.1	11.8	O K	180 min Summer	53.210	0.560	0.1	12.8	O K	240 min Summer	53.236	0.586	0.1	13.4	O K	360 min Summer	53.268	0.618	0.1	14.1	O K	480 min Summer	53.286	0.636	0.1	14.5	O K	600 min Summer	53.295	0.645	0.1	14.7	O K	720 min Summer	53.299	0.649	0.1	14.8	O K	960 min Summer	53.297	0.647	0.1	14.7	O K	1440 min Summer	53.281	0.631	0.1	14.4	O K	2160 min Summer	53.253	0.603	0.1	13.8	O K	2880 min Summer	53.225	0.575	0.1	13.1	O K	4320 min Summer	53.173	0.523	0.1	11.9	O K	5760 min Summer	53.125	0.475	0.1	10.8	O K	7200 min Summer	53.082	0.432	0.1	9.9	O K	8640 min Summer	53.043	0.393	0.1	9.0	O K	10080 min Summer	53.007	0.357	0.1	8.1	O K	15 min Winter	52.951	0.301	0.1	6.9	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	138.153	0.0	27	30 min Summer	90.705	0.0	41	60 min Summer	56.713	0.0	70	120 min Summer	34.246	0.0	130	180 min Summer	25.149	0.0	190	240 min Summer	20.078	0.0	248	360 min Summer	14.585	0.0	366	480 min Summer	11.622	0.0	486	600 min Summer	9.738	0.0	604	720 min Summer	8.424	0.0	722	960 min Summer	6.697	0.0	960	1440 min Summer	4.839	0.0	1186	2160 min Summer	3.490	0.0	1564	2880 min Summer	2.766	0.0	1968	4320 min Summer	1.989	0.0	2808	5760 min Summer	1.573	0.0	3632	7200 min Summer	1.311	0.0	4400	8640 min Summer	1.129	0.0	5192	10080 min Summer	0.994	0.0	5960	15 min Winter	138.153	0.0	26
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																		
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360 min Summer	53.268	0.618	0.1	14.1	O K																																																																																																																																																																																																																		
480 min Summer	53.286	0.636	0.1	14.5	O K																																																																																																																																																																																																																		
600 min Summer	53.295	0.645	0.1	14.7	O K																																																																																																																																																																																																																		
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Unit 7, Leaches Farm Bus. Ce...		Sonning Golf Club			
Bicester Road		Pound Lane			
Kingswood, Aylesbury, Bucks ...		Sonning. RG4 6GJ			
Date 09/07/2025 17:04		Designed by S.U.			
File H1342-SA07-A.SRCX		Checked by			
Elstree Computing Ltd		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	53.044	0.394	0.1	9.0	O K
60 min Winter	53.139	0.489	0.1	11.2	O K
120 min Winter	53.231	0.581	0.1	13.3	O K
180 min Winter	53.280	0.630	0.1	14.4	O K
240 min Winter	53.311	0.661	0.1	15.1	O K
360 min Winter	53.349	0.699	0.1	15.9	O K
480 min Winter	53.372	0.722	0.1	16.5	O K
600 min Winter	53.385	0.735	0.1	16.8	O K
720 min Winter	53.392	0.742	0.1	16.9	O K
960 min Winter	53.395	0.745	0.1	17.0	O K
1440 min Winter	53.377	0.727	0.1	16.6	O K
2160 min Winter	53.344	0.694	0.1	15.8	O K
2880 min Winter	53.307	0.657	0.1	15.0	O K
4320 min Winter	53.233	0.583	0.1	13.3	O K
5760 min Winter	53.165	0.515	0.1	11.7	O K
7200 min Winter	53.103	0.453	0.1	10.3	O K
8640 min Winter	53.047	0.397	0.1	9.0	O K
10080 min Winter	52.996	0.346	0.1	7.9	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	90.705	0.0	41		
60 min Winter	56.713	0.0	70		
120 min Winter	34.246	0.0	128		
180 min Winter	25.149	0.0	186		
240 min Winter	20.078	0.0	244		
360 min Winter	14.585	0.0	360		
480 min Winter	11.622	0.0	476		
600 min Winter	9.738	0.0	590		
720 min Winter	8.424	0.0	704		
960 min Winter	6.697	0.0	926		
1440 min Winter	4.839	0.0	1338		
2160 min Winter	3.490	0.0	1664		
2880 min Winter	2.766	0.0	2132		
4320 min Winter	1.989	0.0	3032		
5760 min Winter	1.573	0.0	3920		
7200 min Winter	1.311	0.0	4752		
8640 min Winter	1.129	0.0	5544		
10080 min Winter	0.994	0.0	6360		
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Unit 7, Leaches Farm Bus. Ce...	Sonning Golf Club	
Bicester Road	Pound Lane	
Kingswood, Aylesbury, Bucks ...	Sonning. RG4 6GJ	
Date 09/07/2025 17:04	Designed by S.U.	
File H1342-SA07-A.SRCX	Checked by	
Elstree Computing Ltd	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)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.024

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0 4	0.008	4 8	0.008	8 12	0.008

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Unit 7, Leaches Farm Bus. Ce...	Sonning Golf Club	
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File H1342-SA07-A.SRCX	Checked by	
Elstree Computing Ltd	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 53.850

Cellular Storage Structure

Invert Level (m) 52.650 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.01820 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.01820

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	24.0	24.0	0.900	0.0	46.4
0.800	24.0	46.4			

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Unit 7, Leaches Farm Bus. Ce...		Sonning Golf Club																																																																																																																																																																																																																					
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Elstree Computing Ltd		Source Control 2020.1.3																																																																																																																																																																																																																					
<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 813 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>52.985</td><td>0.335</td><td>0.8</td><td>38.2</td><td>O K</td></tr><tr><td>30 min Summer</td><td>53.087</td><td>0.437</td><td>0.9</td><td>49.9</td><td>O K</td></tr><tr><td>60 min Summer</td><td>53.189</td><td>0.539</td><td>0.9</td><td>61.4</td><td>O K</td></tr><tr><td>120 min Summer</td><td>53.282</td><td>0.632</td><td>1.0</td><td>72.0</td><td>O K</td></tr><tr><td>180 min Summer</td><td>53.326</td><td>0.676</td><td>1.0</td><td>77.1</td><td>O K</td></tr><tr><td>240 min Summer</td><td>53.350</td><td>0.700</td><td>1.0</td><td>79.8</td><td>O K</td></tr><tr><td>360 min Summer</td><td>53.371</td><td>0.721</td><td>1.0</td><td>82.2</td><td>O K</td></tr><tr><td>480 min Summer</td><td>53.376</td><td>0.726</td><td>1.0</td><td>82.8</td><td>O K</td></tr><tr><td>600 min Summer</td><td>53.371</td><td>0.721</td><td>1.0</td><td>82.2</td><td>O K</td></tr><tr><td>720 min Summer</td><td>53.364</td><td>0.714</td><td>1.0</td><td>81.3</td><td>O K</td></tr><tr><td>960 min Summer</td><td>53.347</td><td>0.697</td><td>1.0</td><td>79.5</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>53.312</td><td>0.662</td><td>1.0</td><td>75.4</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>53.259</td><td>0.609</td><td>1.0</td><td>69.5</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>53.212</td><td>0.562</td><td>0.9</td><td>64.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>53.127</td><td>0.477</td><td>0.9</td><td>54.4</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>53.054</td><td>0.404</td><td>0.9</td><td>46.1</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>52.992</td><td>0.342</td><td>0.8</td><td>38.9</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>52.937</td><td>0.287</td><td>0.8</td><td>32.7</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>52.890</td><td>0.240</td><td>0.7</td><td>27.4</td><td>O K</td></tr><tr><td>15 min Winter</td><td>53.026</td><td>0.376</td><td>0.8</td><td>42.9</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>138.153</td><td>0.0</td><td>26</td></tr><tr><td>30 min Summer</td><td>90.705</td><td>0.0</td><td>41</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>0.0</td><td>70</td></tr><tr><td>120 min Summer</td><td>34.246</td><td>0.0</td><td>128</td></tr><tr><td>180 min Summer</td><td>25.149</td><td>0.0</td><td>188</td></tr><tr><td>240 min Summer</td><td>20.078</td><td>0.0</td><td>246</td></tr><tr><td>360 min Summer</td><td>14.585</td><td>0.0</td><td>364</td></tr><tr><td>480 min Summer</td><td>11.622</td><td>0.0</td><td>482</td></tr><tr><td>600 min Summer</td><td>9.738</td><td>0.0</td><td>580</td></tr><tr><td>720 min Summer</td><td>8.424</td><td>0.0</td><td>626</td></tr><tr><td>960 min Summer</td><td>6.697</td><td>0.0</td><td>750</td></tr><tr><td>1440 min Summer</td><td>4.839</td><td>0.0</td><td>1012</td></tr><tr><td>2160 min Summer</td><td>3.490</td><td>0.0</td><td>1428</td></tr><tr><td>2880 min Summer</td><td>2.766</td><td>0.0</td><td>1844</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>2640</td></tr><tr><td>5760 min Summer</td><td>1.573</td><td>0.0</td><td>3416</td></tr><tr><td>7200 min Summer</td><td>1.311</td><td>0.0</td><td>4184</td></tr><tr><td>8640 min Summer</td><td>1.129</td><td>0.0</td><td>4928</td></tr><tr><td>10080 min Summer</td><td>0.994</td><td>0.0</td><td>5648</td></tr><tr><td>15 min Winter</td><td>138.153</td><td>0.0</td><td>26</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	52.985	0.335	0.8	38.2	O K	30 min Summer	53.087	0.437	0.9	49.9	O K	60 min Summer	53.189	0.539	0.9	61.4	O K	120 min Summer	53.282	0.632	1.0	72.0	O K	180 min Summer	53.326	0.676	1.0	77.1	O K	240 min Summer	53.350	0.700	1.0	79.8	O K	360 min Summer	53.371	0.721	1.0	82.2	O K	480 min Summer	53.376	0.726	1.0	82.8	O K	600 min Summer	53.371	0.721	1.0	82.2	O K	720 min Summer	53.364	0.714	1.0	81.3	O K	960 min Summer	53.347	0.697	1.0	79.5	O K	1440 min Summer	53.312	0.662	1.0	75.4	O K	2160 min Summer	53.259	0.609	1.0	69.5	O K	2880 min Summer	53.212	0.562	0.9	64.0	O K	4320 min Summer	53.127	0.477	0.9	54.4	O K	5760 min Summer	53.054	0.404	0.9	46.1	O K	7200 min Summer	52.992	0.342	0.8	38.9	O K	8640 min Summer	52.937	0.287	0.8	32.7	O K	10080 min Summer	52.890	0.240	0.7	27.4	O K	15 min Winter	53.026	0.376	0.8	42.9	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	138.153	0.0	26	30 min Summer	90.705	0.0	41	60 min Summer	56.713	0.0	70	120 min Summer	34.246	0.0	128	180 min Summer	25.149	0.0	188	240 min Summer	20.078	0.0	246	360 min Summer	14.585	0.0	364	480 min Summer	11.622	0.0	482	600 min Summer	9.738	0.0	580	720 min Summer	8.424	0.0	626	960 min Summer	6.697	0.0	750	1440 min Summer	4.839	0.0	1012	2160 min Summer	3.490	0.0	1428	2880 min Summer	2.766	0.0	1844	4320 min Summer	1.989	0.0	2640	5760 min Summer	1.573	0.0	3416	7200 min Summer	1.311	0.0	4184	8640 min Summer	1.129	0.0	4928	10080 min Summer	0.994	0.0	5648	15 min Winter	138.153	0.0	26
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Unit 7, Leaches Farm Bus. Ce...		Sonning Golf Club			
Bicester Road		Pound Lane			
Kingswood, Aylesbury, Bucks ...		Sonning. RG4 6GJ			
Date 30/05/2025 17:11		Designed by S.U.			
File H1342-SOAKS-TOTAL.SRCX		Checked by			
Elstree Computing Ltd		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	53.141	0.491	0.9	56.0	O K
60 min Winter	53.256	0.606	1.0	69.1	O K
120 min Winter	53.363	0.713	1.0	81.2	O K
180 min Winter	53.415	0.765	1.1	87.2	O K
240 min Winter	53.444	0.794	1.1	90.5	O K
360 min Winter	53.483	0.833	1.1	93.9	O K
480 min Winter	53.618	0.968	1.1	95.1	O K
600 min Winter	53.571	0.921	1.1	95.0	O K
720 min Winter	53.490	0.840	1.1	94.2	O K
960 min Winter	53.453	0.803	1.1	91.6	O K
1440 min Winter	53.410	0.760	1.1	86.6	O K
2160 min Winter	53.338	0.688	1.0	78.4	O K
2880 min Winter	53.269	0.619	1.0	70.5	O K
4320 min Winter	53.146	0.496	0.9	56.5	O K
5760 min Winter	53.043	0.393	0.8	44.8	O K
7200 min Winter	52.957	0.307	0.8	35.0	O K
8640 min Winter	52.884	0.234	0.7	26.7	O K
10080 min Winter	52.823	0.173	0.7	19.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	90.705	0.0	40		
60 min Winter	56.713	0.0	70		
120 min Winter	34.246	0.0	126		
180 min Winter	25.149	0.0	184		
240 min Winter	20.078	0.0	242		
360 min Winter	14.585	0.0	356		
480 min Winter	11.622	0.0	470		
600 min Winter	9.738	0.0	580		
720 min Winter	8.424	0.0	684		
960 min Winter	6.697	0.0	784		
1440 min Winter	4.839	0.0	1086		
2160 min Winter	3.490	0.0	1540		
2880 min Winter	2.766	0.0	1992		
4320 min Winter	1.989	0.0	2820		
5760 min Winter	1.573	0.0	3640		
7200 min Winter	1.311	0.0	4400		
8640 min Winter	1.129	0.0	5184		
10080 min Winter	0.994	0.0	5856		
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Unit 7, Leaches Farm Bus. Ce...	Sonning Golf Club	
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File H1342-SOAKS-TOTAL.SRCX	Checked by	
Elstree Computing Ltd	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)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.151

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)	From: To:	(ha)
0 4	0.051	4 8	0.050	8 12	0.050

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Elstree Computing Ltd	Source Control 2020.1.3	

Model Details

Storage is Online Cover Level (m) 53.850

Cellular Storage Structure

Invert Level (m) 52.650 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.03600 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.03600

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	120.0	120.0	0.900	0.0	219.2
0.800	120.0	219.2			

APPENDIX F

SUDS MAINTENANCE PLAN

Surface Water Disposal Maintenance Plan

Project:

Land Adjacent to Sonning Golf Club Duffield Road, Sonning, Reading. RG4 6GJ

1.0 Why is a maintenance plan is needed?

- 1.1 Regular maintenance is required to ensure that the surface water drainage system operates efficiently and does not cause flooding to the property or surrounding buildings and land.
- 1.2 Such work is part of the day-to-day responsibility of the management company.
- 1.3 Maintenance is most effective when carried out regularly, on a planned cycle.
- 1.4 Good maintenance needs the regular investment of small amounts of time and money, but the cost of preparing and carrying out a planned maintenance programme should be far less than the costs resulting from a series of unplanned major repairs, and will help plan future financial commitments.

2.0 What is maintenance?

- 2.1 Maintenance is the routine work which is necessary to protect the drainage system.
- 2.2 When carried out on a planned basis, maintenance helps to prevent the types of failure which occur predictably within the life drainage system
- 2.3 Maintenance falls into three main categories:
 - Inspection to assess condition, report any problems and decide whether repair or other work is necessary.
 - specific tasks such as clearing debris from drainage channels, manholes, inspection chambers, catchpits, storage tanks and pipes.
 - minor repairs such as fixing loose covers and channel gratings.
- 2.4 Maintenance differs from repair which is work carried out to put right defects or damage and work to return the drainage system to a good condition on a long-term basis.

3.0 Rainwater Goods

- 3.1 Rainwater goods are to be inspected twice a year preferably in May and November.
- 3.2 Clear debris from gutters / outlets and ensure outlets are free running.
- 3.3 Inspect for cracks and leaks and repair or replace as necessary.

4.0 Slot Drainage

- 4.1 Slot drainage is to be inspected twice a year preferably in May and November for damage.
- 4.2 Slot drainage is to be cleared of vegetation and debris monthly between April and September.
- 4.3 Drainage slots and exposed edges of channels should be examined for signs of any damage resulting from stones lodged in the channel or from local impact loads. Broken channels and gratings should be replaced.
- 4.4 Grating locking system if fitted should be inspected and checked for tightness.
- 4.5 The efficiency of the sumps or should be checked by inspection. The bucket should be removed twice a year or following an intense storm and checked for blockages.
- 4.6 The inspections should be carried out in conjunction with an inspection of the underground drainage connection out of the channel system.
- 4.7 Water should be poured into the sump twice a year to check that it disperses freely.
- 4.8 Where exposed the concrete haunch to the drain should be inspected once a year for signs of damage. Both the haunch and channel should be checked for level and compared with installation drawings. Undulations of the haunch, or channel, which may impair the efficiency of the system could possibly be attributed to ground conditions and engineering advice may be necessary.
- 4.9 Levels of paved areas should be checked once a year and compared with the installation drawings. Block paving should be regularly checked for signs of lateral movement (opening or closing of joints). The side of the channel must not be laterally loaded.
- 4.10 The channels should be cleaned out carefully twice a year or following an intense storm ensuring the surface finish is not damaged. A shaped shovel (e.g. a trowel) may be used within channels.

- 4.11 On completion of cleaning operations, the channel bore should be flushed through with water and any damaged surfaces repaired. Where provided joint sealant should be repaired in accordance with the relevant manufacturer's instructions.
- 4.12 Twice a year or following an intense storm the buckets of sumps should be removed, emptied, cleaned and their drain holes cleared. Silt etc. should be removed from the bottom of the sump. Ensure that the bucket is replaced within the sump (or gully) with an easy fit.

5.0 Below Ground Drainage

- 5.1 Below ground drainage, manholes, inspection chambers and catchpit's are to be inspected twice a year preferably in May and November or after an intense storm for blockages.
- 5.2 Manholes and inspection chambers are to be opened up and checked that they are free from silt and debris and that water discharges freely to the outlets.
- 5.3 On completion of cleaning operations to the manholes and inspection chambers the underground drainage pipes should be flushed through with water to ensure that they are free from silt and debris and that water discharges freely.

6.0 Porous Block Paving

- 6.1 Porous Block Paving is to be inspected twice a year preferably in May and November.
- 6.2 Porous Block Paving is to be brushed and cleared of leaves, silt and debris in May and November.
- 6.3 After the paving is brushed and cleaned, if required additional 5mm gravel shall be applied to the joints if necessary.

7.0 Trench Soakaways

- 7.1 When all upstream drainage elements have been cleaned and all silt removed, trench soakaways are to be jetted. Clean water shall be jetted through the perforated pipe and any silt shall be collected and removed from the opposite catchpit.

8.0 Summary

The following summary chart is produced for easy reference and is to be read in conjunction with the maintenance instructions above.

Maintenance Plan

Reference	Element	Maintenance Task	Frequency
3.2	Rainwater Goods	Clear debris from gutters and outlets	Twice a year
3.3	Rainwater Goods	Inspect for cracks and leaks	Twice a year
4.2	Slot Drainage	Clear vegetation and debris	Monthly April - September
4.3	Slot Drainage	Examine drainage slots and exposed edges of channel for damage	Twice a year
4.4	Slot Drainage	Examine grating locking system if fitted	Twice a year
4.5 - 4.7	Slot Drainage	Inspect sumps and buckets	Twice a year or after intense storm
4.8	Slot Drainage	Inspect concrete haunch to drain where exposed	Once a year
4.9	Slot Drainage	Inspect levels of paved areas	Once a year
4.10	Slot Drainage	Clean channels	Twice a year or after intense storm
4.11	Slot Drainage	Flush channel with water	Twice a year or after intense storm
4.12	Slot Drainage	Clean sump buckets	Twice a year or after intense storm
5.1	Below Ground Drainage	Inspect for blockages	Twice a year or after intense storm
5.2	Below Ground Drainage	Remove silt and debris from manholes and inspection chambers	Twice a year or after intense storm
5.3	Below Ground Drainage	Flush underground pipes with water	Twice a year or after intense storm
6.2	Porous Block Paving	Brush and clear leaves, silt and debris	Twice a year or after intense storm
6.3	Porous Block Paving	Reapply 5mm gravel to joints if required	Twice a year or after intense storm
7.0	Trench Soakaways	Flush tank with water and remove silt	Twice a year or after intense storm

APPENDIX G

BRE 365 SOAKAGE TEST RESULTS



SOIL INFILTRATION TESTING

CLIENT	ALFRED HOMES LIMIED
WORKS	SOIL INFILTRATION TESTING
SITE	LAND AT SONNING GOLF CLUB, DUFFIELD ROAD, SONNING, RG4 6GJ

PROJECT	REVISION	DATE
20-133.02	A	29 MAY 2020

1.0 INTRODUCTION

At the instruction of Alfred Homes Limited (the client), Aviron Associates Limited (Aviron) has undertaken soil infiltration testing in accordance with Building Research Establishment (BRE) Digest D365 - 2016, Soakaway Design at the above referenced site. The purpose of the works is to assess the infiltration of underlying soils with regard to soakaway design.

In accordance with our instruction two days of infiltration testing were completed where three water fills within each test pit was proposed and completed.

2.0 FIELD WORK

Four soil infiltration tests (SA1, SA2, SA3 and SA4) were undertaken on 27 and 28 May 2019 at the locations illustrated in **Figure 1**, which is included as **Appendix I**. Additionally, a fifth trial pit TP5 was excavated centrally within the site in order to determine the presence or absence of groundwater beneath the site.

Excavation of trial pits was completed using a JCB 3CX back-hoe excavator. In all cases the rate of excavation was steady and the pits remained stable during excavation and whilst under test.

Testing locations SA1 and SA2 were positioned in locations of the proposed new access roads/parking and completed to 0.6 metre (m) below ground level (bgl) for the purpose of undertaking infiltration tests for permeable paving design.

Testing locations SA3 and SA4 were positioned in locations of proposed new soakaway drainage and completed to between 1.2m and 1.3m bgl for the purpose of undertaking conventional infiltration tests for soakaway design.

Trial pit TP5 was completed in the centre of the site on 27 May 2020 in order to make groundwater observations to a depth of 3.5m bgl. Groundwater was not encountered to the full 3.5m depth of investigation within TP5 which was left open for 6 hours to enable groundwater observations to be made. Upon completion and backfilling of TP5 a monitoring well standpipe was installed to enable on-going groundwater standing level monitoring as necessary. Groundwater was not present within the monitoring well when it was checked on 28 May 2020.

The **trial pits logs** and **photographs** are presented in **Appendix II** and generally ground conditions comprised:

-  TOPSOIL to depths of between 0.3m and 0.4m bgl.
-  RIVER TERRACE DEPOSITS comprising variable units of gravelly, sandy SILT; silty, gravelly SAND and clayey, sandy GRAVEL proven to 3.5m bgl.

Aviron Associates Limited Head Office

Badgemore House – Badgemore Park – Gravel Hill – Henley on Thames – RG9 4NR

Contacts

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Registered Office

Herschel House, 58 Herschel Street, Slough, Berkshire, SL1 1PG
Company no. 06471253 - VAT no. 929 5083 96

3.0 SOIL INFILTRATION TESTS

Trial pits SA1 to SA4 were filled with drinking water standard water pumped from a road going water tanker. The subsequent fall in water level was recorded against time over the period specified within the **results** which are presented in **Appendix III**.

The second fills of all four test locations were completed on the first day of testing and on the second day of testing the third fills were completed in order to provide a fully compliant three-fill test.

The **calculation sheets** for test SA1 to SA4 are enclosed as **Appendix III** and indicate soil infiltration rates which are summarised within table 3.0.

Table 3.0 : Soil Infiltration Rates

Location (Test no.)	Testing depths (m bgl)	Strata Tested	Infiltration Rate (m/s)	Comments
SA1 (T1)	0.21-0.7	SAND	4.02×10^{-5}	Considered to be a reasonable infiltration rate
SA1 (T2)	0.18-0.7	SAND	2.39×10^{-5}	Considered to be a reasonable infiltration rate
SA1 (T3)	0.19-0.7	SAND	1.09×10^{-5}	Considered to be a reasonable to poor infiltration rate
SA2 (T1)	0.16-0.6	SILT	1.09×10^{-5}	Considered to be a reasonable to poor infiltration rate
SA2 (T2)	0.3-0.6	SILT	5.14×10^{-6}	Considered to be a poor infiltration rate
SA2 (T3)	0.15-0.6	SILT	7.04×10^{-6}	Considered to be a poor infiltration rate
SA3 (T1)	0.7-1.2	SAND	7.41×10^{-6}	Considered to be a poor infiltration rate
SA3 (T2)	0.5-1.2	SAND	5.46×10^{-6}	Considered to be a poor infiltration rate
SA3 (T3)	0.44-1.2	SAND	5.05×10^{-6}	Considered to be a poor infiltration rate
SA4 (T1)	0.63-1.3	GRAVEL	3.43×10^{-5}	Considered to be a reasonable infiltration rate
SA4 (T2)	0.56-1.3	GRAVEL	4.64×10^{-5}	Considered to be a reasonable infiltration rate
SA4 (T3)	0.57-1.3	GRAVEL	4.01×10^{-5}	Considered to be a reasonable infiltration rate

The rates provided may be considered suitable for conventional soakaway drainage subject to specific design requirements and should be presented to the project's drainage engineer for incorporation within their design.

Prepared by

James Burkitt BEng (Hons) CEnv MRICS
Managing Director



APPENDIX I
FIGURE 1 – TRIAL PIT LOCATION PLAN





Legend

☒ Trial Pit (Test) Location

Notes

Figure 1

Drawing Title

Trial Pit Location Plan

Project Number 20-133.02

Project Title

Sonning Golf Club, Duffield Road, Sonning, RG4 6GJ

Drawn by GR

Checked by JB

Scale NTS



APPENDIX II
TRIAL PIT LOGS AND PHOTOGRAPHS





TRIAL PIT LOG

Project: Land at Sonning Golf Club, Duffield Road, Sonning, RG4 6GJ				Project No. 20-133.02		Trial Pit: SA1	
Client: Alfred Homes Limited				Start: 27/05/2020		End: 27/05/2020	
Method/Plant Used: JCB 3CX				Co-ordinates: NT		Ground Level: NT	

Description of Strata	Legend	Depth (m bgl) (thickness)	Well Details	Samples/Tests											Laboratory Test Details
				Depth	No	Type									
Brown slightly gravelly silty sandy clayey TOPSOIL. Gravel is fine to coarse sub angular to sub rounded of flint. Grass surfacing and rootlets throughout. (TOPSOIL)		(0.3)													
		0.3													
Brown, silty, gravelly SAND. Gravel is fine to coarse sub angular to rounded of flint. (RIVER TERRACE DEPOSITS)		(0.4)													
		0.7													

Dimensions (m)			Water level observations (depths in metres below gl)					
Length	Width	Depth	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks
1.50	0.50	0.70	27/05/2020	-	-		DRY	
						By	Date	
					Logged	JD	27/05/2020	
					Checked	JB	28/05/2020	Scale 01:25



TRIAL PIT LOG

Project: Land at Sonning Golf Club, Duffield Road, Sonning, RG4 6GJ				Project No. 20-133.02	Trial Pit: SA1
Client: Alfred Homes Limited			Start: 27/05/2020	End: 27/05/2020	Sheet: 1 of 1
Method/Plant Used: JCB 3CX	Co-ordinates: NT			Ground Level: NT	

Description of Strata	Legend	Depth (m bgl) (thickness)	Well Details	Samples/Tests									Laboratory Test Details
				Depth	No	Type							
Brown slightly gravelly silty sandy clayey TOPSOIL. Gravel is fine to coarse sub angular to sub rounded of flint. Grass surfacing and rootlets throughout. (TOPSOIL)		(0.3)											
		0.3											
Light brown, gravelly, sandy SILT. Gravel is fine to coarse sub angular to rounded of flint. (RIVER TERRACE DEPOSITS)		(0.3)											
		0.6											

Dimensions (m)			Water level observations (depths in metres below gl)						
Length	Width	Depth	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks	
1.60	0.50	0.60	27/05/2020	-	-		DRY		
Remarks No groundwater encountered in trial pit. Trial pit relatively stable. Excavation rate steady. Infiltration test (BRE 365) undertaken						By	Date		
						Logged	JD	27/05/2020	
						Checked	JB	28/05/2020	Scale 01:25



Description of Strata	Legend	Depth (m bgl) (thickness)	Well Details	Samples/Tests									Laboratory Test Details
				Depth	No	Type							
Brown slightly gravelly silty sandy clayey TOPSOIL. Gravel is fine to coarse sub angular to sub rounded of flint. Grass surfacing and rootlets throughout. (TOPSOIL)		(0.3) 0.3											
Light brown, slightly silty, gravelly SAND. Gravel is fine to coarse sub angular to rounded of flint. (RIVER TERRACE DEPOSITS)		(0.5) 0.8											
Light brown, very gravelly SAND. Gravel is fine to coarse sub angular to rounded of flint. (RIVER TERRACE DEPOSITS)		(0.4) 1.2											

Dimensions (m)			Water level observations (depths in metres below gl)					
Length	Width	Depth	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks
1.70	0.50	1.20	27/05/2020	-	-		DRY	
						By	Date	
					Logged	JD	27/05/2020	
					Checked	JB	28/05/2020	Scale 01:25



TRIAL PIT LOG

Project: Land at Sonning Golf Club, Duffield Road, Sonning, RG4 6GJ				Project No. 20-133.02	Trial Pit: SA4
Client: Alfred Homes Limited			Start: 27/05/2020	End: 27/05/2020	Sheet: 1 of 1
Method/Plant Used: JCB 3CX	Co-ordinates: NT			Ground Level: NT	

Description of Strata	Legend	Depth (m bgl) (thickness)	Well Details	Samples/Tests									Laboratory Test Details
				Depth	No	Type							
Brown slightly gravelly silty sandy clayey TOPSOIL. Gravel is fine to coarse sub angular to sub rounded of flint. Grass surfacing and rootlets throughout. (TOPSOIL)		(0.4)											
		0.4											
Light brown, slightly clayey, sandy GRAVEL. Gravel is fine to coarse sub angular to rounded of flint. (RIVER TERRACE DEPOSITS)		(0.9)											
		1.3											

Dimensions (m)			Water level observations (depths in metres below gl)						
Length	Width	Depth	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks	
1.80	0.50	1.30	27/05/2020	-	-		DRY		
Remarks No groundwater encountered in trial pit. Trial pit relatively stable. Excavation rate steady. Infiltration test (BRE 365) undertaken						By	Date		
						Logged	JD	27/05/2020	
						Checked	JB	28/05/2020	Scale 01:25



TRIAL PIT LOG

Project: Land at Sonning Golf Club, Duffield Road, Sonning, RG4 6GJ				Project No. 20-133.02	Trial Pit: TP5
Client: Alfred Homes Limited			Start: 27/05/2020	End: 27/05/2020	Sheet: 1 of 1
Method/Plant Used: JCB 3CX	Co-ordinates: NT			Ground Level: NT	

Description of Strata	Legend	Depth (m bgl) (thickness)	Well Details	Samples/Tests								Laboratory Test Details
				Depth	No	Type						
Brown slightly gravelly silty sandy clayey TOPSOIL. Gravel is fine to coarse sub angular to sub rounded of flint. Grass surfacing and rootlets throughout. (TOPSOIL)		(0.4)										
Brown, clayey, sandy GRAVEL. Gravel is fine to coarse sub angular to rounded of flint. (RIVER TERRACE DEPOSITS)		0.4 (0.9)										
Light brown, slightly clayey, sandy GRAVEL. Gravel is fine to coarse sub angular to rounded of flint. (RIVER TERRACE DEPOSITS)		0.9 (2.6)										
		3.5										

Dimensions (m)			Water level observations (depths in metres below gl)						
Length	Width	Depth	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks	
2.30	0.50	3.50	27/05/2020 28/05/2020	-	-		DRY DRY		
Remarks No groundwater encountered in trial pit. Trial pit relatively stable. Excavation rate steady. Monitoring well standpipe installed to 3.5m						By	Date		
						Logged	JD	27/05/2020	
						Checked	JB	28/05/2020	Scale 01:25



Trial Pit Photographs

Project Number	20-133.02	Project Title	Land at Sonning Golf Course, Duffield Road, Sonning, RG4 6GJ	Taken by	JD	Date	27/05/2020
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SA1
Pit



SA2
Pit



SA3
Pit



SA1
Arisings



SA2
Arisings



SA3
Arisings



Trial Pit Photographs

Project Number	20-133.02	Project Title	Land at Sonning Golf Course, Duffield Road, Sonning, RG4 6GJ	Taken by	JD	Date	27/05/2020
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SA4
Pit



TP5
Pit



SA4
Arisings



TP5
Arisings

APPENDIX III
TEST RESULTS AND INFILTRATION RATES



Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA1-1

Readings Recorded By: JD

Pit Dimensions: 1.5m(l) x 0.5m(w) x 0.7m(d)
Start Water Level: 0.21m

Actual Storage Volume: 0.53 m³
Effective Depth: 0.49 m

Time (mins)	Depth BGL (m)
0	0.210
1	0.230
2	0.240
3	0.260
4	0.270
5	0.290
19	0.410
37	0.520
63	0.600
85	0.660

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

Effective Storage Volume, V : 1.5m x 0.5m x 0.49m
 V : 0.3675 m³

V_{p75-25} : 0.184 m³

Effective Internal Surface Area, a_{p50} : 0.735m² + 0.245m² + 0.75m²
 a_{p50} : 1.730 m²

Time of water level fall, t_{p75-25} : 55 - 11 mins
 t_{p75-25} : 44 mins
 t_{p75-25} : 2640 secs

Soil infiltration rate, f : 0.18375/(1.73 x 2640)
 f : 4.02E-05 ms⁻¹



Line of best fit
t75 & t25

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA1-2

Readings Recorded By: JD

Pit Dimensions: 1.5m(l) x 0.5m(w) x 0.7m(d)
Start Water Level: 0.18m

Actual Storage Volume: 0.53 m³
Effective Depth: 0.52 m

Time (mins)	Depth BGL (m)
0	0.180
1	0.190
2	0.190
3	0.200
4	0.200
5	0.210
20	0.270
35	0.330
43	0.380
65	0.500
130	0.610
177	0.670

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

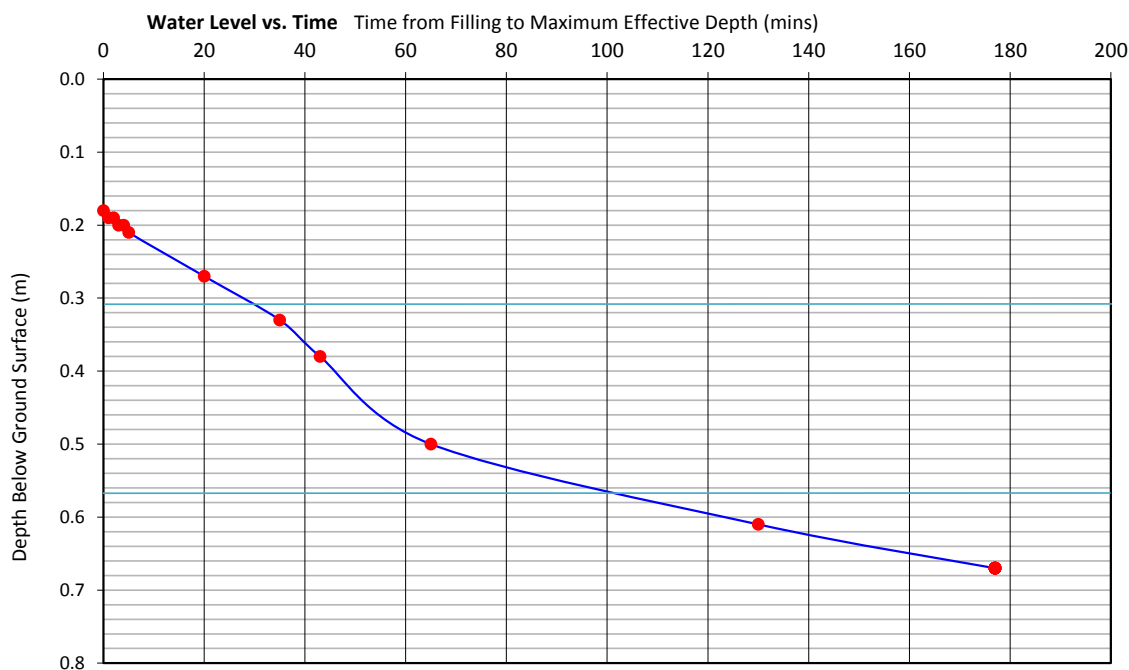
Effective Storage Volume, V : 1.5m x 0.5m x 0.52m
 V : 0.39 m³

V_{p75-25} : 0.195 m³

Effective Internal Surface Area, a_{p50} : 0.78m² + 0.26m² + 0.75m²
 a_{p50} : 1.790 m²

Time of water level fall, t_{p75-25} : 102 - 26 mins
 t_{p75-25} : 76 mins
 t_{p75-25} : 4560 secs

Soil infiltration rate, f : 0.195/(1.79 x 4560)
 f : 2.39E-05 ms⁻¹



Line of best fit
t75 & t25

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA1-3

Readings Recorded By: JD

Pit Dimensions: 1.5m(l) x 0.5m(w) x 0.7m(d)
Start Water Level: 0.19m

Actual Storage Volume: 0.53 m³
Effective Depth: 0.51 m

Time (mins)	Depth BGL (m)
0	0.190
1	0.190
2	0.200
3	0.200
4	0.210
5	0.210
20	0.260
40	0.300
73	0.380
110	0.440
157	0.510
229	0.590

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

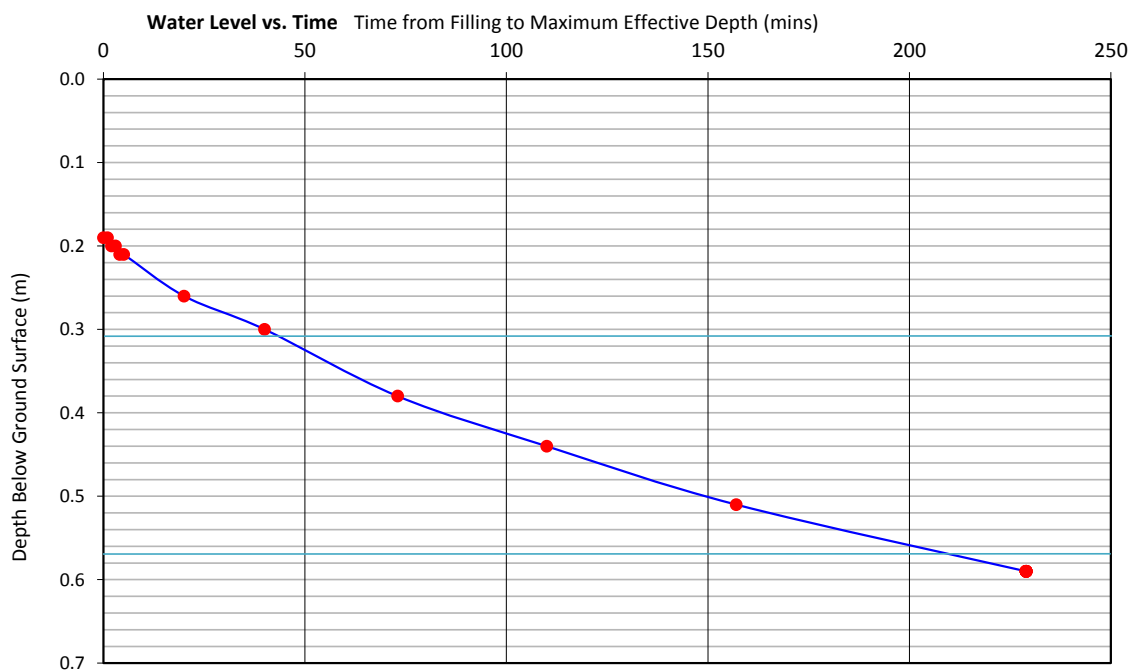
Effective Storage Volume, V: 1.5m x 0.5m x 0.51m
V: 0.3825 m³

V_{p75-25}: 0.191 m³

Effective Internal Surface Area, a_{p50}: 0.765m² + 0.255m² + 0.75m²
a_{p50}: 1.770 m²

Time of water level fall, t_{p75-25}: 210 - 45 mins
t_{p75-25}: 165 mins
t_{p75-25}: 9900 secs

Soil infiltration rate, f: 0.19125/(1.77 x 9900)
f: 1.09E-05 ms⁻¹



Line of best fit
t₇₅ & t₂₅

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA2-1

Readings Recorded By: JD

Pit Dimensions: 1.5m(l) x 0.5m(w) x 0.6m(d)
Start Water Level: 0.16m

Actual Storage Volume: 0.45 m³
Effective Depth: 0.44 m

Time (mins)	Depth BGL (m)
0	0.160
1	0.170
2	0.190
3	0.200
4	0.200
5	0.210
32	0.300
56	0.360
78	0.390
137	0.460
195	0.500
206	0.510

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

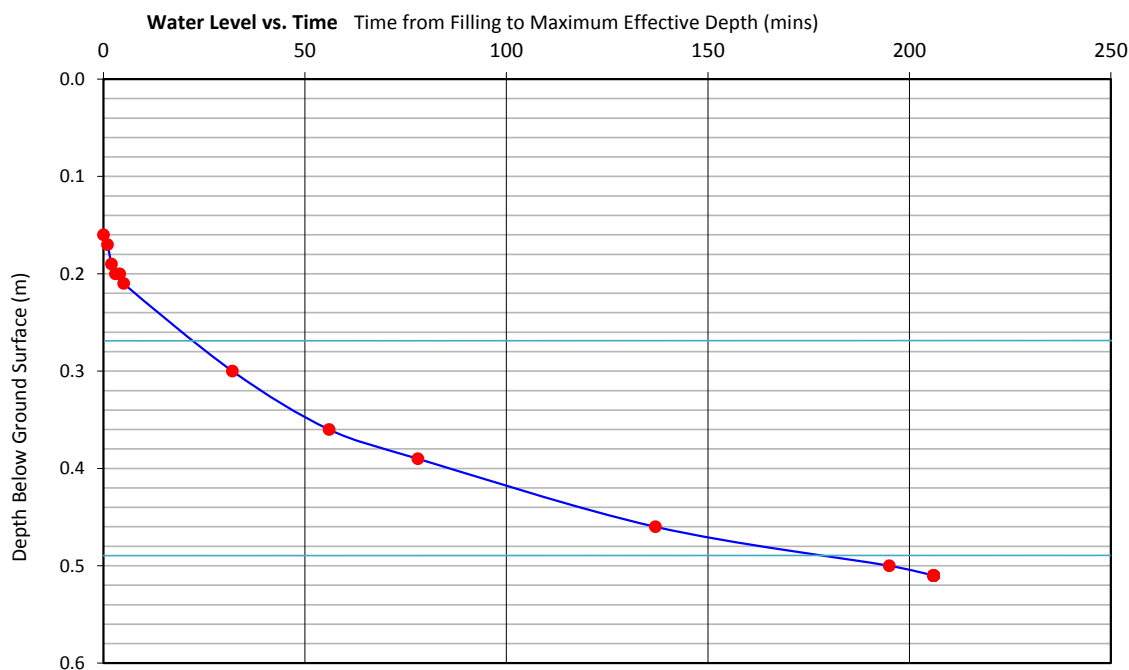
Effective Storage Volume, V: 1.5m x 0.5m x 0.44m
V: 0.33 m³

V_{p75-25}: 0.165 m³

Effective Internal Surface Area, a_{p50}: 0.66m² + 0.22m² + 0.75m²
a_{p50}: 1.630 m²

Time of water level fall, t_{p75-25}: 180 - 25 mins
t_{p75-25}: 155 mins
t_{p75-25}: 9300 secs

Soil infiltration rate, f: 0.165/(1.63 x 9300)
f: 1.09E-05 ms⁻¹



Line of best fit
t75 & t25

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA2-2

Readings Recorded By: JD

Pit Dimensions: 1.5m(l) x 0.5m(w) x 0.6m(d)
Start Water Level: 0.3m

Actual Storage Volume: 0.45 m³
Effective Depth: 0.30 m

Time (mins)	Depth BGL (m)
0	0.300
1	0.310
2	0.310
3	0.310
4	0.320
5	0.320
46	0.360
111	0.420
157	0.450
187	0.470
234	0.490
267	0.510
310	0.520
356	0.530

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

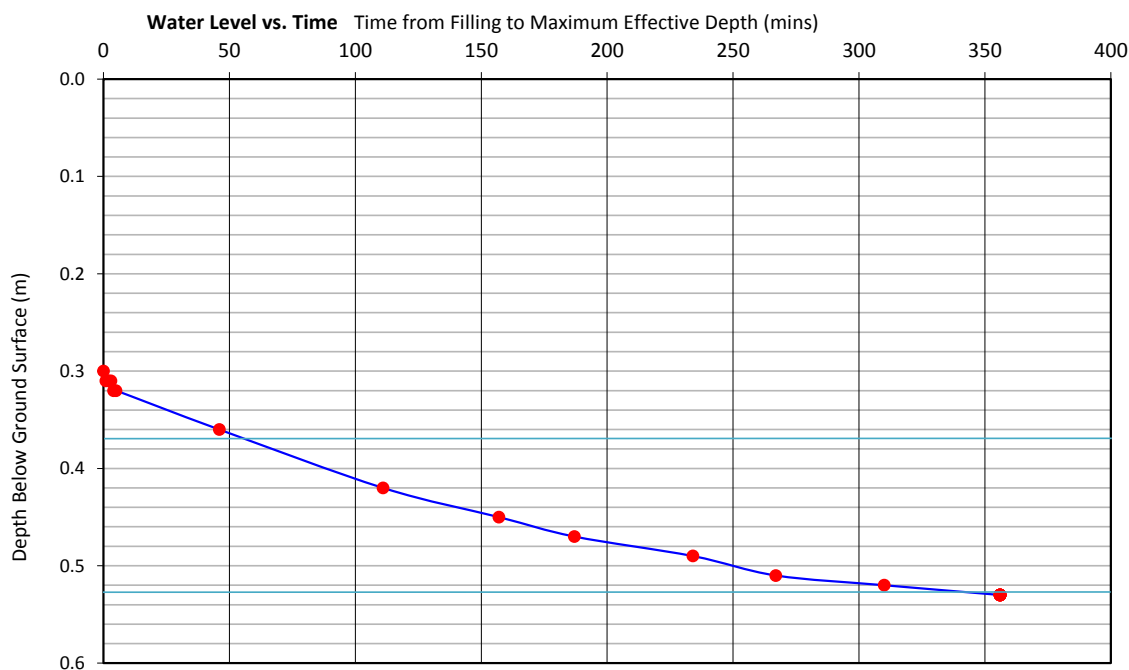
Effective Storage Volume, V : 1.5m x 0.5m x 0.3m
 V : 0.225 m³

V_{p75-25} : 0.113 m³

Effective Internal Surface Area, a_{p50} : 0.45m² + 0.15m² + 0.75m²
 a_{p50} : 1.350 m²

Time of water level fall, t_{p75-25} : 330 - 60 mins
 t_{p75-25} : 270 mins
 t_{p75-25} : 16200 secs

Soil infiltration rate, f : 0.1125/(1.35 x 16200)
 f : 5.14E-06 ms⁻¹



Line of best fit
t75 & t25

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA2-3

Readings Recorded By: JD

Pit Dimensions: 1.5m(l) x 0.5m(w) x 0.6m(d)
Start Water Level: 0.15m

Actual Storage Volume: 0.45 m³
Effective Depth: 0.45 m

Time (mins)	Depth BGL (m)
0	0.150
1	0.150
2	0.160
3	0.160
4	0.160
5	0.170
27	0.230
37	0.260
80	0.310
119	0.360
167	0.400
239	0.460
299	0.500
330	0.520

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

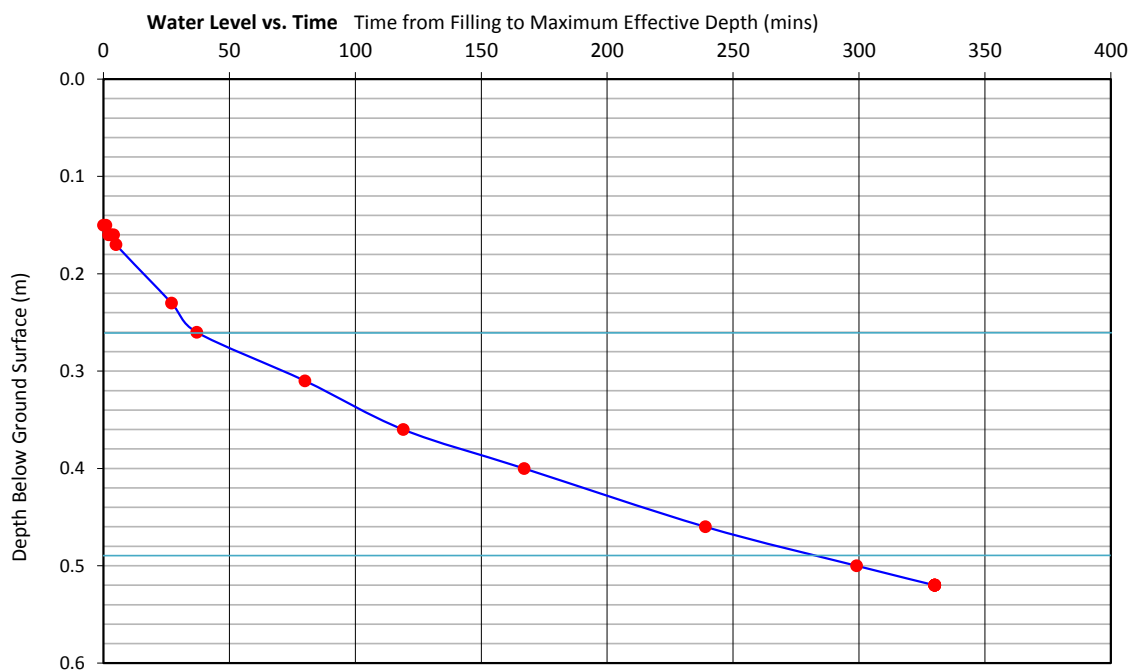
Effective Storage Volume, V : 1.5m x 0.5m x 0.45m
 V : 0.3375 m³

V_{p75-25} : 0.169 m³

Effective Internal Surface Area, a_{p50} : 0.675m² + 0.225m² + 0.75m²
 a_{p50} : 1.650 m²

Time of water level fall, t_{p75-25} : 280 - 38 mins
 t_{p75-25} : 242 mins
 t_{p75-25} : 14520 secs

Soil infiltration rate, f : 0.16875/(1.65 x 14520)
 f : 7.04E-06 ms⁻¹



Line of best fit
t75 & t25

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA3-1

Readings Recorded By: JD

Pit Dimensions: 1.7m(l) x 0.5m(w) x 1.2m(d)
Start Water Level: 0.7m

Actual Storage Volume: 1.02 m³
Effective Depth: 0.50 m

Time (mins)	Depth BGL (m)
0	0.700
1	0.710
2	0.720
3	0.730
4	0.740
5	0.740
11	0.760
24	0.830
36	0.840
45	0.850
68	0.890
95	0.920
117	0.950
177	1.000
234	1.060
287	1.080

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

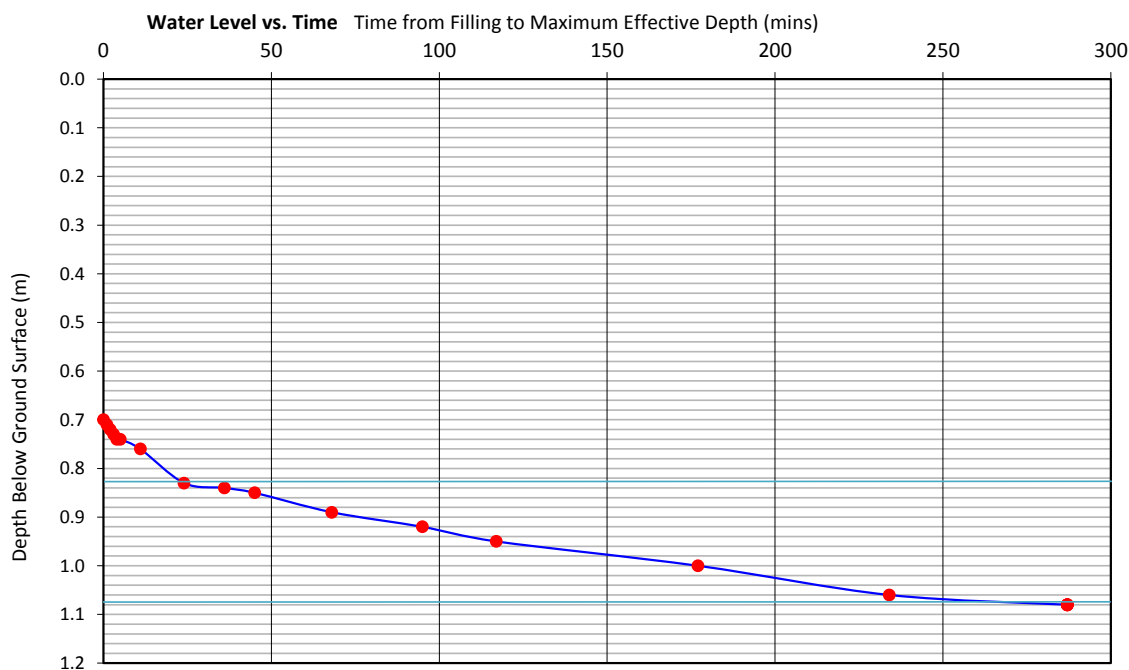
Effective Storage Volume, V : 1.7m x 0.5m x 0.5m
 V : 0.425 m³

V_{p75-25} : 0.213 m³

Effective Internal Surface Area, a_{p50} : 0.85m² + 0.25m² + 0.85m²
 a_{p50} : 1.950 m²

Time of water level fall, t_{p75-25} : 265 - 20 mins
 t_{p75-25} : 245 mins
 t_{p75-25} : 14700 secs

Soil infiltration rate, f : 0.2125/(1.95 x 14700)
 f : 7.41E-06 ms⁻¹



Line of best fit
t75 & t25

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA3-2

Readings Recorded By: JD

Pit Dimensions: 1.7m(l) x 0.5m(w) x 1.2m(d)
Start Water Level: 0.5m

Actual Storage Volume: 1.02 m³
Effective Depth: 0.70 m

Time (mins)	Depth BGL (m)
0	0.500
1	0.500
2	0.510
3	0.520
4	0.530
5	0.540
6	0.550
23	0.630
65	0.730
130	0.840
176	0.900
203	0.940
289	0.980
356	1.010
432	1.030

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

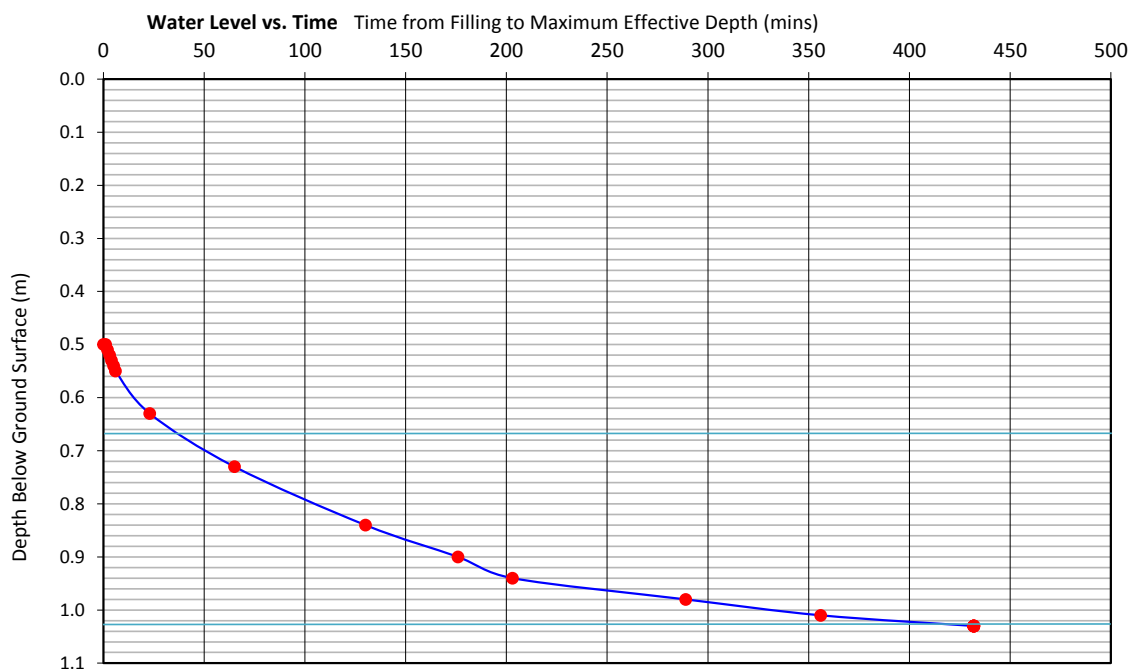
Effective Storage Volume, V : 1.7m x 0.5m x 0.7m
 V : 0.595 m³

V_{p75-25} : 0.298 m³

Effective Internal Surface Area, a_{p50} : 1.19m² + 0.35m² + 0.85m²
 a_{p50} : 2.390 m²

Time of water level fall, t_{p75-25} : 420 - 40 mins
 t_{p75-25} : 380 mins
 t_{p75-25} : 22800 secs

Soil infiltration rate, f : 0.2975/(2.39 x 22800)
 f : 5.46E-06 ms⁻¹



Line of best fit
 t_{75} & t_{25}

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t_{75} = min

Theoretical t_{25} = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t_{75} and t_{25}

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA3-3

Readings Recorded By: JD

Pit Dimensions: 1.7m(l) x 0.5m(w) x 1.2m(d)
Start Water Level: 0.44m

Actual Storage Volume: 1.02 m³
Effective Depth: 0.76 m

Time (mins)	Depth BGL (m)
0	0.440
1	0.460
2	0.470
3	0.480
4	0.490
5	0.500
15	0.540
37	0.610
57	0.660
90	0.720
131	0.780
182	0.820
252	0.890
314	0.930
340	0.950
404	0.980
468	1.010

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

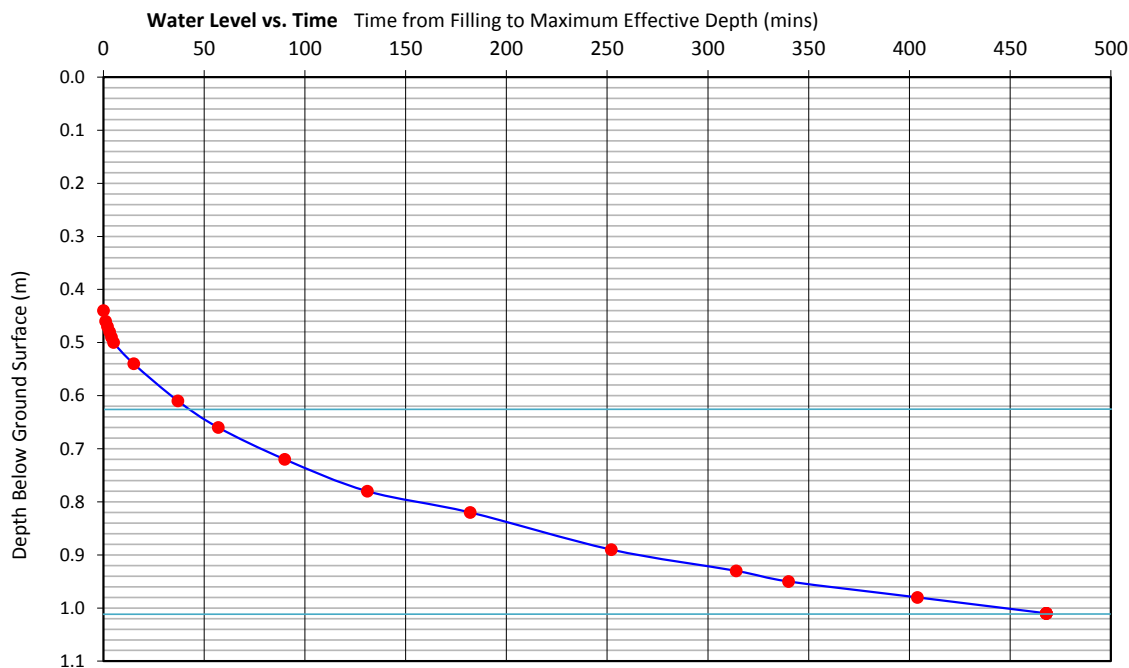
Effective Storage Volume, V : 1.7m x 0.5m x 0.76m
 V : 0.646 m³

V_{p75-25} : 0.323 m³

Effective Internal Surface Area, a_{p50} : 1.292m² + 0.38m² + 0.85m²
 a_{p50} : 2.522 m²

Time of water level fall, t_{p75-25} : 468 - 45 mins
 t_{p75-25} : 423 mins
 t_{p75-25} : 25380 secs

Soil infiltration rate, f : 0.323/(2.522 x 25380)
 f : 5.05E-06 ms⁻¹



Line of best fit
t75 & t25

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA4-1

Readings Recorded By: JD

Pit Dimensions: 1.8m(l) x 0.5m(w) x 1.3m(d)
Start Water Level: 0.63m

Actual Storage Volume: 1.17 m³
Effective Depth: 0.67 m

Time (mins)	Depth BGL (m)
0	0.630
1	0.650
2	0.660
3	0.680
4	0.690
9	0.800
22	0.930
44	1.020
63	1.110
89	1.180

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

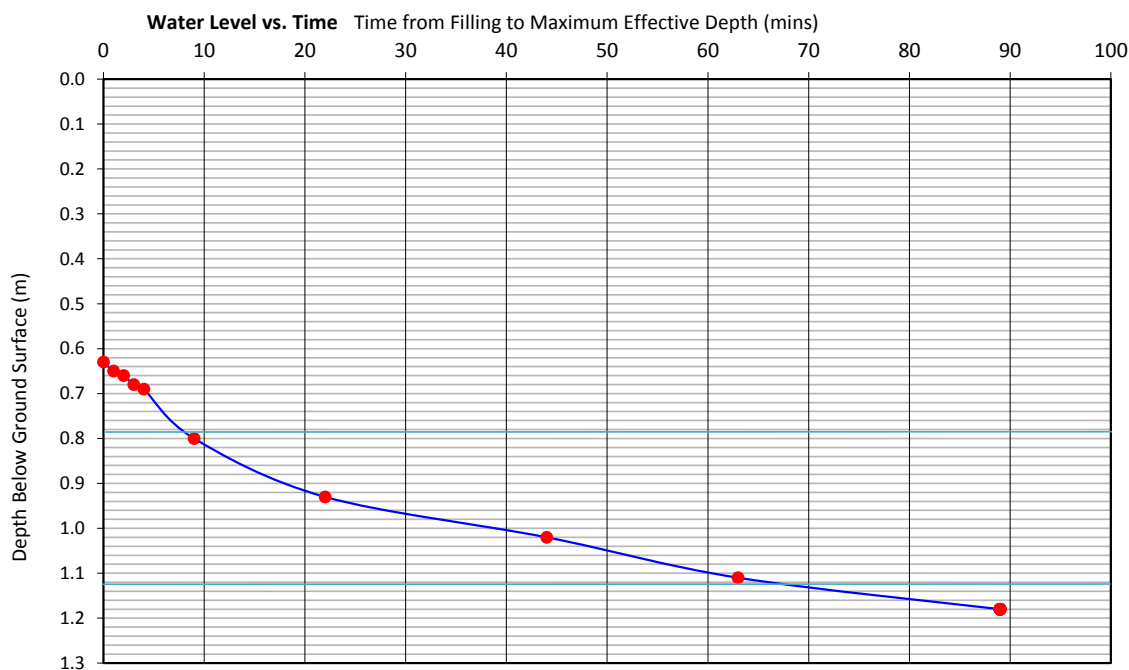
Effective Storage Volume, V : 1.8m x 0.5m x 0.67m
 V : 0.603 m³

V_{p75-25} : 0.302 m³

Effective Internal Surface Area, a_{p50} : 1.206m² + 0.335m² + 0.9m²
 a_{p50} : 2.441 m²

Time of water level fall, t_{p75-25} : 68 - 8 mins
 t_{p75-25} : 60 mins
 t_{p75-25} : 3600 secs

Soil infiltration rate, f : 0.3015/(2.441 x 3600)
 f : 3.43E-05 ms⁻¹



Line of best fit
t75 & t25

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA4-2

Readings Recorded By: JD

Pit Dimensions: 1.8m(l) x 0.5m(w) x 1.3m(d)
Start Water Level: 0.56m

Actual Storage Volume: 1.17 m³
Effective Depth: 0.74 m

Time (mins)	Depth BGL (m)
0	0.560
1	0.590
2	0.620
3	0.640
4	0.650
5	0.660
8	0.690
18	0.770
29	0.860
47	0.980
61	1.110
70	1.150

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

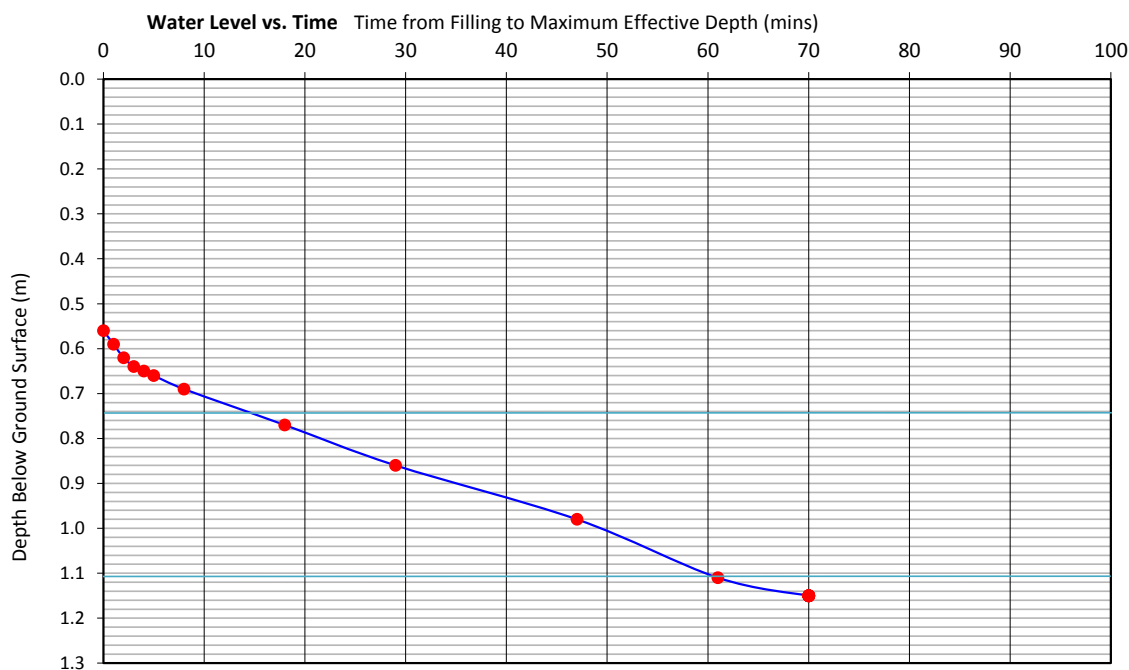
Effective Storage Volume, V : 1.8m x 0.5m x 0.74m
 V : 0.666 m³

V_{p75-25} : 0.333 m³

Effective Internal Surface Area, a_{p50} : 1.332m² + 0.37m² + 0.9m²
 a_{p50} : 2.602 m²

Time of water level fall, t_{p75-25} : 62 - 16 mins
 t_{p75-25} : 46 mins
 t_{p75-25} : 2760 secs

Soil infiltration rate, f : 0.333/(2.602 x 2760)
 f : 4.64E-05 ms⁻¹



Line of best fit
t75 & t25

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅

Soil Infiltration Test

20-133.02: Land at Sonning Golf Club



Test Pit SA4-3

Readings Recorded By: JD

Pit Dimensions: 1.8m(l) x 0.5m(w) x 1.3m(d)
Start Water Level: 0.57m

Actual Storage Volume: 1.17 m³
Effective Depth: 0.73 m

Time (mins)	Depth BGL (m)
0	0.570
1	0.600
2	0.620
3	0.640
4	0.650
5	0.670
10	0.710
17	0.780
29	0.830
41	0.910
50	0.970
62	1.070
74	1.150

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

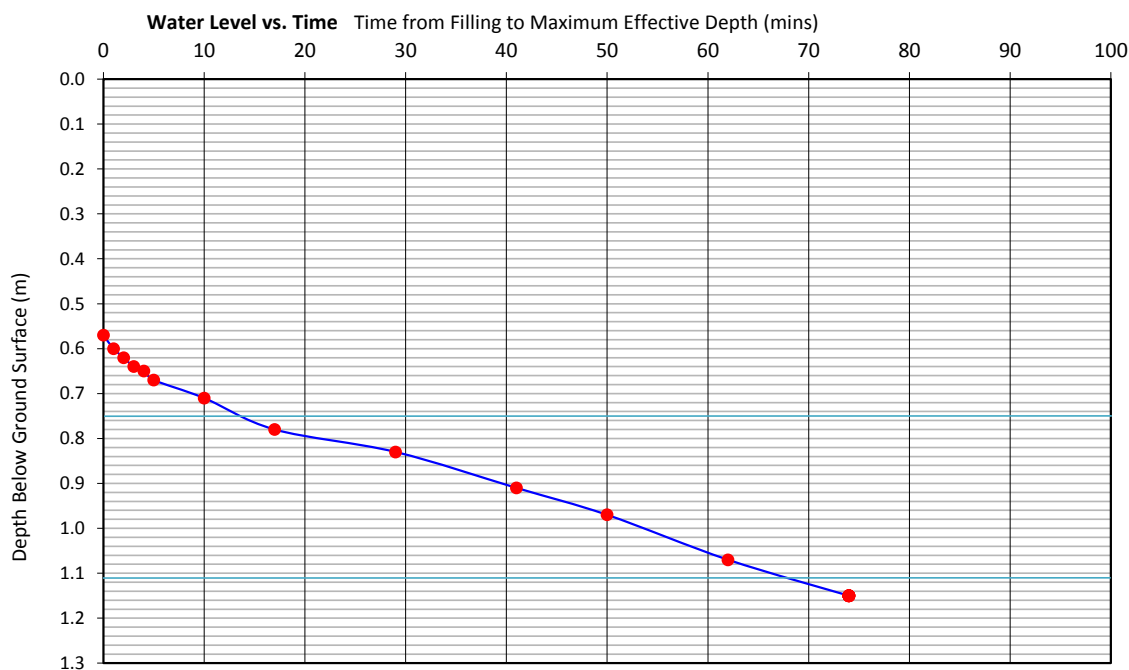
Effective Storage Volume, V : 1.8m x 0.5m x 0.73m
 V : 0.657 m³

V_{p75-25} : 0.329 m³

Effective Internal Surface Area, a_{p50} : 1.314m² + 0.365m² + 0.9m²
 a_{p50} : 2.579 m²

Time of water level fall, t_{p75-25} : 68 - 15 mins
 t_{p75-25} : 53 mins
 t_{p75-25} : 3180 secs

Soil infiltration rate, f : 0.3285/(2.579 x 3180)
 f : 4.01E-05 ms⁻¹



Line of best fit
t75 & t25

ONLY USE EXTRAPOLATION WHEN GRAPHICAL DATA IS INSUFFICIENT

Extrapolation

Fall over test mins = m

Theoretical t₇₅ = min

Theoretical t₂₅ = min

Where fall in water level during infiltration tests does not meet the 75% and 25% full level these have been extrapolated from the data set in order to complete the calculation and provide a theoretical infiltration rate in the absence of additional data. This theoretical infiltration rate is based upon infiltration observed within the duration of the test to assume a t₇₅ and t₂₅