Aval Consulting Group.

Level 1 Flood Risk Assessment

4-6 Ham St, Richmond TW10 7HT

Woodward Nursery School

September 2023

Aval Consulting Group.

Project Information

Title	Level 1 Flood Risk Assessment
Job Code	92609
Sector	Flood Risk
Report Type	FRA
Client	Woodward Nursery School
Revision	A
Status	Final
Date of Issue	15 September 2023

Revision History

Revision	Date	Author	Reviewer	Approver	Status
A	15 September 2023	PR	WR	AC	Draft
A	15 September 2023	PR	WR	AC	Final

Disclaimer

Table of Contents

1. Executive Summary

1.1 Aval Consulting Group Limited has been commissioned by Woodward Nursery School ('the client') to provide a Flood Risk Assessment in relation to a planning application at 4-6 Ham St, Richmond TW10 7HT.

1.2 The proposal comprises of the redevelopment / refurbishment of the existing derelict pub into a children's nursery.

1.3 This report covers flood risk, potential developable land and the proposed SuDS strategy, for the site.

1.4 A Level 1 Flood Risk Assessment has been carried out as per the requirements of the local authority and the National Planning Policy Framework. The proposed development meets the requirements as it is located within an area of low risk of flooding and includes mitigation.

1.5 No topographical survey, CCTV inspection, or ground investigation data were made available for the preparation of this report.

1.6 The site is at low risk of fluvial and pluvial flooding from the neighbouring watercourses. The site is located in an area with less than 0.1% risk of fluvial flooding (Flood Zone 1) and based on NPPF 2021 the development proposal is wholly suitable in terms of flood risk as it is a more vulnerable development.

1.7 The proposed surface water drainage discharge for the site is to connect to existing surface water sewer located along Ham Street. Which is subject to Thames Water Section 106 approval.

1.8 The proposed foul water drainage discharge for the site is to connect to existing foul water sewer located along Ham. Which is subject to Thames Water Section 106 approval.

1.9 The proposed development will also include information on surface water management and SuDS for the proposed development in order to reduce surface water discharge.

2. Introduction

Overview

2.1 AVAL Consulting Group Limited (ACL) has been commissioned by the client to produce a Flood Risk Assessment and Drainage Strategy at 4-6 Ham St, Richmond TW10 7HT. This is to accompany the planning application to the Local Authority for consent to undertake the proposed work.

2.2 This report will state the Flood Zone the development is located in and will analyse the risks of flooding at the site. Mitigation measures will also be discussed.

2.3 The existing and proposed development drawings are presented in Appendix A.

Site Location and Details

2.4 Figure 2.1 shows the proposed site location. The surroundings of the proposed development are largely residential in nature. The site is bounded residential units to the north, Ham Common to the south, a rear garden to the east and Ham Street to the west.

Figure 2.1: Proposed Site Location (Source: Google Maps)

Proposed Development and Vulnerability Classification

2.5 The proposed development is for the redevelopment / refurbishment of the existing derelict pub into a children's nursery.

2.6 The site is located at an average height of 7.00m AOD. The topographical survey can be seen in Appendix A.

2.7 As per the National Planning Policy Framework, the proposed residential development will be under the '**More Vulnerable**' classification.

3. Relevant Standards and Policies

3.1 This section summarises all legislation, policy, statutory and non-statutory guidelines relevant to the proposed development. That also includes all the latest regional and local planning policy guidance specifically applicable to the proposed development.

The National Planning Policy Framework (NPPF)

3.2 The latest National Planning Policy Framework (NPPF) was published on 20th July 2021. The NPPF is supported by technical guidance set out within the Planning Practice Guidance for Flood Risk and Drainage, including the classification of the site vulnerability and the requirement do an Exception Test in relation to the Flood Zone and Vulnerability Classification.

3.3 One of the key aims of the NPPF is to ensure that flood risk is taken into account at all stages of the planning process to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk.

3.4 It advises that where new development is necessary in areas of higher risk, flood mitigation resilience and resistance measures should be incorporated which can include but not limited to a higher finished floor level, installing flood boards and moving electrical points above. The developments upstream of the proposed development should also be taken into the consideration of flood risk.

3.5 The NPPF's flood risk advice is all set out in Chapter 14 of the Framework document, meeting the challenge of climate change, flooding and coastal change.

Flood and Water Management Act 2010

3.6 The Flood and Water Management Act 2010 received Royal Assent on 8th April 2010. This Act provides duties on the Environment Agency, Local Authorities, Developers and other bodies to manage flood risks. The Act has significant planning and design implications for Developers.

3.7 It should be noted that these standards and procedures are being reviewed by the respective regulatory bodies and third parties against the requirements imposed by the Flood and Water Management Act 2010. The advice and recommendations provided may change when associated regulations have been issued in order to implement the full scope of the Act.

London Borough of Richmond Upon Thames Local Plan

3.8 The London Borough of Richmond Upon Thames Local Plan (Adopted 3 July 2018) highlights the main policy regarding Flood Risk and Water Management.

3.9 Policy LP 21 Flood Risk and Sustainable Drainage states the following:

*" **Flood Risk and Sustainable Drainage***

All developments should avoid, or minimise, contributing to all sources of flooding, including fluvial, tidal, surface water, groundwater and flooding from sewers, taking account of climate change and without increasing flood risk elsewhere. Development will be guided to areas of lower risk by applying the 'Sequential Test' as set out in national policy guidance, and where

necessary, the 'Exception Test' will be applied. Unacceptable developments and land uses will be refused in line with national policy and guidance, the Council's Strategic Flood Risk Assessment (SFRA) and as outlined in the table below. In Flood Zones 2 and 3, all proposals on sites of 10 dwellings or more or 1000sqm of non-residential development or more, or on any other proposal where safe access/egress cannot be achieved, a Flood Emergency Plan must be submitted. Where a Flood Risk Assessment is required, on-site attenuation to alleviate fluvial and/or surface water flooding over and above the Environment Agency's floodplain compensation is required where feasible.

Basements and subterranean developments

Basements within flood affected areas of the borough represent a particularly high risk to life, as they may be subject to very rapid inundation. Applicants will have to demonstrate that their proposal complies with the following: Table on Page 65.

Sustainable drainage

The Council will require the use of Sustainable Drainage Systems (SuDS) in all development proposals. Applicants will have to demonstrate that their proposal complies with the following:

1. A reduction in surface water discharge to greenfield run-off rates wherever feasible.

2. Where greenfield run-off rates are not feasible, this will need to be demonstrated by the applicant, and in such instances, the minimum requirement is to achieve at least a 50% attenuation of the site's surface water runoff at peak times based on the levels existing prior to the development.

Flood defences

Applicants will have to demonstrate that their proposal complies with the following:

1. Retain the effectiveness, stability and integrity of flood defences, river banks and other formal and informal flood defence infrastructure.

2. Ensure the proposal does not prevent essential maintenance and upgrading to be carried out in the future.

3. Set back developments from river banks and existing flood defence infrastructure where possible (16 metres for the tidal Thames and 8 metres for other rivers).

4. Take into account the requirements of the Thames Estuary 2100 Plan and the River Thames Scheme, and demonstrate how the current and future requirements for flood defences have been incorporated into the development.

5. The removal of formal or informal flood defences is not acceptable unless this is part of an agreed flood risk management strategy by the Environment Agency."

London Borough of Richmond Upon Thames Strategic Flood Risk Assessment

3.10 The Strategic Flood Risk Assessment provides maps of flood zone and highlights the requirement and procedures for the Sequential and where necessary the Exception Tests. This will be used in order to progress through this report.

4. Assessment of Flood Risk

Flood Zone Areas

4.1 The proposed development is located within a Flood Zone 1 area as per the Environment Agency's Flood Zone Map and the local authority's SFRA. Figure 4.1 shows the proposed development in Flood Zone 2 and 3 using ArcGIS layers from the Environment Agency.

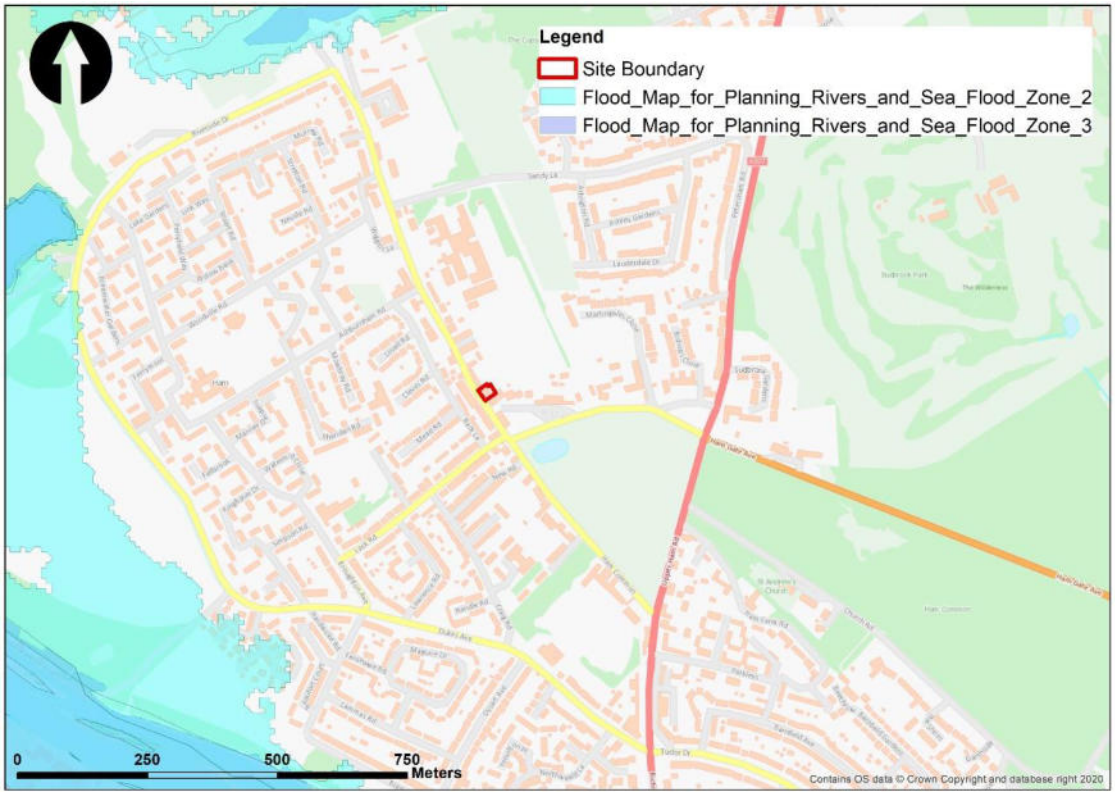


Figure 4.1: Flood Zone Area (Source: ArcGIS Layer from the EA)

River/Sea Flooding and Surface Water Flooding Risks

4.2 In terms of the risk of flooding from Surface Water and the River/Seas, the proposed development is at a very low risk of river/sea and at very low to no risk of surface water flooding as shown in Figures 4.2 and 4.3. Depths of surface water flooding under the low, medium and high risk can be seen in Figures 4.4 to 4.6.

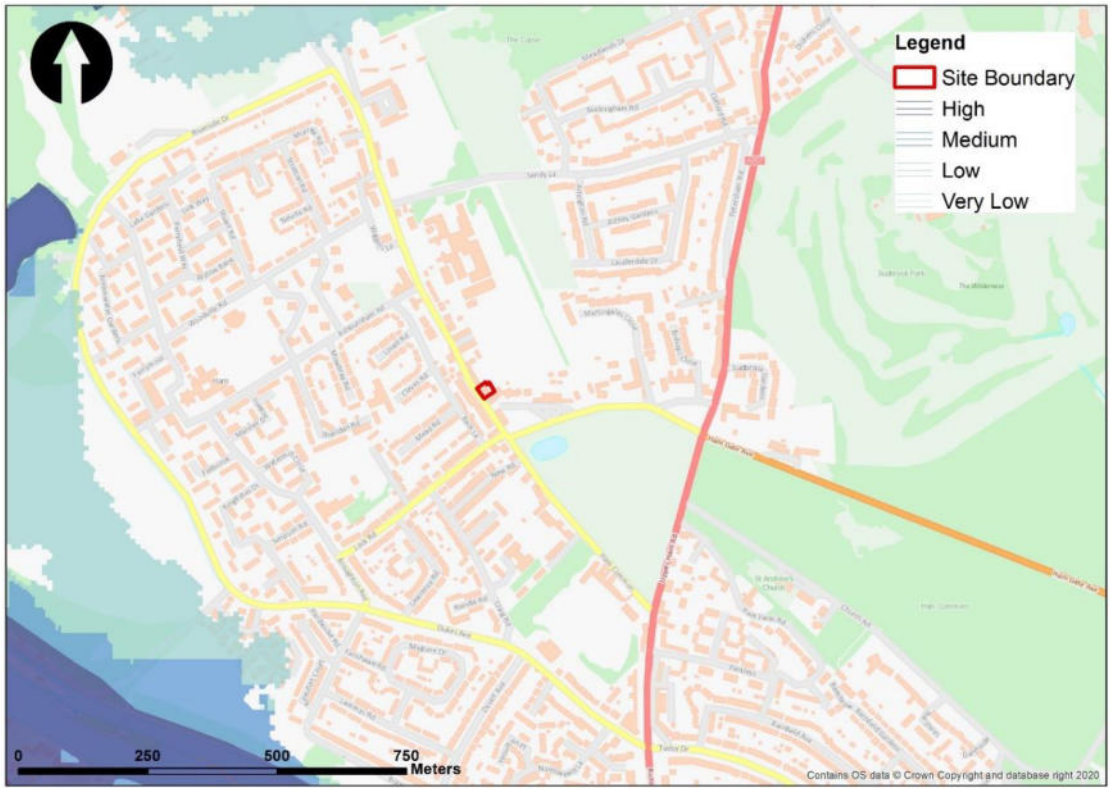


Figure 4.2: Extent of Flooding from River or the Seas (Source: ArcGIS Layer from the EA)

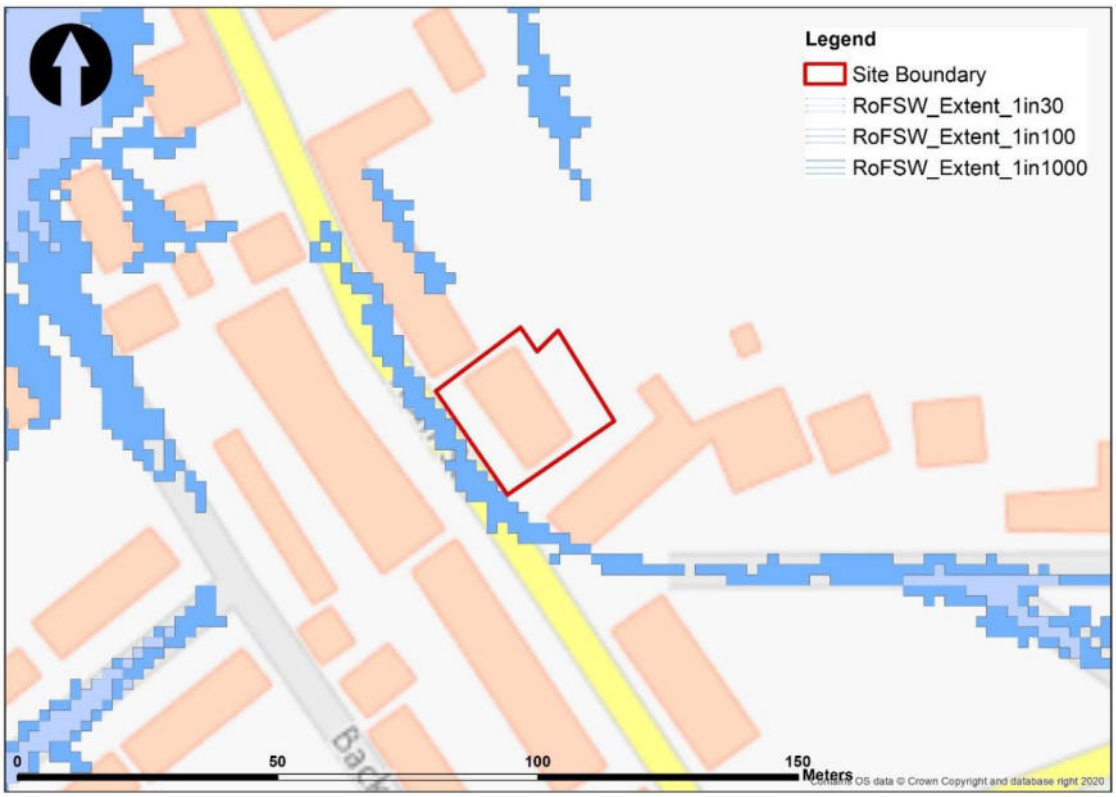


Figure 4.3: Extent of Flooding from Surface Water (Source: ArcGIS Layer from the EA)

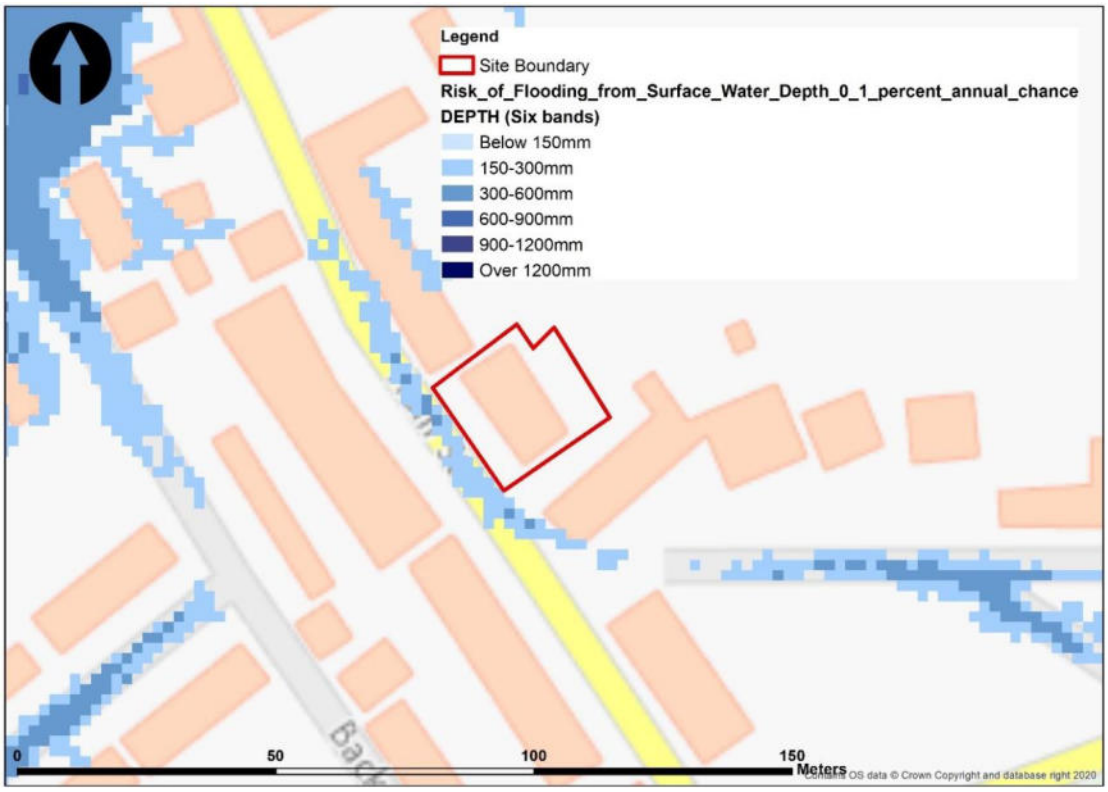


Figure 4.4: Depth of Surface Water – Low Flooding Risk (Source: ArcGIS Layer from the EA)

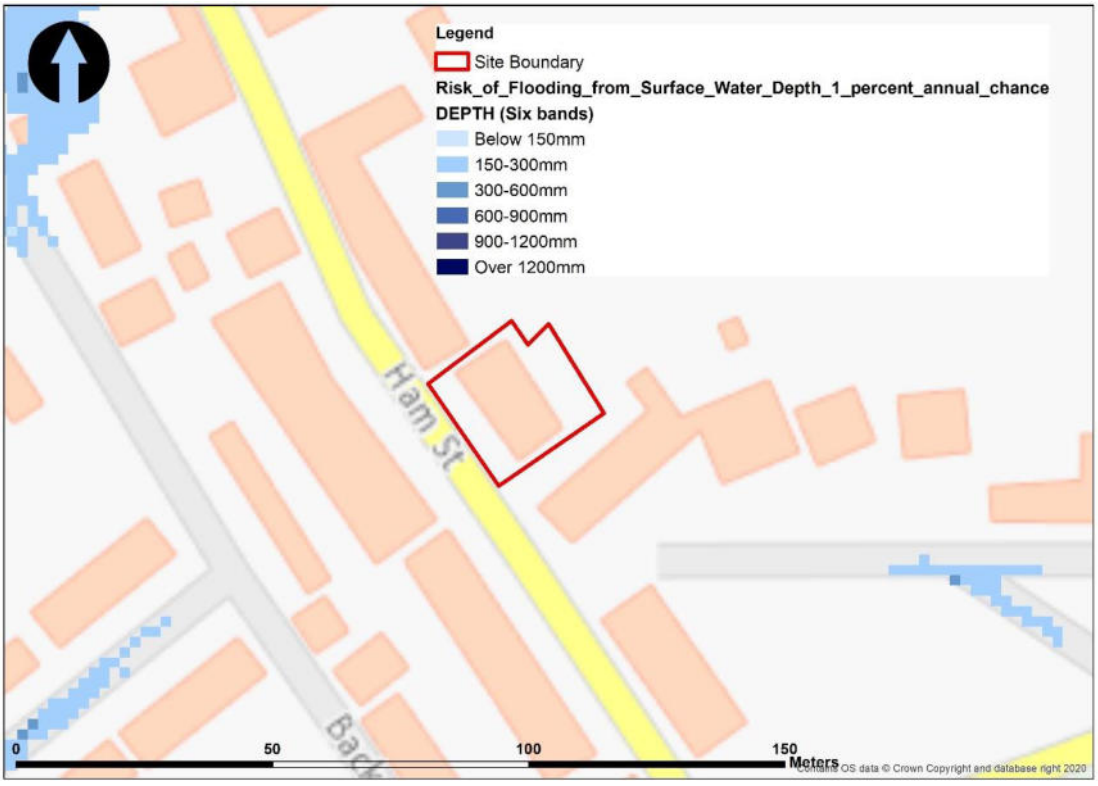


Figure 4.5: Depth of Surface Water – Medium Flooding Risk (Source: ArcGIS Layer from the EA)

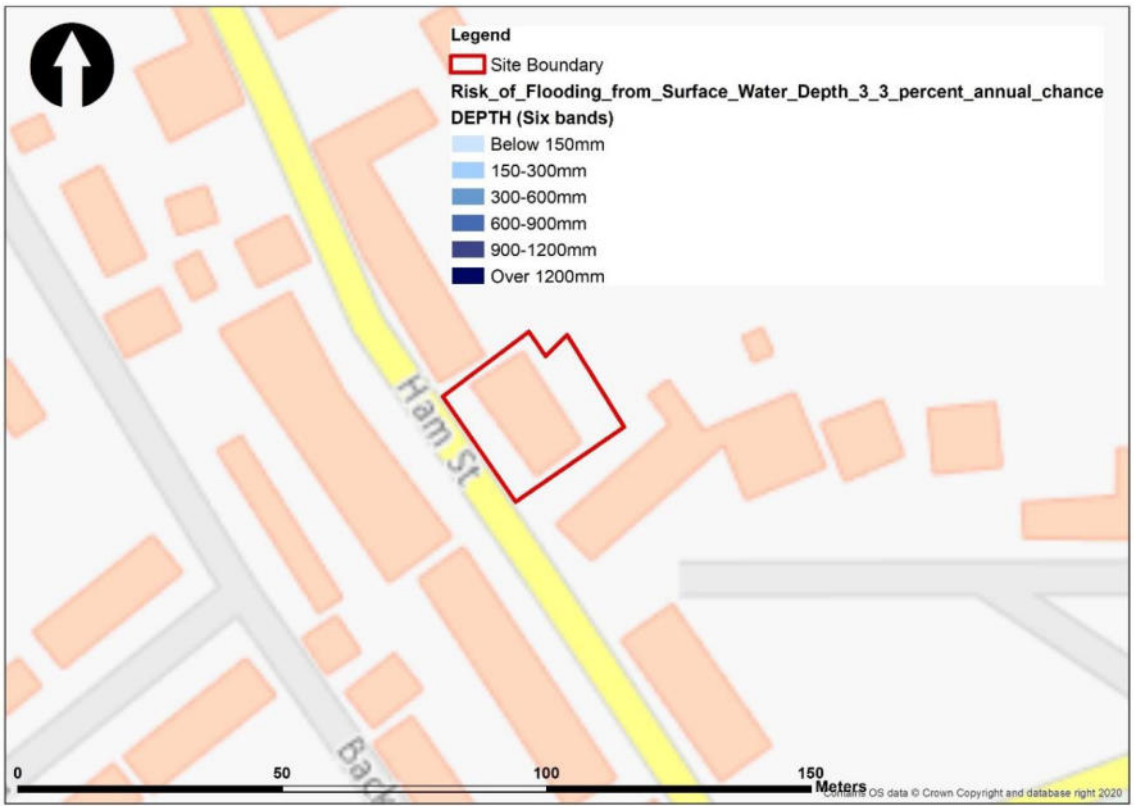


Figure 4.6: Depth of Surface Water – High Flooding Risk (Source: ArcGIS Layer from the EA)

Nearest Watercourse

4.3 There are nearest watercourses is the River Thames located 1.16km from the proposed development site.

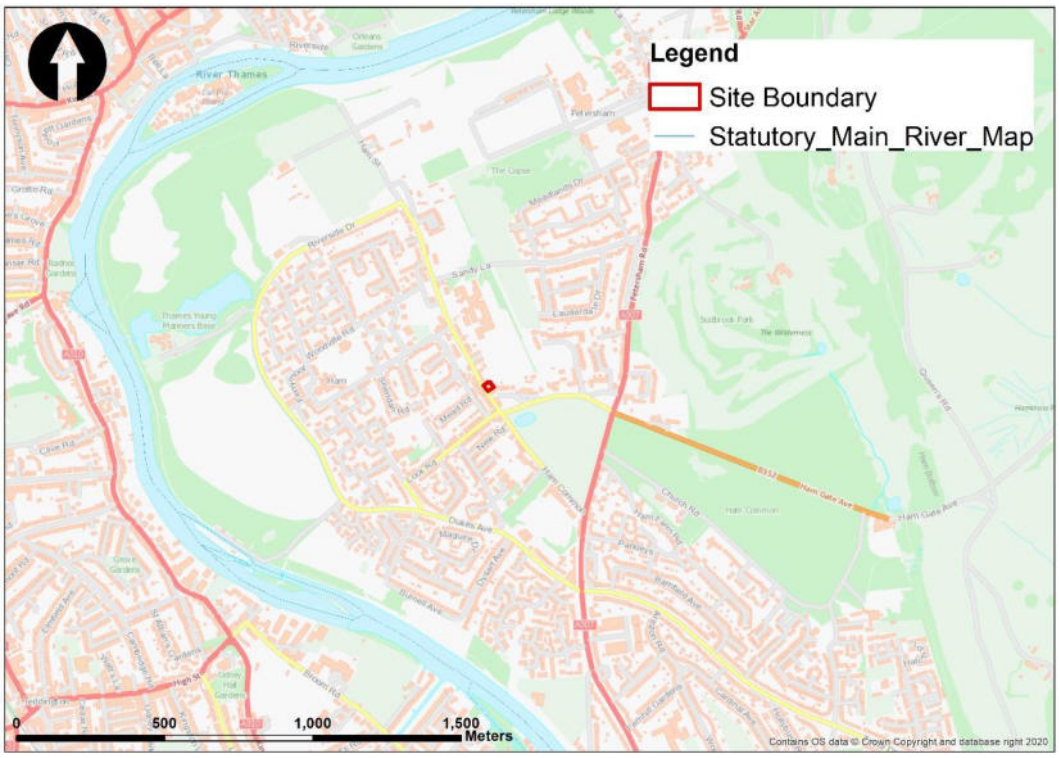


Figure 4.7: Nearest Watercourses (Source: ArcGIS Layer from the EA)

Geology, Hydrology and Hydro-Geology

4.4 The British Geological Survey NERC online geological mapping indicates that the site consists of superficial and bedrock geology. The superficial layer is of sand and gravel (Kempton Park Gravel Member). The bedrock layer is of the London Clay Formation. The London Clay mainly comprises of bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay. Figure 4.8 displays the BGS Geology Map

4.5 The Cranfield Soil and AgriFood Institute (CSAI), incorporating the National Soil Resources Institute (NSRI,) at Cranfield University maintains soil reports and maps for England and Wales. The Soilscapes dataset map, shown in Figure 4.9 indicates that soils in the area are 'feely draining slightly acid loamy soils' with a 'loamy' texture. These soils are identified as having 'freely' draining. Freely draining describes soils that absorb rainfall readily and allow it to drain through to underlying layers.

4.6 No ground investigations were provided as part of the report and is recommended to undertake a ground investigation for the next stage of the project.

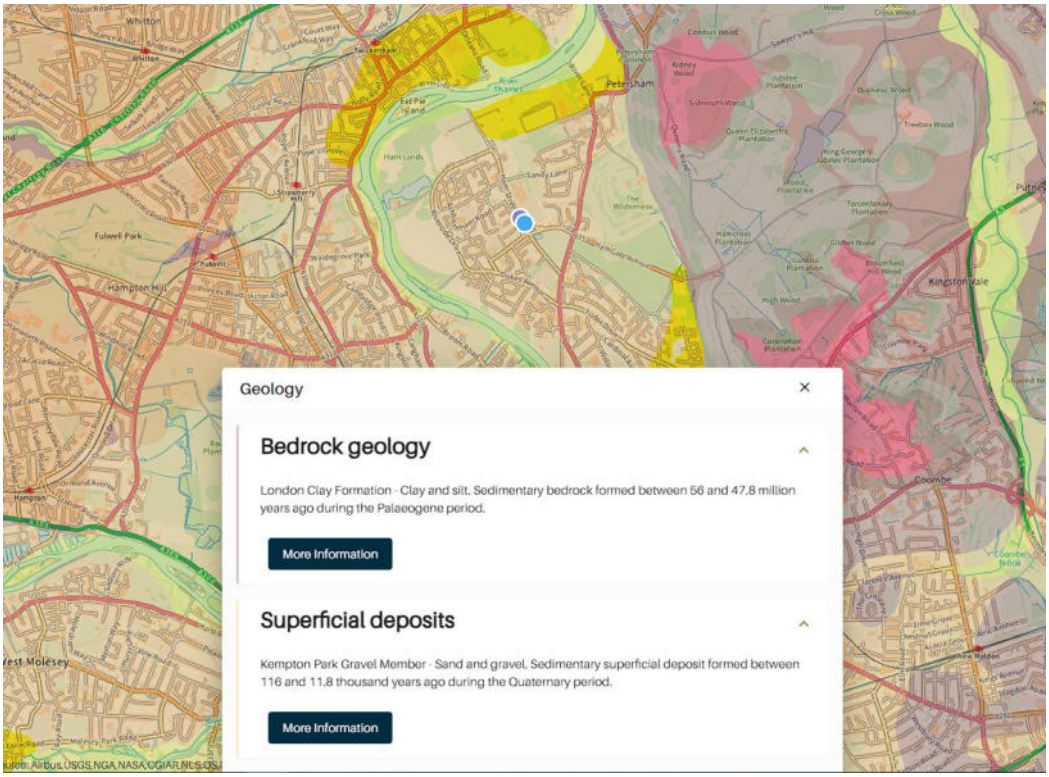


Figure 4.8: BGS Bedrock Geology Map (Source: BGS Geology Map Viewer)

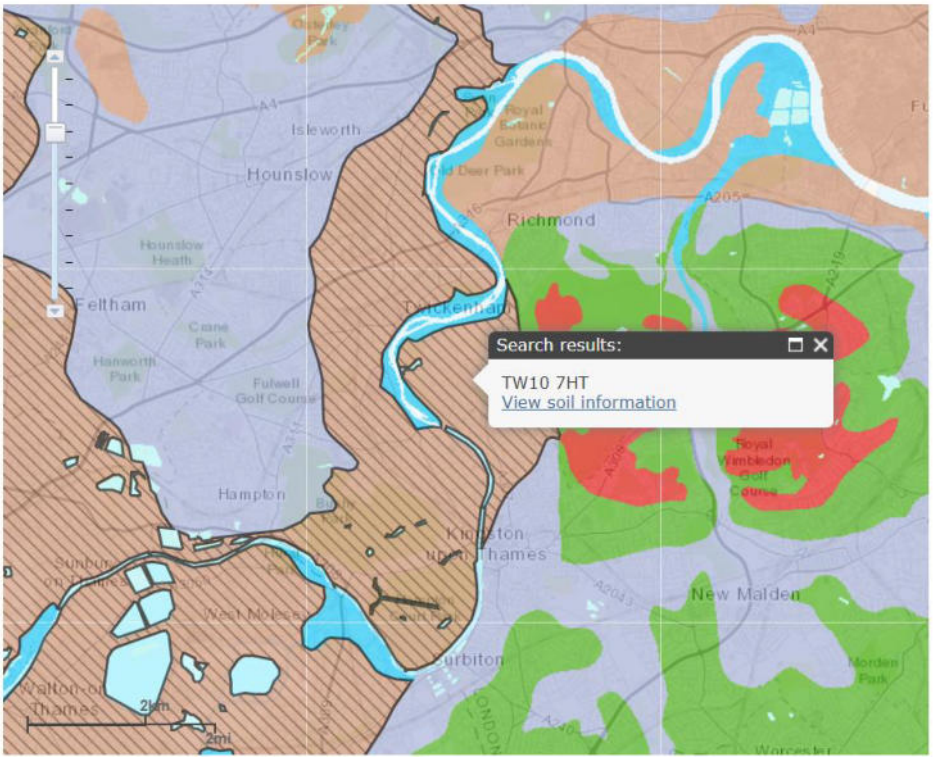


Figure 4.9: Soilscapes Map (Source: Soilscapes)

Other Sources of Flooding Risks and Historical Flooding

4.7 There are no other risks of flooding, either from groundwater or from reservoirs.

4.8 As per Environment Agency and the London Borough of Richmond Upon Thames, the site has recorded no previous flooding. Figure 4.10 displays the recorded flood outlines.

4.9 The Environment Agency's Aquifer Designation Map dataset held on Natural England's MAGIC website provides authoritative geographic information about the natural environments across Great Britain. An inspection of the map shows that the site does not lie within an area of aquifer designation and low groundwater vulnerability.

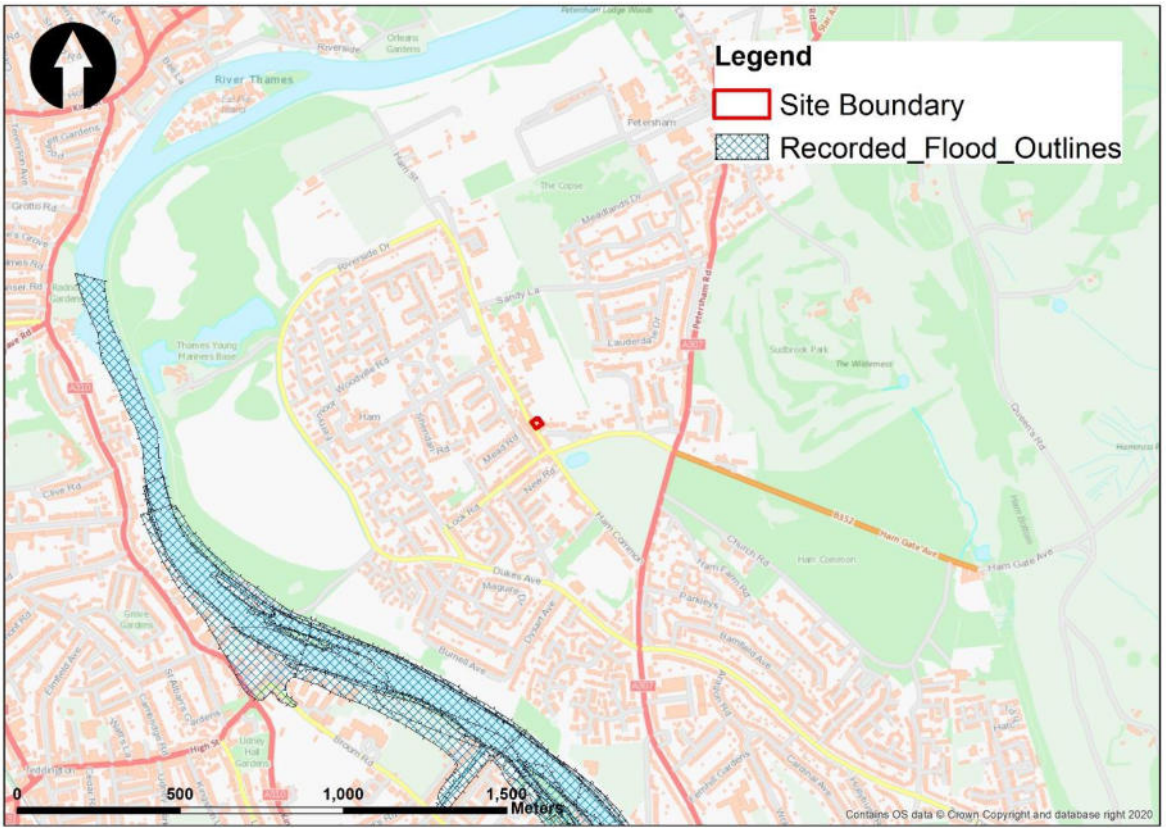


Figure 4.10: Recorded Flood Outline (Source: ArcGIS Layer from the EA)

5. Residual Risk and Exception Test

5.1 This section will explain how the proposed development will reduce the flood risk within the site and within the surrounding areas of the site.

Residual Risk

5.2 The primary residual risk that would remain at the site would be the drainage of surface water. Flood Mitigation and Management details will be given in Section 6. However, other residual risks remain such as a breach of a raised flood defence, blockage of a surface water conveyance system, overtopping of an upstream storage area, or failure of a pumped drainage system; failure of a reservoir; or a severe flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot cope with.

5.3 In order to further reduce the risk of surface water flooding within the proposed development, Sustainable Urban Drainage Systems would need to be installed to either safely discharge the surface water or to temporarily store the surface water for future use or discharge. This can be in the form but are not limited to, permeable paving, green roofs, attenuation storage or rainwater harvesting.

Exception Test

5.4 The National Planning Policy Framework sets out the different conditions in terms of the vulnerability of the development and the flood zone and accordingly sets out the requirements to do an Exception Test. The table below describes the conditions required for an Exception Test.

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	×	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Key: ✓ Development is appropriate.
× Development should not be permitted.

As the development is located within a Flood Zone 1 and is classified as a '**More Vulnerable**', an Exception Test is not required to be undertaken and therefore, the proposed development is appropriate.

6. Flood Mitigation/Management Measures and Evacuation Plan

6.1 As stated in Section 6.1, SuDS can help in reducing the effect of flooding within the site and also upstream of the development site. Storage of surface water for future use or a controlled discharge of surface water are implemented in the reduction of flooding upstream of the proposed development.

6.2 As the proposed development comprises the redevelopment / refurbishment of the existing derelict pub into a children's nursery, flood mitigation/management measures are required in order to prevent any flooding at the site or elsewhere.

6.3 Any new drainage system should be designed in accordance with current design guidance and standards.

6.4 The development and its drainage system will be designed to cope with the intense storm events up to and included the 100-year return period rainfall event with an allowance for climate change. If an extreme rainfall event exceeds the design criteria for the drainage network, it is likely that there will be some overland flows that are unable to enter the system.

6.5 By maintaining and not increasing the pre-development peak runoff prior to its point of discharge, this will reduce the potential for surface water flooding on the downstream network.

6.6 Gradients of the hardstanding areas, where possible, are designed to fall away from buildings such that any overland flow resulting from extreme events would be channelled away from entrances.

6.7 Finished site levels will be engineered to provide positive drainage where required and prevent ponding. The accumulation of standing water will therefore not occur and thus not pose a risk.

6.8 The use of SuDS site control measures, with controlled release of surface water to the existing surface water sewer will help to minimise the flood risk impact to the surrounding sewer networks.

7. Climate Change and Surface Water Management

7.1 The National Planning Policy Framework 2021 (NPPF) and accompanying Planning Practice Guidance indicate surface water run-off should be controlled as near to its source as possible through a sustainable drainage approach to surface water management.

7.2 Consideration should therefore firstly be given to using sustainable urban drainage (SuDS) techniques including soakaways, infiltration trenches, permeable pavements, grassed swales, ponds and wetlands to reduce flood risk by attenuating the rate and quantity of surface water run-off from a site. This approach can also offer other benefits in terms of promoting groundwater recharge, water quality improvement and amenity enhancements. The NPPF sets out a hierarchy for the disposal of surface water which encourages a SuDS approach, which will be mentioned in Section 7.9.

Climate Change

7.3 There are indications that the climate in the UK is changing significantly, and it is widely believed that the nature of climate change will vary greatly by region. Current expert opinion indicates the likelihood that future climate change would produce more frequent short-duration and high-intensity rainfall events with the addition of more frequent periods of long-duration rainfall.

7.4 The Environment Agency has highlighted the climate change allowance for all proposed developments as described in Section 7.

Small and Urban Catchment Climate Change Growth

The table below highlights the potential climate change expected in the future.

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

As this development is for residential use, **a climate change growth factor of 40% is proposed** to be used for the surface water runoff/storage calculations.

Existing Public and Private Sewers

7.5 The existing site is currently brownfield with assumed existing private sewer infrastructure located within the site.

7.6 There is a 975mm Thames Water surface water sewer located adjacent to the site along Ham Street.

7.7 There is a 225mm Thames Water foul gravity main sewer located adjacent to the site along Ham Street.

7.8 A detailed Topographical survey and CCTV survey was not provided for this report. A survey will be required to confirm the location, depths and use of assets in the area.

7.9 Appendix B includes the Thames Water Asset records.

Methods of Surface Water Management

7.10 As set out within the NPPF 2021, there are four methods that have been reviewed for the management and discharge of surface water for the site which are detailed below; these may be applied individually or collectively to form a complete strategy. They should be applied in the order of priority as listed:

- Discharge via infiltration;
- Discharge via watercourse;
- Discharge via a dedicated public surface water system; and
- Discharged via a combined sewer.

Discharge via Infiltration

7.11 Any impermeable areas that can drain to a soakaway or an alternative method of infiltration would significantly improve the sustainability of any surface water systems.

7.12 SOIL mapping for the site suggests that the soils beneath the site be suitable for infiltration. Therefore, BRE 365 Infiltration tests will be required to confirm this.

Discharge to a Watercourse

7.13 The next consideration for the disposal of surface water is via a watercourse. There are no nearby watercourses and therefore it is not possible to discharge via a watercourse.

Discharge via a Dedicated Surface Water Sewer

7.14 Following the above the preferred option to discharge surface water is via the existing Thames Water surface water sewer located along Ham Street. Which is subject to Thames Water Section 106 approval.

Proposed Surface Water Discharge Strategy

7.15 The general principle of the surface water drainage strategy for this site is to collect the, proposed roof run-off and existing neighbouring properties rear roof run off and convey this to the proposed surface water manhole located within the site, which connects downstream to the existing surface water Thames Water asset.

7.16 Calculations have been undertaken using the modified rational method (MRM) to calculate the pre-development discharge rate and assessed against the post-development discharge rates. An area of 400m^2 was assumed as part of the calculations. The pre-development 1 in 100-year brownfield discharge rate is **26.8 l/s**.

7.17 The proposed restricted discharge rate and calculated post-development runoff rates generate a storage requirement during periods of intense rainfall. This discharge volume will need to be temporarily stored before discharging to the existing sewer.

7.18 The Causeway Flow 'Quick Storage Estimate' module has been used to estimate the storage volume required for a 1 in 1-year, a 1 in 30-year and 1 in 100-year storm event plus a 40% allowance for climate change.

7.19 The required storage for the development is calculated using attenuation storage crates and a flow control device.

7.20 If storage crates are used, and assuming a 95% void ratio, the required volume of crates required is **20m^3-27m^3**.

7.21 The proposed site discharge has been estimated at greenfield discharge rate of **1 litres per second** which will be proposed to London Borough of Richmond Upon Thames LLFA.

7.22 The restricted flow rate will be discharged via the existing Thames Water surface water sewer, located on Ham Street. This is subject to a Section 106 approval from Thames Water.

7.23 A Topographical, GPR and CCTV survey will be required to confirm the location depth and current use of the public assets.

7.24 This discharge rate will be achieved through the use of SuDS techniques including on-site attenuation and flow control methods such as a hydrobrake.

8. SuDS Appraisal and Proposed SuDS for Development

SuDS- General

8.1 Whilst the temporary storage volumes will be provided within an oversized pipework, the means by which the surface water is both stored and conveyed to the water butts should also incorporate various forms of Sustainable Drainage Systems (SuDS) where possible in accordance with the Environment Agency's general guidance and the National Planning Policy Framework.

8.2 Appropriately designed, constructed and maintained, SuDS are more sustainable than conventional drainage systems. Their benefits in general terms are summarised below.

SuDS can:

- Reduce run-off surface water flow-rates and/or volumes and hence reduce the risk of flooding;
- Encourage natural groundwater re-charge;
- Reduce pollutant concentrations in storm water;
- Provide habitats for wildlife.

SuDS Appraisal

8.3 There are many site-specific factors which will influence the choice of any single or combination of SuDS device used within a development. The primary factors are:

- Whether the development is domestic, commercial or industrial;
- Whether the underlying ground is contaminated. If so, infiltration systems (soakaways) will most probably not be permitted;
- Whether the underlying ground is permeable enough for infiltration systems (soakaways) to be considered;
- Whether the groundwater levels are deep enough for infiltration systems (soakaways) to be considered;
- Whether the site is steeply sloping and its general topography;
- The availability of space inside the development for each potential SuDS facility;

Health and Safety aspects should the development be likely to be inhabited or used by children.

Types of SuDS with Respect to Proposed Development

8.4 Based on local and regional policy, this section explores various options for the implementation of primary Sustainable Drainage Systems (SuDS) elements within this development.

Oversized Pipes/Gutters

8.5 Slightly oversized pipes can also help in the temporary storage of surface water but can also help in the discharge of surface water from the roof without any major blockages. Gutters can also help take more surface water from the roof into the oversized pipes, thus reducing the pressure on the attenuation storage crates which can then be made smaller.

Water Butts

8.6 These will be included at the base of certain rainwater downpipes. They will retain a volume of water for irrigation purposes during periods of dry summer weather.

Attenuation Tanks

8.7 Attenuation tanks can help in temporarily storing surface water and restricting the discharge rate of surface water. As determined in Paragraph 7.21, a storage requirement of at least **20m³-27m³** would be required in order to meet greenfield run-off rate requirements.

8.8 A more detailed feasibility study and design of the tanks is required to be undertaken as part of a detailed Drainage Design.

Permeable Paving

8.9 Permeable Paving, similar to attenuation storage, helps in the temporary storage of surface water within the sub-base structure. It also helps in capturing carbon emissions, which, in turn, promotes sustainability within the site.

9. Foul Water Discharge

Introduction

9.1 It is proposed to install a new foul water drainage system to serve the development which will connect to the existing public foul water drainage.

9.2 The foul water from the proposed developments will be connected to the public sewer located on Ham Street.

9.3 The foul water system will be designed and constructed in accordance with the current Building Regulations, BS EN:752 drainage and sewer systems outside buildings, the local authority building control specifications and requirements, Sewers for Adoption 8th Edition and the Civil Engineering Specification for the Water Industry 7th Edition.

Foul Water Capacity and Point of Connection

9.4 The site proposes to connect to the existing Thames Water public foul water sewer located along Ham Street.

9.5 It is anticipated that foul water can discharge without any restriction.

9.6 Flow rate from the proposed development is assumed to not have any effect on the existing public foul sewer. A pre-development enquiry with the water authority will be required.

9.7 Connection to the existing Thames Water foul water sewer is subject to a S106 agreement from Thames Water.

Gravity Drainage System

9.8 Based on available information, it is anticipated that a gravity connection to the foul sewer network will be achievable based on the invert level of the existing Thames Water foul sewer Manhole.

10. Maintenance

10.1 The maintenance of the drainage system within the proposed development site will be managed by the owner of the proposed development. All maintenance operations should be carried out in accordance with the manufacturer's recommendations and maintenance guidance's.

Surface Water Drains

Maintenance Activity	Remedial Action	Inspection Frequency
Conducting checks on the structure of drains and clearing of dirt and slit within the drains.	Removing the dirt/silt as required and if required to restructure/replace the drains to optimise operation.	Take action as required

System Inlets

Maintenance Activity	Remedial Action	Inspection Frequency
Conducting checks on drainage rainwater pipes inlets, inspection chambers, for dirt/silt and blockages	Removing the dirt/silt/blockages as required to ensure continued operation and to prevent dirt/silt/blockages from entering the drains.	Minimum yearly inspections

Other SuDS Features

Maintenance Activity	Remedial Action	Inspection Frequency
Conducting checks on water butts for dirt/silt/blockages	Removing the dirt/silt/blockages from storage units if required. To repair/restructure the crates if necessary	Minimum yearly inspections

11. Conclusion

11.1 The proposed development is located within a Flood Zone 1, with a very low risk of river/sea flooding and a medium risk of surface water flooding.

11.2 The primary option for surface water disposal is via attenuation and discharge to the existing Thames Water surface water sewer along Ham Street at a restricted discharge rate of 1.0 l/s. This is subject to approval by London Borough of Richmond Upon Thames LLFA. This is subject to Section 106 approval from Thames Water.

11.3 The primary option for foul water is proposed to be discharged unrestricted to the existing Thames Water foul water sewer located along Ham Street. This is subject to approval by London Borough of Richmond Upon Thames LLFA. This is subject to Section 106 approval from Thames Water.

11.4 The implementation of alternative SuDS such as water butts, attenuation tanks and permeable paving will be proposed.

11.5 Additional Topographical, GPR and CCTV survey will need to be undertaken to identify and confirm the location and depth of the public assets located within the site and public highway.

11.6 A ground investigation and BRE 365 infiltration tests are recommended for the next stage of the project.

11.7 The development is accessible for emergency access and egress during times of extreme flooding as no potential flooding is evident on any of the access routes.

11.8 The Flood Risk Assessment is commensurate with the development proposals and in summary, the development can be considered appropriate for the Flood Zone in accordance with the NPPF.

Appendices

Appendix A: Existing and Proposed Site Plans

P+P Architects

27 Milford Mews
London SW16 2UA, UK

T. +44 787 606 34 18
E. michele@pplusparchitects.com

WOODWARD
NURSERY SCHOOL

4-6 Ham street

21/02/2023

P+P Architects

27 Milford Mews
London SW16 2UA, UK

T. +44 787 606 34 18
E. michele@pplusparchitects.com

LEGISLATION REFERENCE:

- **Statutory framework for the early years foundation stage, March 2021** ***Department for Education***

- **Advice on standards for school premises, March 2015** ***Department for Education***

P+P Architects

27 Milford Mews
London SW16 2UA, UK

T. +44 787 606 34 18
E. michele@pplusparchitects.com

BRIEF

Children under two years: 3.5m2 per child.

Two-year-olds: 2.5 m2 per child.

Children aged three to five years: 2.3 m2 per child.

AGE	m^2/child	children number	m^2	Description
1-2	n/a	5	9	sleeping room
1-2	3.5	5	17.5	baby room
2-3	2.5	10	25	class 1
3-4	2.5	16	40	class 2
4-5	2.3	15	34.5	class 3

P+P Architects

27 Milford Mews
London SW16 2UA, UK

T. +44 787 606 34 18
E. michele@pplusparchitects.com

ROOMS SCHEDULE

Room Description	Location	size m^2	note
Class 2	Level 00	49	
Class3	Level 00	37	
Lobby	Level 00	13	
Storage	Level 00	5	
Ktichen	Level 00	25	
Staff toilet	Level 00	6	no 1 wc+sink
children toilet/changing room	Level 00	7	nos 3wc +3 sinks
Class 1	Level 01	26	
Baby room	Level 01	17	
Sleeping room	Level 01	10	
Office with en-suite	Level 01	15	
Kitchenette/ staff room	Level 01	7	small kitchen /relax room
Sick bay	Level 01	5	
Changing room children	Level 01	5	

P+P Architects

27 Milford Mews
London SW16 2UA, UK

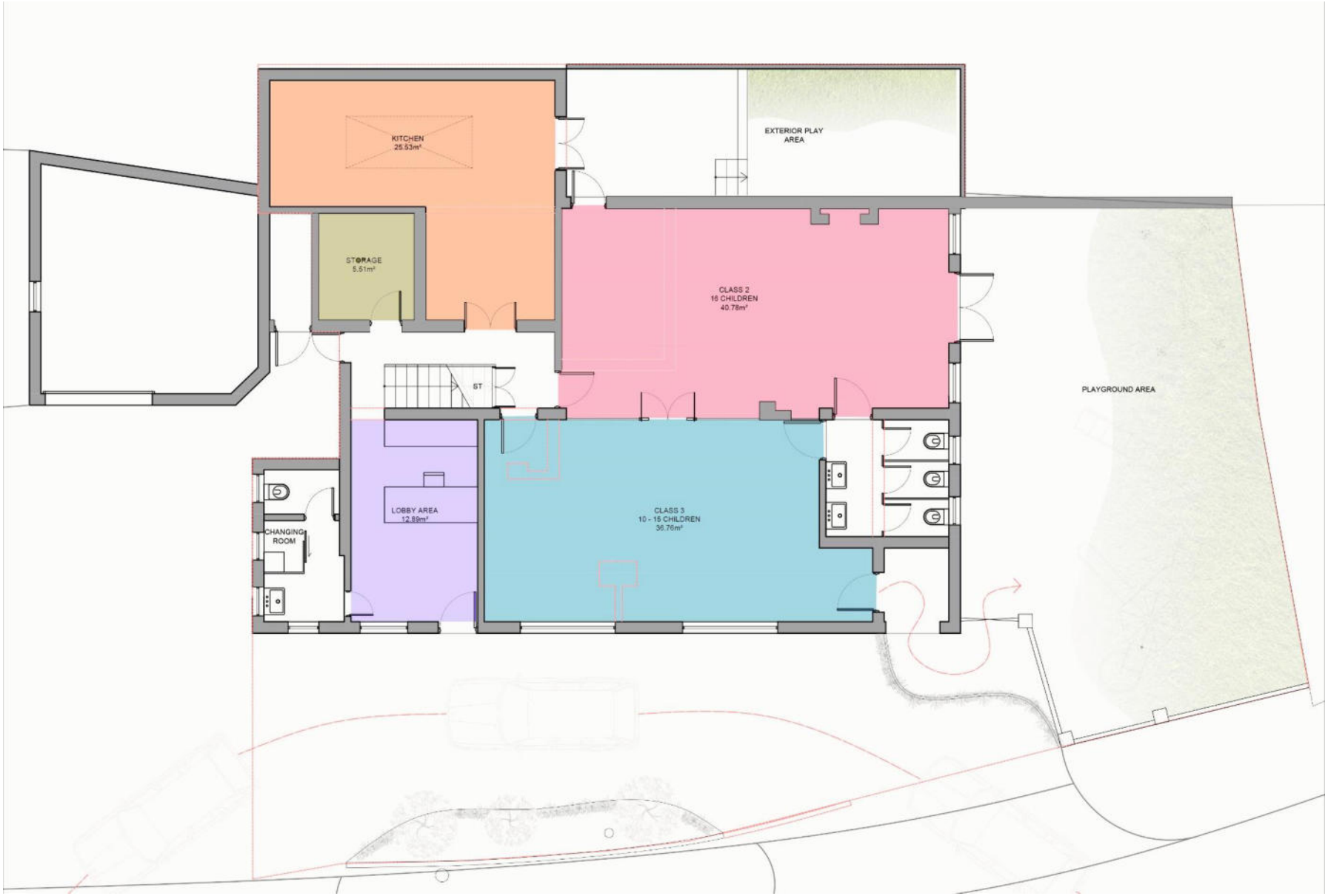
T. +44 787 606 34 18
E. michele@pplusparchitects.com

GROUND FLOOR PLAN

P+P Architects

27 Milford Mews
London SW16 2UA, UK

T. +44 787 606 34 18
E. michele@pplusparchitects.com



P+P Architects

27 Milford Mews
London SW16 2UA, UK

T. +44 787 606 34 18
E. michele@pplusparchitects.com

FIRST FLOOR PLAN

P+P Architects

27 Milford Mews
London SW16 2UA, UK

T. +44 787 606 34 18
E. michele@pplusparchitects.com

P+P Architects

27 Milford Mews
London SW16 2UA, UK

T. +44 787 606 34 18
E. michele@pplusparchitects.com

IMAGES REFRENCE

P+P Architects

27 Milford Mews
London SW16 2UA, UK

T. +44 787 606 34 18
E. michele@pplusparchitects.com

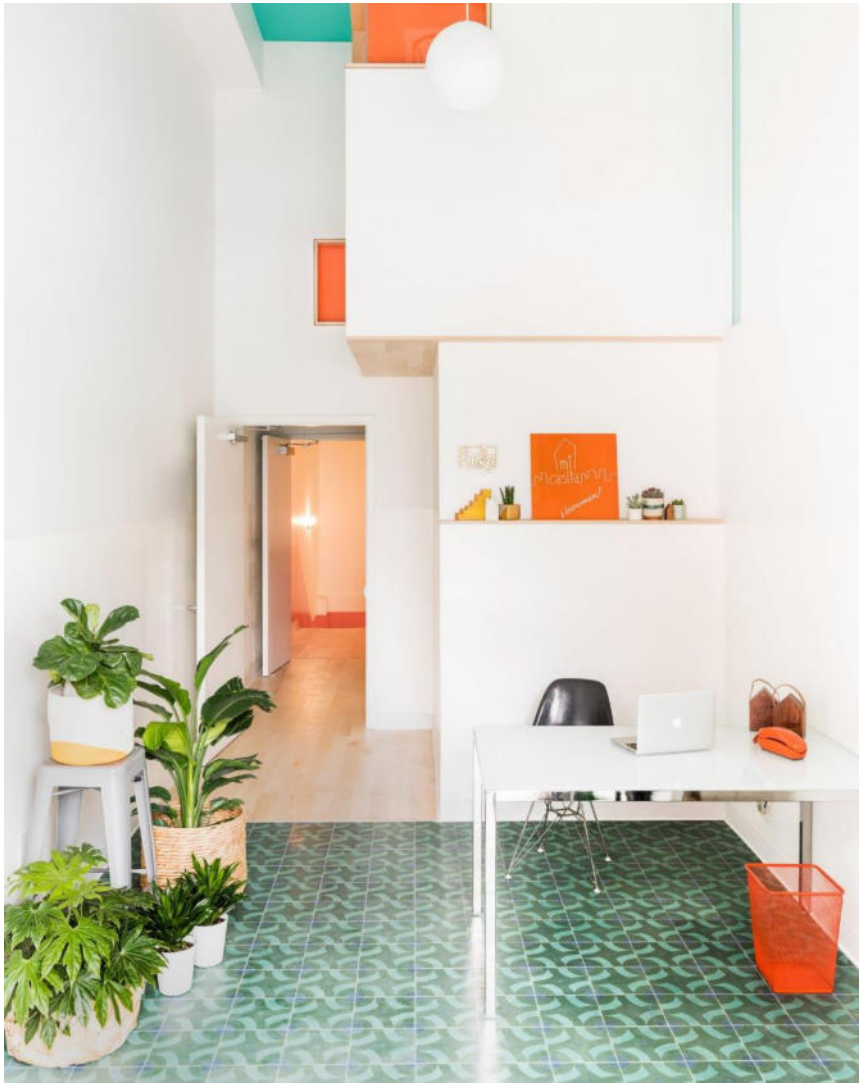


Figure 1 Lobby

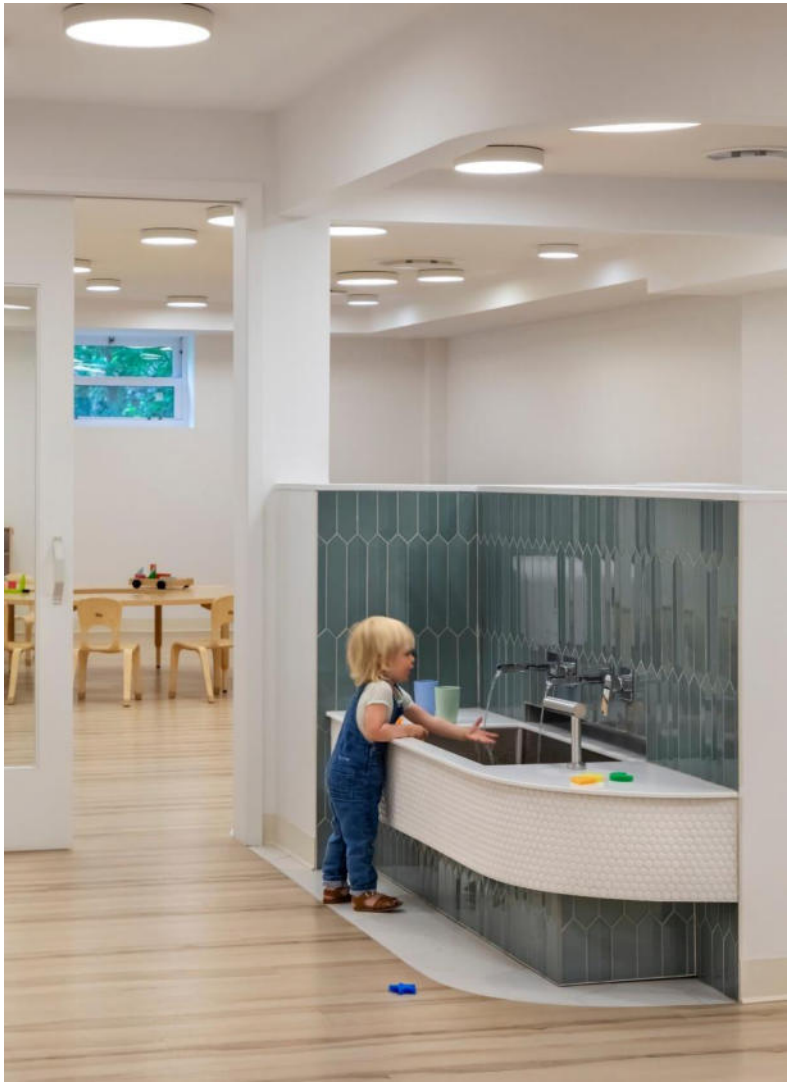


Figure 2 Water Play Area

P+P Architects

27 Milford Mews
London SW16 2UA, UK

T. +44 787 606 34 18
E. michele@pplusparchitects.com

Figure 3 Class 1-Small scale object for individual play

27 Milford Mews
London SW16 2UA, UK
T. +44 787 606 34 18
E. michele@pplusparchitects.com

Figure 4 Class 2-3

27 Milford Mews
London SW16 2UA, UK
T. +44 787 606 34 18
E. michele@pplusparchitects.com

Figure 5 Glass separation between Classes 2-3

27 Milford Mews
London SW16 2UA, UK
T. +44 787 606 34 18
E. michele@pplusparchitects.com

Figure 6 Class -Toilet access- low partition

27 Milford Mews
London SW16 2UA, UK
T. +44 787 606 34 18
E. michele@pplusparchitects.com

Figure 7 Playground

Appendix B: Thames Water Asset Records

Asset location search

Property Searches

Aval Consulting Group Limited
Newhaven Enterprise Centre
Denton Island
NEWHAVEN
BN9 9BA

Search address supplied The Ham Brewery Tap
4-6
Ham Street
Richmond
TW10 7HT

Your reference 92609

Our reference ALS/ALS Standard/2023_4882883

Search date 11 September 2023

Notification of Price Changes

From 1st April 2023 Thames water Property Searches will be increasing the prices of its CON29DW, CommercialDW Drainage & Water Enquiries and Asset Location Searches. Historically costs would rise in line with RPI but as this currently sits at 14.2%, we are capping it at 10%.

Customers will be emailed with the new prices by January 1st 2023.

Any orders received with a higher payment prior to the 1st April 2023 will be non-refundable. For further details on the price increase please visit our website at www.thameswater-propertysearches.co.uk

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

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

0800 009 4540

Asset location search

Property Searches

Search address supplied: The Ham Brewery Tap, 4-6, Ham Street, Richmond, TW10 7HT

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

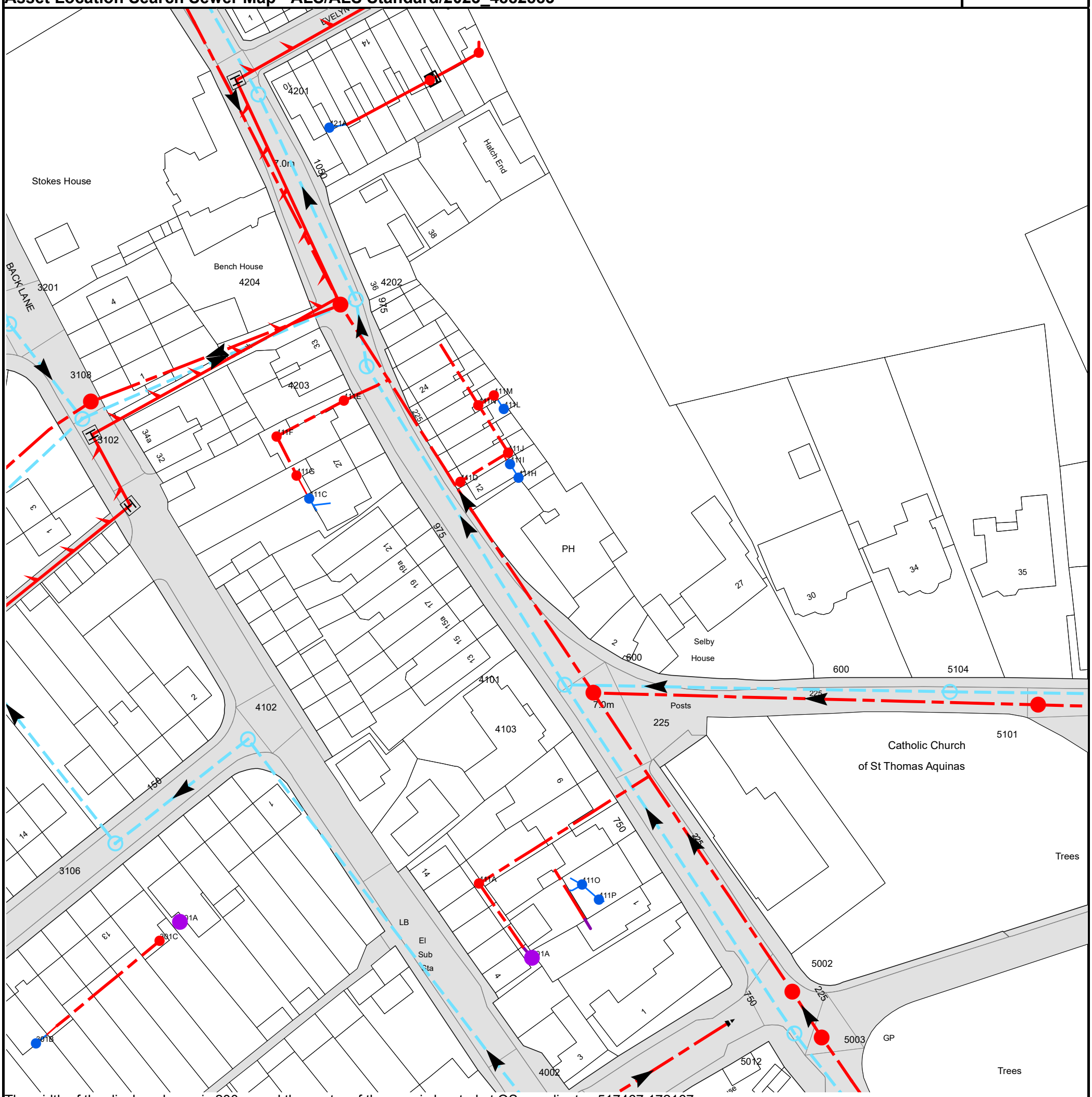
Clean Water queries

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/2023_4882883



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 517467,172167

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
5003	7.6	3.7
5012	7.67	4
5002	7.62	3.6
5101	6.82	3.69
5104	6.8	4.06
411D	n/a	n/a
411H	n/a	n/a
411G	n/a	n/a
411I	n/a	n/a
411J	n/a	n/a
411F	n/a	n/a
3102	6.7	4.63
411L	n/a	n/a
411N	n/a	n/a
3108	6.78	2.95
411E	n/a	n/a
411M	n/a	n/a
4203	6.97	3.51
3201	6.61	4.66
4204	7.05	3.02
4202	6.96	3.39
421A	n/a	n/a
4201	6.92	3.31
42ZV	n/a	n/a
42ZT	n/a	n/a
301B	n/a	n/a
3106	6.77	5.27
301C	n/a	n/a
301A	n/a	n/a
4102	6.95	5.59
411C	n/a	n/a
411A	n/a	n/a
401A	n/a	n/a
4101	7.07	3.62
411O	n/a	n/a
4103	7.1	3.33
411P	n/a	n/a

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

Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

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

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

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

- Storm Sewer
- Sludge Sewer
- Foul Trunk Sewer
- Surface Trunk Sewer
- Combined Trunk Sewer
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Vacuum
- Thames Water Proposed
- Vent Pipe
- Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

- Sewer
- Culverted Watercourse
- Proposed
- Decommissioned Sewer
- Content of this drainage network is currently unknown
- Ownership of this drainage network is currently unknown

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Meter
- Dam Chase
- Vent
- Fitting

Operational Controls

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

- Ancillary
- Drop Pipe
- Control Valve
- Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Inlet
- Outfall
- Undefined End

Other Symbols

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

- Change of Characteristic Indicator
- Public / Private Pumping Station
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Chamber
- Operational Site

Ducts or Crossings

- Casement

Ducts may contain high voltage cables. Please check with Thames Water.

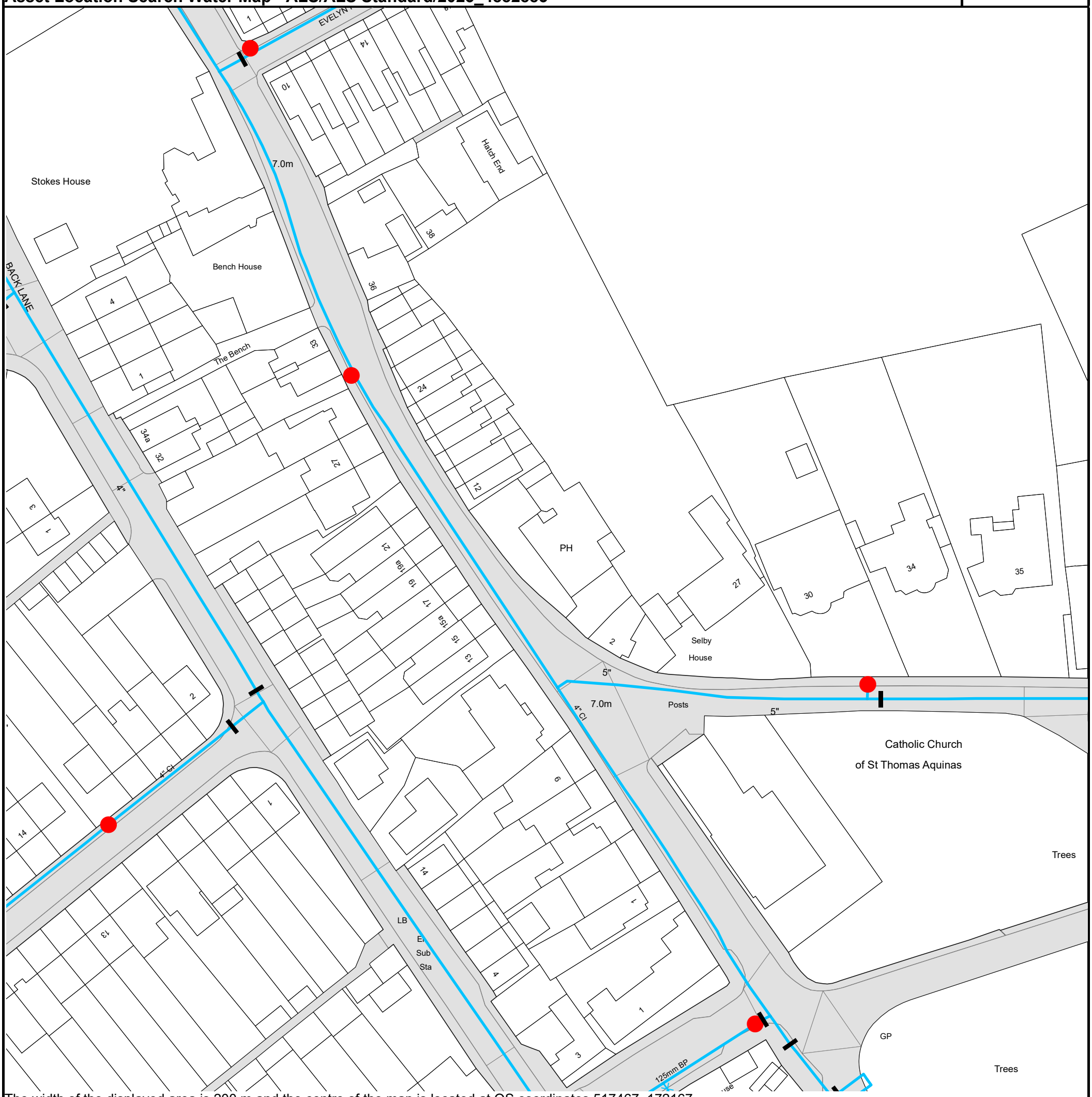
- Conduit Bridge
- Subway
- Tunnel

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plan are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement.

If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

Asset Location Search Water Map - ALS/ALS Standard/2023_4882883



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 517467, 172167.

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.

Asset Location Search - Water Key

Water Pipes (Operated & Maintained by Thames Water)

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

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.

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

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

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

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

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

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

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

Casement: Ducts may contain high voltage cables. Please check with Thames Water.

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.

Payment 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 within 14 days of the 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. 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'.
5. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
6. 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 still not satisfied with the outcome provided, we will refer the matter to a Senior Manager for resolution who will provide you with a response.

If you are still dissatisfied with our final response, and in certain circumstances such as you are buying a residential property or commercial property within certain parameters, The Property Ombudsman will investigate your case and give an independent view. The Ombudsman can award compensation of up to £25,000 to you if he finds that you have suffered actual financial loss and/or aggravation, distress, or inconvenience because of your search not keeping to the Code. Further information can be obtained by visiting www.tpos.co.uk or by sending an email to admin@tpos.co.uk.

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 0300 034 2222 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**
Please Call **0800 009 4540** quoting your invoice number starting CBA or ADS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number