



Foul & SuDS Drainage Statement & Maintenance Plan

Land off North End Road, Yapton, West Sussex BN18 0DT

Client

Redrow Homes Ltd
Unit 1, Faraday Office Park
Basingstoke
Hampshire
RG24 8QQ
11228

Date: November 2021

Consulting Engineers

GTA Civils & Transport Limited
Gloucester House
66a Church Walk
Burgess Hill
West Sussex
RH15 9AS
Tel: 01444 871444

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2	Existing Site	3
3	Proposed Surface Water Drainage	4
4	Proposed Foul Water Drainage & Conclusion	6

Schedule of Appendices

- A Site Location Maps and Aerial View
- B Topographic Survey & Sewer Records
- C Proposed Drainage Design Layout Sheets
- D MicroDrainage Calculation Sheets
- E Soil Soakage Test Report & Summary Sheet

Annex

Drainage Maintenance & Management Plan

Issue	Issue date	Compiled	Checked
Preliminary Issue	11 November 2021	JP	MR
Second Issue	22 December	SDL	MR

1 Introduction

- 1.1 This Statement has been prepared for Redrow Homes South East in relation to the outline consent of 45 residential dwellings at North End Road, Yapton, BN18 0DT. No responsibility is accepted to any third party for all or part of this study in connection with this or any other development.
- 1.2 GTA Civils & Transport Limited was appointed by the client to provide a Foul & (SuDS) Drainage Statement.
- 1.3 The main objective of this Statement is to assist in the discharging of Condition 12 and 13 which are as follows:

Condition 12

No development shall take place until details of the implementation, maintenance and management of a sustainable drainage scheme have been submitted to and approved in writing by the LPA. The scheme shall be implemented and thereafter managed and maintained in accordance with the approved details. Those details shall include:

- i. A timetable for the scheme's implementation; and*
- ii. A management and maintenance plan for the lifetime of the development which shall include the arrangement for the adoption by any public body or statutory undertake, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.*

Condition 13

Construction of the development shall not commence until details of the proposed means of foul water sewerage have been submitted to and approved in writing by the LPA. No dwelling shall be occupied until works for the disposal of sewerage of sewerage have been fully implemented in accordance with the approved details.

2 Existing Site

- 2.1 The application site comprises a vacant agricultural field accessed from North End Road. The site area is approximately 1.8ha. A site location map and aerial view are shown in Appendix A.
- 2.2 Hydrology: An unnamed watercourse approximately 330m north of the site. It continues to flow east to join River Arun.
- 2.3 Topography: The topographical survey in Appendix B shows the site to be relatively flat with a fall from north to southwest. Levels range from approximately 7.62m AOD in the north to 6.16m AOD in the south.
- 2.4 Public Sewers: Southern Water's sewer records show the nearest foul sewer is close to the access in North End Road (manhole ref 9901). Refer to Appendix B. The nearest surface water sewer is at the junction between North End Road and Maypole Lane, some 90m to the NE of the site access.
- 2.5 Geology: The BGS online map shows that the site is underlain by Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culvert Chalk Formation and Portsdown Chalk Formation. Superficial deposits description as River Terrace Deposits (undifferentiated) – sand, silt and clay.
- 2.6 Soakage tests undertaken in accordance with BRE365 – initially in January '20. The average rate of the 5 results is $9.58 \times 10^{-7} \text{m/s}$. Refer to Appendix E. This is the rate used in the SuDS design. Since then, 2 further series of tests were undertaken (in October '20 and October '21). The recommended overall rate from *all the tests* in the overarching report is $1.5 \times 10^{-6} \text{m/s}$.
- 2.7 Flood Risk: the proposed development lies entirely within Flood Zone 1. It is clear from flooding from reservoirs source and is therefore 'appropriate' in terms of consideration of the Sequential & Exception Tests (Table 3 of the NPPF).

3 Proposed Surface Water Drainage

- 3.1 Full planning permission is being sought for building 45 residential dwelling houses with associated roads, garages, driveways and gardens. The proposed site layout is in Appendix C.
- 3.2 The NPPF states that SuDS should be utilised unless there are practical reasons for not doing so. The SuDS hierarchy has been applied, with infiltration features at top of this list. As set out in section 2.6 above, the soil soakage rate on this site is reliable for soakage.
- 3.3 Because of the variation in soakage rates, the *lower* rate of 9.58×10^{-7} m/s has been used in the drainage strategy layout. It is contended that this is a sturdier, conservative approach than relying on the higher rate, where there are pockets of lower porosity.
- 3.4 As infiltration is suitable, porous paving will be used in all catchments. the total area is divided into 13 catchment 'zones' plus 2 trench soakaways - which include all the contributing area in the site. MicroDrainage calculations are shown in Appendix D.
- 3.5 The following table summarises the area for infiltration at each catchment in the site:

Zones	Catchments (ha)
Zone 1	0.330
Zone 2	0.075
Zone 3	0.024
Zone 4	0.051
Zone 5	0.033
Zone 6	0.046
Zone 7	0.041
Zone 8	0.033
Zone 9	0.080
Zone 10	0.036
Zone 11	0.033
Zone 12	0.020
Zone 13	0.009
Trench 1	0.017
Trench 2	0.006

- 3.6 The structures will hold the volume in the critical 1 in 10 years event as well as the 100 yrs + 40% event. The calculated "half drain times" in the 1 in 10 years event are less than 24 hours and so comply with Building Regulations.

- 3.7 Ownership and maintenance responsibilities for the proposed drainage system are set out in the Drainage Management and Maintenance Plan – refer to the Annex of this Statement.
- 3.8 It is contended that this development's SuDS design is compliant with the PPG/NPPF.

4 Proposed Foul Water Drainage & Conclusion

- 4.1 The majority of development's foul network will drain by gravity - and connect to a public foul sewer in North End Road. A Pump Station is needed for the lower area to connect with the private foul network within the site. Refer to Appendix C.
- 4.2 An application to connect into the public sewer will be made under Section 106 of the Water Industry Act – to Southern Water, the owner of the public sewerage network.

It is contended that this proposal is fully compliant with national and local drainage policies. The items outlined in the Outline Planning decision notice have been addressed.

- End of Statement -

Appendix A

Site Location Maps and Aerial View





Appendix B

Topographic Survey & Sewer Records

KEY

TOPOGRAPHICAL KEY

SURVEY STATION

BANKING

HEDGE SPREADS

WOODLAND CANOPY

ARROW ON ELEVATION

RAILS INDICATES

SPREAD

SHOWN TO SCALE

GRADES

GATE

KERB CHANNEL

ROAD UNDERGROUND

GENERAL

PIPE MATERIALS

FENCES

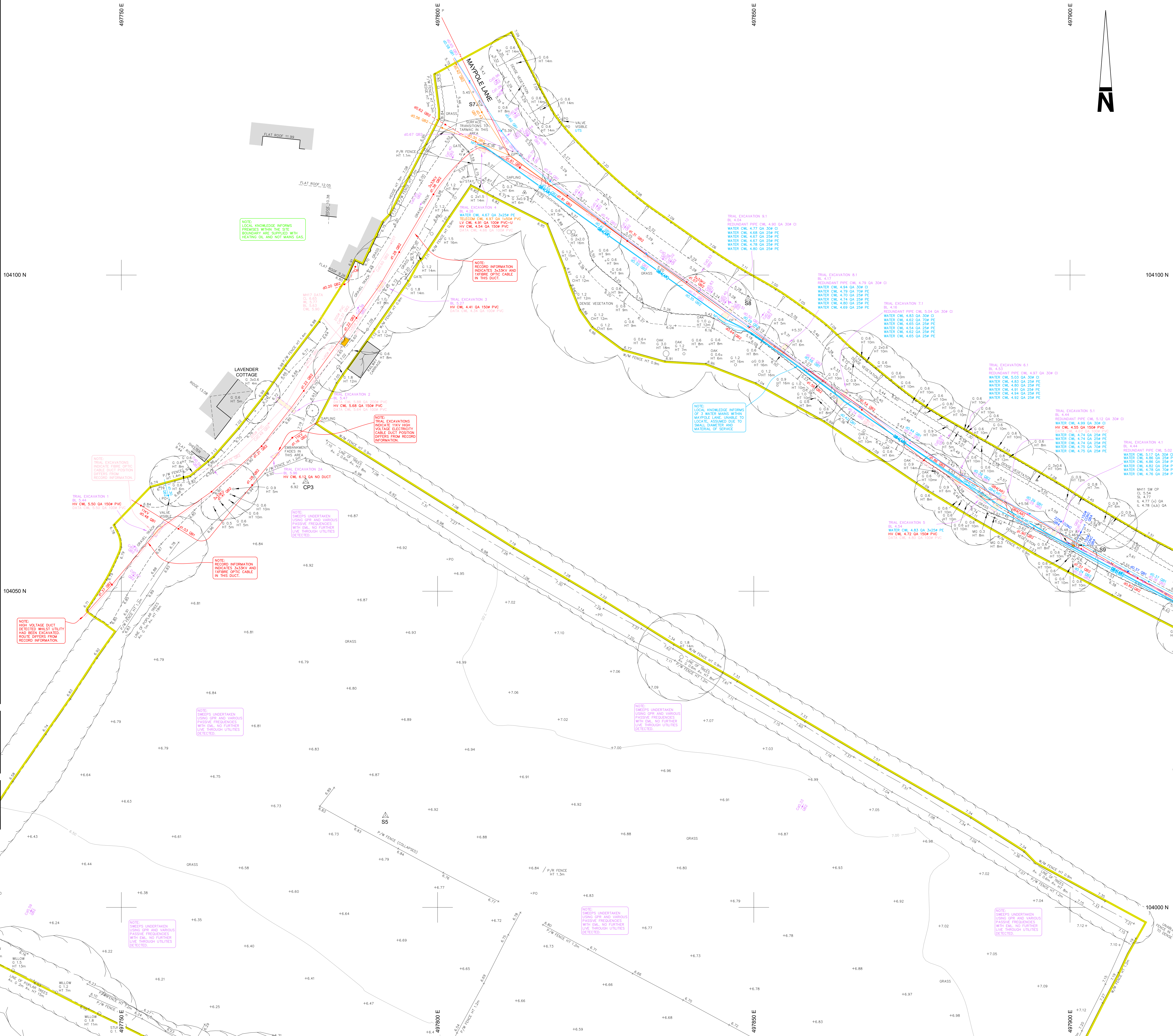
LEVELS

APPARATUS

CAUTIONARY NOTES

PAS 128:2014 Quality Level Guide

Desktop Utility Records



Notes

Coordinate Table

Equipment Information

DETECTION SURVEY REPORT

DESKTOP UTILITY REPORT

CAUTIONARY NOTES

Sheet Layout: (Not to Scale)

Additional information added along North East Road

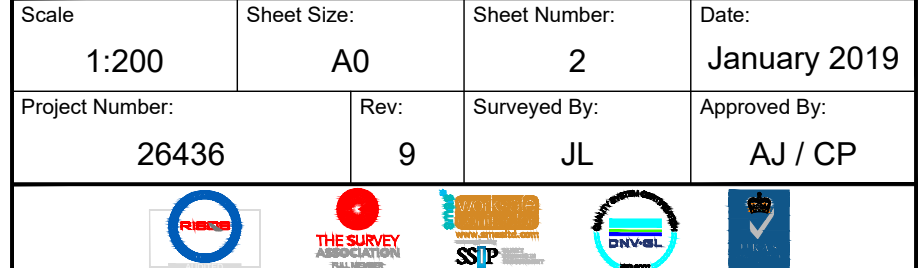
mk surveys

REDROW HOMES

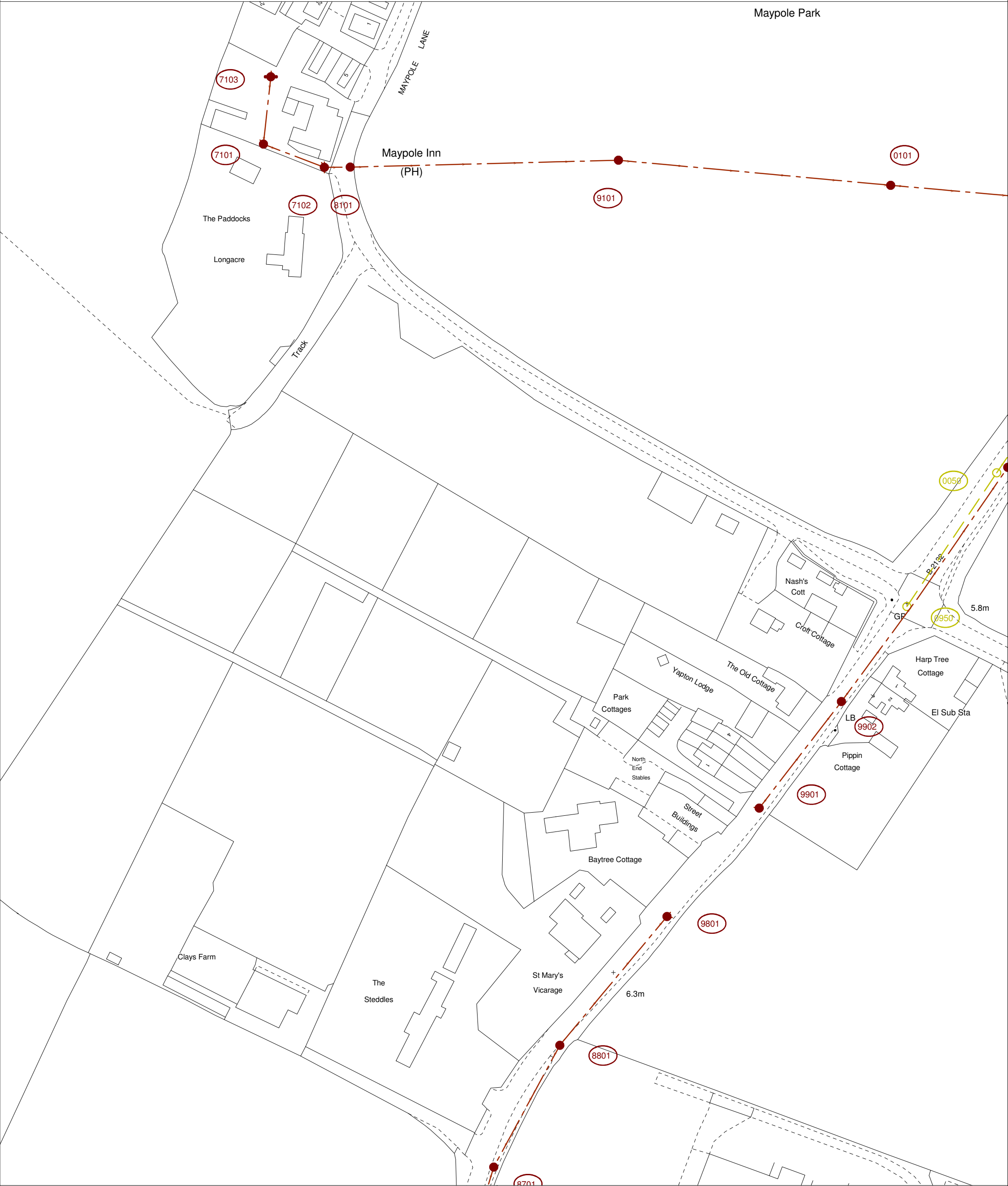
North End Road Yaptown West Sussex

Topographical and PAS 128:2014 Utility Survey

Scale 1:200 Sheet Size A0 Sheet Number 1 Date January 2019



SOUTHERN WATER



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

Based upon Ordnance Survey Digital Data with the permission of the controller of H.M.S.O. Crown Copyright Reserved Licence No. WU 298530

O.S. REF: SU9703NE

Scale: 1:1250

Sewer Plot

WARNING: BAC pipes are constructed of Bonded Asbestos Cement

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement

ARUN DISTRICT COUNCIL Y/163/21/DOC

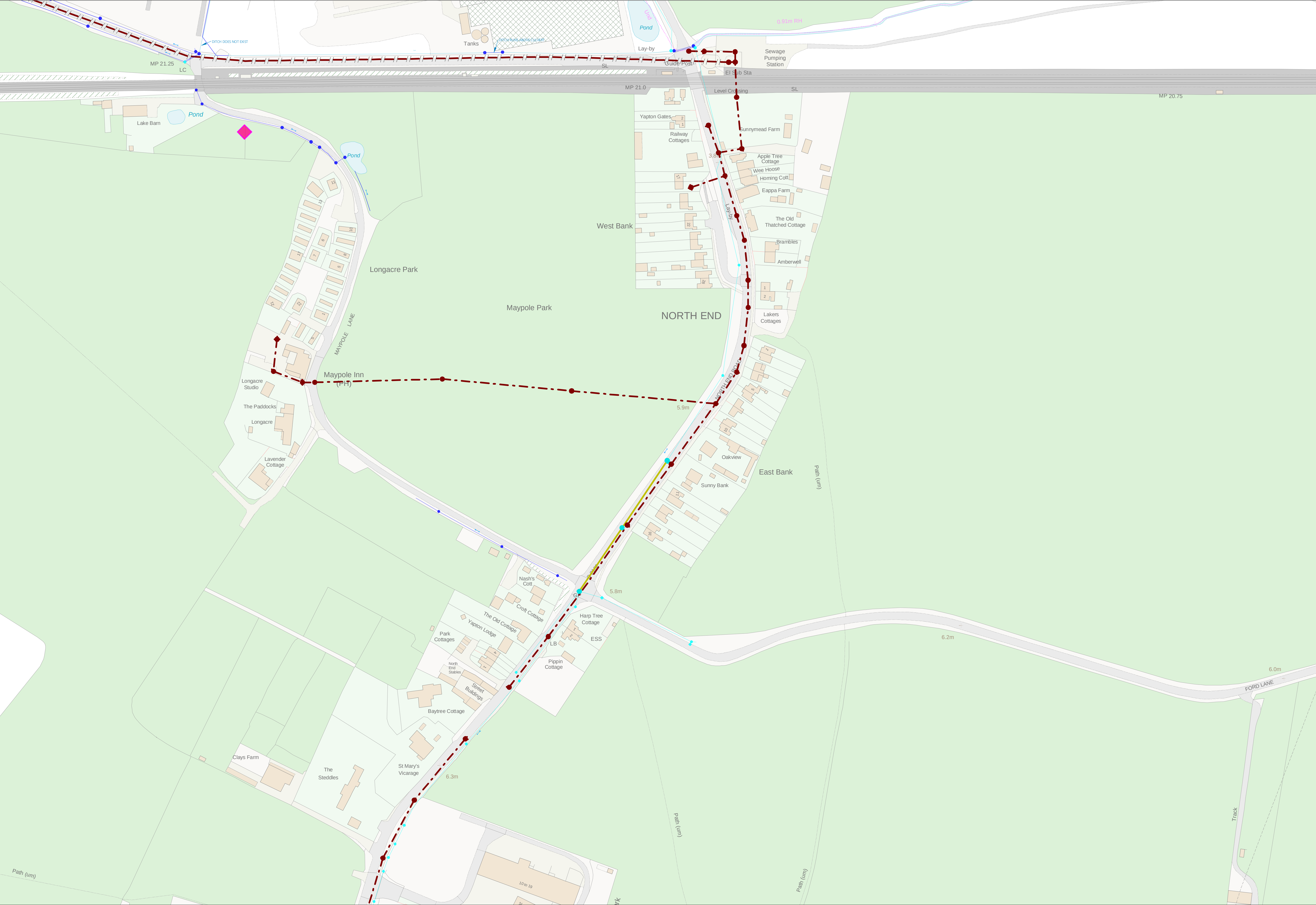


Printed By: Roopa

Date: 9-1-2019

Site Plan

Requested By:



Appendix C

Proposed Drainage Design Layout Sheets

GENERAL NOTES:

1. All dimensions to be checked on site. All details and dimensions relating to sub-contractors or suppliers work must be checked and agreed between the sub-contractor or supplier and the main contractor.
2. This drawing is to be read in conjunction with all relevant architects, services and engineers drawings and specifications.
3. The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non intrusive observations, record drawings or the like. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate. Any discrepancies shall be notified to gsp prior to works commencing.
4. Tender or billing drawings shall not be used for construction or the ordering of materials.
5. Do not scale. All dimensions and levels to be site confirmed.
6. Copyright : This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.

SPECIFICATION NOTES

All drainage shall be constructed and commissioned in accordance with BS EN 295 & BS EN752, Building Regulations Doc. H and any particular requirements of the Building Control Officer.

Drainage pipelines shall be in PVC-u below ground as Marley or similar approved, or vitrified clay.

All sewer pipelines to be VC only.

This drawing shall be read in conjunction with all other relevant drainage drawings, architectural drawings and structural drawings.

For manhole details, gully details, bedding etc, refer to gta detail sheets.

All foul water drain runs shall have a fall of 1:40 or steeper, unless noted otherwise.

All cement used for concrete drainage installations shall be sulphate resistant to class 3 of BRE Digest 363. (Grade ST5)

The use of short radius or 90° bends for changes in direction is not permitted, only long or medium radius 45° bends shall be used. All junctions shall be 45°.

All drains shall have granular bed and surround as class 'S' bedding, unless noted otherwise.

All drainage works shall commence from the downstream end first unless agreed otherwise. Outfall level to be checked by contractor prior to any works commencing and any discrepancy identified to engineer prior to laying and drainage.

ABBREVIATIONS

D307.0
FD
SWD
FWS
SWS
MH
IC
SA
FIC
SIC
FAC
SAC
CI
VC
CONC
PVC-U
G
VG
RG
CPG
DP
SVP
SS
RP
DT
FEL
SSL
GL
CL
IL
SL
BL
HL
BD
CBS
CLASS 5
CLASS B

DETAIL NUMBER - SEE DRAINAGE DETAIL SHEET
FOUL DRAIN
SURFACE WATER DRAIN
ADOPTABLE FOUL WATER SEWER
ADOPTABLE SURFACE WATER SEWER
MANHOLE
INSPECTION CHAMBER
SOAKAWAY
450mm DIA. FOUL INSPECTION CHAMBER - D202.6
450mm DIA. SURFACE WATER INSPECTION CHAMBER - D202.6
300mm DIA. FOUL ACCESS CHAMBER - D202.18
300mm DIA. SURFACE WATER ACCESS CHAMBER - D202.18
CAST IRON
VITRIFIED CLAY
CONCRETE
POLYVINYL CHLORIDE - UNPLASTICISED
SMALL GULLY - D209.0
YARD GULLY - D209.2
ROAD GULLY - D208.1
CAR PARK GULLY - D208.2
BELOW GROUND DRAIN POINT
SOIL VENT PIPE DROP
STUB STACK OR DIRECT DRAIN CONNECTION
EXTERNAL RODDING POINT - D213.1
SURFACE WATER DISTRIBUTION TANK
FINISHED FLOOR LEVEL
STRUCTURAL SLAB LEVEL
GROUND LEVEL
COVER LEVEL
INVERT LEVEL
SUMP LEVEL
BASE LEVEL
HIGH LEVEL
BACKDROP
CONCRETE BED & SURROUND
GRANULAR BED & SURROUND

KEY

- Existing surface water drain
Existing foul water drain
Private surface water drain
Private foul drain
Adoptable foul sewer
Adoptable surface water sewer

- FIC
SIC
SAC
FAC
FWMH
SWMH
FWSMH
HWMH
SVP
RWP
Drainage channel
Baffle in Permeable Paving
- Foul Plastic Inspection Chamber - D202.6
Surface Water Plastic Inspection Chamber - D202.6
300mm diameter Surface Water Access Chamber - D202.18
300mm diameter Foul Water Access Chamber - D202.18
Private Foul Manhole
Private Surface Water Manhole
Adoptable Foul Water Sewer Manhole
Adoptable Highway Manhole
Foul drain point D307.0
SW Drain point for RWP D203.5

DESIGN NOTES

1. PERMEABLE PAVING DESIGN BASED ON AVERAGE INFILTRATION RATE OF 0.958 X 10-6 M/S FROM EASTWOOD & PARTNERS TEST RESULTS FOR SHALLOW TEST PITS SA1-5 DATED JANUARY 2020, EXCEPT ZONE 6 BASED ON ACTUAL NEARBY RESULT SA103 AT 6.7X10-6M/S
2. CONTRACTOR TO ESTABLISH LOCATIONS OF ALL EXISTING SERVICES PRIOR TO COMMENCING.
3. EXISTING TREES TO BE PROTECTED WHERE EXCAVATIONS RUN CLOSE.
4. SECTION 106 APPROVAL TO BE GAINED FROM SOUTHERN WATER FOR CONNECTION TO FOUL SEWER



LEGEND

PERMEABLE PAVING

	ZONE 1	AREA = 225m ²
	ZONE 2	AREA = 1068m ²
	ZONE 4	AREA = 560m ²
	ZONE 5	AREA = 343m ²
	ZONE 6	AREA = 589m ²
	ZONE 7	AREA = 690m ²
	ZONE 9	AREA = 770m ²
	ZONE 10	AREA = 325m ²
	ZONE 11	AREA = 94m ²
	ZONE 12	AREA = 177
	ZONE 13	AREA = 101m ²

TRENCH SOAKAWAYS

	ZONE 3	AREA = 63m ²
	ZONE 8	AREA = 170m ²



GENERAL NOTES:

1. All dimensions to be checked on site. All details and dimensions relating to sub-contractor or suppliers work must be checked and agreed between the sub-contractor or supplier and the main contractor, services and engineers drawings and specifications.
2. This drawing is to be read in conjunction with all relevant architects, services and engineers drawings and specifications.
3. The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non-intrusive observations, record drawings or the file. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate. Any discrepancies shall be notified to gta prior to works commencing.
4. Tender or billing drawings shall not be used for construction or the assembly of materials.
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6. Copyright : This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.

Rev	INITIAL ISSUE	12.11.21	AE	MR
Rev	Amendments	Date	Des	CHK
Status	PRELIMINARY			
Client	REDROW HOMES			
Architect				
Project	LAND OFF NORTH END ROAD YAPTON			
Title	CATCHMENT AND IMPLEMENTATION PLAN			
Date	NOVEMBER 2021	Scale: R/A0	1:250	
Client's Ref		Project Ref	11228	
gta Civils & Transport Glossier House, 65a Church Walk, Burgess Hill, West Sussex, RH15 9AS Tel: 01444 871444. Web: www.gta95.co.uk				
Drawing Number	11228/1101			Rev. P1

Appendix D

MicroDrainage Calculation Sheets

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 Trench SA1 1 in 100 yr+40%	
Date 28/09/2021 18:29 File Trench SA 1.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

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

Half Drain Time : 2940 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	5.701	0.201	0.0	4.5	0 K
30 min Summer	5.768	0.268	0.0	6.0	0 K
60 min Summer	5.844	0.344	0.0	7.7	0 K
120 min Summer	5.904	0.404	0.0	9.0	0 K
180 min Summer	5.940	0.440	0.0	9.8	0 K
240 min Summer	5.964	0.464	0.0	10.3	0 K
360 min Summer	5.992	0.492	0.0	11.0	0 K
480 min Summer	6.010	0.510	0.0	11.3	0 K
600 min Summer	6.021	0.521	0.0	11.6	0 K
720 min Summer	6.028	0.528	0.0	11.8	0 K
960 min Summer	6.036	0.536	0.0	11.9	0 K
1440 min Summer	6.038	0.538	0.0	12.0	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	19
30 min Summer	94.616	0.0	34
60 min Summer	60.860	0.0	64
120 min Summer	36.127	0.0	124
180 min Summer	26.472	0.0	184
240 min Summer	21.126	0.0	244
360 min Summer	15.216	0.0	364
480 min Summer	12.017	0.0	482
600 min Summer	9.993	0.0	602
720 min Summer	8.588	0.0	722
960 min Summer	6.754	0.0	962
1440 min Summer	4.821	0.0	1442

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 Trench SA1 1 in 100 yr+40%	
Date 28/09/2021 18:29 File Trench SA 1.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.027	0.527	0.0	11.7	0 K
2880 min Summer	6.016	0.516	0.0	11.5	0 K
4320 min Summer	6.002	0.502	0.0	11.2	0 K
5760 min Summer	5.994	0.494	0.0	11.0	0 K
7200 min Summer	5.990	0.490	0.0	10.9	0 K
8640 min Summer	5.989	0.489	0.0	10.9	0 K
10080 min Summer	5.989	0.489	0.0	10.9	0 K
15 min Winter	5.725	0.225	0.0	5.0	0 K
30 min Winter	5.801	0.301	0.0	6.7	0 K
60 min Winter	5.885	0.385	0.0	8.6	0 K
120 min Winter	5.953	0.453	0.0	10.1	0 K
180 min Winter	5.994	0.494	0.0	11.0	0 K
240 min Winter	6.021	0.521	0.0	11.6	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	2140
2880 min Summer	2.752	0.0	2448
4320 min Summer	2.023	0.0	3196
5760 min Summer	1.647	0.0	4032
7200 min Summer	1.418	0.0	4832
8640 min Summer	1.263	0.0	5704
10080 min Summer	1.152	0.0	6552
15 min Winter	141.021	0.0	19
30 min Winter	94.616	0.0	34
60 min Winter	60.860	0.0	64
120 min Winter	36.127	0.0	122
180 min Winter	26.472	0.0	182
240 min Winter	21.126	0.0	240

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 Trench SA1 1 in 100 yr+40%	
Date 28/09/2021 18:29 File Trench SA 1.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.055	0.555	0.0	12.4	0 K
480 min Winter	6.075	0.575	0.0	12.8	0 K
600 min Winter	6.089	0.589	0.0	13.1	0 K
720 min Winter	6.098	0.598	0.0	13.3	0 K
960 min Winter	6.109	0.609	0.0	13.6	0 K
1440 min Winter	6.117	0.617	0.0	13.7	0 K
2160 min Winter	6.112	0.612	0.0	13.6	0 K
2880 min Winter	6.101	0.601	0.0	13.4	0 K
4320 min Winter	6.081	0.581	0.0	12.9	0 K
5760 min Winter	6.069	0.569	0.0	12.7	0 K
7200 min Winter	6.060	0.560	0.0	12.5	0 K
8640 min Winter	6.052	0.552	0.0	12.3	0 K
10080 min Winter	6.047	0.547	0.0	12.2	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	358
480 min Winter	12.017	0.0	476
600 min Winter	9.993	0.0	596
720 min Winter	8.588	0.0	712
960 min Winter	6.754	0.0	944
1440 min Winter	4.821	0.0	1400
2160 min Winter	3.461	0.0	2076
2880 min Winter	2.752	0.0	2708
4320 min Winter	2.023	0.0	3376
5760 min Winter	1.647	0.0	4328
7200 min Winter	1.418	0.0	5264
8640 min Winter	1.263	0.0	6216
10080 min Winter	1.152	0.0	7064

GTA Civils Ltd		Page 4
Gloucester House	North End Road, Yapton	
66a Church Walk	11228 Trench SA1	
Burgess Hill RH15 9AS	1 in 100 yr+40%	
Date 28/09/2021 18:29	Designed by mroberts	
File Trench SA 1.SRCX	Checked by	
Micro Drainage	Source Control 2020.1	

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.017

Time (mins)		Area
From:	To:	(ha)
0	4	0.017

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 Trench SA1 1 in 100 yr+40%	
Date 28/09/2021 18:29 File Trench SA 1.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 6.500

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00300	Invert Level (m)	5.500	Cap Volume Depth (m)	0.000
Infiltration Coefficient Side (m/hr)	0.00300	Trench Width (m)	4.5	Cap Infiltration Depth (m)	0.000
Safety Factor	2.0	Trench Length (m)	16.5		
Porosity	0.30	Slope (1:X)	0.0		

GTA Civils Ltd

Page 1

66a Church Walk

North End Road, Yapton

Burgess Hill

11228 Trench SA2

West Sussex RH15 9AS

1 in 100 yrs+40%

Date 27/09/2021 18:20

Designed by MROBERTS

File Trench SA 2.SRCX

Checked by



Micro Drainage

Source Control 2020.1

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

Half Drain Time : 2507 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.038	0.238	0.0	1.6	0 K
30 min Summer	6.118	0.318	0.0	2.1	0 K
60 min Summer	6.207	0.407	0.0	2.7	0 K
120 min Summer	6.278	0.478	0.0	3.2	0 K
180 min Summer	6.320	0.520	0.0	3.5	0 K
240 min Summer	6.348	0.548	0.0	3.6	0 K
360 min Summer	6.381	0.581	0.0	3.9	0 K
480 min Summer	6.401	0.601	0.0	4.0	0 K
600 min Summer	6.413	0.613	0.0	4.1	0 K
720 min Summer	6.420	0.620	0.0	4.1	0 K
960 min Summer	6.427	0.627	0.0	4.2	0 K
1440 min Summer	6.425	0.625	0.0	4.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.021	0.0	19
30 min Summer	94.616	0.0	34
60 min Summer	60.860	0.0	64
120 min Summer	36.127	0.0	124
180 min Summer	26.472	0.0	184
240 min Summer	21.126	0.0	244
360 min Summer	15.216	0.0	362
480 min Summer	12.017	0.0	482
600 min Summer	9.993	0.0	602
720 min Summer	8.588	0.0	722
960 min Summer	6.754	0.0	962
1440 min Summer	4.821	0.0	1440

GTA Civils Ltd		Page 2
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 Trench SA2 1 in 100 yrs+40%	
Date 27/09/2021 18:20 File Trench SA 2.SRCX	Designed by MROBERTS Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.410	0.610	0.0	4.0	0 K
2880 min Summer	6.398	0.598	0.0	4.0	0 K
4320 min Summer	6.383	0.583	0.0	3.9	0 K
5760 min Summer	6.373	0.573	0.0	3.8	0 K
7200 min Summer	6.367	0.567	0.0	3.8	0 K
8640 min Summer	6.364	0.564	0.0	3.7	0 K
10080 min Summer	6.364	0.564	0.0	3.7	0 K
15 min Winter	6.067	0.267	0.0	1.8	0 K
30 min Winter	6.157	0.357	0.0	2.4	0 K
60 min Winter	6.257	0.457	0.0	3.0	0 K
120 min Winter	6.337	0.537	0.0	3.6	0 K
180 min Winter	6.385	0.585	0.0	3.9	0 K
240 min Winter	6.417	0.617	0.0	4.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	1880
2880 min Summer	2.752	0.0	2252
4320 min Summer	2.023	0.0	3028
5760 min Summer	1.647	0.0	3872
7200 min Summer	1.418	0.0	4688
8640 min Summer	1.263	0.0	5536
10080 min Summer	1.152	0.0	6360
15 min Winter	141.021	0.0	19
30 min Winter	94.616	0.0	34
60 min Winter	60.860	0.0	64
120 min Winter	36.127	0.0	122
180 min Winter	26.472	0.0	182
240 min Winter	21.126	0.0	240

GTA Civils Ltd		Page 3
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 Trench SA2 1 in 100 yrs+40%	
Date 27/09/2021 18:20 File Trench SA 2.SRCX	Designed by MROBERTS Checked by	
Micro Drainage	Source Control 2020.1	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.454	0.654	0.0	4.3	0 K
480 min Winter	6.477	0.677	0.0	4.5	0 K
600 min Winter	6.492	0.692	0.0	4.6	0 K
720 min Winter	6.502	0.702	0.0	4.7	0 K
960 min Winter	6.513	0.713	0.0	4.7	0 K
1440 min Winter	6.516	0.716	0.0	4.7	0 K
2160 min Winter	6.504	0.704	0.0	4.7	0 K
2880 min Winter	6.487	0.687	0.0	4.6	0 K
4320 min Winter	6.468	0.668	0.0	4.4	0 K
5760 min Winter	6.451	0.651	0.0	4.3	0 K
7200 min Winter	6.438	0.638	0.0	4.2	0 K
8640 min Winter	6.427	0.627	0.0	4.2	0 K
10080 min Winter	6.418	0.618	0.0	4.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	358
480 min Winter	12.017	0.0	476
600 min Winter	9.993	0.0	594
720 min Winter	8.588	0.0	708
960 min Winter	6.754	0.0	942
1440 min Winter	4.821	0.0	1396
2160 min Winter	3.461	0.0	2036
2880 min Winter	2.752	0.0	2364
4320 min Winter	2.023	0.0	3244
5760 min Winter	1.647	0.0	4200
7200 min Winter	1.418	0.0	5112
8640 min Winter	1.263	0.0	5976
10080 min Winter	1.152	0.0	6864

GTA Civils Ltd		Page 4
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 Trench SA2 1 in 100 yrs+40%	
Date 27/09/2021 18:20 File Trench SA 2.SRCX	Designed by MROBERTS Checked by	
Micro Drainage	Source Control 2020.1	

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.006

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

GTA Civils Ltd		Page 5
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 Trench SA2 1 in 100 yrs+40%	
Date 27/09/2021 18:20 File Trench SA 2.SRCX	Designed by MROBERTS Checked by	
Micro Drainage	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 7.150

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00300	Invert Level (m)	5.800	Cap Volume Depth (m)	0.000
Infiltration Coefficient Side (m/hr)	0.00300	Trench Width (m)	1.7	Cap Infiltration Depth (m)	0.000
Safety Factor	2.0	Trench Length (m)	13.0		
Porosity	0.30	Slope (1:X)	0.0		

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 1 1 in 100 yr+40%	
Date 29/09/2021 17:37 File Zone 1.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Half Drain Time : 3479 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.474	0.174	0.4	50.1	0 K
30 min Summer	6.538	0.238	0.4	68.3	0 K
60 min Summer	6.608	0.308	0.4	88.6	0 K
120 min Summer	6.665	0.365	0.4	104.8	0 K
180 min Summer	6.699	0.399	0.4	114.6	0 K
240 min Summer	6.722	0.422	0.4	121.2	0 K
360 min Summer	6.749	0.449	0.4	129.1	0 K
480 min Summer	6.767	0.467	0.4	134.0	0 K
600 min Summer	6.778	0.478	0.4	137.3	0 K
720 min Summer	6.786	0.486	0.4	139.6	0 K
960 min Summer	6.795	0.495	0.4	142.2	0 K
1440 min Summer	6.800	0.500	0.4	143.8	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	23
30 min Summer	94.616	0.0	38
60 min Summer	60.860	0.0	68
120 min Summer	36.127	0.0	128
180 min Summer	26.472	0.0	188
240 min Summer	21.126	0.0	246
360 min Summer	15.216	0.0	366
480 min Summer	12.017	0.0	486
600 min Summer	9.993	0.0	606
720 min Summer	8.588	0.0	726
960 min Summer	6.754	0.0	964
1440 min Summer	4.821	0.0	1442

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 1 1 in 100 yr+40%	
Date 29/09/2021 17:37 File Zone 1.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.795	0.495	0.4	142.3	0 K
2880 min Summer	6.784	0.484	0.4	139.2	0 K
4320 min Summer	6.772	0.472	0.4	135.5	0 K
5760 min Summer	6.764	0.464	0.4	133.4	0 K
7200 min Summer	6.761	0.461	0.4	132.5	0 K
8640 min Summer	6.760	0.460	0.4	132.2	0 K
10080 min Summer	6.761	0.461	0.4	132.5	0 K
15 min Winter	6.497	0.197	0.4	56.5	0 K
30 min Winter	6.568	0.268	0.4	77.0	0 K
60 min Winter	6.647	0.347	0.4	99.7	0 K
120 min Winter	6.711	0.411	0.4	118.1	0 K
180 min Winter	6.750	0.450	0.4	129.2	0 K
240 min Winter	6.776	0.476	0.4	136.7	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	2160
2880 min Summer	2.752	0.0	2628
4320 min Summer	2.023	0.0	3336
5760 min Summer	1.647	0.0	4144
7200 min Summer	1.418	0.0	4968
8640 min Summer	1.263	0.0	5800
10080 min Summer	1.152	0.0	6656
15 min Winter	141.021	0.0	23
30 min Winter	94.616	0.0	37
60 min Winter	60.860	0.0	68
120 min Winter	36.127	0.0	126
180 min Winter	26.472	0.0	184
240 min Winter	21.126	0.0	244

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 1 1 in 100 yr+40%	
Date 29/09/2021 17:37 File Zone 1.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.808	0.508	0.4	145.9	0 K
480 min Winter	6.828	0.528	0.4	151.7	0 K
600 min Winter	6.842	0.542	0.4	155.7	Flood Risk
720 min Winter	6.852	0.552	0.4	158.5	Flood Risk
960 min Winter	6.864	0.564	0.4	162.0	Flood Risk
1440 min Winter	6.874	0.574	0.4	165.0	Flood Risk
2160 min Winter	6.875	0.575	0.4	165.2	Flood Risk
2880 min Winter	6.869	0.569	0.4	163.4	Flood Risk
4320 min Winter	6.850	0.550	0.4	158.1	Flood Risk
5760 min Winter	6.840	0.540	0.4	155.1	Flood Risk
7200 min Winter	6.833	0.533	0.4	153.0	0 K
8640 min Winter	6.827	0.527	0.4	151.3	0 K
10080 min Winter	6.823	0.523	0.4	150.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	362
480 min Winter	12.017	0.0	480
600 min Winter	9.993	0.0	598
720 min Winter	8.588	0.0	714
960 min Winter	6.754	0.0	950
1440 min Winter	4.821	0.0	1414
2160 min Winter	3.461	0.0	2096
2880 min Winter	2.752	0.0	2744
4320 min Winter	2.023	0.0	3896
5760 min Winter	1.647	0.0	4448
7200 min Winter	1.418	0.0	5400
8640 min Winter	1.263	0.0	6320
10080 min Winter	1.152	0.0	7264

GTA Civils Ltd		Page 4
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 1 1 in 100 yr+40%	
Date 29/09/2021 17:37 File Zone 1.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.205

Time (mins)	Area	Time (mins)	Area
From:	To: (ha)	From:	To: (ha)
0	4 0.100	4	8 0.105

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 1 1 in 100 yr+40%	
Date 29/09/2021 17:37 File Zone 1.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 6.936

Complex Structure

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.300	Depression Storage (mm)	5
Max Percolation (l/s)	209.3	Width (m)	4.8	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	157.0	Membrane Depth (m)	0

Infiltration Blanket

Infiltration Coefficient Base (m/hr)	0.00300	Invert Level (m)	6.300	Cap Volume Depth (m)	0.000
Safety Factor	2.0	Diameter/Width (m)	12.0		
Porosity	0.30	Length (m)	17.0		

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 2 1 in 100 yr+40%	
Date 28/09/2021 17:18 File Zone 2.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Half Drain Time : 3103 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.617	0.167	0.2	28.0	0 K
30 min Summer	6.673	0.223	0.2	37.5	0 K
60 min Summer	6.736	0.286	0.2	48.1	0 K
120 min Summer	6.786	0.336	0.2	56.5	0 K
180 min Summer	6.816	0.366	0.2	61.6	0 K
240 min Summer	6.836	0.386	0.2	64.9	0 K
360 min Summer	6.860	0.410	0.2	69.0	0 K
480 min Summer	6.874	0.424	0.2	71.4	0 K
600 min Summer	6.884	0.434	0.2	73.0	0 K
720 min Summer	6.890	0.440	0.2	74.1	0 K
960 min Summer	6.897	0.447	0.2	75.2	0 K
1440 min Summer	6.900	0.450	0.2	75.6	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.021	0.0	27
30 min Summer	94.616	0.0	42
60 min Summer	60.860	0.0	72
120 min Summer	36.127	0.0	130
180 min Summer	26.472	0.0	190
240 min Summer	21.126	0.0	250
360 min Summer	15.216	0.0	370
480 min Summer	12.017	0.0	488
600 min Summer	9.993	0.0	608
720 min Summer	8.588	0.0	728
960 min Summer	6.754	0.0	966
1440 min Summer	4.821	0.0	1444

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 2 1 in 100 yr+40%	
Date 28/09/2021 17:18 File Zone 2.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.891	0.441	0.2	74.3	0 K
2880 min Summer	6.880	0.430	0.2	72.3	0 K
4320 min Summer	6.867	0.417	0.2	70.1	0 K
5760 min Summer	6.859	0.409	0.2	68.8	0 K
7200 min Summer	6.855	0.405	0.2	68.1	0 K
8640 min Summer	6.853	0.403	0.2	67.7	0 K
10080 min Summer	6.852	0.402	0.2	67.7	0 K
15 min Winter	6.637	0.187	0.2	31.4	0 K
30 min Winter	6.700	0.250	0.2	42.1	0 K
60 min Winter	6.771	0.321	0.2	53.9	0 K
120 min Winter	6.827	0.377	0.2	63.5	0 K
180 min Winter	6.862	0.412	0.2	69.2	0 K
240 min Winter	6.884	0.434	0.2	73.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	2160
2880 min Summer	2.752	0.0	2516
4320 min Summer	2.023	0.0	3284
5760 min Summer	1.647	0.0	4088
7200 min Summer	1.418	0.0	4904
8640 min Summer	1.263	0.0	5792
10080 min Summer	1.152	0.0	6648
15 min Winter	141.021	0.0	27
30 min Winter	94.616	0.0	41
60 min Winter	60.860	0.0	70
120 min Winter	36.127	0.0	130
180 min Winter	26.472	0.0	188
240 min Winter	21.126	0.0	246

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 2 1 in 100 yr+40%	
Date 28/09/2021 17:18 File Zone 2.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.912	0.462	0.2	77.8	0 K
480 min Winter	6.930	0.480	0.2	80.7	0 K
600 min Winter	6.941	0.491	0.2	82.6	0 K
720 min Winter	6.949	0.499	0.2	84.0	0 K
960 min Winter	6.959	0.509	0.2	85.6	0 K
1440 min Winter	6.966	0.516	0.2	86.8	0 K
2160 min Winter	6.963	0.513	0.2	86.4	0 K
2880 min Winter	6.955	0.505	0.2	84.9	0 K
4320 min Winter	6.935	0.485	0.2	81.6	0 K
5760 min Winter	6.924	0.474	0.2	79.7	0 K
7200 min Winter	6.915	0.465	0.2	78.2	0 K
8640 min Winter	6.908	0.458	0.2	77.0	0 K
10080 min Winter	6.902	0.452	0.2	76.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	364
480 min Winter	12.017	0.0	482
600 min Winter	9.993	0.0	600
720 min Winter	8.588	0.0	716
960 min Winter	6.754	0.0	950
1440 min Winter	4.821	0.0	1414
2160 min Winter	3.461	0.0	2092
2880 min Winter	2.752	0.0	2744
4320 min Winter	2.023	0.0	3508
5760 min Winter	1.647	0.0	4400
7200 min Winter	1.418	0.0	5336
8640 min Winter	1.263	0.0	6312
10080 min Winter	1.152	0.0	7256

GTA Civils Ltd		Page 4
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 2 1 in 100 yr+40%	
Date 28/09/2021 17:18 File Zone 2.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.107

Time (mins) Area			Time (mins) Area			Time (mins) Area		
From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)
0	4	0.035	4	8	0.036	8	12	0.036

GTA Civils Ltd		Page 5																								
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 2 1 in 100 yr+40%																									
Date 28/09/2021 17:18 File Zone 2.SRCX	Designed by mroberts Checked by																									
Micro Drainage	Source Control 2020.1																									
Model Details Storage is Online Cover Level (m) 7.231 Porous Car Park Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.00300</td><td>Porosity</td><td>0.30</td><td>Slope (1:X)</td><td>0.0</td></tr><tr><td>Membrane Percolation (mm/hr)</td><td>1000</td><td>Invert Level (m)</td><td>6.450</td><td>Depression Storage (mm)</td><td>0</td></tr><tr><td>Max Percolation (l/s)</td><td>155.8</td><td>Width (m)</td><td>12.6</td><td>Evaporation (mm/day)</td><td>0</td></tr><tr><td>Safety Factor</td><td>2.0</td><td>Length (m)</td><td>44.5</td><td>Membrane Depth (m)</td><td>0</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0	Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.450	Depression Storage (mm)	0	Max Percolation (l/s)	155.8	Width (m)	12.6	Evaporation (mm/day)	0	Safety Factor	2.0	Length (m)	44.5	Membrane Depth (m)	0
Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0																					
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.450	Depression Storage (mm)	0																					
Max Percolation (l/s)	155.8	Width (m)	12.6	Evaporation (mm/day)	0																					
Safety Factor	2.0	Length (m)	44.5	Membrane Depth (m)	0																					
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GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 4 1 in 100 yr+40%	
Date 29/09/2021 08:15 File Zone 4.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Half Drain Time : 2796 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.902	0.152	0.1	14.7	0 K
30 min Summer	6.954	0.204	0.1	19.7	0 K
60 min Summer	7.011	0.261	0.1	25.2	0 K
120 min Summer	7.057	0.307	0.1	29.5	0 K
180 min Summer	7.084	0.334	0.1	32.1	0 K
240 min Summer	7.102	0.352	0.1	33.9	0 K
360 min Summer	7.123	0.373	0.1	35.9	0 K
480 min Summer	7.135	0.385	0.1	37.1	0 K
600 min Summer	7.144	0.394	0.1	37.9	0 K
720 min Summer	7.149	0.399	0.1	38.4	0 K
960 min Summer	7.154	0.404	0.1	38.9	0 K
1440 min Summer	7.154	0.404	0.1	38.9	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	23
30 min Summer	94.616	0.0	38
60 min Summer	60.860	0.0	68
120 min Summer	36.127	0.0	128
180 min Summer	26.472	0.0	186
240 min Summer	21.126	0.0	246
360 min Summer	15.216	0.0	366
480 min Summer	12.017	0.0	486
600 min Summer	9.993	0.0	606
720 min Summer	8.588	0.0	724
960 min Summer	6.754	0.0	964
1440 min Summer	4.821	0.0	1442

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 4 1 in 100 yr+40%	
Date 29/09/2021 08:15 File Zone 4.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	7.143	0.393	0.1	37.8	0 K
2880 min Summer	7.132	0.382	0.1	36.8	0 K
4320 min Summer	7.118	0.368	0.1	35.5	0 K
5760 min Summer	7.110	0.360	0.1	34.7	0 K
7200 min Summer	7.104	0.354	0.1	34.1	0 K
8640 min Summer	7.101	0.351	0.1	33.8	0 K
10080 min Summer	7.099	0.349	0.1	33.6	0 K
15 min Winter	6.921	0.171	0.1	16.5	0 K
30 min Winter	6.979	0.229	0.1	22.0	0 K
60 min Winter	7.043	0.293	0.1	28.2	0 K
120 min Winter	7.094	0.344	0.1	33.2	0 K
180 min Winter	7.125	0.375	0.1	36.1	0 K
240 min Winter	7.146	0.396	0.1	38.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	2104
2880 min Summer	2.752	0.0	2420
4320 min Summer	2.023	0.0	3160
5760 min Summer	1.647	0.0	3976
7200 min Summer	1.418	0.0	4832
8640 min Summer	1.263	0.0	5696
10080 min Summer	1.152	0.0	6464
15 min Winter	141.021	0.0	23
30 min Winter	94.616	0.0	37
60 min Winter	60.860	0.0	68
120 min Winter	36.127	0.0	126
180 min Winter	26.472	0.0	184
240 min Winter	21.126	0.0	244

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 4 1 in 100 yr+40%	
Date 29/09/2021 08:15 File Zone 4.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	7.170	0.420	0.1	40.5	0 K
480 min Winter	7.186	0.436	0.1	42.0	0 K
600 min Winter	7.196	0.446	0.1	43.0	0 K
720 min Winter	7.203	0.453	0.1	43.6	0 K
960 min Winter	7.210	0.460	0.1	44.3	0 K
1440 min Winter	7.214	0.464	0.1	44.7	0 K
2160 min Winter	7.208	0.458	0.1	44.2	0 K
2880 min Winter	7.197	0.447	0.1	43.1	0 K
4320 min Winter	7.178	0.428	0.1	41.2	0 K
5760 min Winter	7.164	0.414	0.1	39.9	0 K
7200 min Winter	7.153	0.403	0.1	38.9	0 K
8640 min Winter	7.144	0.394	0.1	38.0	0 K
10080 min Winter	7.136	0.386	0.1	37.2	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	362
480 min Winter	12.017	0.0	478
600 min Winter	9.993	0.0	596
720 min Winter	8.588	0.0	714
960 min Winter	6.754	0.0	946
1440 min Winter	4.821	0.0	1404
2160 min Winter	3.461	0.0	2076
2880 min Winter	2.752	0.0	2712
4320 min Winter	2.023	0.0	3412
5760 min Winter	1.647	0.0	4328
7200 min Winter	1.418	0.0	5264
8640 min Winter	1.263	0.0	6216
10080 min Winter	1.152	0.0	7064

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 4 1 in 100 yr+40%	
Date 29/09/2021 08:15 File Zone 4.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.056

Time (mins)	Area	Time (mins)	Area
From:	To: (ha)	From:	To: (ha)
0	4 0.028	4	8 0.028

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 4 1 in 100 yr+40%	
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Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 7.384

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.750	Depression Storage (mm)	0
Max Percolation (l/s)	89.2	Width (m)	14.6	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	22.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 5 1 in 100 yrs+40%	
Date 29/09/2021 08:19 File Zone 5.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Half Drain Time : 3282 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.774	0.174	0.1	8.7	0 K
30 min Summer	6.833	0.233	0.1	11.6	0 K
60 min Summer	6.899	0.299	0.1	14.9	0 K
120 min Summer	6.951	0.351	0.1	17.5	0 K
180 min Summer	6.983	0.383	0.1	19.0	0 K
240 min Summer	7.004	0.404	0.1	20.1	0 K
360 min Summer	7.029	0.429	0.1	21.3	0 K
480 min Summer	7.045	0.445	0.1	22.1	0 K
600 min Summer	7.055	0.455	0.1	22.6	0 K
720 min Summer	7.062	0.462	0.1	22.9	0 K
960 min Summer	7.070	0.470	0.1	23.3	0 K
1440 min Summer	7.073	0.473	0.1	23.5	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	23
30 min Summer	94.616	0.0	38
60 min Summer	60.860	0.0	68
120 min Summer	36.127	0.0	128
180 min Summer	26.472	0.0	188
240 min Summer	21.126	0.0	248
360 min Summer	15.216	0.0	366
480 min Summer	12.017	0.0	486
600 min Summer	9.993	0.0	606
720 min Summer	8.588	0.0	726
960 min Summer	6.754	0.0	966
1440 min Summer	4.821	0.0	1444

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 5 1 in 100 yrs+40%	
Date 29/09/2021 08:19 File Zone 5.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	7.067	0.467	0.1	23.2	0 K
2880 min Summer	7.055	0.455	0.1	22.6	0 K
4320 min Summer	7.042	0.442	0.1	22.0	0 K
5760 min Summer	7.034	0.434	0.1	21.6	0 K
7200 min Summer	7.031	0.431	0.1	21.4	0 K
8640 min Summer	7.030	0.430	0.1	21.4	0 K
10080 min Summer	7.030	0.430	0.1	21.4	0 K
15 min Winter	6.795	0.195	0.1	9.7	0 K
30 min Winter	6.862	0.262	0.1	13.0	0 K
60 min Winter	6.935	0.335	0.1	16.7	0 K
120 min Winter	6.995	0.395	0.1	19.6	0 K
180 min Winter	7.030	0.430	0.1	21.4	0 K
240 min Winter	7.054	0.454	0.1	22.6	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	2160
2880 min Summer	2.752	0.0	2624
4320 min Summer	2.023	0.0	3332
5760 min Summer	1.647	0.0	4144
7200 min Summer	1.418	0.0	4968
8640 min Summer	1.263	0.0	5800
10080 min Summer	1.152	0.0	6656
15 min Winter	141.021	0.0	23
30 min Winter	94.616	0.0	38
60 min Winter	60.860	0.0	68
120 min Winter	36.127	0.0	126
180 min Winter	26.472	0.0	186
240 min Winter	21.126	0.0	244

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 5 1 in 100 yrs+40%	
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Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	7.084	0.484	0.1	24.0	0 K
480 min Winter	7.102	0.502	0.1	24.9	0 K
600 min Winter	7.115	0.515	0.1	25.6	0 K
720 min Winter	7.124	0.524	0.1	26.0	Flood Risk
960 min Winter	7.134	0.534	0.1	26.5	Flood Risk
1440 min Winter	7.143	0.543	0.1	27.0	Flood Risk
2160 min Winter	7.142	0.542	0.1	26.9	Flood Risk
2880 min Winter	7.134	0.534	0.1	26.6	Flood Risk
4320 min Winter	7.115	0.515	0.1	25.6	0 K
5760 min Winter	7.105	0.505	0.1	25.1	0 K
7200 min Winter	7.097	0.497	0.1	24.7	0 K
8640 min Winter	7.091	0.491	0.1	24.4	0 K
10080 min Winter	7.087	0.487	0.1	24.2	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	362
480 min Winter	12.017	0.0	480
600 min Winter	9.993	0.0	598
720 min Winter	8.588	0.0	716
960 min Winter	6.754	0.0	950
1440 min Winter	4.821	0.0	1414
2160 min Winter	3.461	0.0	2096
2880 min Winter	2.752	0.0	2744
4320 min Winter	2.023	0.0	3892
5760 min Winter	1.647	0.0	4440
7200 min Winter	1.418	0.0	5400
8640 min Winter	1.263	0.0	6312
10080 min Winter	1.152	0.0	7264

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 5 1 in 100 yrs+40%	
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Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.033

Time (mins)	Area	Time (mins)	Area
From:	To: (ha)	From:	To: (ha)
0	4 0.009	4	8 0.024

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 5 1 in 100 yrs+40%	
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Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 7.216

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.600	Depression Storage (mm)	0
Max Percolation (l/s)	46.0	Width (m)	7.2	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	23.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 6 1 in 100 yrs+40%	
Date 28/09/2021 15:23 File Zone 6.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Half Drain Time : 1901 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.210	0.260	0.2	15.4	0 K
30 min Summer	6.298	0.348	0.2	20.6	0 K
60 min Summer	6.394	0.444	0.2	26.3	0 K
120 min Summer	6.469	0.519	0.2	30.7	0 K
180 min Summer	6.512	0.562	0.2	33.3	0 K
240 min Summer	6.539	0.589	0.2	34.9	0 K
360 min Summer	6.569	0.619	0.2	36.7	0 K
480 min Summer	6.584	0.634	0.2	37.6	0 K
600 min Summer	6.592	0.642	0.2	38.0	0 K
720 min Summer	6.595	0.645	0.2	38.2	0 K
960 min Summer	6.591	0.641	0.2	38.0	0 K
1440 min Summer	6.567	0.617	0.2	36.6	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.021	0.0	23
30 min Summer	94.616	0.0	38
60 min Summer	60.860	0.0	68
120 min Summer	36.127	0.0	126
180 min Summer	26.472	0.0	186
240 min Summer	21.126	0.0	246
360 min Summer	15.216	0.0	366
480 min Summer	12.017	0.0	484
600 min Summer	9.993	0.0	604
720 min Summer	8.588	0.0	724
960 min Summer	6.754	0.0	962
1440 min Summer	4.821	0.0	1430

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 6 1 in 100 yrs+40%	
Date 28/09/2021 15:23 File Zone 6.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.530	0.580	0.2	34.4	0 K
2880 min Summer	6.504	0.554	0.2	32.8	0 K
4320 min Summer	6.467	0.517	0.2	30.6	0 K
5760 min Summer	6.440	0.490	0.2	29.0	0 K
7200 min Summer	6.419	0.469	0.2	27.8	0 K
8640 min Summer	6.402	0.452	0.2	26.8	0 K
10080 min Summer	6.387	0.437	0.2	25.9	0 K
15 min Winter	6.242	0.292	0.2	17.3	0 K
30 min Winter	6.340	0.390	0.2	23.1	0 K
60 min Winter	6.448	0.498	0.2	29.5	0 K
120 min Winter	6.533	0.583	0.2	34.6	0 K
180 min Winter	6.583	0.633	0.2	37.5	0 K
240 min Winter	6.615	0.665	0.2	39.4	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	1736
2880 min Summer	2.752	0.0	2108
4320 min Summer	2.023	0.0	2936
5760 min Summer	1.647	0.0	3752
7200 min Summer	1.418	0.0	4544
8640 min Summer	1.263	0.0	5368
10080 min Summer	1.152	0.0	6248
15 min Winter	141.021	0.0	23
30 min Winter	94.616	0.0	37
60 min Winter	60.860	0.0	66
120 min Winter	36.127	0.0	126
180 min Winter	26.472	0.0	184
240 min Winter	21.126	0.0	242

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 6 1 in 100 yrs+40%	
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Micro Drainage	Source Control 2020.1	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.652	0.702	0.2	41.6	0 K
480 min Winter	6.671	0.721	0.2	42.7	0 K
600 min Winter	6.683	0.733	0.2	43.4	0 K
720 min Winter	6.688	0.738	0.2	43.7	0 K
960 min Winter	6.689	0.739	0.2	43.8	0 K
1440 min Winter	6.673	0.723	0.2	42.9	0 K
2160 min Winter	6.633	0.683	0.2	40.5	0 K
2880 min Winter	6.597	0.647	0.2	38.3	0 K
4320 min Winter	6.544	0.594	0.2	35.2	0 K
5760 min Winter	6.498	0.548	0.2	32.5	0 K
7200 min Winter	6.460	0.510	0.2	30.2	0 K
8640 min Winter	6.425	0.475	0.2	28.2	0 K
10080 min Winter	6.395	0.445	0.2	26.4	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	360
480 min Winter	12.017	0.0	478
600 min Winter	9.993	0.0	594
720 min Winter	8.588	0.0	710
960 min Winter	6.754	0.0	940
1440 min Winter	4.821	0.0	1388
2160 min Winter	3.461	0.0	2012
2880 min Winter	2.752	0.0	2276
4320 min Winter	2.023	0.0	3196
5760 min Winter	1.647	0.0	4096
7200 min Winter	1.418	0.0	4976
8640 min Winter	1.263	0.0	5872
10080 min Winter	1.152	0.0	6664

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 6 1 in 100 yrs+40%	
Date 28/09/2021 15:23 File Zone 6.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.059

Time (mins)		Area		Time (mins)		Area	
From:	To:	(ha)		From:	To:	(ha)	
0	4	0.029		4	8	0.030	

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 6 1 in 100 yrs+40%	
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Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 6.827

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00700	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.950	Depression Storage (mm)	0
Max Percolation (l/s)	54.9	Width (m)	7.9	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	25.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 7 1 in 100yr + 40%	
Date 28/09/2021 14:07 File Zone 7.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Half Drain Time : 3401 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.280	0.180	0.1	15.5	0 K
30 min Summer	6.341	0.241	0.1	20.7	0 K
60 min Summer	6.409	0.309	0.1	26.6	0 K
120 min Summer	6.463	0.363	0.1	31.2	0 K
180 min Summer	6.496	0.396	0.1	34.0	0 K
240 min Summer	6.518	0.418	0.1	35.9	0 K
360 min Summer	6.544	0.444	0.1	38.2	0 K
480 min Summer	6.560	0.460	0.1	39.6	0 K
600 min Summer	6.571	0.471	0.1	40.5	0 K
720 min Summer	6.578	0.478	0.1	41.1	0 K
960 min Summer	6.587	0.487	0.1	41.9	0 K
1440 min Summer	6.592	0.492	0.1	42.3	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	23
30 min Summer	94.616	0.0	38
60 min Summer	60.860	0.0	68
120 min Summer	36.127	0.0	128
180 min Summer	26.472	0.0	188
240 min Summer	21.126	0.0	246
360 min Summer	15.216	0.0	366
480 min Summer	12.017	0.0	486
600 min Summer	9.993	0.0	606
720 min Summer	8.588	0.0	726
960 min Summer	6.754	0.0	964
1440 min Summer	4.821	0.0	1444

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 7 1 in 100yr + 40%	
Date 28/09/2021 14:07 File Zone 7.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.586	0.486	0.1	41.8	0 K
2880 min Summer	6.575	0.475	0.1	40.9	0 K
4320 min Summer	6.562	0.462	0.1	39.7	0 K
5760 min Summer	6.554	0.454	0.1	39.1	0 K
7200 min Summer	6.552	0.452	0.1	38.8	0 K
8640 min Summer	6.551	0.451	0.1	38.8	0 K
10080 min Summer	6.552	0.452	0.1	38.9	0 K
15 min Winter	6.302	0.202	0.1	17.4	0 K
30 min Winter	6.370	0.270	0.1	23.2	0 K
60 min Winter	6.446	0.346	0.1	29.8	0 K
120 min Winter	6.508	0.408	0.1	35.1	0 K
180 min Winter	6.545	0.445	0.1	38.3	0 K
240 min Winter	6.570	0.470	0.1	40.4	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	2160
2880 min Summer	2.752	0.0	2684
4320 min Summer	2.023	0.0	3380
5760 min Summer	1.647	0.0	4152
7200 min Summer	1.418	0.0	4976
8640 min Summer	1.263	0.0	5872
10080 min Summer	1.152	0.0	6664
15 min Winter	141.021	0.0	23
30 min Winter	94.616	0.0	37
60 min Winter	60.860	0.0	68
120 min Winter	36.127	0.0	126
180 min Winter	26.472	0.0	184
240 min Winter	21.126	0.0	244

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 7 1 in 100yr + 40%	
Date 28/09/2021 14:07 File Zone 7.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.600	0.500	0.1	43.0	0 K
480 min Winter	6.620	0.520	0.1	44.7	0 K
600 min Winter	6.633	0.533	0.1	45.8	0 K
720 min Winter	6.642	0.542	0.1	46.6	0 K
960 min Winter	6.654	0.554	0.1	47.6	0 K
1440 min Winter	6.664	0.564	0.1	48.5	0 K
2160 min Winter	6.664	0.564	0.1	48.5	0 K
2880 min Winter	6.657	0.557	0.1	47.9	0 K
4320 min Winter	6.640	0.540	0.1	46.4	0 K
5760 min Winter	6.629	0.529	0.1	45.5	0 K
7200 min Winter	6.622	0.522	0.1	44.9	0 K
8640 min Winter	6.617	0.517	0.1	44.5	0 K
10080 min Winter	6.614	0.514	0.1	44.2	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	362
480 min Winter	12.017	0.0	480
600 min Winter	9.993	0.0	598
720 min Winter	8.588	0.0	716
960 min Winter	6.754	0.0	950
1440 min Winter	4.821	0.0	1414
2160 min Winter	3.461	0.0	2096
2880 min Winter	2.752	0.0	2764
4320 min Winter	2.023	0.0	3972
5760 min Winter	1.647	0.0	4496
7200 min Winter	1.418	0.0	5408
8640 min Winter	1.263	0.0	6392
10080 min Winter	1.152	0.0	7272

GTA Civils Ltd		Page 4
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 7 1 in 100yr + 40%	
Date 28/09/2021 14:07 File Zone 7.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.059

Time (mins)	Area	Time (mins)	Area
From:	To: (ha)	From:	To: (ha)
0	4 0.029	4	8 0.030

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 7 1 in 100yr + 40%	
Date 28/09/2021 14:07 File Zone 7.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 6.950

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.100	Depression Storage (mm)	0
Max Percolation (l/s)	79.6	Width (m)	6.1	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	47.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 8 1 in 100 yrs+40%	
Date 28/09/2021 17:39 File Zone 8.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

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

Half Drain Time : 3407 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.580	0.180	0.1	11.0	0 K
30 min Summer	6.641	0.241	0.1	14.8	0 K
60 min Summer	6.709	0.309	0.1	18.9	0 K
120 min Summer	6.763	0.363	0.1	22.2	0 K
180 min Summer	6.796	0.396	0.1	24.2	0 K
240 min Summer	6.818	0.418	0.1	25.6	0 K
360 min Summer	6.844	0.444	0.1	27.2	0 K
480 min Summer	6.860	0.460	0.1	28.2	0 K
600 min Summer	6.871	0.471	0.1	28.8	0 K
720 min Summer	6.879	0.479	0.1	29.3	0 K
960 min Summer	6.887	0.487	0.1	29.8	0 K
1440 min Summer	6.892	0.492	0.1	30.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	23
30 min Summer	94.616	0.0	38
60 min Summer	60.860	0.0	68
120 min Summer	36.127	0.0	128
180 min Summer	26.472	0.0	188
240 min Summer	21.126	0.0	246
360 min Summer	15.216	0.0	366
480 min Summer	12.017	0.0	486
600 min Summer	9.993	0.0	606
720 min Summer	8.588	0.0	726
960 min Summer	6.754	0.0	964
1440 min Summer	4.821	0.0	1442

GTA Civils Ltd

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Gloucester House
66a Church Walk
Burgess Hill RH15 9AS

North End Road, Yapton
11228 PP Zone 8
1 in 100 yrs+40%

Date 28/09/2021 17:39
File Zone 8.SRCX

Designed by mroberts
Checked by



Micro Drainage

Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.886	0.486	0.1	29.8	0 K
2880 min Summer	6.875	0.475	0.1	29.1	0 K
4320 min Summer	6.862	0.462	0.1	28.3	0 K
5760 min Summer	6.855	0.455	0.1	27.8	0 K
7200 min Summer	6.852	0.452	0.1	27.6	0 K
8640 min Summer	6.851	0.451	0.1	27.6	0 K
10080 min Summer	6.852	0.452	0.1	27.7	0 K
15 min Winter	6.602	0.202	0.1	12.4	0 K
30 min Winter	6.670	0.270	0.1	16.5	0 K
60 min Winter	6.746	0.346	0.1	21.2	0 K
120 min Winter	6.808	0.408	0.1	25.0	0 K
180 min Winter	6.845	0.445	0.1	27.2	0 K
240 min Winter	6.870	0.470	0.1	28.8	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	2160
2880 min Summer	2.752	0.0	2684
4320 min Summer	2.023	0.0	3380
5760 min Summer	1.647	0.0	4152
7200 min Summer	1.418	0.0	4976
8640 min Summer	1.263	0.0	5872
10080 min Summer	1.152	0.0	6664
15 min Winter	141.021	0.0	23
30 min Winter	94.616	0.0	37
60 min Winter	60.860	0.0	68
120 min Winter	36.127	0.0	126
180 min Winter	26.472	0.0	184
240 min Winter	21.126	0.0	244

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 8 1 in 100 yrs+40%	
Date 28/09/2021 17:39 File Zone 8.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.901	0.501	0.1	30.6	0 K
480 min Winter	6.920	0.520	0.1	31.8	0 K
600 min Winter	6.933	0.533	0.1	32.6	0 K
720 min Winter	6.942	0.542	0.1	33.2	0 K
960 min Winter	6.954	0.554	0.1	33.9	0 K
1440 min Winter	6.964	0.564	0.1	34.5	0 K
2160 min Winter	6.964	0.564	0.1	34.5	0 K
2880 min Winter	6.958	0.558	0.1	34.1	0 K
4320 min Winter	6.940	0.540	0.1	33.1	0 K
5760 min Winter	6.929	0.529	0.1	32.4	0 K
7200 min Winter	6.922	0.522	0.1	32.0	0 K
8640 min Winter	6.918	0.518	0.1	31.7	0 K
10080 min Winter	6.914	0.514	0.1	31.5	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	362
480 min Winter	12.017	0.0	480
600 min Winter	9.993	0.0	598
720 min Winter	8.588	0.0	716
960 min Winter	6.754	0.0	950
1440 min Winter	4.821	0.0	1414
2160 min Winter	3.461	0.0	2096
2880 min Winter	2.752	0.0	2764
4320 min Winter	2.023	0.0	3972
5760 min Winter	1.647	0.0	4496
7200 min Winter	1.418	0.0	5408
8640 min Winter	1.263	0.0	6392
10080 min Winter	1.152	0.0	7352

GTA Civils Ltd		Page 4
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 8 1 in 100 yrs+40%	
Date 28/09/2021 17:39 File Zone 8.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.042

Time (mins)		Area		Time (mins)		Area	
From:	To:	(ha)		From:	To:	(ha)	
0	4	0.021		4	8	0.021	

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 8 1 in 100 yrs+40%	
Date 28/09/2021 17:39 File Zone 8.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 7.139

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.400	Depression Storage (mm)	0
Max Percolation (l/s)	56.7	Width (m)	20.0	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	10.2	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 9 1 in 100 yrs+40%	
Date 28/09/2021 16:51 File Zone 9.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

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

Half Drain Time : 3476 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.373	0.173	0.1	18.0	0 K
30 min Summer	6.437	0.237	0.1	24.7	0 K
60 min Summer	6.508	0.308	0.1	32.1	0 K
120 min Summer	6.565	0.365	0.1	38.1	0 K
180 min Summer	6.599	0.399	0.1	41.7	0 K
240 min Summer	6.622	0.422	0.1	44.1	0 K
360 min Summer	6.650	0.450	0.1	47.0	0 K
480 min Summer	6.667	0.467	0.1	48.8	0 K
600 min Summer	6.679	0.479	0.1	50.0	0 K
720 min Summer	6.687	0.487	0.1	50.8	0 K
960 min Summer	6.696	0.496	0.1	51.8	0 K
1440 min Summer	6.701	0.501	0.1	52.4	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	27
30 min Summer	94.616	0.0	42
60 min Summer	60.860	0.0	72
120 min Summer	36.127	0.0	132
180 min Summer	26.472	0.0	190
240 min Summer	21.126	0.0	250
360 min Summer	15.216	0.0	370
480 min Summer	12.017	0.0	488
600 min Summer	9.993	0.0	608
720 min Summer	8.588	0.0	728
960 min Summer	6.754	0.0	966
1440 min Summer	4.821	0.0	1444

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 9 1 in 100 yrs+40%	
Date 28/09/2021 16:51 File Zone 9.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.696	0.496	0.1	51.8	0 K
2880 min Summer	6.686	0.486	0.1	50.7	0 K
4320 min Summer	6.673	0.473	0.1	49.4	0 K
5760 min Summer	6.666	0.466	0.1	48.6	0 K
7200 min Summer	6.662	0.462	0.1	48.3	0 K
8640 min Summer	6.661	0.461	0.1	48.2	0 K
10080 min Summer	6.662	0.462	0.1	48.3	0 K
15 min Winter	6.396	0.196	0.1	20.4	0 K
30 min Winter	6.467	0.267	0.1	27.9	0 K
60 min Winter	6.547	0.347	0.1	36.2	0 K
120 min Winter	6.611	0.411	0.1	43.0	0 K
180 min Winter	6.650	0.450	0.1	47.0	0 K
240 min Winter	6.676	0.476	0.1	49.8	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	2160
2880 min Summer	2.752	0.0	2628
4320 min Summer	2.023	0.0	3336
5760 min Summer	1.647	0.0	4144
7200 min Summer	1.418	0.0	4976
8640 min Summer	1.263	0.0	5800
10080 min Summer	1.152	0.0	6664
15 min Winter	141.021	0.0	27
30 min Winter	94.616	0.0	41
60 min Winter	60.860	0.0	70
120 min Winter	36.127	0.0	130
180 min Winter	26.472	0.0	188
240 min Winter	21.126	0.0	246

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 9 1 in 100 yrs+40%	
Date 28/09/2021 16:51 File Zone 9.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.709	0.509	0.1	53.1	0 K
480 min Winter	6.729	0.529	0.1	55.3	0 K
600 min Winter	6.743	0.543	0.1	56.7	0 K
720 min Winter	6.753	0.553	0.1	57.8	0 K
960 min Winter	6.765	0.565	0.1	59.0	0 K
1440 min Winter	6.776	0.576	0.1	60.1	0 K
2160 min Winter	6.776	0.576	0.1	60.2	0 K
2880 min Winter	6.770	0.570	0.1	59.5	0 K
4320 min Winter	6.752	0.552	0.1	57.6	0 K
5760 min Winter	6.741	0.541	0.1	56.5	0 K
7200 min Winter	6.734	0.534	0.1	55.8	0 K
8640 min Winter	6.728	0.528	0.1	55.1	0 K
10080 min Winter	6.724	0.524	0.1	54.7	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	364
480 min Winter	12.017	0.0	482
600 min Winter	9.993	0.0	600
720 min Winter	8.588	0.0	716
960 min Winter	6.754	0.0	952
1440 min Winter	4.821	0.0	1414
2160 min Winter	3.461	0.0	2096
2880 min Winter	2.752	0.0	2748
4320 min Winter	2.023	0.0	3892
5760 min Winter	1.647	0.0	4448
7200 min Winter	1.418	0.0	5408
8640 min Winter	1.263	0.0	6320
10080 min Winter	1.152	0.0	7264

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 9 1 in 100 yrs+40%	
Date 28/09/2021 16:51 File Zone 9.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.075

Time (mins)			Time (mins)			Time (mins)		
From:	To:	Area (ha)	From:	To:	Area (ha)	From:	To:	Area (ha)
0	4	0.025	4	8	0.025	8	12	0.025

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 9 1 in 100 yrs+40%	
Date 28/09/2021 16:51 File Zone 9.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 6.952

Complex Structure

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.200	Depression Storage (mm)	5
Max Percolation (l/s)	89.8	Width (m)	6.3	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	51.3	Membrane Depth (m)	0

Infiltration Blanket

Infiltration Coefficient Base (m/hr)	0.00300	Invert Level (m)	6.200	Cap Volume Depth (m)	0.000
Safety Factor	2.0	Diameter/Width (m)	5.0		
Porosity	0.30	Length (m)	5.0		

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 10 1 in 100 yrs+40%	
Date 29/09/2021 08:29 File Zone 10.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Half Drain Time : 3287 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.475	0.175	0.1	8.4	0 K
30 min Summer	6.534	0.234	0.1	11.2	0 K
60 min Summer	6.600	0.300	0.1	14.4	0 K
120 min Summer	6.653	0.353	0.1	16.9	0 K
180 min Summer	6.684	0.384	0.1	18.4	0 K
240 min Summer	6.705	0.405	0.1	19.5	0 K
360 min Summer	6.731	0.431	0.1	20.7	0 K
480 min Summer	6.746	0.446	0.1	21.4	0 K
600 min Summer	6.757	0.457	0.1	21.9	0 K
720 min Summer	6.764	0.464	0.1	22.3	0 K
960 min Summer	6.771	0.471	0.1	22.6	0 K
1440 min Summer	6.775	0.475	0.1	22.8	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	23
30 min Summer	94.616	0.0	38
60 min Summer	60.860	0.0	68
120 min Summer	36.127	0.0	128
180 min Summer	26.472	0.0	188
240 min Summer	21.126	0.0	246
360 min Summer	15.216	0.0	366
480 min Summer	12.017	0.0	486
600 min Summer	9.993	0.0	606
720 min Summer	8.588	0.0	726
960 min Summer	6.754	0.0	964
1440 min Summer	4.821	0.0	1444

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 10 1 in 100 yrs+40%	
Date 29/09/2021 08:29 File Zone 10.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.769	0.469	0.1	22.5	0 K
2880 min Summer	6.758	0.458	0.1	22.0	0 K
4320 min Summer	6.744	0.444	0.1	21.3	0 K
5760 min Summer	6.737	0.437	0.1	21.0	0 K
7200 min Summer	6.733	0.433	0.1	20.8	0 K
8640 min Summer	6.732	0.432	0.1	20.7	0 K
10080 min Summer	6.733	0.433	0.1	20.8	0 K
15 min Winter	6.496	0.196	0.1	9.4	0 K
30 min Winter	6.563	0.263	0.1	12.6	0 K
60 min Winter	6.636	0.336	0.1	16.1	0 K
120 min Winter	6.696	0.396	0.1	19.0	0 K
180 min Winter	6.732	0.432	0.1	20.7	0 K
240 min Winter	6.756	0.456	0.1	21.9	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	2160
2880 min Summer	2.752	0.0	2628
4320 min Summer	2.023	0.0	3332
5760 min Summer	1.647	0.0	4144
7200 min Summer	1.418	0.0	4968
8640 min Summer	1.263	0.0	5800
10080 min Summer	1.152	0.0	6656
15 min Winter	141.021	0.0	23
30 min Winter	94.616	0.0	37
60 min Winter	60.860	0.0	68
120 min Winter	36.127	0.0	126
180 min Winter	26.472	0.0	184
240 min Winter	21.126	0.0	244

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 10 1 in 100 yrs+40%	
Date 29/09/2021 08:29 File Zone 10.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.786	0.486	0.1	23.3	0 K
480 min Winter	6.804	0.504	0.1	24.2	0 K
600 min Winter	6.817	0.517	0.1	24.8	0 K
720 min Winter	6.826	0.526	0.1	25.2	0 K
960 min Winter	6.836	0.536	0.1	25.8	0 K
1440 min Winter	6.845	0.545	0.1	26.2	0 K
2160 min Winter	6.844	0.544	0.1	26.1	0 K
2880 min Winter	6.837	0.537	0.1	25.8	0 K
4320 min Winter	6.818	0.518	0.1	24.9	0 K
5760 min Winter	6.807	0.507	0.1	24.4	0 K
7200 min Winter	6.800	0.500	0.1	24.0	0 K
8640 min Winter	6.794	0.494	0.1	23.7	0 K
10080 min Winter	6.790	0.490	0.1	23.5	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	362
480 min Winter	12.017	0.0	480
600 min Winter	9.993	0.0	598
720 min Winter	8.588	0.0	714
960 min Winter	6.754	0.0	950
1440 min Winter	4.821	0.0	1414
2160 min Winter	3.461	0.0	2096
2880 min Winter	2.752	0.0	2744
4320 min Winter	2.023	0.0	3892
5760 min Winter	1.647	0.0	4440
7200 min Winter	1.418	0.0	5400
8640 min Winter	1.263	0.0	6320
10080 min Winter	1.152	0.0	7264

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 10 1 in 100 yrs+40%	
Date 29/09/2021 08:29 File Zone 10.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.032

Time (mins)	Area	Time (mins)	Area
From:	To: (ha)	From:	To: (ha)
0	4 0.015	4	8 0.017

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 10 1 in 100 yrs+40%	
Date 29/09/2021 08:29 File Zone 10.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 7.050

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.300	Depression Storage (mm)	0
Max Percolation (l/s)	44.4	Width (m)	10.0	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	16.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 11 1 in 100 yrs+40%	
Date 27/09/2021 16:59 File Zone 11.SRCX	Designed by MROBERTS Checked by	
Micro Drainage		Source Control 2020.1

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

Half Drain Time : 1582 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	4.744	0.094	0.0	2.6	0 K
30 min Summer	4.775	0.125	0.0	3.5	0 K
60 min Summer	4.810	0.160	0.0	4.5	0 K
120 min Summer	4.837	0.187	0.0	5.2	0 K
180 min Summer	4.852	0.202	0.0	5.6	0 K
240 min Summer	4.862	0.212	0.0	5.9	0 K
360 min Summer	4.873	0.223	0.0	6.2	0 K
480 min Summer	4.878	0.228	0.0	6.4	0 K
600 min Summer	4.880	0.230	0.0	6.4	0 K
720 min Summer	4.881	0.231	0.0	6.4	0 K
960 min Summer	4.879	0.229	0.0	6.4	0 K
1440 min Summer	4.871	0.221	0.0	6.2	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	19
30 min Summer	94.616	0.0	34
60 min Summer	60.860	0.0	64
120 min Summer	36.127	0.0	124
180 min Summer	26.472	0.0	184
240 min Summer	21.126	0.0	242
360 min Summer	15.216	0.0	362
480 min Summer	12.017	0.0	482
600 min Summer	9.993	0.0	602
720 min Summer	8.588	0.0	722
960 min Summer	6.754	0.0	960
1440 min Summer	4.821	0.0	1254

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 11 1 in 100 yrs+40%	
Date 27/09/2021 16:59 File Zone 11.SRCX	Designed by MROBERTS Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	4.860	0.210	0.0	5.9	0 K
2880 min Summer	4.851	0.201	0.0	5.6	0 K
4320 min Summer	4.837	0.187	0.0	5.2	0 K
5760 min Summer	4.826	0.176	0.0	4.9	0 K
7200 min Summer	4.816	0.166	0.0	4.6	0 K
8640 min Summer	4.809	0.159	0.0	4.4	0 K
10080 min Summer	4.802	0.152	0.0	4.2	0 K
15 min Winter	4.755	0.105	0.0	2.9	0 K
30 min Winter	4.791	0.141	0.0	3.9	0 K
60 min Winter	4.829	0.179	0.0	5.0	0 K
120 min Winter	4.860	0.210	0.0	5.9	0 K
180 min Winter	4.878	0.228	0.0	6.4	0 K
240 min Winter	4.889	0.239	0.0	6.7	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	1620
2880 min Summer	2.752	0.0	2016
4320 min Summer	2.023	0.0	2812
5760 min Summer	1.647	0.0	3640
7200 min Summer	1.418	0.0	4464
8640 min Summer	1.263	0.0	5272
10080 min Summer	1.152	0.0	6048
15 min Winter	141.021	0.0	19
30 min Winter	94.616	0.0	33
60 min Winter	60.860	0.0	64
120 min Winter	36.127	0.0	122
180 min Winter	26.472	0.0	180
240 min Winter	21.126	0.0	240

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 11 1 in 100 yrs+40%	
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Micro Drainage	Source Control 2020.1	

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	4.902	0.252	0.0	7.0	0 K
480 min Winter	4.908	0.258	0.0	7.2	0 K
600 min Winter	4.912	0.262	0.0	7.3	0 K
720 min Winter	4.914	0.264	0.0	7.4	0 K
960 min Winter	4.913	0.263	0.0	7.3	0 K
1440 min Winter	4.906	0.256	0.0	7.2	0 K
2160 min Winter	4.891	0.241	0.0	6.7	0 K
2880 min Winter	4.880	0.230	0.0	6.4	0 K
4320 min Winter	4.858	0.208	0.0	5.8	0 K
5760 min Winter	4.839	0.189	0.0	5.3	0 K
7200 min Winter	4.822	0.172	0.0	4.8	0 K
8640 min Winter	4.808	0.158	0.0	4.4	0 K
10080 min Winter	4.795	0.145	0.0	4.0	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	358
480 min Winter	12.017	0.0	474
600 min Winter	9.993	0.0	590
720 min Winter	8.588	0.0	706
960 min Winter	6.754	0.0	932
1440 min Winter	4.821	0.0	1370
2160 min Winter	3.461	0.0	1732
2880 min Winter	2.752	0.0	2188
4320 min Winter	2.023	0.0	3072
5760 min Winter	1.647	0.0	3976
7200 min Winter	1.418	0.0	4824
8640 min Winter	1.263	0.0	5624
10080 min Winter	1.152	0.0	6456

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 11 1 in 100 yrs+40%	
Date 27/09/2021 16:59 File Zone 11.SRCX	Designed by MROBERTS Checked by	
Micro Drainage	Source Control 2020.1	

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.010

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

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 11 1 in 100 yrs+40%	
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Micro Drainage	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 5.350

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	4.650	Depression Storage (mm)	0
Max Percolation (l/s)	25.8	Width (m)	6.0	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	15.5	Membrane Depth (m)	0

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 12 1 in 100 yrs	
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Micro Drainage		Source Control 2020.1

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

Half Drain Time : 1695 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.199	0.099	0.1	5.2	O K
30 min Summer	6.233	0.133	0.1	7.0	O K
60 min Summer	6.269	0.169	0.1	8.9	O K
120 min Summer	6.298	0.198	0.1	10.4	O K
180 min Summer	6.314	0.214	0.1	11.3	O K
240 min Summer	6.325	0.225	0.1	11.9	O K
360 min Summer	6.336	0.236	0.1	12.5	O K
480 min Summer	6.342	0.242	0.1	12.8	O K
600 min Summer	6.345	0.245	0.1	12.9	O K
720 min Summer	6.346	0.246	0.1	13.0	O K
960 min Summer	6.345	0.245	0.1	12.9	O K
1440 min Summer	6.337	0.237	0.1	12.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	19
30 min Summer	94.616	0.0	34
60 min Summer	60.860	0.0	64
120 min Summer	36.127	0.0	124
180 min Summer	26.472	0.0	184
240 min Summer	21.126	0.0	242
360 min Summer	15.216	0.0	362
480 min Summer	12.017	0.0	482
600 min Summer	9.993	0.0	602
720 min Summer	8.588	0.0	722
960 min Summer	6.754	0.0	960
1440 min Summer	4.821	0.0	1312

GTA Civils Ltd				Page 2																																																																																					
66a Church Walk Burgess Hill West Sussex RH15 9AS		North End Road, Yapton 11228 PP Zone 12 1 in 100 yrs																																																																																							
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<table><thead><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></thead><tbody><tr><td>2160 min Summer</td><td>6.326</td><td>0.226</td><td>0.1</td><td>11.9</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>6.317</td><td>0.217</td><td>0.1</td><td>11.5</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>6.303</td><td>0.203</td><td>0.1</td><td>10.7</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>6.291</td><td>0.191</td><td>0.1</td><td>10.1</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>6.282</td><td>0.182</td><td>0.1</td><td>9.6</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>6.275</td><td>0.175</td><td>0.1</td><td>9.2</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>6.268</td><td>0.168</td><td>0.1</td><td>8.9</td><td>O K</td></tr><tr><td>15 min Winter</td><td>6.211</td><td>0.111</td><td>0.1</td><td>5.9</td><td>O K</td></tr><tr><td>30 min Winter</td><td>6.249</td><td>0.149</td><td>0.1</td><td>7.8</td><td>O K</td></tr><tr><td>60 min Winter</td><td>6.290</td><td>0.190</td><td>0.1</td><td>10.0</td><td>O K</td></tr><tr><td>120 min Winter</td><td>6.322</td><td>0.222</td><td>0.1</td><td>11.7</td><td>O K</td></tr><tr><td>180 min Winter</td><td>6.341</td><td>0.241</td><td>0.1</td><td>12.7</td><td>O K</td></tr><tr><td>240 min Winter</td><td>6.353</td><td>0.253</td><td>0.1</td><td>13.4</td><td>O K</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	2160 min Summer	6.326	0.226	0.1	11.9	O K	2880 min Summer	6.317	0.217	0.1	11.5	O K	4320 min Summer	6.303	0.203	0.1	10.7	O K	5760 min Summer	6.291	0.191	0.1	10.1	O K	7200 min Summer	6.282	0.182	0.1	9.6	O K	8640 min Summer	6.275	0.175	0.1	9.2	O K	10080 min Summer	6.268	0.168	0.1	8.9	O K	15 min Winter	6.211	0.111	0.1	5.9	O K	30 min Winter	6.249	0.149	0.1	7.8	O K	60 min Winter	6.290	0.190	0.1	10.0	O K	120 min Winter	6.322	0.222	0.1	11.7	O K	180 min Winter	6.341	0.241	0.1	12.7	O K	240 min Winter	6.353	0.253	0.1	13.4	O K
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66a Church Walk Burgess Hill West Sussex RH15 9AS		North End Road, Yapton 11228 PP Zone 12 1 in 100 yrs			
Date 23/09/2021 15:08 File Zone 12.SRCX		Designed by AElsir Checked by			
Micro Drainage		Source Control 2020.1			
Summary of Results for 100 year Return Period (+40%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.367	0.267	0.1	14.1	O K
480 min Winter	6.375	0.275	0.1	14.5	O K
600 min Winter	6.379	0.279	0.1	14.7	O K
720 min Winter	6.381	0.281	0.1	14.8	O K
960 min Winter	6.381	0.281	0.1	14.8	O K
1440 min Winter	6.375	0.275	0.1	14.5	O K
2160 min Winter	6.360	0.260	0.1	13.7	O K
2880 min Winter	6.348	0.248	0.1	13.1	O K
4320 min Winter	6.327	0.227	0.1	12.0	O K
5760 min Winter	6.308	0.208	0.1	11.0	O K
7200 min Winter	6.292	0.192	0.1	10.1	O K
8640 min Winter	6.277	0.177	0.1	9.4	O K
10080 min Winter	6.264	0.164	0.1	8.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
360 min Winter	15.216	0.0	358		
480 min Winter	12.017	0.0	474		
600 min Winter	9.993	0.0	590		
720 min Winter	8.588	0.0	706		
960 min Winter	6.754	0.0	934		
1440 min Winter	4.821	0.0	1372		
2160 min Winter	3.461	0.0	1776		
2880 min Winter	2.752	0.0	2196		
4320 min Winter	2.023	0.0	3112		
5760 min Winter	1.647	0.0	3984		
7200 min Winter	1.418	0.0	4896		
8640 min Winter	1.263	0.0	5704		
10080 min Winter	1.152	0.0	6552		
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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 12 1 in 100 yrs	
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Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.020

Time (mins)	Area
From:	To: (ha)
0	4 0.020

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GTA Civils Ltd		Page 5
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 12 1 in 100 yrs	
Date 23/09/2021 15:08 File Zone 12.SRCX	Designed by AElsir Checked by	
Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 6.683

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.100	Depression Storage (mm)	0
Max Percolation (l/s)	48.9	Width (m)	5.5	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	32.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 13 1 in 100 yrs	
Date 23/09/2021 15:44 File Zone 13.SRCX	Designed by AElsir Checked by	
Micro Drainage	Source Control 2020.1	

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

Half Drain Time : 1469 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	5.701	0.087	0.0	2.4	O K
30 min Summer	5.730	0.116	0.0	3.1	O K
60 min Summer	5.763	0.149	0.0	4.0	O K
120 min Summer	5.787	0.173	0.0	4.7	O K
180 min Summer	5.801	0.187	0.0	5.1	O K
240 min Summer	5.810	0.196	0.0	5.3	O K
360 min Summer	5.820	0.206	0.0	5.6	O K
480 min Summer	5.824	0.210	0.0	5.7	O K
600 min Summer	5.826	0.212	0.0	5.7	O K
720 min Summer	5.826	0.212	0.0	5.7	O K
960 min Summer	5.824	0.210	0.0	5.7	O K
1440 min Summer	5.815	0.201	0.0	5.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	141.021	0.0	19
30 min Summer	94.616	0.0	34
60 min Summer	60.860	0.0	64
120 min Summer	36.127	0.0	124
180 min Summer	26.472	0.0	184
240 min Summer	21.126	0.0	242
360 min Summer	15.216	0.0	362
480 min Summer	12.017	0.0	482
600 min Summer	9.993	0.0	602
720 min Summer	8.588	0.0	722
960 min Summer	6.754	0.0	960
1440 min Summer	4.821	0.0	1212

GTA Civils Ltd		Page 2
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 13 1 in 100 yrs	
Date 23/09/2021 15:44 File Zone 13.SRCX	Designed by AElsir Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	5.805	0.191	0.0	5.2	O K
2880 min Summer	5.797	0.183	0.0	4.9	O K
4320 min Summer	5.783	0.169	0.0	4.6	O K
5760 min Summer	5.771	0.157	0.0	4.2	O K
7200 min Summer	5.762	0.148	0.0	4.0	O K
8640 min Summer	5.754	0.140	0.0	3.8	O K
10080 min Summer	5.747	0.133	0.0	3.6	O K
15 min Winter	5.712	0.098	0.0	2.6	O K
30 min Winter	5.745	0.131	0.0	3.5	O K
60 min Winter	5.781	0.167	0.0	4.5	O K
120 min Winter	5.809	0.195	0.0	5.3	O K
180 min Winter	5.825	0.211	0.0	5.7	O K
240 min Winter	5.835	0.221	0.0	6.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	3.461	0.0	1576
2880 min Summer	2.752	0.0	1964
4320 min Summer	2.023	0.0	2808
5760 min Summer	1.647	0.0	3624
7200 min Summer	1.418	0.0	4400
8640 min Summer	1.263	0.0	5192
10080 min Summer	1.152	0.0	5960
15 min Winter	141.021	0.0	19
30 min Winter	94.616	0.0	33
60 min Winter	60.860	0.0	64
120 min Winter	36.127	0.0	122
180 min Winter	26.472	0.0	180
240 min Winter	21.126	0.0	240

GTA Civils Ltd		Page 3
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 13 1 in 100 yrs	
Date 23/09/2021 15:44 File Zone 13.SRCX	Designed by AElsir Checked by	
Micro Drainage		Source Control 2020.1

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	5.847	0.233	0.0	6.3	O K
480 min Winter	5.853	0.239	0.0	6.4	O K
600 min Winter	5.855	0.241	0.0	6.5	O K
720 min Winter	5.857	0.243	0.0	6.5	O K
960 min Winter	5.855	0.241	0.0	6.5	O K
1440 min Winter	5.847	0.233	0.0	6.3	O K
2160 min Winter	5.833	0.219	0.0	5.9	O K
2880 min Winter	5.821	0.207	0.0	5.6	O K
4320 min Winter	5.799	0.185	0.0	5.0	O K
5760 min Winter	5.780	0.166	0.0	4.5	O K
7200 min Winter	5.763	0.149	0.0	4.0	O K
8640 min Winter	5.749	0.135	0.0	3.6	O K
10080 min Winter	5.736	0.122	0.0	3.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	15.216	0.0	356
480 min Winter	12.017	0.0	474
600 min Winter	9.993	0.0	590
720 min Winter	8.588	0.0	704
960 min Winter	6.754	0.0	932
1440 min Winter	4.821	0.0	1356
2160 min Winter	3.461	0.0	1688
2880 min Winter	2.752	0.0	2136
4320 min Winter	2.023	0.0	3028
5760 min Winter	1.647	0.0	3920
7200 min Winter	1.418	0.0	4752
8640 min Winter	1.263	0.0	5536
10080 min Winter	1.152	0.0	6352

GTA Civils Ltd		Page 4
66a Church Walk	North End Road, Yapton	
Burgess Hill	11228 PP Zone 13	
West Sussex RH15 9AS	1 in 100 yrs	
Date 23/09/2021 15:44	Designed by AElsir	
File Zone 13.SRCX	Checked by	
Micro Drainage	Source Control 2020.1	

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	100	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.009

Time (mins)	Area
From: To:	(ha)
0	4 0.009

GTA Civils Ltd		Page 5
66a Church Walk	North End Road, Yapton	
Burgess Hill	11228 PP Zone 13	
West Sussex RH15 9AS	1 in 100 yrs	
Date 23/09/2021 15:44	Designed by AElsir	
File Zone 13.SRCX	Checked by	
Micro Drainage	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 6.314

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.614	Depression Storage (mm)	0
Max Percolation (l/s)	25.0	Width (m)	6.0	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	15.0	Membrane Depth (m)	0

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GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 Trench SA1 1 in 10 yr	
Date 28/09/2021 18:28 File Trench SA 1.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 1440 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	5.589	0.089	0.0	2.0	0 K
30 min Summer	5.616	0.116	0.0	2.6	0 K
60 min Summer	5.645	0.145	0.0	3.2	0 K
120 min Summer	5.677	0.177	0.0	3.9	0 K
180 min Summer	5.696	0.196	0.0	4.4	0 K
240 min Summer	5.707	0.207	0.0	4.6	0 K
360 min Summer	5.721	0.221	0.0	4.9	0 K
480 min Summer	5.727	0.227	0.0	5.1	0 K
600 min Summer	5.730	0.230	0.0	5.1	0 K
720 min Summer	5.731	0.231	0.0	5.1	0 K
960 min Summer	5.730	0.230	0.0	5.1	0 K
1440 min Summer	5.723	0.223	0.0	5.0	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	62.552	0.0	19
30 min Summer	41.172	0.0	34
60 min Summer	26.015	0.0	64
120 min Summer	16.169	0.0	124
180 min Summer	12.093	0.0	184
240 min Summer	9.770	0.0	242
360 min Summer	7.145	0.0	362
480 min Summer	5.684	0.0	482
600 min Summer	4.750	0.0	602
720 min Summer	4.097	0.0	720
960 min Summer	3.241	0.0	960
1440 min Summer	2.334	0.0	1198

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 Trench SA1 1 in 10 yr	
Date 28/09/2021 18:28 File Trench SA 1.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	5.716	0.216	0.0	4.8	0 K
2880 min Summer	5.709	0.209	0.0	4.7	0 K
4320 min Summer	5.700	0.200	0.0	4.5	0 K
5760 min Summer	5.693	0.193	0.0	4.3	0 K
7200 min Summer	5.687	0.187	0.0	4.2	0 K
8640 min Summer	5.683	0.183	0.0	4.1	0 K
10080 min Summer	5.680	0.180	0.0	4.0	0 K
15 min Winter	5.599	0.099	0.0	2.2	0 K
30 min Winter	5.630	0.130	0.0	2.9	0 K
60 min Winter	5.663	0.163	0.0	3.6	0 K
120 min Winter	5.699	0.199	0.0	4.4	0 K
180 min Winter	5.720	0.220	0.0	4.9	0 K
240 min Winter	5.734	0.234	0.0	5.2	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1576
2880 min Summer	1.362	0.0	1984
4320 min Summer	1.021	0.0	2808
5760 min Summer	0.845	0.0	3632
7200 min Summer	0.738	0.0	4464
8640 min Summer	0.666	0.0	5272
10080 min Summer	0.615	0.0	6056
15 min Winter	62.552	0.0	19
30 min Winter	41.172	0.0	33
60 min Winter	26.015	0.0	64
120 min Winter	16.169	0.0	122
180 min Winter	12.093	0.0	180
240 min Winter	9.770	0.0	240

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 Trench SA1 1 in 10 yr	
Date 28/09/2021 18:28 File Trench SA 1.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	5.749	0.249	0.0	5.6	0 K
480 min Winter	5.758	0.258	0.0	5.7	0 K
600 min Winter	5.762	0.262	0.0	5.8	0 K
720 min Winter	5.764	0.264	0.0	5.9	0 K
960 min Winter	5.764	0.264	0.0	5.9	0 K
1440 min Winter	5.758	0.258	0.0	5.7	0 K
2160 min Winter	5.747	0.247	0.0	5.5	0 K
2880 min Winter	5.738	0.238	0.0	5.3	0 K
4320 min Winter	5.721	0.221	0.0	4.9	0 K
5760 min Winter	5.707	0.207	0.0	4.6	0 K
7200 min Winter	5.695	0.195	0.0	4.4	0 K
8640 min Winter	5.685	0.185	0.0	4.1	0 K
10080 min Winter	5.677	0.177	0.0	3.9	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	356
480 min Winter	5.684	0.0	472
600 min Winter	4.750	0.0	588
720 min Winter	4.097	0.0	702
960 min Winter	3.241	0.0	926
1440 min Winter	2.334	0.0	1354
2160 min Winter	1.694	0.0	1688
2880 min Winter	1.362	0.0	2136
4320 min Winter	1.021	0.0	3068
5760 min Winter	0.845	0.0	3928
7200 min Winter	0.738	0.0	4824
8640 min Winter	0.666	0.0	5624
10080 min Winter	0.615	0.0	6464

GTA Civils Ltd		Page 4
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 Trench SA1 1 in 10 yr	
Date 28/09/2021 18:28 File Trench SA 1.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.017

Time (mins)		Area
From:	To:	(ha)
0	4	0.017

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 Trench SA1 1 in 10 yr	
Date 28/09/2021 18:28 File Trench SA 1.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	
Model Details Storage is Online Cover Level (m) 6.500 Trench Soakaway Structure Infiltration Coefficient Base (m/hr) 0.00300 Infiltration Coefficient Side (m/hr) 0.00300 Safety Factor 2.0 Porosity 0.30 Invert Level (m) 5.500 Trench Width (m) 4.5 Trench Length (m) 16.5 Slope (1:X) 0.0 Cap Volume Depth (m) 0.000 Cap Infiltration Depth (m) 0.000		
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GTA Civils Ltd		Page 1
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 Trench SA2 1 in 10 yrs	
Date 27/09/2021 18:20 File Trench SA 2.SRCX	Designed by MROBERTS Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 1437 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	5.905	0.105	0.0	0.7	0 K
30 min Summer	5.938	0.138	0.0	0.9	0 K
60 min Summer	5.972	0.172	0.0	1.1	0 K
120 min Summer	6.010	0.210	0.0	1.4	0 K
180 min Summer	6.032	0.232	0.0	1.5	0 K
240 min Summer	6.046	0.246	0.0	1.6	0 K
360 min Summer	6.062	0.262	0.0	1.7	0 K
480 min Summer	6.070	0.270	0.0	1.8	0 K
600 min Summer	6.073	0.273	0.0	1.8	0 K
720 min Summer	6.075	0.275	0.0	1.8	0 K
960 min Summer	6.073	0.273	0.0	1.8	0 K
1440 min Summer	6.066	0.266	0.0	1.8	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	19
30 min Summer	41.172	0.0	34
60 min Summer	26.015	0.0	64
120 min Summer	16.169	0.0	124
180 min Summer	12.093	0.0	184
240 min Summer	9.770	0.0	242
360 min Summer	7.145	0.0	362
480 min Summer	5.684	0.0	482
600 min Summer	4.750	0.0	602
720 min Summer	4.097	0.0	720
960 min Summer	3.241	0.0	960
1440 min Summer	2.334	0.0	1196

GTA Civils Ltd

Page 2

66a Church Walk

North End Road, Yapton

Burgess Hill

11228 Trench SA2

West Sussex RH15 9AS

1 in 10 yrs

Date 27/09/2021 18:20

Designed by MROBERTS

File Trench SA 2.SRCX

Checked by



Micro Drainage

Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.058	0.258	0.0	1.7	0 K
2880 min Summer	6.051	0.251	0.0	1.7	0 K
4320 min Summer	6.041	0.241	0.0	1.6	0 K
5760 min Summer	6.034	0.234	0.0	1.5	0 K
7200 min Summer	6.028	0.228	0.0	1.5	0 K
8640 min Summer	6.025	0.225	0.0	1.5	0 K
10080 min Summer	6.022	0.222	0.0	1.5	0 K
15 min Winter	5.918	0.118	0.0	0.8	0 K
30 min Winter	5.954	0.154	0.0	1.0	0 K
60 min Winter	5.993	0.193	0.0	1.3	0 K
120 min Winter	6.036	0.236	0.0	1.6	0 K
180 min Winter	6.061	0.261	0.0	1.7	0 K
240 min Winter	6.078	0.278	0.0	1.8	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1560
2880 min Summer	1.362	0.0	1964
4320 min Summer	1.021	0.0	2808
5760 min Summer	0.845	0.0	3632
7200 min Summer	0.738	0.0	4464
8640 min Summer	0.666	0.0	5272
10080 min Summer	0.615	0.0	6056
15 min Winter	62.552	0.0	19
30 min Winter	41.172	0.0	33
60 min Winter	26.015	0.0	64
120 min Winter	16.169	0.0	122
180 min Winter	12.093	0.0	180
240 min Winter	9.770	0.0	240

GTA Civils Ltd		Page 3
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 Trench SA2 1 in 10 yrs	
Date 27/09/2021 18:20 File Trench SA 2.SRCX	Designed by MROBERTS Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.096	0.296	0.0	2.0	0 K
480 min Winter	6.106	0.306	0.0	2.0	0 K
600 min Winter	6.111	0.311	0.0	2.1	0 K
720 min Winter	6.113	0.313	0.0	2.1	0 K
960 min Winter	6.114	0.314	0.0	2.1	0 K
1440 min Winter	6.106	0.306	0.0	2.0	0 K
2160 min Winter	6.095	0.295	0.0	2.0	0 K
2880 min Winter	6.085	0.285	0.0	1.9	0 K
4320 min Winter	6.067	0.267	0.0	1.8	0 K
5760 min Winter	6.053	0.253	0.0	1.7	0 K
7200 min Winter	6.041	0.241	0.0	1.6	0 K
8640 min Winter	6.031	0.231	0.0	1.5	0 K
10080 min Winter	6.022	0.222	0.0	1.5	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	356
480 min Winter	5.684	0.0	472
600 min Winter	4.750	0.0	588
720 min Winter	4.097	0.0	702
960 min Winter	3.241	0.0	924
1440 min Winter	2.334	0.0	1342
2160 min Winter	1.694	0.0	1668
2880 min Winter	1.362	0.0	2136
4320 min Winter	1.021	0.0	3068
5760 min Winter	0.845	0.0	3928
7200 min Winter	0.738	0.0	4824
8640 min Winter	0.666	0.0	5696
10080 min Winter	0.615	0.0	6464

GTA Civils Ltd		Page 4
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 Trench SA2 1 in 10 yrs	
Date 27/09/2021 18:20 File Trench SA 2.SRCX	Designed by MROBERTS Checked by	
Micro Drainage	Source Control 2020.1	

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.006

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

GTA Civils Ltd

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66a Church Walk

Burgess Hill

West Sussex RH15 9AS

North End Road, Yapton

11228 Trench SA2

1 in 10 yrs

Date 27/09/2021 18:20

Designed by MROBERTS

File Trench SA 2.SRCX

Checked by



Micro Drainage

Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 7.150

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.00300	Invert Level (m)	5.800	Cap Volume Depth (m)	0.000
Infiltration Coefficient Side (m/hr)	0.00300	Trench Width (m)	1.7	Cap Infiltration Depth (m)	0.000
Safety Factor	2.0	Trench Length (m)	13.0		
Porosity	0.30	Slope (1:X)	0.0		

GTA Civils Ltd		Page 1
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 3 1 in 10 yr	
Date 23/09/2021 14:49 File Zone 3.SRCX	Designed by AElsir Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 1215 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.328	0.068	0.1	2.8	O K
30 min Summer	6.350	0.090	0.1	3.6	O K
60 min Summer	6.372	0.112	0.1	4.5	O K
120 min Summer	6.397	0.137	0.1	5.5	O K
180 min Summer	6.411	0.151	0.1	6.1	O K
240 min Summer	6.419	0.159	0.1	6.5	O K
360 min Summer	6.429	0.169	0.1	6.8	O K
480 min Summer	6.433	0.173	0.1	7.0	O K
600 min Summer	6.435	0.175	0.1	7.1	O K
720 min Summer	6.435	0.175	0.1	7.1	O K
960 min Summer	6.432	0.172	0.1	7.0	O K
1440 min Summer	6.427	0.167	0.1	6.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	23
30 min Summer	41.172	0.0	37
60 min Summer	26.015	0.0	68
120 min Summer	16.169	0.0	126
180 min Summer	12.093	0.0	186
240 min Summer	9.770	0.0	246
360 min Summer	7.145	0.0	364
480 min Summer	5.684	0.0	484
600 min Summer	4.750	0.0	602
720 min Summer	4.097	0.0	722
960 min Summer	3.241	0.0	914
1440 min Summer	2.334	0.0	1130

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66a Church Walk Burgess Hill West Sussex RH15 9AS		North End Road, Yapton 11228 PP Zone 3 1 in 10 yr																																																																																							
Date 23/09/2021 14:49 File Zone 3.SRCX		Designed by AElsir Checked by																																																																																							
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Summary of Results for 10 year Return Period																																																																																									
<table><thead><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></thead><tbody><tr><td>2160 min Summer</td><td>6.420</td><td>0.160</td><td>0.1</td><td>6.5</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>6.414</td><td>0.154</td><td>0.1</td><td>6.2</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>6.404</td><td>0.144</td><td>0.1</td><td>5.8</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>6.396</td><td>0.136</td><td>0.1</td><td>5.5</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>6.389</td><td>0.129</td><td>0.1</td><td>5.2</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>6.384</td><td>0.124</td><td>0.1</td><td>5.0</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>6.380</td><td>0.120</td><td>0.1</td><td>4.9</td><td>O K</td></tr><tr><td>15 min Winter</td><td>6.337</td><td>0.077</td><td>0.1</td><td>3.1</td><td>O K</td></tr><tr><td>30 min Winter</td><td>6.361</td><td>0.101</td><td>0.1</td><td>4.1</td><td>O K</td></tr><tr><td>60 min Winter</td><td>6.386</td><td>0.126</td><td>0.1</td><td>5.1</td><td>O K</td></tr><tr><td>120 min Winter</td><td>6.414</td><td>0.154</td><td>0.1</td><td>6.2</td><td>O K</td></tr><tr><td>180 min Winter</td><td>6.430</td><td>0.170</td><td>0.1</td><td>6.9</td><td>O K</td></tr><tr><td>240 min Winter</td><td>6.440</td><td>0.180</td><td>0.1</td><td>7.3</td><td>O K</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	2160 min Summer	6.420	0.160	0.1	6.5	O K	2880 min Summer	6.414	0.154	0.1	6.2	O K	4320 min Summer	6.404	0.144	0.1	5.8	O K	5760 min Summer	6.396	0.136	0.1	5.5	O K	7200 min Summer	6.389	0.129	0.1	5.2	O K	8640 min Summer	6.384	0.124	0.1	5.0	O K	10080 min Summer	6.380	0.120	0.1	4.9	O K	15 min Winter	6.337	0.077	0.1	3.1	O K	30 min Winter	6.361	0.101	0.1	4.1	O K	60 min Winter	6.386	0.126	0.1	5.1	O K	120 min Winter	6.414	0.154	0.1	6.2	O K	180 min Winter	6.430	0.170	0.1	6.9	O K	240 min Winter	6.440	0.180	0.1	7.3	O K
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																				
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Micro Drainage	Source Control 2020.1	

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.451	0.191	0.1	7.7	O K
480 min Winter	6.457	0.197	0.1	8.0	O K
600 min Winter	6.459	0.199	0.1	8.1	O K
720 min Winter	6.460	0.200	0.1	8.1	O K
960 min Winter	6.459	0.199	0.1	8.1	O K
1440 min Winter	6.451	0.191	0.1	7.7	O K
2160 min Winter	6.442	0.182	0.1	7.4	O K
2880 min Winter	6.432	0.172	0.1	7.0	O K
4320 min Winter	6.415	0.155	0.1	6.3	O K
5760 min Winter	6.400	0.140	0.1	5.7	O K
7200 min Winter	6.388	0.128	0.1	5.2	O K
8640 min Winter	6.377	0.117	0.1	4.7	O K
10080 min Winter	6.368	0.108	0.1	4.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	358
480 min Winter	5.684	0.0	474
600 min Winter	4.750	0.0	588
720 min Winter	4.097	0.0	702
960 min Winter	3.241	0.0	924
1440 min Winter	2.334	0.0	1318
2160 min Winter	1.694	0.0	1644
2880 min Winter	1.362	0.0	2104
4320 min Winter	1.021	0.0	2984
5760 min Winter	0.845	0.0	3856
7200 min Winter	0.738	0.0	4680
8640 min Winter	0.666	0.0	5448
10080 min Winter	0.615	0.0	6256

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Micro Drainage	Source Control 2020.1	

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.024

Time (mins)	Area	Time (mins)	Area
From: To: (ha)		From: To: (ha)	
0 4 0.010		4 8 0.014	

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Micro Drainage Source Control 2020.1		

Model Details

Storage is Online Cover Level (m) 6.931

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.260	Depression Storage (mm)	0
Max Percolation (l/s)	37.5	Width (m)	7.5	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	18.0	Membrane Depth (m)	0

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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 1181 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.817	0.067	0.1	6.5	0 K
30 min Summer	6.838	0.088	0.1	8.5	0 K
60 min Summer	6.860	0.110	0.1	10.6	0 K
120 min Summer	6.884	0.134	0.1	12.9	0 K
180 min Summer	6.897	0.147	0.1	14.2	0 K
240 min Summer	6.906	0.156	0.1	15.0	0 K
360 min Summer	6.915	0.165	0.1	15.9	0 K
480 min Summer	6.919	0.169	0.1	16.3	0 K
600 min Summer	6.921	0.171	0.1	16.5	0 K
720 min Summer	6.921	0.171	0.1	16.4	0 K
960 min Summer	6.918	0.168	0.1	16.2	0 K
1440 min Summer	6.913	0.163	0.1	15.7	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	23
30 min Summer	41.172	0.0	37
60 min Summer	26.015	0.0	66
120 min Summer	16.169	0.0	126
180 min Summer	12.093	0.0	186
240 min Summer	9.770	0.0	246
360 min Summer	7.145	0.0	364
480 min Summer	5.684	0.0	482
600 min Summer	4.750	0.0	602
720 min Summer	4.097	0.0	722
960 min Summer	3.241	0.0	898
1440 min Summer	2.334	0.0	1116

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 4 1 in 10 yr	
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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.906	0.156	0.1	15.0	0 K
2880 min Summer	6.900	0.150	0.1	14.4	0 K
4320 min Summer	6.890	0.140	0.1	13.4	0 K
5760 min Summer	6.882	0.132	0.1	12.7	0 K
7200 min Summer	6.875	0.125	0.1	12.1	0 K
8640 min Summer	6.870	0.120	0.1	11.6	0 K
10080 min Summer	6.866	0.116	0.1	11.1	0 K
15 min Winter	6.825	0.075	0.1	7.2	0 K
30 min Winter	6.849	0.099	0.1	9.5	0 K
60 min Winter	6.873	0.123	0.1	11.9	0 K
120 min Winter	6.901	0.151	0.1	14.5	0 K
180 min Winter	6.916	0.166	0.1	16.0	0 K
240 min Winter	6.926	0.176	0.1	17.0	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1512
2880 min Summer	1.362	0.0	1912
4320 min Summer	1.021	0.0	2728
5760 min Summer	0.845	0.0	3568
7200 min Summer	0.738	0.0	4328
8640 min Summer	0.666	0.0	5104
10080 min Summer	0.615	0.0	5944
15 min Winter	62.552	0.0	22
30 min Winter	41.172	0.0	37
60 min Winter	26.015	0.0	66
120 min Winter	16.169	0.0	124
180 min Winter	12.093	0.0	182
240 min Winter	9.770	0.0	242

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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.937	0.187	0.1	18.0	0 K
480 min Winter	6.942	0.192	0.1	18.5	0 K
600 min Winter	6.945	0.195	0.1	18.8	0 K
720 min Winter	6.946	0.196	0.1	18.9	0 K
960 min Winter	6.944	0.194	0.1	18.7	0 K
1440 min Winter	6.936	0.186	0.1	18.0	0 K
2160 min Winter	6.927	0.177	0.1	17.0	0 K
2880 min Winter	6.917	0.167	0.1	16.1	0 K
4320 min Winter	6.900	0.150	0.1	14.5	0 K
5760 min Winter	6.885	0.135	0.1	13.0	0 K
7200 min Winter	6.873	0.123	0.1	11.8	0 K
8640 min Winter	6.862	0.112	0.1	10.8	0 K
10080 min Winter	6.853	0.103	0.1	9.9	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	358
480 min Winter	5.684	0.0	474
600 min Winter	4.750	0.0	588
720 min Winter	4.097	0.0	702
960 min Winter	3.241	0.0	922
1440 min Winter	2.334	0.0	1304
2160 min Winter	1.694	0.0	1640
2880 min Winter	1.362	0.0	2100
4320 min Winter	1.021	0.0	2984
5760 min Winter	0.845	0.0	3808
7200 min Winter	0.738	0.0	4616
8640 min Winter	0.666	0.0	5448
10080 min Winter	0.615	0.0	6248

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Gloucester House
66a Church Walk
Burgess Hill RH15 9AS

North End Road, Yapton
11228 PP Zone 4
1 in 10 yr

Date 29/09/2021 08:14

Designed by mroberts

File Zone 4.SRCX

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Micro Drainage

Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	10	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.056

Time (mins)	Area (ha)	Time (mins)	Area (ha)		
From:	To:	From:	To:		
0	4	0.028	4	8	0.028

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 4 1 in 10 yr	
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Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 7.384

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.750	Depression Storage (mm)	0
Max Percolation (l/s)	89.2	Width (m)	14.6	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	22.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 5 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 1389 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.677	0.077	0.1	3.8	0 K
30 min Summer	6.701	0.101	0.1	5.0	0 K
60 min Summer	6.726	0.126	0.1	6.3	0 K
120 min Summer	6.754	0.154	0.1	7.6	0 K
180 min Summer	6.770	0.170	0.1	8.4	0 K
240 min Summer	6.780	0.180	0.1	8.9	0 K
360 min Summer	6.791	0.191	0.1	9.5	0 K
480 min Summer	6.797	0.197	0.1	9.8	0 K
600 min Summer	6.799	0.199	0.1	9.9	0 K
720 min Summer	6.800	0.200	0.1	9.9	0 K
960 min Summer	6.798	0.198	0.1	9.9	0 K
1440 min Summer	6.793	0.193	0.1	9.6	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	23
30 min Summer	41.172	0.0	38
60 min Summer	26.015	0.0	68
120 min Summer	16.169	0.0	126
180 min Summer	12.093	0.0	186
240 min Summer	9.770	0.0	246
360 min Summer	7.145	0.0	366
480 min Summer	5.684	0.0	484
600 min Summer	4.750	0.0	604
720 min Summer	4.097	0.0	724
960 min Summer	3.241	0.0	960
1440 min Summer	2.334	0.0	1190

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 5 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.785	0.185	0.1	9.2	0 K
2880 min Summer	6.779	0.179	0.1	8.9	0 K
4320 min Summer	6.770	0.170	0.1	8.4	0 K
5760 min Summer	6.763	0.163	0.1	8.1	0 K
7200 min Summer	6.757	0.157	0.1	7.8	0 K
8640 min Summer	6.752	0.152	0.1	7.6	0 K
10080 min Summer	6.749	0.149	0.1	7.4	0 K
15 min Winter	6.686	0.086	0.1	4.3	0 K
30 min Winter	6.713	0.113	0.1	5.6	0 K
60 min Winter	6.741	0.141	0.1	7.0	0 K
120 min Winter	6.773	0.173	0.1	8.6	0 K
180 min Winter	6.791	0.191	0.1	9.5	0 K
240 min Winter	6.803	0.203	0.1	10.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1560
2880 min Summer	1.362	0.0	1964
4320 min Summer	1.021	0.0	2808
5760 min Summer	0.845	0.0	3632
7200 min Summer	0.738	0.0	4464
8640 min Summer	0.666	0.0	5264
10080 min Summer	0.615	0.0	6048
15 min Winter	62.552	0.0	23
30 min Winter	41.172	0.0	37
60 min Winter	26.015	0.0	66
120 min Winter	16.169	0.0	126
180 min Winter	12.093	0.0	184
240 min Winter	9.770	0.0	242

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 5 1 in 10 yrs	
Date 29/09/2021 08:18 File Zone 5.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.817	0.217	0.1	10.8	0 K
480 min Winter	6.823	0.223	0.1	11.1	0 K
600 min Winter	6.827	0.227	0.1	11.3	0 K
720 min Winter	6.829	0.229	0.1	11.4	0 K
960 min Winter	6.829	0.229	0.1	11.4	0 K
1440 min Winter	6.823	0.223	0.1	11.1	0 K
2160 min Winter	6.812	0.212	0.1	10.5	0 K
2880 min Winter	6.803	0.203	0.1	10.1	0 K
4320 min Winter	6.787	0.187	0.1	9.3	0 K
5760 min Winter	6.773	0.173	0.1	8.6	0 K
7200 min Winter	6.761	0.161	0.1	8.0	0 K
8640 min Winter	6.750	0.150	0.1	7.5	0 K
10080 min Winter	6.741	0.141	0.1	7.0	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	360
480 min Winter	5.684	0.0	476
600 min Winter	4.750	0.0	592
720 min Winter	4.097	0.0	706
960 min Winter	3.241	0.0	930
1440 min Winter	2.334	0.0	1358
2160 min Winter	1.694	0.0	1688
2880 min Winter	1.362	0.0	2140
4320 min Winter	1.021	0.0	3068
5760 min Winter	0.845	0.0	3920
7200 min Winter	0.738	0.0	4760
8640 min Winter	0.666	0.0	5616
10080 min Winter	0.615	0.0	6448

GTA Civils Ltd		Page 4
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 5 1 in 10 yrs	
Date 29/09/2021 08:18 File Zone 5.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	10	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.033

Time (mins)	Area	Time (mins)	Area
From:	To: (ha)	From:	To: (ha)
0	4 0.009	4	8 0.024

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 5 1 in 10 yrs	
Date 29/09/2021 08:18 File Zone 5.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 7.216

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.600	Depression Storage (mm)	0
Max Percolation (l/s)	46.0	Width (m)	7.2	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	23.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 6 1 in 100 yrs+40%	
Date 28/09/2021 15:24 File Zone 6.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 801 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.064	0.114	0.2	6.8	0 K
30 min Summer	6.099	0.149	0.2	8.8	0 K
60 min Summer	6.135	0.185	0.2	11.0	0 K
120 min Summer	6.173	0.223	0.2	13.2	0 K
180 min Summer	6.193	0.243	0.2	14.4	0 K
240 min Summer	6.205	0.255	0.2	15.1	0 K
360 min Summer	6.215	0.265	0.2	15.7	0 K
480 min Summer	6.216	0.266	0.2	15.8	0 K
600 min Summer	6.213	0.263	0.2	15.6	0 K
720 min Summer	6.209	0.259	0.2	15.3	0 K
960 min Summer	6.200	0.250	0.2	14.8	0 K
1440 min Summer	6.184	0.234	0.2	13.9	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	22
30 min Summer	41.172	0.0	37
60 min Summer	26.015	0.0	66
120 min Summer	16.169	0.0	126
180 min Summer	12.093	0.0	184
240 min Summer	9.770	0.0	244
360 min Summer	7.145	0.0	362
480 min Summer	5.684	0.0	482
600 min Summer	4.750	0.0	594
720 min Summer	4.097	0.0	634
960 min Summer	3.241	0.0	756
1440 min Summer	2.334	0.0	1010

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 6 1 in 100 yrs+40%	
Date 28/09/2021 15:24 File Zone 6.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.163	0.213	0.2	12.6	0 K
2880 min Summer	6.145	0.195	0.2	11.6	0 K
4320 min Summer	6.117	0.167	0.2	9.9	0 K
5760 min Summer	6.096	0.146	0.2	8.6	0 K
7200 min Summer	6.079	0.129	0.2	7.6	0 K
8640 min Summer	6.065	0.115	0.2	6.8	0 K
10080 min Summer	6.054	0.104	0.2	6.1	0 K
15 min Winter	6.078	0.128	0.2	7.6	0 K
30 min Winter	6.117	0.167	0.2	9.9	0 K
60 min Winter	6.158	0.208	0.2	12.3	0 K
120 min Winter	6.202	0.252	0.2	14.9	0 K
180 min Winter	6.226	0.276	0.2	16.3	0 K
240 min Winter	6.240	0.290	0.2	17.2	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1412
2880 min Summer	1.362	0.0	1820
4320 min Summer	1.021	0.0	2600
5760 min Summer	0.845	0.0	3400
7200 min Summer	0.738	0.0	4112
8640 min Summer	0.666	0.0	4848
10080 min Summer	0.615	0.0	5552
15 min Winter	62.552	0.0	22
30 min Winter	41.172	0.0	37
60 min Winter	26.015	0.0	66
120 min Winter	16.169	0.0	124
180 min Winter	12.093	0.0	182
240 min Winter	9.770	0.0	240

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 6 1 in 100 yrs+40%	
Date 28/09/2021 15:24 File Zone 6.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.253	0.303	0.2	18.0	0 K
480 min Winter	6.256	0.306	0.2	18.2	0 K
600 min Winter	6.255	0.305	0.2	18.1	0 K
720 min Winter	6.251	0.301	0.2	17.8	0 K
960 min Winter	6.239	0.289	0.2	17.1	0 K
1440 min Winter	6.218	0.268	0.2	15.9	0 K
2160 min Winter	6.187	0.237	0.2	14.1	0 K
2880 min Winter	6.159	0.209	0.2	12.4	0 K
4320 min Winter	6.114	0.164	0.2	9.7	0 K
5760 min Winter	6.077	0.127	0.2	7.5	0 K
7200 min Winter	6.049	0.099	0.2	5.9	0 K
8640 min Winter	6.027	0.077	0.2	4.6	0 K
10080 min Winter	6.012	0.062	0.2	3.7	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	356
480 min Winter	5.684	0.0	470
600 min Winter	4.750	0.0	580
720 min Winter	4.097	0.0	688
960 min Winter	3.241	0.0	880
1440 min Winter	2.334	0.0	1096
2160 min Winter	1.694	0.0	1540
2880 min Winter	1.362	0.0	1988
4320 min Winter	1.021	0.0	2808
5760 min Winter	0.845	0.0	3568
7200 min Winter	0.738	0.0	4256
8640 min Winter	0.666	0.0	4936
10080 min Winter	0.615	0.0	5552

GTA Civils Ltd		Page 4
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 6 1 in 100 yrs+40%	
Date 28/09/2021 15:24 File Zone 6.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.059

Time (mins)		Area		Time (mins)		Area	
From:	To:	(ha)		From:	To:	(ha)	
0	4	0.029		4	8	0.030	

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 6 1 in 100 yrs+40%	
Date 28/09/2021 15:24 File Zone 6.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 6.827

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00700	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.950	Depression Storage (mm)	0
Max Percolation (l/s)	54.9	Width (m)	7.9	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	25.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 7 1 in 10yr	
Date 28/09/2021 14:08 File Zone 7.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 1430 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.179	0.079	0.1	6.8	0 K
30 min Summer	6.204	0.104	0.1	8.9	0 K
60 min Summer	6.230	0.130	0.1	11.2	0 K
120 min Summer	6.259	0.159	0.1	13.7	0 K
180 min Summer	6.276	0.176	0.1	15.1	0 K
240 min Summer	6.286	0.186	0.1	16.0	0 K
360 min Summer	6.298	0.198	0.1	17.0	0 K
480 min Summer	6.304	0.204	0.1	17.5	0 K
600 min Summer	6.307	0.207	0.1	17.8	0 K
720 min Summer	6.308	0.208	0.1	17.9	0 K
960 min Summer	6.307	0.207	0.1	17.8	0 K
1440 min Summer	6.300	0.200	0.1	17.2	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	23
30 min Summer	41.172	0.0	37
60 min Summer	26.015	0.0	68
120 min Summer	16.169	0.0	126
180 min Summer	12.093	0.0	186
240 min Summer	9.770	0.0	246
360 min Summer	7.145	0.0	364
480 min Summer	5.684	0.0	484
600 min Summer	4.750	0.0	602
720 min Summer	4.097	0.0	722
960 min Summer	3.241	0.0	960
1440 min Summer	2.334	0.0	1212

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 7 1 in 10yr	
Date 28/09/2021 14:08 File Zone 7.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.293	0.193	0.1	16.6	0 K
2880 min Summer	6.287	0.187	0.1	16.1	0 K
4320 min Summer	6.278	0.178	0.1	15.3	0 K
5760 min Summer	6.271	0.171	0.1	14.7	0 K
7200 min Summer	6.265	0.165	0.1	14.2	0 K
8640 min Summer	6.261	0.161	0.1	13.9	0 K
10080 min Summer	6.258	0.158	0.1	13.6	0 K
15 min Winter	6.189	0.089	0.1	7.6	0 K
30 min Winter	6.217	0.117	0.1	10.0	0 K
60 min Winter	6.246	0.146	0.1	12.6	0 K
120 min Winter	6.279	0.179	0.1	15.4	0 K
180 min Winter	6.298	0.198	0.1	17.0	0 K
240 min Winter	6.310	0.210	0.1	18.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1580
2880 min Summer	1.362	0.0	1988
4320 min Summer	1.021	0.0	2812
5760 min Summer	0.845	0.0	3632
7200 min Summer	0.738	0.0	4464
8640 min Summer	0.666	0.0	5272
10080 min Summer	0.615	0.0	6056
15 min Winter	62.552	0.0	23
30 min Winter	41.172	0.0	37
60 min Winter	26.015	0.0	66
120 min Winter	16.169	0.0	124
180 min Winter	12.093	0.0	184
240 min Winter	9.770	0.0	242

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 7 1 in 10yr	
Date 28/09/2021 14:08 File Zone 7.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.324	0.224	0.1	19.3	0 K
480 min Winter	6.332	0.232	0.1	19.9	0 K
600 min Winter	6.335	0.235	0.1	20.3	0 K
720 min Winter	6.337	0.237	0.1	20.4	0 K
960 min Winter	6.338	0.238	0.1	20.5	0 K
1440 min Winter	6.332	0.232	0.1	20.0	0 K
2160 min Winter	6.321	0.221	0.1	19.0	0 K
2880 min Winter	6.313	0.213	0.1	18.3	0 K
4320 min Winter	6.297	0.197	0.1	16.9	0 K
5760 min Winter	6.283	0.183	0.1	15.7	0 K
7200 min Winter	6.271	0.171	0.1	14.7	0 K
8640 min Winter	6.261	0.161	0.1	13.8	0 K
10080 min Winter	6.252	0.152	0.1	13.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	358
480 min Winter	5.684	0.0	476
600 min Winter	4.750	0.0	590
720 min Winter	4.097	0.0	706
960 min Winter	3.241	0.0	932
1440 min Winter	2.334	0.0	1360
2160 min Winter	1.694	0.0	1692
2880 min Winter	1.362	0.0	2164
4320 min Winter	1.021	0.0	3072
5760 min Winter	0.845	0.0	3968
7200 min Winter	0.738	0.0	4824
8640 min Winter	0.666	0.0	5624
10080 min Winter	0.615	0.0	6456

GTA Civils Ltd		Page 4
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 7 1 in 10yr	
Date 28/09/2021 14:08 File Zone 7.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	10	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.059

Time (mins)	Area	Time (mins)	Area
From:	To: (ha)	From:	To: (ha)
0	4 0.029	4	8 0.030

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 7 1 in 10yr	
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Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 6.950

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.100	Depression Storage (mm)	0
Max Percolation (l/s)	79.6	Width (m)	6.1	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	47.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 8 1 in 10 yrs	
Date 28/09/2021 17:38 File Zone 8.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 1437 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.479	0.079	0.1	4.9	0 K
30 min Summer	6.504	0.104	0.1	6.4	0 K
60 min Summer	6.530	0.130	0.1	8.0	0 K
120 min Summer	6.559	0.159	0.1	9.7	0 K
180 min Summer	6.576	0.176	0.1	10.7	0 K
240 min Summer	6.586	0.186	0.1	11.4	0 K
360 min Summer	6.598	0.198	0.1	12.1	0 K
480 min Summer	6.604	0.204	0.1	12.5	0 K
600 min Summer	6.607	0.207	0.1	12.7	0 K
720 min Summer	6.608	0.208	0.1	12.7	0 K
960 min Summer	6.607	0.207	0.1	12.6	0 K
1440 min Summer	6.601	0.201	0.1	12.3	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	23
30 min Summer	41.172	0.0	37
60 min Summer	26.015	0.0	68
120 min Summer	16.169	0.0	126
180 min Summer	12.093	0.0	186
240 min Summer	9.770	0.0	246
360 min Summer	7.145	0.0	364
480 min Summer	5.684	0.0	484
600 min Summer	4.750	0.0	602
720 min Summer	4.097	0.0	722
960 min Summer	3.241	0.0	960
1440 min Summer	2.334	0.0	1212

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 8 1 in 10 yrs	
Date 28/09/2021 17:38 File Zone 8.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.593	0.193	0.1	11.8	0 K
2880 min Summer	6.587	0.187	0.1	11.5	0 K
4320 min Summer	6.578	0.178	0.1	10.9	0 K
5760 min Summer	6.571	0.171	0.1	10.5	0 K
7200 min Summer	6.566	0.166	0.1	10.1	0 K
8640 min Summer	6.561	0.161	0.1	9.9	0 K
10080 min Summer	6.558	0.158	0.1	9.7	0 K
15 min Winter	6.489	0.089	0.1	5.4	0 K
30 min Winter	6.517	0.117	0.1	7.1	0 K
60 min Winter	6.546	0.146	0.1	8.9	0 K
120 min Winter	6.579	0.179	0.1	10.9	0 K
180 min Winter	6.598	0.198	0.1	12.1	0 K
240 min Winter	6.610	0.210	0.1	12.9	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1580
2880 min Summer	1.362	0.0	1988
4320 min Summer	1.021	0.0	2812
5760 min Summer	0.845	0.0	3632
7200 min Summer	0.738	0.0	4464
8640 min Summer	0.666	0.0	5272
10080 min Summer	0.615	0.0	6056
15 min Winter	62.552	0.0	23
30 min Winter	41.172	0.0	37
60 min Winter	26.015	0.0	66
120 min Winter	16.169	0.0	124
180 min Winter	12.093	0.0	184
240 min Winter	9.770	0.0	242

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 8 1 in 10 yrs	
Date 28/09/2021 17:38 File Zone 8.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.624	0.224	0.1	13.7	0 K
480 min Winter	6.632	0.232	0.1	14.2	0 K
600 min Winter	6.636	0.236	0.1	14.4	0 K
720 min Winter	6.638	0.238	0.1	14.5	0 K
960 min Winter	6.638	0.238	0.1	14.6	0 K
1440 min Winter	6.632	0.232	0.1	14.2	0 K
2160 min Winter	6.622	0.222	0.1	13.6	0 K
2880 min Winter	6.613	0.213	0.1	13.0	0 K
4320 min Winter	6.597	0.197	0.1	12.1	0 K
5760 min Winter	6.583	0.183	0.1	11.2	0 K
7200 min Winter	6.571	0.171	0.1	10.5	0 K
8640 min Winter	6.561	0.161	0.1	9.9	0 K
10080 min Winter	6.552	0.152	0.1	9.3	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	358
480 min Winter	5.684	0.0	476
600 min Winter	4.750	0.0	590
720 min Winter	4.097	0.0	706
960 min Winter	3.241	0.0	932
1440 min Winter	2.334	0.0	1360
2160 min Winter	1.694	0.0	1692
2880 min Winter	1.362	0.0	2164
4320 min Winter	1.021	0.0	3072
5760 min Winter	0.845	0.0	3968
7200 min Winter	0.738	0.0	4824
8640 min Winter	0.666	0.0	5624
10080 min Winter	0.615	0.0	6456

GTA Civils Ltd		Page 4
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 8 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.042

Time (mins)		Area		Time (mins)		Area	
From:	To:	(ha)		From:	To:	(ha)	
0	4	0.021		4	8	0.021	

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 8 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 7.139

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.400	Depression Storage (mm)	0
Max Percolation (l/s)	56.7	Width (m)	20.0	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	10.2	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 9 1 in 100 yrs+40%	
Date 28/09/2021 16:52 File Zone 9.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 1429 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.267	0.067	0.1	7.0	0 K
30 min Summer	6.293	0.093	0.1	9.7	0 K
60 min Summer	6.321	0.121	0.1	12.6	0 K
120 min Summer	6.351	0.151	0.1	15.8	0 K
180 min Summer	6.369	0.169	0.1	17.6	0 K
240 min Summer	6.380	0.180	0.1	18.8	0 K
360 min Summer	6.393	0.193	0.1	20.2	0 K
480 min Summer	6.400	0.200	0.1	20.9	0 K
600 min Summer	6.403	0.203	0.1	21.2	0 K
720 min Summer	6.404	0.204	0.1	21.3	0 K
960 min Summer	6.404	0.204	0.1	21.3	0 K
1440 min Summer	6.399	0.199	0.1	20.8	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	26
30 min Summer	41.172	0.0	41
60 min Summer	26.015	0.0	70
120 min Summer	16.169	0.0	130
180 min Summer	12.093	0.0	188
240 min Summer	9.770	0.0	248
360 min Summer	7.145	0.0	366
480 min Summer	5.684	0.0	486
600 min Summer	4.750	0.0	604
720 min Summer	4.097	0.0	722
960 min Summer	3.241	0.0	960
1440 min Summer	2.334	0.0	1196

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 9 1 in 100 yrs+40%	
Date 28/09/2021 16:52 File Zone 9.SRCX	Designed by mroberts Checked by	
Micro Drainage	Source Control 2020.1	

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.393	0.193	0.1	20.2	0 K
2880 min Summer	6.388	0.188	0.1	19.6	0 K
4320 min Summer	6.379	0.179	0.1	18.7	0 K
5760 min Summer	6.372	0.172	0.1	17.9	0 K
7200 min Summer	6.366	0.166	0.1	17.3	0 K
8640 min Summer	6.361	0.161	0.1	16.8	0 K
10080 min Summer	6.357	0.157	0.1	16.4	0 K
15 min Winter	6.278	0.078	0.1	8.1	0 K
30 min Winter	6.306	0.106	0.1	11.1	0 K
60 min Winter	6.337	0.137	0.1	14.4	0 K
120 min Winter	6.372	0.172	0.1	18.0	0 K
180 min Winter	6.392	0.192	0.1	20.1	0 K
240 min Winter	6.405	0.205	0.1	21.4	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1564
2880 min Summer	1.362	0.0	1968
4320 min Summer	1.021	0.0	2808
5760 min Summer	0.845	0.0	3632
7200 min Summer	0.738	0.0	4464
8640 min Summer	0.666	0.0	5272
10080 min Summer	0.615	0.0	6056
15 min Winter	62.552	0.0	26
30 min Winter	41.172	0.0	41
60 min Winter	26.015	0.0	70
120 min Winter	16.169	0.0	128
180 min Winter	12.093	0.0	186
240 min Winter	9.770	0.0	244

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 9 1 in 100 yrs+40%	
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Micro Drainage	Source Control 2020.1	

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.420	0.220	0.1	23.0	0 K
480 min Winter	6.428	0.228	0.1	23.8	0 K
600 min Winter	6.433	0.233	0.1	24.3	0 K
720 min Winter	6.435	0.235	0.1	24.5	0 K
960 min Winter	6.436	0.236	0.1	24.6	0 K
1440 min Winter	6.431	0.231	0.1	24.1	0 K
2160 min Winter	6.421	0.221	0.1	23.1	0 K
2880 min Winter	6.413	0.213	0.1	22.2	0 K
4320 min Winter	6.397	0.197	0.1	20.6	0 K
5760 min Winter	6.383	0.183	0.1	19.1	0 K
7200 min Winter	6.370	0.170	0.1	17.8	0 K
8640 min Winter	6.359	0.159	0.1	16.6	0 K
10080 min Winter	6.349	0.149	0.1	15.6	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	360
480 min Winter	5.684	0.0	476
600 min Winter	4.750	0.0	592
720 min Winter	4.097	0.0	706
960 min Winter	3.241	0.0	932
1440 min Winter	2.334	0.0	1358
2160 min Winter	1.694	0.0	1688
2880 min Winter	1.362	0.0	2140
4320 min Winter	1.021	0.0	3068
5760 min Winter	0.845	0.0	3928
7200 min Winter	0.738	0.0	4768
8640 min Winter	0.666	0.0	5624
10080 min Winter	0.615	0.0	6456

GTA Civils Ltd		Page 4
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 9 1 in 100 yrs+40%	
Date 28/09/2021 16:52 File Zone 9.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.075

Time (mins) Area			Time (mins) Area			Time (mins) Area		
From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)
0	4	0.025	4	8	0.025	8	12	0.025

GTA Civils Ltd		Page 5
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 9 1 in 100 yrs+40%	
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Micro Drainage	Source Control 2020.1	

Model Details

Storage is Online Cover Level (m) 6.952

Complex Structure

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.200	Depression Storage (mm)	5
Max Percolation (l/s)	89.8	Width (m)	6.3	Evaporation (mm/day)	3
Safety Factor	2.0	Length (m)	51.3	Membrane Depth (m)	0

Infiltration Blanket

Infiltration Coefficient Base (m/hr)	0.00300	Invert Level (m)	6.200	Cap Volume Depth (m)	0.000
Safety Factor	2.0	Diameter/Width (m)	5.0		
Porosity	0.30	Length (m)	5.0		

GTA Civils Ltd		Page 1
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 10 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 1387 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.377	0.077	0.1	3.7	0 K
30 min Summer	6.401	0.101	0.1	4.8	0 K
60 min Summer	6.426	0.126	0.1	6.1	0 K
120 min Summer	6.454	0.154	0.1	7.4	0 K
180 min Summer	6.470	0.170	0.1	8.2	0 K
240 min Summer	6.481	0.181	0.1	8.7	0 K
360 min Summer	6.492	0.192	0.1	9.2	0 K
480 min Summer	6.498	0.198	0.1	9.5	0 K
600 min Summer	6.500	0.200	0.1	9.6	0 K
720 min Summer	6.501	0.201	0.1	9.6	0 K
960 min Summer	6.499	0.199	0.1	9.6	0 K
1440 min Summer	6.493	0.193	0.1	9.3	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	23
30 min Summer	41.172	0.0	37
60 min Summer	26.015	0.0	68
120 min Summer	16.169	0.0	126
180 min Summer	12.093	0.0	186
240 min Summer	9.770	0.0	246
360 min Summer	7.145	0.0	364
480 min Summer	5.684	0.0	484
600 min Summer	4.750	0.0	602
720 min Summer	4.097	0.0	722
960 min Summer	3.241	0.0	960
1440 min Summer	2.334	0.0	1196

GTA Civils Ltd		Page 2
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 10 1 in 10 yrs	
Date 29/09/2021 08:28 File Zone 10.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	6.486	0.186	0.1	8.9	0 K
2880 min Summer	6.480	0.180	0.1	8.6	0 K
4320 min Summer	6.471	0.171	0.1	8.2	0 K
5760 min Summer	6.463	0.163	0.1	7.8	0 K
7200 min Summer	6.458	0.158	0.1	7.6	0 K
8640 min Summer	6.453	0.153	0.1	7.4	0 K
10080 min Summer	6.450	0.150	0.1	7.2	0 K
15 min Winter	6.386	0.086	0.1	4.1	0 K
30 min Winter	6.413	0.113	0.1	5.4	0 K
60 min Winter	6.442	0.142	0.1	6.8	0 K
120 min Winter	6.474	0.174	0.1	8.3	0 K
180 min Winter	6.492	0.192	0.1	9.2	0 K
240 min Winter	6.504	0.204	0.1	9.8	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1560
2880 min Summer	1.362	0.0	1964
4320 min Summer	1.021	0.0	2808
5760 min Summer	0.845	0.0	3632
7200 min Summer	0.738	0.0	4464
8640 min Summer	0.666	0.0	5272
10080 min Summer	0.615	0.0	6048
15 min Winter	62.552	0.0	23
30 min Winter	41.172	0.0	37
60 min Winter	26.015	0.0	66
120 min Winter	16.169	0.0	124
180 min Winter	12.093	0.0	184
240 min Winter	9.770	0.0	242

GTA Civils Ltd		Page 3
Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 10 1 in 10 yrs	
Date 29/09/2021 08:28 File Zone 10.SRCX	Designed by mroberts Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.517	0.217	0.1	10.4	0 K
480 min Winter	6.524	0.224	0.1	10.8	0 K
600 min Winter	6.528	0.228	0.1	10.9	0 K
720 min Winter	6.530	0.230	0.1	11.0	0 K
960 min Winter	6.530	0.230	0.1	11.0	0 K
1440 min Winter	6.524	0.224	0.1	10.7	0 K
2160 min Winter	6.513	0.213	0.1	10.2	0 K
2880 min Winter	6.504	0.204	0.1	9.8	0 K
4320 min Winter	6.488	0.188	0.1	9.0	0 K
5760 min Winter	6.474	0.174	0.1	8.3	0 K
7200 min Winter	6.462	0.162	0.1	7.8	0 K
8640 min Winter	6.451	0.151	0.1	7.3	0 K
10080 min Winter	6.442	0.142	0.1	6.8	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	358
480 min Winter	5.684	0.0	476
600 min Winter	4.750	0.0	590
720 min Winter	4.097	0.0	704
960 min Winter	3.241	0.0	930
1440 min Winter	2.334	0.0	1356
2160 min Winter	1.694	0.0	1688
2880 min Winter	1.362	0.0	2140
4320 min Winter	1.021	0.0	3068
5760 min Winter	0.845	0.0	3920
7200 min Winter	0.738	0.0	4760
8640 min Winter	0.666	0.0	5616
10080 min Winter	0.615	0.0	6456

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 10 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	10	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.032

Time (mins)	Area	Time (mins)	Area
From:	To: (ha)	From:	To: (ha)
0	4 0.015	4	8 0.017

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Gloucester House 66a Church Walk Burgess Hill RH15 9AS	North End Road, Yapton 11228 PP Zone 10 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 7.050

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.300	Depression Storage (mm)	0
Max Percolation (l/s)	44.4	Width (m)	10.0	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	16.0	Membrane Depth (m)	0

GTA Civils Ltd		Page 1
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 11 1 in 10 yrs	
Date 27/09/2021 16:58 File Zone 11.SRCX	Designed by MROBERTS Checked by	
Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 666 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	4.691	0.041	0.0	1.2	0 K
30 min Summer	4.704	0.054	0.0	1.5	0 K
60 min Summer	4.717	0.067	0.0	1.9	0 K
120 min Summer	4.731	0.081	0.0	2.3	0 K
180 min Summer	4.738	0.088	0.0	2.5	0 K
240 min Summer	4.742	0.092	0.0	2.6	0 K
360 min Summer	4.746	0.096	0.0	2.7	0 K
480 min Summer	4.746	0.096	0.0	2.7	0 K
600 min Summer	4.746	0.096	0.0	2.7	0 K
720 min Summer	4.745	0.095	0.0	2.6	0 K
960 min Summer	4.743	0.093	0.0	2.6	0 K
1440 min Summer	4.739	0.089	0.0	2.5	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	19
30 min Summer	41.172	0.0	33
60 min Summer	26.015	0.0	64
120 min Summer	16.169	0.0	122
180 min Summer	12.093	0.0	182
240 min Summer	9.770	0.0	242
360 min Summer	7.145	0.0	360
480 min Summer	5.684	0.0	476
600 min Summer	4.750	0.0	520
720 min Summer	4.097	0.0	578
960 min Summer	3.241	0.0	702
1440 min Summer	2.334	0.0	968

GTA Civils Ltd

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66a Church Walk

North End Road, Yapton

Burgess Hill

11228 PP Zone 11

West Sussex RH15 9AS

1 in 10 yrs

Date 27/09/2021 16:58

Designed by MROBERTS

File Zone 11.SRCX

Checked by



Micro Drainage

Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
2160 min Summer	4.732	0.082	0.0	2.3	0 K
2880 min Summer	4.727	0.077	0.0	2.1	0 K
4320 min Summer	4.718	0.068	0.0	1.9	0 K
5760 min Summer	4.711	0.061	0.0	1.7	0 K
7200 min Summer	4.706	0.056	0.0	1.6	0 K
8640 min Summer	4.702	0.052	0.0	1.5	0 K
10080 min Summer	4.700	0.050	0.0	1.4	0 K
15 min Winter	4.696	0.046	0.0	1.3	0 K
30 min Winter	4.710	0.060	0.0	1.7	0 K
60 min Winter	4.725	0.075	0.0	2.1	0 K
120 min Winter	4.741	0.091	0.0	2.5	0 K
180 min Winter	4.749	0.099	0.0	2.8	0 K
240 min Winter	4.755	0.105	0.0	2.9	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1380
2880 min Summer	1.362	0.0	1764
4320 min Summer	1.021	0.0	2548
5760 min Summer	0.845	0.0	3288
7200 min Summer	0.738	0.0	3968
8640 min Summer	0.666	0.0	4672
10080 min Summer	0.615	0.0	5352
15 min Winter	62.552	0.0	19
30 min Winter	41.172	0.0	33
60 min Winter	26.015	0.0	62
120 min Winter	16.169	0.0	120
180 min Winter	12.093	0.0	180
240 min Winter	9.770	0.0	238

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 11 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	4.759	0.109	0.0	3.0	0 K
480 min Winter	4.760	0.110	0.0	3.1	0 K
600 min Winter	4.760	0.110	0.0	3.1	0 K
720 min Winter	4.758	0.108	0.0	3.0	0 K
960 min Winter	4.755	0.105	0.0	2.9	0 K
1440 min Winter	4.749	0.099	0.0	2.8	0 K
2160 min Winter	4.739	0.089	0.0	2.5	0 K
2880 min Winter	4.730	0.080	0.0	2.2	0 K
4320 min Winter	4.715	0.065	0.0	1.8	0 K
5760 min Winter	4.704	0.054	0.0	1.5	0 K
7200 min Winter	4.699	0.049	0.0	1.4	0 K
8640 min Winter	4.695	0.045	0.0	1.3	0 K
10080 min Winter	4.693	0.043	0.0	1.2	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	352
480 min Winter	5.684	0.0	464
600 min Winter	4.750	0.0	572
720 min Winter	4.097	0.0	672
960 min Winter	3.241	0.0	752
1440 min Winter	2.334	0.0	1054
2160 min Winter	1.694	0.0	1492
2880 min Winter	1.362	0.0	1904
4320 min Winter	1.021	0.0	2680
5760 min Winter	0.845	0.0	3392
7200 min Winter	0.738	0.0	4040
8640 min Winter	0.666	0.0	4760
10080 min Winter	0.615	0.0	5544

GTA Civils Ltd		Page 4
66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 11 1 in 10 yrs	
Date 27/09/2021 16:58 File Zone 11.SRCX	Designed by MROBERTS Checked by	
Micro Drainage	Source Control 2020.1	

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	10	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.010

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

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 11 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 5.350

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	4.650	Depression Storage (mm)	0
Max Percolation (l/s)	25.8	Width (m)	6.0	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	15.5	Membrane Depth (m)	0

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 12 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 717 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	6.144	0.044	0.1	2.3	O K
30 min Summer	6.157	0.057	0.1	3.0	O K
60 min Summer	6.171	0.071	0.1	3.7	O K
120 min Summer	6.186	0.086	0.1	4.5	O K
180 min Summer	6.193	0.093	0.1	4.9	O K
240 min Summer	6.198	0.098	0.1	5.2	O K
360 min Summer	6.202	0.102	0.1	5.4	O K
480 min Summer	6.203	0.103	0.1	5.4	O K
600 min Summer	6.202	0.102	0.1	5.4	O K
720 min Summer	6.201	0.101	0.1	5.4	O K
960 min Summer	6.199	0.099	0.1	5.3	O K
1440 min Summer	6.195	0.095	0.1	5.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	19
30 min Summer	41.172	0.0	33
60 min Summer	26.015	0.0	64
120 min Summer	16.169	0.0	122
180 min Summer	12.093	0.0	182
240 min Summer	9.770	0.0	242
360 min Summer	7.145	0.0	360
480 min Summer	5.684	0.0	480
600 min Summer	4.750	0.0	538
720 min Summer	4.097	0.0	596
960 min Summer	3.241	0.0	714
1440 min Summer	2.334	0.0	980

GTA Civils Ltd				Page 2																																																																																																																																													
66a Church Walk Burgess Hill West Sussex RH15 9AS		North End Road, Yapton 11228 PP Zone 12 1 in 10 yrs																																																																																																																																															
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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	6.216	0.116	0.1	6.1	O K
480 min Winter	6.218	0.118	0.1	6.2	O K
600 min Winter	6.218	0.118	0.1	6.2	O K
720 min Winter	6.216	0.116	0.1	6.1	O K
960 min Winter	6.213	0.113	0.1	6.0	O K
1440 min Winter	6.207	0.107	0.1	5.6	O K
2160 min Winter	6.196	0.096	0.1	5.1	O K
2880 min Winter	6.187	0.087	0.1	4.6	O K
4320 min Winter	6.171	0.071	0.1	3.8	O K
5760 min Winter	6.160	0.060	0.1	3.1	O K
7200 min Winter	6.152	0.052	0.1	2.7	O K
8640 min Winter	6.148	0.048	0.1	2.5	O K
10080 min Winter	6.145	0.045	0.1	2.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	352
480 min Winter	5.684	0.0	464
600 min Winter	4.750	0.0	574
720 min Winter	4.097	0.0	678
960 min Winter	3.241	0.0	768
1440 min Winter	2.334	0.0	1068
2160 min Winter	1.694	0.0	1512
2880 min Winter	1.362	0.0	1932
4320 min Winter	1.021	0.0	2724
5760 min Winter	0.845	0.0	3456
7200 min Winter	0.738	0.0	4104
8640 min Winter	0.666	0.0	4760
10080 min Winter	0.615	0.0	5544

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 12 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 497736 103464 SU 97736 03464	Shortest Storm (mins)	15
Data Type	Point	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.020

Time (mins)	Area
From:	To: (ha)
0	4 0.020

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 12 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Model Details

Storage is Online Cover Level (m) 6.683

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0
Membrane Percolation (mm/hr)	1000	Invert Level (m)	6.100	Depression Storage (mm)	0
Max Percolation (l/s)	48.9	Width (m)	5.5	Evaporation (mm/day)	0
Safety Factor	2.0	Length (m)	32.0	Membrane Depth (m)	0

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 13 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Half Drain Time : 618 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	5.652	0.038	0.0	1.0	O K
30 min Summer	5.664	0.050	0.0	1.4	O K
60 min Summer	5.676	0.062	0.0	1.7	O K
120 min Summer	5.689	0.075	0.0	2.0	O K
180 min Summer	5.695	0.081	0.0	2.2	O K
240 min Summer	5.699	0.085	0.0	2.3	O K
360 min Summer	5.702	0.088	0.0	2.4	O K
480 min Summer	5.702	0.088	0.0	2.4	O K
600 min Summer	5.702	0.088	0.0	2.4	O K
720 min Summer	5.701	0.087	0.0	2.3	O K
960 min Summer	5.699	0.085	0.0	2.3	O K
1440 min Summer	5.695	0.081	0.0	2.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	62.552	0.0	19
30 min Summer	41.172	0.0	33
60 min Summer	26.015	0.0	64
120 min Summer	16.169	0.0	122
180 min Summer	12.093	0.0	182
240 min Summer	9.770	0.0	242
360 min Summer	7.145	0.0	360
480 min Summer	5.684	0.0	450
600 min Summer	4.750	0.0	502
720 min Summer	4.097	0.0	562
960 min Summer	3.241	0.0	684
1440 min Summer	2.334	0.0	954

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 13 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
2160 min Summer	5.689	0.075	0.0	2.0	O K
2880 min Summer	5.683	0.069	0.0	1.9	O K
4320 min Summer	5.675	0.061	0.0	1.6	O K
5760 min Summer	5.669	0.055	0.0	1.5	O K
7200 min Summer	5.665	0.051	0.0	1.4	O K
8640 min Summer	5.662	0.048	0.0	1.3	O K
10080 min Summer	5.660	0.046	0.0	1.2	O K
15 min Winter	5.657	0.043	0.0	1.2	O K
30 min Winter	5.670	0.056	0.0	1.5	O K
60 min Winter	5.684	0.070	0.0	1.9	O K
120 min Winter	5.698	0.084	0.0	2.3	O K
180 min Winter	5.706	0.092	0.0	2.5	O K
240 min Winter	5.711	0.097	0.0	2.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
2160 min Summer	1.694	0.0	1360
2880 min Summer	1.362	0.0	1756
4320 min Summer	1.021	0.0	2508
5760 min Summer	0.845	0.0	3232
7200 min Summer	0.738	0.0	3960
8640 min Summer	0.666	0.0	4664
10080 min Summer	0.615	0.0	5352
15 min Winter	62.552	0.0	19
30 min Winter	41.172	0.0	33
60 min Winter	26.015	0.0	62
120 min Winter	16.169	0.0	120
180 min Winter	12.093	0.0	178
240 min Winter	9.770	0.0	236

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66a Church Walk Burgess Hill West Sussex RH15 9AS	North End Road, Yapton 11228 PP Zone 13 1 in 10 yrs	
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Micro Drainage		Source Control 2020.1

Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
360 min Winter	5.714	0.100	0.0	2.7	O K
480 min Winter	5.715	0.101	0.0	2.7	O K
600 min Winter	5.715	0.101	0.0	2.7	O K
720 min Winter	5.713	0.099	0.0	2.7	O K
960 min Winter	5.710	0.096	0.0	2.6	O K
1440 min Winter	5.704	0.090	0.0	2.4	O K
2160 min Winter	5.694	0.080	0.0	2.2	O K
2880 min Winter	5.685	0.071	0.0	1.9	O K
4320 min Winter	5.672	0.058	0.0	1.6	O K
5760 min Winter	5.663	0.049	0.0	1.3	O K
7200 min Winter	5.659	0.045	0.0	1.2	O K
8640 min Winter	5.656	0.042	0.0	1.1	O K
10080 min Winter	5.654	0.040	0.0	1.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
360 min Winter	7.145	0.0	350
480 min Winter	5.684	0.0	462
600 min Winter	4.750	0.0	566
720 min Winter	4.097	0.0	656
960 min Winter	3.241	0.0	742
1440 min Winter	2.334	0.0	1040
2160 min Winter	1.694	0.0	1472
2880 min Winter	1.362	0.0	1876
4320 min Winter	1.021	0.0	2636
5760 min Winter	0.845	0.0	3296
7200 min Winter	0.738	0.0	4040
8640 min Winter	0.666	0.0	4760
10080 min Winter	0.615	0.0	5544

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66a Church Walk	North End Road, Yapton	
Burgess Hill	11228 PP Zone 13	
West Sussex RH15 9AS	1 in 10 yrs	
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File Zone 13.SRCX	Checked by	
Micro Drainage	Source Control 2020.1	

Rainfall Details

Rainfall Model	FEH	Data Type	Point	Cv (Winter)	0.840
Return Period (years)	10	Summer Storms	Yes	Shortest Storm (mins)	15
FEH Rainfall Version	2013	Winter Storms	Yes	Longest Storm (mins)	10080
Site Location	GB 497736 103464 SU 97736 03464	Cv (Summer)	0.750	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.009

Time (mins)	Area
From: To:	(ha)
0	4 0.009

GTA Civils Ltd		Page 5																								
66a Church Walk	North End Road, Yapton																									
Burgess Hill	11228 PP Zone 13																									
West Sussex RH15 9AS	1 in 10 yrs																									
Date 23/09/2021 15:44	Designed by AElsir																									
File Zone 13.SRCX	Checked by																									
Micro Drainage		Source Control 2020.1																								
<u>Model Details</u> Storage is Online Cover Level (m) 6.314 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00300</td> <td>Porosity</td> <td>0.30</td> <td>Slope (1:X)</td> <td>0.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Invert Level (m)</td> <td>5.614</td> <td>Depression Storage (mm)</td> <td>0</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>25.0</td> <td>Width (m)</td> <td>6.0</td> <td>Evaporation (mm/day)</td> <td>0</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> <td>Length (m)</td> <td>15.0</td> <td>Membrane Depth (m)</td> <td>0</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0	Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.614	Depression Storage (mm)	0	Max Percolation (l/s)	25.0	Width (m)	6.0	Evaporation (mm/day)	0	Safety Factor	2.0	Length (m)	15.0	Membrane Depth (m)	0
Infiltration Coefficient Base (m/hr)	0.00300	Porosity	0.30	Slope (1:X)	0.0																					
Membrane Percolation (mm/hr)	1000	Invert Level (m)	5.614	Depression Storage (mm)	0																					
Max Percolation (l/s)	25.0	Width (m)	6.0	Evaporation (mm/day)	0																					
Safety Factor	2.0	Length (m)	15.0	Membrane Depth (m)	0																					
©1982-2020 Innovyze																										

Appendix E

Soil Soakage Test Report & Summary Sheet

Date	Location	Test number	Infiltration rate (x10 ⁻⁶ m/sec)	
			Average	BRE 365
January 2020	SA1A	1	0.86	~
	SA2A	1	1.7	~
	SA3A	1	0.92	~
	SA4A	1	0.55	~
	SA5A	1	0.76	~
October 2020	SA102	1	1.6	~
		2	1.6	1.4
		3	3.8	~
	SA103	1	2.0	1.7
		2	2.0	4.0
		3	7.1	6.7
	SA105	1	0.7	~
		2	0.52	~
		3	0.29	~
	SA106	1	1.2	~
		2	1.0	~
		3	0.98	~
October 2021	SA201	1	3.4	2.4
		2	1.0	~
		3	1.2	1.2
	SA202	1	19	16
		2	6.4	5.5
		3	4.9	3.9
	SA203	1	12	10
		2	5.5	3.6
		3	4.8	4.0
	SA204	1	11	8.8
		2	6.9	6.2
		3	6.2	5.6

Mike Dodds
Redrow Homes Ltd
Unit 1, Faraday Office Park
Basingstoke
Hampshire
RG24 8QQ

CAT/RAN/44005-008

Issue 2

4 November 2021

Dear Mike,

North End Road, Yapton – Report on Infiltration Testing and Groundwater Monitoring

Site Description

The site is located on the north west side of North End Road in Yapton, around 6 km to the north east of Bognor Regis in West Sussex. It has an area of around 1.8 hectares and is approximately rectangular. Stables are currently located in the eastern section of the site, whilst the remainder comprises a horse paddock. The site is relatively level, although the eastern section, occupied by the stables, slopes gently down towards the south east.

Previous Investigations

A 'Phase I Desk Study, Site Reconnaissance & Phase II Site Investigation Report' ref LP1841, dated 6 February 2019, has previously been completed for the site by Leap Environmental Ltd. A summary of relevant information from this report is provided below.

Ground Conditions

The surface covering typically comprises topsoil, around 0.2 to 0.3 m thick. Granular made ground was locally encountered at the surface in the area of the stables to a depth of around 0.4 m. Superficial River Terrace Deposits, generally comprising firm to stiff silty sandy clay, were encountered below the surface covering to depths of between 1 and 3 m, occasionally transitioning to clayey sand with increased depth. Weathered chalk was encountered from around 2.25 m below ground level (bgl).

Groundwater was not encountered during excavation of any of the trial pits.

Infiltration Testing

Infiltration tests were carried out in two of the trial pits with one test being completed at each location. The water was left to drain for between 3.5 and 5 hours. Infiltration rates of between

Directors: P Richardson BSc CEng MICE FStructE S R Ellis BEng CEng MStructE MICE C A Topliss BSc CEng CSci CGeol SiLC MICE FGS
S J English BEng CEng MStructE A R Priest BEng A G Marshall BEng CEng MStructE
Technical Directors: A Allison BEng M P Chappell BEng IEng AMStructE K Edwards MSc CGeol FGS
P A Harrison BEng CEng MStructE C Hodge EngTech MICE A J Kerslake BEng FGS
Senior Associates: C A Wood BSc, CEng, MStructE, MICE M Dyson BSc CEng MStructE
Associates: A M Cross MEng CEng MICE A Lavelle MEng CEng MICE S R Jackson MEng CEng MStructE R A Noble BSc FGS
Consultants: S D Preston BEng CEng FICE FStructE K R Pursall BEng CEng MStructE S J Mitchell BSc MSc CEng MEI MCIBSE MASHRAE

0.2 and 1.6×10^{-6} m/s were recorded. None of the tests drained past 75% effective depth; it was therefore not possible to calculate a BRE365 infiltration rate for any of the tests.

It was concluded that conventional soakaways would not be appropriate for the site, but deepened soakaways constructed in the structured chalk may be suitable.

E&P Site Works

Eastwood & Partners have undertaken the following works at the site:

- Three window sample holes were undertaken in November 2019 to depths of 5 m and each was installed with a groundwater monitoring well. Nine rounds of groundwater monitoring were subsequently carried out between November 2019 and March 2020.
- Shallow infiltration tests (1.0 m to 1.1 m bgl) were completed at five locations (SA1A to SA5A) between 27 and 29 January 2020. One test was completed at each location.
- Further shallow infiltration testing (0.9 m to 1.0 m bgl) was undertaken at four locations (SA102, SA103, SA105 and SA106) in October 2020. Three tests were completed at each location.
- Additional shallow infiltration testing (0.6 m bgl) was undertaken in four locations (SA201 to SA204) in October 2021. Three tests were completed at each location.

Ground Conditions

Between 0.05 and 0.3 m of topsoil was encountered at the surface, underlain by firm to stiff silty clay or clayey silt to depths of between 2.6 and 2.4 m. Silty sand was encountered at two locations in the south east of the site from around 2.5 m bgl to depths of 3.3 and 4 m. Structureless chalk, generally composed of gravelly sandy silty clay, was encountered below the site from around 2.9 to 4 m bgl. Groundwater was not encountered during the progression of exploratory holes.

Infiltration Testing

The material at the base of the soakaway pits typically comprised clayey silt or silty clay. The pits were filled with around 500 mm of water and left to drain for at least 3 hours. A number of pits suffered from minor side collapses due to heavy rainfall which occurred during the test, causing the depth of the water in the pit to rise. This has been accounted for during the calculation of the infiltration rates. The results and calculations are appended to this report, and are summarised in the table overleaf.

Date	Location	Test number	Infiltration rate ($\times 10^{-6}$ m/sec)	
			Average	BRE 365
January 2020	SA1A	1	0.86	~
	SA2A	1	1.7	~
	SA3A	1	0.92	~
	SA4A	1	0.55	~
	SA5A	1	0.76	~
October 2020	SA102	1	1.6	~
		2	1.6	1.4
		3	3.8	~
	SA103	1	2.0	1.7
		2	2.0	4.0
		3	7.1	6.7
	SA105	1	0.7	~
		2	0.52	~
		3	0.29	~
	SA106	1	1.2	~
		2	1.0	~
		3	0.98	~
October 2021	SA201	1	3.4	2.4
		2	1.0	~
		3	1.2	1.2
	SA202	1	19	16
		2	6.4	5.5
		3	4.9	3.9
	SA203	1	12	10
		2	5.5	3.6
		3	4.8	4.0
	SA204	1	11	8.8
		2	6.9	6.2
		3	6.2	5.6

Based on the results recorded above it is considered that it would be reasonable to adopt an infiltration rate of around 1.5×10^{-6} m/sec for the design of shallow infiltration features such as permeable paving. Features such as these are spread over wide areas and therefore the slight variations in the infiltration rates recorded will be diffused.

Groundwater Monitoring

Nine rounds of groundwater monitoring have been completed at the site. The results are appended, and are summarised in the table below.

Location	Range of Groundwater Depths (m) (No. of Rounds)
BH101	3.6 to 5.0 (8)
BH102	4.6 to 4.97 (3)
BH103	3.38 to 4.82 (9)

Over the monitoring period the groundwater depth varied between 3.38 and 5 m bgl. The groundwater was recorded to be at its shallowest during round 9 in BH103 in the west of the site. The groundwater in this well was consistently around 0.2 m higher compared to BH101 in the centre of the site, and around 0.5 to 1 m higher compared to BH102 in the east.

BH102 was only monitored on three occasions as the well could not be located during any visit after 17 January 2020. This is thought to be a result of heavy plant movement in the period following the 17 January obscuring/burying the well.

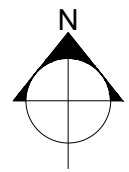
We trust that this meets with your approval, however if you have any comments or queries regarding the above, please do not hesitate to contact us.

Yours sincerely

A handwritten signature in purple ink, appearing to read 'CATopliss'.

Catherine Topliss

Enc. Sketch plan showing GWM well and SA locations
 Calculation of Infiltration Rates
 Groundwater Monitoring Results
 WS logs



E&P Key



Approximate location of infiltration test undertaken by Eastwood & Partners in October 2021



Approximate location of infiltration test undertaken by Eastwood & Partners in January 2020



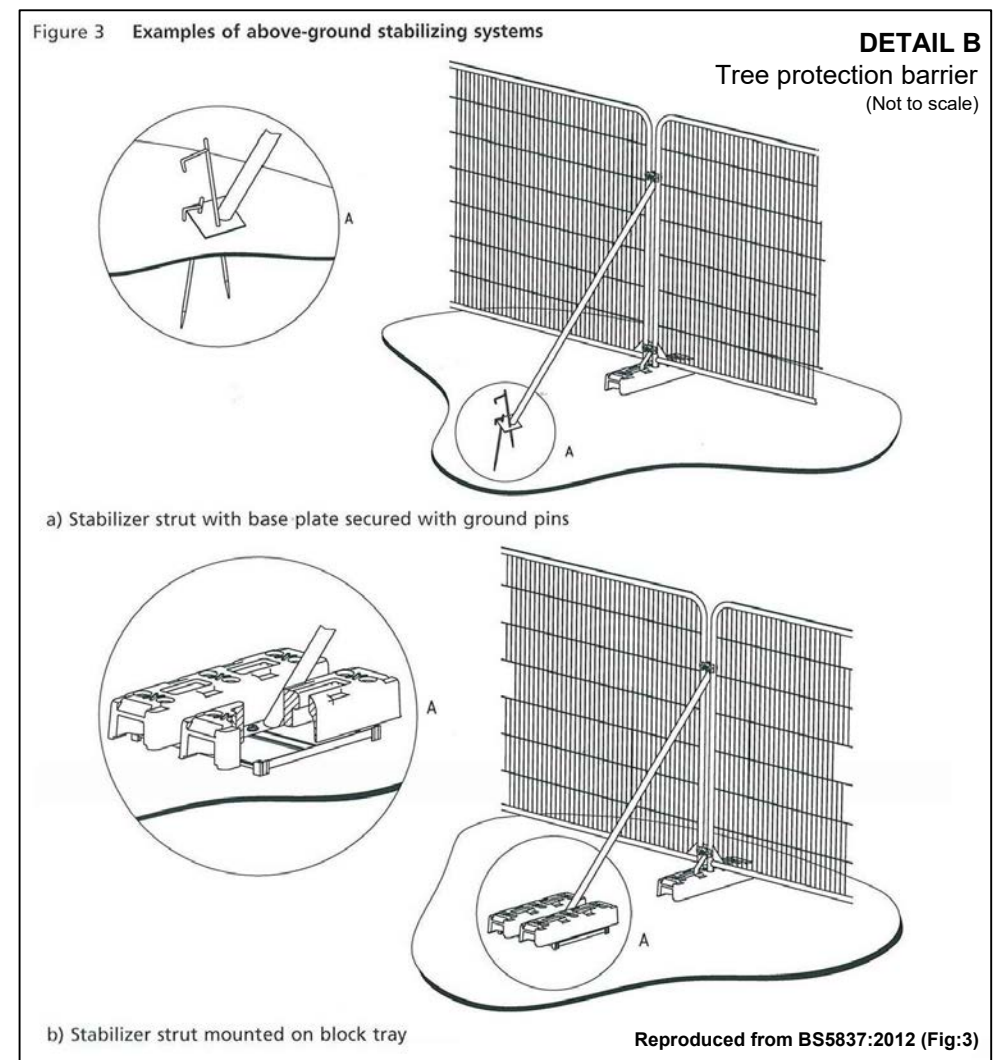
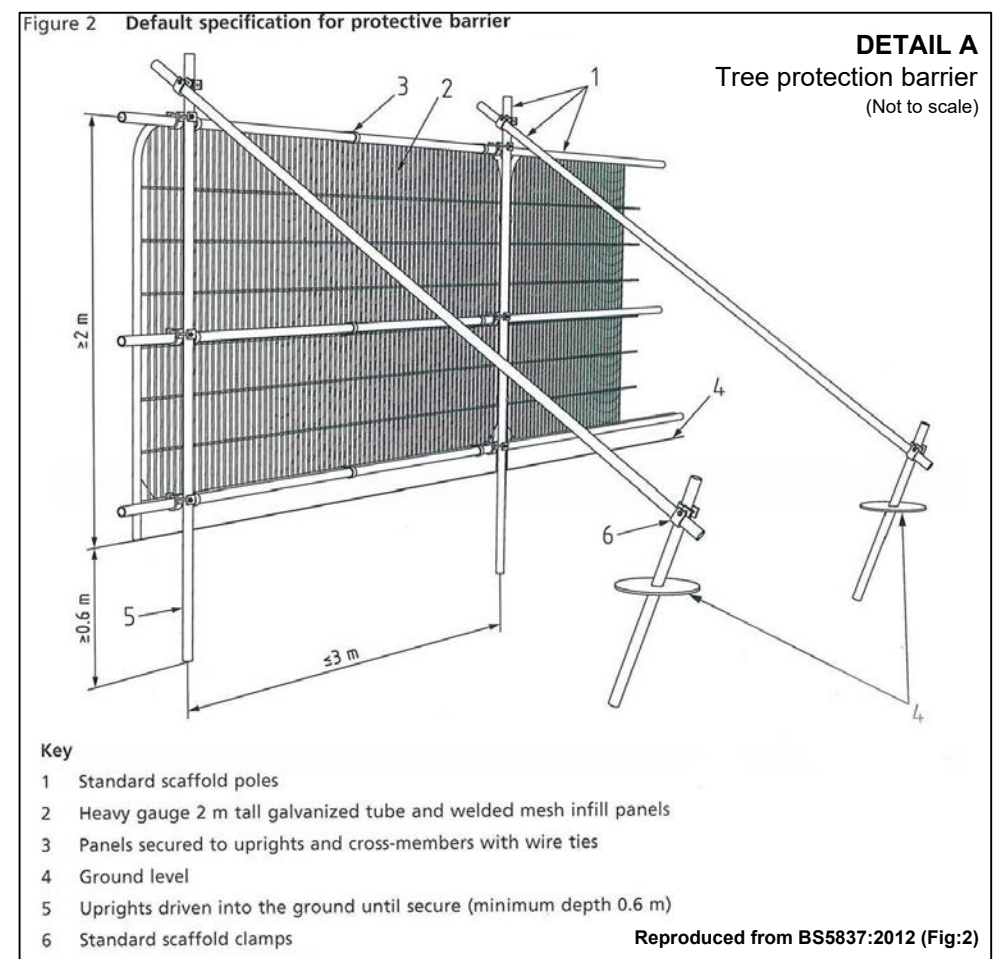
Approximate location of infiltration test undertaken by Eastwood & Partners in October 2020



Approximate location of groundwater monitoring well installed under the supervision of Eastwood & Partners in November 2019

Possibly offsite-confirm ownership prior to removal

Possibly offsite-confirm ownership prior to removal



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Notes

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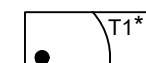
Key



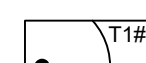
Survey boundary.



Tree with numbered reference. Canopy spread and BS5837:2012 tree quality category as shown below.



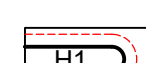
Tree (location estimated) with numbered reference. Canopy spread and BS5837:2012 tree quality category.



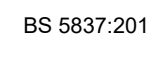
Tree off-site with numbered reference. Canopy spread and BS5837:2012 tree quality category.



Vegetation group with numbered reference. Canopy extends and BS5837:2012 tree quality category as shown below.



Hedge with numbered reference. Width and BS5837:2012 tree quality category as shown below.



BS 5837:2012 Tree Quality Categories - Table 1

Category A - High quality

Category B - Moderate quality

Category C - Low quality

Category U - Unsuitable for retention



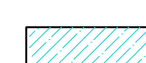
Tree outside of survey area (Shown for context only)



Root protection area (RPA) Calculated in accordance with Section 4.6 - BS5837:2012



Temporary protective fencing in accordance with Section 6.2 - BS5837:2012. See inset details for example barriers OR tree protection barrier provided by site hoarding fence



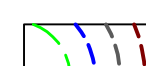
Surface area to be protected in accordance with Section 6.2.3 BS - 5837:2012 for pedestrian movements.



Excavation to be completed by hand, any required root pruning to be in accordance with BS 3998. Pruning of roots over 25mmØ to be monitored by arboriculturalist, with ongoing monitoring of trees condition by an arboriculturalist being recommended.



Vegetation group with numbered reference to be removed or partially removed to facilitate the development.

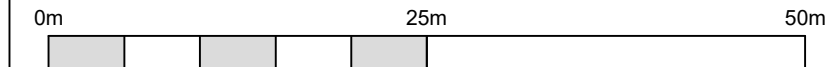


Tree to be removed with numbered reference. Canopy spread and BS5837:2012 tree quality category.

NOTES:

- Refer to RPS Tree Survey Report & Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'
- Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period, generally, although not restricted to, March - August inclusive.
- Survey based upon topographic survey produced by MK Surveys in Horsham, January 2019.

Scale Bar



A	Updated to new layout	JMB	DC	07/20
Rev	Description	By	CB	Date



Lakesbury House, Hittingbury Road, Chandlers Ford, Hampshire SO53 5SS
T: 02380 810 440 E: rpsso@rpsgroup.com

Client Redrow Homes Limited

Project Maypole Lane
Yapton, Bognor Regis

Title Tree Protection and Removal Plan

Status For Planning Drawn By AB PM/Checked by DC

Job Ref JSL3292 Scale @ A1 1:500 Date Created 02/2020

RPS Drawing / Figure Number 711 Rev A

rpsgroup.com

PROJECT:	North End Road, Yapton	Job No. 44005	Date 27/01/2020
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked RAN

Test No. SA1A - Test 1

Test Pit Dimensions

Length = **1200** mm

Plan area = **0.54** m²

Width = **450** mm

Depth = **1000** mm (Total depth)

Approximate time to discharge water into the hole:

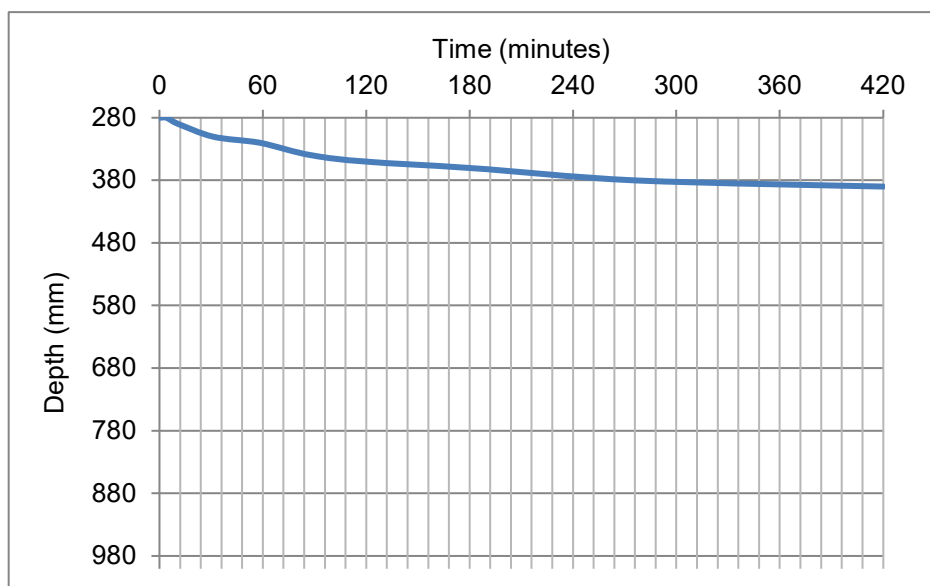
30 Seconds

Depth to water after completion of pumping:

280 mm

Time (min) **Depth (mm)**

0	280
4	280
11	290
31	310
58	320
88	340
120	350
180	360
277	380
420	390



Water level at 470 mm when checked in the morning the next day.

Depth (m)

Description

0.0 - 0.15

TOPSOIL: Dark brown slightly silty sandy CLAY with rootlets.

0.15 - 0.7

Firm brown slightly gravelly silty CLAY.

0.7 - 1.0

Stiff brown silty CLAY.

PROJECT:	North End Road, Yapton	Job No. 44005	Date 27/01/2020
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked RAN

Test No. SA1A - Test 1

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **280** mm Average water depth: **665** mm
 Start time = **0** min Change in water depth: **110** mm

Final parameters

Depth to water = **390** mm Time interval: **420** min
 End time = **420** min

Effective Storage Volume of Water in the Trial Pit = **0.3888** m³
 75% Effective Depth = **460** mm from ground level
 25% Effective Depth = **820** mm from ground level
 Time at 75% Effective Depth = **N/A** minutes
 Time at 25% Effective Depth = **N/A** minutes

V_{p75-25} = **0.19** m³

a_{p50} = **1.73** m²

t_{p75-25} = sec

f = **m/sec**

Average Soakaway Rate = **2.4E-06** m³/sec
 Average soakaway area = **2.73** m² (sides + base)

BR365 Soil Infiltration Rate = N/A m/sec
Average Infiltration Rate = 8.6E-07 m/sec

PROJECT:	North End Road, Yapton	Job No. 44005	Date 27/01/2020
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked RAN

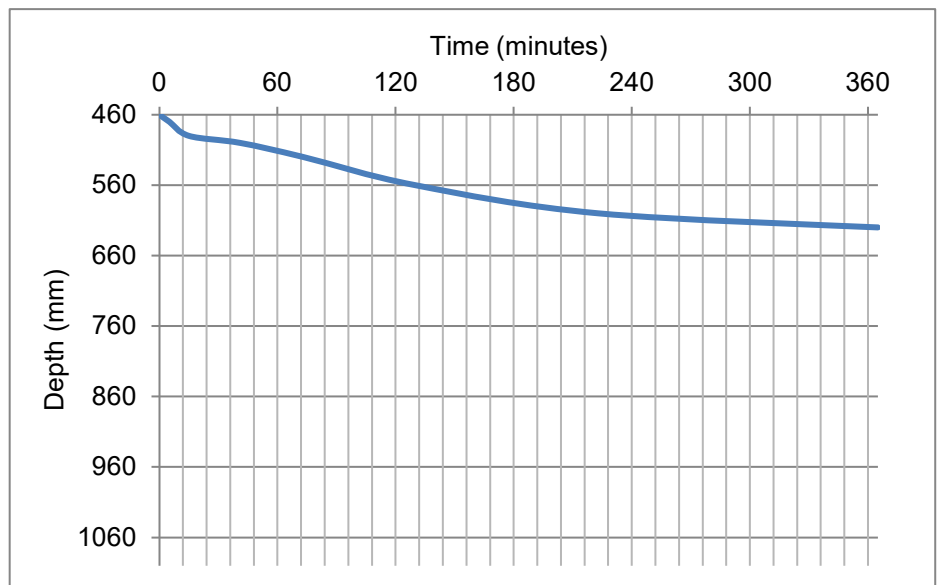
Test No.	SA2A - Test 1
----------	---------------

Test Pit Dimensions

Length = **1500** mm Plan area = **0.675** m²
Width = **450** mm
Depth = **1100** mm (Total depth)

Approximate time to discharge water into the hole: **30 Seconds**
 Depth to water after completion of pumping: **460 mm**

Time (min)	Depth (mm)
0	460
5	470
15	490
41	500
73	520
130	560
223	600
365	620



Water level at 920 mm when checked in the morning the next day.

Depth (m)	Description
0.0 - 0.05	TOPSOIL: Greyish brown silty sandy CLAY with rootlets.
0.05 - 0.25	Stiff brown slightly sandy silty CLAY.
0.25 - 1.1	Stiff orangish brown slightly sandy slightly gravelly silty CLAY

PROJECT:	North End Road, Yapton	Job No. 44005	Date 27/01/2020
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked RAN

Test No. SA2A - Test 1

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **460** mm Average water depth: **560** mm
Start time = **0** min

Change in water depth: **160** mm

Final parameters

Depth to water = **620** mm Time interval: **365** min
End time = **365** min

Effective Storage Volume of Water in the Trial Pit = **0.432** m³
75% Effective Depth = **620** mm from ground level
25% Effective Depth = **940** mm from ground level
Time at 75% Effective Depth = **365** minutes
Time at 25% Effective Depth = **N/A** minutes

V_{p75-25} = **0.22** m³

a_{p50} = **1.92** m²

t_{p75-25} = sec

f = **m/sec**

Average Soakaway Rate = **4.9E-06** m³/sec
Average soakaway area = **2.86** m² (sides + base)

BR365 Soil Infiltration Rate = N/A m/sec

Average Infiltration Rate = 1.7E-06 m/sec

PROJECT:	North End Road, Yapton	Job No. 44005	Date 27/01/2020
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked RAN

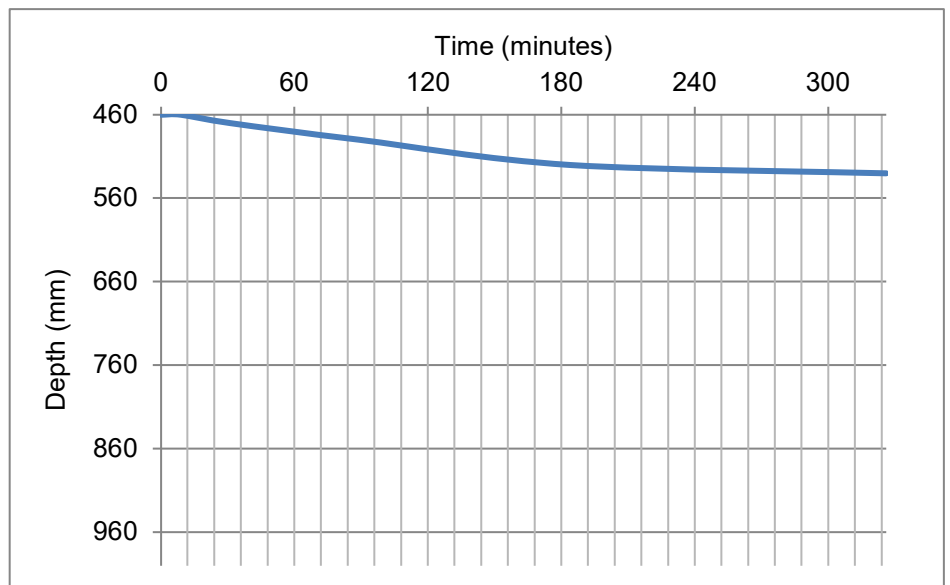
Test No. SA3A - Test 1

Test Pit Dimensions

Length = **1600** mm Plan area = **0.72** m²
Width = **450** mm
Depth = **1000** mm (Total depth)

Approximate time to discharge water into the hole: **30** Seconds
Depth to water after completion of pumping: **460** mm

Time (min)	Depth (mm)
0	460
9	460
31	470
89	490
184	520
326	530



Water level at 600 mm when checked in the morning the next day.

Depth (m)	Description
0.0 - 0.25	TOPSOIL: Dark brown silty CLAY.
0.25 - 1.0	Firm brown clayey SILT.

PROJECT:	North End Road, Yapton	Job No. 44005	Date 27/01/2020
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked RAN

Test No. SA3A - Test 1

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **460** mm Average water depth: **505** mm
 Start time = **0** min Change in water depth: **70** mm

Final parameters

Depth to water = **530** mm Time interval: **326** min
 End time = **326** min

Effective Storage Volume of Water in the Trial Pit = **0.3888** m³
 75% Effective Depth = **595** mm from ground level
 25% Effective Depth = **865** mm from ground level
 Time at 75% Effective Depth = **N/A** minutes
 Time at 25% Effective Depth = **N/A** minutes

V_{p75-25} = **0.19** m³

a_{p50} = **1.83** m²

t_{p75-25} = sec

f = **m/sec**

Average Soakaway Rate = **2.6E-06** m³/sec
 Average soakaway area = **2.79** m² (sides + base)

BR365 Soil Infiltration Rate = N/A m/sec
Average Infiltration Rate = 9.2E-07 m/sec

PROJECT:	North End Road, Yapton	Job No. 44005	Date 27/01/2020
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked RAN

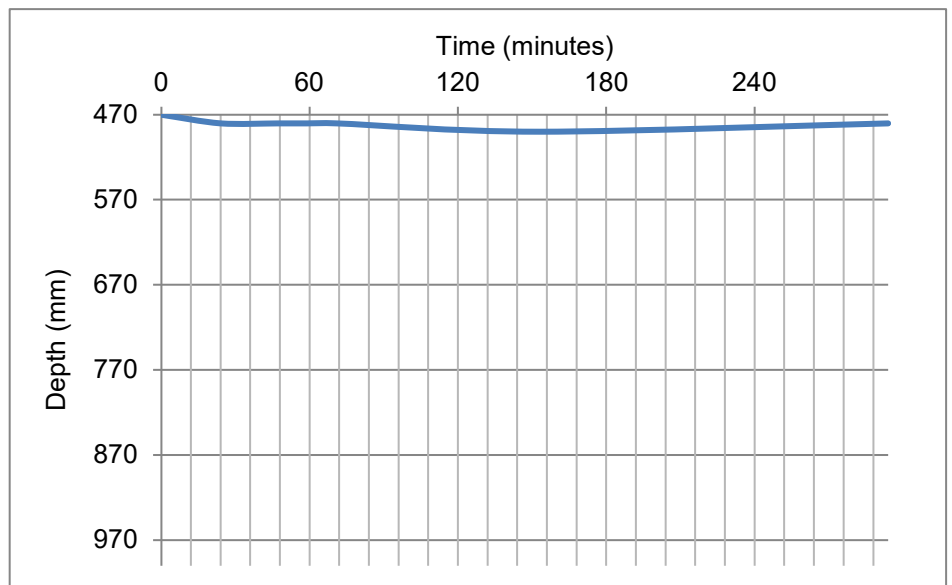
Test No. SA4A - Test 1

Test Pit Dimensions

Length = **1600** mm Plan area = **0.72** m²
Width = **450** mm
Depth = **1000** mm (Total depth)

Approximate time to discharge water into the hole: **30** Seconds
Depth to water after completion of pumping: **460** mm

Time (min)	Depth (mm)
0	470
24	480
47	480
59	480
71	480
153	490
294	480



Water level at 500 mm when checked in the morning the next day.

Depth (m)	Description
0.0 - 0.1	TOPSOIL: Dark brown silty CLAY.
0.1 - 1.0	Firm brown clayey SILT.

PROJECT:	North End Road, Yapton	Job No. 44005	Date 27/01/2020
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked RAN

Test No. SA4A - Test 1

Soil Infiltration Rate in Accordance with BR365

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

a_{p50} is the internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} is the time for the water level to fall from 75% to 25% effective depth

Initial parameters

Depth to water = **470** mm Average water depth: **520** mm
Start time = **0** min Change in water depth: **20** mm

Final parameters

Depth to water = **490** mm Time interval: **153** min
End time = **153** min

Effective Storage Volume of Water in the Trial Pit = **0.3816** m³
75% Effective Depth = **603** mm from ground level
25% Effective Depth = **868** mm from ground level
Time at 75% Effective Depth = **N/A** minutes
Time at 25% Effective Depth = **N/A** minutes

V_{p75-25} = **0.19** m³

a_{p50} = **1.81** m²

t_{p75-25} = sec

f = **m/sec**

Average Soakaway Rate = **1.6E-06** m³/sec
Average soakaway area = **2.85** m² (sides + base)

BR365 Soil Infiltration Rate = N/A m/sec
Average Infiltration Rate = 5.5E-07 m/sec

PROJECT:	North End Road, Yapton	Job No. 44005	Date 27/01/2020
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared DN	Checked RAN

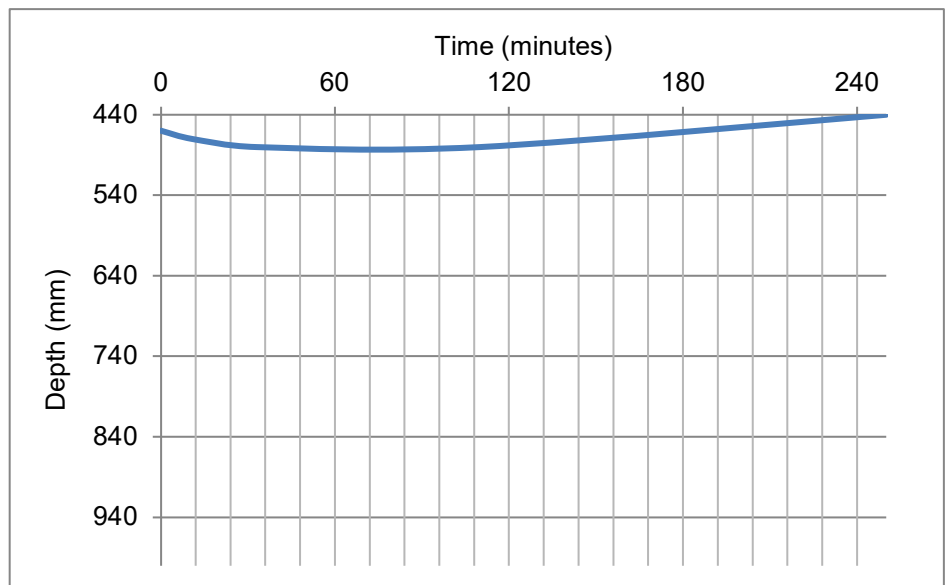
Test No. SA5A - Test 1

Test Pit Dimensions

Length = **1700** mm Plan area = **0.765** m²
Width = **450** mm
Depth = **1000** mm (Total depth)

Approximate time to discharge water into the hole: **30** Seconds
Depth to water after completion of pumping: **460** mm

Time (min)	Depth (mm)
0	460
11	470
33	480
110	480
250	440



Water level at 480 mm when checked in the morning the next day.
Water level rise thought to be a result of heavy rain during the test.

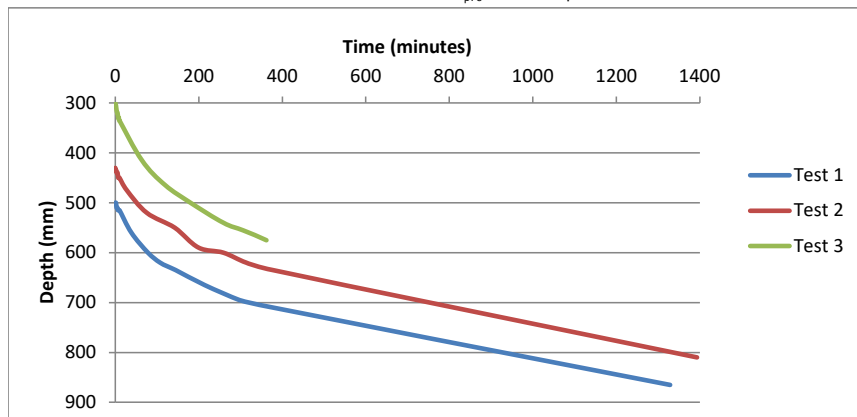
Depth (m)	Description
0.0 - 0.2	TOPSOIL: Dark brown silty CLAY.
0.2 - 1.0	Firm brown clayey SILT.

Infiltration Test Results and Calculation of Infiltration Rates

Site: North End Road, Yapton
Client: Redrow Homes
Test Reference: SA102

Test 1				Test 2				Test 3			
Pit Dimensions				Pit Dimensions				Pit Dimensions			
Trial pit length (mm)		1700		Trial pit length (mm)		1700		Trial pit length (mm)		1700	
Trial pit width (mm)		450		Trial pit width (mm)		450		Trial pit width (mm)		450	
Trial pit depth (mm)		1000		Trial pit depth (mm)		940		Trial pit depth (mm)		850	
Plan area (m ²)		0.765		Plan area (m ²)		0.765		Plan area (m ²)		0.765	
Time to discharge water (s)		60		Time to discharge water (s)		60		Time to discharge water (s)		60	
Depth to water at start of test (mm)		500		Depth to water at start of test (mm)		430		Depth to water at start of test (mm)		300	
Time to soakaway				Time to soakaway				Time to soakaway			
Time		Depth to Water	Duration	Time		Depth to Water	Duration	Time		Depth to Water	Duration
Day	Time	(mm bgl)	Minutes	Day	Time	(mm bgl)	Minutes	Day	Time	(mm bgl)	Minutes
1	10:17	500	0	2	09:08	430	0	3	08:33	300	0
1	10:18	500	1	2	09:09	435	1	3	08:34	305	1
1	10:19	505	2	2	09:10	435	2	3	08:35	310	2
1	10:20	510	3	2	09:11	440	3	3	08:36	315	3
1	10:21	510	4	2	09:12	440	4	3	08:37	320	4
1	10:22	510	5	2	09:13	440	5	3	08:38	320	5
1	10:23	515	6	2	09:14	445	6	3	08:39	325	6
1	10:24	515	7	2	09:15	450	7	3	08:40	330	7
1	10:25	515	8	2	09:16	450	8	3	08:41	330	8
1	10:26	515	9	2	09:17	450	9	3	08:42	335	9
1	10:27	515	10	2	09:18	450	10	3	08:43	335	10
1	10:55	560	38	2	09:35	475	27	3	09:36	415	63
1	11:35	600	78	2	10:23	520	75	3	10:32	465	119
1	12:04	620	107	2	11:30	550	142	3	11:33	500	180
1	12:41	635	144	2	12:27	590	199	3	12:51	540	258
1	13:51	665	214	2	13:27	600	259	3	13:39	555	306
1	15:14	695	297	2	14:21	620	313	3	14:35	575	362
1	16:02	705	345	2	15:24	635	376				
2	08:26	865	1329	3	08:21	810	1393				
Final depth		865		Final depth		810		Final depth		575	
75% Effective depth (mm)		625		75% Effective depth (mm)		557.5		75% Effective depth (mm)		437.5	
25% Effective depth (mm)		875		25% Effective depth (mm)		812.5		25% Effective depth (mm)		712.5	
Time at 75% effective depth - t _{p75} (min)		119		Time at 75% effective depth - t _{p75} (min)		153		Time at 75% effective depth - t _{p75} (min)		83	
Time at 25 % effective depth - t _{p25} (min)		N/A		Time at 25 % effective depth - t _{p25} (min)		1408		Time at 25 % effective depth - t _{p25} (min)		N/A	
Effective Storage volume of water (m ³)		0.3825		Effective Storage volume of water (m ³)		0.39015		Effective Storage volume of water (m ³)		0.42075	
V _{p75-25} (m ³)		0.19125		V _{p75-25} (m ³)		0.195075		V _{p75-25} (m ³)		0.210375	
Internal surface area - a _{p50} (m ²)		1.84		Internal surface area - a _{p50} (m ²)		1.8615		Internal surface area - a _{p50} (m ²)		1.9475	
t _{p75-25} (sec)		N/A		t _{p75-25} (sec)		75300		t _{p75-25} (sec)		N/A	
BR365 Soil Infiltration Rate		N/A		BR365 Soil Infiltration Rate*		1.4E-06		BR365 Soil Infiltration Rate		N/A	
Average Soil Infiltration Rate		1.6E-06		Average Soil Infiltration Rate		1.6E-06		Average Soil Infiltration Rate		3.8E-06	

*t_{p75} value extrapolated based on rate recorded between 376 and 1393 min



Testing completed by	RAN
Date	21-23/10/2020

Calculation completed by	RAN
Date	26/10/2020

Calculation checked by	GC
Date	26/10/2020

Infiltration Test Results and Calculation of Infiltration Rates

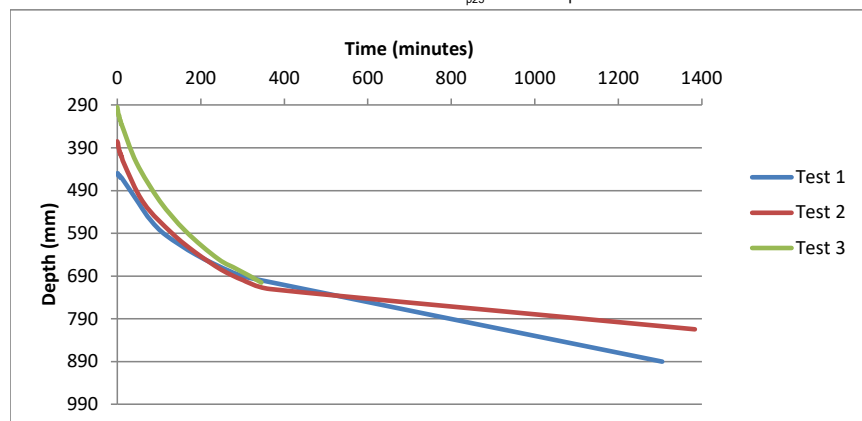
Site: North End Road, Yapton

Client: Redrow Homes

Test Reference: SA103

Test 1				Test 2				Test 3			
Pit Dimensions				Pit Dimensions				Pit Dimensions			
Trial pit length (mm)		1600		Trial pit length (mm)		1600		Trial pit length (mm)		1600	
Trial pit width (mm)		450		Trial pit width (mm)		450		Trial pit width (mm)		450	
Trial pit depth (mm)		1000		Trial pit depth (mm)		890		Trial pit depth (mm)		815	
Plan area (m ²)		0.72		Plan area (m ²)		0.72		Plan area (m ²)		0.72	
Time to discharge water (s)		60		Time to discharge water (s)		60		Time to discharge water (s)		60	
Depth to water at start of test (mm)		450		Depth to water at start of test (mm)		375		Depth to water at start of test (mm)		295	
Time to soakaway				Time to soakaway				Time to soakaway			
Time		Depth to Water	Duration	Time		Depth to Water	Duration	Time		Depth to Water	Duration
Day	Time	(mm bgl)	Minutes	Day	Time	(mm bgl)	Minutes	Day	Time	(mm bgl)	Minutes
1	10:45	450	0	2	09:21	375	0	3	08:51	295	0
1	10:46	450	1	2	09:22	380	1	3	08:52	305	1
1	10:47	455	2	2	09:23	385	2	3	08:53	310	2
1	10:48	455	3	2	09:24	390	3	3	08:54	315	3
1	10:49	455	4	2	09:25	395	4	3	08:55	315	4
1	10:50	455	5	2	09:26	400	5	3	08:56	320	5
1	10:51	455	6	2	09:27	400	6	3	08:57	325	6
1	10:52	460	7	2	09:28	405	7	3	08:58	325	7
1	10:53	460	8	2	09:29	405	8	3	08:59	330	8
1	10:54	460	9	2	09:30	410	9	3	09:00	335	9
1	10:55	460	10	2	09:31	410	10	3	09:01	335	10
1	11:36	520	51	2	09:36	425	15	3	09:37	425	46
1	12:05	560	80	2	10:24	520	63	3	10:33	515	102
1	12:42	595	117	2	11:32	590	131	3	11:34	585	163
1	13:53	640	188	2	12:28	635	187	3	12:52	650	241
1	15:17	680	272	2	13:30	675	249	3	13:40	675	289
1	16:04	695	319	2	14:23	700	302	3	14:36	705	345
2	08:30	890	1305	2	15:26	720	365				
		Dry		3	08:24	815	1383				
						Dry					
Final depth		890		Final depth		815		Final depth		705	
75% Effective depth (mm)		587.5		75% Effective depth (mm)		503.75		75% Effective depth (mm)		425	
25% Effective depth (mm)		862.5		25% Effective depth (mm)		761.25		25% Effective depth (mm)		685	
Time at 75% effective depth - t _{p75} (min)		109		Time at 75% effective depth - t _{p75} (min)		55		Time at 75% effective depth - t _{p75} (min)		46	
Time at 25 % effective depth - t _{p25} (min)		1166		Time at 25 % effective depth - t _{p25} (min)		495		Time at 25 % effective depth - t _{p25} (min)		308	
Effective Storage volume of water (m ³)		0.396		Effective Storage volume of water (m ³)		0.3708		Effective Storage volume of water (m ³)		0.3744	
V _{p75-25} (m ³)		0.198		V _{p75-25} (m ³)		0.1854		V _{p75-25} (m ³)		0.1872	
Internal surface area - a _{p50} (m ²)		1.8475		Internal surface area - a _{p50} (m ²)		1.77575		Internal surface area - a _{p50} (m ²)		1.786	
t _{p75-25} (sec)		63420		t _{p75-25} (sec)		26400		t _{p75-25} (sec)		15720	
BR365 Soil Infiltration Rate		1.7E-06		BR365 Soil Infiltration Rate*		4.0E-06		BR365 Soil Infiltration Rate		6.7E-06	
Average Soil Infiltration Rate		2.0E-06		Average Soil Infiltration Rate		2.0E-06		Average Soil Infiltration Rate		7.1E-06	

* t_{p25} value extrapolated based on rate recorded between 302 and 365 min



Testing completed by	RAN
Date	21-23/10/20

Calculation completed by	RAN
Date	26/10/2020

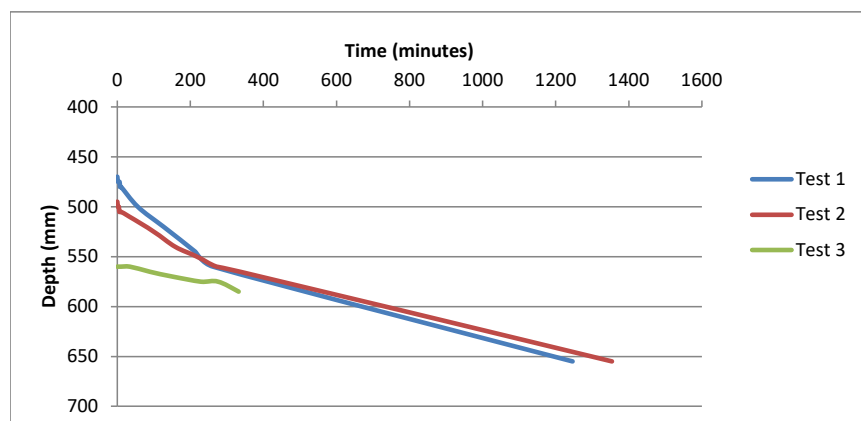
Calculation checked by	GC
Date	26/10/2020

Infiltration Test Results and Calculation of Infiltration Rates

Site: North End Road, Yapton

Client: Redrow Homes

Test Reference: SA105

[illegible]

Testing completed by	RAN
Date	21-23/10/20

Calculation completed by	RAN
Date	26/10/2020

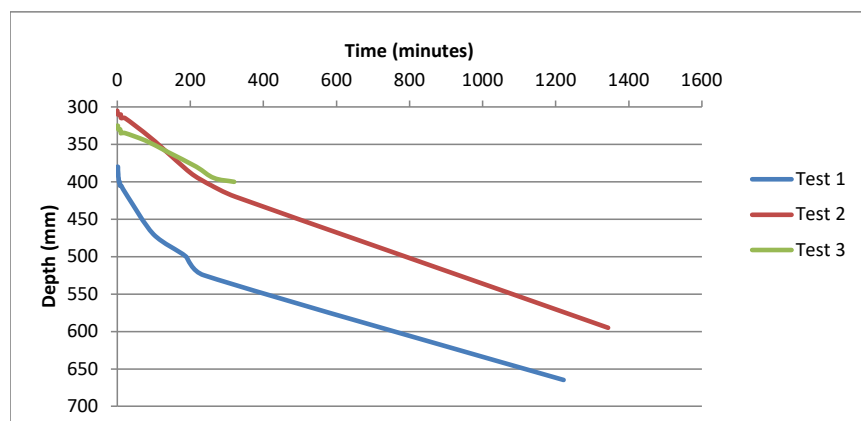
Calculation checked by	GC
Date	26/10/2020

Infiltration Test Results and Calculation of Infiltration Rates

Site: North End Road, Yapton

Client: Redrow Homes

Test Reference: SA106

[illegible]

Testing completed by	RAN
Date	21-23/10/20

Calculation completed by	RAN
Date	26/10/2020

Calculation checked by	GC
Date	26/10/2020

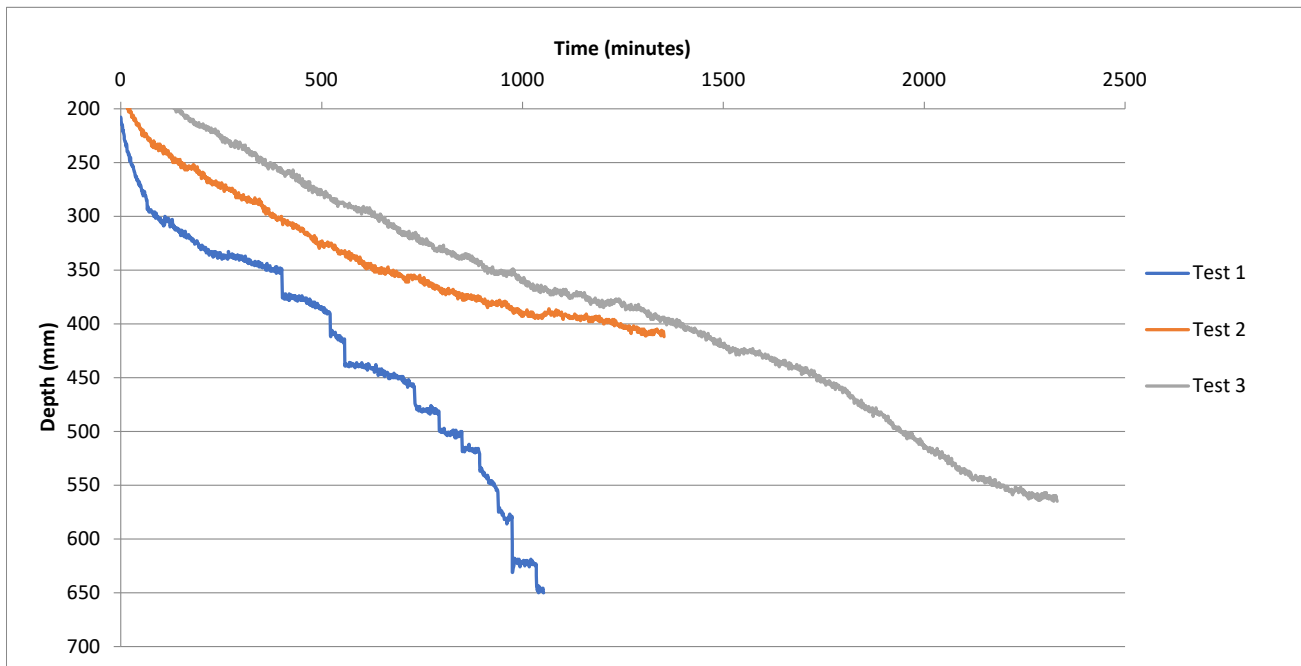
Infiltration Test Results and Calculation of Infiltration Rates

Site: North End Road, Yapton

Client: Redrow Homes

Test Reference: SA201

Test 1		Test 2		Test 3	
Pit Dimensions		Pit Dimensions		Pit Dimensions	
Trial pit length (mm)	1200	Trial pit length (mm)	1200	Trial pit length (mm)	1200
Trial pit width (mm)	650	Trial pit width (mm)	650	Trial pit width (mm)	650
Trial pit depth (mm)	650	Trial pit depth (mm)	650	Trial pit depth (mm)	635
Plan area (m ²)	0.78	Plan area (m ²)	0.78	Plan area (m ²)	0.78
Depth to water at start of test (mm)	208	Depth to water at start of test (mm)	193	Depth to water at start of test (mm)	173
End time (sec)	63180	End time (sec)	81120	End time (sec)	139860
Final depth	650	Final depth	412	Final depth	565
75% Effective depth (mm)	319	75% Effective depth (mm)	307	75% Effective depth (mm)	289
25% Effective depth (mm)	540	25% Effective depth (mm)	536	25% Effective depth (mm)	520
Time at 75% effective depth - t_{p75} (sec)	9960	Time at 75% effective depth - t_{p75} (sec)	24840	Time at 75% effective depth - t_{p75} (sec)	32400
Time at 25% effective depth - t_{p25} (sec)	54180	Time at 25% effective depth - t_{p25} (sec)	N/A	Time at 25% effective depth - t_{p25} (sec)	121080
Effective Storage volume of water (m ³)	0.34476	Effective Storage volume of water (m ³)	0.35646	Effective Storage volume of water (m ³)	0.36036
V_{p75-25} (m ³)	0.17238	V_{p75-25} (m ³)	0.17823	V_{p75-25} (m ³)	0.18018
Internal surface area - a_{p50} (m ²)	1.5977	Internal surface area - a_{p50} (m ²)	1.62545	Internal surface area - a_{p50} (m ²)	1.6347
t_{p75-25} (sec)	44220	t_{p75-25} (sec)		t_{p75-25} (sec)	88680
BR365 Soil Infiltration Rate	2.4E-06	BR365 Soil Infiltration Rate	N/A	BR365 Soil Infiltration Rate	1.2E-06
Average Soil Infiltration Rate	3.4E-06	Average Soil Infiltration Rate	1.0E-06	Average Soil Infiltration Rate	1.2E-06
Testing completed by	EJD	Calculation completed by	EJD	Calculation checked by	RAN
Date	27-29/10/21	Date	03/11/2021	Date	03/11/2021



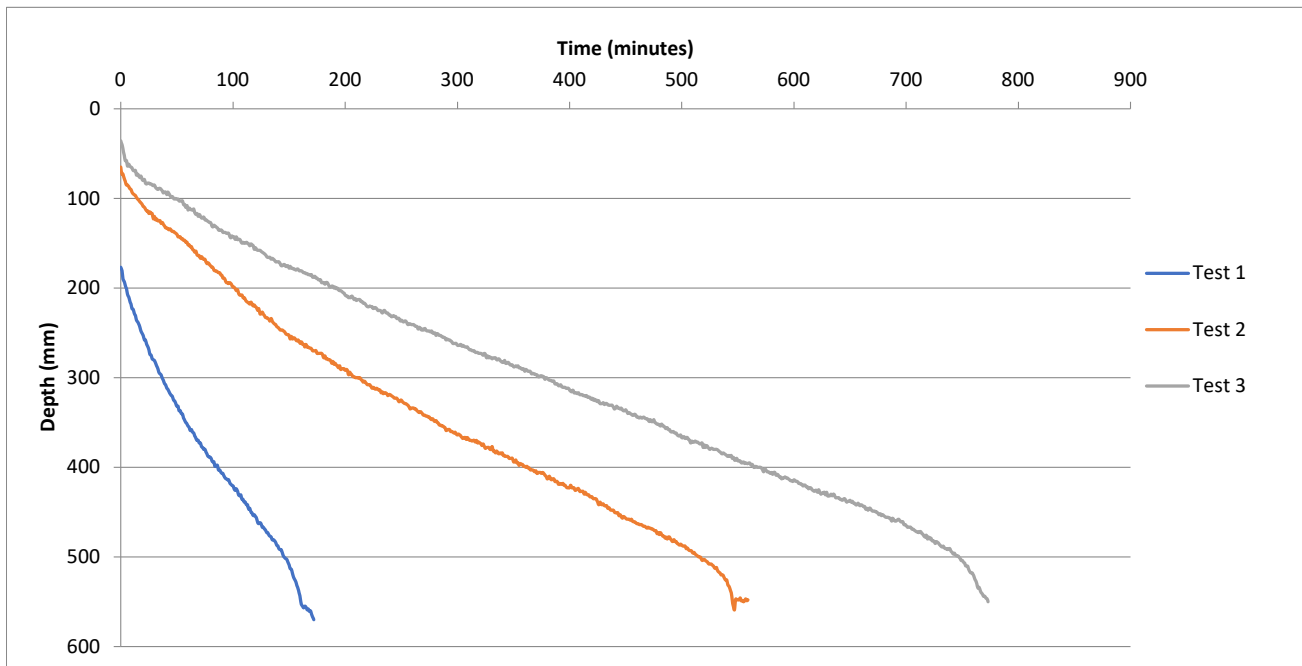
Infiltration Test Results and Calculation of Infiltration Rates

Site: North End Road, Yapton

Client: Redrow Homes

Test Reference: SA202

Test 1		Test 2		Test 3	
Pit Dimensions		Pit Dimensions		Pit Dimensions	
Trial pit length (mm)	1200	Trial pit length (mm)	1200	Trial pit length (mm)	1200
Trial pit width (mm)	600	Trial pit width (mm)	600	Trial pit width (mm)	600
Trial pit depth (mm)	570	Trial pit depth (mm)	560	Trial pit depth (mm)	548
Plan area (m ²)	0.72	Plan area (m ²)	0.72	Plan area (m ²)	0.72
Depth to water at start of test (mm)	177	Depth to water at start of test (mm)	65	Depth to water at start of test (mm)	36
End time (sec)	10320	End time (sec)	33540	End time (sec)	46380
Final depth	570	Final depth	548	Final depth	550
75% Effective depth (mm)	275	75% Effective depth (mm)	189	75% Effective depth (mm)	164
25% Effective depth (mm)	472	25% Effective depth (mm)	436	25% Effective depth (mm)	420
Time at 75% effective depth - t_{p75} (sec)	1620	Time at 75% effective depth - t_{p75} (sec)	5460	Time at 75% effective depth - t_{p75} (sec)	7800
Time at 25% effective depth - t_{p25} (sec)	7800	Time at 25% effective depth - t_{p25} (sec)	25440	Time at 25% effective depth - t_{p25} (sec)	36480
Effective Storage volume of water (m ³)	0.28296	Effective Storage volume of water (m ³)	0.3564	Effective Storage volume of water (m ³)	0.36864
V_{p75-25} (m ³)	0.14148	V_{p75-25} (m ³)	0.1782	V_{p75-25} (m ³)	0.18432
Internal surface area - a_{p50} (m ²)	1.4274	Internal surface area - a_{p50} (m ²)	1.611	Internal surface area - a_{p50} (m ²)	1.6416
t_{p75-25} (sec)	6180	t_{p75-25} (sec)	19980	t_{p75-25} (sec)	28680
BR365 Soil Infiltration Rate	1.6E-05	BR365 Soil Infiltration Rate	5.5E-06	BR365 Soil Infiltration Rate	3.9E-06
Average Soil Infiltration Rate	1.9E-05	Average Soil Infiltration Rate	6.4E-06	Average Soil Infiltration Rate	4.9E-06
Testing completed by	EJD	Calculation completed by	EJD	Calculation checked by	RAN
Date	27-29/10/21	Date	03/11/2021	Date	04/11/2021



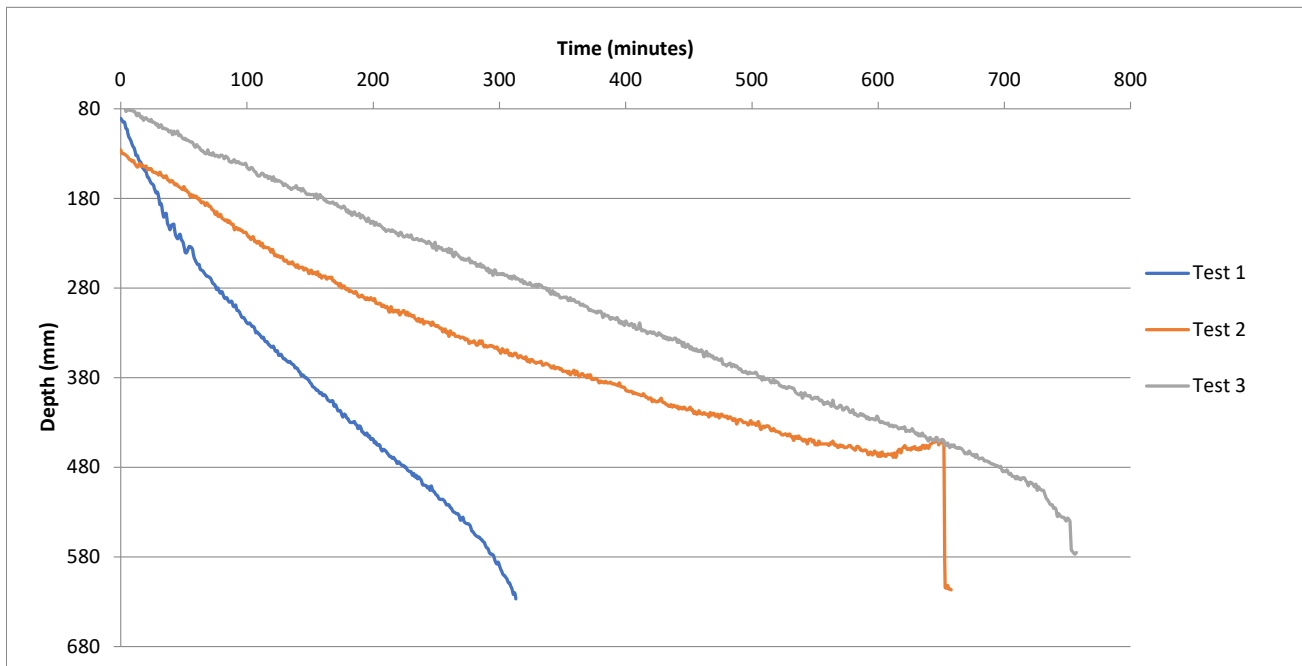
Infiltration Test Results and Calculation of Infiltration Rates

Site: North End Road, Yapton

Client: Redrow Homes

Test Reference: SA203

Test 1		Test 2		Test 3	
Pit Dimensions		Pit Dimensions		Pit Dimensions	
Trial pit length (mm)	1300	Trial pit length (mm)	1300	Trial pit length (mm)	1300
Trial pit width (mm)	600	Trial pit width (mm)	600	Trial pit width (mm)	600
Trial pit depth (mm)	630	Trial pit depth (mm)	627	Trial pit depth (mm)	590
Plan area (m ²)	0.78	Plan area (m ²)	0.78	Plan area (m ²)	0.78
Depth to water at start of test (mm)	91	Depth to water at start of test (mm)	126	Depth to water at start of test (mm)	75
End time (sec)	18780	End time (sec)	39480	End time (sec)	45420
Final depth	627	Final depth	617	Final depth	575
75% Effective depth (mm)	226	75% Effective depth (mm)	251	75% Effective depth (mm)	204
25% Effective depth (mm)	495	25% Effective depth (mm)	502	25% Effective depth (mm)	461
Time at 75% effective depth - t_{p75} (sec)	2880	Time at 75% effective depth - t_{p75} (sec)	7920	Time at 75% effective depth - t_{p75} (sec)	11640
Time at 25% effective depth - t_{p25} (sec)	14280	Time at 25% effective depth - t_{p25} (sec)	39140	Time at 25% effective depth - t_{p25} (sec)	40020
Effective Storage volume of water (m ³)	0.42042	Effective Storage volume of water (m ³)	0.39078	Effective Storage volume of water (m ³)	0.4017
V_{p75-25} (m ³)	0.21021	V_{p75-25} (m ³)	0.19539	V_{p75-25} (m ³)	0.20085
Internal surface area - a_{p50} (m ²)	1.8041	Internal surface area - a_{p50} (m ²)	1.7319	Internal surface area - a_{p50} (m ²)	1.7585
t_{p75-25} (sec)	11400	t_{p75-25} (sec)	31220	t_{p75-25} (sec)	28380
BR365 Soil Infiltration Rate	1.0E-05	BR365 Soil Infiltration Rate	3.6E-06	BR365 Soil Infiltration Rate	4.0E-06
Average Soil Infiltration Rate	1.2E-05	Average Soil Infiltration Rate	5.5E-06	Average Soil Infiltration Rate	4.8E-06
Testing completed by	EJD	Calculation completed by	EJD	Calculation checked by	RAN
Date	27-29/10/21	Date	03/11/2021	Date	04/11/2021



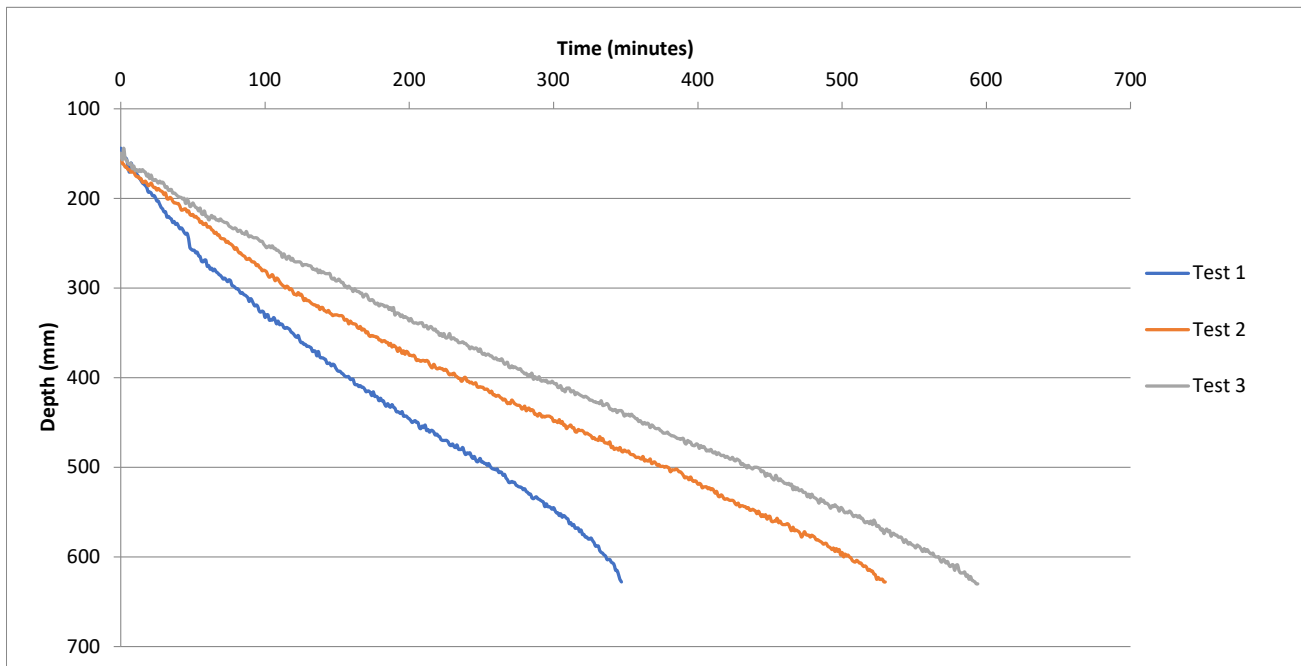
Infiltration Test Results and Calculation of Infiltration Rates

Site: North End Road, Yapton

Client: Redrow Homes

Test Reference: SA204

Test 1		Test 2		Test 3	
Pit Dimensions		Pit Dimensions		Pit Dimensions	
Trial pit length (mm)	1300	Trial pit length (mm)	1300	Trial pit length (mm)	1300
Trial pit width (mm)	600	Trial pit width (mm)	600	Trial pit width (mm)	600
Trial pit depth (mm)	630	Trial pit depth (mm)	628	Trial pit depth (mm)	630
Plan area (m ²)	0.78	Plan area (m ²)	0.78	Plan area (m ²)	0.78
Depth to water at start of test (mm)	144	Depth to water at start of test (mm)	150	Depth to water at start of test (mm)	150
End time (sec)	20820	End time (sec)	31800	End time (sec)	35640
Final depth	628	Final depth	628	Final depth	630
75% Effective depth (mm)	266	75% Effective depth (mm)	270	75% Effective depth (mm)	270
25% Effective depth (mm)	509	25% Effective depth (mm)	509	25% Effective depth (mm)	510
Time at 75% effective depth - t_{p75} (sec)	3300	Time at 75% effective depth - t_{p75} (sec)	5460	Time at 75% effective depth - t_{p75} (sec)	7200
Time at 25% effective depth - t_{p25} (sec)	15900	Time at 25% effective depth - t_{p25} (sec)	23400	Time at 25% effective depth - t_{p25} (sec)	27000
Effective Storage volume of water (m ³)	0.37908	Effective Storage volume of water (m ³)	0.37284	Effective Storage volume of water (m ³)	0.3744
V_{p75-25} (m ³)	0.18954	V_{p75-25} (m ³)	0.18642	V_{p75-25} (m ³)	0.1872
Internal surface area - a_{p50} (m ²)	1.7034	Internal surface area - a_{p50} (m ²)	1.6882	Internal surface area - a_{p50} (m ²)	1.692
t_{p75-25} (sec)	12600	t_{p75-25} (sec)	17940	t_{p75-25} (sec)	19800
BR365 Soil Infiltration Rate	8.8E-06	BR365 Soil Infiltration Rate	6.2E-06	BR365 Soil Infiltration Rate	5.6E-06
Average Soil Infiltration Rate	1.1E-05	Average Soil Infiltration Rate	6.9E-06	Average Soil Infiltration Rate	6.2E-06
Testing completed by	EJD	Calculation completed by	EJD	Calculation checked by	RAN
Date	27-29/10/21	Date	03/11/2021	Date	04/11/2021



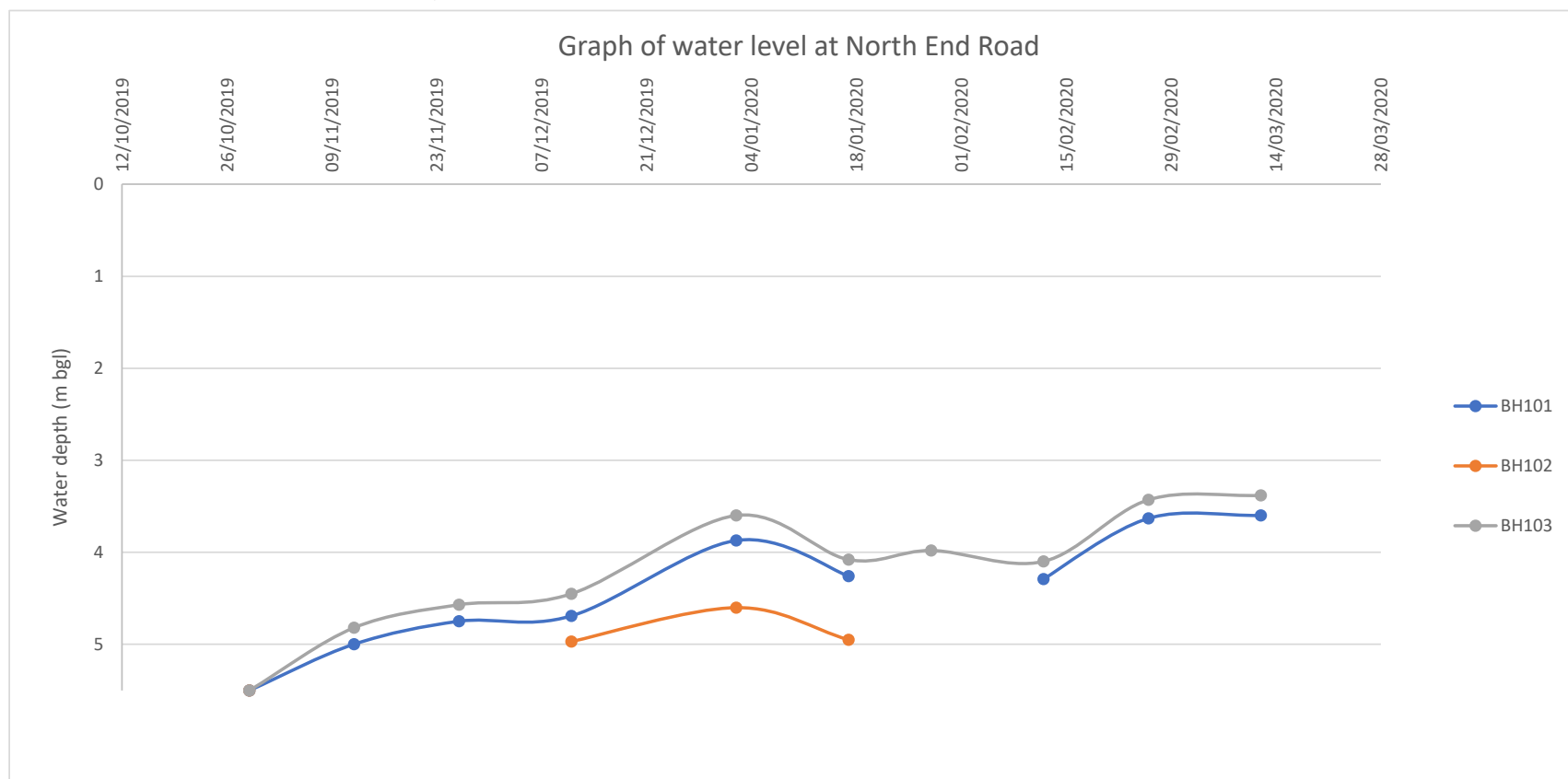
Winter Groundwater Monitoring Results

North End Road

BH	Monitoring Date											BH Depth
	29/10/2019	12/11/2019	26/11/2019	11/12/2019	02/01/2020	17/01/2020	28/01/2020	12/02/2020	26/02/2020	12/03/2020	22/10/2020	
BH101		5	4.75	4.69	3.87	4.26		4.29	3.63	3.6	CNF	5.04
BH102				4.97	4.6	4.95	CNF	CNF	CNF	CNF	CNF	5.07
BH103		4.82	4.57	4.45	3.6	4.08	3.98	4.1	3.43	3.38	CNF	5.05

CNF - Could not find - wells appear to have been buried or destroyed by plant movement/archaeological works.

NOTE: Where cells are blank, well was found to be dry.



Project Name North End Road	Project No. 44005A	Co-ords:	Hole Type WS
Location: Yapton		Level:	Scale 1:50
Client: Redrow Homes		Dates: 28/10/2019	Logged By RAN

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			TOPSOIL: Dark brown slightly sandy, silty CLAY.	
					0.40			Firm brown silty CLAY.	
								Very stiff brown desiccated silty CLAY.	
					1.20			Stiff brown/orange silty sandy CLAY.	1
					2.10			Firm brown/orange silty very sandy CLAY.	2
					2.60			Brown/orange very silty slightly gravelly SAND. Gravel is fine to coarse, angular flint.	3
					3.30			Structureless CHALK composed of cream/pale yellow firm very gravelly silty CLAY. Gravel is weak, low and medium density cream/white and angular to sub-angular. (Grade Dm)	4
					5.00			End of Borehole at 5.000m	5
									6
									7
									8
									9
		Type	Results						

Remarks No groundwater encountered.	
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Project Name North End Road	Project No. 44005A	Co-ords:	Hole Type WS
Location: Yapton		Level:	Scale 1:50
Client: Redrow Homes		Dates: 28/10/2019	Logged By RAN

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			TOPSOIL: Dark brown slightly sandy, silty CLAY.	
								Firm to stiff brown silty CLAY.	
					1.90			Stiff brown sandy silty CLAY with occasional fine to coarse angular and sub-angular flint gravel.	2
					2.40			Brown/orange silty SAND.	
					2.90			Brown/orange very silty SAND/very sandy SILT with occasional fine to coarse, angular and sub-angular flint gravel.	3
					4.00			Structureless CHALK composed of slightly clayey sandy angular and sub-angular GRAVEL. Clasts are weak, medium density cream/white. Matrix is cream. Frequent rinded flint nodules. (Grade Dc)	4
					5.00			End of Borehole at 5.000m	5
									6
									7
									8
									9
		Type	Results						

Remarks No groundwater encountered.	
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Project Name North End Road	Project No. 44005A	Co-ords:	Hole Type WS
Location: Yapton		Level:	Scale 1:50
Client: Redrow Homes		Dates: 28/10/2019	Logged By RAN

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.05			TOPSOIL: Dark brown slightly sandy, silty CLAY. Firm brown silty CLAY.	
								<i>Stiff below 0.6 m.</i>	
					1.10			Stiff brown/orange silty sandy CLAY.	1
					1.60			Firm to stiff brown/grey silty CLAY.	2
					2.60			Brown and white silty gravelly CLAY. Gravel is fine to coarse, angular and sub-angular chalk.	3
					3.20			Structureless CHALK composed of cream/pale yellow firm very gravelly silty CLAY. Gravel is weak, low and medium density cream/white and angular to sub-angular. (Grade Dm)	4
					5.00			End of Borehole at 5.000m	5
									6
									7
									8
									9
		Type	Results						

Remarks No groundwater encountered.	
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Annex

SuDS Management & Maintenance Plan

1. Ownership & Maintenance Responsibilities

Responsibility for the maintenance of the drainage system will be apportioned as follows:

The long term management and maintenance will be secured in perpetuity through the adoption of the main foul sewers by Southern Water.

The non adoptable areas of shared drainage and SUDS features, and permeable paving will be maintained by a management company. The long term agreement of this will be secured in perpetuity through the deeds of the properties.

The drainage features will be cared for by the Estate Management Company which will be set up by the developer to administer the site-wide infrastructure. This includes:

- porous paving.
- control manholes / flow restrictors
- the associated manholes and piped systems.
- Private foul pumping station

The following sections set out schedules detailing the maintenance requirements for each of the main drainage items used within the scheme. The Estate Management Company will undertake the inspections and maintenance activities in accordance with these schedules.

Additional reference should be made to currently established best practice and guidance documents such as The SuDS Manual (CIRIA C753, 2015) and other resources available at the susdrain website (www.susdrain.org).

This SuDS Management and Maintenance Plan (SMMP) should be considered a live document. The frequency of maintenance intervals may need to be increased or decreased based on the observed performance of the drainage systems over time. Changes should be agreed with the drainage authority and recorded and dated in the SMMP.

Important safety information is set out in the next section.

2. Health and Safety

All those responsible for and involved in the maintenance of the site drainage systems should be safety-conscious and comply with the relevant health and safety legislation. This includes:

- The Health and Safety at Work etc Act 1974
- The Management of Health and Safety at Work Regulations 1999
- The Workplace (Health, Safety and Welfare) Regulations 1992

The Estate Management Company is responsible for suitable risk assessment and management to ensure safe working conditions and practices. Measures to protect potential visitors also need to be considered.

Specialist contractors used should work to industry guidelines and be able to demonstrate safe working practices.

Employers have a duty to employees to inform them about the risks of their work environment and to decrease the risk as far as reasonably practicable. Appropriate personal protective equipment (PPE) should be provided and policies implemented based on risk assessment.

Operatives should be trained for working near water. Risks of contaminated water should be considered. Checking for open cuts and using nitrile gloves, waterproof plasters etc is advised.

Entry of pipes, chambers, tanks and culverts should be avoided wherever possible. Work should be carried out from the surface using appropriate equipment. In the event that entry cannot be avoided to perform a critical task, the required safety training, protection measures and precautions must be implemented prior to entry. Lone working should never be attempted.

For further information refer to Section 36 of The SuDS Manual (CIRIA C753).

3. Schedule A – Sewers, Manholes, Gullies, Channel Drains

Regular inspection and maintenance are required to ensure the effective long-term operation of private drains, manholes, gullies & channel drains.

Post Completion: a CCTV survey to be carried out on all new and retained existing drainage systems and any downstream receiving systems, prior to connection with adopted sewers.

The report will be used to prove the integrity of the as-built drainage system prior to issue of practical completion certificate and will be handed over to the Client & Management Company for future reference.

Ongoing maintenance responsibility for all sewers is by Southern Water. All other gullies and drainage are privately owned and to be maintained by the Estate Management Company in shared areas and each homeowner within conveyed land. Operation and maintenance requirements for **all** (foul and storm) sewers, drains, manholes, gullies and channel drains are described in the following table:

Schedule	Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	6 Monthly intervals.
	Common yard & car park & other hard standing areas to be swept clear of debris, to prevent possibility of blockages to the receiving drainage systems.	Monthly.
	Lift and inspect receiving manholes to check for any blockages.	Monthly.
	Debris removal from gullies & channel drains (where may cause risks to performance).	6 monthly, after autumn leaf fall, or as required based on observations.
Remedial Actions	Repair any damaged gully or channel drain gratings.	As required.

	Replace / fix any loose channel drain covers.	As required.
Monitoring	Carry out full CCTV survey to confirm ongoing integrity of all drains. Inspect all gullies and silt pits & drainage channels during the survey.	10-yearly intervals.

Where appropriate refer also to specialist drainage manufacturer's information and maintenance requirements.

In all instances, inspection and cleaning should be carried out only by a specialist contractor and in accordance with the guidelines given in 'Safe Working in Sewers and at Sewage Works' published by National Joint Health and Safety Committee for the Water Services. Further information on safety is set out in Section 2.

5 Schedule B – Permeable Pavements

5.1 Inspection Frequency and Maintenance Requirements: as per table below.

Schedule	Action	Frequency
Regular Maintenance	Standard road sweeper	Annually after autumn leaf fall
Occasional Maintenance	Weed removal	Annually
	Stabilise and mow contributing and adjacent areas	As required
Remedial Actions	Remediate adjacent landscaping to original levels	As required
	Paving repairs including replenishment of lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required if infiltration is reduced by clogging
Monitoring	Initial inspection	Monthly for first three months
	Inspection for evidence of poor operation and/or weed growth	Quarterly, 48 hrs after large storms in first six months
	Inspection for silt accumulation to establish sweeping frequencies	Annually
	Monitor inspection chambers	Annually

5.2 Safety information is set out in Section 4.

6 Foul Drainage

Inspection frequency: annually.

Maintenance Requirements: Visual inspection of chambers & manholes is to be completed on a 5-yearly basis and any signs of blockage / waste build up should be jet washed or removed by a Licensed Effluent Disposal Contractor.

A CCTV Drainage Survey should be completed every 10 Years and any of blockage/waste build up should be jet washed or removed by a Licensed Effluent Disposal Contractor.

7 Contamination, Oil Spillages or Dilution of Spillage

In the event of a spillage, it is the responsibility of the landowner to clear up any spillage before it enters the drainage system. The primary method of dealing with any spillage of hydrocarbons should be using sand to soak up the leak and prevent any hydrocarbons entering the drainage system. Once sand has been contaminated it should not be washed into the drainage system but disposed of by a Licensed Contractor.

Environment Agency – Emergency Contact Number

In the event of a spillage the Environment Agency should be contacted to notify the event and seek advice. The Environment Agency Incident Hotline is **0800 80 70 60** (Freephone 24hrs).



Civil Engineering - Transport Planning - Flood Risk

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