

Key:



Approximate trial pit location and reference



Approximate soakaway test location and reference



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Rev	Date	Revision Description	Drwn	Chkd



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Client: Home Wood Property Developments Limited

Site:
Land off Cambridge Road, Great Shelford, Cambs

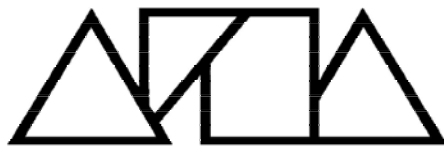
Job No.: 22.127

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

Date: June 2022

Drawing No: 22.127/02

Scale: 1:2000 @ A4



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Appendix G

Anglian Water Wastewater Plan

Appendix H

Anglian Water Sewer Flooding Enquiry

Jasmine Katsoulis

From: Planning Liaison <planningliaison@anglianwater.co.uk>
Sent: 06 June 2022 15:44
To: Jasmine Katsoulis
Subject: RE: Sewer Flooding Enquiry: Great Shelford, South Cambridgeshire (18926)

Good afternoon Jasmine

Thank you for your email

Anglian Water is able to confirm that we have no records of flooding in the vicinity that can be attributed to capacity limitations in the public sewerage system. It is possible that other flooding may have occurred that we do not have records of, other organisations such as the Local Authority, Internal Drainage Board or the Environment Agency may have records.

Kind Regards

Sandra

Sandra Olim

Pre-Development Advisor

Mobile: 07929804300

Team: 07929 786 955

Email: planningliaison@anglianwater.co.uk

Website: <https://www.anglianwater.co.uk/developing/planning--capacity/>

Anglian Water Services Limited

Thorpe Wood House, Thorpe Wood, Peterborough, Cambridgeshire, PE3 6WT

From: Jasmine Katsoulis <j.katsoulis@WoodsHardwick.com>
Sent: 06 June 2022 15:34
To: Planning Liaison <planningliaison@anglianwater.co.uk>
Subject: Sewer Flooding Enquiry: Great Shelford, South Cambridgeshire (18926)

***EXTERNAL MAIL* - Please be aware this mail is from an external sender - THINK BEFORE YOU CLICK**

Good Afternoon,

I am working on a proposed development site at the below location (please also see attached location plan).

Land off Cambridge Road, Great Shelford, South Cambridgeshire

Nearest Postcode: CB22 5XA

National Grid Reference: TL 45354 53325

Please could you confirm whether there has been any sewer flooding incidents in the vicinity of the site.

Many thanks,
Regards,
For & on behalf of Woods Hardwick Infrastructure Ltd

Jasmine Katsoulis
Graduate Transport Planner



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Appendix I

Environment Agency - Reservoir Flood Map



Appendix J

Proposed Drainage Strategy

Appendix K

Drainage Calculations



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Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.009	5.00	20.000	1200	545457.689	253143.446	1.425
2	0.000		20.000	1200	545465.800	253149.296	1.500
3	0.000		20.000	1200	545473.910	253155.145	1.575

Links (Input)

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	10.001	0.600	18.575	18.500	0.075	133.3	225	5.15	50.0
1.001	2	3	9.999	0.600	18.500	18.425	0.075	133.3	225	5.29	50.0

Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	✓
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	20.000	Additional Storage (m ³ /ha)	20.0
Ratio-R	0.400	Check Discharge Rate(s)	✓
Summer CV	0.750	Check Discharge Volume	✓
Winter CV	0.840	100 year 360 minute (m ³)	
Analysis Speed	Normal		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
2	0	0	0
30	0	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	IH124	Growth Factor 100 year	2.48
Positively Drained Area (ha)		Betterment (%)	0
SAAR (mm)		QBar	
Soil Index	1	Q 1 year (l/s)	
SPR	0.10	Q 30 year (l/s)	
Region	1	Q 100 year (l/s)	
Growth Factor 1 year	0.85		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	0
Positively Drained Area (ha)		Storm Duration (mins)	360
Soil Index	1	Betterment (%)	0
SPR	0.10	PR	
CWI		Runoff Volume (m ³)	

Node 1 Online Orifice Control

Flap Valve	x	Invert Level (m)	18.575	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.001		

Node 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.01400	Invert Level (m)	19.265	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.01400	Time to half empty (mins)		Depth (m)	
Safety Factor	5.0	Width (m)	5.500	Inf Depth (m)	0.500
Porosity	0.30	Length (m)	10.000		

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
960 minute winter	1	645	19.330	0.755	0.1	1.4785	0.0000	SURCHARGED
960 minute winter	2	645	18.502	0.002	0.0	0.0025	0.0000	OK
960 minute winter	3	645	18.425	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
960 minute winter	1	Orifice	2	0.0				
960 minute winter	1	Infiltration		0.0				
960 minute winter	2	1.001	3	0.0	0.000	0.000	0.0003	0.1

Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
240 minute winter	1	228	19.341	0.766	0.3	1.6750	0.0000	SURCHARGED
1440 minute winter	2	930	18.502	0.002	0.0	0.0025	0.0000	OK
1440 minute winter	3	930	18.425	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
240 minute winter	1	Orifice	2	0.0				
240 minute winter	1	Infiltration		0.0				
1440 minute winter	2	1.001	3	0.0	0.000	0.000	0.0003	0.1

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
480 minute winter	1	464	19.440	0.865	0.3	3.4183	0.0000	SURCHARGED
480 minute winter	2	560	18.502	0.002	0.0	0.0025	0.0000	OK
480 minute summer	3	376	18.425	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
480 minute winter	1	Orifice	2	0.0				
480 minute winter	1	Infiltration		0.0				
480 minute winter	2	1.001	3	0.0	0.000	0.000	0.0003	0.1

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
960 minute winter	1	915	19.628	1.053	0.4	6.7574	0.0000	SURCHARGED
960 minute winter	2	870	18.502	0.002	0.0	0.0025	0.0000	OK
480 minute winter	3	336	18.425	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m ³)	Discharge Vol (m ³)
960 minute winter	1	Orifice	2	0.0				
960 minute winter	1	Infiltration		0.1				
960 minute winter	2	1.001	3	0.0	0.000	0.000	0.0003	0.1

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