Asset location search

Thames Water Property Searches

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.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

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

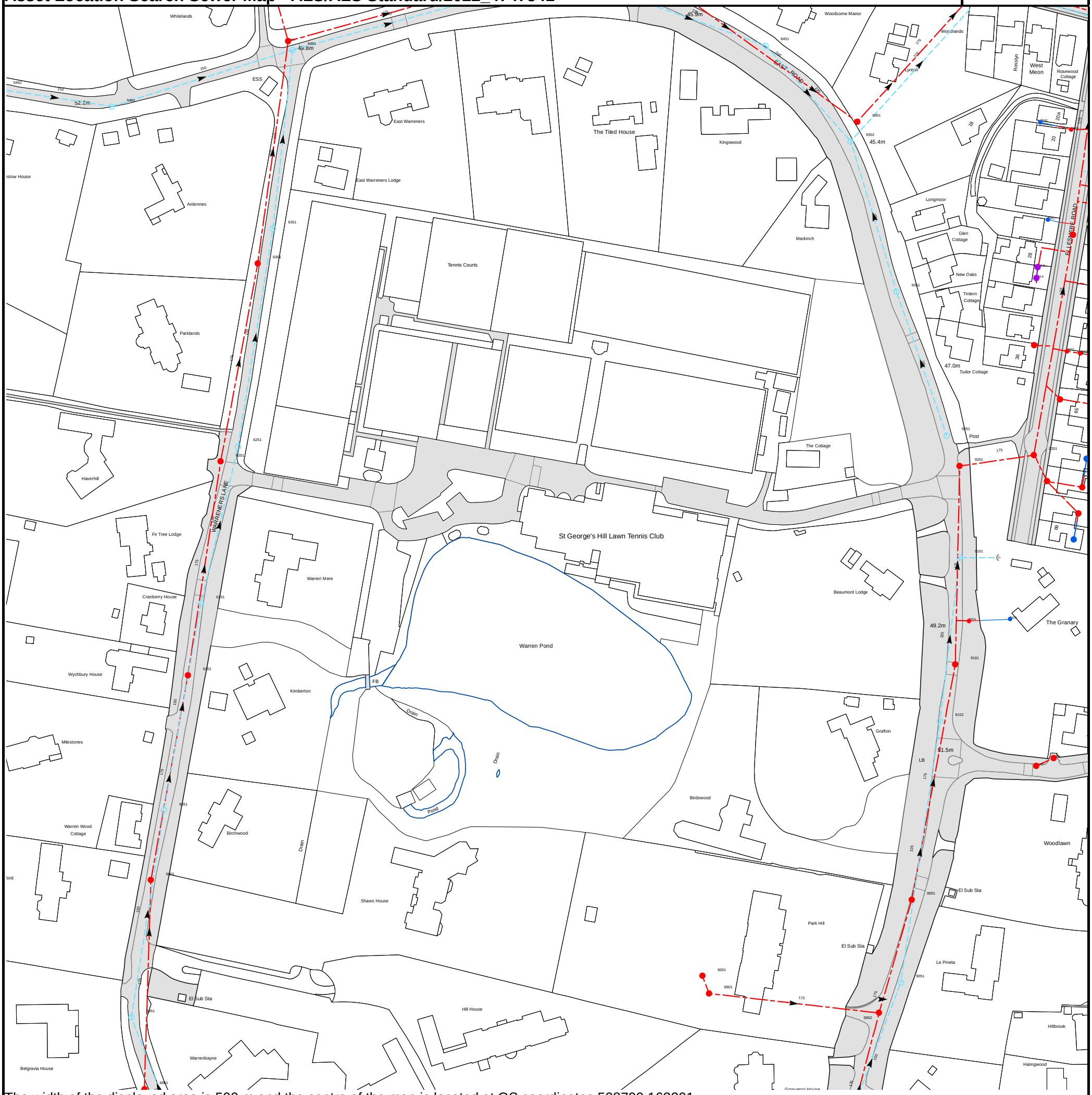
Clean Water queries

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

Asset Location Search Sewer Map - ALS/ALS Standard/2022_4747541



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 508790,163201

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
02YQ	n/a	n/a
031A	n/a	n/a
031B	n/a	n/a
031E	n/a	n/a
031C	n/a	n/a
021C	n/a	n/a
031D	n/a	n/a
0301	43.9	41.09
021B	n/a	n/a
021A	n/a	n/a
9051	56.64	55.37
8001	n/a	n/a
9001	53.82	52.52
6001	58.39	55.73
6051	57.61	56.59
011C	n/a	n/a
011B	n/a	n/a
9152	50.32	49.1
6101	56.54	53.87
9101	n/a	n/a
911A	n/a	n/a
011A	n/a	n/a
6151	55.96	54.97
9151	48.4	47.46
02YT	n/a	n/a
02YR	n/a	n/a
02ZP	n/a	n/a
02ZT	n/a	n/a
9201	47.52	45.75
6201	54.99	52.5
02ZR	n/a	n/a
0201	46.57	44.84
6251	54.51	53.31
9251	47.35	46.17
02YZ	n/a	n/a
02YW	n/a	n/a
6301	n/a	n/a
6351	51.5	50.44
6401	49.61	46.36
6451	49.6	48.41
8451	45.61	44.51
9352	45.32	42.96
9301	43.31	40.96
9351	46.45	45.25
5451	51.91	50.74
6901	59.52	56.68
5951	59.11	58.15
9902	57.38	54.23
8901	n/a	n/a

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
- 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

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.

APPENDIX E – Topographical/CCTV Survey Plans

Court no. G4

Court no. G3

Court no. G2

Court no. G1

Murphy Surveys Ltd. Disclaimer

The survey aims to map all existing utilities and sub surface structures and provide information with respect to pipe size, material type and drainage connectivity. However GPR surveying is limited by the following guidelines and it may not be possible to accurately survey, define and locate all services and sub surface features.

- Locational accuracy is determined by referring to the manufacturers guidelines for the detectors used.
- Existing record information showing underground services is often incomplete and unknown accuracy; therefore it should be regarded only as an indication.
- In ideal conditions these spatial accuracies for the underground utilities are +/- 5% for the RD4000 and +/- 10% of depth for the GPR to 2.5m deep. However, variations within the subsurface may alter this estimated accuracy.
- Although all reasonable steps have been taken to locate all features, there is no guarantee that all will be shown on the drawing as some above ground features may have obstructed the survey.
- GPR surveying operates best within high resistivity material. Clay overburden can impair GPR surveying.
- Due to the attenuation of the radar signal with depth, resolution is restricted, hence making identification of anomalies difficult with increasing depth.
- The depth penetration and quality of the data depends on the ground conditions on the site. Poor data may be a result of areas with high conductivity. Also, high reflective materials close to the surface i.e. rebar may hide deeper anomalies.
- It is not always possible to trace the entire length of each underground service.
- It is always our intention to use the Utility providers' details, if supplied prior to survey commencement as a guide for location purposes. However, should we not be able to locate those guided services we shall not be held responsible for the accuracy, or otherwise, of the location of that service, as issued by the utility provider and therefore shown "Taken from Records" on the drawing and we are not liable for any loss that may arise due to the lack of accuracy in the guided information.
- Unless otherwise stated, all services and sub surface structures shown on Murphy Surveys Limited plan drawings have been surveyed using approved detectors and the connections between manholes, if not traced, are assumed to run straight.
- Plan accuracies of the order of + or - 150mm may be achieved but this figure will depend on the depth of the service below ground level. Where similar services run on close proximity, separation may be impossible. Successful tracing of non metallic pipes may be limited.
- Please note that not all buried pipes, cables and ducts can be detected and mapped in consideration of their depth, location, material type, geology and proximity to other utilities. Even an appropriate and professionally executed survey may not be able to achieve a 100% detection rate.
- Services which have been untraceable are shown from Records where possible.
- DP represents distance from the surface level to the top of the service/ radar.

No allowance has been made within our quotation, unless otherwise stated, for the location and mapping of undeclared services. Failure to detect or fully map any declared service will be recorded within the notes accompanying our final drawings.
Where technically possible, depth indications will be given. These should be used for guidance only and wherever critical accuracy is required these should be confirmed by the Client by undertaking trial excavations or similar. Bends, lateral service connections, or the close proximity of other services and local magnetic, atmospheric or ground conditions, could in certain situations influence the accuracy of the plan and depth indication facility. Depths will not be provided unless we are reasonably confident of their validity.
Where Murphy Surveys Limited issues a CAD drawn utility service plan, this should be read in conjunction with all available public utility records etc. As part of our exhaustive Quality Control procedures, Murphy Surveys Limited Endeavour to add relevant Public Utility record information onto the final issue drawing. An allowance should be made for the width of services, particularly where these are laid in bands or are of significant size etc. For clarification or appropriate easement bands, we would recommend that direct contact is made with the Asset Owner or Statutory Undertaker.
We exclude the following, except where otherwise specified and possible to do so;

- All private service connections, (including water or gas fittings where no through flow of applied signal is possible.
- Pot ended or disconnected cables or terminated short lengths of pipe.
- Internal building services
- Fibre optic cables (except where laid with a standard communications cable or built in tracer wire or similar conductor system) or can be clearly located using ground penetrating radar.
- Small diameter cables less than 17mm diameter, or pipes less than 38mm diameter.
- Above ground services unless specifically requested.
- Lifting manhole covers which require longer than 10 minute effort using standard heavy duty lifting apparatus.
- Services positioned directly below other pipes or cables etc (i.e. masking signal) - intrusive verification options available on request.
- Deep non metallic pipes, ducts or culverts (unless probing or Pipe Track 3d is specified as part of the fully invasive survey option).
- Passing through defective pipework (displaced joints etc) or acute bends between access points.

Please note that our Quotation does not allow for location of individual service feeds to properties unless reasonable to do so, as access would be required into each property to apply direct connections to inlet points and this would significantly increase the scope of work, survey cost and also cause possible disruption to occupants.
Client supplied utility drawings may not be up to date or give sufficient coverage of all areas surveyed, as such extra precaution should be taken when excavation works are carried out on site.
All BT services marked on site as a guide only, as it is a requirement to inform BT via their 'Dial before you Dig' scheme prior to commencement of excavation works. For on site assistance contact - 0800 9173993 dbyd@openreach.co.uk
All work carried out by Murphy Surveys Limited (MSL) conforms to the guidelines set out by The Survey Association (TSA).

Underground Utilities

- Gas Pipe
- Gas Pipe - Low Pressure
- Gas Pipe - Medium Pressure
- Gas Pipe - Intermediate Pressure
- Gas Pipe - High Pressure
- BT
- Cable Activated TV
- Fibre Optic
- Telecom
- Telecom - Colt
- Telecom - Energis
- Telecom - FibreNet
- Telecom - Level 3
- Telecom - Mercury
- Telecom - MFSC
- Telecom - Tanet
- Telecom - Verizon
- Telecom - Virgin
- Telecom - Vodafone
- Telecom - WCOM
- Electrical Cable
- Electrical Cable - Extra High Volt
- Electrical Cable - High Voltage
- Electrical Cable - Low Voltage
- Street Lighting Cable
- Combined Water
- Foul Water
- Surface Water Drainage
- Vent Pipe
- Water Main
- Hot Water
- CCTV
- Control Cable
- Traffic Control Signal Cable
- Empty Ducts
- Unknown Service
- Unidentified GPR Anomaly
- Chamber
- Survey Station
- Direction of flow
- GPR Slab
- GPR Survey Area

AR	Assumed Route
CL	Cover Level
DP = 0.55	Depth from ground level to Top of Pipe/GPR Target (m)
EOT	End Of Trace
IL	Invert Level
MH	Manhole
NT	No Trace
TFR	Taken From Record Drawings
UTO	Unable To Open
UTS	Unable To Survey

Site Location

Surveyed by :	PI/SA	Date: 13/03/2015	Datum : OSGB
Drawn by :	PI/SA	Date: 20/04/2015	Grid System: OSGB
Checked by :	TMD	Date: 21/04/2015	

Revisions

No.	Date	Description
A	21/04/2015	First Issue
B	11/06/2015	RevB - Court Numbers Added

No. 318

THE SURVEY ASSOCIATION FULL MEMBER

EUROPEAN GPR ASSOCIATION

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Topographic surveys, Measured Building Surveys, Setting-Out, As-Built Surveys, Hydrographic Surveys, Legal Mapping, Pipeline Surveys, Services Location, Ground Penetrating Radar, Laser Scanning, Rectified Photography

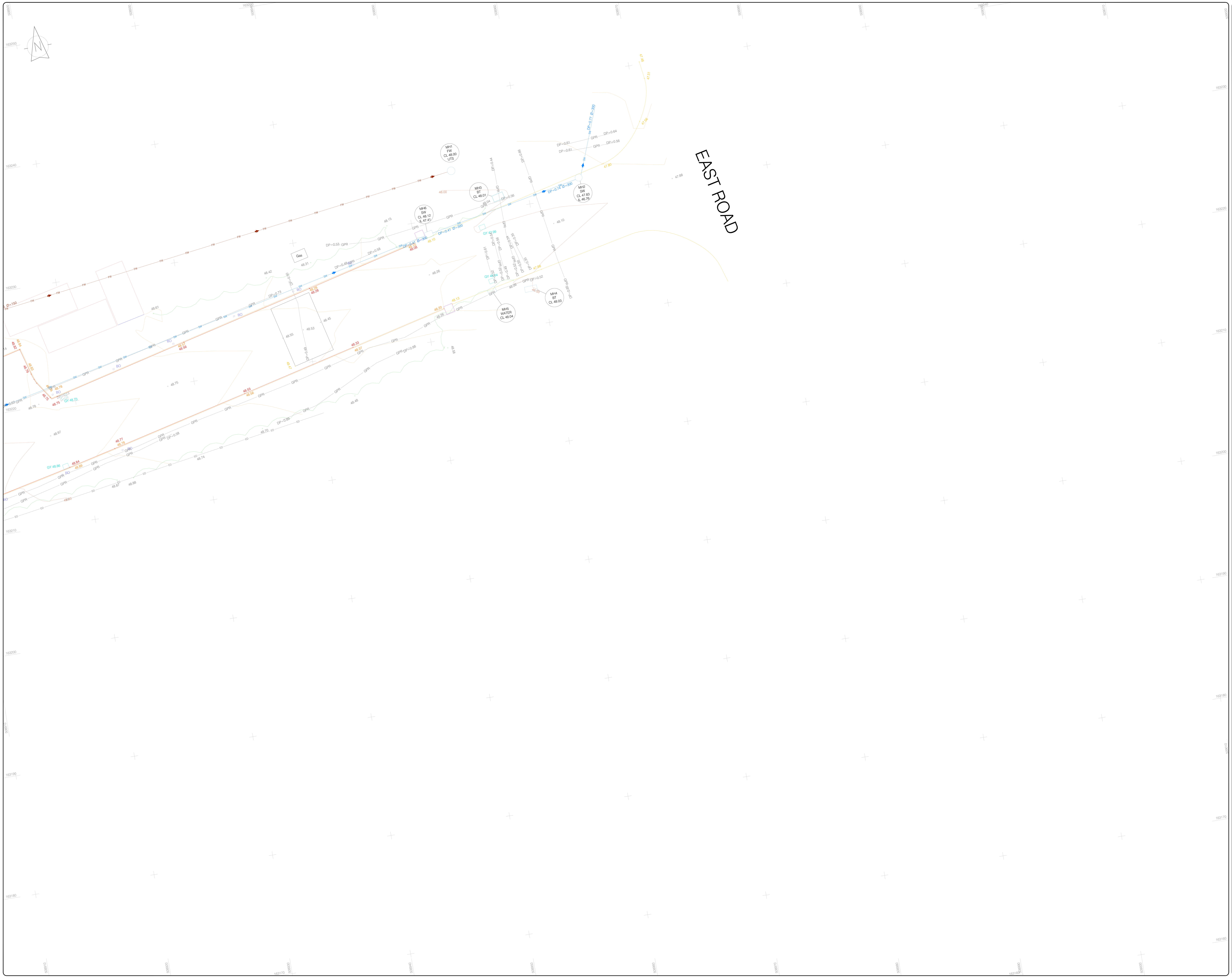
London Glasgow Belfast Cork Kildare

UK Head Office
9 Devonshire Square
London
EC2M 4YF

Phone: (+44) 020 3178 6644
Email:london@murphysurveys.co.uk

www.murphysurveys.co.uk

Client :	St. George's Hill Lawn Tennis Club
Project :	Topo of St. George's Hill Lawn Tennis Club Site.
Date : 11/06/2015	**Scale :** 1:100@A0
Description :	Utility Services Survey Drainage Services
Drawing Number :	**MSL11735-U-RevB-06-06**



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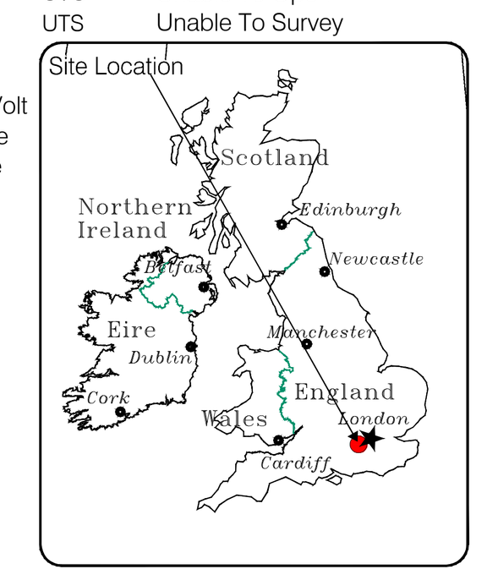
Underground Utilities

GAS	Gas Pipe
GAS LP	Gas Pipe - Low Pressure
GAS MP	Gas Pipe - Medium Pressure
GAS IP	Gas Pipe - Intermediate Pressure
GAS HP	Gas Pipe - High Pressure
BT	BT
CATV	Cable Activated TV
FIBRE	Fibre Optic
TELECOM	Telecom
COLT	Telecom - Colt
ENERGIS	Telecom - Energis
FIBERNET	Telecom - FibreNet
LEVEL3	Telecom - Level 3
MERCURY	Telecom - Mercury
MFSC	Telecom - MFSC
TANET	Telecom - Tanet
VERIZON	Telecom - Verzion
VIRGIN	Telecom - Virgin
VODAFONE	Telecom - Vodafone
WCOM	Telecom - WCOM
E	Electrical Cable
EHV	Electrical Cable - Extra High Volt
HV	Electrical Cable - High Voltage
LV	Electrical Cable - Low Voltage
SL	Street Lighting Cable
CW	Combined Water
FW	Foul Water
SW	Surface Water Drainage
VP	Vent Pipe
	Water Main
HW	Hot Water
CCTV	CCTV
Ctrl C	Control Cable
TCSU	Traffic Control Signal Cable
ED	Empty Ducts
UNID	Unknown Service
	Unidentified GPR Anomaly
	Chamber

S1	Survey Station
	Direction of flow
	GPR Slab
	GPR Survey Area
AR	Assumed Route
CL	Cover Level
DP = 0.55	Depth from ground level to Top of Pipe/GPR Target (m)
EOT	End Of Trace
IL	Invert Level
MH	Manhole
NT	No Trace
TFR	Taken From Record Drawings
UTO	Unable To Open
UTS	Unable To Survey

Site Location



Surveyed by :	PY/SA	Date:	13/03/2015	Datum :	OSGB
Drawn by :	PY/SA	Date:	20/04/2015	Grid System:	OSGB
Checked by :	TMD	Date:	21/04/2015		

Revisions

No.	Date	Description
A	21/04/2015	First Issue
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No. 318

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Phone: (+44) 020 3178 6644
Email:london@murphysurveys.co.uk

www.murphysurveys.co.uk

Client : St. George's Hill Lawn Tennis Club

Project : Topo of St. George's Hill Lawn Tennis Club Site.

Date : 11/06/2015 **Scale :** 1:100@A0

Description : Utility Services Survey Drainage Services

Drawing Number : MSL11735-U-RevB-07-06

APPENDIX F – UK SuDS Greenfield Runoff Rate Calculation

Print | Close Report

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Heeta Patel
Site name:	St. George's Tennis Club
Site location:	Weybridge

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	51.35793° N
Longitude:	0.43771° W
Reference:	2916875675
Date:	Mar 14 2023 13:23

Runoff estimation approach IH124

Site characteristics

Total site area (ha): 0.1564

Methodology

Q_{BAR} estimation method: Calculate from SPR and SAAR

SPR estimation method: Calculate from SOIL type

Soil characteristics	Default	Edited
SOIL type:	2	2
HOST class:	N/A	N/A
SPR/SPRHOST:	0.3	0.3

Hydrological characteristics	Default	Edited
SAAR (mm):	625	625
Hydrological region:	6	6
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates	Default	Edited
Q_{BAR} (l/s):	0.25	0.25
1 in 1 year (l/s):	0.21	0.21
1 in 30 years (l/s):	0.57	0.57
1 in 100 year (l/s):	0.8	0.8
1 in 200 years (l/s):	0.93	0.93

APPENDIX G – UK SuDS Storage Volume Estimate

Surface water storage requirements for sites

www.uksuds.com | Storage estimation tool

Calculated by:	Heeta Patel
Site name:	St. George's Tennis Club
Site location:	Weybridge

This is an estimation of the storage volume requirements that are needed to meet normal
best practice criteria in line with Environment Agency guidance "Rainfall runoff management
for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and
the non-statutory standards for SuDS (Defra, 2015). It is not to be used for detailed design
of drainage systems. It is recommended that hydraulic modelling software is used to calculate
volume requirements and design details before finalising the design of the drainage scheme.

Site Details

Latitude:	51.35794° N
Longitude:	0.43775° W
Reference:	2066881103
Date:	Mar 14 2023 13:24

Site characteristics

Total site area (ha):	0.1564
Significant public open space (ha):	0
Area positively drained (ha):	0.1564
Impermeable area (ha):	0.1564
Percentage of drained area that is impermeable (%):	100
Impervious area drained via infiltration (ha):	0
Return period for infiltration system design (year):	10
Impervious area drained to rainwater harvesting (ha):	0
Return period for rainwater harvesting system (year):	10
Compliance factor for rainwater harvesting system (%):	66
Net site area for storage volume design (ha):	0.16
Net impermable area for storage volume design (ha):	0.16
Pervious area contribution to runoff (%):	30

* where rainwater harvesting or infiltration has been used for managing surface water runoff such that the effective impermeable area is less than 50% of the 'area positively drained', the 'net site area' and the estimates of Q_{BAR} and other flow rates will have been reduced accordingly.

Design criteria

Climate change allowance factor:	1.4
Urban creep allowance factor:	1.1
Volume control approach	Use long term storage
Interception rainfall depth (mm):	5
Minimum flow rate (l/s):	2

Methodology

esti	IH124
Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

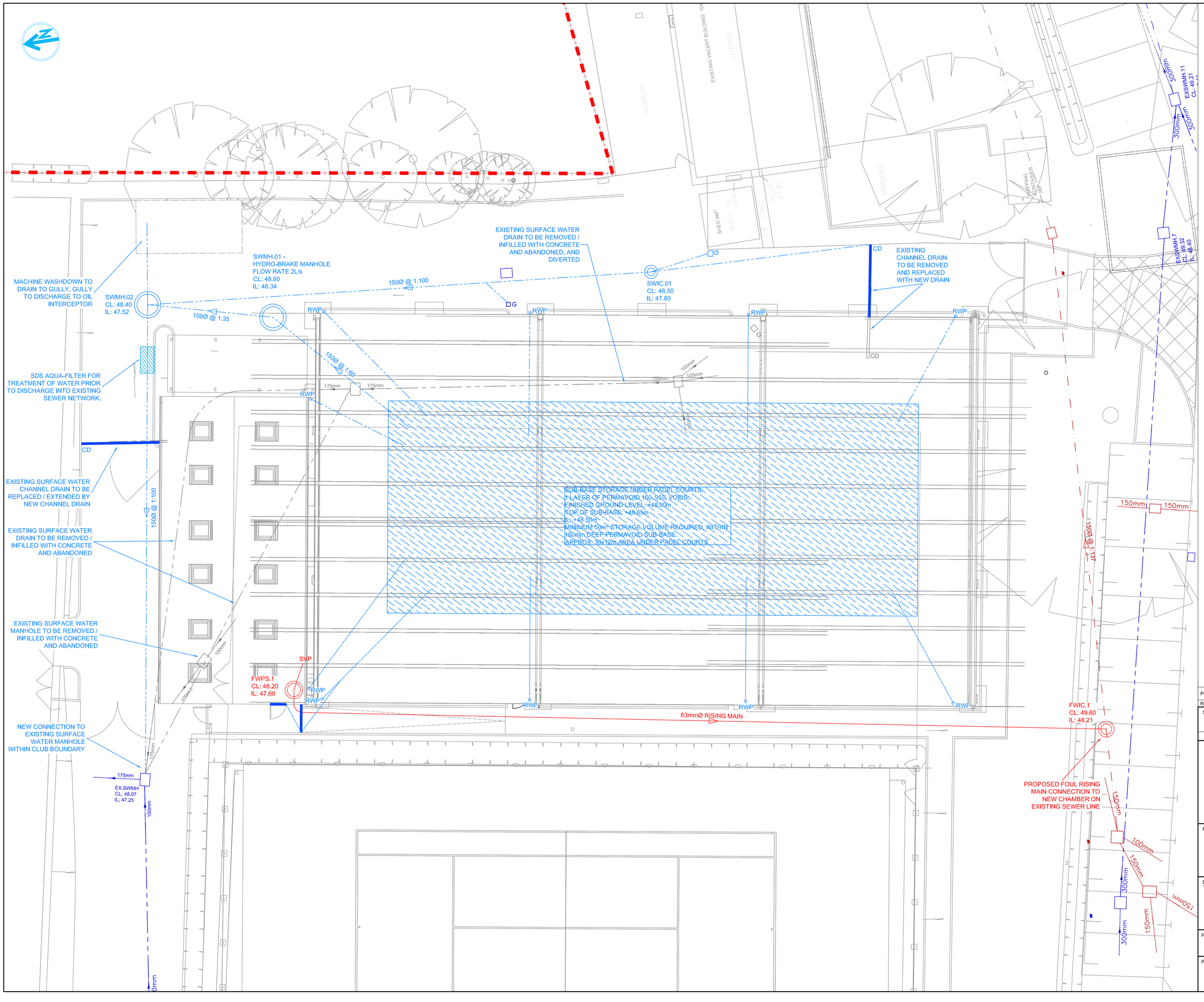
Soil characteristics	Default	Edited
SOIL type:	2	2
SPR:	0.3	0.3

Hydrological characteristics	Default	Edited
Rainfall 100 yrs 6 hrs:	--	63
Rainfall 100 yrs 12 hrs:	--	97.79
FEH / FSR conversion factor:	1.27	1.27
SAAR (mm):	625	625
M5-60 Rainfall Depth (mm):	20	20
'r' Ratio M5-60/M5-2 day:	0.4	0.4
Hydological region:	6	6
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 10 year:	1.62	1.62
Growth curve factor 30 year:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Q_{BAR} for total site area (l/s):	0.25	0.25
Q_{BAR} for net site area (l/s):	0.25	0.25

Site discharge rates	Default	Edited
1 in 1 year (l/s):	2	2
1 in 30 years (l/s):	2	2
1 in 100 year (l/s):	2	2

Estimated storage volumes	Default	Edited
Attenuation storage 1/100 years (m^3):	114	114
Long term storage 1/100 years (m^3):	0	0
Total storage 1/100 years (m^3):	114	114

APPENDIX H – Proposed Drainage Strategy



KEY

- PROPOSED SURFACE WATER DRAIN
- PROPOSED SURFACE WATER MANHOLE
- PROPOSED SURFACE WATER CHANNEL DRAIN
- RWP — PROPOSED SURFACE WATER RAINWATER PIPE
- PROPOSED CELLULAR ATTENUATION TANK
- PROPOSED FOUL WATER DRAIN
- PROPOSED FOUL WATER MANHOLE
- EXISTING SURFACE WATER DRAINAGE
- EXISTING FOUL WATER DRAINAGE
- SEWER TO BE ABANDONED/GRUBBED OUT
- SITE APPLICATION BOUNDARY

DRAINAGE STRATEGY SUBJECT TO THE APPROVAL OF THE LLFA

Rev	Date	Comment	By	Check
P01	14.03.23	ISSUED FOR PLANNING	HP	LF

Status Code: S2

Drawing Status: PRELIMINARY

This drawing may only be used for construction/manufacture if status is CONSTRUCTION

FURNESS Consulting Engineers

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Project

ST GEORGE'S HILL LAWN TENNIS CLUB

Drawing Title

PROPOSED DRAINAGE STRATEGY - PADEL COURTS

FP Job No.	Drawn	Date	Checked	Scale @ A1
6793	HP	MAR '22	LF	1:100

PROJECT	OPERATOR	ZONE / VOLUME	LEVEL / LOCATION	FILE TYPE	ROLE	SHEET No.	Rev.
/	FUR	XX	ZZ	DR	D	0915	P01

APPENDIX I – InfoDrainage Model Results Summary

Project:	Date: 14/03/2023		
	Designed by: h.patel	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address:		

Cellular Storage

Type : Cellular Storage

Dimensions

Exceedence Level (m)	48.200
Depth (m)	0.150
Base Level (m)	47.900
Number of Crates Long	30
Number of Crates Wide	73
Number of Crates High	1
Porosity (%)	95
Crate Length (m)	0.4
Crate Width (m)	0.4
Crate Height (m)	0.15
Total Volume (m³)	50.082

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area (2) Catchment Area (3) Catchment Area (4) Catchment Area (5)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe
Outlet Type	Free Discharge

Project:	Date: 14/03/2023		
	Designed by: h.patel	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address:		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWMH5	48.500 48.140	Diameter / Length: 1.200					Manhole
E:508893.892 N:163248.056	0.360		{a} P2.000	Pipe	48.140	Diam/Width:100	Not Applicable
SWMH4	48.400 47.590	Diameter / Length: 1.200	{1} P2.000 {2} P3.001	Pipe Pipe	47.590 47.590	Diam/Width:100 Diam/Width:100	Manhole
E:508896.515 N:163276.494	0.810		{a} P2.001	Pipe	47.590	Diam/Width:100	Not Applicable
SWMH1	48.050 47.190	Diameter / Length: 1.200	{1} P2.001	Pipe	47.190	Diam/Width:100	Manhole
E:508870.052 N:163280.816	0.860						Not Applicable
SWMH2	48.250 47.850	Diameter / Length: 1.200	{1} Pipe	Pipe	47.850	Diam/Width:100	Manhole
E:508894.705 N:163269.602	0.400		{a} P3.001	Pipe	47.850	Diam/Width:100	Not Applicable

Project:	Date: 14/03/2023		
	Designed by: h.patel	Checked by:	Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase	Company Address:		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	SWMH5		Time of Concentration	0.007	100	0	100	0.007
Catchment Area (1)	SWMH4		Time of Concentration	0.031	100	0	100	0.031
Catchment Area (2)	Cellular Storage		Time of Concentration	0.015	100	0	100	0.015
Catchment Area (3)	Cellular Storage		Time of Concentration	0.080	100	0	100	0.080
Catchment Area (4)	Cellular Storage		Time of Concentration	0.011	100	0	100	0.011
Catchment Area (5)	Cellular Storage		Time of Concentration	0.004	100	0	100	0.004
TOTAL		**0.0**		**0.147**				**0.147**

Project:	Date: 14/03/2023		
	Designed by: h.patel	Checked by:	Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Phase	Company Address:		

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:x)	500.00
Max. Slope (1:x)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
Synchronise Manhole Invert Levels	☑

Project:	Date: 14/03/2023		
	Designed by: h.patel	Checked by:	Approved By:
Report Details: Type: Outfall Details Storm Phase: Phase	Company Address:		

Outfalls

Outfall	Outfall Type	Fixed Surcharged Level (m)	Level Curve
SWMH1	Free Discharge		

Project:	Date: 14/03/2023		
	Designed by: h.patel	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	Company Address:		

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Project:	Date: 14/03/2023		
	Designed by: h.patel	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address:		

Critical Storm

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow (m^3)
Catchment Area	FSR: 100 years: +25 %: 15 mins: Winter	0.01	3.8	1.796
Catchment Area (1)	FSR: 100 years: +25 %: 15 mins: Winter	0.03	17.2	8.042
Catchment Area (2)	FSR: 100 years: +25 %: 15 mins: Winter	0.01	8.1	3.790
Catchment Area (3)	FSR: 100 years: +25 %: 15 mins: Winter	0.08	43.9	20.599
Catchment Area (4)	FSR: 100 years: +25 %: 15 mins: Winter	0.01	5.8	2.729
Catchment Area (5)	FSR: 100 years: +25 %: 15 mins: Winter	0.00	2.2	1.010

Project:	Date: 14/03/2023		
	Designed by: h.patel	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address:		

Critical Storm

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SWMH5	FSR: 100 years: +25 %: 15 mins: Winter	48.500	48.140	48.264	0.124	3.8	0.140	0.000	3.2	1.788	Flood Risk
SWMH4	FSR: 100 years: +25 %: 15 mins: Winter	48.400	47.590	48.200	0.610	18.8	0.690	0.000	11.2	11.445	Flood Risk
SWMH1	FSR: 30 years: +0 %: 15 mins: Summer	48.050	47.190	47.290	0.100	8.4	0.000	0.000	8.4	6.390	OK
SWMH2	FSR: 100 years: +25 %: 180 mins: Winter	48.250	47.850	48.020	0.170	2.0	0.192	0.000	2.0	34.274	Flood Risk

Project:	Date: 14/03/2023		
	Designed by: h.patel	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		

Critical Storm

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Cellular Storage	FSR: 100 years: +25 %: 180 mins: Winter	48.045	48.045	0.145	0.145	14.2	48.269	0.000	0.000	2.0	34.492	4	OK

Project:	Date: 14/03/2023		
	Designed by: h.patel	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address:		

Critical Storm

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
P2.000	FSR: 100 years: +25 %: 15 mins: Winter	Pipe	SWMH5	SWMH4	48.5	48.264	0.100	1.788	0.4	0.38	3.2	Flood Risk
P2.001	FSR: 100 years: +25 %: 15 mins: Winter	Pipe	SWMH4	SWMH1	48.4	48.200	0.100	10.275	1.4	1.51	11.2	Flood Risk
P3.001	FSR: 100 years: +25 %: 30 mins: Summer	Pipe	SWMH2	SWMH4	48.3	47.990	0.100	3.416	0.9	0.26	3.0	Flood Risk
Pipe	FSR: 100 years: +25 %: 120 mins: Winter	Pipe	Cellular Storage	SWMH2	48.2	48.041	0.100	22.894	0.3	0.71	2.0	Surcharged

Prepared by: Heeta Patel	Signed: Heeta Patel	Date: 14.03.23
Reviewed by: Leon Furness	Signed: Leon Furness	Date: 14.03.23