

Appendix 2.0 – Thames Water Asset Search

Asset Location Search



Elliott Wood Partnership LLP
241

LONDON
SW19 1SD

Search address supplied Jonathan White
21
Boscastle Road
London
NW5 1EE

Your reference 2140872

Our reference ALS/ALS Standard/2016_3251013

Search date 9 February 2016

You are now able to order your Asset Location Search requests online by visiting
www.thameswater-propertysearches.co.uk



Asset Location Search



Search address supplied: Jonathan White, 21, Boscastle Road, London, NW5 1EE

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 0845 070 9148, 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

Asset Location Search



Waste Water Services

Please provide a copy extract from the public sewer map.

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.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and

Asset Location Search



pressure test to be carried out for a fee.

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.

Asset Location Search



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

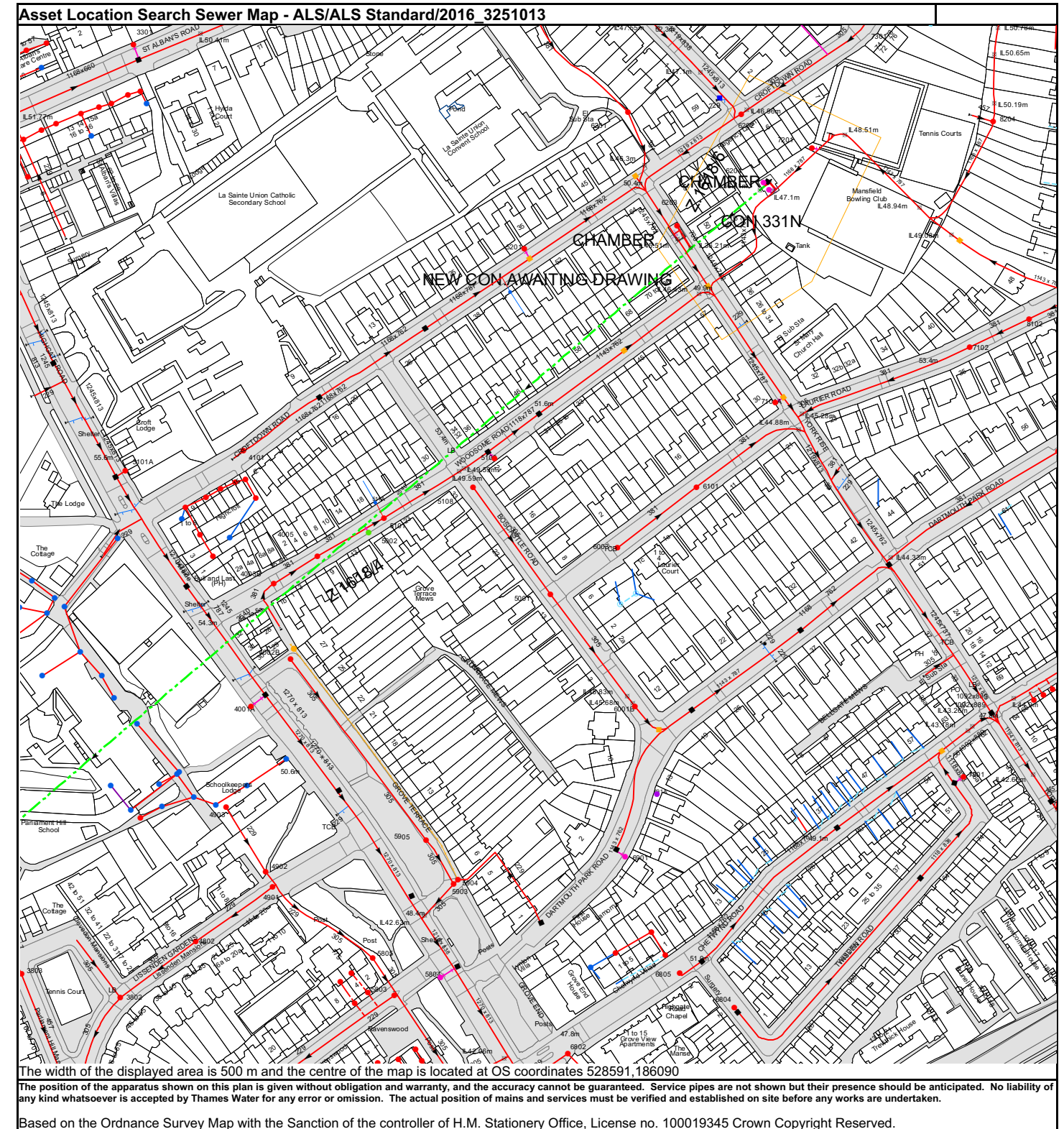
Tel: 0845 850 2777
Email: developer.services@thameswater.co.uk

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: 0845 850 2777
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
7202	n/a	n/a
7101A	n/a	n/a
7201	52.71	n/a
7102	n/a	n/a
8204	n/a	n/a
8102	n/a	n/a
5101	54.2	50.71
511A	n/a	n/a
41CF	n/a	n/a
5108	52.79	50.96
6101	50.84	47
41CA	n/a	n/a
5103	n/a	n/a
4101	55.84	49.76
521B	n/a	n/a
5201	n/a	n/a
6203	49.85	n/a
6204	51	n/a
6202	51.42	n/a
6201	50.22	47.4
32CJ	n/a	n/a
33CC	n/a	n/a
32CH	n/a	n/a
32DB	n/a	n/a
33CG	n/a	n/a
33CB	n/a	n/a
32DA	n/a	n/a
32CF	n/a	n/a
32CE	n/a	n/a
32DC	n/a	n/a
33BD	n/a	n/a
3101A	n/a	n/a
33BC	n/a	n/a
3301	n/a	n/a
33BB	n/a	n/a
43BG	n/a	n/a
41CG	n/a	n/a
41CE	n/a	n/a
41CD	n/a	n/a
41CC	n/a	n/a
41CB	n/a	n/a
30AI	n/a	n/a
30CD	n/a	n/a
30AJ	n/a	n/a
30CE	n/a	n/a
30BF	n/a	n/a
40DD	n/a	n/a
30BA	n/a	n/a
40DE	n/a	n/a
40DC	n/a	n/a
3802	47.12	43.64
3803	48.23	44.37
4802	48.01	44.24
4902	48.86	44.87
39AD	n/a	n/a
39AC	n/a	n/a
4903	49.86	45.82
49BF	n/a	n/a
49BB	n/a	n/a
49BA	n/a	n/a
39AB	n/a	n/a
49BC	n/a	n/a
49AH	n/a	n/a
49BH	n/a	n/a
49BG	n/a	n/a
30AE	n/a	n/a
4001A	n/a	n/a
30BB	n/a	n/a
30BC	n/a	n/a
30AG	n/a	n/a
4901	48.76	44.89
4003B	55.7	52.36
49BD	n/a	n/a
4002B	n/a	n/a
4005	55.31	51.47
4803	n/a	n/a
5814	n/a	n/a
5817	n/a	n/a
5816	n/a	n/a
5002	54.45	n/a
5805	47.23	43.58
5803	47.17	n/a
5905	n/a	n/a
5804	n/a	n/a
5903	50.14	46.33
5904	n/a	n/a
5001	51.62	47.76
68BA	n/a	n/a
68BB	n/a	n/a
6003	51.3	47.64
60CB	n/a	n/a

Manhole Reference	Manhole Cover Level	Manhole Invert Level
6901	n/a	n/a
6001B	n/a	n/a
60BJ	n/a	n/a
69BI	n/a	n/a
691A	n/a	n/a
68BC	n/a	n/a
58DH	n/a	n/a
58CB	n/a	n/a
58CH	n/a	n/a
6802	47.87	45.47
58CA	n/a	n/a
6804	51.12	48.26
6805	51.04	48.58
7901	n/a	n/a
8006	n/a	n/a
8007	n/a	n/a
8008	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.



ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

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

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
	Dam Chase
	Fitting
	Meter
	Vent Column

Operational Controls

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

	Control Valve
	Drop Pipe
	Ancillary
	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.

	Outfall
	Undefined End
	Inlet

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'nd' or '0' on a manhole level indicates that data is unavailable.

Thames Water Utilities Ltd, Property Searches, PO Box 3189, Slough SL1 4W, DX 151280 Slough 13
T 0845 070 9148 E searches@thameswater.co.uk I www.thameswater-propertysearches.co.uk

Other Symbols

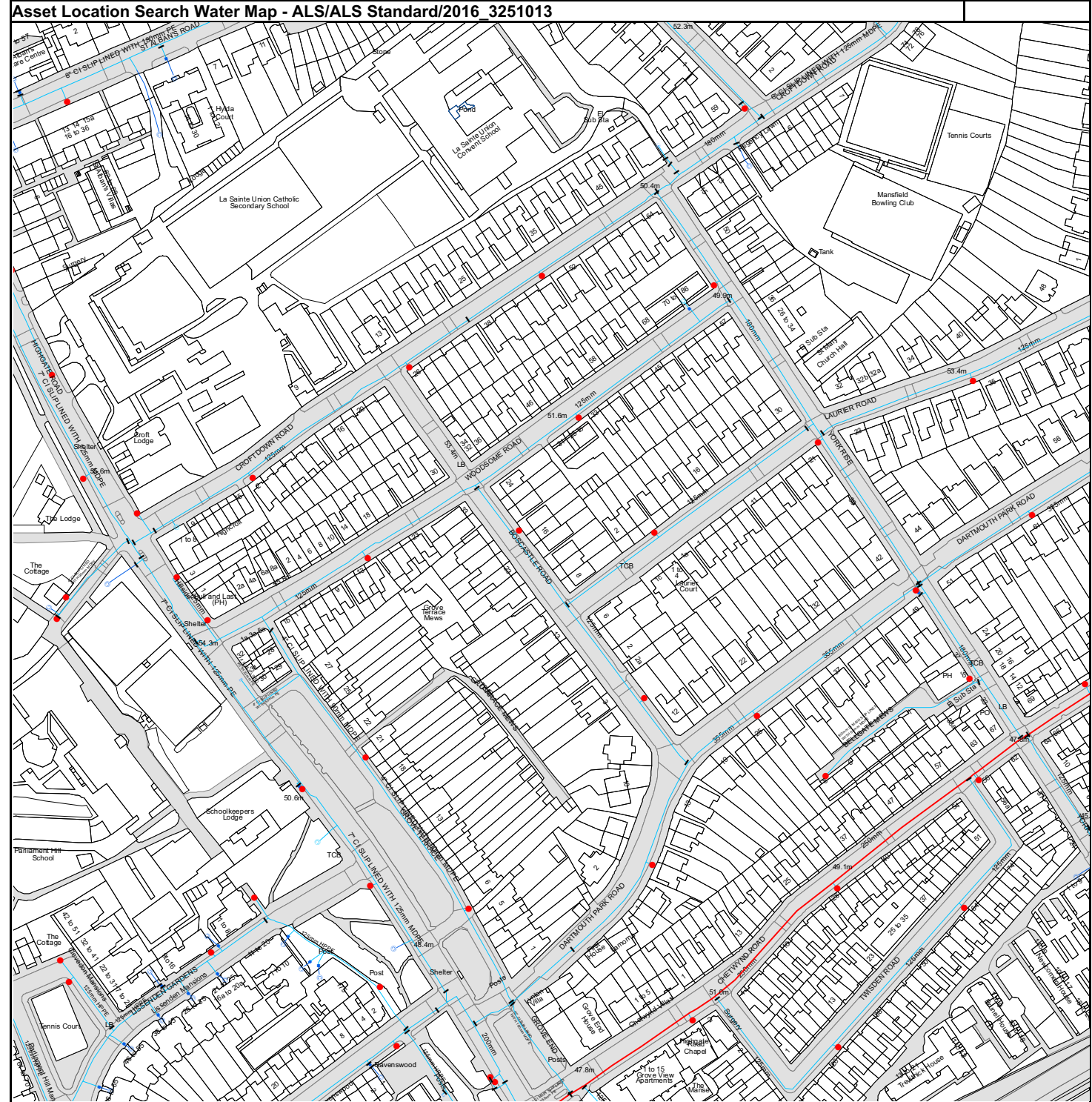
Symbols used on maps which do not fall under other general categories

	Public/Private Pumping Station
	Change of characteristic indicator (C.O.C.I.)
	Invert Level
	Summit
Areas	Lines denoting areas of underground surveys, etc.
	Agreement
	Operational Site
	Chamber
	Tunnel
	Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

	Foul Sewer
	Surface Water Sewer
	Combined Sewer
	Gully
	Culverted Watercourse
	Proposed
	Abandoned Sewer

Asset Location Search Water Map - ALS/ALS Standard/2016 3251013



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 528591, 186090.
 The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.
 Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.



ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

4"
Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

16"
Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY
Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

3" FIRE
Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

3" METERED
Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

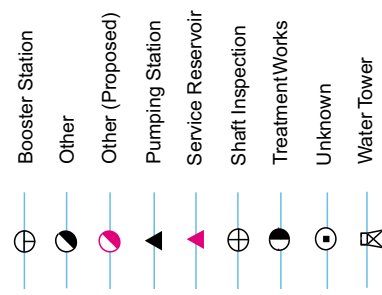
Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

PIPE DIAMETER DEPTH BELOW GROUND

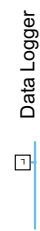
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

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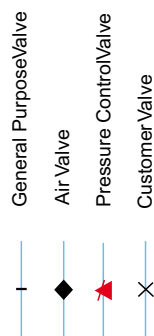
Operational Sites



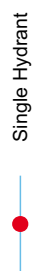
Other Symbols



Valves



Hydrants

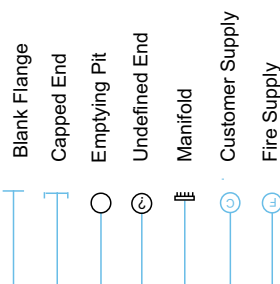


Meters



End Items

Symbol indicating what happens at the end of a water main.



Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Terms and Conditions

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

- All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
- Provision of service will be in accordance with all legal requirements and published TWUL policies.
- 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.
- Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
- In case of dispute TWUL's terms and conditions shall apply.
- 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'.
- Interest will be charged in line with current Court Interest Charges, if legal action is taken.
- 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 him 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 0845 070 9148 quoting your invoice number starting CBA or ADS.	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.



Search Code

IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Thames Water Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB, which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practise and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award compensation of up to £5,000 to you if he finds that you have suffered actual loss as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs Contact Details

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE

Appendix 3.0 – Calculations

Project name: 21 BOSCASTLE ROAD

elliottwood

Project number: 2140872 Sheet: Revision:

Date: 2/2/16. Engineer: E.M. Checked:

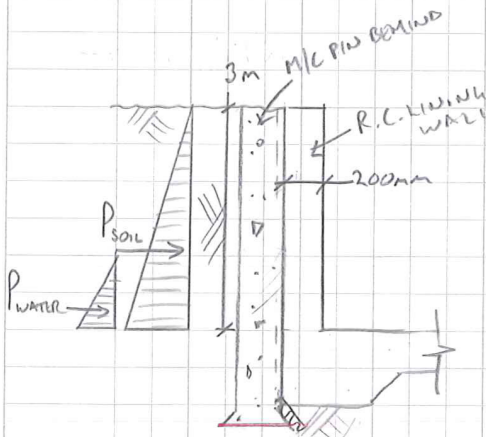
2/2/16. E.M.

R.C. LINING WALL TO M.C. UNDERPINNING OF PART WALL WITH No.23.

→ LINING WALL TO BE CAST IN FRONT OF 1m WIDE / MIN. 350mm THICK MASS CONCRETE UNDERPINS

→ 3m HIGH R.C. WALL DESIGNED AS A CANTILEVER, TO RETAIN 3m OF CLAY ($\gamma = 18 \text{ kN/m}^3$). CONSERVATIVELY ASSUME $K_0 = 0.5$.

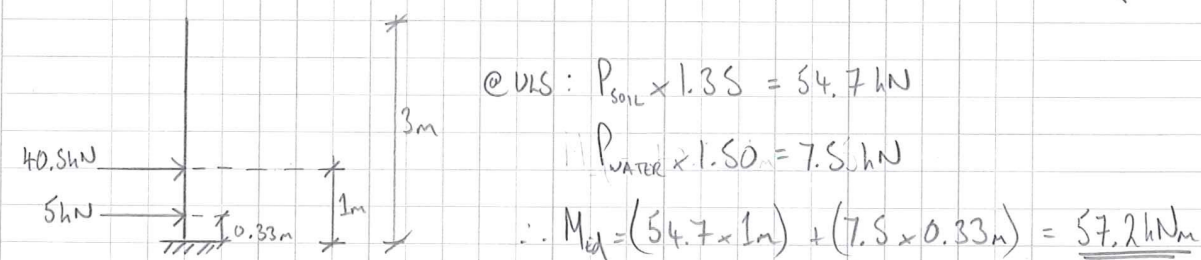
→ CONSERVATIVELY ASSUMED THAT THERE IS WATER UP TO 1m ABOVE WALL BASE



$\gamma_{\text{soil}} = 18 \text{ kN/m}^3$ $f_{cu} = 28 \text{ N/mm}^2$
 $\gamma_{\text{water}} = 10 \text{ kN/m}^3$ $f_{yk} = 500 \text{ N/mm}^2$
 $K_0 = 0.5$

$P_{\text{soil}} = \frac{1}{2} K_0 \gamma h^2 = \frac{1}{2} \times 0.5 \times 18 \times 3^2 = 40.5 \text{ kN per metre run (ACTING AT } \frac{h}{3} = 1\text{m)}$

$P_{\text{water}} = \frac{1}{2} \gamma h^2 = \frac{1}{2} \times 10 \times 1^2 = 5 \text{ kN per metre run (ACTING AT } \frac{h}{3} = 0.33\text{m)}$



@ ULS: $P_{\text{soil}} \times 1.35 = 54.7 \text{ kN}$
 $P_{\text{water}} \times 1.50 = 7.5 \text{ kN}$
 $\therefore M_{\text{ed}} = (54.7 \times 1\text{m}) + (7.5 \times 0.33\text{m}) = 57.2 \text{ kNm}$

R.C. DESIGN: ASSUME 200mm THK, 25mm COVER, H12 BARS, 10mm LINKS. ($d = 159\text{mm}$)

$K = \frac{57.2 \times 10^6}{1000 \times 159^2 \times 28} = 0.081 < K' = 0.168 \therefore \text{NO COMP. REINF. REQUIRED}$

$Z = \frac{159}{2} \times (1 + \sqrt{1 - (3.53 \times 0.081)}) = 146.7 \leq 0.95d = 151.1\text{mm} \checkmark$

$A_{s, \text{REQ}} = \frac{57.2 \times 10^6}{0.87 \times 500 \times 146.7} = 896 \text{ mm}^2/\text{m}$

USE H16s @ 200 c/c MIN. ($A_{s, \text{PROV}} = 1005 \text{ mm}^2/\text{m}$)

Project name: 21 BOSCASTLE ROAD

elliottwood

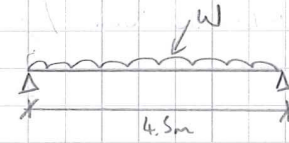
Project number: 2140872 Sheet: Revision:

Date: 2/2/16. Engineer: E.M. Checked:

2/2/16. E.M.

R.C. SUSPENDED SLAB SPANNING ACROSS WIDTH OF BASEMENT (SPAN = 4.5m)

ASSUME 200 THK, 50mm COVER, H16s, 10mm DISTRIBUTION, $f_{cu} = 28 \text{ N/mm}^2$, $f_{yk} = 500 \text{ N/mm}^2$. DESIGNED AS 1m WIDE BEAM STRIPS



$W = [S] W \text{ OF SLAB + FINISHES, LIVE LOAD}$

$W = [(0.2 \text{m} \times 1 \text{m} \times 25 \text{ kN/m}^3) + (0.15 \times 1 \text{m} \times 25) + (1 \text{m} \times 1.5 \text{ kN/m}^2)]$

$W = (8.8, 1.5) \text{ kN/m (CLS)}, (11.9, 2.3) \text{ kN/m (ULS)}$

$M_{\text{ed}} = \frac{14.2 \times 4.5^2}{8} = 35.9 \text{ kNm}$, $d = 200 - 50 - 10 - 8 = 132 \text{ mm}$

$K = \frac{M_{\text{ed}}}{bd^2 f_{cu}} = \frac{35.9 \times 10^6}{1000 \times 132^2 \times 28} = 0.074 < K' = 0.168 \therefore \text{NO COMP. REINF. REQ'D.}$

$Z = \frac{d}{2} \times (1 + \sqrt{1 - 3.53K}) = \frac{132}{2} \times (1 + \sqrt{1 - (3.53 \times 0.074)}) = 122.7 \text{ mm} < 0.95d = 125.4 \text{ mm} \checkmark$

$A_{s, \text{REQ}} = \frac{M_{\text{ed}}}{0.87 f_{yk} Z} = \frac{35.9 \times 10^6}{0.87 \times 500 \times 122.7} = 672.6 \text{ mm}^2/\text{m}$

USE H16s @ MAX. 200 c/c IN TENSION FACE ($A_{s, \text{PROV}} = 1005 \text{ mm}^2/\text{m}$)

Wimbledon

241 The Broadway
London
SW19 1SD

tel. (020) 8544 0033
fax. (020) 8544 0066

Central London

46-48 Foley Street
London
W1W 7TY

tel. (020) 7499 5888
fax. (020) 7499 5444

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1 Sampson's Yard
Halifax Place
Nottingham
NG1 1QN

tel. 0870 460 0061
fax. 0870 460 0062

email: info@elliottwood.co.uk
www.elliottwood.co.uk

Elliott Wood Partnership LLP
Structural and Civil Engineers



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