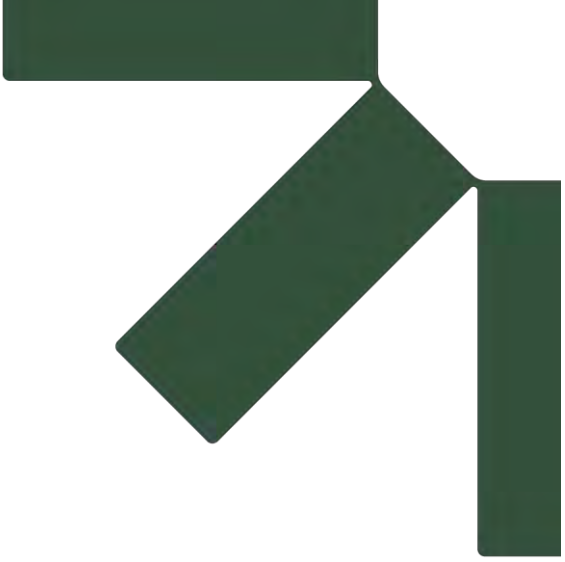




Appendix C Ground Investigation

19 Lateral Pressure & Heave

Where foundations are more than 1.5m deep, and are within the zone of influence of existing or removed trees, then precautions will also need to be taken against the effects of lateral swelling of soils beneath house units due to removal of trees, or cutting tree roots.

A helpful guide with respect to requirements for the relief of lateral pressure is set out in the NHBC Standards Ref [16], Chapter 4.2 to which the reader is referred. The basic requirement is that compressible material or void former should be installed on the inner face of external foundation walls. With piled foundations additional voids are required below ring beams.

19.1 Soakage Tests

Three soakage tests were carried out in trials pits TP01, TP02 and TP03. These tests all recorded little to no infiltration, which was not unexpected given the low permeability clay soils encountered.

The BRE paper DG365, Ref [17] describes a method for site testing to determine soil infiltration rates at the proposed site of a soakaway. The in-situ test method is described in Appendix B.

A total of three soakage tests were carried out across the site, at the locations shown on the attached site plan Figure 2, Appendix A. The full results of the soakage tests are presented within Appendix B.

The DG365 Ref [17], states that each pit should be allowed to drain three times to near empty, with filling on the same or consecutive days.

The infiltration rate from each trial hole is summarised in the table below. The soakage rate in this report is expressed as l/m²/minute, which is a convenient rate to use. The BRE use a unit of m/sec, which is the value in l/m²/minute divided by 60,000.

Test ID	Test Depth (mbgl)	Design Infiltration Rate		Notes
		l/m ² /minute	m/sec	
TP01	2.7m	0.0060	9.99×10^{-6}	Pit was not emptied; non-compliant value was calculated. Depth to top of permeable soils was 0.40m
TP02	3.0m	0.0000	0.00	Water level did not fall during test. Depth to top of permeable soils was 0.30m
TP03	3.0m	0.0000	0.00	Water level did not fall during test. Depth to top of permeable soils was 0.35m

*Where three fillings have not been carried out, a reduction factor should be applied to the result to provide a design infiltration rate.

In summary, the soakage results were very poor for the three test locations. None of the tests were able to be filled three times, in accordance with the BRE365 Digest.

Typically, a minimum soakage rate of 0.1 l/m²/minute is required for conventional soakaways to meet the BRE365 requirement of a soakaway half empty time of less than 24 hours. Therefore, on the basis of these test results and given the soils types present, the site is not considered suitable for shallow soakaway drainage. On this basis we anticipate that surface run-off will act as the primary method for site drainage. Water should therefore be directed into ditches where possible. In periods of wet weather it is likely that the ground will remain wet.

The desk study has highlighted that the site falls within Source Protection Zone III. Therefore the Environment Agency should be consulted prior to the development of any drainage scheme incorporating soakaways.

The previous Borehole Soakaway Investigation completed by Southern Testing in February 2010 (Ref BS375), reported that good soakage rates can be achieved within the Upper Chalk which underlies the site, with rates of between 360-450 l/min measured.

Soakage locations should consider the general guidance on easements (moderate dissolution subsidence risk, low density chalk terrain) provided in Ciria C574 for developments on chalk areas, and any such scheme should usually seek approval from the Environment Agency, given the aquifer status of the deep substrate.

**Desk Study, Preliminary
Site Investigation & Risk
Assessment Report**

Project Name: Roundwood

Location: Back Lane, Great Ashby,
Hertfordshire

Client: Croudace Homes

Project ID: JN1631

Report Date: 11 January 2022

Our Ref: RCS/JC/BS375
Your Ref:



Southern Testing
Environmental & Geotechnical

1 February 2010

Keeble House, Stuart Way
East Grinstead, West Sussex RH19 4QA
t 01342 333100 f 01342 410321
e info@southern-testing.co.uk w southern-testing.co.uk

Croudace Homes Limited
Croudace House
Godstone Road
Caterham
Surrey
CR3 6XQ

Directors: M W Stevenson BSc MBA CEng CEnv MICE CGeol FGS MConsE (Chief Executive)
EurGeol R C Smith BSc LLB MSc CGeol FGS SILC
D Vought BSc (Civ Eng) MSc
Dr J Kelly BSc PhD DIC
Dr L D Mockett BSc PhD PGDip FGS
J M Hickmott BSc CEng CEnv MICE FGS (Non Executive)
A J Timms CEng MICE (Non Executive)
Co. Secretary: A L Gurney FCIS ACIB
Consultant: Dr Derek Petley PhD DIC BSc MIHT FGS

For the attention of Mr M Norris

Dear Sirs,

Re: NES 3 Stevenage : Borehole Soakaways

1. Introduction

In an email dated 13th January 2010 Matthew Norris of Croudace Homes instructed Southern Testing to carry out a feasibility investigation on the use of borehole soakaways at the above site.

2. Geology

From the 1:50,000 scale geological map of the area the site is mainly underlain by Clay with Flints over Upper Chalk. However in the North West area of the site the Clay with Flints is shown to be absent. In addition, most of the North East quadrant area is indicated to be underlain by Glacial Till (formerly called Boulder Clay) over Chalk. Brief general descriptions of the site are given below.

Boulder Clay

Boulder Clay deposits were formed underneath the ice sheets. They consist of stiff clay composed of ground-up debris, or rock flour, in which is embedded boulders and rocky fragments of all sizes. In East Anglia much of the glacial drift consists of bluish grey sandy clays containing much chalk fragments and flints.

Clay with Flints

Superficial deposit of clay containing flints found in plateau areas on the dip slope of the Upper Chalk. Clay and flint content is variable. Has a very variable interface with the underlying chalk, which is often weathered.

Upper Chalk

Upper Chalk is a well known, soft, white limestone with flints. It generally provides a good foundation for buildings, but weathering has and solution features can lead to problems in places. There is usually an irregular overlying layer of red brown flinty clay, sandy silty clay containing randomly oriented fragments of angular materials of local derivation. There is usually an irregular boundary with overlying strata, intensely irregular when there is a superficial cover of head. Soakaways are generally effective but may re-activate solution features, and for this reason should always be kept remote from structures.



3. Strategy

It was envisaged that poor soakage would be obtained in the Glacial Till and Clay with Flints. Therefore boreholes penetrating through these deposits down into the underlying more permeable Chalk should provide a soakage method.

4. Environment Agency

An enquiry was made to the Environment Agency (EA) to obtain their opinion on the use of borehole soakaways. They replied on 17th December 2009 in an email (attached). They indicated that if the shallow deposits are suitable for soakaways then borehole soakaways should not be used. Soakaways should not be located in contaminated ground and should be kept as shallow as possible. The distance between the base of soakaways and the underlying groundwater table should be a minimum of 5 meters.

5. Groundwater Table

From a visit to the nearby Manor Farm where there is a well, we were advised that the water table was at a depth of about 240ft (about 73m). The site appears to be at a level of 142m OD indicating a water table at about 69m OD. However this has not been confirmed with the EA.

6. Siteworks

Three borehole soakaways were drilled, installed and tested, using the constant head test method between Friday 15th and Tuesday 19th January 2010. The boreholes were taken to about 18m below ground level.

7. Soils as Found

The results of the boreholes can be summarised as follows:

GL - 0.35m	Topsoil	Clay with Flints
- 3.6 / 5.9m	Brown and reddish brown Clay with Flints	
- 18.0m	Chalk	Chalk

Groundwater was not encountered.

8. Borehole Installations

140mm OD pvc pipe was installed with 6m of slotted pipe at the base of the holes. Pea shingle surround was placed on the outside of the pipe up to about 1m below the Chalk surface. A bentonite granules surround on the outside of the liner pipe was then taken to Ground Level.

9. Flow Tests

The boreholes were tested after installation using the constant head method with water being supplied by a 500 gallon bowser. Intermediate tests were not generally carried out due to the soft nature of the ground and the difficulty in getting the bowser to the site of the boreholes in the soft field.

10. Flow Test Results

The tests on the boreholes indicated flow rates as follows:

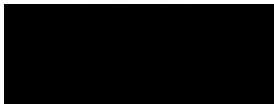
BH1 360 ℓ/min

BH2 400 ℓ/min

BH3 450 ℓ/min

The Kent Code on Soakaways indicates that a factor of safety of about 2 should be allowed on flow rates.

Yours faithfully



Roger Smith
For and on behalf of
Southern Testing Laboratories Limited



encs

Roger Smith

Subject: FW: Borehole Soakaways: Stevenage NES3 SG1 6GJ TL251 275

From: Monaghan, Paul A [REDACTED]

Sent: 17 December 2009 13:36

To: Roger Smith

Subject: RE: Borehole Soakaways: Stevenage NES3 SG1 6GJ TL251 275

Hello Roger,

I have now had a look at the site and your proposals and also reviewed Environment Agency guidance on boreholes soakaways. The Environment Agency generally do not like to see the use of borehole soakaways unless it is an only option. My understanding for this site is that a connection to a surface water sewer is feasible, however the developers would like to adopt a more sustainable approach. Given some of the site characteristics (primarily depth to groundwater) I am happy for Southern Testing and the developers to investigate the feasibility of using borehole soakaways on this site. I would like to convey the following information to ensure yourselves and the developers are aware of our policy requirements and potential implications/limitations of using borehole soakaways.

Some generic information on the use of borehole soakaways:

Soakaways should not be located where areas of ground contamination have been identified. Surface water infiltrating through contaminated ground can mobilise contaminants and result in pollution of the groundwater. If contamination is present, we require the removal of all contaminated material from all soakaway locations and provision of satisfactory evidence of its removal prior to construction of all soakaways.

Soakaways should not intercept the groundwater table and the distance between the base of any soakaways and the underlying groundwater should be a minimum of five metres.

Soakaways should be kept as shallow as possible to ensure the maximum distance between the base of the soakaway and the groundwater table is achieved. For borehole soakaways we require that soakage tests are carried out at regular intervals and that the borehole is terminated as soon as the required soakage is achieved.

Soakaways shall be designed and constructed wholly in accordance with BRE Digest 365 (or CIRIA Report 156) and to the satisfaction of the Councils Building Control Section.

For further information relating to the use of soakaways (and SUDs) and groundwater protection please refer to our guidance 'Groundwater Protection: Policy and Practice' (GP3).

Some site specific information:

The discharge of clean roof water to ground is acceptable provided the above listed requirements are met. All roof water downpipes must be sealed against pollutants entering the system from surface run off, effluent disposal and other forms of discharge such as road and car parking drainage. Open gullies should not be used. Roof drainage and road drainage should be kept separate.

Only clean, uncontaminated water should be discharged to any soakaway. Hence, for this scheme we would require that all surface water drainage from roads, parking areas and hard standings susceptible to oil contamination shall be passed through an oil separator/interceptor designed and constructed to have a capacity compatible with the site. Roof water shall not pass through the interceptor. A regular maintenance program must also be agreed to ensure the efficiency of the system over time. If possible, permeable paving should also be used to ensure road drainage pollutants are attenuated sufficiently.

If during your proposed site investigation you find that the shallow deposits at the site are suitable for infiltration then shallow soakaways should be used.

I trust this information is sufficient for your immediate requirements. Can you also please communicate this to the developer?

Feel free to come back to me if you would like to discuss this in more detail.

Regards,

Paul Monaghan | Technical Officer | Environment Agency
Groundwater & Contaminated Land Team | Thames Region

[REDACTED]

Please consider the environment before printing this email

From: Roger Smith [REDACTED]

27/01/2010

Sent: 16 December 2009 09:38
To: Monaghan, Paul A
Subject: FW: Borehole Soakaways: Stevenage NES3 SG1 6GJ TL251 275

Click [here](#) to report this email as spam.

Subject: Borehole Soakaways: Stevenage NES3 SG1 6GJ TL251 275

Dear Paul, I attach a plan showing the position of the site. As I indicated the geological map indicates the site to be mainly underlain by Clay with Flints or Glacial Till (NE Quadrant) over Chalk. Ground levels seem to be about 140m OD. We would like to investigate the feasibility of using Borehole soakaways penetrating into the chalk. We prefer to have a minimum penetration of 8 metres to allow a 6m slotted section to be placed with 7m of pea shingle surround. However we do find that the Chalk in Herts may not be particularly permeable in the upper layers and that better soakage can be found by going deeper, say to 12-14m into the chalk. If a decent infiltration rate can be obtained it reduces drainage costs. The acceptability of going to these deeper depths may however depend on the depth to the water table. I understand that road and driveway drainage together with roof drainage would be taken to Borehole soakaways. Thank you for your assistance and I look forward to your comments.
 Regards, Roger Smith.

Latest News

In addition to providing a full Geotechnical and Environmental Consultancy service, we now offer a **Ground Investigation Contracting Service** on a day-works basis for **CBR and DPT Testing, Concrete and Blacktop Coring, Hand Excavations, Flight Augering and Window or Windowless Sampling**, under the supervision of your Engineer.

We operate registered management systems and procedures to the ISO 9001, 14001 and OHAS 18001 Standards, and are CHAS and Worksafe accredited.

See our website http://www.southerntesting.co.uk/site_investigation.html for full details.

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Sender: Roger Smith, rsmith@southerntesting.co.uk on 16/12/2009

Southern Testing
 Keeble House, Stuart Way, East Grinstead, West Sussex RH19 4QA
 Tel: 01342 333100 | Fax: 01342 410321
<http://www.southerntesting.co.uk>

Southern Testing have provided innovative Geotechnical and Environmental Consultancy Services for over 40 years

ST Consult is a regional office of Southern Testing

ST Consult
 Twigden Barns, Brixworth Road, Creton, Northamptonshire, NN6 8NN
 Tel: 01604 500020 | Fax: 01604 500021
<http://www.stconsult.co.uk>

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27/01/2010

Job No: **BS375**

Hole No: 1

Site : Area NES3, Stevenage

Client : Croudace Ltd

Drilling Method : Shell and Auger (200mm)

National Grid Reference		TL 251 275	
Start date	19/01/2010	End date	19/01/2010
Ground level		Backfill date	19/01/2010
Logged by	RCS	Engineer	RCS
Final depth	18.00	Page	1 of 1

Monitoring well	Testing		Samples		Strata							
	Depth	SPT/SPT'(c) (N value) U(blow)	Depth	Type	Thickness	Level	Legend	Depth	Strata Descriptions			
					0.35			0.35	TOPSOIL	Topsoil		
					1.05			1.40 1.70	CLAY	Firm brown sandy Clay with flint fragments		
					0.30				CLAY	Soft brown sandy Clay		
					4.20				CLAY /GRAVEL	Stiff reddish brown Clay with flints		
							12.10		5.90	CHALK	Putty Chalk with occasional flints (disturbed by drilling)	
							18.00					End of Borehole
Hole Diameters			Water Strikes						Chiselling Time			General Remarks
Depth (m)	Hole (mm)	Casing (mm)	Date	Water (m)	Casing (m)	Time (mins)	Rose lo (m)	Sealed (m)	From (m)	To (m)	Time (hrs)	
6.00	200	200										
Constant head test at 17.4m - 360 l/min												
Moving Bowser 0.75hrs, moving drill tools offsite 0.75hr, Standing waiting for tractor 2hrs on 19.01.												
Awaiting tractor 2.5hrs on 19.01 & 1.5hrs on 20.01												
Clean road after tractor 0.5hr												



Site : **Area NES3, Stevenage**

Client : **Croudace Ltd**

Drilling Method : Shell and Auger (200mm)

National Grid Reference		TL 251 275	
Start date	18/01/2010	End date	18/01/2010
Ground level		Backfill date	18/01/2010
Logged by	RCS	Engineer	RCS
Final depth	17.40	Page	1 of 1

Monitoring well	Testing			Samples		Strata					
	Depth	SPT(SPT(c) (N value) U(blow)		Depth	Type	Thickness	Level	Legend	Depth	Strata Descriptions	
						0.35			0.35	TOPSOIL	Topsoil
						1.05				CLAY	Firm brown sandy Clay with flint fragments
						0.30			1.40	CLAY	Soft brown sandy Clay
									1.70	CLAY /GRAVEL	Stiff reddish brown Clay with flints
						2.20					
											
											
									3.90	CHALK	Putty Chalk with occasional flints (disturbed by drilling)
											
						13.50					
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											



NB: Positions of Boreholes and/or Trial Pits are only indicative unless dimensioned

Site: NES3 Stevenage

STL: BS375

Fig No: 1

Date: 29 January 2010

Not to Scale

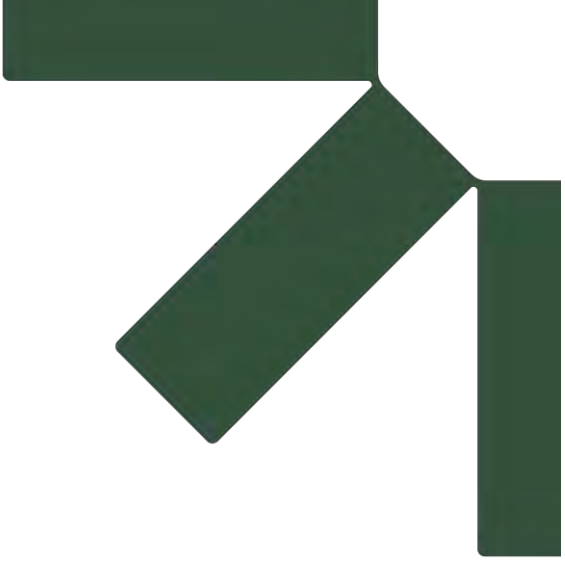


Southern Testing

Southern Testing: Keeble House, Stuart Way, East Grinstead, West Sussex RH19 4QA
ST Consult: Twigden Barns, Brixworth Road, Creton, Northampton NN6 8NN



ST Consult



Appendix D Thames Water Information



Mr Hamza El-Adnany

Vectos South Limited
4 Colston Avenue
5th Floor
Bristol
BS1 4ST



26 October 2021

Pre-planning enquiry: Capacity concerns

Dear Mr El-Adnany

Thank you for providing information on your development - **Roundwood, Back Lane, Stevenage, SG1 6GJ.**

Residential development comprising 330 units. Foul water to be pumped at max rate of 15.3l/s into manhole ref. TL2527241E. Surface water to be attenuated and restricted to 14.3l/s and discharged into MH9409.

We have completed the assessment of the foul water flows and surface water run-off based on the information submitted in your application with the purpose of assessing sewerage capacity within the existing Thames Water sewer network.

Foul Water

We've assessed your foul water proposals and concluded that our sewerage network will not have enough capacity to accommodate foul water flows from proposed development. It will therefore be necessary for us to undertake investigations into the impact of the development by means of hydraulic impact study to determine possible connection points on the existing system, or what upgrades to the existing network are required, before the site can be connected to it.. This work is done at our cost.

Once we've begun modelling, we may need to contact you to discuss changing the connection point for capacity reasons. Please note that we'll pay the cost of covering any extra distance if the connection needs to be made at a point further away than the nearest practicable point of at least the same diameter.

How long could modelling and reinforcement take?

Typical timescales for a development of your size are :

Modelling: 8 months
Design: 6 months
Construction: 6 months
Total: 20 months

If the time you're likely to take from planning and construction through to first occupancy is longer than this, we'll be able to carry out the necessary upgrades in time for your development. If it's shorter, please contact me on the number below to discuss the timing of our activities.

What do you need to tell us before we start modelling?

We will only carry out modelling once we're confident that your development will proceed. In order to have this confidence, we'll need to know that you **own the land and have either outline or full planning permission**. Please email this information to us as soon as you have it.

If you'd like us to start modelling work ahead of this point, we can do this if you agree to underwrite the cost of modelling and design. That means we'll fund the work – but you agree to pay the cost if you don't achieve first occupancy within five years.

If the modelling shows we need to carry out reinforcement work, then before we start construction we'll need you to supply us with notification that you've confirmed your F10 – Notification of construction project - submission to the Health and Safety Executive.

Surface Water

In accordance with the Building Act 2000 Clause H3.3, positive connection of surface water to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal methods have been examined and proven to be impracticable. Before we can consider your surface water needs, you'll need written approval from the lead local flood authority that you have followed the sequential approach to the disposal of surface water and considered all practical means.

The disposal hierarchy being:

1. store rainwater for later use.
2. use infiltration techniques where possible.
3. attenuate rainwater in ponds or open water features for gradual release.
4. attenuate rainwater by storing in tanks or sealed water features for gradual release.
5. discharge rainwater direct to a watercourse.
6. discharge rainwater to a surface water sewer/drain.
7. discharge rainwater to the combined sewer.
8. discharge rainwater to the foul sewer

Where connection to the public sewerage network is still required to manage surface water flows we will accept these flows at a discharge rate in line with CIRIA's best practice guide on SuDS or that stated within the sites planning approval.

Please see the attached 'Planning your wastewater' leaflet for additional information.

What do I need to do next?

If you've satisfied the points above, then you should compare your own timeline with the typical timescales we've suggested for our activities. If the time you're likely to take from planning and construction through to first occupancy is **more** than the total time we're likely to take, we'll be able to carry out the necessary upgrades in time for your development.

If it's **less** than this, you might want to ask us to start modelling earlier – in which case we'll require you to underwrite the cost, as noted above.

If you've any further questions, please contact me on 077476 47276.

Yours sincerely

Artur Jaroma

Thames Water

Nick Bosanko

From: DEVELOPER.SERVICES@THAMESWATER.CO.U
<DEVELOPER.SERVICES@THAMESWATER.CO.UK>
Sent: 03 November 2021 13:47
To: Nick Bosanko
Cc: Hamza El-Adnany
Subject: RE: RE: RE: RE: RE: RE: RE: Pre-Planning Enquiry Application Form - Roundwood, Stevenage (216170) DS6088138

Nick

For the avoidance of doubt; if the surface water hierarchy has been followed and the flows are restricted to a total of 14.3 l/s then Thames Water would not have any objections to the proposed sw discharge into MH9409.

Kind Regards

Artur Jaroma

Developer Services – Sewer Adoptions Engineer
Office: 0800 009 3921

Get advice on making your sewer connection correctly at connectright.org.uk

Clearwater Court, Vastern Road, Reading, RG1 8DB
Find us online at developers.thameswater.co.uk

Original Text

From: Nick Bosanko [REDACTED]
To: 'DEVELOPER.SERVICES@THAMESWATER.CO. <DEVELOPER.SERVICES@THAMESWATER.CO.UK>
CC: Hamza El-Adnany <Hamza.ElAdnany@vectos.co.uk>
Sent: 29.10.21 12:21:57
Subject: RE: RE: RE: RE: RE: RE: RE: Pre-Planning Enquiry Application Form - Roundwood, Stevenage (216170) DS6088138

Hi Artur

Thanks for the response. In terms of surface water, assuming the surface water sewer is the most preferable option (and the LLFA agree with this), we will discharge into the 375 mm surface water sewer (9409), in Avon Drive, at greenfield rates (as per the SuDS manual). Your note suggests that this is acceptable but does not reference the manhole specifically. The indicative rate was included in the form and we assume this to be acceptable subject to LLFA approval.

Please let me know if otherwise.

Thanks, Nick

Nick Bosanko

Associate Director

-

0117 203 5240



5th Floor, 4 Colston Avenue
Bristol, BS1 4ST

vectos.

PART OF
SLR

Consider the environment. Do you really need to print this email?

From: DEVELOPER.SERVICES@THAMESWATER.CO.U <DEVELOPER.SERVICES@THAMESWATER.CO.UK>

Sent: 26 October 2021 16:29

To: Nick Bosanko

Cc: Hamza El-Adnany

Subject: RE: RE: RE: RE: RE: RE: RE: Pre-Planning Enquiry Application Form - Roundwood, Stevenage (216170)
DS6088138

Dear Sir/Madam

Following your Pre-Planning Enquiry for the above site, please find our formal response enclosed. Please note, we have identified an inability of the existing waste water infrastructure to accommodate foul water flows from proposed development, and request to provide a build programme and further information describing confidence of the delivery of this scheme.

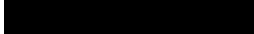
Should you have any further queries, please do not hesitate to contact me again.

Kind Regards

Artur Jaroma

Developer Services – Sewer Adoptions Engineer

Office: 0800 009 3921



Get advice on making your sewer connection correctly at connectright.org.uk

Clearwater Court, Vastern Road, Reading, RG1 8DB

Find us online at developers.thameswater.co.uk

Original Text

From: "DEVELOPER.SERVICES@THAMESWATER.CO.U" <DEVELOPER.SERVICES@THAMESWATER.CO.UK>

To:

CC: Hamza El-Adnany

Sent: 19.10.21 15:59:36

Subject: RE: RE: RE: RE: RE: RE: Pre-Planning Enquiry Application Form - Roundwood, Stevenage (216170)
DS6088138

Dear Nick

Vectos
Broad Quay House Broad Quay House

BRISTOL
BS1 4DJ

Search address supplied Roundwood
1
Back Lane
Stevenage
SG1 3XZ

Your reference 216170 - Stevenage

Our reference ALS/ALS Standard/2022_4686540

Search date 20 July 2022

Knowledge of features below the surface is essential for every development

The benefits of this knowledge not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility of any development.

Did you know that Thames Water Property Searches can also provide a variety of utility searches including a more comprehensive view of utility providers' assets (across up to 35-45 different providers), as well as more focused searches relating to specific major utility companies such as National Grid (gas and electric).

Contact us to find out more.



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0800 009 4540

Search address supplied: Roundwood, 1, Back Lane, Stevenage, SG1 3XZ

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk

Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

The following quartiles have been printed as they fall within Thames' sewerage area:

TL2427SE
TL2427NE
TL2527SW
TL2527NW

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

Following examination of our statutory maps, Thames Water has been unable to find any plans of water mains within this area. If you require a connection to the public water supply system, please write to:

New Connections / Diversions
Thames Water
Network Services Business Centre
Brentford
Middlesex
TW8 0EE

Tel: 0845 850 2777
Fax: 0207 713 3858
Email: developer.services@thameswater.co.uk

The following quartiles have not been printed as they are out of Thames' water catchment area. For details of the assets requested please contact the water company indicated below:

TL2427SE	Affinity Water
TL2427NE	Affinity Water
TL2527SW	Affinity Water
TL2527NW	Affinity Water

Affinity Water Ltd
Tamblin Way
Hatfield
AL10 9EZ

Tel: 0345 3572401

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

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

Manhole Reference	Manhole Cover Level	Manhole Invert Level
8304	140.07	138.3
9306	140.23	138.78
8302	140.12	138.67
9305	140.1	138.29
9301	140.08	138.03
9407	140.54	138.32
9414	140.56	138.8
9406	140.41	138.76
9413	140.44	138.97
8401	140.44	139.02
9405	140.48	138.57
8402	140.49	139.07
9412	140.46	138.87
9404	140.58	138.41
9411	140.63	138.74
9410	140.72	138.93
9403	140.71	138.6
9409	141.05	139.04
9402	141.06	138.76
9408	140.81	139.13
9401	140.91	138.89
9201	140.15	137.4
8213	140.16	138.28
8215	140.12	138.83
9204	140.22	137.82
8216	140.16	138.76
9206	140.01	137.83
9203	140.05	137.37
921A	n/a	n/a
831A	n/a	n/a
9308	140.05	137.88
9303	140.03	137.58
831B	n/a	n/a
931A	n/a	n/a
931B	n/a	n/a
8301	140.16	138.81
9311	140.09	137.92
9302	139.98	137.79
9310	140.05	138.46
8305	140.17	138.05
9307	140	138.06
8303	140.13	138.55
931C	n/a	n/a
9304	140.23	138.52
9109	141.3	137.9
8102	140.9	138.38
9106	141.26	137.5
8104	140.94	138.7
9101	140.69	138.72
9103	140.65	139.03
9102	140.51	138.99
9104	140.55	139.34
9112	140.93	137.51
9105	141	137.12
7201	140.33	138.72
7202	140.31	139.16
9209	139.69	137.41
8201	140.56	138.34
8203	140.57	138.78
8205	140.58	138.11
8206	140.59	138.55
8214	140.37	137.87
8217	140.39	138.48
8202	140.23	138.61
8204	140.2	139.07
9202	139.88	137.22
9205	139.88	137.54
9208	139.97	138.03
9207	139.94	137.48
8101	141.07	139.03
8103	141.07	138.89
8064	141.39	138.83
8066	141.38	140.1
8063	141.2	139.11
8105	140.9	138.29
8067	141.22	139.6
8062	141.03	38.69
8001	142.11	n/a
8065	141.03	137.89
9058	140.91	137.63
9056	140.89	137.75
911C	n/a	n/a
911D	n/a	n/a
9051	141.9	137.51
9057	141.08	135.45
911B	n/a	n/a
9002	141.83	n/a
9059	141.08	137.5
911A	n/a	n/a
9053	141.79	137.51
9004	141.77	135.47

Manhole Reference	Manhole Cover Level	Manhole Invert Level
9054	141.71	137.37
9003	141.7	135.77
9052	141.71	137.83
9110	141.5	140.1
9107	141.1	137.7
9108	140.98	138.08
6053	140.85	139.66
7054	140.73	139.4
7001	141.72	140.25
7051	140.75	139.86
7055	141.03	139.74
701A	n/a	n/a
8058	141.1	139.42
8060	141.09	139.16
8052	n/a	140.2
8061	140.99	139.06
8059	140.97	139.25
8051	142.13	137.74
9050	142.14	138.08
9001	142.12	135.98
6003	141.73	138.87
6052	141.74	139.58
6051	140.89	139.66
6050	140.99	139.44
6002	141.22	139.63
6001	141.39	139.34
7050	141.63	140.33
7002	141.6	139.95
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.		

Based on the Ordnance Survey Map with the
sanction of the Controller of H.M Stationary
Office License Number 10019345

ALS/ALS Standard/2022_4686540



0 10 20 40 60 80
Meters

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Scale: 1:1790
Width: 500m
Printed By: G1KANAGA
Print Date: 21/07/2022
Map Centre: 524750,227750
Grid Reference: TL2427NE

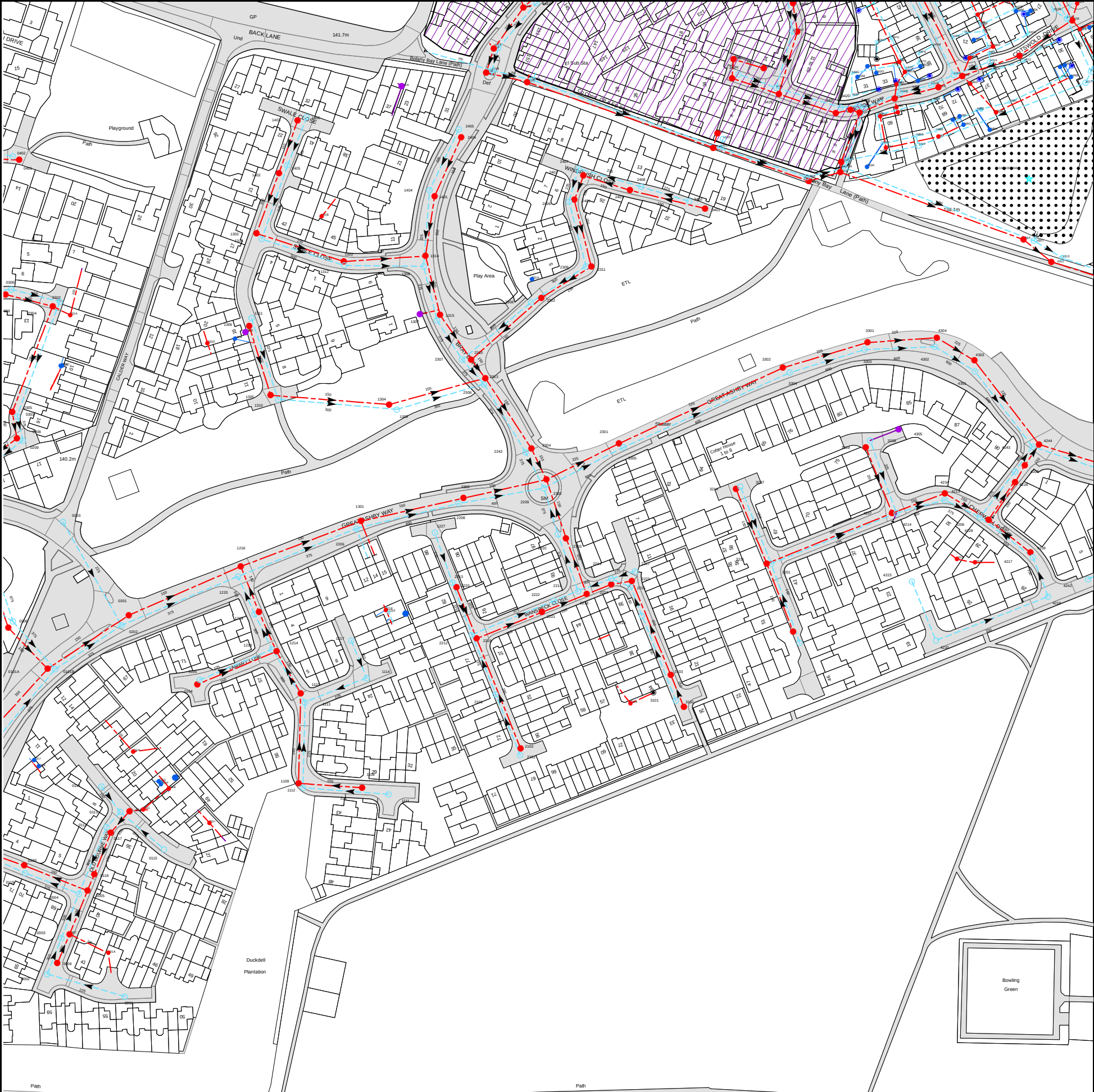
Comments:

ALS/ALS Standard/2022_4686540

NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

REFERENCE	COVER LEVEL	INVERT LEVEL
9501	140.74	139.17

REFERENCE	COVER LEVEL	INVERT LEVEL
9502	140.73	139.49



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 525250,227250

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

Manhole Reference	Manhole Cover Level	Manhole Invert Level
447F	140.55	139.78
447E	140.64	139.83
448J	140.6	140
343L	n/a	n/a
448Y	140.7	139.8
448I	141.2	140.4
447D	141.1	140.05
448M	140.9	140.46
441U	140.722	138.848
448L	n/a	n/a
447H	140.97	140.29
448K	n/a	n/a
447Y	140.9	140.08
447G	140.81	139.537
442C	140.765	139.34
447V	140.81	139.537
442B	140.727	139.04
448V	140.72	139.186
447X	140.72	139.78
448X	140.72	139.186
448Z	n/a	n/a
241E	141.288	138.638
241B	141.428	137.458
241F	141.326	138.676
2413	141.392	137.682
241G	141.698	138.798
241A	141.416	137.381
241C	141.758	138.208
341Z	140.96	139.38
343Q	n/a	n/a
342H	140.93	139.58
343R	n/a	n/a
342A	141.03	139.68
342G	140.87	139.53
342C	140.03	139.68
3417	140.88	139.32
447P	140.085	139.35
343M	139.95	139.35
441R	140.22	138.661
441V	140.225	138.8
343G	139.95	139.55
343O	n/a	n/a
447R	140.58	139.2
448T	140.45	138.75
448A	n/a	n/a
447Q	140.58	139.24
343N	139.95	139.205
448Q	140.48	139.88
447S	140.05	139.29
447O	140.58	139.47
448S	140.425	138.95
441X	140.505	139.155
448O	140.425	138.775
447I	140.54	139.34
447N	140.58	139.59
447J	140.55	139.65
448P	140.43	139.33
447M	140.65	139.87
343H	140.75	139.95
448N	n/a	n/a
447U	140.95	139.86
447K	140.7	140
447L	140.64	139.92
448E	140.1	138.29
448H	139.3	138.6
449G	139.97	139.4
449H	n/a	n/a
449F	n/a	n/a
343P	139.97	138.698
343I	139.95	139.11
3413	140.23	138.6
341Y	140.109	138.34
449K	139.95	138.58
448D	139.85	138.5
342D	140.16	138.54
342K	139.9	138.578
342I	140.23	138.8
449L	140.043	138.476
342B	140.08	138.58
448F	140.19	139.45
442A	139.927	137.632
343F	140.28	139.6
342E	140.65	138.99
441Q	139.923	138.667
342L	140.68	139.339
441Z	140.063	138.288
441W	140.05	138.746
448U	140.043	138.491
447T	140.041	138.95
449D	140.245	138.697

Manhole Reference	Manhole Cover Level	Manhole Invert Level
3219	136.28	134.95
3208	136.17	134.34
4305	135.94	134.54
3304	136.74	131.14
4301	136.05	133.74
3302	136.74	133.48
4303	136.15	133.08
3303	136.42	134
4302	136.23	133.85
3301	136.5	133.34
4304	136.32	133.31
341G	139.365	136.735
341B	139.407	137.387
341E	139.459	136.649
341A	139.47	137.405
343K	139.45	138.75
342F	139.57	138.17
342J	139.7	137.418
341C	140.595	137.37
449J	139.65	138.906
341H	140.606	136.956
441Y	139.5	137.471
343J	139.87	138.6
341D	140.343	n/a
449I	139.97	139.233
448G	139.95	138.21
341I	n/a	n/a
1401	140.45	138.15
1307	139.66	137.3
1315	139.73	136.77
2405	140.85	139.1
2404	140.84	138.58
2307	139.04	136.78
2310	138.98	136.07
2306	138.5	136.1
2313	138.59	135.82
2242	137.92	135.3
241D	141.412	138.502
2308	139.36	137.24
2304	137.91	134.68
231A	n/a	n/a
2312	139.35	136.45
2406	139.95	137.62
2401	140.01	136.95
2407	140.18	137.84
2402	140.19	137.09
2309	139.48	137.33
2311	139.47	136.68
2301	137.45	133.87
3305	137.42	134.48
2403	139.9	137.34
2408	139.82	138.06
3402	139.52	138.19
3401	139.43	137.73
4243	n/a	n/a
4244	n/a	n/a
4312	137.55	136.13
4313	137.6	135.8
4307	137.6	136.2
431A	138.38	136.26
449C	139.85	139.37
448C	140.825	n/a
441T	139.915	138.225
448B	140.825	139.8
449B	140.5	140.015
441S	139.875	138.45
449E	n/a	n/a
449A	140.825	140.14
448W	140.245	139.454
447W	140.3	139.2
447Z	140.75	139.96
0304	139.92	137.97
0302	139.87	138.25
031B	n/a	n/a
031C	n/a	n/a
0203	140.37	138.97
031A	n/a	n/a
031D	n/a	n/a
131A	n/a	n/a
131D	n/a	n/a
1306	139.68	137.63
1311	139.73	138.28
1303	140.46	138.49
1313	140.47	139.32
1305	139.17	137.29
1310	139.1	137.55
1402	140.82	138.89
1405	140.84	139.78
1403	141.05	139.21
1406	141.05	139.93
131B	n/a	n/a
1302	140.11	137.78
1312	140.08	138.46

Manhole Reference	Manhole Cover Level	Manhole Invert Level
2206	138.68	135.92
1301	138.7	135.37
1304	139.17	136.58
1309	139.1	137.29
141A	n/a	n/a
131C	n/a	n/a
1308	139.97	137.72
1314	140.09	137.18
1404	140.46	138.82
1227	138.5	137.44
2213	138.91	137.27
2220	138.93	136.8
2208	138.4	135.71
2305	138.4	134.49
2212	139.24	136.96
2219	139.31	136.36
2101	139.79	138.36
2102	140.3	138.94
2103	140.27	138.44
2221	138.9	136.05
2209	138.23	134.73
2302	138.12	134.12
2222	138.74	136.67
2210	138.31	136.9
2303	138.5	134.9
2211	138.65	136.64
2218	138.63	135.88
2224	138.57	136.17
2214	138.53	136.92
211A	n/a	n/a
2215	138.72	137.1
2223	138.61	136.61
2217	138.47	137.11
2216	138.96	137.3
3103	139.29	137.08
3101	139.54	137.79
4218	136.42	134.99
4242	n/a	n/a
4217	n/a	n/a
4239	136.15	134.8
4228	135.82	132.4
4205	135.84	132.93
4202	135.94	132.29
011I	n/a	n/a
1111	140.61	139.43
1108	140.74	138.92
1112	140.58	138.9
1109	140.55	138.56
1113	140.02	137
1110	139.92	136.47
0104	140.1	138.2
0105	140.12	138.62
1114	139.68	137.21
1214	139.61	136.25
1218	139.61	136.75
1217	139.28	137.53
1219	139.46	136.65
n/a	n/a	n/a
121F	n/a	n/a
1215	139.44	136.06
121E	n/a	n/a
1220	139.7	136.4
1216	139.58	135.78
0115	n/a	n/a
0117	n/a	n/a
0112	n/a	n/a
0113	n/a	n/a
0116	n/a	n/a
011C	0	-2.2
011B	0	-1.7
0114	n/a	n/a
011H	n/a	n/a
011G	n/a	n/a
011D	n/a	n/a
011K	n/a	n/a
011J	n/a	n/a
011A	n/a	n/a
0101B	140.51	137.15
0101A	140.6	136.67
0202	140.23	136.9
0301	140.25	136.36
3102	139.52	137.47
3203	138.29	136.52
4220	137.57	135.71
3216	138.23	136.84
4223	137.3	135.92
3201	137.64	135.12
3211	137.66	135.6
421B	n/a	n/a
421A	n/a	n/a
4229	136.08	134.34
4206	136.09	133.49
4237	136.63	134.69

Manhole Reference	Manhole Cover Level	Manhole Invert Level
4214	136.56	134.05
4213	136.08	133.83
4234	136.05	134.5
3214	137.27	135.92
3207	137.22	135.57
0120	n/a	n/a
0119	n/a	n/a
0002	n/a	n/a
0006	n/a	n/a
0003	n/a	n/a
0007	n/a	n/a
0004	n/a	n/a
0005	n/a	n/a
0118	n/a	n/a
001A	n/a	n/a
0001	n/a	n/a
9309	140.13	138.17
0306	140.11	138.51
0401	n/a	n/a
0402	n/a	n/a
0209	n/a	n/a
0208	n/a	n/a
0303	139.97	137.97
0305	140.01	137.59
0207	140.65	136.92
0206	140.61	137.13
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The width of the displayed area is 500m and the centre of the map is located at OS coordinates 525250,227750

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

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

Manhole Reference	Manhole Cover Level	Manhole Invert Level
372S	n/a	143.9
372T	n/a	143.446
371U	n/a	143.039
374P	n/a	142.918
372U	n/a	143.055
372N	n/a	142.76
374I	n/a	143
371R	n/a	143.9
372M	n/a	143.76
371Q	n/a	143.75
371V	n/a	142.56
372O	n/a	143.521
372V	n/a	n/a
371S	n/a	143.47
371L	144.48	142.43
371M	144.5	142.6
371O	n/a	143.95
372Q	n/a	144.1
371T	n/a	n/a
372P	n/a	143.314
371P	n/a	144.1
371W	n/a	143.8
471Z	n/a	143.75
471F	144.68	142.99
471N	n/a	143.95
471O	n/a	143.134
471I	n/a	143.95
372A	n/a	142.626
371Z	n/a	142.94
373L	n/a	143
373M	n/a	n/a
371Y	n/a	143.388
373J	n/a	143.256
373B	n/a	142.55
373G	n/a	143.046
374X	n/a	n/a
373H	n/a	143.256
372Z	n/a	142.35
371X	n/a	143.55
373C	n/a	143.116
372F	n/a	143.475
373D	n/a	142.77
372D	n/a	143.32
373E	n/a	142.693
372E	n/a	143.475
372W	n/a	143.75
372G	n/a	143.012
373F	n/a	n/a
372B	n/a	143.8
372Y	n/a	143.443
371J	144.25	142.29
374Q	n/a	142.593
372C	n/a	143.8
372X	n/a	143.7
473U	n/a	143.255
472M	n/a	143.115
473O	n/a	143.6
472J	n/a	143.7
473T	n/a	143.538
472I	n/a	143.7
472L	n/a	143.375
472H	n/a	143.7
473S	n/a	143.8
472K	n/a	143.7
473M	n/a	143.7
473H	n/a	142
471M	144.69	142.548
472A	n/a	143.505
472Y	n/a	143.133
472C	n/a	143.75
472Z	n/a	143.75
473F	n/a	143.75
4703	144.15	142.9
473G	n/a	143.615
473I	n/a	143.6
471K	n/a	143.9
472B	n/a	143.15
473B	n/a	143.37
473A	n/a	144
473J	n/a	143.271
471L	n/a	143.675
472E	n/a	143.6
473C	n/a	143.5
472D	n/a	142.698
473D	n/a	143.72
473N	n/a	144
473K	n/a	143.5
472F	n/a	143.85
471Y	n/a	144
473L	n/a	143.85

Manhole Reference	Manhole Cover Level	Manhole Invert Level
473E	n/a	143.95
472G	n/a	143.643
471Q	n/a	143.3
471E	144.14	142.09
472T	n/a	n/a
473Y	n/a	143.06
471D	143.94	141.91
473W	n/a	142.2
472V	n/a	n/a
471P	n/a	143.45
471T	n/a	143.85
471X	n/a	142.282
4702	144.12	141.97
473V	n/a	142.483
473Z	n/a	n/a
472U	n/a	n/a
471U	n/a	143
473X	n/a	142.8
472Q	n/a	143.345
472O	n/a	142.05
471W	n/a	142.608
471V	n/a	143.5
472P	n/a	142.7
472R	n/a	143.35
473Q	n/a	143.296
473R	n/a	143.55
472N	n/a	142.912
472S	n/a	143.55
473P	n/a	143.36
362A	n/a	142.73
362K	n/a	143.05
363Q	n/a	143.105
362P	n/a	142.51
362N	n/a	142.43
374B	n/a	143.2
374A	n/a	142.626
373V	n/a	142.557
372K	n/a	143.05
371H	143.75	142.39
374D	n/a	143.15
372L	n/a	143.2
374C	n/a	143.15
374U	n/a	143.15
371I	143.9	141.99
373U	n/a	143.15
373T	n/a	142.51
372H	n/a	141.949
373S	n/a	142.51
371K	143.97	141.73
371N	143.95	142.1
373P	n/a	n/a
374T	n/a	142.8
373Q	n/a	142.93
373K	n/a	143.4
373R	n/a	143.15
373N	n/a	n/a
361P	143.42	141.72
363K	n/a	142.7
374V	n/a	143.15
363S	n/a	141.517
363W	n/a	142.262
374F	n/a	143.35
374E	n/a	143
363X	n/a	142.122
362H	n/a	n/a
363J	n/a	143
361Q	143.3	141.19
374G	n/a	142.382
374W	n/a	142.748
374S	n/a	143.2
374N	n/a	143.5
361T	143.41	141.31
374L	n/a	142.582
374J	n/a	143.1
361S	143.39	141.48
374H	n/a	143
364A	n/a	141.944
374M	n/a	143.5
374R	n/a	143.45
363T	n/a	141.356
374K	n/a	142
363U	n/a	143.1
363Y	n/a	143.25
261A	143.949	142.279
261G	n/a	143.15
261F	n/a	143.65
261H	n/a	143.005
261D	n/a	142.609
271B	n/a	143.1
271A	n/a	142.865
372J	n/a	143
361X	n/a	141.977
362U	n/a	142.746

Manhole Reference	Manhole Cover Level	Manhole Invert Level
372I	n/a	143.512
362R	n/a	142.2
373Z	n/a	142.665
361W	n/a	142.35
361Y	143.72	141.786
373X	n/a	142.932
362S	n/a	142
361H	143.611	141.621
362Q	n/a	142
362T	143.71	141.325
373Y	n/a	142.8
361Z	n/a	n/a
361E	143.618	141.808
362X	n/a	142.76
362Y	n/a	142.95
362W	n/a	143
373W	n/a	142.51
363L	n/a	142.36
363E	n/a	141.788
363F	n/a	141.675
362E	n/a	142.95
362F	n/a	141.311
363I	n/a	142.85
362V	n/a	143
362C	n/a	141.895
363H	n/a	142.7
362D	n/a	142.95
363D	n/a	142.379
363C	n/a	143
363G	n/a	142.9
363N	n/a	n/a
362B	n/a	142.75
363O	n/a	142.905
362J	n/a	143.2
363P	n/a	142.798
363A	n/a	143.05
363R	n/a	142.09
362L	n/a	142.852
362M	n/a	142.67
362I	n/a	141.575
362Z	n/a	142.87
361R	143.44	141.54
363B	n/a	143.05
362O	n/a	142.693
252I	142.71	141.466
261C	142.612	141.31
261K	141.98	n/a
261T	142.7	141.975
261V	142.7	141.788
261L	142.75	141.638
364B	142.83	141.679
364H	142.82	141.945
261U	142.85	141.9
261B	142.927	141.57
261M	142.8	142.07
364C	142.88	142.28
261Z	143.05	142.02
364E	n/a	142.25
364G	143.35	142.706
261O	n/a	n/a
261I	143.25	142.583
261N	n/a	142.25
261W	143.095	142.12
261P	143.1	141.935
364F	n/a	142.75
261X	142.85	142.25
261Q	412.85	142.1
261S	n/a	142.48
261J	n/a	142.75
261Y	143.02	142.42
261R	n/a	142.4
461D	143.522	142.112
352G	142.6	141.932
361G	143.718	141.168
351Z	142.55	141.9
364I	142.82	142.123
361D	143.73	141.155
352B	142.725	141.388
364J	142.8	142.2
351E	142.648	139.388
364D	142.8	142.029
352N	142.55	141.766
352P	142.7	141.578
351D	142.64	139.955
352D	142.523	141.938
363M	n/a	142.062
352M	142.52	141.898
361A	143.644	140.654
352E	n/a	142.05
361B	143.577	141.017
362G	n/a	142.75
352C	142.665	141.738
352O	142.67	142.05

Manhole Reference	Manhole Cover Level	Manhole Invert Level
352F	n/a	142.05
361V	143.36	140.95
361U	143.37	141.29
351A	143.754	140.009
351C	143.765	140.655
351B	143.654	140.519
451O	142	140.575
454S	n/a	n/a
454T	n/a	n/a
451U	n/a	n/a
451P	n/a	n/a
461C	n/a	n/a
461B	143.38	140.375
461F	143.355	140.955
461W	n/a	n/a
461V	n/a	n/a
461U	n/a	n/a
461X	n/a	n/a
461E	143.712	141.362
461A	143.716	140.881
461M	143.87	141.55
461P	n/a	142.653
461R	n/a	142.195
461L	144	141.13
363Z	n/a	143.1
461S	n/a	143.45
461T	n/a	n/a
363V	n/a	143.1
461Q	n/a	143.066
461O	n/a	142.96
461N	144.13	141.53
472X	n/a	n/a
471S	n/a	143.2
352I	142.75	141.634
352H	142.7	141.716
352K	n/a	142
251P	142.795	140.55
251O	142.809	140.97
352Q	142.675	141.863
352L	n/a	142
251E	142.71	140.74
251S	n/a	142.05
2508	142.689	141.04
252F	142.65	142.05
251W	142.67	141.915
251Y	142.82	141.64
252E	n/a	n/a
251Z	142.65	141.7
251X	n/a	n/a
252A	142.65	141.716
251V	142.68	141.238
252G	142.715	141.631
251T	n/a	n/a
252H	142.525	141.579
252C	142.61	141.875
352A	n/a	142.25
252B	142.65	141.813
251U	142.695	141.03
252D	n/a	n/a
251F	142.566	140.98
351X	141.4	140.67
351Y	n/a	n/a
351W	141.4	140.51
453Y	141.59	140.94
454U	n/a	n/a
453Z	141.57	140.8
451T	141.47	139.82
451R	141.527	139.845
454L	n/a	n/a
454K	141.6	141
453V	142	141.21
453T	142	141.25
454H	141.75	141.32
454I	141.75	141.32
454F	n/a	n/a
454M	n/a	n/a
454J	141.95	141.17
454G	n/a	n/a
453S	142	141.25
451N	141.818	140.3
451S	141.773	140
453U	142	141.21
451Q	141.99	140.64
454E	141.02	140.4
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.		



Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

	Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Storm Sewer
	Sludge Sewer
	Foul Trunk Sewer
	Surface Trunk Sewer
	Combined Trunk Sewer
	Foul Rising Main
	Surface Water Rising Main
	Combined Rising Main
	Vacuum
	Thames Water Proposed
	Vent Pipe
	Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

	Sewer
	Culverted Watercourse
	Proposed
	Decommissioned Sewer
	Content of this drainage network is currently unknown
	Ownership of this drainage network is currently unknown

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve		Meter
	Dam Chase		Vent
	Fitting		

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Ancillary		Drop Pipe
	Control Valve		Well

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Inlet		Outfall
	Undefined End		

Other Symbols

Symbols used on maps which do not fall under other general categories.

	Change of Characteristic Indicator		Public / Private Pumping Station
	Invert Level		Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Chamber
	Operational Site

Ducts or Crossings

	Casement	Ducts may contain high voltage cables. Please check with Thames Water.
	Conduit Bridge	
	Subway	
	Tunnel	

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plan are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

5) 'na' or '0' on a manhole indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL's terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	BACS Payment	Telephone Banking	Cheque
Call 0800 009 4540 quoting your invoice number starting CBA or ADS / OSS	Account number 90478703 Sort code 60-00-01 A remittance advice must be sent to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW. or email ps.billing@thameswater.co.uk	By calling your bank and quoting: Account number 90478703 Sort code 60-00-01 and your invoice number	Made payable to ' Thames Water Utilities Ltd ' Write your Thames Water account number on the back. Send to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW or by DX to 151280 Slough 13

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

Sewer Flooding

History Enquiry



Property
Searches

Vectos

Search address supplied Roundwood
1
Back Lane
Stevenage
SG1 3XZ

Your reference 216170 - Stevenage

Our reference SFH/SFH Standard/2022_4686545

Received date 20 July 2022

Search date 26 July 2022



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0800 009 4540

Sewer Flooding

History Enquiry



Property
Searches

Search address supplied: Roundwood,1,Back Lane,Stevenage,SG1 3XZ

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

- (i) any negligent or incorrect entry in the records searched;
- (ii) any negligent or incorrect interpretation of the records searched;
- (iii) and any negligent or incorrect recording of that interpretation in the search report
- (iv) compensation payments



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
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searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0800 009 4540

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

For your guidance:

- A sewer is “overloaded” when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- “Internal flooding” from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- “At Risk” properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company’s reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0800 316 9800 or website www.thameswater.co.uk



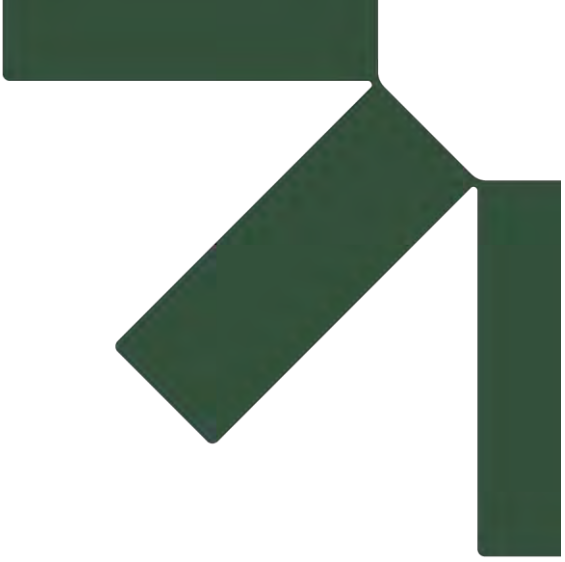
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DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0800 009 4540



Appendix E Environment Agency Correspondence

Nick Bosanko

From: Hatfield, GWCLA <gwcla.hatfield@environment-agency.gov.uk>
Sent: 31 January 2022 17:24
To: Nick Bosanko; HNL Sustainable Places
Cc: Enquiries, Unit
Subject: RE: 210908/JPF07 16/01713/1 - Stevenage SG1 3XZ - Deep bore soakaways

Hi Nick,

Discharging the run-off from areas other than clean, sealed roof drainage (as per G12) to the surface water sewer would remove any risk to groundwater and would be the preferred approach from a groundwater protection perspective.

Kind regards

Clay

From: Nick Bosanko [REDACTED]
Sent: 28 January 2022 14:58
To: Hatfield, GWCLA <gwcla.hatfield@environment-agency.gov.uk>; HNL Sustainable Places <HNLsustainableplaces@environment-agency.gov.uk>
Cc: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: RE: 210908/JPF07 16/01713/1 - Stevenage SG1 3XZ - Deep bore soakaways

Some people who received this message don't often get email from nick.bosanko@vectos.co.uk. [Learn why this is important](#)

Hi Clay

Thank you for your email below, which was helpful.

Our development will not be limited to clean roof drainage and will include road surfaces and parking areas etc.

We have now been able to confirm with Thames Water that we can dispose to their surface water sewer.

In the email below, I note that the EA would usually only agree to the use of deep infiltration systems for surface water if we can demonstrate that there are no other feasible options.

Now that Thames Water have confirmed that we can dispose to their surface water sewer, would this be sufficient for the EA to refuse the use of deep infiltration systems?

Many thanks, Nick

Nick Bosanko
Associate Director

-

0117 203 5240



5th Floor, 4 Colston Avenue
Bristol, BS1 4ST

vectos. | PART OF **SLR** 

From: Hatfield, GWCLA <gwcla.hatfield@environment-agency.gov.uk>
Sent: 05 October 2021 14:22
To: Nick Bosanko [REDACTED] HNL Sustainable Places <HNLsustainablePlaces@environment-agency.gov.uk>
Cc: Enquiries, Unit <enquiries@environment-agency.gov.uk>; Hatfield, GWCLA <gwcla.hatfield@environment-agency.gov.uk>
Subject: RE: 210908/JPF07 16/01713/1 - Stevenage SG1 3XZ - Deep bore soakaways

Hi Nick,

The requirements around when deep borehole soakaways are acceptable are pretty stringent and, for anything other than clean sealed roof drainage there are no exemptions from the permitting requirements which would appear to be relevant to this site. My concern here is that a scheme will be approved under planning but at the permitting stage we may not agree that the scheme is acceptable and refuse a permit or require changes which are not in-line with agreed scheme under planning.

I would suggest making contact with national permitting service and engaging in the pre-application service so that view can be provided on the proposed scheme. I believe all the details can be found here:

<https://www.gov.uk/guidance/get-advice-before-you-apply-for-an-environmental-permit>

Kind regards

Clay Durrant
Technical Officer, Groundwater and Land Quality
+442084745783
+447825903545
Environment Agency | Alchemy, Bessemer Road, Welwyn Garden City, AL7 1HE

From: Nick Bosanko [REDACTED]
Sent: 05 October 2021 11:42
To: HNL Sustainable Places <HNLsustainablePlaces@environment-agency.gov.uk>
Cc: Enquiries, Unit <enquiries@environment-agency.gov.uk>; Hatfield, GWCLA <gwcla.hatfield@environment-agency.gov.uk>
Subject: RE: 210908/JPF07 16/01713/1 - Stevenage SG1 3XZ - Deep bore soakaways

Thank you for the email.

Can the groundwater team confirm whether they will be providing any further input?

Regards, Nick

Nick Bosanko
Associate Director

-

0117 203 5240
[REDACTED]

-

5th Floor, 4 Colston Avenue
Bristol, BS1 4ST



From: HNL Sustainable Places <HNLsustainablePlaces@environment-agency.gov.uk>
Sent: 10 September 2021 13:29

To: Nick Bosanko [REDACTED]
Cc: Enquiries, Unit <enquiries@environment-agency.gov.uk>; Hatfield, GWCLA <gwcla.hatfield@environment-agency.gov.uk>
Subject: RE: 210908/JPF07 16/01713/1 - Stevenage SG1 3XZ - Deep bore soakaways

Dear Nick,

Thank you for your enquiry. We have attached our standard advice and have include some advice regarding our general position on deep borehole soakaways. We have also cc'd in our groundwater team in case they want to comment from a permitting perspective.

Advice

Infiltration via deep borehole soakaways are not acceptable, other than when a drainage and hydrogeological risk assessment shows this to be the only viable option and that any risks to groundwater will be adequately mitigated.

In line with position statement G9 in [The Environment Agency's approach to groundwater protection](#) (formerly GP3) we would usually only agree to the use of deep infiltration systems for surface water if you can demonstrate the following:

- There are no other feasible options such as shallow infiltration systems or drainage fields/mounds that can be operated in accordance with the with the appropriate British standard (e.g. discharge to a shallow infiltration system, surface water or sewer);
- The system is no deeper than is required to obtain sufficient soakage;
- Acceptable pollution control measures are in place;
- Risk assessment demonstrates that no unacceptable discharge to groundwater will take place;
- There are sufficient mitigating factors or measures to compensate for the increase risk arising from the use of deep structures.

The above should be read in conjunction with the position statement G1. Please note that we cannot issue an Environmental Permit for the direct discharge of hazardous substances into groundwater.

G1 - Direct inputs into groundwater

The Environment Agency must take all necessary measures to:

- Prevent the input of any hazardous substance to groundwater;
- Limit the input of non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.

The Environment Agency will only agree to the direct input of non-hazardous pollutants into groundwater if all of the following apply:

- It will not result in pollution of groundwater;
- There are clear and overriding reasons why the discharge cannot reasonably be made indirectly;
- There is adequate evidence to show that the increased pollution risk from direct inputs will be mitigated.

Please refer to our [Groundwater Protection](#) webpages for further information.

We would usually also offer information regarding our Charged Advice Service, however, we have unfortunately had to make a decision within our team to put a temporary hold on our Charged Advice Service. This is due to resourcing issues within our team and our needing to focus our resources on providing responses to Statutory Planning applications and Local Plans.

I appreciate that this isn't the response you were hoping for, however please be assured that we're working to address our resourcing issues. The decision to put this service on hold will be reviewed at the end of September 2021. Should you still like to access our charged service then, please contact us again after this date.

Kind regards,

HNL Sustainable Places

Planning Advisors, Hertfordshire & North London Sustainable Places

Environment Agency | Alchemy, Bessemer Road, Welwyn Garden City, Hertfordshire, AL7 1HE
8 HNL.SustainablePlaces@environment-agency.gov.uk



From: Enquiries, Unit
Sent: 08 September 2021 13:57
To: 'Nick.Bosanko' [REDACTED]
Subject: FW: 210908/JPF07 16/01713/1 - Stevenage SG1 3XZ - Deep bore soakaways

Dear Nick,

Thank you for your pre-planning enquiry.

I have passed your enquiry to our Sustainable Places team for the relevant area and they will be in touch with you shortly.

The Freedom of Information Act and Environmental Information Regulations state that a public authority must respond to requests for information within 20 working days, but we aim to respond to all enquiries as quickly as we can.

However due to the ongoing COVID-19 pandemic affecting staff and resources we may take longer than the 20 working days to reply. We will aim to provide an answer as soon as we can.

You can find more information about our service commitment by clicking on the link below:

<https://www.gov.uk/government/publications/environment-agency-customer-service-commitment>

Should you wish to contact the Sustainable Places team directly, please use the contact details below. Please quote your Enquiry Reference XXXX in any correspondence with us regarding this matter.

Sustainable Places
Environment Agency
Hertfordshire and North London Area
Alchemy
Bessemer Road
Welwyn Garden City
Hertfordshire
AL7 1HE

Kind regards,

Josh Furness
Customer Service Advisor
National Contact Centre Services Part of Operations, Regulation & Customer Environment Agency

Tel: 03708 506 506
Web Site: www.gov.uk/environment-agency

From: Nick Bosanko [<mailto:Nick.Bosanko@vectos.co.uk>]
Sent: 07 September 2021 14:17
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: 210908/JPF07 16/01713/1 - Stevenage SG1 3XZ - Deep bore soakaways

Dear EA

I'm writing with respect to the above planning application – see link below:

<https://pa2.north-herts.gov.uk/online-applications/simpleSearchResults.do?action=firstPage>

I understand that the planning application remains undecided. The development proposals are being modified as part of a future resubmission. We have been instructed to prepare a revised surface water drainage strategy. As part of this, I'm investigating the original surface water drainage strategy. Unfortunately, those involved at the time are no longer available.

We note that in the 2016 FRA submitted with the planning application is a letter from the EA dated 2010 with respect to the surface water drainage strategy. Obviously, the LLFA tend to deal with these matters nowadays. However, the original surface water drainage strategy drawing is attached. You will note that deep bore soakaways are used across the site to dispose surface water runoff. Some attenuation is provided in tanks or permeable paving, upstream of the boreholes. Highway runoff is managed separately, with swales leading to separate deep bore soakaways.

Deep bore soakaways do have some limitations, but can be effective under certain circumstances.

A surface water sewer is present to the south of the site (see below), adjacent to Avon Drive. Some if not all of the site could drain to the sewer. At this stage, we are unsure why this was discounted but that may become clear upon further investigation. At this stage, we don't know if capacity was/is available in the sewer.

Given that the site is located within a chalk aquifer and Source Protection Zone III, I assume the EA will continue to have an interest in how surface water runoff is disposed.

The EA letter in the FRA is dated 2010. Given that we are looking to update this surface water drainage strategy, I wanted to provide you with the opportunity to provide any comments at this early stage, particularly if we continue with the use of borehole soakaways.

I look forward to receipt of your comments.

Many thanks, Nick

