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Bedford Passage Development

Drainage Strategy
Middlesex Annexe LLP

Project number: 60516144
MHA-ACM-XX-XX-RP-C-00001

04 November 2019

Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
01	05.11.2019	First Issue	RF	RF	Associate Director

Distribution List

# Hard Copies	PDF Required	Association / Company Name

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The methodology adopted, and the sources of information used by AECOM in providing its services are outlined in this Report. The work described in this Report undertaken from April 2019 is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances.

Where assessments of works or costs identified in this Report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

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Certain statements made in the Report that are not historical facts may constitute estimates, projections or other forward-looking statements and even though they are based on reasonable assumptions as of the date of the Report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. AECOM specifically does not guarantee or warrant any estimate or projections contained in this Report.

Unless otherwise stated in this Report, the assessments made assume that the sites and facilities will continue to be used for their current purpose without significant changes.

1. Table of Contents

2. Figures

3. Tables

1. Introduction

1.1 Purpose of Report

AECOM have been commissioned by Middlesex Annexe LLP to produce a drainage strategy for the proposed Bedford Passage Development which obtained planning permission (ref. 2017/0414/P) and specifically to discharge the Planning Condition No. 21, set by London Borough of Camden.

'21. Prior to commencement of development (other than demolition works), details of a sustainable urban drainage system shall be submitted to and approved in writing by the local planning authority. Such system shall be based on a 1 in 100-year event with 40% provision for climate change demonstrating 50% attenuation of all runoff.

The approved system shall be implemented as part of the development and thereafter retained and maintained.'

1.2 Site Description

The proposed development site covers approximately 0.31 ha and exists currently as developed brownfield land. The site is located in Fitzrovia, at the southern extent of the London Borough of Camden, close to the boundary shared with the London Borough of Westminster (approximately 150 m) and is situated approximately 150 m west of Goodge Street tube station. The site's full postal address is 44 Cleveland St, Fitzrovia, London W1T 4JT and the grid reference is TQ 29266 81816.

The site is bounded by Howland Street, commercial units and the BT tower to the north, Charlotte Street and commercial units to the east and a mix of residential and commercial units to the south and west along Cleveland Street (Figure 1).

The existing highest point is at the front of the site along Cleveland Street at approximately 27.79 mAOD and slopes north-east towards Charlotte Street at approximately 26.70 mAOD. A topographical survey can be found in Appendix A.

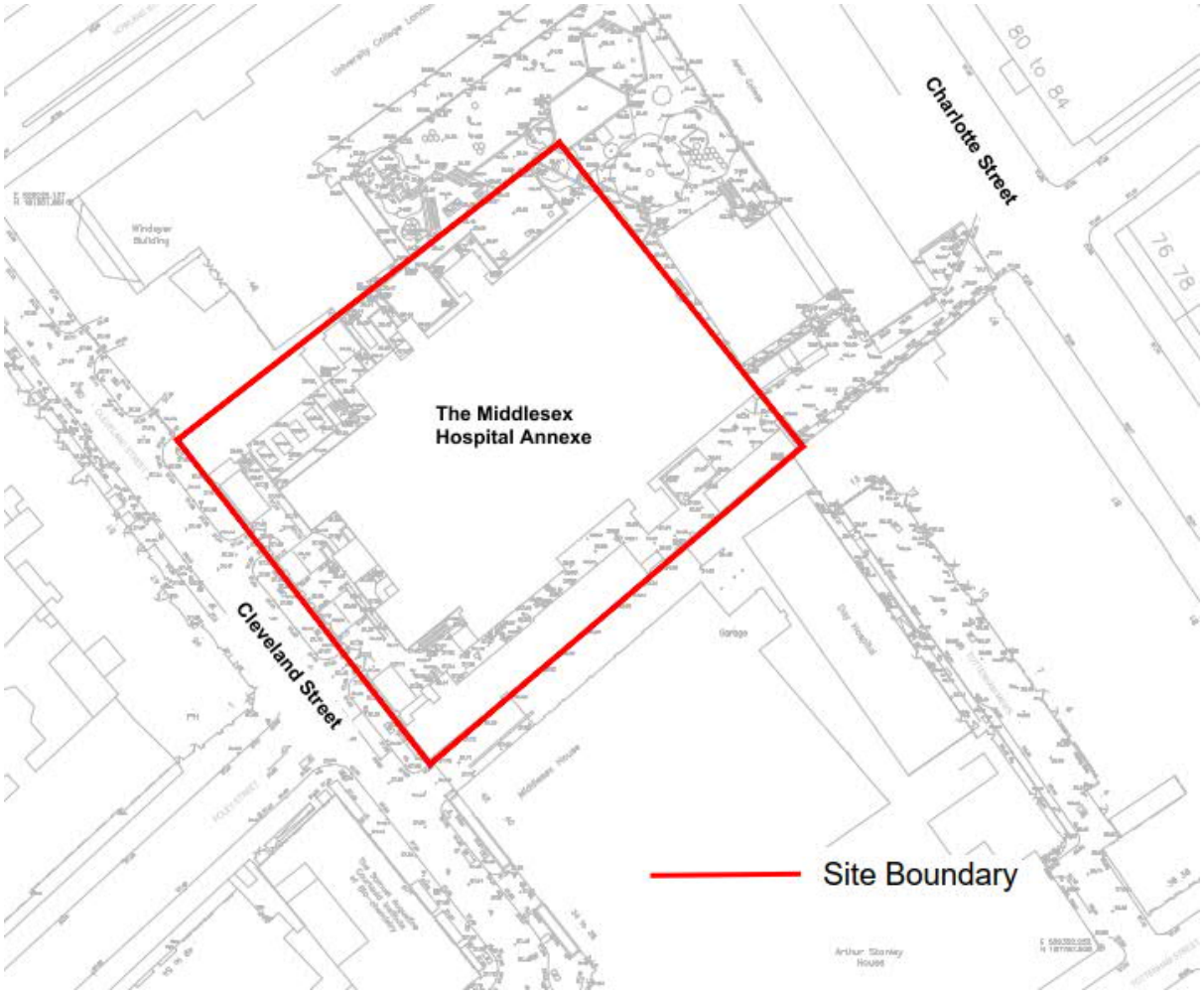


Figure 1: Location Plan

2. Existing Drainage

2.1 Existing Drainage

The Thames Water sewer records (Figure 2) indicates that there is a 1219mm x 813mm combined Thames Water sewer in Cleveland Street and 305mm combined Thames Water sewer connecting to the Thames Water sewer in Charlotte Street (Appendix B). A CCTV drainage survey was carried out in June 2018 which confirmed the site discharging foul and surface water to the 1219mm x 813mm Thames Water sewer via 3 No. existing combined outfalls located in the basement (Appendix C). A second CCTV drainage survey was carried out in September 2018 to confirm the connection. However, the survey showed that the connection was severed at the adjacent site.

There does not appear to be any attenuation facility or flow control devices on site to restrict discharge of surface water from the site.

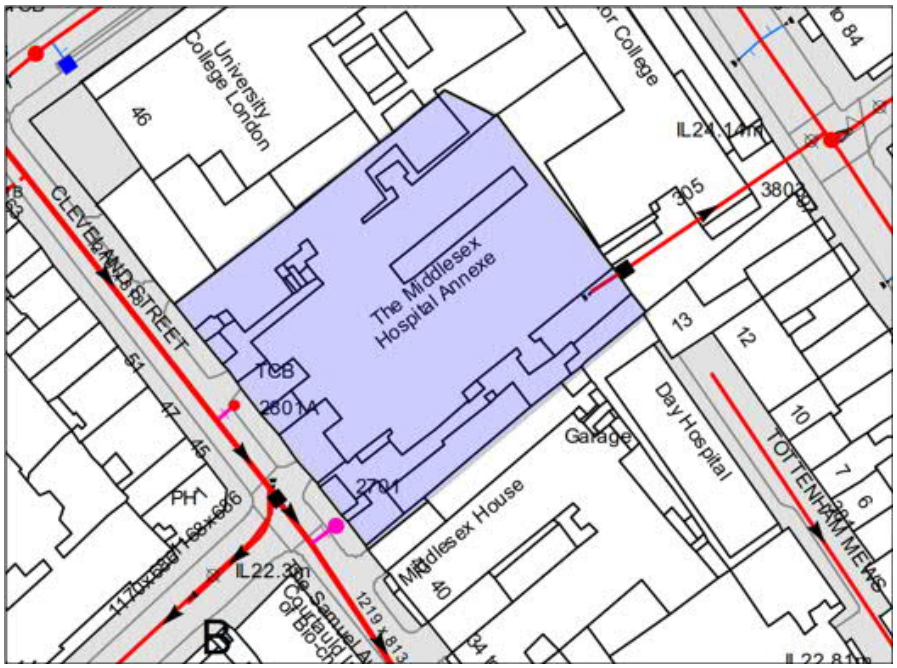


Figure 2: Thames Water Sewer Records

2.2 Existing Surface Water Runoff Rate

Where the actual flows are unknown, the existing surface water discharge rates have been calculated based on Modified Rational Method:

Q_p (l/s) = 2.78 x C_v x C_r x i (mm/hr) x A (ha)

Where the catchment area 'A', represents the equivalent impervious area of the site in hectares (ha) and 'i' means average rainfall intensity, which varies as the time of concentration changes. The volume coefficient C_v and the routing coefficient C_r are dependent on the characteristics of the ground surface – this has been taken as 1 in this case.

The existing total site area is approximately 0.31 ha and assumed 100% impermeable.

The existing site run-off rate at 1 in 100-year storm is calculated as:

A= 0.31 ha

i= 105.22 mm/hr (based on a 1 in 100-year storm event at 15 minutes duration)

Q_{100}= 2.78 x 105.122 x 0.31 = 90.59 l/s

The existing unrestricted run-off rate at 1 in 1, 1 in 2, 1 in 10, 1 in 30 and 1 in 100-year storm event is calculated as shown in the following table.

Table 1: Existing Discharge Rate

Return Period (year)	i: Average Rainfall Intensity (mm/hr) (1 in 100-year return period and Duration of 15 minutes)	2.78 x Cv x Cr: Dimensionless coefficient	Q_p: Runoff Rate (l/s)
1 in 1	32.9	2.78	28.4
1 in 2	42.5	2.78	36.6
1 in 10	63.6	2.78	54.8
1 in 30	80.8	2.78	69.7
1 in 100	105.1	2.78	90.6

2.3 Existing Foul Water Discharge Rate

The existing foul flow rate is calculated using BS EN 12056-2-2000 and the drainage outfalls are based on information from Green Hatch survey. Please refer to Appendix F for the details on the calculation.

Table 2: Existing Peak Foul Flow Rate

Drainage Outfalls	Existing Peak Foul Flow Rate (l/s)
North House (Existing Outfall 1)	2.20
Work House (Existing Outfall 2)	2.54
South House (Existing Outfall 3)	1.14
New Build	2.20

3. Proposed Surface Water Drainage

3.1 Managing Surface Water and SuDS

Surface water drainage can be managed by minimising surface run-off from development sites through the use of Sustainable Drainage Systems (SuDS). AECOM, the Environment Agency (EA) and the London Borough of Camden encourage the use of SuDS to prevent the water environment being adversely affected by increased surface water runoff, to manage the risk of pollution and reduce both on and off-site flooding.

The Building Regulations Part H 2015 stipulates that rainwater from roofs and paved areas is carried away from the surface to discharge to one of the following, listed in order of priority:

- An adequate soakaway or some other adequate infiltration system, or where that is reasonably practicable
- A watercourse, or where that is not practicable
- A sewer

Sustainable Drainage Systems (SUDS) will be used where practicable throughout the site to provide source control, to improve water quality, to reduce flood risk and provide amenity and biodiversity. The drainage design has been developed using a hierarchical approach. It should be noted that opportunities to infiltrate to ground are extremely limited due to the underlying geology and impermeable nature of the soil as well as proposed basement extent. Table 1 above identifies what SuDS techniques have been proposed within the development and the benefits to flood and pollution reduction and benefits to the environment.

Table 3: SuDS Hierarchy and proposed use on the development

Priority	SuDS Method	Flood	Pollution & Wildlife Benefit	Proposed Use in Development
1	Green, Blue / Brown Roofs i.e. Sedum Roof	√	√	Blue roofs are proposed for the scheme to attenuate rainwater and improve biodiversity. Refer to MEP Engineer and Architect Layout.
2	Store Rainwater for later use	√	X	Rainwater harvesting is not proposed due to space constraints.
3	Use Infiltration techniques	X	X	No scope for infiltration soakaways due to existing ground condition i.e. London Clay and extent of basement.
4	Filter strips such as 'French Drains' and 'Rain Gardens'	√	√	Soft landscape and planting areas are proposed to reduce the overall impermeable area on site. Refer to Appendix H
5	Ponds or Open Water Features for Gradual Release to Watercourse	√	√	No scope due to space constraints
6	Attenuate rainwater by storing in tanks or sealed water features for gradual release to a watercourse	√	Limited	Permavoids and precast concrete tanks will be used to attenuate the rainwater on site before gradual release to the combined Thames Water sewer.
7	Discharge rainwater direct to a watercourse	X	X	No nearby watercourse.
8	Discharge rainwater to a surface water drain	N/A	N/A	No nearby surface water sewer.
9	Discharge rainwater to a combined sewer.	√	Limited	The site is discharging to combined Thames Water sewer at a total restricted rate of 10 l/s via existing outfalls.

3.2 Drainage Proposal

It is proposed to collect surface water from the site by a private below ground surface water drainage network, which includes SuDS, permavoid system and three precast concrete attenuation tanks. The proposed surface water discharge rate to Thames Water sewer in Cleveland Street is 10l/s via existing outfall 2, which provides an 89% betterment against existing brownfield rate in the 1 in 100-year event. This has been approved by Thames Water (Appendix D).

All the attenuation volumes are calculated for 1 in 100-year storm event plus 40% climate change allowance. The Permavoid system provides storage of 47m^3. Where by the three precast concrete tanks provide storage of 36 m^3 (Tank 1), 28.8m^3 (Tank 2) and 37.8m^3 (Tank 3) respectively.

Blue roof attenuation is proposed and designed by MEP engineers to attenuate surface water on the New Build. The blue roof restricts the discharge rate to 6.5l/s and discharges via New Build outfall to permavoid system which is connected to the attenuation tank 3 between the Work House and the South House. The proposed drainage layout is attached in Appendix E.

In addition, unrestricted flow from the North House basement courtyards discharge via existing outfall 1 located in the North House basement to Thames Water sewer in Cleveland Street (Appendix E). The unrestricted runoff rate and the proposed surface water discharge rate are shown in Table 4 and Table 5.

Table 4: Unrestricted runoff

Locations	Unrestricted Areas (ha)	Average Rainfall Intensity (mm/hr) (1 in 100-year return period and Duration 15 minutes)	Peak Discharge Rate (l/s)
North House	0.002	105.1	0.58

Table 5: Proposed surface water discharge rates

Outfalls	Proposed Surface Water Flow	Proposed Surface Water Runoff Rates (l/s)
North House	Unrestricted Flow from North House Courtyard (see table 4)	0.58
Work House	Restricted Flow (see table 4)	10.00

Manholes shall be provided at each change of drainage pipe slope or horizontal alignment, at all pipe junctions and otherwise at intervals of approximately 90 m-100 m in accordance with Sewers for Adoption and Part H of the Building Regulations as appropriate. Inspection chambers shall be provided in accordance with Part H of the Building Regulations.

4. Foul Water Drainage

4.1 Proposed Foul Water Strategy

It is proposed to route the foul water from the ground floor and above in the New Build at high level in the basement before discharging via gravity into the 1219 mm x 813 mm Thames Water sewer in Cleveland Street via existing outfall in Work House. The foul water in the basement in New Build will be routed to the nearby pumps and pumped to high level before discharging by gravity via existing outfall in Work House.

The foul water in the North House and Work House is proposed to connect to the existing drainage in the Work House before discharging to the Thames Water combined sewer via existing outfall 2. The foul water from South House is routed at high level before connecting to the foul drainage network at ground level and discharging to Thames Water sewer in Cleveland Street via existing outfall 2.

External foul water pipework has been designed in accordance with Sewers for Adoption 7th Edition and Part H of the Building Regulations 2015. Foul water pipes shall have a minimum internal diameter of 100mm. The system will be designed to flow not more than three-quarters full and will be laid at gradients that allow self-cleansing velocities to be achieved.

Manholes shall be provided at each change of drainage pipe slope or horizontal alignment, at all pipe junctions and otherwise at intervals of approximately 90 m -100 m in accordance with Sewers for Adoption and Part H of the Building Regulations as appropriate. Inspection chambers shall be provided in accordance with Sewers for Adoption 7th Edition and Part H of the Building Regulations.

4.2 Foul Flow Rate

Table 6 summarized the existing and proposed peak foul flow rate of the building. The proposed peak foul flow rate is provided by MEP Engineer. Refer to Section 2.3 for existing flow rate calculation method.

Table 6: Summery of Existing and Proposed Peak Foul Flow Rate

Outfalls	Existing Peak Foul Flow Rate (l/s)	Proposed Peak Foul Flow Rate by MEP Engineer (l/s)
Existing Outfall 1 (North House)	2.20	0
Existing Outfall 2 (Work House)	2.54	27.59
Existing Outfall 3 (South House)	1.14	0 (Outfall abandoned/redundant)
Existing Outfall 4 (New Build)	2.20	0 (Outfall severed)

4.3 Sewer Capacity

A pre-development application was submitted to Thames Water to confirm the capacity of Thames Water sewer. Thames Water has confirmed that public sewers in Charlotte Street have capacity to receive all the flows from the whole site. In addition, Thames Water further approved that the foul flows can discharge to the public sewer in Cleveland Street. (Appendix D).

5. Maintenance Plan

The ongoing management and maintenance of the proposed surface water drainage systems will fall under the responsibility of the site owner.

Best practice maintenance information is provided within the CIRIA SUDS Manual, excerpts of which have been included below.

1. Regular Maintenance
2. Occasional Maintenance
3. Remedial Actions

5.1 Piped Drainage and Manhole Chamber Maintenance

Drainage infrastructure covered in this section includes all privately-owned manholes, manhole fittings and surrounding pipework, gullies and drainage channels. Correct operation of this drainage infrastructure allows collection and transportation of water.

It is the responsibility of Middlesex Annexe LLP to extend and maintain their drainage network. Right of access is granted by the client.

Table 7: Maintenance Schedule Piped Drainage and Manhole Chambers

Maintenance Schedule	Required Action	Frequency
Before Start up	Removal of any inappropriate material from within the chamber and dispose off-site to a suitable licenced site.	At Start
	All pipe lines to be flushed with water to remove silt and check for blockages	At Start
Regular Maintenance	Removal of debris (which could include leaves, rubbish, branches) from areas served by drainage (where it may cause risk to performance)	Monthly
Remedial Actions	For blockages resulting in flooded manhole chambers, drain down manhole chamber and unblock	As required
	For pipe blockages, rod or jet clean between access points to unblock	As required
Monitoring	Lift covers and inspect chambers. Inspect covers, surrounding gullies and drainage channels for signs of damage and incorrect operation. If required, undertake remedial action.	As required

5.2 Attenuation Storage Tanks

The function of the attenuation tanks is to collect and store water prior to discharging to the combined sewers in the vicinity of the site. Table 9 refers to the maintenance procedure highlighted in the SuDS Manual.

Table 8: Maintenance Schedule Attenuation tanks

(Source: SuDS Manual – Table 21.3)

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for three months, then annually
	Removal of debris from the catchment surface (where it may cause risk to performance)	Monthly
	Remove sediment from pre-treatment structures	Annually or as required
Remedial Actions	Repair of inlets, outlets, overflows and vents	As required
Monitoring	Inspect and check all inlets, outlets and vents to ensure that they are in good condition and operating as designed allowing surface water to be stored.	Annually
	Survey inside of tank for sediment build-up and remove if necessary. This is dependent upon the design style of the tank	Every 5 years or as required

5.3 Flow Control Device

The flow control device is located at the end of the system to restrict flows surface water flows from the site.

Table 9: Maintenance Schedule Hydrobrake or Vortex Flow Control Device

(Source: http:/www.hydro-international.biz)

Maintenance Schedule	Required Action	Frequency
Before Start	Removal of any inappropriate material from within the chambers and dispose off-site	At Start
Regular Maintenance (as per manufacturer's requirements)	Removal of debris (which could include leaves, rubbish and branches) from areas served by the drainage (where it may cause risk to performance)	Monthly
Remedial Actions	For blockages resulting in flooded manhole chambers, drain down manhole chamber and unblock	As required
Monitoring	Inspect unit and hose down is required	Monthly at the start for three months, then six monthly

5.4 Permavoid

The Permavoid system is proposed around the New Build podium to collect surface water runoff from the blue roof and external podium. The table below shows the Maintenance Plan for Permavoid system.

Table 10: Maintenance Schedule Permavoid System

(Source: Permavoid System Technical Manual, Section 7 Delivery, installation & maintenance)

Maintenance Schedule	Required Action	Frequency
Before Start	A pre-handover inspection should be carried out and the Permavoid system cleaned prior to final handover	At Start
Regular Maintenance (as per manufacturer's requirements)	Remove litter and blockages as required; records of inspections and maintenance undertaken should be kept by the client	As required
	Inspect all chambers for silt and oil build up; sweep external surfaces	Every 12 months
Remedial Actions	A spillage kit appropriate to the size of the road surfaces should be kept by the site caretaker. This should include absorbent pads, socks and rain seals. As soon as a spillage is identified, the drain inlets in that area should be covered to prevent pollution entering the system. The pollution should then be cleared from the road surface. The local channel system and/or Permaceptor receiving the spillage should be emptied of all pollution that has entered. The Environment Agency should be informed of the spillage and the appropriate actions should be taken.	As required
Monitoring	Inspections of channels, road/yard gullies for signs of blockage and oil spillage	3 monthly

6. Other Considerations

6.1 Adoption

Owing to the layout and nature of the proposed development, Thames Water is unlikely to adopt the drainage on this site.

However, the sewer connections will be adopted by Thames Water under S106 Consent to Connect agreement.

6.2 Connection of Private Drains

Design of lateral connections and demarcation chambers shall be in accordance with Sewers for Adoption. In general, all drainage will be designed to adoptable standards, where possible.

6.3 Consultation

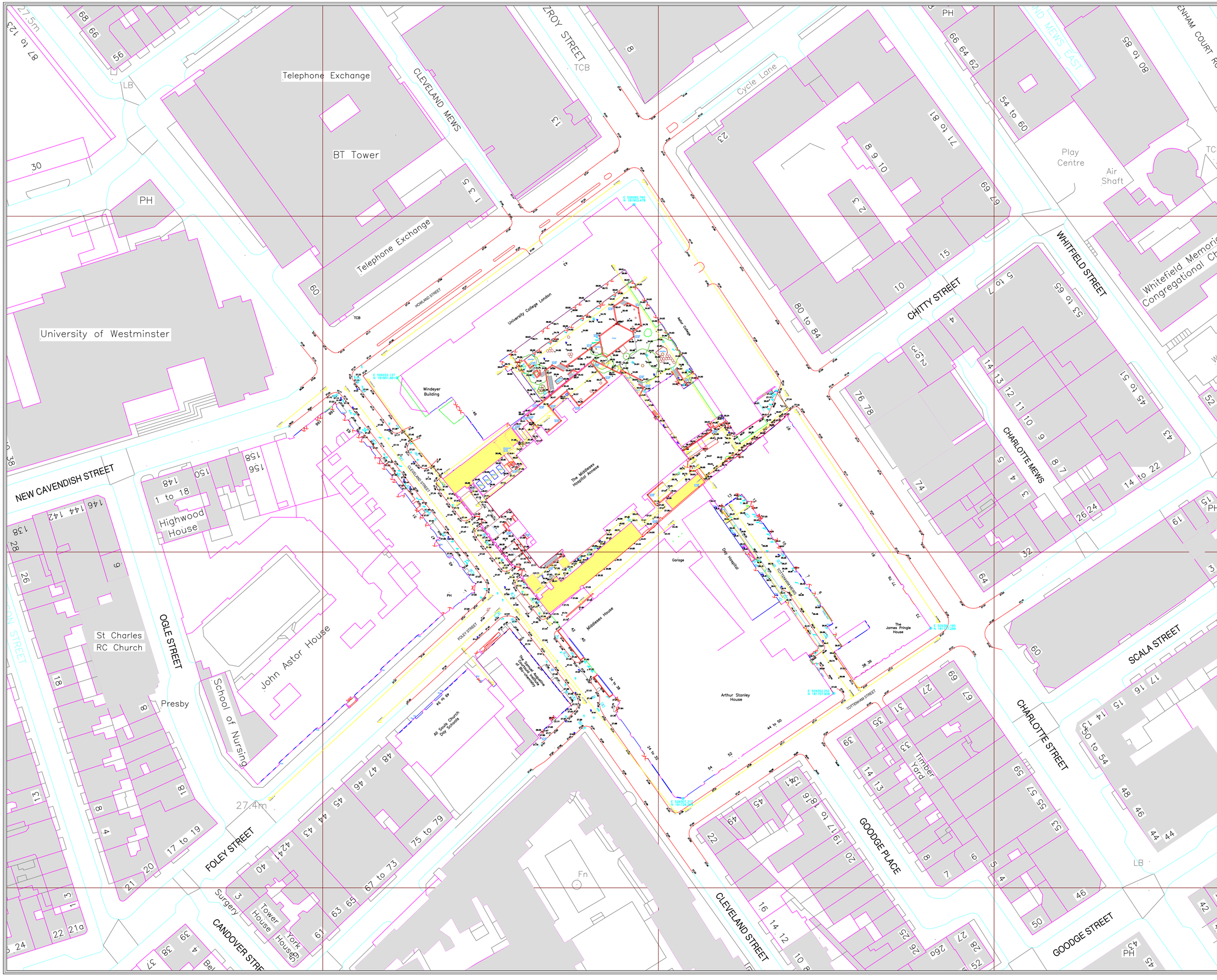
Thames Water, Building Control and London Borough of Camden will be consulted for associated approvals.

Thames water have been consulted to confirm sewer capacity. A S106 Consent to Connect application will be submitted to Thames Water for the proposed connections to Thames Water sewers.

Proposed drainage design will be issued to Building Control.

Drainage Strategy will be submitted to London Borough of Camden for discharge of planning condition no. 21.

Appendix A : Topography Survey



Station Information:

Station	Easting (m)	Northing (m)	Level (m)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Building Survey Legend:

SHt 1.00 **HHt 2.12**	Sill Height from FFL. Head Height from FFL.
SL 51.03m **HL 52.82m**	Sill Level from defined datum. Head Level from defined datum.
Susp CHt: 2.00 **Struct CHt: 3.00**	Suspended Ceiling Height from FFL. Structural Ceiling Height from FFL.
Susp Ceil: 30.00m **Struct Ceil: 31.00m**	Suspended Ceiling Level from datum. Structural Ceiling Level from datum.
IFL: 100.00m **+100.00m**	Internal Floor Level (General). Internal Floor Level (Specific).
Insertion Point	Insertion Point for overlay drawings of other floors or details.

Topographical Legend:

Note:
Although O.S. Coordinates may be shown on this plan the grid is to be treated as arbitrary.
No scale factor has been applied to the survey therefore the any coordinates shown are not true O.S. Coordinates.
Please refer to Survey Station Coordinate Table above to enable correct establishment of the on-site grid used.

OS Buildings ▨ *Surveyed Buildings* 🟨

Buildings / walls
Kerb line
Edge of surface
Canopy / Overhang
Line Marking
Centre Line
Barrier
Hedge
Security Fence
Panel Fence
Open Fence
Overhead Powerline
Chamber
Woodland
1 Station and Name
100.000 Station Level
BM 100.00 Benchmark
BH 1 Borehole
TH 1 Trial Hole
Tree / Bush / Sapling
Area of Undergrowth
Gate

IC	Inspection chamber
CL	Cover level
IL	Invert level
P.Inv ø0.25	Pipe invert (diameter)
Gy	Gully
Bg	Back Gully
MH	Manhole

Elec	Electric
BT	British Telecom
Fh	Fire Hydrant
St	Stop tap
Sv	Stop valve
Wo	Wash Out
Wm	Water Meter
Mkr	Service Marker
Re	Rodding eye
Av	Air Valve
Cmp	Cable Marker
Lp	Lamp Post
Sp	Sign Post
Ep	Electricity Post
Tp	Telegraph Post
TL	Traffic light
Bs	Bus Stop
Fl	Floodlight
Fp	Flagpole
Pb	Post box
Lb	Litter Bin
Bo	Bollard
TCB	Telephone call box
Fs	Flagstaff
WL	Water level
ht	Height
IFL	Internal floor level
THL	Threshold level
Re	Rodding Eye
Dk	Drop kerb
Gas	Gas
Er	Earth rod

Rev	Date	Description	Drawn	Q. Ref
1	09.09.09	Elevation 29 arrow added.	L.W	

greenhatch group

Topographical Surveys
Site Engineering

Measured Building Surveys
3D Laser Scanning

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CLIENT

Inventures

PROJECT

UCLH
Middlesex Hospital,
Cleveland Street.

TITLE

Existing Topographical Survey.

SCALE	DATE	DRAWN	QUALITY REF
1: 500	August 09	LW	B0350

Level datum	Ordnance Survey GPS
Grid orientation	Ordnance Survey GPS
Job number	13514

Drawing No.	Rev.
13514_02_P	1

Comments

This plan should only be used for its original purpose. GreenHatch Ltd accepts no responsibility for this plan if supplied to any party other than the original client.

All dimensions should be checked on site prior to design and construction.

Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.

Notes:

Care is to be taken when scaling from hardcopies. Greenhatch cannot verify the accuracy of hardcopies.

Appendix B : Thames Water Sewer Records

Asset Location Search

Groundwise Searches Ltd
Suite 8 Chichester House
45Chichester Road
SOUTHEND ON SEA
SS1 2JU

Search address supplied Former Middlesex Annex Hospital Site
44 Cleveland Street
Fitzrovia
London
W1T 4JT

Your reference 18577DM

Our reference ALS/ALS Standard/2016_3388659

Search date 9 August 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: Former Middlesex Annex Hospital Site, 44 Cleveland Street, Fitzrovia, London, W1T 4JT

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 searchprovides 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

Asset Location Search

Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and 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

Asset Location Search Sewer Map - ALS/ALS Standard/2016_3388659

The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 529301,181819

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

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

Manhole Reference	Manhole Cover Level	Manhole Invert Level
471B	n/a	n/a
4801	n/a	n/a
4501	n/a	n/a
4608A	n/a	n/a
4619A	27.2	22.69
471A	n/a	n/a
4502	26.85	22.82
5710	n/a	n/a
55BD	n/a	n/a
55BB	n/a	n/a
561A	n/a	n/a
4901	n/a	n/a
4905	26.51	25.29
40DJ	n/a	n/a
40DF	n/a	n/a
40DG	n/a	n/a
4925	27.31	n/a
4902	27.41	22.57
50EJ	n/a	n/a
50FA	n/a	n/a
50FB	n/a	n/a
5001	n/a	n/a
50FC	n/a	n/a
501A	n/a	n/a
271A	n/a	n/a
3601A	27.73	21.4
3601B	n/a	n/a
3603	n/a	n/a
3803	27.34	23.12
361A	n/a	n/a
3602A	27.07	21.73
361B	n/a	n/a
3703	n/a	n/a
3605A	26.98	24.24
3604B	27.04	21.83
3602B	n/a	n/a
4605A	26.83	21.57
461A	n/a	n/a
4602	27.13	26.21
4603	27.13	24.23
4805	n/a	n/a
4701B	n/a	n/a
4701A	n/a	n/a
4601	26.87	23.49
4604	26.87	23.13
4704	27.22	n/a
191B	n/a	n/a
1002	n/a	n/a
1938	n/a	n/a
191A	n/a	n/a
1939	n/a	n/a
1937	n/a	n/a
1904	28	23.88
191C	n/a	n/a
1903	n/a	n/a
1001	27.66	25.37
101B	n/a	n/a
2903B	26.08	23.64
2901B	26.29	24.25
2002	n/a	n/a
2003	n/a	n/a
3902A	n/a	n/a
3045	n/a	n/a
3004	27.12	24.5
3901A	26.69	25.23
3904	27.79	23.24
3044	27.77	22.98
4006	n/a	n/a
4907	26.67	n/a
4906	n/a	n/a
1701	27.04	21.93
1607	n/a	n/a
1601	37.38	21.67
1606	27.82	20.94
1801	27.06	22.35
1702	27.2	22.43
1603	37.39	21.37
1604	26.78	24.13
1602	27.43	21.46
1605	26.34	24.36
2601	27.51	21.55
2504	26.59	25.21
281A	n/a	n/a
281B	n/a	n/a
2603	n/a	n/a
2803	27.15	23.84
2604	n/a	n/a
2605	n/a	n/a
2602	27.38	21.24
2801A	27.7	25.7
2503	27.57	21.13

Manhole Reference	Manhole Cover Level	Manhole Invert Level
2701	27.05	n/a
0008	27.33	n/a
0801	26.94	22.42
0007	n/a	n/a
0802	26.94	22.47
0002	26.3	24.21
0803	n/a	n/a
0603	n/a	n/a
0604	27.83	21.25
0805	27.25	22.11
081A	n/a	n/a
051A	n/a	n/a
051B	n/a	n/a
1501	27.85	21.03
0605	27.96	24.54

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

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water 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

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

Gulley

Culverted Watercourse

Proposed

Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.

2) All measurements on the plans are metric.

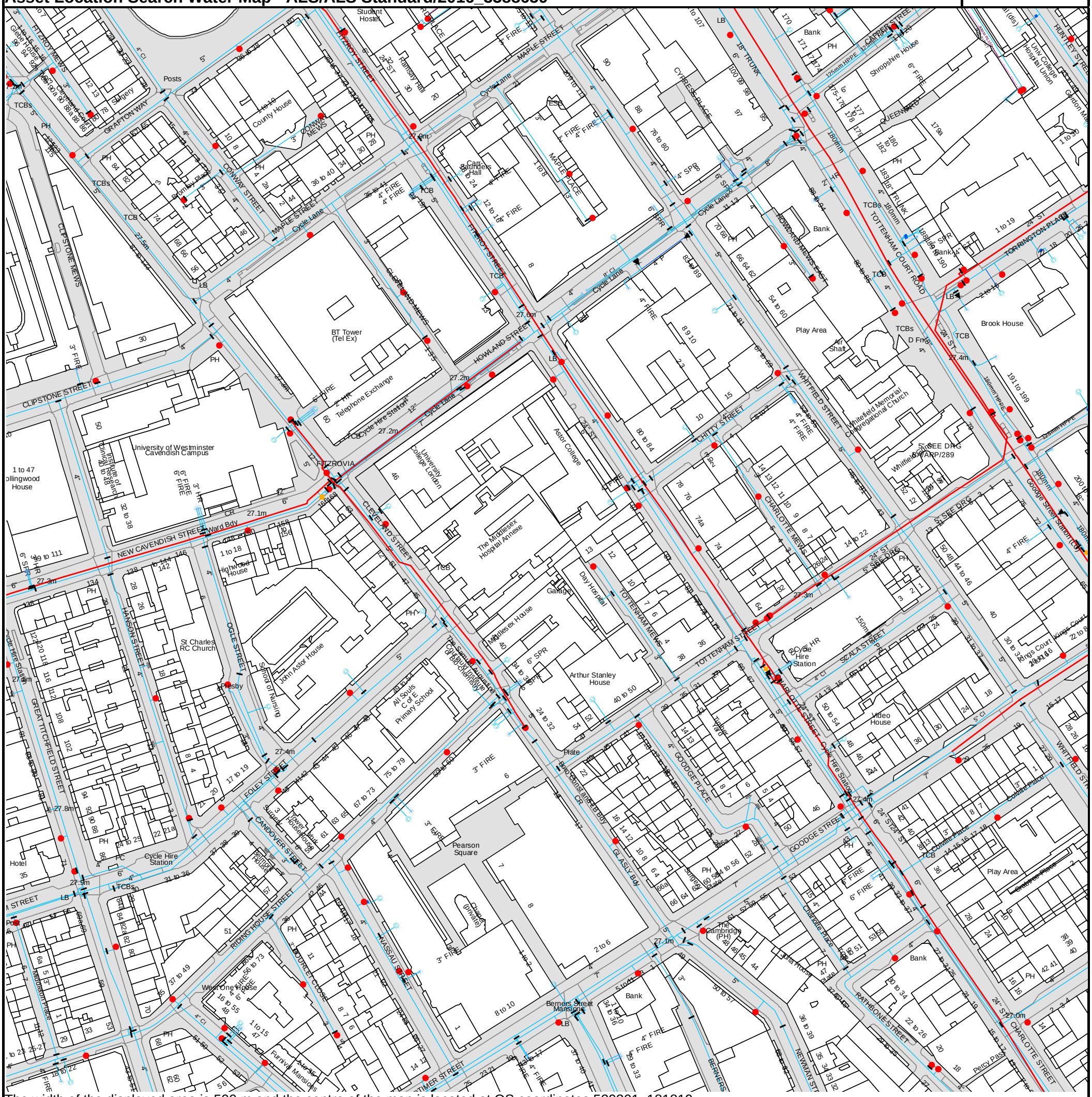
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

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

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. 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 present on the plan, please contact a member of Property Insight on 0845 070 9148.

Asset Location Search Water Map - ALS/ALS Standard/2016_3388659



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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.

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

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

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger

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')

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: Indiates 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.

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 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.

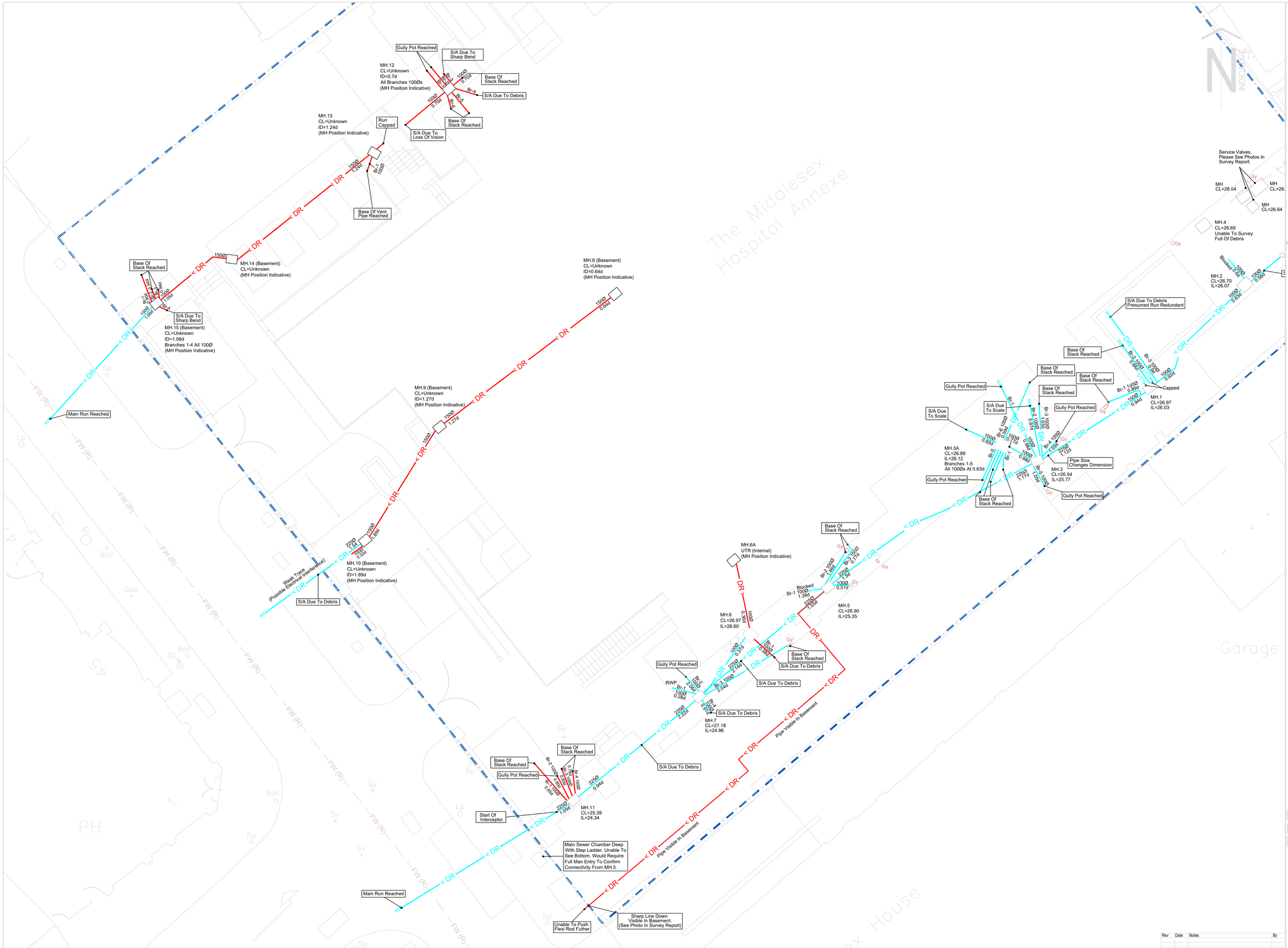
TPOs Contact Details

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 C : Existing Drainage CCTV Surveyed



Notes:

Utilities may continue outside of the survey area. Any paint marks outside of the area are for investigative purposes only and may not represent the full extent of the sub-surface utilities.

Only sub-surface utility information is provided. Above ground utility information may be shown where it assists with positional referencing.

Where logic indicates a utility exists but which cannot be positively confirmed with the technology, an assumed route (AR) is recorded.

ClearView Surveys does not procure statutory or private source utility information as part of its detection service nor does it record any such information in a utility survey unless specifically requested. Statutory plans should be consulted to supplement this survey.

Vertical & Horizontal Position - Vertical position (depth) is indicative to the top of the utility/feature and is recorded as DTS (depth to top of service) and should not be taken as exact. Where depth information from the technology is unclear, depth is not shown. Drains may have been detected using tracing and the depth indicated could be between the top and the bottom of the drain. Horizontal position is indicative to the centre of the utility/feature and should not be taken as exact.

Warranty - Biodegradable paints are used to mark-out the position of the utilities. Before long paint markings may become illegible depending on ground, weather and traffic conditions. No warranty is given in respect of the durability of the paint markings and that they are a complete representation of the live utilities therefore this drawing should be used as the primary reference for the survey results.

This drawing does not provide an absolute representation of the sub-surface. Utilities have been detected using non-invasive technologies only and the performance can be adversely affected by ground conditions and buried services in close proximity. Non-detection of certain or some utilities may be undetectable. While ClearView Surveys uses reasonable endeavours to detect all utilities, it does not warrant that 100% detection will be achieved and that approximate depth penetration of the technologies will be greater than two metres.

Sewer and manhole details shown on this drawing have been obtained by observation and measurement from the surface and as such cannot be guaranteed. Where precise sewer details will be critical to the project design ClearView Surveys would recommend that entry into the chamber be undertaken using a specialist team, appropriately qualified for confined space entry. These teams can be supplied on request.

Irrespective of the information provided by a utility survey and statutory plans, excavation work should be undertaken with extreme caution and in accordance with HSE Guidelines - HSG47 Avoiding Danger from Underground Services

Additional Notes:

1. The correct identification of the utility types can not be 100% guaranteed, therefore these should be independently verified prior to use in any design or building works.
2. All pipe diameters and levels are assumed to be correct, but due to non entry of the inspection chambers, these should be verified before any works commence.
3. All utility depths are in metres.
4. All pipe/duct sizes are in millimetres.
5. Information provided should not be altered. It should not be used for any purpose other than for which it was intended and should not be issued to other parties without prior agreement from ClearView Surveys.
6. All dimensions should be checked on site before any fabrication,construction or excavation.
7. CCTV Drainage Pipe positions are indicative only and are in an approximate position.

Key:

STREET FURNITURE
BB Bollard/Beacon
BH Borehole/Hydrant
Bo Bollard
BS Bus Stop
CPO Compass Point
EC Electric Cupboard
EP Electric Pillar/Post
ET Electric Pole
FB Flower Bed
FHM Fire Hydrant Marker
FL Flood Light
GT Guy Post
HVC Fence Post
JB Junction Box
LB Letter Box
GMK Gas Marker Post
GPO Gate Post
GV Gate Valve/Hydrant
LH Lamp Hole
LP Lamp Post
MB Marker Bollard
MK Marker
MPO Metal Post
PC Pedestal Control
PB Post Box
PM Parking Meter
RP Reflector Post
SG Road Sign
SL Slab
STN Survey Station(including etc)
TBox Telephone Box
TL Traffic Light
TLCB Traffic Light Control Box
TP Telegraph Pole
TPO Timber Post

PIPES & CABLES
OHC Directly Buried Cable
DP Down Pipe
FWP Foul Water Pipe
GP Gas Pipe
HYD Hydrant Kiosk
WMP Rain Water Pipe
SP Stand Pipe
UCP Unable To Lift
UTL Unable To Trace
VP Vent Pipe
WP Waste Pipe

LEVELS & DEPTHS
A Approximate
BD Base Of Stack Depth
BDL Back Drop Level
CD Chamber Depth
CL Cover Level
DPC Damp Proof Course
EL Eaved Level
FFL Finished Floor Level
FRL Flat Roof Level
IBDL Internal Back Drop
IL Invert Level
L Invert Level
OD Outlet Depth
PRL Parapet Level
PRoL Parapet Wall Level
RL Ridge Level
SD Sump Depth
SPD Soffit Depth
SL Sill Level
SUL Sump Level
TEL Top Of Eaved Level
TFL Top Of Fence Level
THL Threshold Level
TRL Top Of Ridge Level
WL Water Level

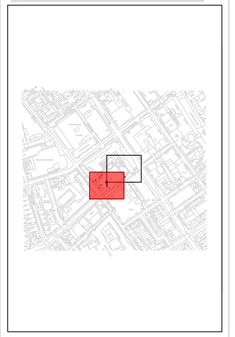
FENCES & WALLS
BW Brick Wall
BWF Brick Pier
CBF Close Boarded Fencing
CBW Close Boarded Wall
CF Corrugated Iron Fence
CLF Chain Link Fence
CPF Chestnut Paling Fence
CRW Concrete Retaining Wall
CW Concrete Wall
CWF Chicken Wire Fence
DL Dilapidated
HF Hedge Fence
IW Interwoven Fence
LF Lattice Fence
MRF Metal Railing Fence
MRW Metal Railing Fence
OBF Open Board Fence
PCF Post & Chain Fence
PWF Panel Fence
PWF Post & Rail Fence
PWF Post & Wire Fence
RTW Retaining Wall
SBW Stone Wall
SRTW Stone Retaining Wall
WWF Wire Mesh Fence

INSPECTION CHAMBERS
AC Access Cover
BC Bollard Cover
CDC Concrete Drainage Channel
EIC Electric Inspection Cover
FC Flush Cover
FWIC Foul Water Inspection Cover
FWPS Foul Water Pumping Station
GC Gully Cover
GIC Gas Inspection Cover
GM Gate Meter
GV Gate Valve
H Hydrant
IC Inspection Cover
K Kerb Inlet
LHP London Hydraulic Power
MC Meter Cover/Chamber
MH Monitoring Well
NIL No Further Information
SC Stop Cock
SDC Service Duct Inspection Cover
SV Stop Valve
SWGP Surface Water Catch Pit
SWIC Surface Water Inspection Cover
SWSA Surface Water Soakaway
TBC Telecom Inspection Cover
TIC Telecom Inspection Cover
UIC Unidentified Inspection Cover
VC Vent Column
WIC Water Inspection Cover
WM Water Meter
WWO Water Wash Out
WSV Water Stop Valve

SURFACES
BPav Brick Paving
Conc Concrete
CPav Crazy Paving
FlgPav Flagged Paving Slabs
FS Flower / Shrub Border
KTC Kidney Flint Cobbles
Lawn Lawn
Timb Tarmac
TPav Tactile Paving
TS Tennis Court

MEASUREMENTS
d Depth (m)
Ø Diameter (mm)
Dim Ø Diameter (mm)
H Object Height (m)

Linetype Key:



CLIENT

Aecom

SITE

Middlesex Hospital Annexe
44 Cleveland Street
London, W1T 4JT

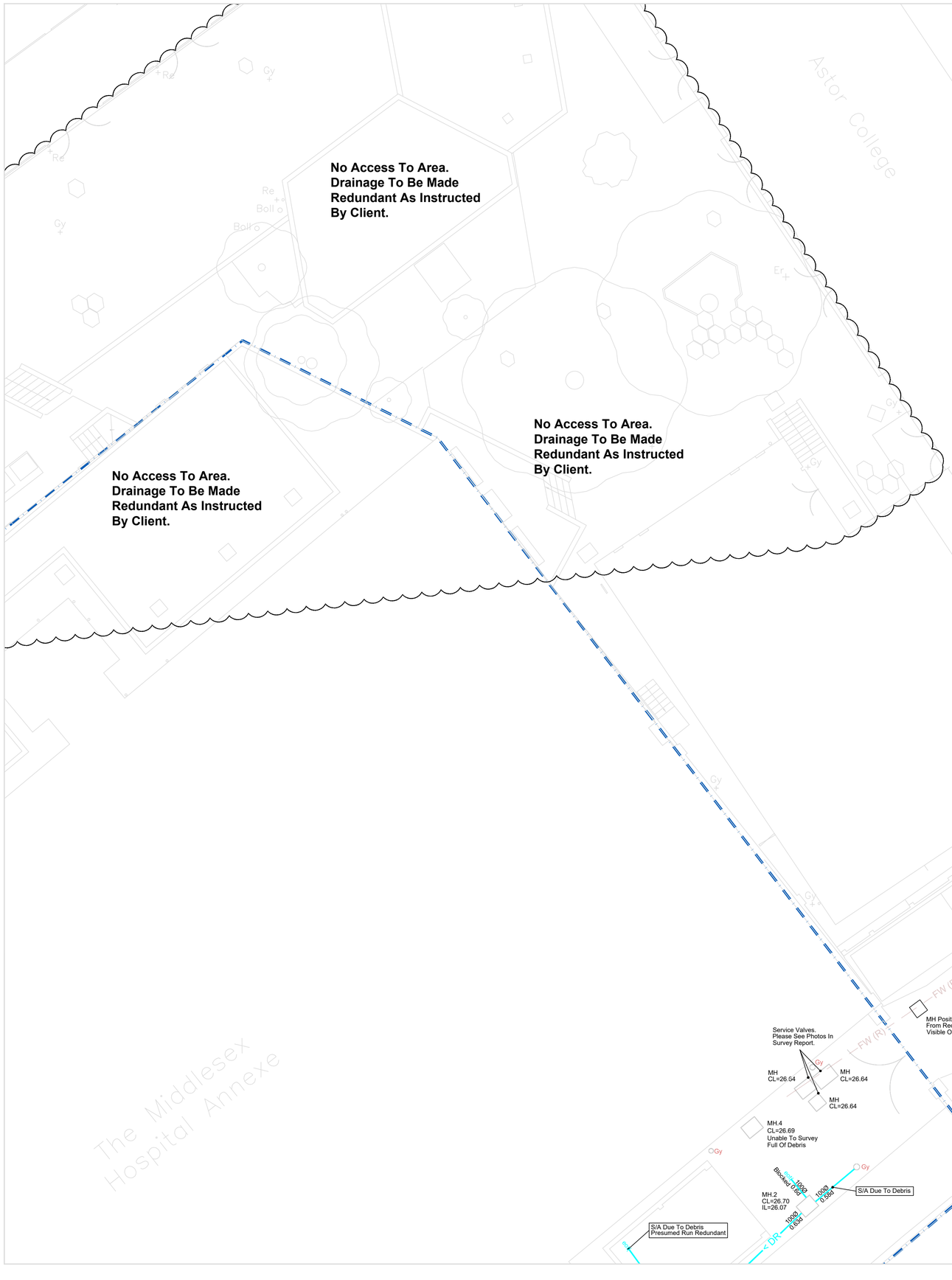
DRAWING TITLE

Drain Trace/CCTV Survey

PROJECT NUMBER	DRAWING NUMBER	DATE
10701	10701-001	07/12/2017
SURVEYED BY	DRAWN BY	CHECKED BY
DL/VA	DG	VA/AG
SCALE	SHEET SIZE	SHEET
1:100	A1	1 OF 2

Rev	Date	Notes	By

UNIT 301, OLD BARN FARM ROAD
WOOLSBRIDGE INDUSTRIAL PARK
THREE LEGGED CROSS, WIMBORNE, BH21 6SP
T 01202 828281
F 01202 824777
E info@clearviewsurveys.co.uk
W www.clearviewsurveys.co.uk



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3. All utility depths are in metres.
4. All pipe/duct sizes are in millimetres.
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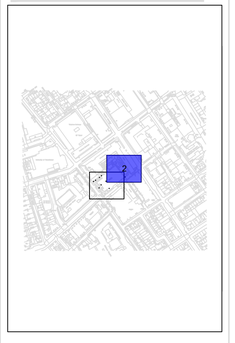
6. All dimensions should be checked on site before any fabrication,construction or excavation.
7. CCTV Drainage Pipe positions are indicative only and are in an approximate position.

Key:

STREET FURNITURE		LEVELS & DEPTHS		INSPECTION CHAMBERS	
BB	Bebrik/Beacon	A	Approximately	AC	Access Cover
BH	Bollard (Round)	CD	Chamber Depth	CH	Chamber
Bo	Litter Bin	BGL	Back Drop Level	CCC	Concrete Drainage Channel
BO	Bollard	CD	Chamber Depth	EIC	Electric Inspection Cover
CB	Call Box	DP	Drop Pipe	FC	Fuel Cap
CPO	Concrete Post	DPC	Damp Proof Course	FWIC	Foul Water Inspection Cover
EC	Electric Cupboard	EL	Eaved Level	FWPS	Foul Water Pumping Station
EP	Electric Control Pillar	FBL	Flat Bed Level	GC	Gully Cover
EP	Electric Pole	FRL	Flat Roof Level	GIC	Gas Inspection Cover
FB	Flower Bed	IBDL	Internal Back Drop	GM	Gas Meter
FHM	Fire Hydrant Marker	IL	Invert Level	GV	Gas Valve
FL	Flood Light	IL	Invert Level	H	Hatch
FP	Fence Post	OD	Outlet Depth	IC	Unidentified Cover
FPC	Fence Post	OL	Outlet Level	KI	Kerb Inlet
JB	Junction Box	PRL	Parapet Wall Level	LHP	London Hydraulic Power
LP	Lamp Post	RL	Ridge Level	MC	Manhole Cover Marker
GMK	Gas Marker Post	SD	Sump Depth	MH	Monitoring Well
GPO	Gate Post	SPD	Soffit Depth	NTI	No Further Information
LB	Letter Box Bollard	SL	Sump Level	OC	Other Cover
LH	Lamp Hole	SIL	Silt Level	SDIC	Service Duct Inspection Cover
LP	Lamp Post	TL	Sump Level	SV	Stop Valve
MB	Marker Bollard	TBL	Top Of Bank Level	SWC	Surface Water Catch Pit
MK	Marker	TFL	Top Of Fence Level	SWIC	Surface Water Inspection Cover
spkG	Metal Post	THL	Threshold Level	SWSA	Surface Water Soakaway
MP	Parking Bay Post	TKL	Top Of Kerb Level	TC	Telecom Chamber Cover
PB	Post Box	WL	Water Level	TIC	Telecom Inspection Cover
PM	Parking Meter			UIC	Unidentified Inspection Cover
RP	Reflector Post	FENCES & WALLS		VC	Valve Cover
SG	Road Sign	BW	Brick Wall	WIC	Water Inspection Cover
SI	Sign	BWF	Brick Pier	WM	Water Meter
STN	Survey Station	CBWF	Close Boarded Fence	WWO	Water Wash Out
TBB	Wheelchair Bay(Building etc)	BWF	Brick Wall	WSV	Water Stop Valve
TC	Traffic Control Box	CBF	Close Boarded Fence		
TL	Traffic Light	CIF	Corrugated Iron Fence	SURFACES	
TLCB	Traffic Light Control Box	CLF	Chain Link Fence	BPav	Brick Paving
TP	Telegraph Pole	CWF	Chestnut Paling Fence	Conc	Concrete
TPO	Timber Post	CRW	Concrete Retaining Wall	CPav	Crazy Paving
PIPES & CABLES		CWF	Concrete Wall Fence	Flag	Flagstone/Paving Slabs
OHC	Directly Buried Cable	CWF	Chicken Wire Fence	FB	Flower / Shrub Border
DP	Down Pipe	DL	Dilapidated	KPC	Kidney Pint Cobbles
FWP	Foul Water Pipe	HF	Hedge Fence	Tar	Tarmac
FWP	Foul Water Pipe	HF	Herras Fence	Timg	Timber
GP	Gas Pipe	LF	Lattice Fence	TPav	Tactile Paving
HDPE	High Density Pipe	MBF	Metal Bollard Fence	TS	Tennis Surf
MWP	Main Water Pipe	MRF	Metal Railing Fence		
SP	Stand Pipe	OBF	Open Board Fence		
UNP	Unknown Pipe	PCF	Post & Chain Fence	MEASUREMENTS	
UTL	Unable To Trace	PWF	Panel Fence	d	Depth (m)
VP	Vent Pipe	PWF	Post & Rail Fence	Ø	Diameter (mm)
WP	Waste Pipe	PWF	Post & Wire Fence	Dm/Ø	External Diameter (mm)
		RTW	Retaining Wall	H	Object Height (m)
		SCF	Stock Fence		
		SRTW	Stone Retaining Wall		
		WMF	Wire Mesh Fence		

Linetype Key:



CLIENT

Aecom

SITE

Middlesex Hospital Annexe
44 Cleveland Street
London, W1T 4JT

DRAWING TITLE

Drain Trace/CCTV Survey

PROJECT NUMBER	DRAWING NUMBER	DATE
10701	10701-002	07/12/2017
SURVEYED BY	DRAWN BY	CHECKED BY
DL/VA	DG	VA/AG
SCALE	SHEET SIZE	SHEET
1:100	A1	2 OF 2

Rev	Date	Notes	By

UNIT 301, OLD BARN FARM ROAD
WOOLSBRIDGE INDUSTRIAL PARK
THREE LEGGED CROSS, WIMBORNE, BH21 6SP
T 01202 828281
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W www.clearviewsurveys.co.uk

Appendix D : Thames Water Correspondence

Mr Paul Battersby
AECOM
Aldgate Tower
2 Leman Street
London
E1 8FA

Wastewater pre-planning
Our ref DS4019624

15 May 2019

Pre-planning enquiry: Confirmation of sufficient capacity

Dear Mr Battersby,

Thank you for providing information on your development:

Middlesex Hospital Annex, Cleveland Street, W1W 6DL.

Development details: Existing Old NHS Hospital building. Not been occupied since 2005 (unknown beds previously, approx. int area of 7195m^2). Proposal for 53 residential units in redevelopment. Possible 2979m^2 commercial area. Proposed new connection for combined discharge to the 1219 x 813mm combined sewer within Cleveland Street with surface water restricted to 10l/s.

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

Foul Water

If your proposals progress in line with the details you've provided, we're pleased to confirm that there will be sufficient sewerage capacity in the adjacent combined sewer network to serve your development.

This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, to a maximum of three years.

You'll need to keep us informed of any changes to your design – for example, an increase in the number or density of homes. Such changes could mean there is no longer sufficient capacity.

Surface Water

Please note that discharging surface water to the public sewer network should only be considered after all other methods of disposal have been investigated and proven to not be viable. In accordance with the Building Act 2000 Clause H3.3, positive connection to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal methods have been examined and proven to be impracticable. The disposal hierarchy being: 1st Soakaways; 2nd Watercourses; 3rd Sewers.

Only when it can be proven that soakage into the ground or a connection into an adjacent watercourse is not possible would we consider a restricted discharge into the public combined sewer network.

If the peak surface water run-off discharge is then restricted to Greenfield run-off rates/a maximum of **10l/s** as your drainage strategy indicates, then we would have no objections to the proposals.

Thames Water Planning team would ask to see why it is not practicable on the site to restrict to Greenfield run-off rates if they are consulted as part of any planning application.

In considering your surface water needs, we support the use of sustainable drainage on development sites. You'll need to show the local authority and/or lead local flood authority how you've taken into account the surface water hierarchy that we've included.

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

What happens next?

Please make sure you submit your connection application, giving us at least 21 days' notice of the date you wish to make your new connection/s.

If you've any further questions, please contact me on 0203 577 9811.

Yours sincerely

Siva Rajaratnam - Adoptions Engineer

Thames Water

Appendix E : Proposed Drainage Layout (Ground and Basement Level)