Pringuer-James Consulting Engineers Limited
Overseas House +44 (208) 940 4159
Elm Grove, London mail@pjce.com
SW19 4HE pjce.com

PJCE

Sustainable Drainage Systems (SuDS) Strategy

L2658 – 2 Templewood Avenue London, NW3 7XA

Document Prepared For:

Gian & Karolina Fazio

February 2022
Job Number L2658-REP-SUDs-002

Document Record

Revision	Purpose of Issue	Author	Reviewer	Date
001	Draft	Fahardine Cassamo	Michael Smith	21.01.2022
002	Planning	Fahardine Cassamo	Michael Smith	15.02.2022

Table of Contents

APPENDICES

1. Project Introduction

Pringuer James Consulting Engineers has been commissioned by client to proposed SUDS Drainage Strategy for the proposed redevelopment in 2 Templewood Avenue, London, NW3 7XA.

2. Sustainable Drainage System (SuDS) Strategy

Sustainable Drainage Systems

The National Planning Policy Framework (NPPF) explains that sustainable development should not increase flood risk elsewhere, and it gives priority to the use of sustainable drainage systems. This report is not intended to provide formal details of the final drainage design for the development. It provides information regarding the capabilities of the conceptual surface water drainage strategy to meet the requirements of the NPPF. This report describes the overall drainage strategy for the site, including potential SUDS considered and attenuation requirements.

The SUDS strategy addresses 3 components required under local and national planning guidance:

- Sustainable Urban Drainage Systems (SuDS) components to be implemented,
- Method of controlling discharge rate
- Method of controlling discharge volume

2.1 Planning and Technical Considerations

The following extracts represent a selection of relevant guidance that are specifically applicable to SuDS.

National Planning Policy Framework:

- Major developments should incorporate sustainable drainage systems unless there is clear evidencethat this would be inappropriate.

Camden Local Plan Policy:

- The Camden Council will require development to adapt to fluvial flooding and mitigate the effects of, and adapt to, surface water and sewer flooding. To deliver this the Council will expect the drainage:

  Policy CC2 Adapting to Climate change:

  - a) the protection of existing green spaces and promoting new appropriate green infrastructure.
  - b) not increasing, and wherever possible reducing, surface water run-off through increasing permeable surfaces and use of Sustainable Drainage System.

  Policy CC3 Water and flooding:

  - b) avoid harm to the water environment and improve water quality;
  - c) Consider the impact of development in areas at risk of flooding (including Drainage);
  - d) Incorporate flood resilient in areas prone to flooding;
  - e) Utilise Sustainable Drainage System (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible;

London Plan

a) Policy 5.13 and the New London Plan Policy SI 13: A development should utilise sustainable urban drainage systems (SUDS) unless thereare practical reasons for not doing so and should aim to achieve greenfield run-off rates and ensurethat surface water run-off is managed as close to its source as possible.

London Plan "Sustainable Design and Construction SPG":

b) Clause 3.4.9: There maybe situations where it is not appropriate to discharge at greenfield run-off rates [due to low flow rates and thus risk of blockages]. An appropriate minimum discharge rate would be 5 litres per second per outfall.

c) Clause 3.4.10 All developments on Greenfield sites must maintain Greenfield run-off rates. On previously developed sites, run-off rates should not be more than 3 x the calculated Greenfield rates. The only exception to this, where greater discharge rates may be acceptable, are where a pumped discharge would be required to meet the standards or where surface water drainage is to tidal water and therefore would be able to discharge at unrestricted rates provided unacceptable scour would not result.

The Non-Statutory Technical Standards (NSTS) for Sustainable Drainage Systems sets out general recommendations for control of development run-off, including the requirement to ensure that run-off from the site is not increased by development, and the requirement to manage surface water run-off for events up to the 1 in 100-year storm (including an additional allowance for the projected impacts of climate change).

2.2 SuDS Principles

The most appropriate means of surface water control and discharge has been determined based on the hierarchy as set out in the NSFS.

Methods for controlling storm water:

c) Storing Water for later use.

d) Infiltration techniques, such as porous surfaces in non-clay areas;

e) Attenuate rainwater in ponds or open water features for gradual release;

f) Attenuate rainwater by storing in tanks or sealed water features for gradual release;

Methods for discharging storm water:

g) Discharge rainwater direct to a watercourse;

h) Discharge rainwater to a surface water sewer/drain;

i) Discharge rainwater to the combined sewer.

j) Ground must be suitable for infiltration (i.e. sandy gravelly soils).

k) Groundwater generally needs to be 1.0m below base of infiltrating feature.

l) Ground must be not contaminated or that infiltration will not activate pollution in the soil.

m) Soakaways cannot be placed closer than 5m to a building (Building Regulations Part H).

Attenuate rainwater in ponds or open water features for gradual release

The most commonly known features are detention basins, ponds and wetlands. All of the features are used to control peak run-off rate, while open ponds or detention basins can reduce volume of run-off through retransformation or infiltration (see above).

Attenuate rainwater by storing in tanks or sealed water features for gradual release.

The most common method of controlling run-off on developed sites is through storage in attenuation tanks. Another common method that falls into this group are green/brown and podium roofs.

The purpose of both systems is to collect the water and slowly release it into the drainage network. The attenuation systems, such as geo-cellular tanks below ground, above ground tanks, blue roofs, provide no volume reduction benefit and provide only minimal treatment benefit.

Green roofs, when properly designed attenuate storm water for gradual release, allow for evaporation of first 5mm of rainfall, provide water treatment and improve biodiversity and community benefits.

Methods for discharging storm water

Methods for discharging storm water, if infiltration is not viable, is site dependent.

Discharge rainwater direct to a watercourse

Discharge to watercourse is preferred as this reduces the need to provide drainage network, allows recharge to rivers and groundwater, and reduced sewer flooding. Discharge to tidal river can be unattenuated, whilst in other cases Greenfield rates and volumes are appropriate.

Discharge rainwater to a surface water sewer/drain

British Standards require that sewers must be kept separate on-site and discharge storm water to storm water sewer if infiltration is not viable and watercourse discharge is not possible. The key purpose of separate systems is to minimize storm surcharge to foul treatment stations and improve water quality of receiving water courses.

Discharge rainwater to the combined sewer.

Older parts of the country, especially London, do not have separate system, and in such instances the only viable option is to connect to combined water sewer.

2.3 Choice of Calculation Methodologies

The total greenfield run-off and surface water run-off has been calculated utilizing Innovyze software (formerly known as Micro Drainage Software) using the ICP SUDs Method for a site less than 50ha.

According to Micro-drainage calculations, the results for the greenfield run-off are:

Contributing Area (ha)	QBAR Rural (l/s)	QBAR Urban (l/s)	Q_{BAR} Rural for Different Return Periods (l/s)		
			1 in 1 Year	1 in 30 Year	1 in 100 Year
0.149	0.6	0.6	0.5	1.4	2.0

Results of Greenfield Run-off

A breakdown of the greenfield run-off can be seen on the point 4.
Micro-drainage greenfield run-off and brownfield run-off is available in Appendix F & G.

3. Proposed SuDS Elements

3.1 Proposed SuDS

CIRIA The SuDS Manual C753 provides a good guide to all possible SuDS systems, their benefits, and constraints. The below table summarizes all available SuDs options listed in C753 and evaluates their suitability for the development site. Key Benefit Codes are in accordance with C753 listed as "likely valuable contribution to delivering design criteria" and are as follows:

- P - Peak run-off reduction,
- V - Volume reduction,
- Q - Water quality improvement,
- A - Amenity,
- B – Biodiversity

The proposed site has a large soft landscaped area to the rear of the property, and according to the arboricultural report service trench has been provided around the perimeter of the garden to allow all the services inclusive drainage access to garden studio building. The paved area to the front of the property is designated for driveway/car parking. Although underlain by impermeable London Clay throughout, there is a limited opportunity to introduce infiltrations devices. However, there are opportunities for various SuDS structures and a SuDS treatment train at shallow depths to manage surface water, mimicking the natural drainage processes at source and offering additional benefits such as water quality and quantity management.

This is in line with Camden local policy CC3 utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible.

The following table 1 details shown the various SuDS options available, which were then evaluated for viability and suitability for implementation on site to achieve the proposed surface water flow rate.

Table 1 - SUDS proposals, CIRIA SuDS Manual C753

Component Type	Key Benefit	Development site		
		Viable	**Proposed**	**Details**
Rainwater Harvesting	V, A	No	No	Rainwater harvesting from the flat rooftop structures with storage at roof level would offer benefits beyond volume control and allow for the watering of the planters shown at ground level. Rainwater Harvesting is, however, not practical for control of peak run-off and is more useful in reducing overall volume of run-off.
Green roofs	V, Q, A, B	Yes	Yes	Green Roof, on the side extension and Garden Studio has been proposed for the site. The weight of the green roof will have to be considered when designing the proposed foundations.
Infiltration Systems: Filter Strips, Filter Drains	P, V, Q, A, B	No	No	Infiltration of the site is poor. British Geology data show that the underlaying stratum is London Clay Formation.
Proprietary treatment systems	Q	No	No	Not required due to extensive use of higher order SuDS for treatment.
Trees	P, V, Q, A, B	Yes	Yes	Significant space is available for tree pits in the South area of the property.
Pervious Pavements	P, V, Q,	Yes	Yes	There is space available for permeable pavement (tanking sub-base with no infiltration), in front of the property. The permeable paving can form a part of the surface water management and treatment train and allow for the system outlet structure to the local surface water sewer.
Attenuation storage tanks	P	Yes	Yes	Attenuation in storage crates under the drive space would provide sufficient storage and attenuation to comply with the required discharge rates and volume.
Swales, Detention basins, Bioretention.	P, V, Q, A, B	No	No	Bioretention via redirecting the RWP into raised planters on the periphery of the structure is proposed.
Ponds and wetlands	P, Q, A, B	No	No	Site is too small and within a fully built urban area.

3.2 Proposed SuDS Maintenance Plan

Permeable Pavements (non-infiltrating system)

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site specific observations of clogging or manufacturer's recommendations.
Occasional Maintenance	Stabilize and mow contributing and adjacent areas	As required
	Removal of weeds and management of any weeds in the pavement or adjacent.	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
	Rehabilitation of surface and upper structure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance reduced due to significant clogging)
Monitoring	Initial Inspection	Monthly for three month after installation
	Inspect for evidence of poor operation and/or weed growth – take remedial action if required.	Three-monthly, 48h after large storms in first six months.
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually
	Monitor inspection chambers	Annually

Orifice Plate flow-control

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	No regular maintenance is required, except if fault is identified during routine inspection/monitoring	As required
Remedial action	Repair and/or replace orifice plate	As required
Monitoring	Inspection to check performance, condition of the system and to identify any faults	Every 3 to 6 months

Attenuation Tank

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually.
	Remove debris from the catchment surface (where it may cause risks to performance).	Monthly
	Remove sediment from pre-treatment structures and/or internal forebays	Annually
	System inspection after heavy storms.	After every major storm.
Remedial actions	Repair/rehabilitate inlets, outlets, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years

Anti-Flood Valves
Anti-flood valves will require 6-monthly inspection and replacement of seals if found damaged during inspection or inoperable, in line with manufacturer requirements.

Hydrobrake

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	No regular maintenance is required, except if fault is identified during routine inspection/monitoring	As required
Remedial Action	Repair and/or replace hydro brake	As required
Monitoring	Inspection to check hydro brake performance, condition of the system and to identify any faults. (Note: hydrobrake will be inspected regularly as part of the attenuation tank inspection and cleaning schedule.)	Every 3 to 6 months

Green Roofs

Maintenance Schedule	Required Action	Typical Frequency
Regular Inspections	Inspect all components including soil substrate, vegetation, drains, irrigation systems (if applicable), membranes and roof structure for proper operation, integrity of waterproofing and structural stability.	Annually and after severe storms
	Inspect soil substrate for evidence of erosion channels and identify any sediment sources.	Annually and after severe storms
	Inspect drain inlets to ensure unrestricted runoff from the drainage layer to the conveyance or roof drain system.	Annually and after severe storms
	Inspect underside of roof for evidence of leakage	Annually and after severe storms
Regular Maintenance	Remove debris and litter to prevent clogging of inlet drains and interference with plant growth	Six monthly and annually or as required
	During establishment (ie: year one), replace dead plants as required.	Monthly (but usually responsibility of manufacturer)
	Post establishment, replace dead plants as required (where >5% of coverage)	Annually (in Autumn)
	Remove fallen leaves and debris from deciduous plant foliage	Six monthly or as required
	Remove nuisance and invasive vegetation, including weeds	Six monthly or as required
	Mow grasses, prune shrubs and manage other planting (if appropriate) as required – clippings should be removed and not allowed to accumulate	Six monthly or as required
Remedial actions	If erosion channels are evident, these should be stabilized with extra soil substrate similar to the original material, and sources of erosion damage should be identified and controlled	As required
	If drain inlet has settled, cracked or moved, investigate and repair as appropriate	As required

3.3 Proposed Discharge Method

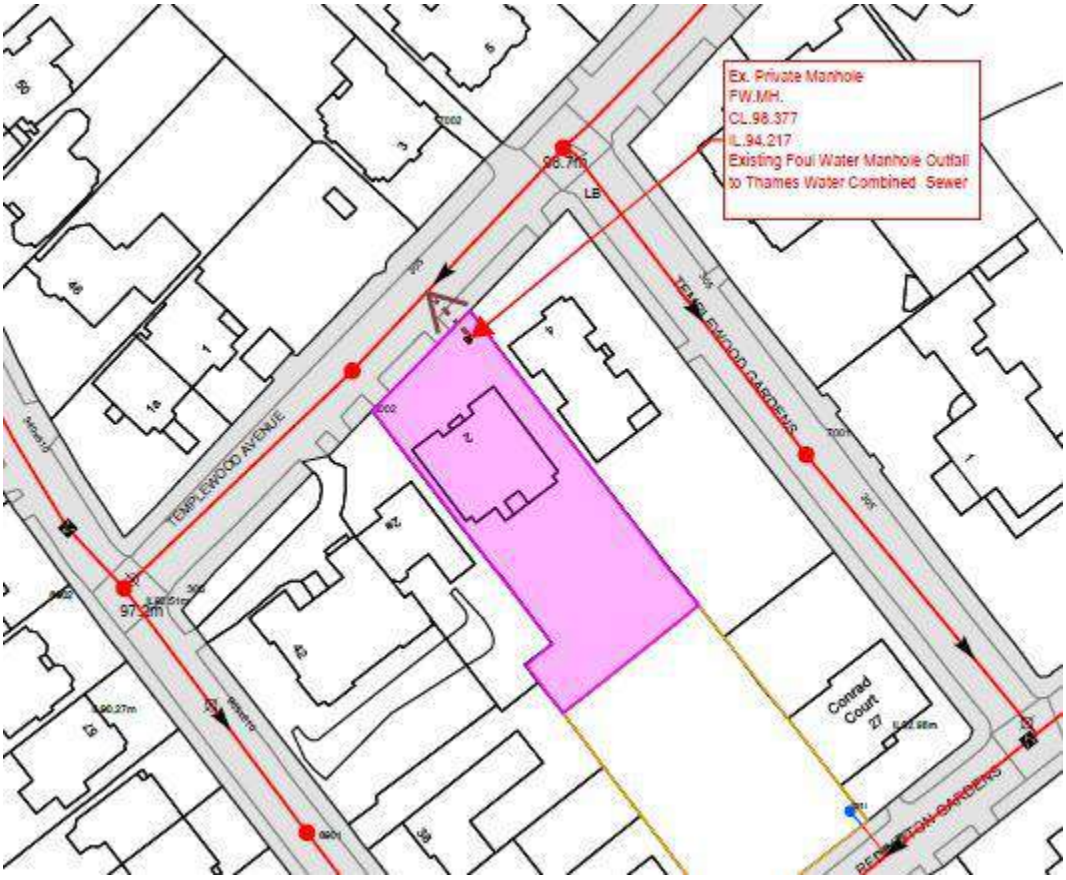
The site is in a fully developed area and is not located near any watercourses. The site is in flood zone 1, according to with Environment Agency Flood Map; this can be seeing in appendix A. Thames Water Asset location search and CCTV Drainage Survey was performed to understand the extend of the drainage arrangement on site. An extract of the finding is shown below, and the full search of the Thames Water search is available in Appendix D and the full existing CCTV information is available in Appendix E.

An existing Ø305mm Thames Water Public Combined Sewer runs along offside in front of the site boundary. The CCTV information revealed an existing combined sewer network and manhole's on-site with a Ø150mm pipe discharging into Thames Water Combined Sewer.

It is proposed to connect/discharge the proposed flows by re-using the existing combined Manhole located inside of the Site Boundary.

The proposed flows (Surface & Foul water) will be discharged via gravity from the ground floor into existing combine sewer.
All subject to further detailed design.

The site location and the existing manhole located inside the site boundary is highlighted on the below map.



Map C.1 – Extract from Thames Water Asset location search

4. Run-off Rates

4.1 Existing Run-off Rates

There is an opportunity to deploy SUDS fixtures for the development. The area currently available for SuDS structures is located at the front of the property.

The equivalent 3 x Greenfield run-off rates and the existing site run-off were calculated using ICP Suds method set Micro Drainage Software. The current/existing surface water run-off rates calculations can be seen in Appendix F and G.

Table 3 below summarizes the Existing, 50% Existing, Greenfield, and 3x Greenfield discharge rates.

	Existing site	50% Existing site	Greenfield Rate	3x Greenfield Rate
Site Area	1490m^2 (Approx.)			
Q_{ex} *(1 year)*	1.5 l/s	0.75 l/s	0.50 l/s	1.50 l/s
Q_{ex} *(30 year)*	3.0 l/s	1.70 l/s	1.40 l/s	4.20 l/s
Q_{ex} *(100 year)*	3.5 l/s	1.75 l/s	2.0 l/s	6.0 l/s

Table 2 - Run-off from existing site

The London Plan Design and Construction SPG Clause 3.4.9 specifies that a 5.0 l/s minimum discharge rate is appropriate for developments, and smaller discharge rates could result in blockages.

CIRIA Chapter 24: Hydrology and Hydraulics 24.10 Designing for long-term storage, states:
Where there is extra volume generated by the development that has to be discharged (because there are no opportunities for it infiltrated and or/used on site), this volume should be released at very low rate (eg. 2l/s)).

Defra, National Standards for Sustainable Drainage Systems.
Approach 2: Restricting the peak flow rate States: 2l/s per hectare

4.2 - Proposed Run-off Rates

The London Plan Design (50% Reduction of existing run-off rates) and Construction SPG Clause 3.4.8 cannot be achieved because the resulting peak runoff discharge rates would be 0.75 l/s, which is too low for flow-control devices. Construction SPG Clause 3.4.10 (3x Greenfield) cannot be achieve as will resulting peak surface water run-off of 6.0 l/s which is too high.

We will be limiting the surface water run-off to 2 l/s as per the National Standards for Sustainable Drainage Systems defined by Defra.

Other considerations

There is an existing drainage network on site discharging into Thames Water Combined Sewer located in front of the site boundary.

The CCTV Survey information as revealed existing manhole located at the front of the property. The manhole has a pipe is discharging into existing sewer network via an existing Ø150mm pipe.

Taken in consideration the Hydraulic pipe flow capacity table Ø150mm pipe laid at 1 in 150 maximum gradient; pipe at ¾ full will be discharging 11.5 l/s.

According with the above discharge rate of 11.5l/s and the proposed discharge rate of 2.0l/s for all storm events including of 1 in 100 plus 40% Climate Change.

There will be a reduction of 82.6% of the existing flows from the proposed development into existing sewer.

With the proposed SuDS implementation, the peak run-off flow rate for all the storm events is anticipated to be 2.l/s (a reduction of 9.5l/s from existing 11.5 l/s).

Foul water and Trade Effluent from the Swimming pool from the lower ground floor level must be pumped to ground floor level and discharged via gravity.
All the foul water will be discharged via gravity into the existing manhole and them discharged into existing combined sewer located in front of the site boundary at Templewood Avenue.

The proposed measures should be sufficient to comply with the Camden SuDS Policy plan CC2 & CC3.

Therefore, it is proposed that implementing SuDs fixtures and flow control devices on-site and limiting the surface water run-off to 2l/s for all the storm events via an Hydrobrake or Control flow chamber device are required to comply with The London Plan and the London Borough of Camden Policies for Storm Water Runoff.

4.3 Proposed Storage Volumes

Statutory guidance states that the development site discharge volume, when possible, needs to be as close as possible to Greenfield volume; however, the Environment Agency recognizes that without infiltration achieving Greenfield volume is very difficult.

The development proposed run-off rate mimics as close as possible to the greenfield run-off rates, and therefore run-off volume follows a similar pattern and achieved volume equivalent to greenfield conditions during 1-in-100year +40% climate change @ 6-hour mark.

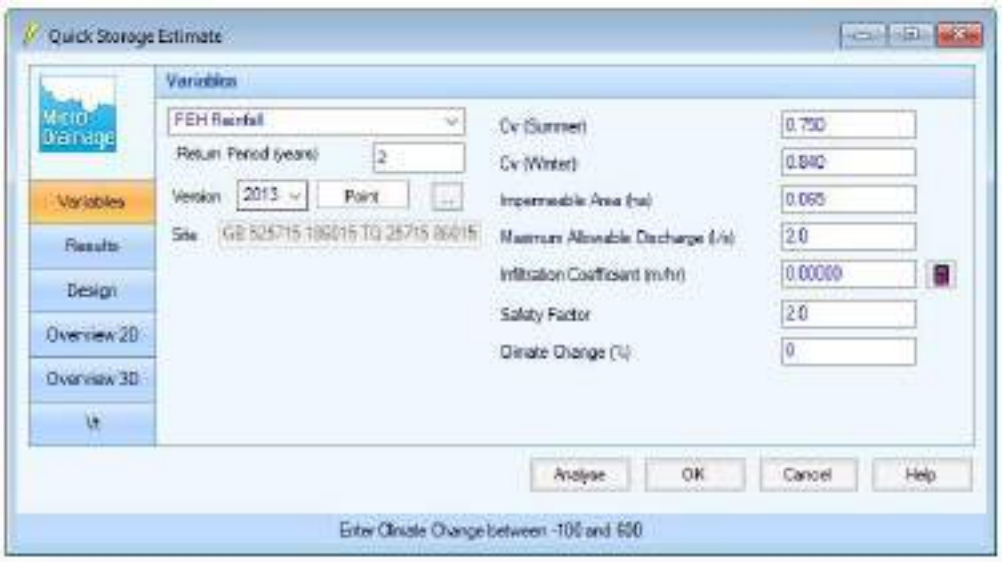
Limiting the peak flow run-off rate to the mimic the greenfield run-off discharge rate of 2l/s, results in the requirement for attenuation storage on site.

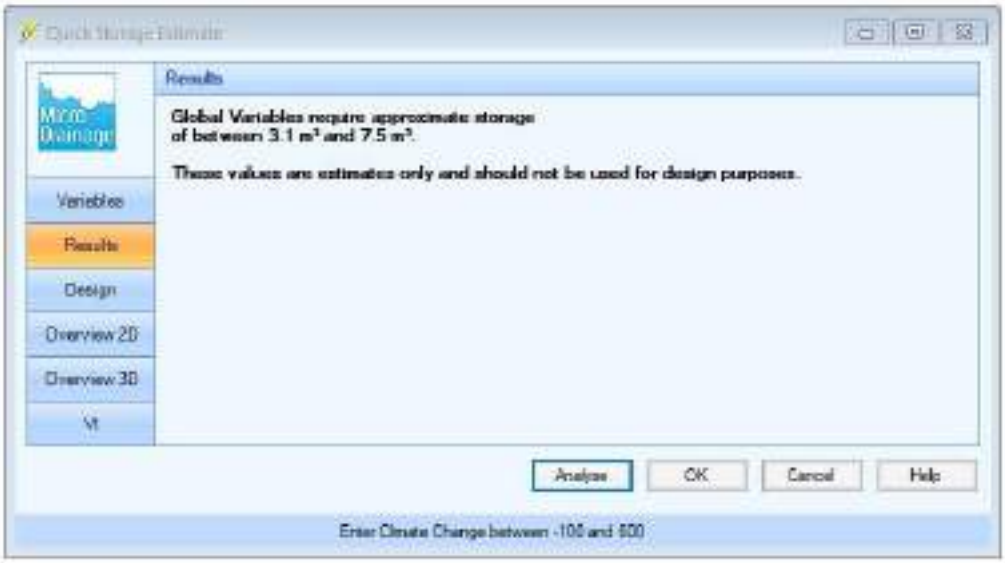
The Micro Drainage recommended storage required for a 1 in 2-year storm is 3.1 to 7.5 m3 and the storage required for a 1 in 100-year storm, with an additional 40% allowance for climate change, will be between 37 – 56 m3.

Proposed SuDS fixture with storage/attenuation capacity between 37-56m^3 can be implemented on-site. The SuDS fixture can be located in front of the property and connected into existing manhole limiting the surface water discharge rate as per the above rate.
Tanking sub-base or Geocellular crate system with no infiltration should be sufficient to attenuate all the surface water flows for all storms event up to the 1 in 100 years + 40% climate change.

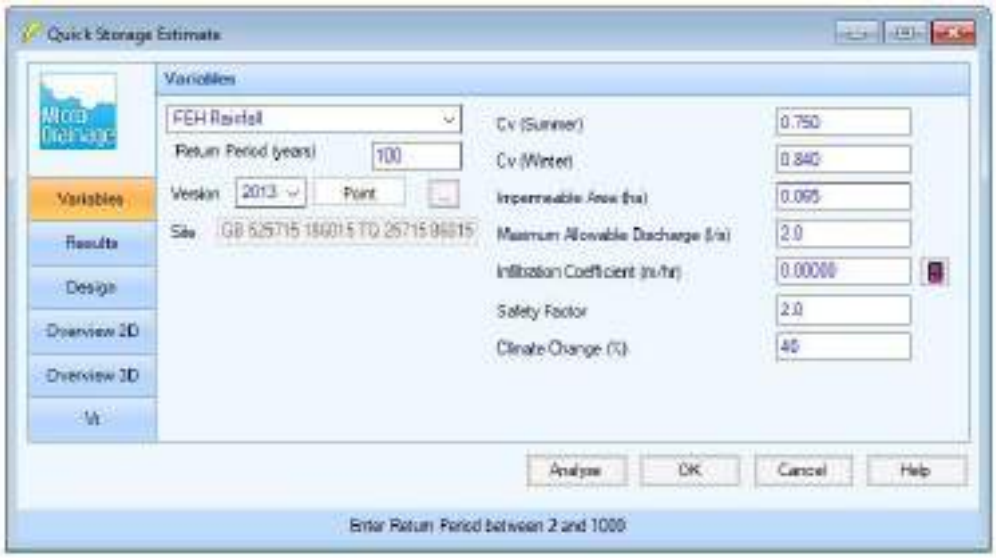
The final and proposed volume require will be confirmed at detailed design stage of the project.

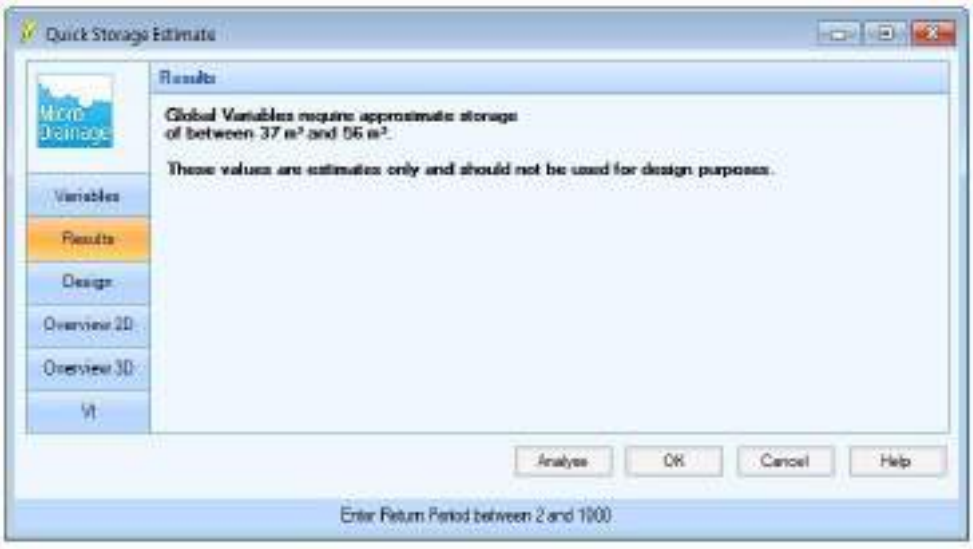
Micro - Drainage Quick Storage Estimate outputs 1 in 2 yr Storm event





Micro - Drainage Quick Storage Estimate outputs 1 in 100 + 40% CC





Appendix A Environmental Agency Flood Map

Flood map for planning

Your reference	Location (easting/northing)	Created
L2658	**525711/186019**	**14 Dec 2021 19:13**

Your selected location is in flood zone 1, an area with a low probability of flooding.

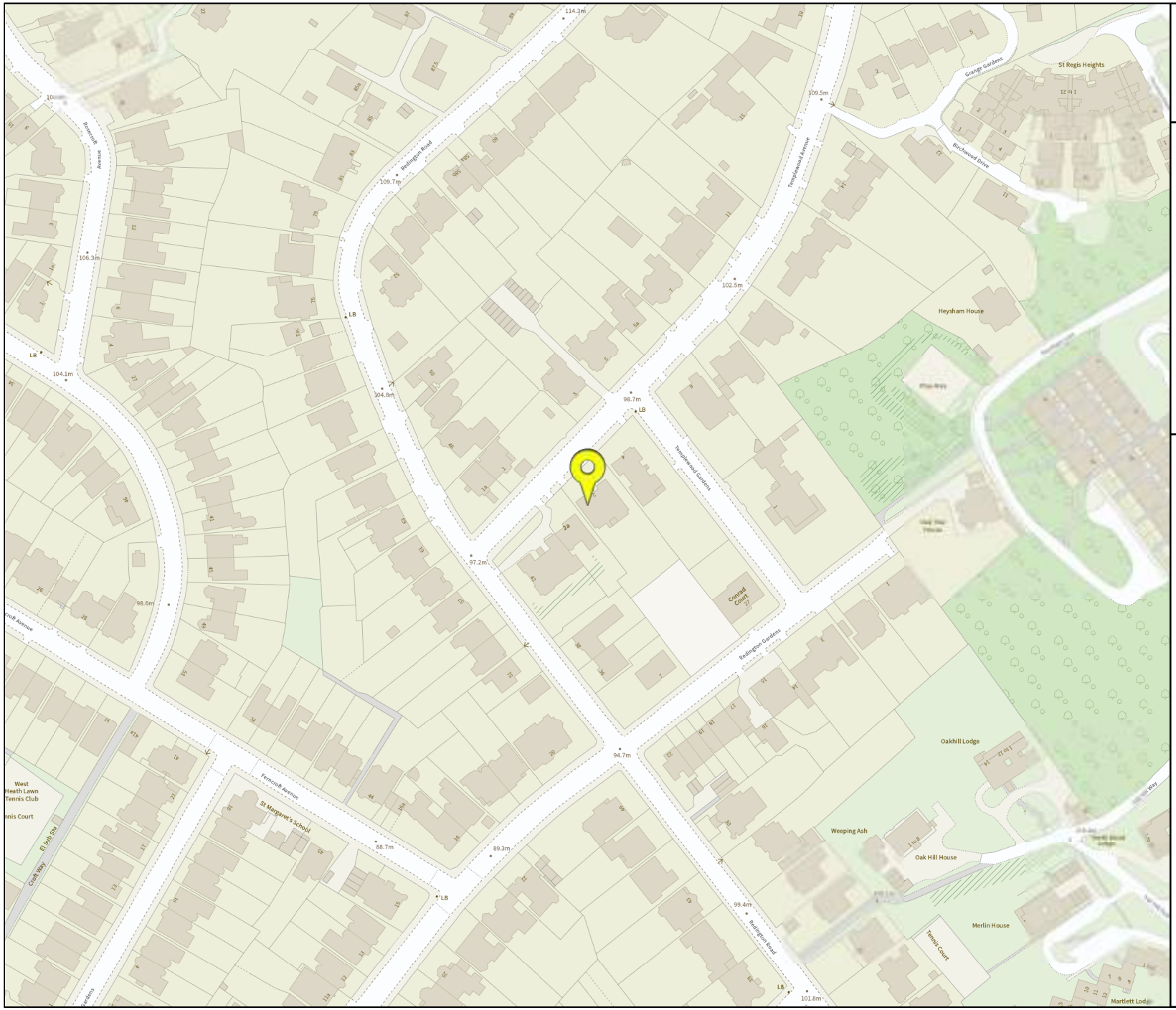
This means:

- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

Notes

The flood map for planning shows river and sea flooding data only. It doesn’t include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.



Environment Agency

Flood map for planning

Your reference
L2658

Location (easting/northing)
525711/186019

Scale
1:2500

Created
14 Dec 2021 19:13

- Selected point
- Flood zone 3
- Flood zone 3: areas benefitting from flood defences
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Flood storage area

0 20 40 60m

Appendix B Camden Critical Drainage Areas Figure 6

NORTH

0 1
KILOMETRES

Site Location

Group3_001
Group3_010
Group3_005
Group3_003
Group3_011

York Rise
Frognal Lane
Cannon Hill
Sumatra Road
Kingsgate
Goldhurst
Gospel Oak
Maitland Park
Primrose Hill
King's Cross
North Swinton Street
South East Regent's Park
Farringdon

HAMPSTEAD
CAMDEN TOWN
ISLINGTON
FINSBURY
PADDINGTON

LEGEND

- London Borough Camden Boundary
- Critical Drainage Area
- Local Flood Risk Zone

Revision	Details	By / Check	Check Date	Suffix

Purpose of Issue: FINAL

Client: Camden

Project Title: LONDON BOROUGH OF CAMDEN STRATEGIC FLOOD RISK ASSESSMENT

Drawing Title: Critical Drainage Areas / Local Flood Risk Zones

Drawn	Checked	Approved	Date
CB/EB	EY	MT	04/06/2014

URS Internal Project No.	Scale at A3
47070547	1:25,000

URS Infrastructure & Environment UK Limited
6 - 8 Greencoat Place
London
SW1P 1PL
Telephone +44 (0)20 7798000
Fax +44 (0)20 7798001
www.ursglobal.com

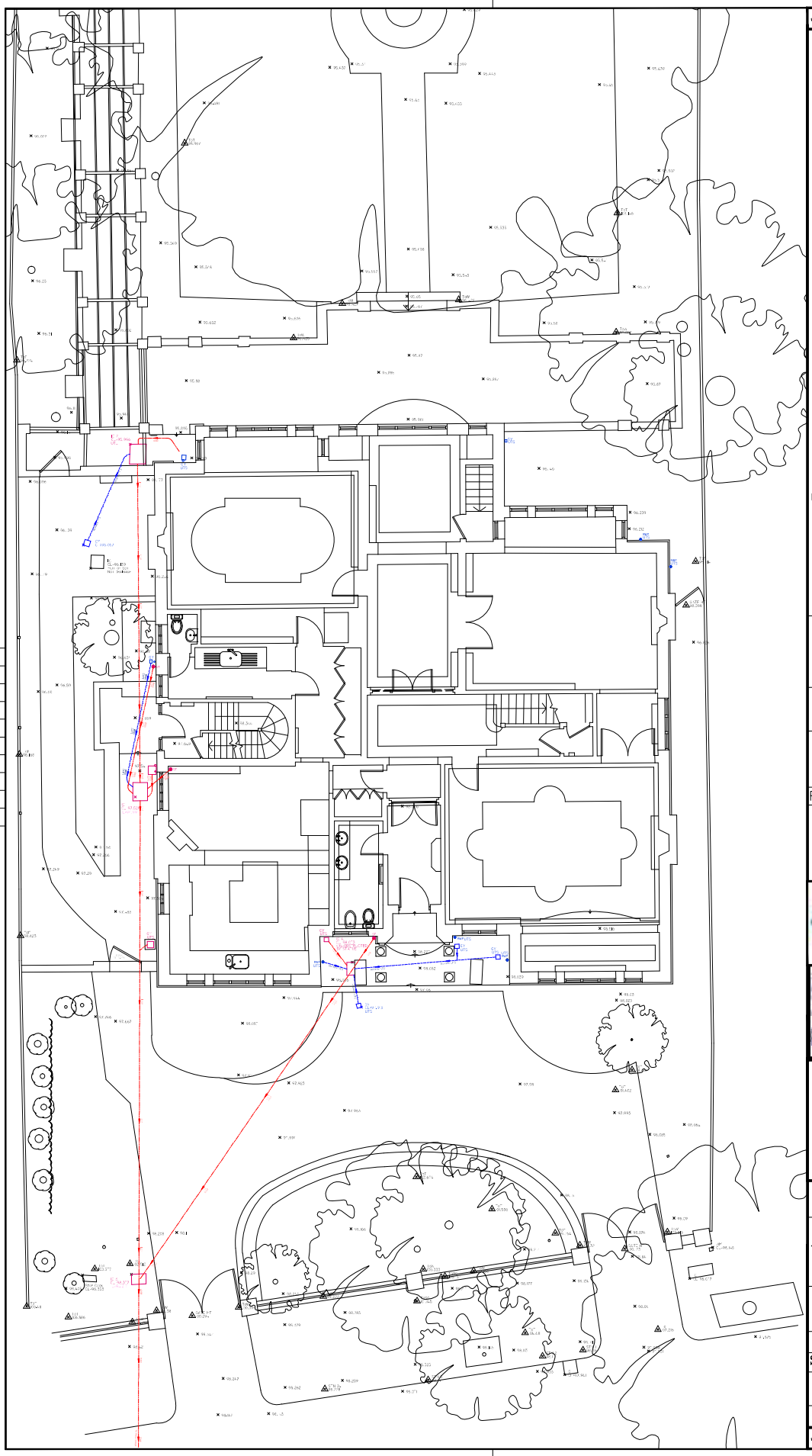
URS

Drawing Number: FIGURE 6

Rev: Rev 2

H:\Wizard\Document Projects\47070547 Camden SFRA Update (ghost)\0706 WP\0706 GIS_Data\01 MXD\0706_03-Project_Files\MXDFs

Appendix C Existing Drainage on Site



JOB No.	11306

LEGEND

FW MH/IC

SW MH/IC

INTERCEPTOR

FW GULLY
SW GULLLY
ST/VP:STACK
RWP

SW:SURFACE WATER
SURFACE WATER ROUTE

FW:FOUL WATER
FOUL WATER ROUTE

BUILDING OUTLINE

OVERHEAD BUILDING LINE

BOUNDARY LINE

ROAD

PROPOSED

BANK

BANK SYMBOL

UTS: Unable to Survey
UTL: Unable to Lift

TREE

W/C

NOT TO SCALE

Drawing Notes
EDS information shown in red

Rev.	Date	Description	By

EXPRESS SOLUTIONS GROUP

RoSPA Member

Head Office:
152–154 Commercial Road
Staines–Upon–Thames
Surrey
TW18 2QW
Tel 020 8979 5444
VAT 851970604
Company No 04935559

Client	PJCE
Site Address	2 Templewood Avenue London NW3 7XA
Drawing title	SITE PLAN
Scales	NOT TO SCALE
Surveyor	AP
Drawn By	JR
Date	16.12.2021
JOB No.	11306

Pringuer-James Consulting Engineers Limited
Overseas House
Elm Grove, London
SW19 4HE
+44 (208) 940 4159
mail@pjce.com
pjce.com

PJCE

Appendix D Thames Water Asset Location Search

Asset location search

Property Searches

Pringuer-James Consulting Engineers Ltd
Overseas house Overseas house

LONDON
SW19 4HE

Search address supplied

2 - Temple Wood Avenue
2 - Temple Wood avenue
2
Temple wood
London
England
NW3 7XA

Your reference 2 Temple Wood Avenue

Our reference ALS/ALS Standard/2021_4543771

Search date 17 November 2021

Knowledge of features below the surface is essential for every development

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

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

Contact us to find out more.

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

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

0800 009 4540

Asset location search

Search address supplied: 2 - Temple Wood Avenue, 2 - Temple Wood avenue, 2, Temple wood, London, England, NW3 7XA

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 0800 009 4540, or use the address below:

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

Email: searches@thameswater.co.uk
Web: www.thameswater-propertysearches.co.uk

Waste Water Services

Please provide a copy extract from the public sewer map.

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

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

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

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

For your guidance:

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

Clean Water Services

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

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

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

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.

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

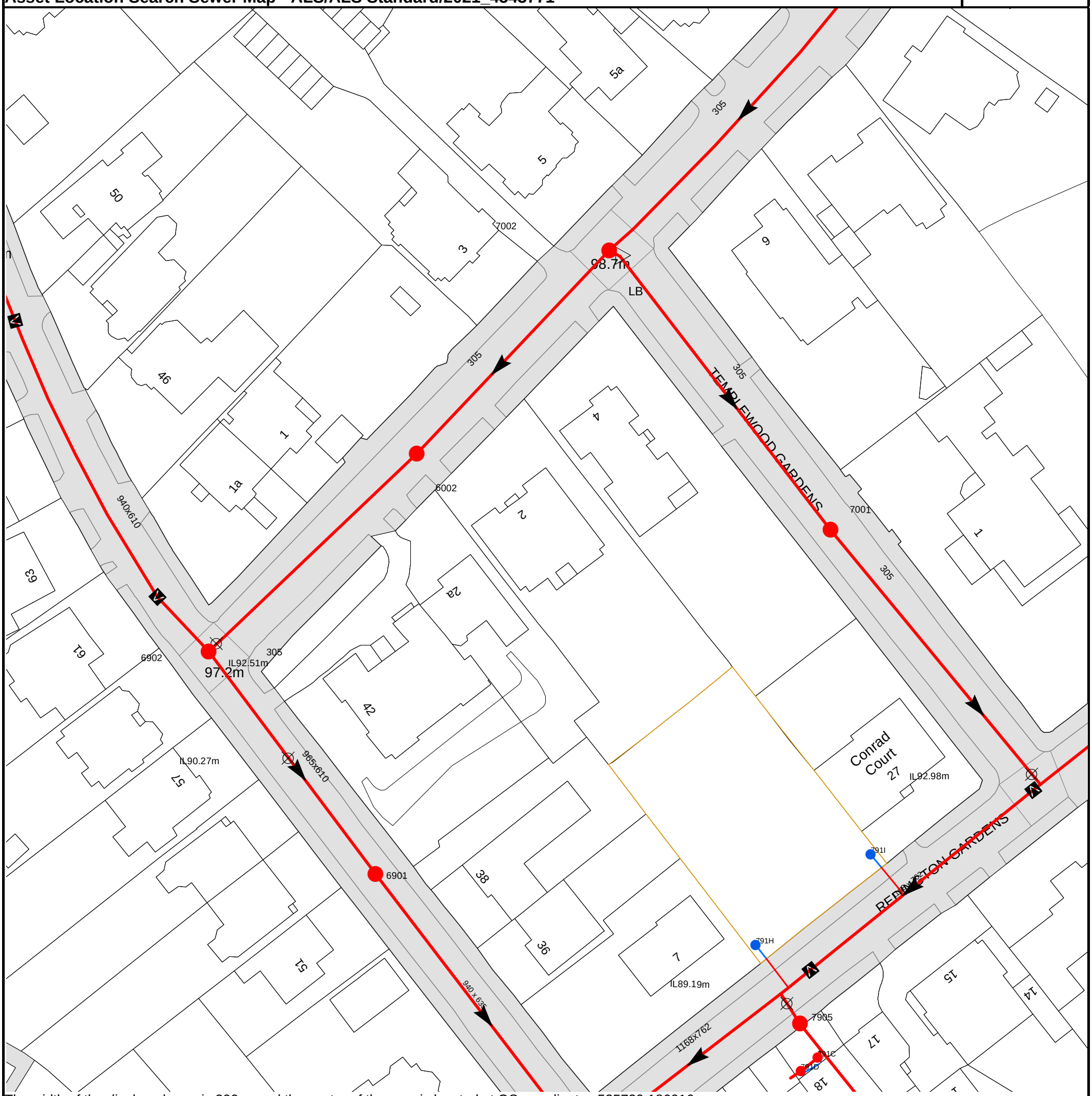
Clean Water queries

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/2021_4543771



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 525720,186016

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.

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
6902	97.3	91.98
6901	94.97	89.34
6002	98.22	93.36
791H	94.9	93.16
791I	95.27	93.47
791D	n/a	n/a
791C	n/a	n/a
7002	99.08	94.25
7001	97.5	93.19
7905	95.22	92.93

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

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

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.

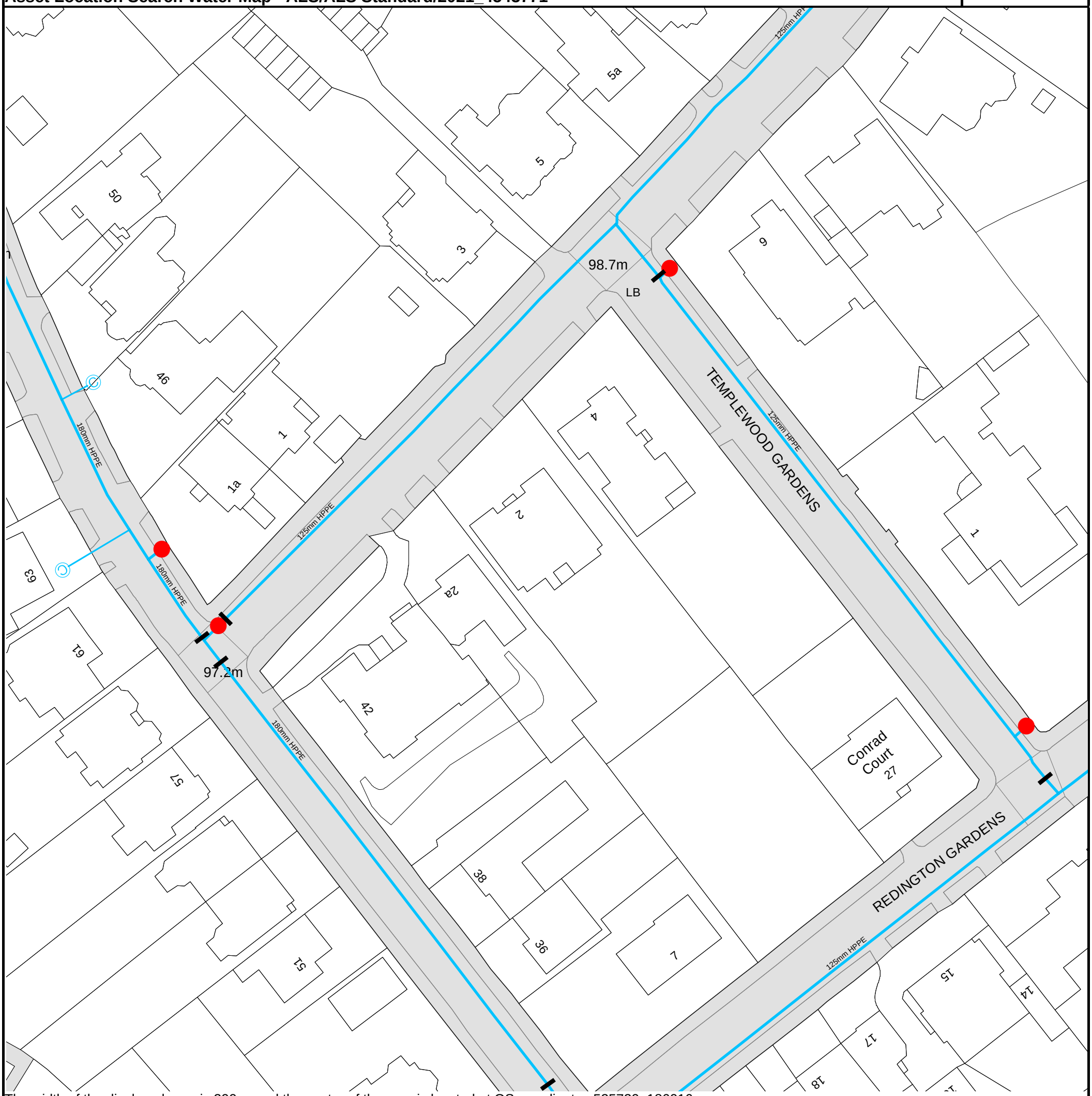
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

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 Searches on 0800 009 4540.

Asset Location Search Water Map - ALS/ALS Standard/2021_4543771



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 525720, 186016.

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

ALS 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 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.

Pringuer-James Consulting Engineers Limited
Overseas House
Elm Grove, London
SW19 4HE
+44 (208) 940 4159
mail@pjce.com
pjce.com

PJCE

Appendix E CCTV Drainage Survey

CCTV SURVEY **REPORT**

EXPRESS SOLUTIONS **GROUP**

Table of contents

EXPRESS SOLUTIONS GROUP

Express Solutions Group
152-154 Commercial Road, Staines-upon-Thames,
Surrey, TW18 2QW
0208 979 5444
surveys@expresssolutions.group
www.expresssolutions.group

Ref: AP11306

PJCE
Overseas House
Elm Grove
London
SWH1 1SG

16 December 2021

Dear Mr. Cassamo

Re: Fully Comprehensive CCTV Survey : 2 Templewood Avenue, London, NW3 7XA.

Firstly, thank you using the services for Express Solutions Group. We are a Quality Assured, Health and Safety Accredited Company specializing in all aspects within the Drainage Industry.

As agreed, we carried out an investigative CCTV Survey to establish the condition of your Drainage System. No major Defects have been identified within your surveyed Drainage System however lots of corroded pipe were identified. This drainage system is a combined water system which is private and not shared with other properties.

The following is included within your report:

- Abbreviated condition summary index with recommendations and associated costings
- Full detailed condition report with still images
- Full CCTV footage
- Site plan showing the location of Inspection Chambers and Drain Runs
  (Please note the plan is for interpretation purposes only and not to scale)

All work undertaken by Express Solutions Group is carried out by fully qualified operatives to the highest of standards and fully guaranteed

Our aim is to always offer the right solution for your needs. As drainage specialists, we are able to undertake all recommended works within our report. We pride ourselves on being priced competitively. We understand the need to work expediently so please do not hesitate to contact us should you require clarity on your report or wish to schedule the recommended work.

Once again thank you for using the services of Express Solutions Group.

Kind regards

Lewis James Elliot

Lewis James Elliot
CCTV Analyst

CCTV Summary Index

Recommendation Scale	
1	No Further Action
2	Re-CCTV in 12 Months (To Monitor Defects Identified)
3	Works Required

Job Reference: 11306 **Address: 2 Templewood Avenue, London, NW3 7XA**

Sheet	Drainage section	Abbreviated Recommendations	Structural (S) or Serviceability/Maintenance Defect (M)	Grade (1-5)	Recommendation Scale (1-3)	Costs
A1:	Inspection Chamber 1	No recommendations.		-	1	-
A2:	Inspection Chamber 2	1. Excavate and Replace Inspection chamber cover and frame. 2. Re- CCTV (Any further works will be quoted accordingly)	S	4	3	£650.00
A3:	Inspection Chamber 3	No recommendations.		-	1	-
A4:	Inspection Chamber 4	1. Excavate and Replace Inspection chamber cover and frame. 2. Re- CCTV (Any further works will be quoted accordingly)	S	4	3	£650.00
1:	Inspection Chamber 1 – Lateral 1	No recommendations.	-	1	1	-
2:	Inspection Chamber 1 – Lateral 2	Using Confined Space Entry Equipment 1.High Pressure Water Jetting Industrial Jetting Unit and milling machine	M	3	3	£1,650.00 Per Day Est 1 Day Combined Price
3:	Inspection Chamber 1 – Lateral 3	No recommendations.	-	1	1	-
4:	Inspection Chamber 1 – Lateral 4	Using Confined Space Entry Equipment 1.High Pressure Water Jetting Industrial Jetting Unit and milling machine	M	3	3	See Sheet 2
5:	Inspection Chamber 1 – Inspection Chamber 3	Using Confined Space Entry Equipment 1.High Pressure Water Jetting Industrial Jetting Unit and milling machine	M	3	3	See Sheet 2

CCTV Summary Index

Recommendation Scale	
1	No Further Action
2	Re-CCTV in 12 Months (To Monitor Defects Identified)
3	Works Required

6:	Inspection Chamber 1 – Inspection Chamber 2(UTL)	Using Confined Space Entry Equipment 1.High Pressure Water Jetting Industrial Jetting Unit and milling machine	M	3	3	See Sheet 2
7:	Inspection Chamber 3 – Main Sewer	Please Contact the Local Water Authority regarding defects identified beyond the property boundary.	S	2	-	-
8:	Inspection Chamber 3 – Inspection Chamber 4	Using Confined Space Entry Equipment 1.High Pressure Water Jetting Industrial Jetting Unit and milling machine	M	3	3	See Sheet 2
					Total	**£2,950.00+ VAT**

JOB No. 11306

LEGEND

FW MH/IC

SW MH/IC

INTERCEPTOR

FW GULLY

SW GULLLY

ST/VP:STACK

RWP

SW:SURFACE WATER
SURFACE WATER ROUTE

FW:FOUL WATER
FOUL WATER ROUTE

BUILDING OUTLINE

OVERHEAD BUILDING LINE

BOUNDARY LINE

ROAD

PROPOSED

BANK

BANK SYMBOL

UTS: Unable to Survey

UTL: Unable to Lift

TREE

W/C

NOT TO SCALE

Drawing Notes
EDS information shown in red

Rev.	Date	Description	By

EXPRESS SOLUTIONS GROUP

Head Office:
152-154 Commercial Road
Staines-Upon-Thames
Surrey
TW18 2QW
Tel 020 8979 5444
VAT 851970604
Company No 04935559

Client	PJCE
Site Address	2 Templewood Avenue London NW3 7XA
Drawing title	SITE PLAN
Scales	NOT TO SCALE
Surveyor	AP
Drawn By	JR
Date	16.12.2021
JOB No.	11306

Inspection Chamber condition report

Sheet A1			Photo
Job number		11306	
Inspection Chamber		1	
Invert level	*(m)*	2530mm	
Cover Size	*(mm)*	650mm × 500mm	
Chamber Size	*(mm)*	550mm × 900mm	
Condition		Good ☐	
		Fair ☒	
		Poor ☐	
Material		Brick ☒	
		Concrete ☐	
		UPVC ☐	
		Rendered Walls ☐	

Defects Yes ☐ No ☒		
	Covering frame seized ☐	Missing Covering Lid ☐
	Cracked benching ☐	Deteriorated Covering Lid ☐
	Root Ingress ☐	Scale/rubble/debris ☐
	Location unknown ☐	Blocked interceptor ☐

Details	
Recommendations	No recommendations
Works Guarantee	N/A
Are there any Health & Safety issues	N/A
Risk & Method Statement supplied	N/A
Any Special Site Requirements or Conditions	N/A
Specialist Plant Requirement	N/A

Inspection Chamber condition report

Sheet A2			Photo
Job number		11306	
Inspection Chamber		2	
Invert level	*(m)*	- m	
Cover Size	*(mm)*	700mm × 550mm	
Chamber Size	*(mm)*	- × -	
Condition		Good ☐	
		Fair ☐	
		Poor ☐	
Material		Brick ☐	
		Concrete ☐	
		UPVC ☐	
		Rendered Walls ☐	

Defects Yes ☒ No ☐		
	Covering frame seized ☐	Missing Covering Lid ☐
	Cracked benching ☐	Deteriorated Covering Lid ☐
	Root Ingress ☐	Scale/rubble/debris ☐
	Location unknown ☐	Blocked interceptor ☐

Details	Engineer was unable to lift as the Inspection Chamber Cover was broken and seized.
Recommendations	Our recommendations are: 1. Excavate & Replace Inspection Chamber cover and frame 2. Re-CCTV. (Any further works or reinstatement will be quoted accordingly) All work undertaken by EDS is carried out by fully qualified operatives to the highest standard.
Works Guarantee	All lining works undertaken is guaranteed for 10 years & excavations 5 years
Are there any Health & Safety issues	No
Risk & Method Statement supplied	Will be supplied upon undertaking of works
Any Special Site Requirements or Conditions	Will be supplied upon undertaking of works
Specialist Plant Requirement	Will be supplied upon undertaking of works

Inspection Chamber condition report

Sheet A3		Photo
Job number	11306	
Inspection Chamber	3	
Invert level *(m)*	4160mm	
Cover Size *(mm)*	680mm × 330mm	
Chamber Size *(mm)*	1200mm × 600mm	
Condition	Good ☐	
	Fair ☒	
	Poor ☐	
Material	Brick ☒	
	Concrete ☐	
	UPVC ☐	
	Rendered Walls ☐	

Defects Yes ☐ No ☒		
	Covering frame seized ☐	Missing Covering Lid ☐
	Cracked benching ☐	Deteriorated Covering Lid ☐
	Root Ingress ☐	Scale/rubble/debris ☐
	Location unknown ☐	Blocked interceptor ☐

Details	
Recommendations	No recommendations
Works Guarantee	N/A
Are there any Health & Safety issues	N/A
Risk & Method Statement supplied	N/A
Any Special Site Requirements or Conditions	N/A
Specialist Plant Requirement	N/A

Inspection Chamber condition report

Sheet A4		Photo
Job number	11306	
Inspection Chamber	4	
Invert level *(m)*	Not confirmed	
Cover Size *(mm)*	610mm × 610mm	
Chamber Size *(mm)*	- × -	
Condition	Good ☐	
	Fair ☐	
	Poor ☐	
Material	Brick ☐	
	Concrete ☐	
	UPVC ☐	
	Rendered Walls ☐	

Defects Yes ☐ No ☐		
	Covering frame seized ☐	Missing Covering Lid ☐
	Cracked benching ☐	Deteriorated Covering Lid ☐
	Root Ingress ☐	Scale/rubble/debris ☐
	Location unknown ☐	Blocked interceptor ☐

Details	Engineer was unable to lift the Inspection Chamber cover due being seized by heavy rust.
Recommendations	Our recommendations are: 1. Excavate & Replace Inspection Chamber cover and frame 2. Re-CCTV. (Any further works or reinstatement will be quoted accordingly) All work undertaken by EDS is carried out by fully qualified operatives to the highest standard.
Works Guarantee	All lining works undertaken is guaranteed for 10 years & excavations 5 years
Are there any Health & Safety issues	No
Risk & Method Statement supplied	Will be supplied upon undertaking of works
Any Special Site Requirements or Conditions	Will be supplied upon undertaking of works
Specialist Plant Requirement	Will be supplied upon undertaking of works

CCTV Survey Report

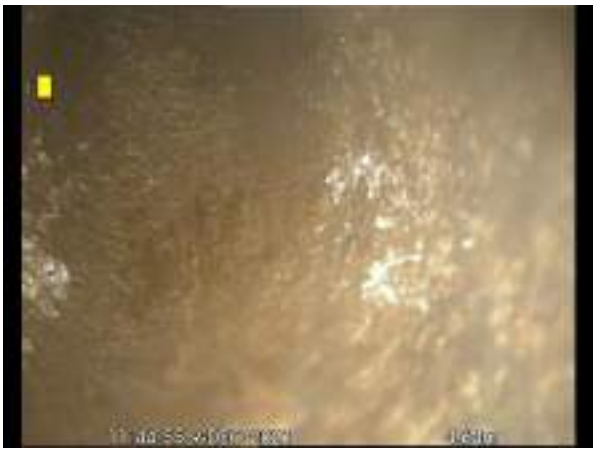
Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG		Site: 2 Templewood Avenue London NW3 7XA				Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 1
Reason for Survey		CCTV Fully Comprehensive Survey				Survey Recorded	☒
Pipe Dia	100mm	Run Length	5.45m	Foul / Surface	Foul	Composition	Cast Iron
Start Position		Inspection Chamber 1		End Position		Lateral 1	
Invert Level		2530mm		Invert Level		Not Confirmed	
Survey direction		Upstream		Surface Area		Tarmac	

Meterage	Code	Grade	Remark / Note	Image Supplied
0.00m	-	-	Start of Survey	Yes
4.64m	-	-	Reached Stack & End of Survey	Yes

Drain Run in a serviceable condition?	Yes
Details	The survey revealed no significant structural defects within the drainage run.

Images Page

Inspection Chamber 1 – Lateral 1



CCTV Overview / Quote

Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG	Site: 2 Templewood Avenue London NW3 7XA	Job No:	11306
		Eng No:	AP984
		Date:	16 December 2021
		Sheet:	1

Start Position	Inspection Chamber 1	End Position	Lateral 1

Recommendations	Our recommendations are 1. **No recommendations** All work undertaken by EDS is carried out by fully qualified operatives to the highest standard.
Works Guarantee	All lining works undertaken is guaranteed for 10years &excavation 5years.
Are there any Health & Safety issues	N/A
Risk & Method Statement supplied	N/A
Any Special Site Requirements or Conditions	N/A
Specialist Plant Requirement	N/A

CCTV Survey Report

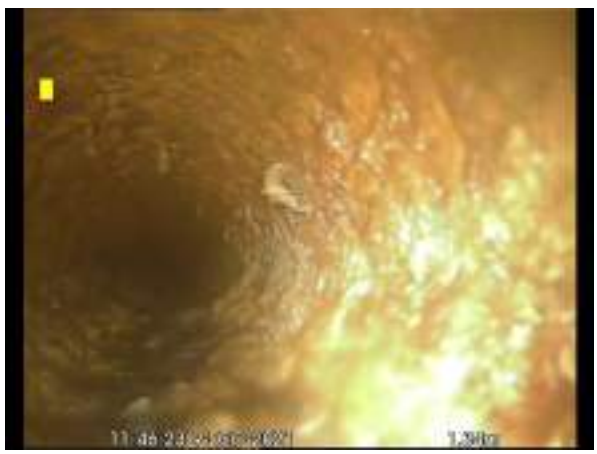
Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG		Site: 2 Templewood Avenue London NW3 7XA				Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 2
Reason for Survey		CCTV Fully Comprehensive Survey				Survey Recorded	☒
Pipe Dia	100mm	Run Length	4.60m	Foul / Surface	Foul	Composition	Cast Iron
Start Position		Inspection Chamber 1		End Position		Lateral 2	
Invert Level		2530mm		Invert Level		Not Confirmed	
Survey direction		Upstream		Surface Area		Tarmac	

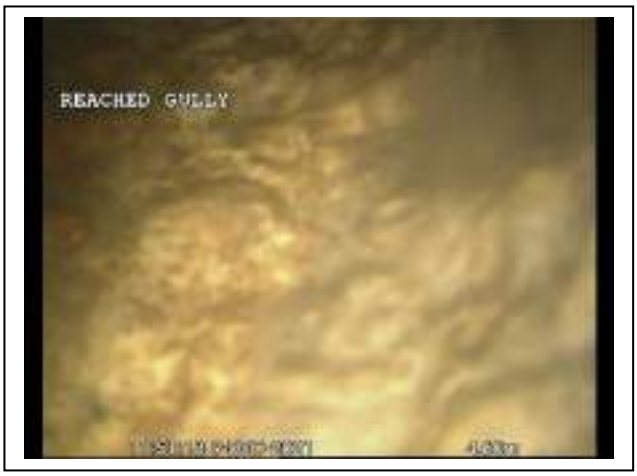
Meterage	Code	Grade	Remark / Note	Image Supplied
0.00m	-	-	Start of Survey	Yes
0.59m	EC	Medium	Corrosion	Yes
1.34m	EC	Medium	Corrosion	Yes
1.96m	EC	Medium	Corrosion	Yes
2.68m	EC	Medium	Corrosion	Yes
3.45m	EC	Medium	Corrosion	Yes
4.60m	-	-	Reached Gully	Yes

Drain Run in a serviceable condition?	Yes
Details	The survey revealed the pipework is corroded throughout the drainage run. If you have any further queries or questions in relation to any of the above noted defects, please don't hesitate to contact the office on the number supplied on the covering letter.

Images Page

Inspection Chamber 1 – Lateral 3




REACHED GULLY

CCTV Overview / Quote

Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG	Site: 2 Templewood Avenue London NW3 7XA	Job No:	11306
		Eng No:	AP984
		Date:	16 December 2021
		Sheet:	2

Start Position	Inspection Chamber 1	End Position	Lateral 2

Recommendations	Our recommendations are: Using Confined Space Entry Equipment 1. High Pressure Water Jetting/Full descale using an Industrial Jetting Unit and using a milling machine to remove any scale/residual Debris; All work undertaken by EDS is carried out by fully qualified operatives to the highest standard.
Works Guarantee	All lining works undertaken is guaranteed for 10 years & excavations 5 years
Are there any Health & Safety issues	No
Risk & Method Statement supplied	Will be supplied upon undertaking of works
Any Special Site Requirements or Conditions	Will be supplied upon undertaking of works
Specialist Plant Requirement	Will be supplied upon undertaking of works

CCTV Survey Report

Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG			Site: 2 Templewood Avenue London NW3 7XA			Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 3
Reason for Survey		CCTV Fully Comprehensive Survey				Survey Recorded	☒
Pipe Dia	100mm	Run Length	0.84m	Foul / Surface	Foul	Composition	Cast Iron
Start Position		Inspection Chamber 1		End Position		Lateral 3	
Invert Level		2530mm		Invert Level		Not Confirmed	
Survey direction		Upstream		Surface Area		Tarmac	

Meterage	Code	Grade	Remark / Note	Image Supplied
0.00m	-	-	Start of Survey	Yes
0.84m	-	-	Reached Stack	Yes

Drain Run in a serviceable condition?	Yes
Details	The survey revealed no significant structural defects within the drainage run.

Images Page

Inspection Chamber 1 – Lateral 3

CCTV Overview / Quote

Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG	Site: 2 Templewood Avenue London NW3 7XA	Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 3

Start Position	Inspection Chamber 1	End Position	Lateral 3

Recommendations	Our recommendations are 1. **No recommendations** All work undertaken by EDS is carried out by fully qualified operatives to the highest standard.
Works Guarantee	All lining works undertaken is guaranteed for 10years &excavation 5years.
Are there any Health & Safety issues	N/A
Risk & Method Statement supplied	N/A
Any Special Site Requirements or Conditions	N/A
Specialist Plant Requirement	N/A

CCTV Survey Report

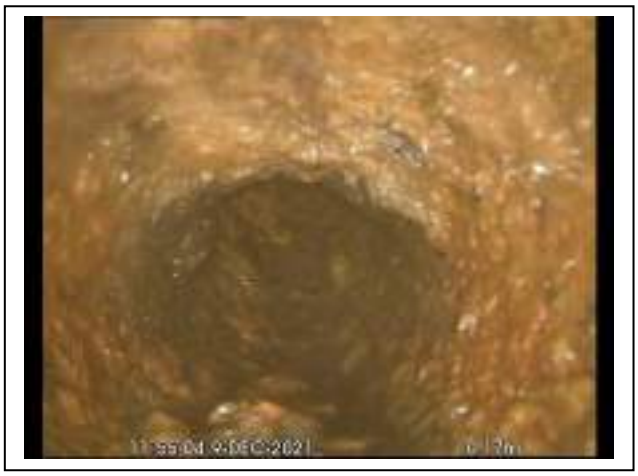
Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG			Site: 2 Templewood Avenue London NW3 7XA			Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 4
Reason for Survey		CCTV Fully Comprehensive Survey				Survey Recorded	☒
Pipe Dia	100mm	Run Length	0.94m	Foul / Surface	Foul	Composition	Cast Iron
Start Position		Inspection Chamber 1		End Position		Lateral 4	
Invert Level		2530mm		Invert Level		Not Confirmed	
Survey direction		Upstream		Surface Area		Tarmac	

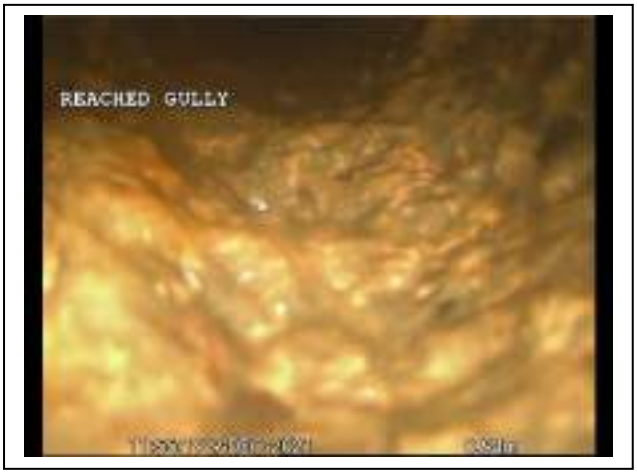
Meterage	Code	Grade	Remark / Note	Image Supplied
0.00m	-	-	Start of Survey	Yes
0.17m	EC	Moderate	Corrosion	Yes
0.94m	-	-	Reached Gully	Yes

Drain Run in a serviceable condition?	Yes
Details	The survey revealed the pipe work is corroded throughout the drainage run. If you have any further queries or questions in relation to any of the above noted defects, please don't hesitate to contact the office on the number supplied on the covering letter.

Images Page

Inspection Chamber 1 – Lateral 4





CCTV Overview / Quote

Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG	Site: 2 Templewood Avenue London NW3 7XA	Job No:	11306
		Eng No:	AP984
		Date:	16 December 2021
		Sheet:	4

Start Position	Inspection Chamber 1	End Position	Lateral 4

Recommendations	Our recommendations are: Using Confined Space Entry Equipment 1. High Pressure Water Jetting/Full descale using an Industrial Jetting Unit and using a milling machine to remove any scale/residual Debris; All work undertaken by EDS is carried out by fully qualified operatives to the highest standard.
Works Guarantee	All lining works undertaken is guaranteed for 10 years & excavations 5 years
Are there any Health & Safety issues	No
Risk & Method Statement supplied	Will be supplied upon undertaking of works
Any Special Site Requirements or Conditions	Will be supplied upon undertaking of works
Specialist Plant Requirement	Will be supplied upon undertaking of works

CCTV Survey Report

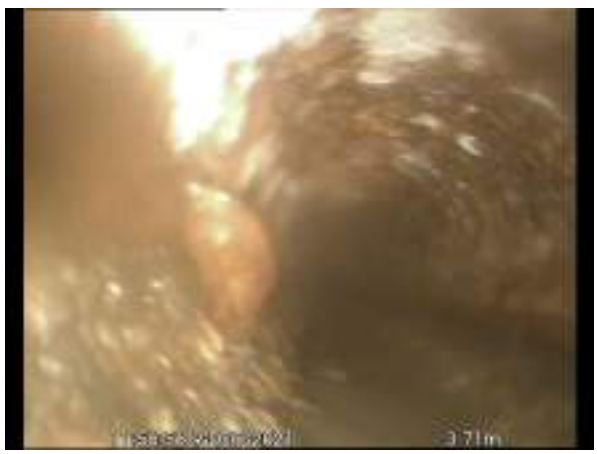
Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG		Site: 2 Templewood Avenue London NW3 7XA				Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 5
Reason for Survey		CCTV Fully Comprehensive Survey				Survey Recorded	☒
Pipe Dia	100mm	Run Length	16.99m	Foul / Surface	Foul	Composition	Cast Iron
Start Position		Inspection Chamber 1		End Position		Inspection Chamber 3	
Invert Level		2530mm		Invert Level		Not Confirmed	
Survey direction		Downstream		Surface Area		Tarmac	

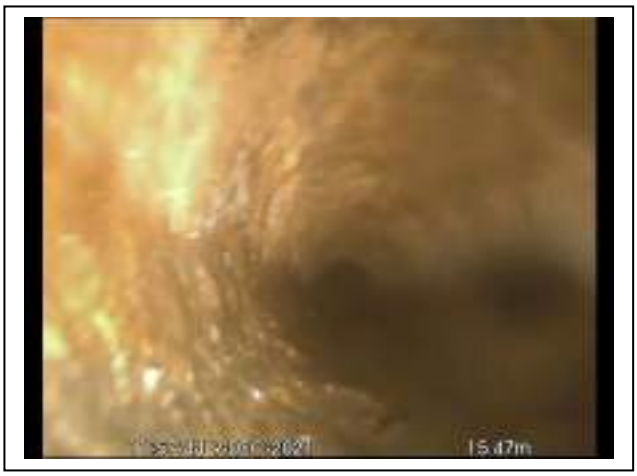
Meterage	Code	Grade	Remark / Note	Image Supplied
0.00m	-	-	Start of Survey	Yes
2.40m	EC	Medium	Corrosion	Yes
3.71m	EC	Medium	Corrosion	Yes
4.89m	CN	-	Incoming blind lateral connection @12 O'clock	Yes
10.29m	EC	Medium	Corrosion	Yes
12.60m	EC	Medium	Corrosion	Yes
15.47m	EC	Medium	Corrosion	Yes
16.99m	-	-	Reached Inspection Chamber 3	Yes

Drain Run in a serviceable condition?	Yes
Details	The survey revealed the pipework is corroded throughout the drainage run If you have any further queries or questions in relation to any of the above noted defects, please don't hesitate to contact the office on the number supplied on the covering letter.

Images Page

Inspection Chamber 1 – Inspection Chamber 3




15.47m


REACHED MH3

CCTV Overview / Quote

Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG	Site: 2 Templewood Avenue London NW3 7XA	Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 5

Start Position	Inspection Chamber 1	End Position	Inspection Chamber 3

Recommendations	Our recommendations are: Using Confined Space Entry Equipment 1. High Pressure Water Jetting/Full descale using an Industrial Jetting Unit and using a milling machine to remove any scale/residual Debris; All work undertaken by EDS is carried out by fully qualified operatives to the highest standard.
Works Guarantee	All lining works undertaken is guaranteed for 10 years & excavations 5 years
Are there any Health & Safety issues	No
Risk & Method Statement supplied	Will be supplied upon undertaking of works
Any Special Site Requirements or Conditions	Will be supplied upon undertaking of works
Specialist Plant Requirement	Will be supplied upon undertaking of works

CCTV Survey Report

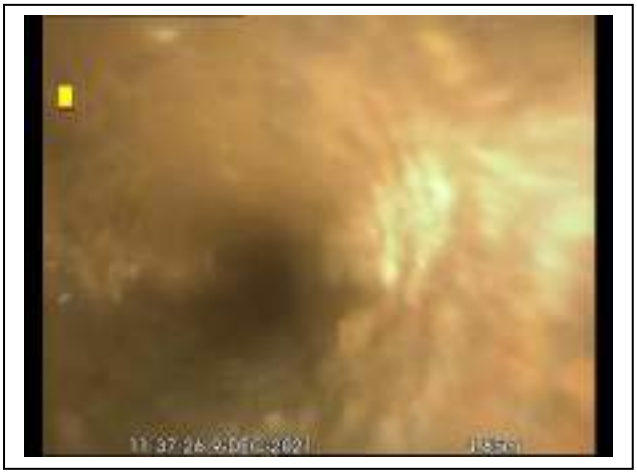
Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG		Site: 2 Templewood Avenue London NW3 7XA				Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 6
Reason for Survey		CCTV Fully Comprehensive Survey				Survey Recorded	☒
Pipe Dia	100mm	Run Length	15.37m	Foul / Surface	Foul	Composition	Cast Iron
Start Position		Inspection Chamber 1		End Position		Inspection Chamber 2(UTL)	
Invert Level		2530mm		Invert Level		Not Confirmed	
Survey direction		Upstream		Surface Area		Tarmac	

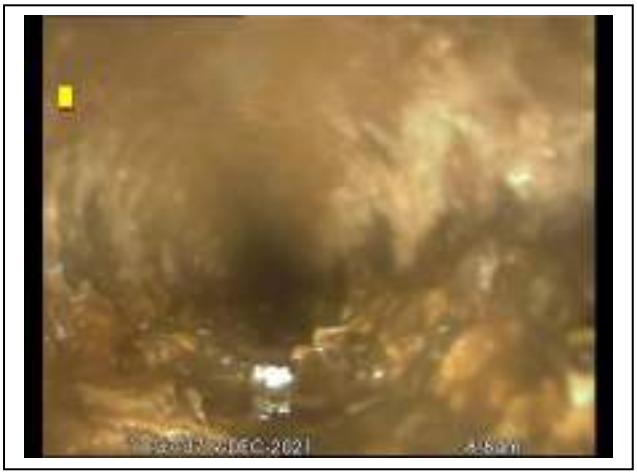
Meterage	Code	Grade	Remark / Note	Image Supplied
0.00m	-	-	Start of Survey	Yes
1.08m	EC	Medium	Corrosion	Yes
4.85m	EC	Medium	Corrosion	Yes
6.83m	EC	Medium	Corrosion	Yes
8.84m	EC	Medium	Corrosion	Yes
10.68m	EC	Medium	Corrosion	Yes
11.69m	-	-	Reached Inspection Chamber 2 (Unable to Lift)	Yes
14.61m	EC	Medium	Corrosion	Yes
15.37m	SA	-	Survey Abandoned as Engineer unable to push further due to corrosion in the pipework.	Yes

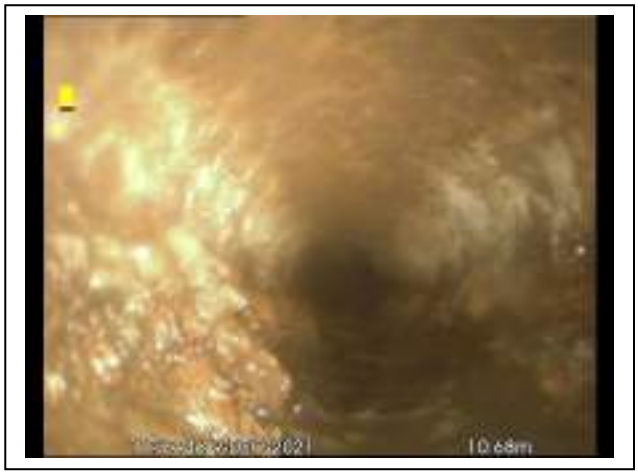
Drain Run in a serviceable condition?	Yes
Details	The survey revealed the pipework is corroded throughout the pipework. Inspection Chamber 2 could not be lifted/surveyed due to being damages and seized. If you have any further queries or questions in relation to any of the above noted defects, please don't hesitate to contact the office on the number supplied on the covering letter.

Images Page

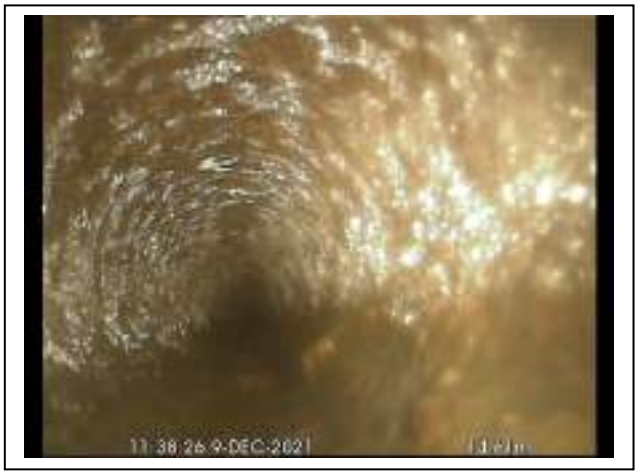
Inspection Chamber 1 – Inspection Chamber 2(UTL)

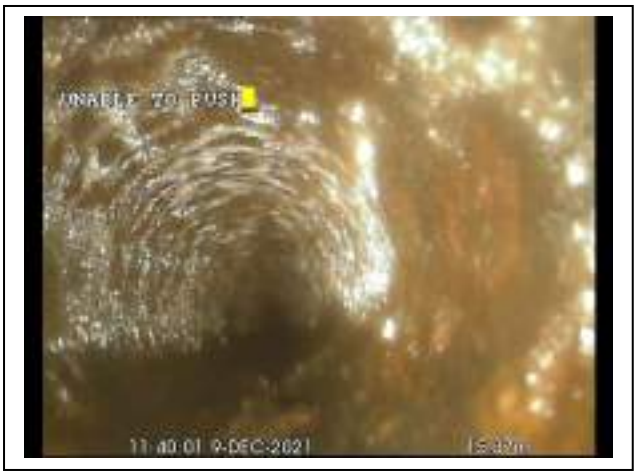







REACHED MH2 VIL


11:38:26 9-DEC-2021


UNABLE TO PUSH
11:40:01 9-DEC-2021

CCTV Overview / Quote

Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG	Site: 2 Templewood Avenue London NW3 7XA	Job No:	11306
		Eng No:	AP984
		Date:	16 December 2021
		Sheet:	6

Start Position	Inspection Chamber 1	End Position	Inspection Chamber 2(UTL)

Recommendations	Our recommendations are: Using Confined Space Entry Equipment 1. High Pressure Water Jetting/Full descale using an Industrial Jetting Unit and using a milling machine to remove any scale/residual Debris; All work undertaken by EDS is carried out by fully qualified operatives to the highest standard.
Works Guarantee	All lining works undertaken is guaranteed for 10 years & excavations 5 years
Are there any Health & Safety issues	No
Risk & Method Statement supplied	Will be supplied upon undertaking of works
Any Special Site Requirements or Conditions	Will be supplied upon undertaking of works
Specialist Plant Requirement	Will be supplied upon undertaking of works

CCTV Survey Report

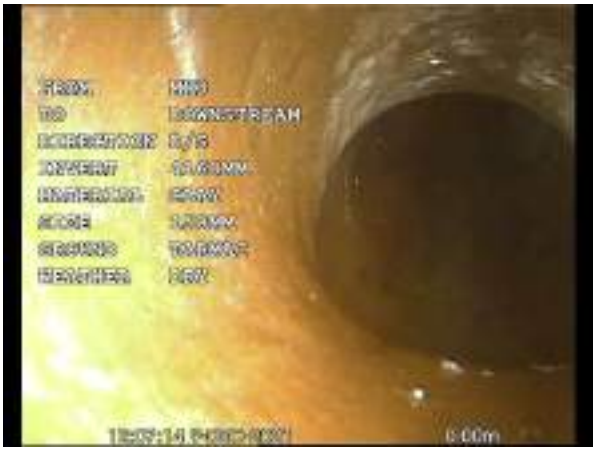
Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG			Site: 2 Templewood Avenue London NW3 7XA			Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 7
Reason for Survey		CCTV Fully Comprehensive Survey				Survey Recorded	☒
Pipe Dia	150mm	Run Length	9.37m	Foul / Surface	Foul	Composition	Clay
Start Position		Inspection Chamber 3		End Position		Main Sewer	
Invert Level		4160mm		Invert Level		Not Confirmed	
Survey direction		Downstream		Surface Area		Tarmac	

Meterage	Code	Grade	Remark / Note	Image Supplied
0.00m	-	-	Start of Survey through rodding access on interceptor	Yes
8.59m	DJ	Medium	Displaced Joint	Yes
8.71m	DJ	Medium	Displaced Joint	Yes
9.37m	-	-	Reached Main Sewer	Yes

Drain Run in a serviceable condition?	Yes
Details	The survey revealed displaced joints within the drainage run.The property boundary is located at approx. 1.50m and therefore any defects beyond the property boundary is the responsibility of the local water authority. If you have any further queries or questions in relation to any of the above noted defects, please don't hesitate to contact the office on the number supplied on the covering letter.

Images Page

Inspection Chamber 3 – Main Sewer



CCTV Overview / Quote

Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG	Site: 2 Templewood Avenue London NW3 7XA	Job No:	11306
		Eng No:	AP984
		Date:	16 December 2021
		Sheet:	7

Start Position	Inspection Chamber 3	End Position	Main Sewer

Recommendations	Our recommendations are 1. **Please Contact the Local Water Authority regarding defects identified beyond the property boundary.** All work undertaken by EDS is carried out by fully qualified operatives to the highest standard.
Works Guarantee	All lining works undertaken is guaranteed for 10years &excavation 5years.
Are there any Health & Safety issues	N/A
Risk & Method Statement supplied	N/A
Any Special Site Requirements or Conditions	N/A
Specialist Plant Requirement	N/A

CCTV Survey Report

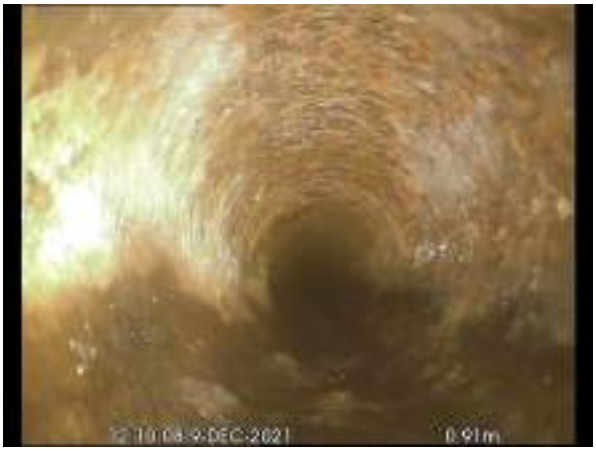
Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG		Site: 2 Templewood Avenue London NW3 7XA				Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 8
Reason for Survey		CCTV Fully Comprehensive Survey				Survey Recorded	☒
Pipe Dia	100mm	Run Length	15.06m	Foul / Surface	Foul	Composition	Cast Iron
Start Position		Inspection Chamber 3		End Position		Inspection Chamber 4	
Invert Level		4160mm		Invert Level		Not Confirmed	
Survey direction		Upstream		Surface Area		Tarmac	

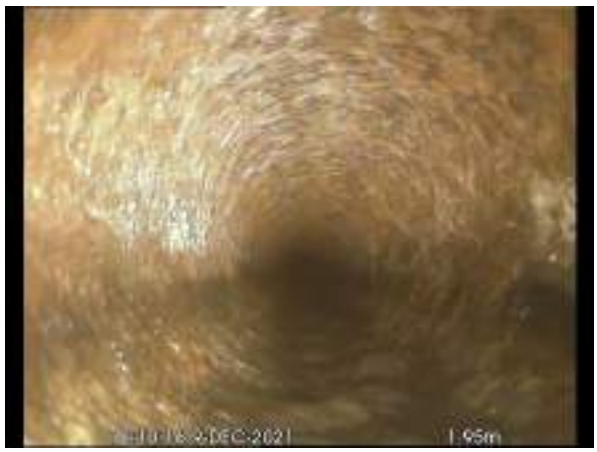
Meterage	Code	Grade	Remark / Note	Image Supplied
0.00m	-	-	Start of Survey	Yes
0.91m	EC	Moderate	Corrosion	Yes
1.95m	EC	Moderate	Corrosion	Yes
3.21m	EC	Moderate	Corrosion	Yes
5.63m	EC	Moderate	Corrosion	Yes
6.83m	EC	Moderate	Corrosion	Yes
9.86m	EC	Moderate	Corrosion	Yes
10.83m	EC	Moderate	Corrosion	Yes
11.86m	EC	Moderate	Corrosion	Yes
12.84m	-	-	Reached Inspection Chamber 4	Yes
15.06m	-	-	Reached Stack	Yes

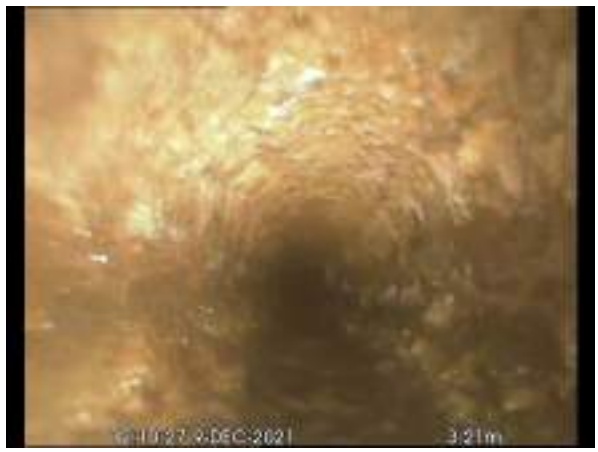
Drain Run in a serviceable condition?	Yes
Details	The survey revealed the pipework is corroded throughout the drainage run. Inspection Chamber 4 could not be lifted/surveyed due to being in a very poor condition If you have any further queries or questions in relation to any of the above noted defects please don't hesitate to contact the office on the number supplied on the covering letter.

Images Page

Inspection Chamber 3 – Inspection Chamber 4








REACHED MH4


REACHED STACK

CCTV Overview / Quote

Invoice Address: PJCE Overseas House Elm Grove London SWH1 1SG	Site: 2 Templewood Avenue London NW3 7XA	Job No: Eng No: Date: Sheet:	11306 AP984 16 December 2021 8

Start Position	Inspection Chamber 3	End Position	Inspection Chamber 4

Recommendations	Our recommendations are: 1. Full descale using an Industrial Jetting Unit and a milling machine to remove any Corrosion and residual Debris. All work undertaken by EDS is carried out by fully qualified operatives to the highest standard.
Works Guarantee	All lining works undertaken is guaranteed for 10 years & excavations 5 years
Are there any Health & Safety issues	No
Risk & Method Statement supplied	Will be supplied upon undertaking of works
Any Special Site Requirements or Conditions	Will be supplied upon undertaking of works
Specialist Plant Requirement	Will be supplied upon undertaking of works

Code Reference

SRD	Scale / Residual Debris
CL	Cracks. Longitudinal
CC	Cracks. Circumferential
CM	Cracks. Multiple
FL	Fractures. Longitudinal
FC	Fractures. Circumferential
FM	Fractures. Multiple
B	Broken Pipe Work
H	Hole in Drainage Run
D	Deformed Drain
XP	Collapsed Drain
DJ	Displaced Joint
OJ	Open Joint
S	Surface Drain
R	Roots
EC	Encrustation/Corrosion

I	Infiltration
OB	Other Obstacles
WL	Water Level
CN	Lateral Connection
LX	Lining Defect
LC	Inspection Chamber
MH	Inspection Chamber
RE	Rodding Eye
OF	Outfall
SA	Survey Abandoned
SC	Dimension Change in Drain
MC	Material Change in Drain
IL	Invert Level
LC	Lining of Drain
VR	Rat
CUW	Loss of Vision, Cover Underwater

Grading

Condition Grading	Structural condition	Serviceability Condition
1	Insignificant deterioration of the sewer has occurred. Appears to be in good condition	No or insignificant loss of hydraulic performance has occurred. Appears to be in good condition
2	Minor deterioration of the sewer has occurred.	Minor defects are present causing minor loss of hydraulic performance
3	Moderate deterioration has occurred, but defects do not affect short term structural integrity	Developed defects are present causing moderate loss of hydraulic performance
4	Serious deterioration of the sewer has occurred and affected structural integrity	Significant defects are present causing serious loss of hydraulic performance
5	Failure of the sewer has occurred or is imminent	Failure of the sewer has occurred or is imminent

Terms and Conditions

1. Definitions and Interpretation
The following definitions apply in these terms and conditions:
"Conditions" these terms and conditions. "Confirmation" our Confirmation of your order attached to these Conditions.
"Contract" the Confirmation together with Conditions. "Customer" the person, firm of company who purchases work from the supplier.
"Supplier" Express Drainage Solutions. "Work" the work and services to be provided by the Supplier under the Contract as set out in the Suppliers Confirmation or, (Where a Confirmation has not been Provided) the Quotation.
2. Limitations of the Report
2.1 It should be noted that the exact layout of the system cannot be confirmed without the exposure of inaccessible branches, connections and all other inaccessible sections.
2.2 A CCTV Survey alone should not be a guarantee of water tightness,
2.3 The Report is not a structural survey and must not be construed as such
2.4 The Views expressed in this report are based entirely upon a visual examination of the drainage, supported by information from a drainage CCTV inspection and/or a water pressure test.
2.5 The drawing contained within or accompanying the report is not a scaled drawing and is for reference purposes only.
3. Rights of Originator
3.1 The report is for the sole use of the customer
3.1.1 It must not be reproduced or transferred to any other third party without the express written consent of supplier.
3.2 This is a condition report of the drain/sewer at the time and date of the survey being carried out only.
3.3 We reserve the right to amend our opinions in the event of additional information being made available at some future date
4. Customer's Obligations
4.1 It is the Customer's responsibility to provide the Supplier, in sufficient time, with any information and instructions relating to the Work that is, or are, necessary to enable the supplier to provide the work in accordance with the contract.
4.2 The Customer shall inform the Supplier in writing in good time of any dangerous materials or hazards that may be present on the premises and which could constitute a danger to any person.
4.3 If the Customer fails to provide the information required in clause 4.2 above, or provide the Supplier with incomplete, incorrect or inaccurate information or instructions, the Supplier may:
4.3.1 Make an additional charge of a reasonable sum to cover any extra work that is required; or
4.3.2 Cancel the Contract by giving written notice to the Customer
5. Access
5.1 The Customer shall provide clear access to all drains, sewers, inspection covers and Inspection Chambers to enable the Supplier to carry out the Work.
5.2 Where the Customer's drains are shared with third parties, the Supplier will request written permission from the relevant third party (ies). In the event that permission cannot be obtained, the Supplier will have the right to cancel the Contract and shall have no liability to the Customer in respect of any such cancellation.
5.3 The Customer shall obtain permission for the Supplier to proceed over the property belonging to third parties and/or to carry out work on property belonging to third parties where this is necessary for the proper execution of the Work.
6. Water and Power
6.1 The Customer shall provide all necessary power and a clean water supply from the mains or fire hydrant.
6.2 Where it is necessary for the Supplier to use a metered hydrant and supply controlled by the water authorities, the Supplier will invoice all charges made by that authority to the Customer and the Customer shall pay such charges within 7 days of receipt of the Supplier's invoice.
7. Work Guarantee
7.1 Subject to the following provisions of this Condition 7, The Supplier guarantees completed unblock and survey Work for a period of 28 days from the date of completion.
7.2 The Customer shall inspect the Work as far as it is reasonably possible immediately on completion of it and shall as far as reasonably practicable notify the supplier of any reason for believing that the work carried out by the Supplier is not in accordance with Contract within seven days of completion.
7.3 If the Customer fails to give such notice the Work shall conclusively be presumed free from any defects which would be apparent on reasonable examination of the Work.
7.4 The Supplier reserves the right not to carry out Work requested under the guarantee until the Supplier has been paid. The Supplier also reserves the right to delay or withhold performance of the guarantee where the Supplier has advised the Customer that, although clear, the drains need further work or have a possible fault.
8. Limitation of Liability – The Customer's Attention is particularly drawn to the provisions of this condition.
8.1 The Supplier warrants to the Customer that the Work will be provided using reasonable care and skill and, unless the Supplier is prevented by circumstances beyond its reasonable control, in accordance with the Confirmation
8.2 The Supplier shall have no liability to the Customer for any loss, damage costs, expenses or other claims for compensation arising
from:
8.2.1 Any information or instructions supplied by the Customer which is or are incomplete, incorrect or inaccurate; or
8.2.2 Any failure by the Customer to obtain proper access over any property of any third party required in accordance with clause 5: or
8.2.3 Any damage or defect caused by any third party.
8.3 The Supplier shall have no liability to the Customer for any loss, damage costs, expenses or other claims for compensation arising from any indirect or consequential loss, damage or expenses.
8.4 The Supplier's Liability in respect of any other loss or damage shall be limited to the price paid by the Customer.
8.5 The Supplier shall not be liable to the Customer by reason of any delay in performing, or any failure to perform, any of it obligations in relation to the Work, if the delay or failure was due to:
8.5.1 Any act of God, war, terrorism, power failure, or any other cause beyond the Supplier's reasonable control; or
8.5.2 Any risk to health and safety or the environment, however, the Supplier will try to minimise any such problems where reasonably practicable.
8.6 The Supplier will not be liable for any fractured or frozen pipes and cannot guarantee to clear blockages occurring in a frozen pipe or drain.
8.7 Nothing in these Conditions affects any liability for death or personal injury caused by the Supplier's negligence or for fraudulent misrepresentation, or the Customer's statutory rights as consumer.
9. Data Protection
9.1 The Supplier will use personal information provided by the Customer for the purposes of:
9.1.1 Providing the Work:
9.1.2 Carrying out marketing and statistical analysis and we may disclose your information to our service providers for these purposes;
9.1.3 Informing the Customer by post or telephone about similar products and services provided by the Supplier and/or its related companies.
9.2 The Customer acknowledges and agrees that details of the Customer's name. Address and payment record may be submitted to a credit reference agency.
9.3 The Customer can correct any information or ask for information about the Customer to be deleted or opt-out from receiving any marketing information by post or by telephone by giving written notice to the Supplier at the address, fax number or email address shown on the Confirmation and/or any customer satisfaction questionnaire provided.
10. General
10.1 If any provision (or part of a provision) of this contract is found by any court or administrative body of competent jurisdiction to be invalid unenforceable or illegal, the other provisions will remain in force.
10.2 if any invalid, unenforceable or illegal provision of this Contract would be valid, enforceable or legal if some part of it were changed, deleted, that provision will apply with whatever changes are necessary to make the relevant provision valid, enforceable and legal.
10.3 A delay by either party in acting on a breach of this Contract will not prevent the other party from taking action in respect of that breach or any subsequent breach of this contract.

EXPRESS
SOLUTIONS
GROUP

Contact Us

0208 979 5444
info@expresssolutions.group
www.expresssolutions.group
152-154 Commercial Road, Staines-Upon-Thames, Surrey, TW18 2QW

Pringuer-James Consulting Engineers Limited
Overseas House
Elm Grove, London
SW19 4HE
+44 (208) 940 4159
mail@pjce.com
pjce.com

PJCE

Appendix F Micro Drainage Greenfield Run-off Calculations

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.450
Area (ha)	0.149	Urban	0.000
SAAR (mm)	678	Region Number	Region 6

Results l/s

QBAR Rural	0.6
QBAR Urban	0.6
Q100 years	2.0
Q1 year	0.5
Q30 years	1.4
Q100 years	2.0

Pringuer-James Consulting Engineers Limited
Overseas House
Elm Grove, London
SW19 4HE
+44 (208) 940 4159
mail@pjce.com
pjce.com

PJCE

Appendix G Micro Drainage Brownfield Run-off Calculations

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.450
Area (ha)	0.149	Urban	0.750
SAAR (mm)	678	Region Number	Region 6

Results l/s

QBAR Rural	0.6
QBAR Urban	1.7
Q100 years	3.5
Q1 year	1.5
Q30 years	3.0
Q100 years	3.5

Appendix H Surface Water Strategy Design Concept

2 Templewood Avenue
London, NW3 7XA
Proposed SUDs - Surface Water Strategy Plan
Drawing No: L2658-SK200-P2
Proposed Ground Floor
Scale 1:100 @ A1

PRINGUER-JAMES
CONSULTING ENGINEERS
Overseas House, Elm Grove, Wimbledon, SW19 4HE
Phone/Fax: 020 8940 4159
Email : mail@pjce.com Website : www.pjce.com

NOTES
1. All drainage from ground level and above to discharge via gravity.
2. Foul and surface water systems to remain separate. Architect to provide drainage points and building outfalls for detailed design.
3. All SuDS structures TBC by Landscape Architect and Architect. All SuDS structures are to be protected against contamination and damage during construction.
4. Level thresholds to have threshold channel drains across them to protect from any surface water ingress.

Please note:
All RWP, SS,SVP
Numbers, position and location to be confirmed by Architect & M&E engineer

Please note:
Trade effluent (Swimming pool) to Swimming pool specialist/engineer

Please note:
Manhole at the basement level
To be as Timesaver Cast Iron Drain Pipe Inspection Chamber.
Recessed and Double Sealed Manhole Cover

Side Extension with Green Roof.
Green roof to specialist Design/Details & Specifications.

Green roof Overflow pipe/RWP Discharge into plant area

Rising main to Ground floor level

Rising main to Ground floor level

Rising main to Ground floor level

RWP

RWP

SVP

Vent Pipe

Foul Water GRP packaged pump station with double sealed access cover and frame.
Dual pump in Duty/ Stand-by configuration.
All to be confirmed with the Architect.

Cellweb confinement system.
Tree root protection.
Finishes to Architects Specifications.
Depth to be confirmed at detail design stage.

Green roof Overflow pipe/RWP Discharge into plant area

Drain Channel

Drain Channel

Drain Channel

Drain Channel

G

G

SWMH CATCHPIT

Swimming pool treatment plant
Trade effluent to Swimming pool specialist.

Foul Water GRP packaged pump station with double sealed recessed access cover and frame in the Garden Store.
Dual pump in Duty/ Stand-by configuration.
All to be confirmed at Detail design Stage

Surface Water GRP packaged pump station with double sealed recessed access cover and frame in the Garden Store.
Dual pump in Duty/ Stand-by configuration.
All to be confirmed at Detail design Stage

Rising main to Ground floor level

Foul water manhole at Ground floor level

Rising main to Ground floor level

Surface water manhole at Ground floor level

All Pump Control Panels location to be confirmed by the Architect

Swimming Pool Plant room TBC by Architect

Rising main to Ground floor level

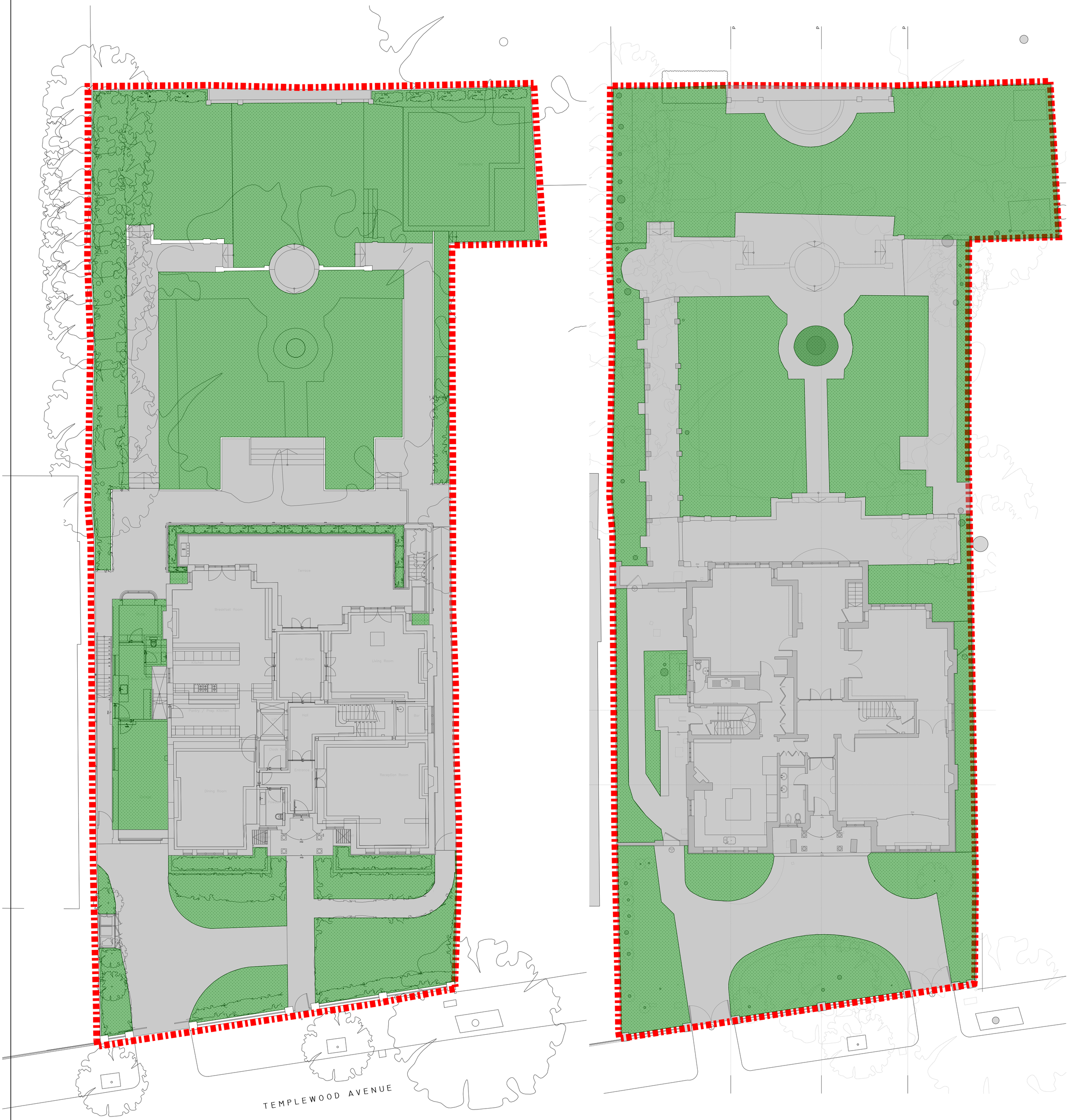
Surface Water GRP packaged pump station with double sealed cover and frame
Dual pump in Duty/ Stand-by configuration.
All to be confirmed at Detail design Stage

2 Templewood Avenue
London, NW3 7XA
Proposed SUDs - Surface Water Strategy Plan
Drawing No: L2658-SK201-P2
Proposed Lower Ground Floor
Scale 1:100 @ A1

PRINGUER-JAMES
CONSULTING ENGINEERS
Overseas House, Elm Grove, Wimbledon, SW19 4HE
Phone/Fax: 020 8940 4159
Email : mail@pjce.com Website : www.pjce.com

Pringuer-James Consulting Engineers Limited
Overseas House
Elm Grove, London
SW19 4HE
+44 (208) 940 4159
mail@pjce.com
pjce.com

Appendix I Pre-Post Development Areas



Proposed Site Plan
Ground Floor/Lower Ground floor
Post-Development

Legend	Site Description	Existing		Proposed	
		Areas (m^2)	% (Percentage)	Areas (m^2)	% (Percentage)
	Permeable Areas	710.30	47.7	770.15	51.7
	Impermeable Areas	778.70	52.3	718.85	48.3
	Site Boundary	1489.00	100	1489.00	100

Area conclusion:
The extent of landscaping within the proposals has been increased by approx. 59.85m2 which equates to approx. 4% of the application area.

Existing Site Plan
Ground Floor/Lower Ground floor
Pre-Development

2 Templewood Avenue
London, NW3 7XA
Pre - Post Development Areas
Drawing No: L2658-SK210-P2

PRINGUER-JAMES
CONSULTING ENGINEERS
Overseas House, Elm Grove, Wimbledon, SW19 4HE
Phone/Fax: 020 8940 4159
Email : mail@pjce.com Website : www.pjce.com

Pringuer-James Consulting Engineers Limited
Overseas House
Elm Grove, London
SW19 4HE
+44 (208) 940 4159
mail@pjce.com
pjce.com

PJCE

Appendix J Foul and Surface Water GRP Packaged Pump Station

GRP PUMP CHAMBER
INSTALLATION GUIDELINES

HEALTH & SAFETY AT WORK 1974

DO NOT BEGIN INSTALLATION OF THIS CHAMBER UNTIL YOU HAVE READ & FULLY UNDERSTOOD THE REQUIREMENTS BELOW.

THE CONCRETE BACKFILL SHOULD BE DESIGNED TO PROTECT THE GRP CHAMBER FROM ALL EXTERNAL GROUND & GROUND WATER PRESSURE. THEREFORE, IT SHOULD BE WATERTIGHT.
ANY GROUNDWATER ALLOWED TO LEAK BETWEEN THE CONCRETE BACKFILL & THE GRP PUMP CHAMBER IS LIKELY TO CAUSE A BUILD UP OF PRESSURE WHICH WILL DAMAGE THE GRP CHAMBER.
WE CANNOT ACCEPT RESPONSIBILITY FOR DAMAGE OR DE-FORMATION OF THE CHAMBER OR PIPEWORK CAUSED BY EXTERNAL GROUND, GROUND WATER PRESSURE OR GROUND MOVEMENT DURING OR AFTER INSTALLATION.
DO NOT COMMENCE WITH INSTALLATION IF YOU CANNOT CONTROL ANY GROUND WATER PRESENT IN ORDER TO PROVIDE A DRY EXCAVATION.
IF NECESSARY, LINE THE ENTIRE EXCAVATION WITH A CONTINUOUS LAYER OF SUITABLE WATERPROOF MATERIAL PRIOR TO INSTALLATION.

As with all site work the dangers of working with water and electricity pose severe threats to health if obvious and fundamental precautions are not taken. Therefore, if you are in any doubt to any of the following, please do not hesitate to contact us.

All site work should be undertaken by qualified personnel only.

Lifting & Storage
Great care should be taken when lifting & handling the chambers and suitable equipment should always be used. The nature of the design means the centre of gravity of the chamber is likely to be offset. The chambers are best lifted by crane using webbing lifting straps. Any "lifting eyes" provided are untested & should not be used as the sole lifting point for the chamber. Any storage site should be free of any object which may cause damage to the chamber, and the chamber should be secured to prevent any rolling.

Pre-Installation Inspection
Before installation an inspection of the chamber must be carried out to ensure no damage has occurred since delivery and to check all inlet and outlet connections are correct. **Any changes or repairs cannot be made once installation has begun.**

Tank Installation

- Select a suitable location for the tank. This will be normally at ground level lower than the properties being drained and allow for the falls in site drainage.
- Check that no other structure or special access is required over the selected spot. Provision can always be made, if necessary, to place the tank in a roadway, provided that a suitable protective backfill is placed around it and a suitable heavy-duty manhole cover is used over the opening.
- Check that no underground cable, pipe or service duct, lies underneath.
- Excavate the minimum opening in the ground to receive the pump chamber and pipework to be used. The depth of excavation needs to be at most, 500mm deeper than the overall tank depth. A sump should be left in one corner for dewatering purposes.
- A dewatering pump MUST be used to remove any ground water present & provide a dry excavation until the concrete backfill is set.
- Some clean hardcore should be placed and consolidated in the base of the excavation. Usually this will need to be around 200mm thick, but in good ground, should be a minimum of 50mm.
- In order to be protected from any external force the chamber should be completely surrounded by concrete. The concrete surrounding the chamber should be of suitable thickness, usually a minimum of 150mm, and quality to protect the chamber from all external pressure. Whether this is ground pressure, ground water pressure, trafficked areas or any other force which may cause damage or de-formation to the chamber. Therefore, we recommend a qualified civil/structural engineer is consulted to specify the correct concrete backfill suitable for your specific site requirements.
- Pour the appropriate amount of concrete on top of the hardcore and then lower the chamber onto the damp concrete allowing the flanged base joint, if fitted, to settle in, ensuring that the inlet and outlet pipes are correctly aligned.
- Fill the chamber with clean water to depth of approx 500mm and recheck levels. **Do not overfill as the chamber is not designed to hold water when not supported by the concrete backfill.**

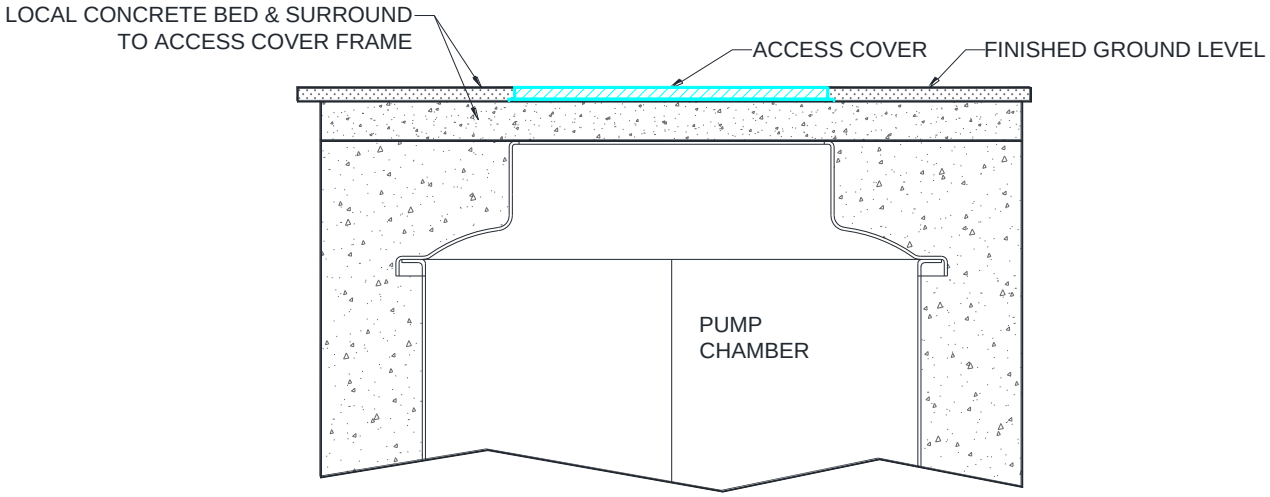
- Carefully commence pouring of the concrete backfill in **small stages** evenly around the chamber ensuring there are no voids which may allow ground water to penetrate. **Vibrating pokers should be used with care to avoid damage to the chamber.**

- Continue filling the chamber with clean water whist evenly backfilling, ensuring the water level is no more than 300mm above the level of the concrete backfill.

- Connect the site pipework to the inlet and outlet of the pumpwell and draw the pump and float cables through the conduit to the control panel before they are encased in concrete.

- **Under no circumstances should concrete be poured directly onto the chamber. Attempting to pour too much concrete at once will result in the chamber "floating" or particularly above the halfway point damage to the chamber due to excessive weight on the chamber body for which the manufacturers will not be responsible.**

- Finish off the surface of the concrete at the required level, depending on the final ground cover required i.e. topsoil, tarmac, gravel etc. (see sketch below). **If the access cover or the surrounding area is likely to be subject to other than purely pedestrian traffic, provision must be made to ensure that no weight loading is taken by the chamber i.e. by the construction of a cover slab, and the appropriately specified access cover must be used.**



PLEASE ALLOW THE CONCRETE BACKFILL TO SET BEFORE PUMPING THE WATER FROM THE PUMP CHAMBER.

ADDITIONAL NOTES
A cable duct is required with **no sharp bends**.
It is most important that once the tank is in situ with all the inlet connections made, the drainage system should be flushed out, and all sand, debris etc. removed from the chamber.

If vehicular traffic will be passing over the chamber, it is **ESSENTIAL** that the cover slab is constructed so that there is **NO DIRECT LOAD** on the chamber. Also, an access cover with the correct specified **S.M.W.L.** must be used.

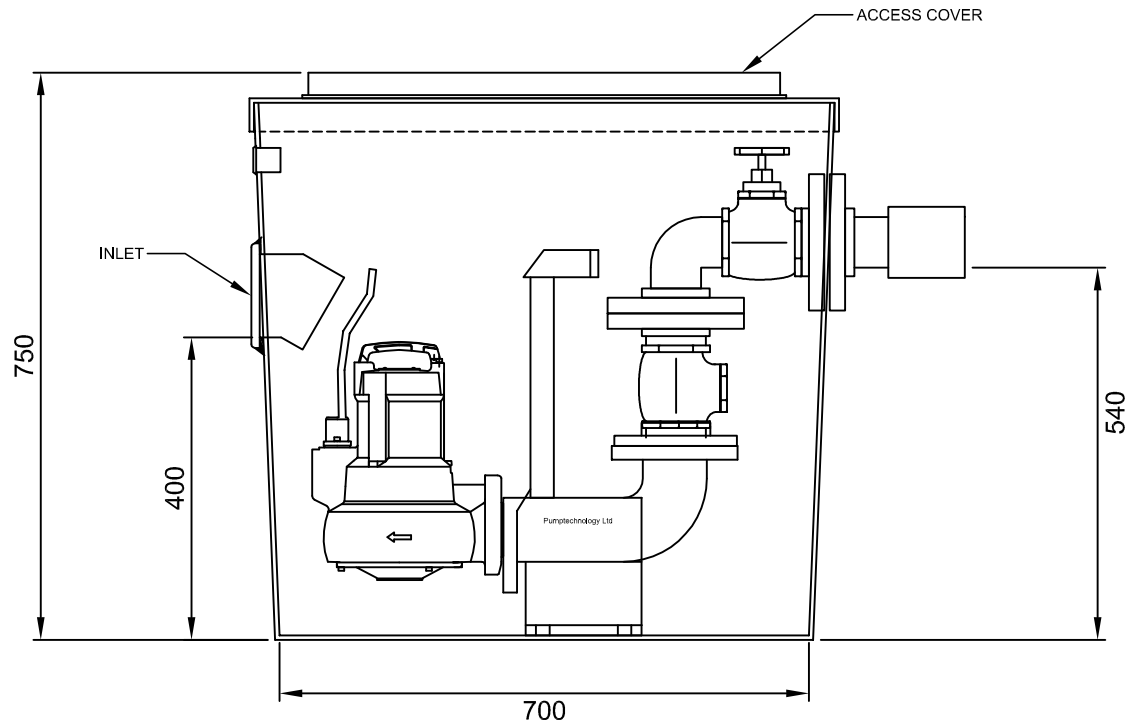
ELECTRICAL INSTALLATION
Wiring diagrams are enclosed with each control panel. Please adhere to the diagram supplied.

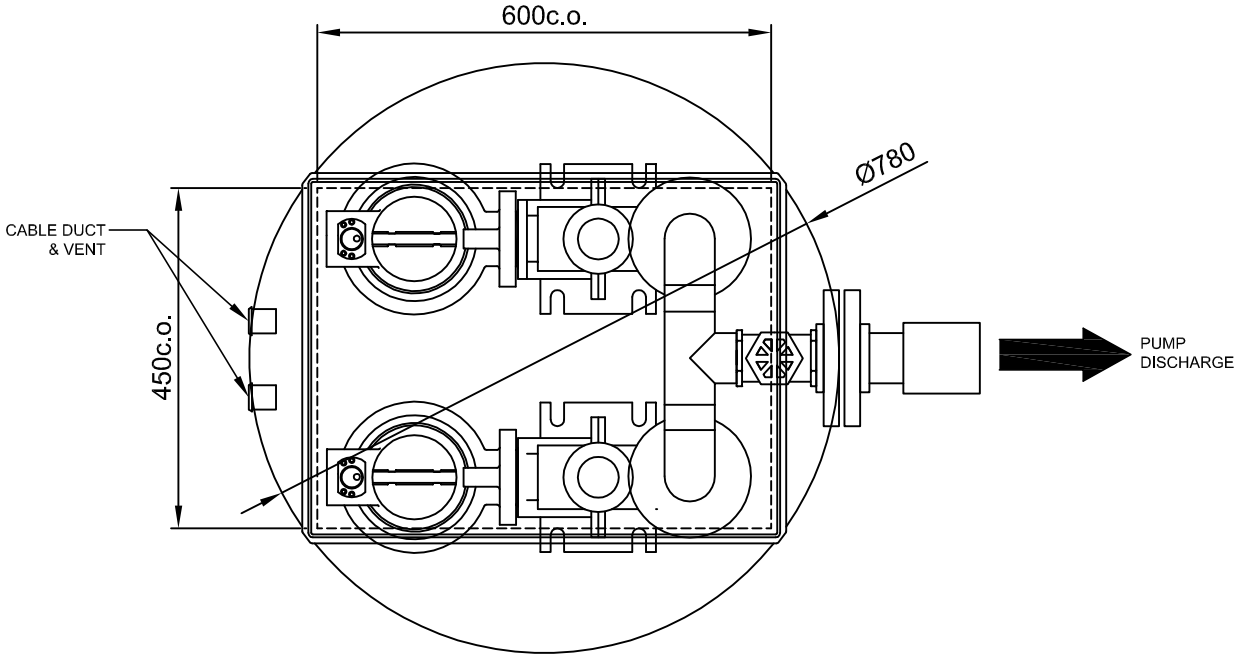
If any further information is required, please consult your supplier.

By beginning installation of the unit, the installer is deemed to have read and complied with the above. Failure to do so will invalidate your warranty.

COMMISSIONING
ONCE THE PUMPING SYSTEM HAS BEEN COMPLETELY INSTALLED, PUMP TECHNOLOGY LTD COMMISSIONING OF THE SYSTEM IS REQUIRED TO VALIDATE THE WARRANTY.

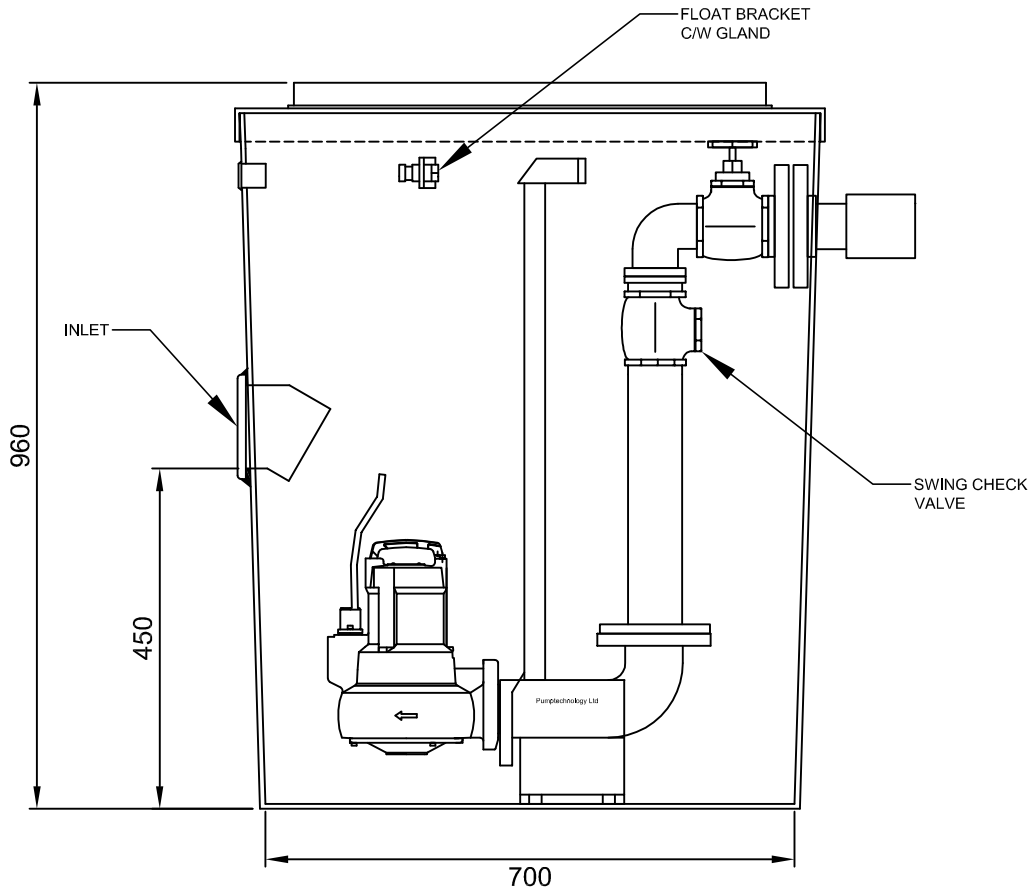
If you have any questions, please remember we are only a telephone call away.

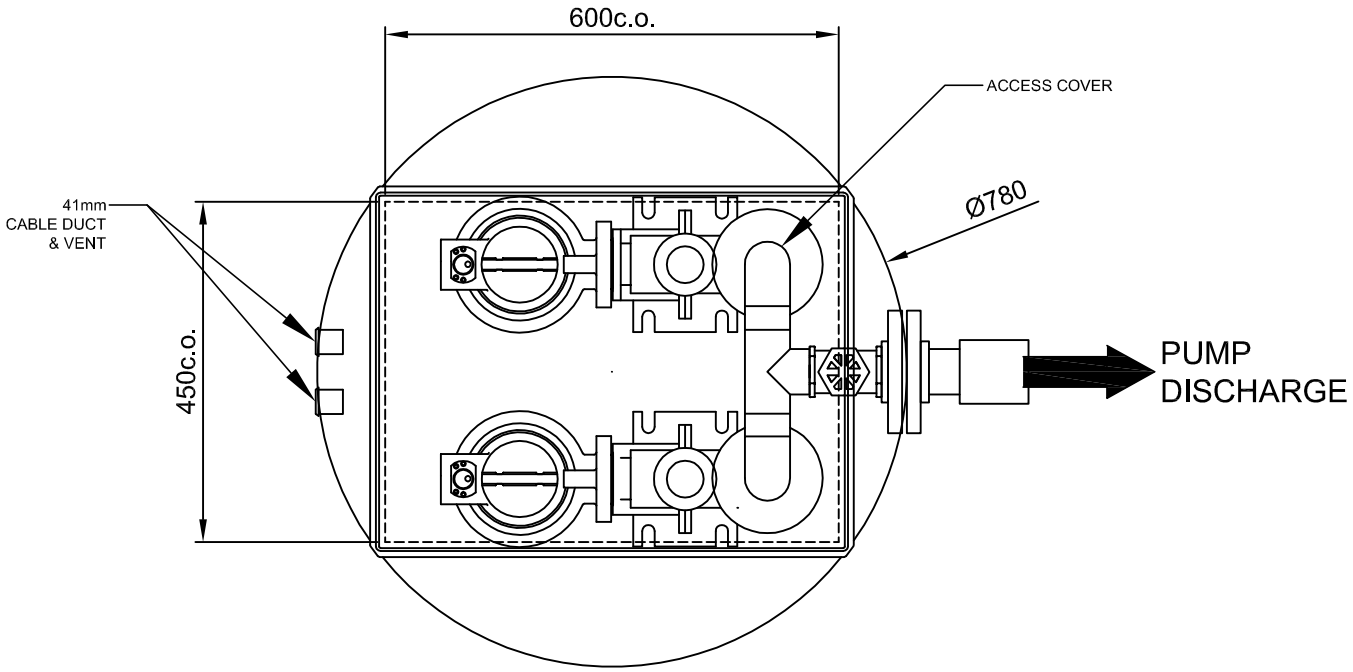




Title: PUMPMATIC 75/750 Dual Guide Rail	
Drawn by: RJH	Date: 2013/10/08
All Dimensions in mm	Scale: Do Not Scale

PUMP TECHNOLOGY LTD
Tel: 01189 821 555
Fax: 01189 821 666





Title: PUMPMATIC 75/1000	
Drawn by: RJH	Date: 04/03/2016
All Dimensions in mm	Scale: Do Not Scale

PUMP TECHNOLOGY LTD
Tel: 01189 821 555
Fax: 01189 821 666

Pump Technology Limited
56 Youngs Industrial Estate
Aldermaston, Berkshire. RG7 4PW
Tel: 0118 9821 555 Fax: 0118 9821 666
email: support@pumptechnology.co.uk
www.pumptechnology.co.uk

PUMP TECHNOLOGY LTD

ONE STOP PUMP SHOP

HIGH LEVEL ALARMS

for SEWAGE & WASTE WATER SYSTEMS

Designed for connection to a 240v supply circuit . The alarm buzzer has a minimum volume of 80dBA (1mtr distance). A rechargeable battery

Suitable for any of our floor mounted units and below ground sets.

The HLA can be connected into the Building Management System via the Remote Alarm Terminals.

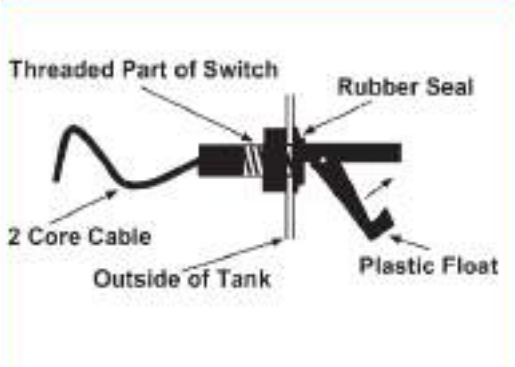
Pump Technology Limited
56 Youngs Industrial Estate
Aldermaston, Berkshire. RG7 4PW
Tel: 0118 9821 555 Fax: 0118 9821 666
email: support@pumptechnology.co.uk
www.pumptechnology.co.uk

PUMP TECHNOLOGY LTD

ONE STOP PUMP SHOP

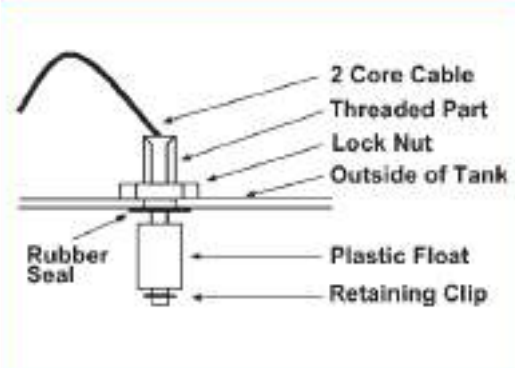
PTL1A WITH SIDE MOUNTED FLOAT

1. Drill a hole in the side of the tank at high level **i.e. above the "*switch-on*" level of the pump float.**
2. Thread the rubber seal over the cable and pass the cable through the side of the unit from the inside outwards.
3. Thread the lock nut over the cable and secure in place. **Do not overtighten the lock nut**.
4. Ensure that the inflow of water to the tank is not directed onto the float.
5. Attach the 2 core cable to the terminals marked "*FLOAT*" in the High Level Alarm unit.



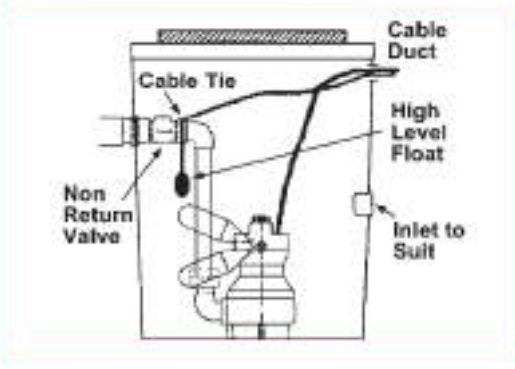
PTL1B WITH TOP MOUNTED FLOAT

1. Drill a clearance hole in the lid, at the indent point provided, under the end cover.
2. Thread the rubber seal over the cable and pass the cable through the lid from the underside.
3. Thread the lock nut over the cable and secure the switch in place. **Do not overtighten the lock nut**.
4. Attach the 2 core cable to the terminals marked "*FLOAT*" in the High Level Alarm unit.



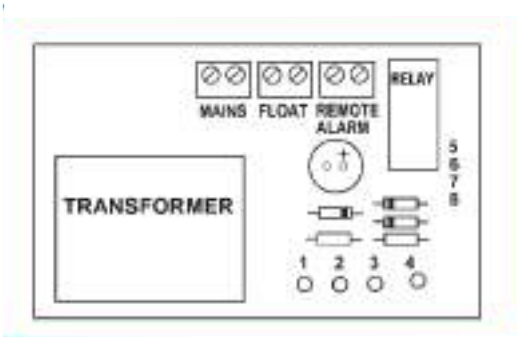
PTL1C WITH 10MTR ORANGE FLOAT

1. A float and weight is provided to activate the High Level Alarm.
2. We recommend that the float is securely attached to the discharge pipework at a higher level than the activation level of the automatic float switch of the pump.
3. Attach the high level float so that it will not be fouled by the pipework etc.
4. Attach the 2 core cable to the terminals marked "*FLOAT*" in the High Level Alarm unit.
5. For activation at high level use the black and brown cables.



PTL 1D (REMOTE ALARM)

1. Site alarm panel as required with a 240V power supply, preferably not from the same source as the pumps.
2. Run a 0.75mm 2 core cable from the volt free contact on the main control panel to the PTL 1D alarm panel terminals marked float, wherever this is sited away from the main Control Panel.
3. The HLA can be connected into the Building Management System via the Remote Alarm Terminals.



NOTE: PUMP TECHNOLOGY PTL/1

These HLA can be connected into the Building Management System via the Remote Alarm Terminals. The Alarms require their own DEDICATED power supply and MUST NOT be powered from the same source as the pumps.

Pump Technology Limited
56 Youngs Industrial Estate
Aldermaston, Berkshire. RG7 4PW
Tel: 0118 9821 555 Fax: 0118 9821 666
email: support@pumptechnology.co.uk
www.pumptechnology.co.uk

CONTROL PANELS

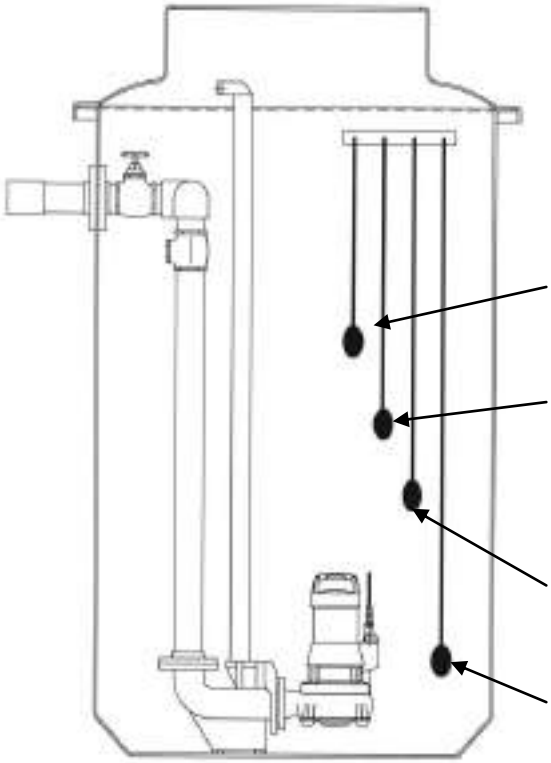
Pump Technology Ltd can supply any control panel to meet the customers specification.

We can offer single to multiple pump controls, GSM or landline telemetry, ATEX rated, battery backup and hour run meters.

Applications:

· Domestic · Retail · Light Commercial · Commercial

EXAMPLE OF A DUAL PUMP CONTROL PANEL OPERATION



SYSTEM OPERATION

The system controls the level into the storage tank automatically via the non-mercury operated float switches.

Assist Start Float is set to the level at which the second pump is required to start.

High Level Float is set to the level at which the alarm is required to give warnings of potential flood conditions. This should be set at the level of the **INLET** to maximise the tank capacity.

Duty Start Float is set to the level at which the first pump is required to start.

Stop Float is set to the level at which the pumps are required to stop. This **must** be set above the volute of the pump.

DUAL PUMP CONTROL PANEL

The panel allows for manual run and test of the pumps and also automatic operation, giving a changeover of duty after each cycle, to give even pump wear.

The control voltage is kept low by the use of an isolating transformer giving 24V AC to the remote non-mercury switches and door mounted instruments.

	INDICATOR	LAMP COLOUR
A	Pump 1 Running	Green
B	Pump 1 Tripped	Red
C	Control Healthy	White
D	Pump 2 Running	Green
E	Pump 2 Tripped	Red
F	Pump1: hand-off-auto	
G	High Level	Red
H	Pump2: hand-off-auto	
J	Cancel Alarm	
K	Audible Alarm	
L	Isolator: On-Off