

Appendix E
Existing Sewer Record Drawings

Asset location search



Property Searches

Tim Killingback

Harman House
Andover Road
WINCHESTER
SO23 7BS

Search address supplied Haskins Garden Centre
A325
Birdworld
Farnham
GU10 4LD

Your reference N/A

Our reference ALS/ALS Standard/2022_4616179

Search date 1 April 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: Haskins Garden Centre, A325, Birdworld, Farnham, GU10 4LD

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:

SU8142NW
SU8143NW

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.

The following quartiles have not been printed as they contain no assets:

SU8042NW
SU8042NE
SU8043SE
SU8143SW

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:

SU8042NW	South East
SU8042NE	South East
SU8043SE	South East
SU8142NW	South East
SU8143SW	South East
SU8143NW	South East

South East Water Ltd
Rocfort Road
Snodland
Kent
ME6 5AH

Tel: 0845 301 0845
Website: www.southeastwater.co.uk

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

Thank you for your payment covering the cost of this enquiry. We have enclosed a VAT Receipt for your records.

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

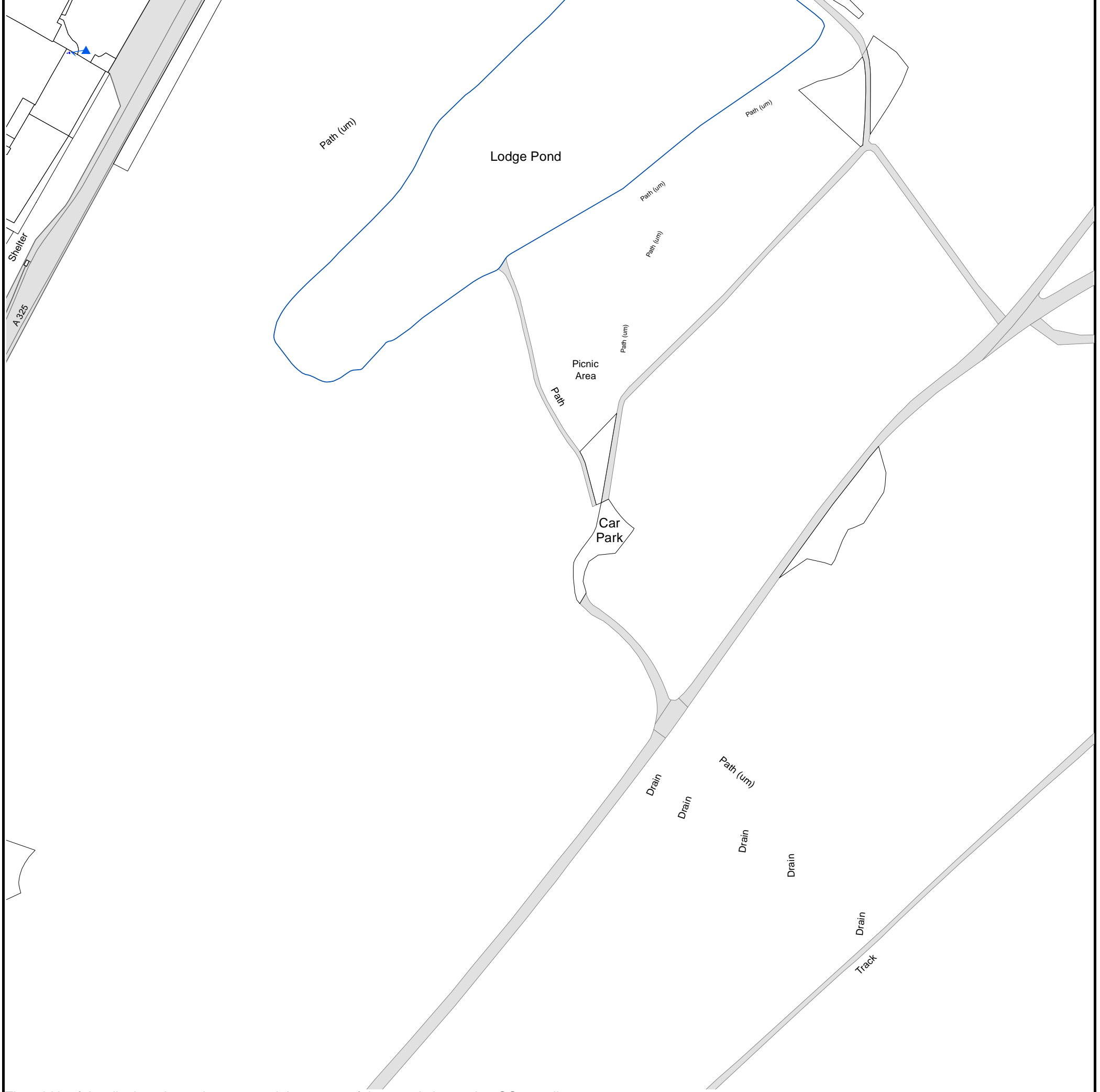
Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

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



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 481250,142750

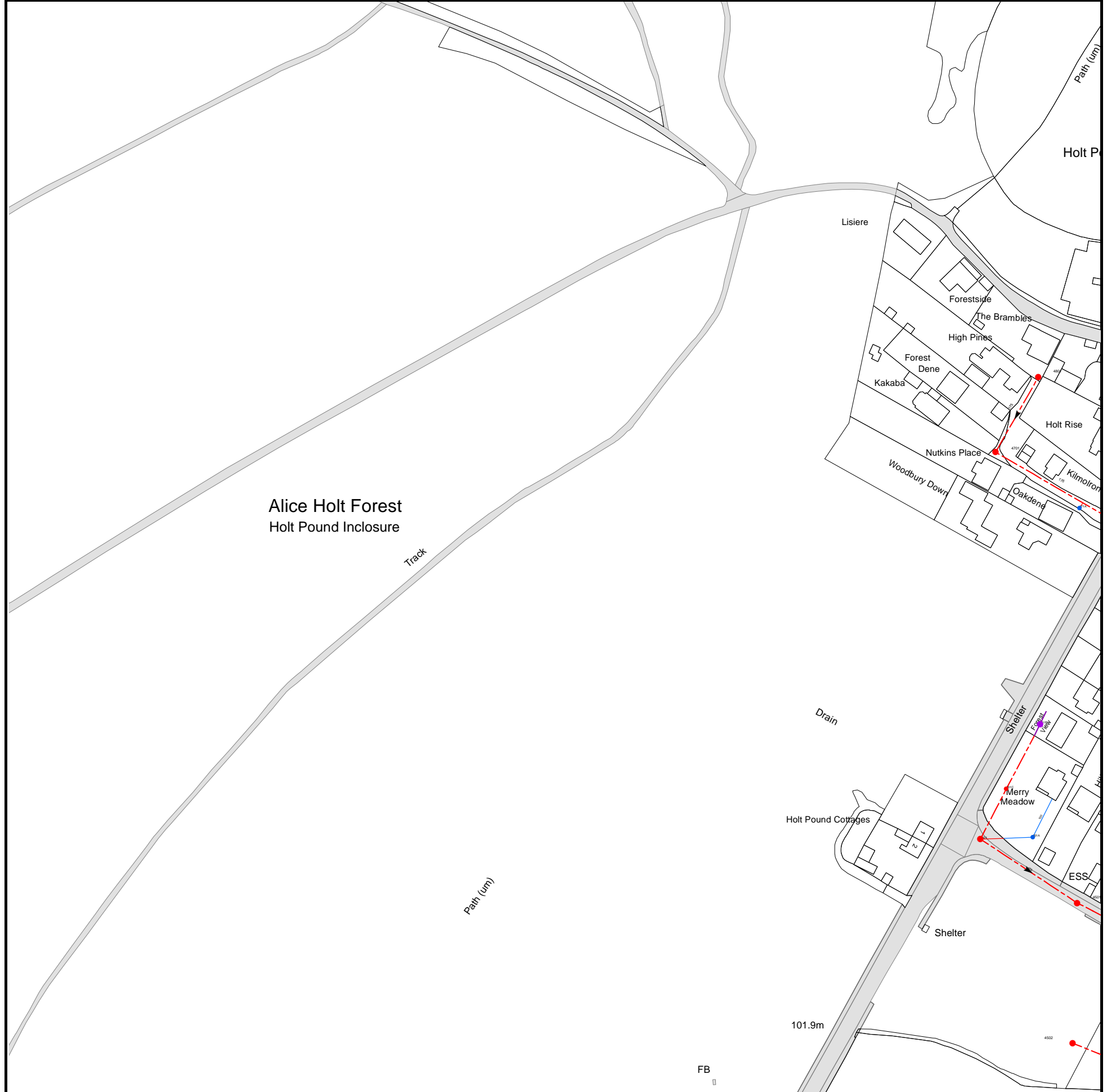
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual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

Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

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

Manhole Reference	Manhole Cover Level	Manhole Invert Level
n/a	n/a	n/a

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.



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 481250,143750

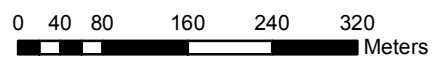
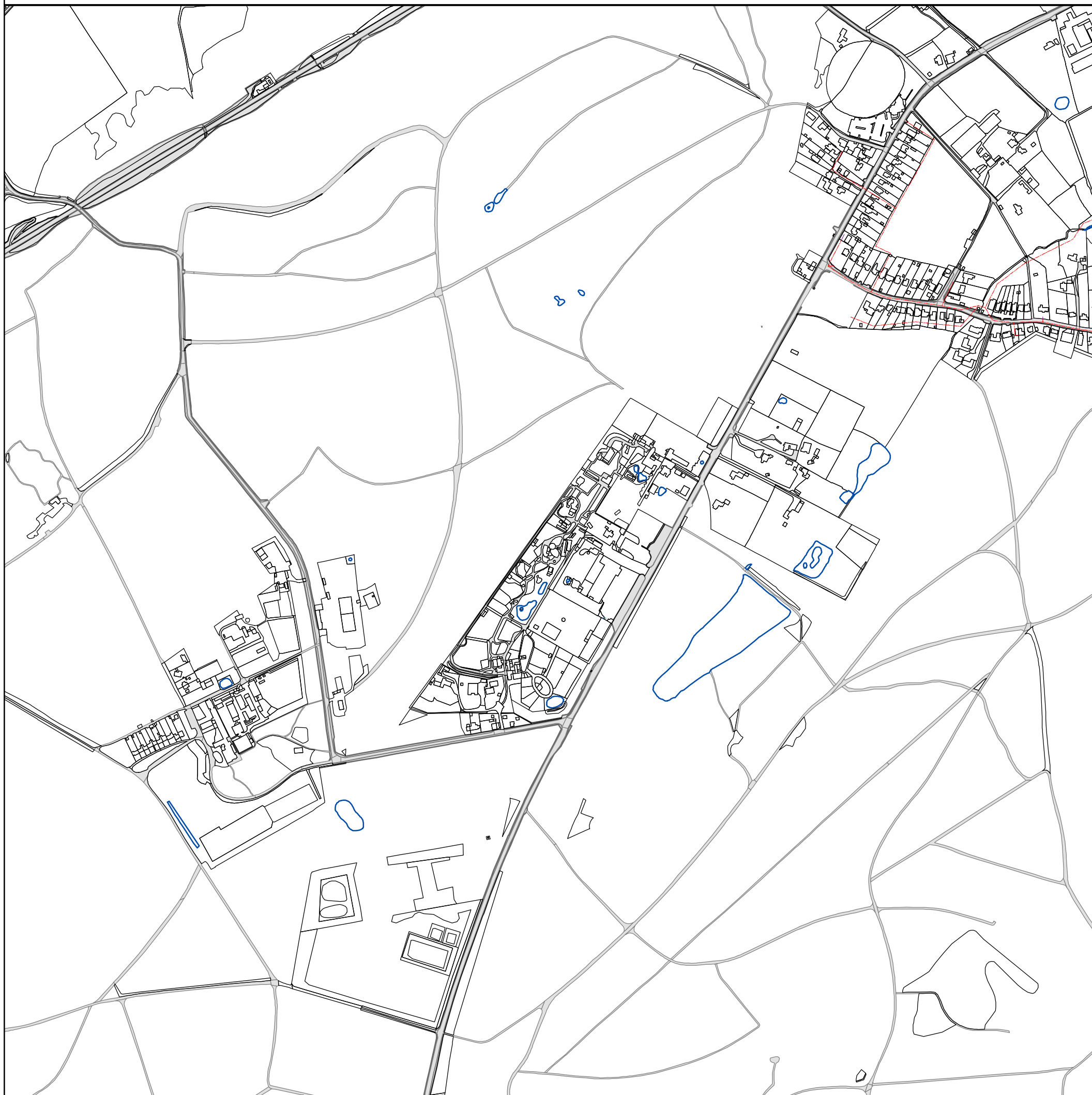
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual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

Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

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

Manhole Reference	Manhole Cover Level	Manhole Invert Level
4601	105.43	103.3
4701	115.1	113.27
461C	n/a	n/a
461A	n/a	n/a
4801	116.28	114.37
461B	n/a	n/a
4501	104.39	102.76
471A	n/a	n/a
4502	100.41	98.74

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.



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 before any works are undertaken. Crown copyright Reserved

Scale: 1:7133
Width: 1992m
Printed By: Rveldhur
Print Date: 01/04/2022
Map Centre: 480935,143097
Grid Reference: SU8043SE

Comments:



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

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.

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
- Weir

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

5) 'na' or '0f' 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
<p>Call 0800 009 4540 quoting your invoice number starting CBA or ADS / OSS</p>	<p>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</p>	<p>By calling your bank and quoting: Account number 90478703 Sort code 60-00-01 and your invoice number</p>	<p>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</p>

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

INVOICE



Tim Killingback
Scott White and Hookins
Andover Road
Winchester
SO23 7BS

Thames Water Utilities Ltd.
PO Box 3189
Slough
SL1 4WW

Customer Reference: N/A	Invoice No: ADS22409366
	Our Ref: ALS/ALS Standard/2022_4616179
Customer Number: ADS105505	Posting Date: 01-04-2022
Purchase Order No:	Due Date: 15-04-2022

Search Address Supplied: Haskins Garden Centre, A325, Birdworld, Farnham, GU10 4LD

Description of Charges	Qty	Unit Price	VAT (20%)	Amount (Inc VAT)
Asset Location Search	1	£99.60	£19.92	£119.52

Thank you for your payment of
111111 £119.52

OUTSTANDING AMOUNT (Inc. VAT) £0.00

Please send any outstanding amount to Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.

For queries please contact the Property Searches Customer Support Team on Tel: 0800 009 4540.

VAT Reg. No GB 537456915



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Appendix F

British Geological Survey Records



Extract of British Geological Survey

Appendix G
Site Investigation Report Extracts

Soakaway Report

SITE ADDRESS	Haskins Garden Centre & Birdworld, Holt Pound Ln, Farnham GU10 4LD																
CLIENT	Scott White and Hookins LLP																
REPORT REFERENCE	GWPR5735/SR/December 2023. The conditions and limitations of this factual soakaway report can be viewed within Appendix A. A technical glossary has also been provided within Appendix B.																
SCOPE OF WORKS	<p>The investigation was to be undertaken to provide parameters for the design of drainage by means of in-situ testing undertaken within trial pits excavated on-site, in accordance with BRE365. PAK spray was also used to understand the extent of any Coal Tar in the existing car park.</p> <p>The techniques adopted for the investigation were chosen considering the requirements of the client, anticipated ground conditions, and bearing in mind the nature of the site, limitations to site access and other logistical limitations.</p>																
SITE DETAILS	The site was located within Farnham, within the county of Surrey. The site comprised a car park as well as a house and garden/soft landscape area. A Site Location Plan is provided within Figure 1.																
PROPOSED DEVELOPMENT	<p>At the time of reporting, December 2023, it was understood the proposed development will comprise 3No. separate phases, listed below:</p> <p>Phase 1: Construction of Bridworld Play Barn and development of Adventure Play attractions.</p> <p>Phase 2: Construction of new Garden Centre and associated Highways, BoH Living Collections, and Conservation and Breeding Centre.</p> <p>Phase 3: Demolition of existing Garden Centre and construction of new Bridworld Entrance Building and parking.</p>																
ANTICIPATED GEOLOGY AND HYDROGEOLOGY	<p>The BGS Solid and Drift Geological Map for Basingstoke (Sheet Number 284) revealed that the site was underlain by the superficial head deposits, underlain by the Gault Clay Formation.</p> <p>The site was located within a Secondary A Aquifer, comprising the Head Deposits. These were underlain by the Unproductive bedrock strata of the Gault Clay Formation.</p>																
SITE WORKS AND ENCOUNTERED GROUND CONDITIONS	<p>Site works were undertaken on 04/12/2023 and comprised the excavation of 2No. trial pits which underwent soakaway testing in accordance with BRE365. Pak spray was also used in 4No. locations within the car park area. A summary of the ground conditions has been summarised in the following table, trial holes were terminated early due to the presence of groundwater. The trial hole logs can be seen within Appendix C. The trial hole location plan can be seen in Figure 1.</p> <table border="1" data-bbox="379 1733 1490 2016"> <thead> <tr> <th colspan="4">Summary of Strata Encountered TP1 – TP2</th> </tr> <tr> <th>Strata</th> <th>Top Depth (m bgl)</th> <th>Base Depth (m bgl)</th> <th>Thickness (m)</th> </tr> </thead> <tbody> <tr> <td>Made Ground: Black brown, silty gravelly SAND. Sand is fine to medium. Gravel is fine to coarse, angular to sub-rounded of flint (70%), brick (20%) and concrete (10%).</td> <td>GL</td> <td>0.40</td> <td>0.40</td> </tr> <tr> <td>Made Ground: Black, dark grey sandy gravelly CLAY. Sand is fine. Gravel is fine to coarse, angular to subrounded of flint (80%), brick (20%).</td> <td>GL</td> <td>0.30 – 1.00</td> <td>0.30 – 0.60</td> </tr> </tbody> </table>	Summary of Strata Encountered TP1 – TP2				Strata	Top Depth (m bgl)	Base Depth (m bgl)	Thickness (m)	Made Ground: Black brown, silty gravelly SAND. Sand is fine to medium. Gravel is fine to coarse, angular to sub-rounded of flint (70%), brick (20%) and concrete (10%).	GL	0.40	0.40	Made Ground: Black, dark grey sandy gravelly CLAY. Sand is fine. Gravel is fine to coarse, angular to subrounded of flint (80%), brick (20%).	GL	0.30 – 1.00	0.30 – 0.60
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Made Ground: Black, dark grey sandy gravelly CLAY. Sand is fine. Gravel is fine to coarse, angular to subrounded of flint (80%), brick (20%).	GL	0.30 – 1.00	0.30 – 0.60														

Soakaway Report

GROUNDWATER CONDITIONS

Groundwater was noted at 0.10m bgl in TP1 and 1.00m bgl in TP2.
Trial pit 1 may have been perched water, however even after excavating some of the water it still filled up and levelled at 0.10m bgl.

PAK SPRAY TESTING

4No. locations were sprayed with the PAK spray to identify if there was any Coal Tar contamination on the sites car park, none of the locations noted any Colar Tar contamination, as the PAK spray did not change colour, images of the tests can be seen in appendix D.
To note, the ground was noted to be wet, which may have affected test results.

SURFACE WATER DISPOSAL

Soakage testing was undertaken in each of the trial pits. **Soakage was done within the made ground due to the fact that groundwater was hit so shallow, groundwater level accounts as the base of the infiltration test.** The infiltration test results can be seen in the following table:

Soakage Testing Results						
Borehole	Test Number	Depth (m bgl)	Start Depth (m bgl)	Finish Depth (m bgl)	Time Taken (mins)	Infiltration Rate (m/sec)
TP1*	1	1.00	0.52	0.57	240	1.46x10-6
TP2*	1	0.30	0.00	0.08	90	5.13x10-5

*BRE365 compliance was not reached due to the slow rate of infiltration.



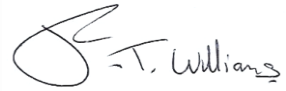
The principles of sustainable urban drainage system (SUDS) should be applied to reduce the risk of flooding from surface water ponding. The following may wish to be considered:

- Rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
- Rainwater infiltration to ground at or close to source
- Rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)
- Rainwater discharge direct to a watercourse (unless not appropriate)
- Controlled rainwater discharge to a surface water sewer or drain
- Controlled rainwater discharge to a combined sewer.

Consultation with the Environment Agency must be sought regarding any use that may have an impact on groundwater resources, abstractions and surface water features/watercourses.

Soakaways are not viable due to the Made Ground to depth, soakaways must not be installed within made ground due to contamination concerns.

Please feel free to contact us should you have any queries regarding the information enclosed within this report.

Summary of Authors		
Prepared By	Checked By	Approved By
		
Adam Young BSc (Hons) Engineer	Miltiadis Mellios MSc(Eng) GMICE FGS MEnvSc Principal Engineer	Francis Williams MGeol (Hons) FGS CEnv CGeol Director

For and on behalf of Ground and Water Limited

FIGURES	4
APPENDIX A: Conditions and Limitations	5
APPENDIX B: Technical Glossary	8
APPENDIX C: Trial Hole Logs	10





2 The Long Barn,
Norton Farm, Selborne Road,
Alton, Hampshire GU34 3NB

0333 600 1221
enquiries@groundandwater.co.uk

groundandwater.co.uk

FIGURES



-  Hand Excavated Trial Pit
-  PAK Spray Testing

NOT TO SCALE

Haskins Garden Centre & Birdworld Holt Pound Ln Farnham GU10 4LD

December 2023

Figure 1 – Trial Hole Location Plan

GWPR5735



APPENDIX A: Conditions and Limitations

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The report has been prepared on the basis of information, data and materials which were available at the time of writing. Accordingly any conclusions, opinions or judgements made in the report should not be regarded as definitive or relied upon to the exclusion of other information, opinions and judgements.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief; as such these do not necessarily address all aspects of ground behaviour at the site. No liability is accepted for any reliance placed on it by others unless specifically agreed in writing.

Any decisions made by you, or by any organisation, agency or person who has read, received or been provided with information contained in the report (“you” or “the Recipient”) are decisions of the Recipient and we will not make, or be deemed to make, any decisions on behalf of any Recipient. We will not be liable for the consequences of any such decisions.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

Any Recipient must take into account any other factors apart from the Report of which they and their experts and advisers are or should be aware. The information, data, conclusions, opinions and judgements set out in the report may relate to certain contexts and may not be suitable in other contexts. It is your responsibility to ensure that you do not use the information we provide in the wrong context.

This report is based on readily available geological records, the recorded physical investigation, the strata observed in the works, together with the results of completed site and laboratory tests. Whilst skill and care has been taken to interpret these conditions likely between or below investigation points, the possibility of other characteristics not revealed cannot be discounted, for which no liability can be accepted. The impact of our assessment on other aspects of the development required evaluation by other involved parties.

The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous in ground activities. The ground conditions have been sampled or monitored in recorded locations and tests for some of the more common chemicals generally expected. Other concentrations of types of chemicals may exist. It was not part of the scope of this report to comment on environment/contaminated land considerations.

The conclusions and recommendations relate to Haskins Garden Centre & Birdworld Holt Pound Ln Farnham GU10 4LD.

Trial hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sampler borehole implies the specific technique used to produce a trial hole.

The depth to roots and/or of desiccation may vary from that found during the investigation. The client is responsible for establishing the depth to roots and/or of desiccation on a plot-by-plot basis prior to the construction of foundations. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

Ownership of copyright of all printed material including reports, laboratory test results, trial pit and borehole log sheets, including drillers log sheets, remain with Ground and Water Limited. Licence is for the sole use of the client and may not be assigned, transferred or given to a third party.

Only our client may rely on this report and should this report or any information contained in it be provided to any third party we accept no responsibility to the third party for the contents of this report save to the extent expressly outlined by us in writing in a reliance letter addressed from us to the third party.

Recipients are not permitted to publish this report outside of their organisation without our express written consent.

The aim of the investigation was understood to be to supply the client and their designers with information regarding the ground conditions underlying the site to assist them in preparing an appropriate scheme for development.

APPENDIX B: Technical Glossary

TECHNICAL GLOSSARY

The list of possible definitions within the report may be seen below. Please note that some definitions may not be relevant to this report.

HYDROGEOLOGY:

A **Principal Aquifer** is a layer of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

Secondary (A) Aquifers consist of deposits with permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as Minor Aquifers.

Secondary (B) Aquifers consist of deposits with predominantly lower permeability layers with may stoke and yield limited amounts of groundwater due to localised features such as fissures, think permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

Secondary Aquifers (Undifferentiated) are assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both a minor aquifer and non-aquifer in different locations due to the variable characteristics of the rock type.

Unproductive Strata are rock layers with low permeability that have negligible significance for water supply or river base flow. These were formerly classified as non-aquifers.

FLOOD ZONES:

Environment Agency Flood Zone 2, defined as; land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.

Environment Agency Flood Zone 3 shows the extent of a river flood with a 1 in 100 (1% or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year.

Environment Agency Flood Zone 3 area that benefits from flood defences, defined as; land and property in this flood zone would have a high probability of flooding without the local flood defences. These protect the area against a river flood with a 1% chance of happening each year, or a flood from the sea with a 0.5% chance of happening each year.

GROUNDWATER SOURCE PROTECTION ZONES (SPZS):

Inner Zone (SPZ1): This zone is 50 day travel time of pollutant to source with a 50 metres default minimum radius.

Outer Zone (SPZ2): This zone is 400 day travel time of pollutant to source. This has a 250 or 500 metres minimum radius around the source depending on the amount of water taken.

Total Catchment (SPZ3): This is the area around a supply source within which all the groundwater ends up at the abstraction point. This is the point from where the water is taken. This could extend some distance from the source point.

Zone of Special Interest (SPZ4): This zone is where local conditions require additional protection.

IN-SITU STRENGTH GEOTECHNICAL TESTING:

Windowless Sample and/or Cable Percussion and/or Rotary Boreholes provide samples of the ground for assessment but they do not give any engineering data. The standard penetration test (SPT) is an in-situ dynamic penetration test designed to provide information on the geotechnical engineering properties of soil. The test uses a thick-walled sample tube, with an outside diameter of 50mm and an inside diameter of 35mm, and a length of around 650mm. This is driven into the ground at the bottom of a borehole by blows from a slide hammer with a weight of 63.5kg falling through a distance of 760mm. The sample tube is driven 150mm into the ground and then the number of blows needed for the tube to penetrate each 75mm up to a depth of 450mm is recorded. The sum of the number of blows is termed the "standard penetration resistance" or the "N-value".

Dynamic Probing involves the driving of a metal cone into the ground via a series of steel rods. These rods are driven from the surface by a hammer system that lifts and drops a 63.5kg (SHDP) hammer onto the top of the rods through a set height, thus ensuring a consistent energy input. The number of hammer blows that are required to drive the cone down by each 100mm increment are recorded. These blow counts then provide a comparative assessment from which correlations have been published, based on dynamic energy, which permits engineering parameters to be generated. (The Dynamic Probe 'Super Heavy' (SHDP) Tests were conducted in accordance with BS 1377; 1990; Part 9, Clause 3.2).



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APPENDIX C: Trial Hole Logs

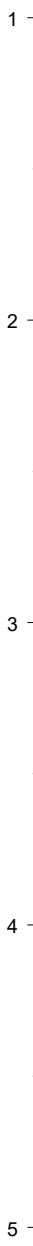


Trial Pit Log

Project Name: Haskins Garden Centre & Birdworld Holt Pound Ln Farnham GU10 4LD
Client: Scott White and Hookins LLP
Date:
Location: Haskins Garden Centre & Birdworld Holt Pound Ln Farnham GU10 4LD
Contractor:
Project No.: GWPR5735
Crew Name:
Equipment:

Location Number TP1	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
[Hatched Pattern]		0.20	D		0.40	[Hatched Pattern]	Made Ground: Black brown, silty gravelly SAND. Sand is fine to medium. Gravel is fine to coarse, angular to sub-rounded of flint (70%), brick (20%) and concrete (10%).	
		0.50	D				Made Ground: Black, dark grey sandy gravelly CLAY. Sand is fine. Gravel is fine to coarse, angular to sub-rounded of flint (80%), brick (20%).	
		0.80	D		1.00	[Hatched Pattern]		
		1.00	D				End of Borehole at 1.000m	



Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks
 Roots were noted to 1.00m bgl.
 Groundwater was noted at 1.00m bgl.





Trial Pit Log

Project Name: Haskins Garden Centre & Birdworld Holt Pound Ln Farnham GU10 4LD

Client: Scott White and Hookins LLP

Date:

Location: Haskins Garden Centre & Birdworld Holt Pound Ln Farnham GU10 4LD

Contractor:

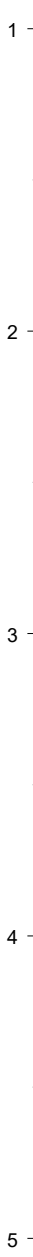
Project No. : GWPR5735

Crew Name:

Equipment:

Location Number TP2	Location Type TP	Level	Logged By	Scale 1:25	Page Number Sheet 1 of 1
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	D		0.30		Made Ground: Dark brown gravelly sandy CLAY. Sand is fine. Gravel is fine to coarse, angular to sub-rounded of flint (90%) and brick (10%).	
							End of Borehole at 0.300m	



Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks
 Roots were noted to 0.30m bgl.
 Groundwater was noted at 0.10m bgl.



APPENDIX D: PAK Spray Results



NOT TO SCALE

Haskins Garden Centre & Birdworld Holt Pound Ln Farnham GU10 4LD

PAK1

December 2023

Appendix D – PAK Spray Testing

GWPR5735





NOT TO SCALE

Haskins Garden Centre & Birdworld Holt Pound Ln Farnham GU10 4LD

PAK2

December 2023

Appendix D – PAK Spray Testing

GWPR5735





NOT TO SCALE

Haskins Garden Centre & Birdworld Holt Pound Ln Farnham GU10 4LD

PAK3

December 2023

Appendix D – PAK Spray Testing

GWPR5735





NOT TO SCALE

Haskins Garden Centre & Birdworld Holt Pound Ln Farnham GU10 4LD

PAK4

December 2023

Appendix D – PAK Spray Testing

GWPR5735



6.4. Excavations and Stability

Shallow excavations in the Made Ground and Head Deposits are likely to be marginally stable at best. Long, deep excavations, through these strata and into the underlying Gault Formation are likely to become unstable.

Unsupported earth faces formed during excavation may be liable to collapse without warning and suitable safety precautions should therefore be taken to ensure that such earth faces are adequately supported before excavations are entered by personnel.

6.5. Sub-Surface Concrete Design

Concrete to be placed in contact with soil or groundwater must be designed in accordance with the recommendations of Building Research Establishment Special Digest 1, 2005, *'Concrete in Aggressive Ground'* considering the pH of the soils. For the classification given below, the "mobile" and "natural" case was adopted given the geology encountered and the residential use of the site. This assessment was based on the results of laboratory testing summarised within Section 5, specifically relating to sulphates, pH and other water soluble chemicals.

Made Ground

The water-soluble sulphates in the Made Ground were noted to be 35.9 – 192mg/l, with a pH of 7.80 – 8.04, from chemical laboratory testing.

According to BRE Special Digest 1, 2005, *'Concrete in Aggressive Ground'* a Sulphate Design Class of DS-1 could be used for sub-surface concrete in contact with the Made Ground. Table C1 of the Digest indicated an ACEC (Aggressive Chemical Environment for Concrete) classification of AC-1.

Head Deposits

The water-soluble sulphates in the Head Deposits were noted to be 40.6mg/l, with a pH of 7.63, from chemical laboratory testing.

According to BRE Special Digest 1, 2005, *'Concrete in Aggressive Ground'* a Sulphate Design Class of DS-1 could be used for sub-surface concrete in contact with the Head Deposits. Table C1 of the Digest indicated an ACEC (Aggressive Chemical Environment for Concrete) classification of AC-1.

Gault Formation

The water-soluble sulphates in the Gault Formation were noted to be 13.6 – 72.6mg/l, with a pH of 5.49 – 8.46, from chemical laboratory testing. The total potential sulphate (3x total sulphur) was <0.06%, from chemical laboratory testing.

According to BRE Special Digest 1, 2005, *'Concrete in Aggressive Ground'* a Sulphate Design Class of DS-1 could be used for sub-surface concrete in contact with the Gault Formation. Table C1 of the Digest indicated an ACEC (Aggressive Chemical Environment for Concrete) classification of AC-1.

6.6. Surface Water Disposal

Soakaway testing roughly in accordance with BRE365 was undertaken within TP1, TP2 and TP3, with the results tabulated below. The tests were terminated on day 1 due to the slow infiltration rate.

Soakaway Testing Results						
Trial Hole	Test Number	Depth (m bgl)	Start Depth (m bgl)	Finish Depth (m bgl)	Time Taken (mins)	Infiltration Rate (m/sec)
TP1*	1	2.40	0.74	0.75	199	5.96×10^{-8}
TP2*	1	2.30	1.09	1.10	266	1.24×10^{-7}
TP3*	1	2.50	0.47	0.74	174	2.84×10^{-6}

*Given the relatively slow infiltration rate encountered, only one test could be undertaken and it did not reach 75% mark.

Any soakaways should be located sufficiently away from buildings and infrastructure, in order to prevent undermining of foundations.

The submission of a Sustainable Urban Drainage Scheme (SUDS) is likely to be required for this site due to the proposed development increasing the amounts of hardstanding.

Consultation with the Environment Agency must be sought regarding any use that may have an impact on groundwater resources, abstractions and surface water features/watercourses.

6.7. Roads and Hardstanding

This section provides information relating to the construction of roads and hardstanding, for each strata encountered.

6.7.1. Anticipated CBR Values and Frost Susceptibility

Topsoil

Roads and hardstanding should bypass Topsoil given the likely low strength, high compressibility and general variability.

Made Ground

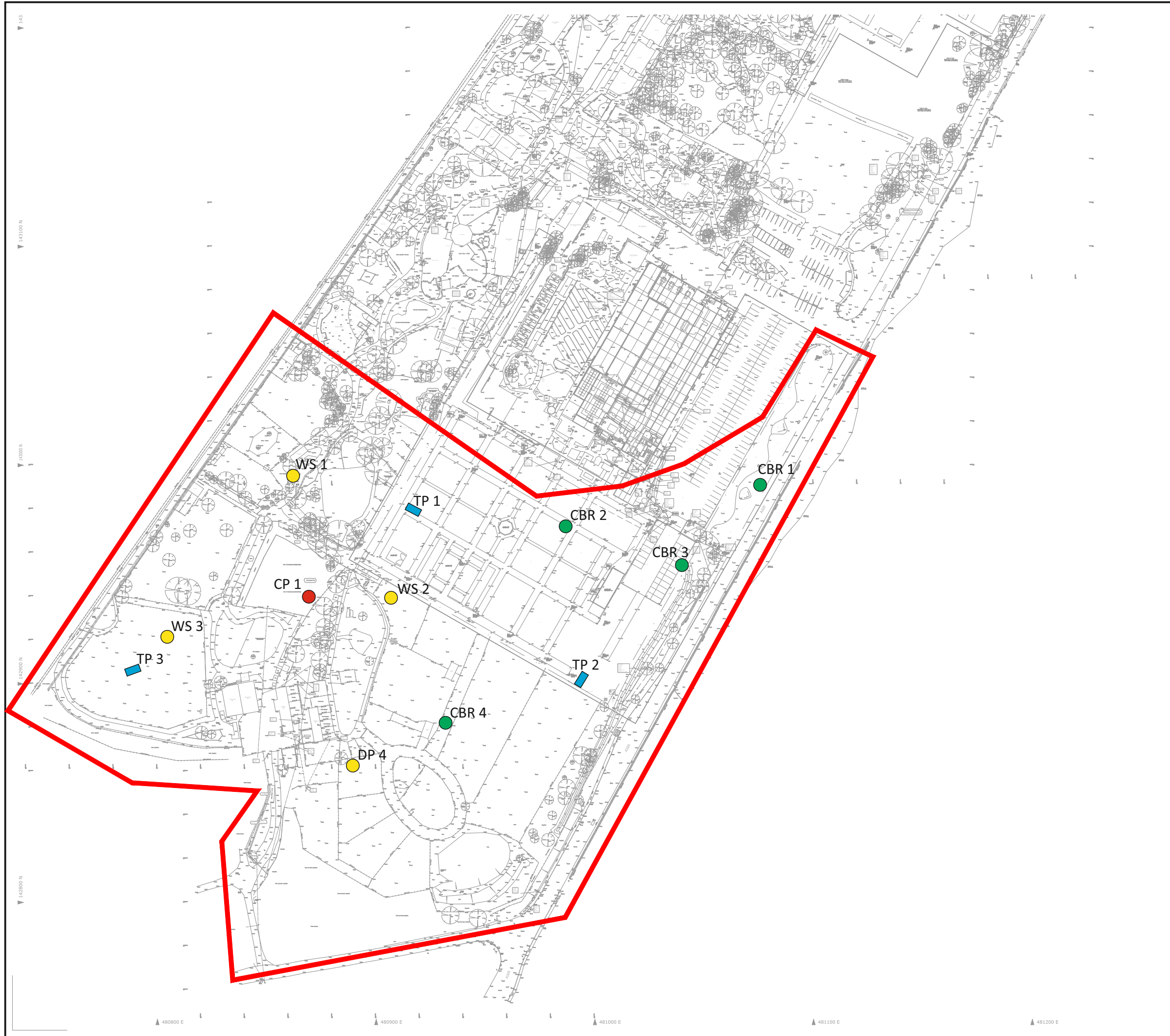
Roads and hardstanding should not be constructed on Made Ground given its variability in composition and likely low strength/density. Where these cannot be bypassed a CBR value of 1% should be adopted for Made Ground. Given that Made Ground encountered beneath the site comprised a mixture of poorly drained clayey sandy gravel-based soils, these deposits are likely to be **frost susceptible**.

Head Deposits (cohesive) and Gault Formation

Roads and hardstanding constructed on the cohesive Head Deposits or Gault Formation should be designed based on a CBR value of 4.0%. This is based on reference to Table C1 of TRL1132 and average construction conditions. Based on wet conditions a CBR of 2.5% should be adopted, with dry conditions a CBR of 4.5% being applicable. These clay-based soils (poorly drained) with plasticity indexes above 20% are likely to be non frost susceptible.

Head Deposits (granular)

Roads and hardstanding constructed on the granular Head Deposits should be designed based on a CBR value of 30.0%. This is based on reference to Table C1 of TRL1132 and average construction conditions. Based on wet conditions a CBR of 20.0% should be adopted, with dry conditions a CBR of 40.0% being applicable. These granular soils were well drained and have a <10% passing the 150µm sieves are non-frost susceptible.



- Site Boundary
- Cable Percussion Borehole
- Windowless Sampler Borehole
- CBR by DCP
- Soakaway Trial Pit

PROJECT Haskins Garden Centre and Birdworld	
CLIENT Scott, White and Hookins LLP	
DRAWING TITLE Trial Hole Location Plan	
DRAWING NUMBER GWPR4791 - Figure 3	DATE June 2022
DRAWN BY AO	CHECKED BY MM



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