

WE ARE SYMMETRYS

FLOOD RISK ASSESSMENT

41 SHELDON AVENUE
LONDON
N6 4JP

23135-SYM-XX-XX-RP-C-0001



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REVISION HISTORY

Revision	Description	Date	By	Checked
A	First Issue	16/10/2023	JS/SR	RF
B	Second Issue Updated Architectural Layouts	01/03/2024	SR	



1.0 Executive Summary

- 1.1 The site is located on 41 Sheldon Avenue, London, N6 4JP. The approximate easting and northing are 527558, 188073 respectively. The site area is approximately 1,600m².
- 1.2 The site does not lie within a Critical Drainage Area.
- 1.3 The development proposes partial demolition and reconstruction of the existing three storey house with the addition of a new basement level. The proposal includes a pedestrian and vehicle access, bike and bin store and a driveway.
- 1.4 The site is classified as a 'Non-Major Development', in accordance with the National Planning Policy Framework.
- 1.5 The site is located in Flood Zone 1 and is in an existing residential area.
- 1.6 With regard to the Sequential Test, the site lies within an existing residential area and the overall flood risk to the site is considered to be 'Low'. Proposed mitigation measures will make the development safe through its lifetime.
- 1.7 There is no requirement for an Exception Test to be carried out.
- 1.8 The overall flood risk (pre-development) to the site is assessed as 'Low'.
- 1.9 An assessment of the feasibility of the sustainable urban drainages (SuDS) has been conducted in accordance with the London Plan's drainage hierarchy.
- 1.10 The inclusion of flood resistance, resilience and mitigation techniques stated in this Flood Risk Assessment would reduce the impact of flooding.
- 1.11 The post-development overall flood risk to the site is considered to be 'Very Low'.

2.0 Introduction

- 2.1 This site-specific Flood Risk Assessment (FRA) has been prepared on behalf of Radcliffes Construction Consultants with regard to a planning application for a replacement to the existing dwelling at 41 Sheldon Avenue, London, N6 4JP.
- 2.2 The purpose of this FRA is to identify the flood risks associated with the site and propose the relevant mitigation measures where necessary.
- 2.3 The Lead Local Flood Authority (LLFA) is the London Borough of Haringey.
- 2.4 The proposed development does not lie within a Critical Drainage Area (Haringey Council Strategic Flood Risk Assessment, 2015).
- 2.5 This FRA has been prepared with reference to the National Planning Policy Framework (NPPF, 2021) and the National Planning Practice Guidance (NPPG, 2022).
- 2.6 This FRA references the London Plan 2021, the Haringey Council Strategic Flood Risk Assessment (SFRA, 2015), Haringey Council's Local Plan and the Surface Water Management Plan for the London Borough of Haringey (SWMP, 2011).

3.0 Scope of Flood Risk Assessment

3.1 National Planning Policy Framework (NPPF)

- 3.1.1 The National Planning Policy Framework (NPPF) was published in March 2012 and revised in July 2021. It sets out the government's planning policies for England and how they are expected to be applied. Chapter 14 'Meeting the challenge of climate change, flooding and coastal change' deals with planning for a low carbon future, taking full account of flood risk and coastal change.
- 3.1.2 Paragraph 161-163 of the NPPF states that all plans should apply a sequential, risk-based approach to the location of the development and manage any residual risk by considering a sequential test, and if necessary, an exception test. The sequential test aims to steer new development to areas with the lowest risk of flooding from any source. If this is not possible, the exception test may have to be applied.

- 3.1.3 Paragraph 167 of the NPPF states that when determining any planning application, the Local Authority should ensure flood risk is not increased elsewhere and, where appropriate, be supported by a site-specific flood risk assessment. In areas at risk of flooding, development should only be allowed if it can be demonstrated that (and in light of the sequential and exception tests, as applicable):

(a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;

(b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;

(c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;

(d) any residual risk can be safely managed; and

(e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

- 3.1.4 Footnote 55 in the NPPF states that a site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

- 3.1.5 The national planning practice guidance to the NPPF was launched as a web-based resource in March 2014 and last updated on 25 August 2022. The category dealing with flooding is contained in Flood Risk and Coastal Change (Reference ID: 7).

- 3.1.6 Paragraph 30 in the Flood Risk and Coastal Change Planning Practice Guidance (Reference ID: 7-030-20140306) advises that a site-specific flood risk assessment is carried out to assess the flood risk to and from a development site. The assessment should demonstrate how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its users.

- 3.1.7 Paragraph 1 in the Flood Risk and Coastal Change Planning Practice Guidance (Reference ID: 7-001-20220825) advises that "flood risk" is a combination of the probability and the potential consequences of flooding from all sources - including from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources. Flood risk also accounts for the interactions between these different sources.

3.2 Department for Environment, Food & Rural Affairs (DEFRA) and Environment Agency (EA) Guidance

- 3.2.1 Guidance from the Department for Environment, Food & Rural Affairs (DEFRA) and Environment Agency (EA), published on the Government's GOV.UK website, includes guidance on how to carry out a flood risk assessment entitled: 'Flood risk assessment in flood zones 2 and 3', 'Flood risk assessment in flood zone 1 and critical drainage areas', and 'Preparing a flood risk assessment: standing advice'. The guidance provides information on the range of factors that need to be considered when assessing flood risk.

- 3.2.2 For Flood Zone 1, the Environment Agency is to be consulted if the development is:

(a) within 20m of a main river on the Environment Agency flood map;

(b) in an area with critical drainage problems, other than minor development, as classed in the legislation.gov.uk website.

- 3.2.3 Based on the guidance detailed above, the EA has not been consulted for the purposes of this Flood Risk Assessment.



3.3 Strategic Flood Risk Assessment (SFRA)

3.3.1 Paragraph 160 of the NPPF states:

“Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.”

3.3.2 JBA Consulting completed a draft report of the Haringey Council Strategic Flood Risk Assessment in February 2015.

3.3.3 The SFRA assesses the flood risks and describes the general characteristics of the flooding and summarises the responses that can be made to flood risk together with policy and institutional issues that should be considered.

3.4 Local Plan Policies

3.4.1 Haringey's Local Plan is currently made up of the Strategic Policies, Development Management Policies, Site Allocations and Tottenham Area Action Plan, alongside the London Plan.

3.4.2 The Strategic Policy SP5 Water Management and Flooding states:

The Council will require all development in Haringey to be water efficient during construction and operation and to reduce all forms of flood risk. All development shall:

- *Improve the water environment, water quality and drainage systems;*
- *Minimise water use and illustrate how development would contribute to general and flash flooding;*
- *Take account of flood risk vulnerability classification as set out in paragraph 100 of the NPPF and will apply the NPPF Sequential Test and Exception Test;*
- *Implement measures to prevent (or mitigate as last resort) local surface water and downstream flooding;*
- *Implement Sustainable Drainage Systems from strategic to individual site level to improve water attenuation, quality and amenity;*
- *Restore and enhance the Blue Ribbon Network including Pymmes Brook, Moselle Brook, the River Lee and its tributaries, deculverting wherever feasible, to improve water quality and amenity of these waterways and to help reduce flood risk (in line with London River Action Plan); and*
- *Require higher resilience and levels of flood protection for critical infrastructure to ensure the protection of essential services such as water and power.*

In order to facilitate this, the Council:

- *Has carried out a joint SFRA (Strategic Flood Risk Assessment) Stage 1 for the whole borough;*
- *Has carried out a Sequential Test for the Areas of Development (Growth Areas and Areas of Change);*
- *Is carrying out, in association with other north London boroughs in the Drain London sub-region, a Surface Water Management Plan to identify issues with drainage networks and the effects of new development.*

3.4.3 The Development Management DPD Policy DM24 Managing and Reducing Flood Risk states:

A. The Council will ensure that all proposals for new development avoid and reduce the risk of flooding to future occupants and do not increase the risk of flooding.

B. All proposals for new development within Flood Zone 2 and 3a will be required to provide sufficient evidence for the Council to assess whether the requirements of the Sequential Test and Exception Test, where required, have been satisfied. Proposals must be informed by a site specific Flood Risk Assessment (FRA) taking account of all potential sources of flooding and should:

a. Demonstrate the application of a sequential approach for the development of individual sites to ensure that the most vulnerable land uses are located in areas of the site that are at lowest risk of flooding;

b. Preserve overland flood and flow routes and ensure there is no net loss of flood storage. Adequate flood storage and compensation should be provided on site, or if this is not possible, provided off site where circumstances allow;

c. Where appropriate, set out the mitigation measures that will be incorporated on site to manage residual flood risk including:

i. Finished floor levels set no lower than 300mm above the 1 in 100 chance in any given year, including an allowance for climate change, flood level; and

ii. Ensure safe access and egress for future users of the development or an appropriate emergency evacuation plan.

d. Contribute to naturalising watercourses where opportunities arise.

C. All proposals for new development will be required to:

a. Manage and reduce surface water run-off; and

b. Manage water and waste water discharges.

D. With the exception of water compatible uses and essential infrastructure, development in areas designated in Haringey's Strategic Flood Risk Assessment as being within Flood Zone 3b will not be permitted.

3.4.4 The Development Management DPD Policy DM25 Sustainable Drainage Systems states:

A. All proposals for new development must seek to manage surface water as close to its source as possible in line with the London Plan drainage hierarchy.

B. The Council will require Sustainable Drainage Systems (SuDS) to be sensitively incorporated into new development by way of site layout and design, having regard to the following requirements:

a. All major development proposals will be required to reduce surface water flows to a greenfield run-off rate for a 1 in 100 year critical storm event;

b. All minor development proposals should aim to achieve a greenfield run-off rate and, at a minimum, achieve a 50 per cent reduction on existing site run-off rates;

c. All other development should seek to achieve a greenfield run-off rate and include at least one 'at source' SuDS measure resulting in a net improvement in water quantity or quality discharging to a sewer; and

d. For all development where a greenfield runoff rate cannot be achieved justification must be provided to demonstrate that the run-off rate has been reduced as much as possible.

C. Where Sustainable Drainage Systems are implemented they will be expected to:

a. Meet the requirements set out in the Council's relevant local standards and guidance, or national standards where agreed;

b. Incorporate measures identified in the Surface Water Management Plan;

c. Be designed to maximise biodiversity and local amenity benefits, and where appropriate, ensure that SuDS techniques provide for clean and safe water at the surface;

d Improve water quality; and

e Function effectively over the lifespan of the development.

D Where SuDS cannot be implemented due to site constraints (such as land contamination or space limitations) robust justification must be provided along with proposed alternative sustainable approaches to surface water management.

3.4.5 The Development Management DPD Policy DM26 Managing and Reducing Flood Risk states:

A All proposals for new development within a Critical Drainage Area (CDA) will be required to incorporate measures to reduce the overall level of flood risk in the CDA.

B Proposals for new development within Local Flood Risk Zones must include a statement describing how flood risk issues have been addressed. The Council may require a further site-specific Flood Risk Assessment to assess risk, particularly from surface water flooding.

3.5 The Highgate Neighbourhood Plan, adopted by Haringey council on July 2017, Policy DH7: Basements states:

Where basement development does not fall in the scope of permitted development, and where there is evidence that there may be problems with drainage or flooding, applications for basement development will be supported only where they meet the requirements set out within this policy.

1. Impact Assessment requirements:

I. Any assessment on the impact of a basement development should demonstrate that:

- i There will be no adverse effect from subterranean development on the structural stability of adjacent properties and associated potential damage;*
- ii There will be no possibility of irreparable damage to the local water regime both in terms of ground water diversion and surface water flooding;*
- iii There will be no individual or cumulative impact of development on the character and biodiversity of gardens and adjacent open spaces, particularly in designated conservation areas and those areas adjacent to Highgate's Major Open Spaces (identified in 3.4.2).*
- II. Where there is evidence that there have been problems with drainage or flooding, or desk top surveys indicate problems may arise, applicants will be required to demonstrate to the satisfaction of the LPA that development will not cause or exacerbate such problems.*

III. Under no circumstances should construction be allowed to proceed where there is evidence that damage to neighbouring properties would exceed Burland Scale 1.

2. Protection for Neighbours: Where a Construction Management Plan (CMP) is secured, it should be submitted, and must be approved by the LPA, prior to the commencement of works.

3. Limiting Environmental/Ecological Impacts:

- I. Any basement development should normally be expected to allow for a minimum of one metre of permeable soil above any part of the basement beneath a garden to support biodiversity and larger trees/planting. This depth should be greater if necessary to preserve landscaping consistent with neighbouring properties.*
- II. All basement developments should incorporate a positive pumped device or other suitable flood prevention device to avoid the risk of sewage backflow causing sewer flooding.*

3.6 Capita Symonds conducted a Surface Water Management Plan for the London Borough of Haringey. The report outlines the preferred surface water management strategy for the borough.

4.0 Existing Development

4.1 Existing Site and Location

4.1.1 The site is located on 41 Sheldon Avenue, London, N6 4JP. The approximate easting and northing are 527558, 188073 respectively. The location is marked in red on Figure 1, below.



Figure 1: Site Location (©Google Maps, 2022)

4.1.2 The site, located just next to the junction between Sheldon Avenue and Denewood road, accommodates a 1920s-1930s four-bedroom detached property. The overall site is approximately 1,600m² (0.16 hectares). A site photo is shown in Figure 2, below.



Figure 2: Site Photo (©Google Maps, 2022)

- 4.1.3 The online Brownfield Site Register (LONDON.GOV, 2022) does not classify the site as brownfield.

4.2 Existing Drainage

- 4.2.1 Figure 3 shows the Thames Water Asset Location Search extract. The full Asset Location Search is contained in Appendix A.
- 4.2.2 There is a 305mm diameter foul sewer and a 300mm diameter surface sewer running from South to North along Sheldon Avenue.
- 4.2.3 As there are no proposed works within 3.0m of a public sewer or 1.0m of a lateral drain, a Thames Water Build Over Agreement is not deemed to be required.



Figure 3: Thames Water Asset Location Map

- 4.2.4 A below ground drainage CCTV survey was conducted by The Drainage Lab in September 2023, the findings are contained in Appendix B. The site is served by a separate foul and surface water drain system. There is no existing combined connection to the public sewer along Sheldon Avenue. It is assumed the connection is to the 305mm diameter public foul sewer.

4.3 Existing Levels

- 4.3.1 A tree survey was conducted by John Cromar's Arboricultural Company LTD, dated August 2016. The survey is appended in Appendix C.
- 4.3.2 There are insignificant level differences from front to the rear of the site. The high points are located at the front and rear of the site with levels of 100.40m. There are a series of steps leading from the house to the rear garden and the low point is on the northern edge of the rear garden with a level of approximately 99.17m.
- 4.3.3 The development proposal is at the front of the site. The development area is flat as it is replacing an existing building.
- 4.3.4 The London Borough of Haringey Surface Water Management Plan (SWMP) Figure 1-4 *LiDAR Representation of the Topography within Haringey* shows that the site is situated within an area of terrain height between 76 to 152m AOD.

4.4 Geology, Hydrology and Hydrogeology

- 4.4.1 The British Geological Survey© NERC online geological mapping indicates that the site consists of bedrock geology only. The bedrock layer is of the Claygate Member – clay, silt and sand. It comprises of dark grey clays with sand laminae, passing up into thin alternations of clays, silts and fine-grained sand, with beds of bioturbated silt.
- 4.4.2 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 Soilsdapes dataset map, shown in Figure 4, indicates that soils in the area are 'Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils'. These soils are identified as having 'impeded' drainage which means that soils have a tight, compact deep subsoil that impedes downward water movement; after heavy rainfall, particularly during the winter, the subsoil becomes waterlogged.

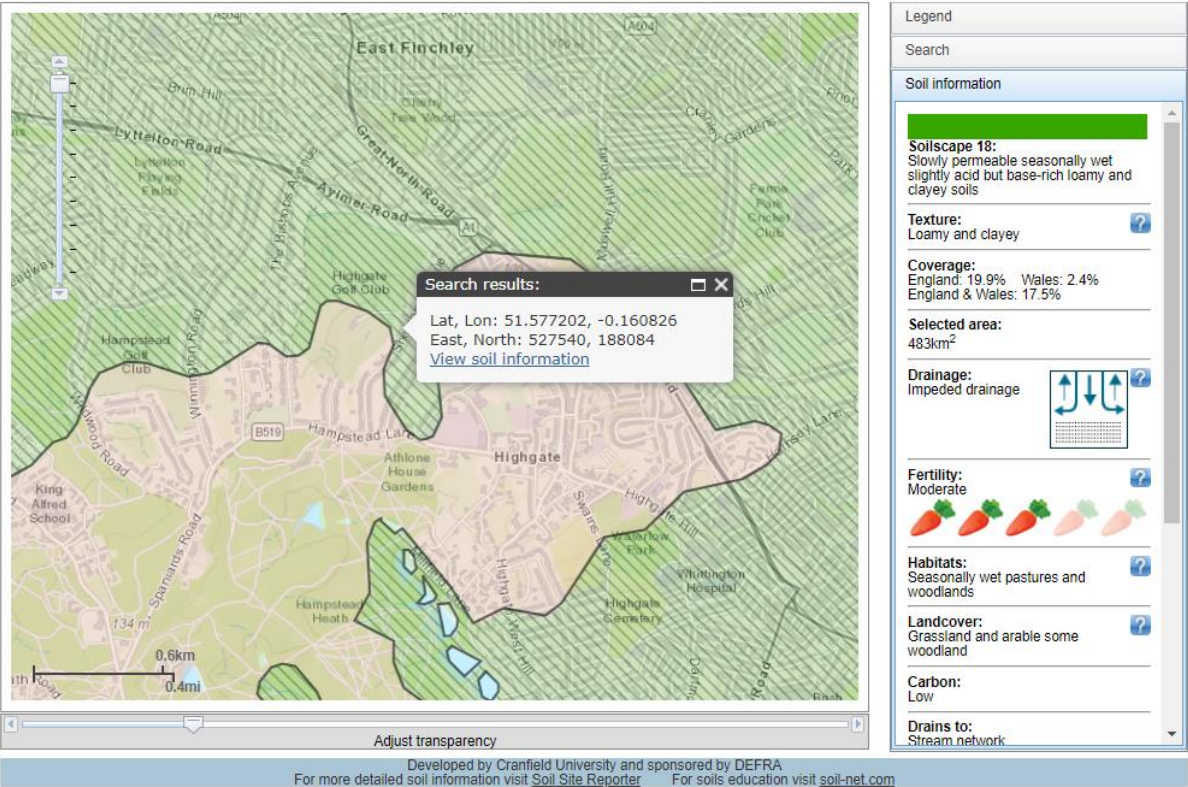


Figure 4: Soilscape Map

- 4.4.3 A Ground Investigation is currently underway and will inform the site's geology.
- 4.4.4 The British Geological Survey Borehole Data website (BGS.ac.uk, 2023) contains borehole information. The nearest boreholes to the site are approximately 255m north, copies are reproduced in Appendix D. 3no. 0-10m deep and 1no. 10-30m deep boreholes show the following (approximates based on a summary of the borehole information):

Depth (metres below ground level)	Water	Strata
0-0.25	Dry	Made ground – grass or tarmac
0.25-0.50	Dry	Made ground – soft to firm sandy silty clay, fine to medium gravel, brick and concrete fragments
0.50-9.00	Dry	Clay – soft becoming firm silty clay
9.00-10.00	Dry	Claystone – weak claystone nodules in a matrix of silty clay
10.00-20.00	Wet from 19.55 to 20.00	Clay – stiff becoming stiff to very stiff silty clay with occasional partings of silty fine sand and scattered small gypsum crystals

Table 1: Summary of nearest borehole information (BGS, 2023)

- 4.4.5 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. The aquifer designation dataset identifies different types of aquifers- underground layers of water-bearing permeable rock or drift deposits from which groundwater can

be extracted. These designations reflect the importance of aquifers in terms of groundwater as a drinking water supply and their role in supporting surface water flows and wetland ecosystems. An inspection of the MAGIC map shows that the site lies within an area of Bedrock aquifer designation.

- 4.4.6 Figure 5, below, shows the site is within a 'Secondary A' bedrock aquifer designation. 'Secondary A' aquifers are comprised of permeable layers that can support local water supplies and may form an important source of base flow to rivers.

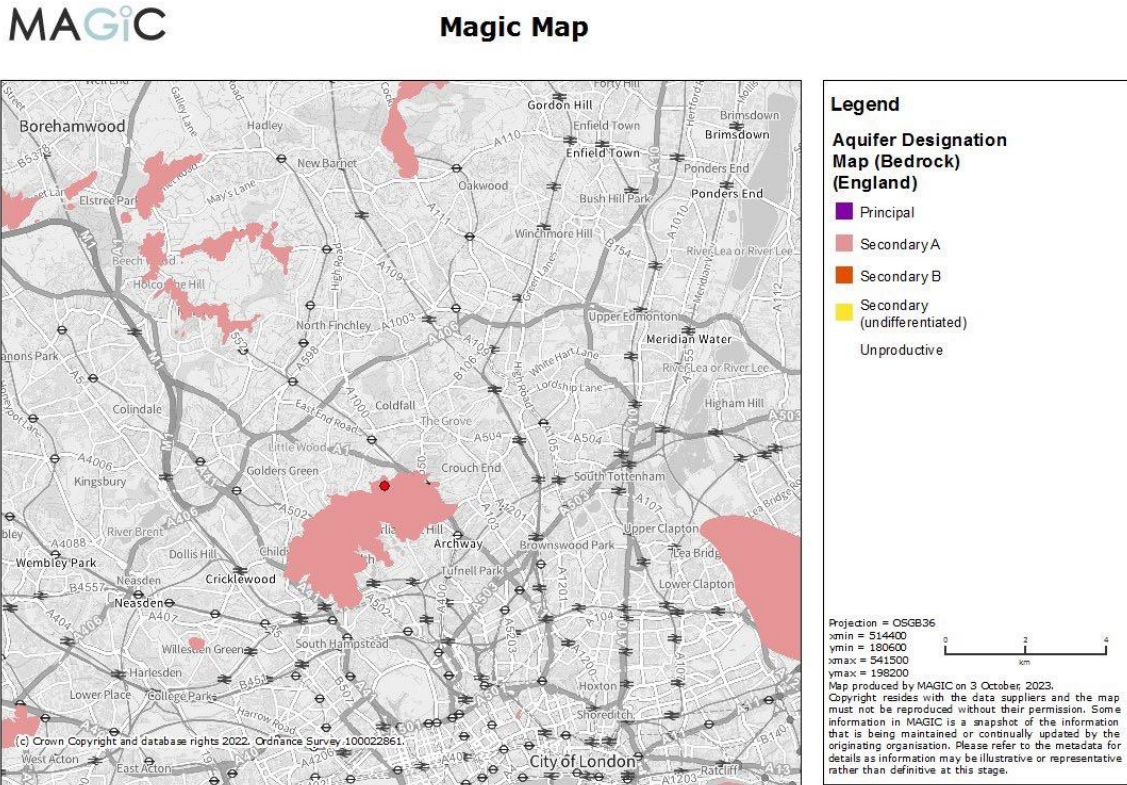


Figure 5: Aquifer Designation – Bedrock (MAGIC.defra.gov.uk, 2023)

- 4.4.7 Source Protection Zones (SPZs) are used to provide additional protection to safeguard drinking water quality through constraining the proximity of an activity that may impact upon a drinking water abstraction. From the Department for Environment, Food & Rural Affairs (DEFRA) Source Protection Zones dataset on the MAGIC website, the site is not located within or near a SPZ.
- 5.0 Development Layout
- 5.1 A copy of the Proposed Site Plan by Marek Wojciechowski Architects is reproduced in Appendix E.
- 5.2 The development proposes to demolish and replace the existing three storey building with a new dwelling with basement, pedestrian and vehicle access, a driveway, and a swimming pool. The proposed dwelling consists of three floors, plus a basement. The ground floor consists of the living room and dining room. The first and second floors are to have bedrooms. The basement is to have living spaces as well as a guest bedroom.
- 6.0 Flood Risk Vulnerability and Flood Zone ‘Compatibility’
- 6.1 The site lies entirely within Flood Zone 1. A copy of the flood map for planning is contained in Appendix F.

- 6.2Paragraph 051 of the Flood Risk and Coastal Change Planning Practice Guidance classifies non-major developments as “any development falling below the ‘Major Development’ thresholds but excluding minor developments”. The development involves replacing the existing dwelling and the site area is approximately 1,600m² (0.16 hectares), therefore, for the purposes of this FRA, the development is classified as ‘Non-major’ in relation to flood risk.
- 6.3Guidance on the lifetime of development is provided at paragraph 006 in the Flood Risk and Coastal Change Planning Practice Guidance (Reference ID: 7-006-20220825); residential developments should be considered for a minimum of 100 years unless there is specific justification for considering a shorter period. Therefore, for the purposes of this FRA, the proposal is considered to have a lifetime of a minimum of 100 years.
- 6.4The National Planning Policy Framework Annex 3: Flood risk vulnerability classification is reproduced in Table 2, below. For the purposes of this FRA, the proposal is considered ‘More Vulnerable’.

NPPF Annex 3: Flood Risk Vulnerability Classification – More Vulnerable	
Hospitals	
Residential institutions such as residential care homes, children’s homes, social services homes, prisons and hostels	
Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs, and hotels	
Non-residential uses for health services, nurseries and educational establishments	
Landfill* and sites used for waste management facilities for hazardous waste	
Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan	

Table 2: Flood Risk Vulnerability Classification

*Landfill is as defined in [Schedule 10 of the Environmental Permitting \(England and Wales\) Regulations 2010](#).

- 6.5With reference to Paragraph 079 (Reference ID: 7-079-20220825) Table 2: *Flood risk vulnerability and flood zone ‘compatibility’*, ‘More Vulnerable’ developments in Flood Zone 1 is appropriate. A screenshot is given below:

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

Key:

✓ Exception test is not required

X Development should not be permitted

Notes to table 2:

- This table does not show the application of the [Sequential Test](#) which should be applied first to guide development to the lowest flood risk areas; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and [Exception Tests](#) do not need to be applied to those developments set out in [National Planning Policy Framework footnote 56](#). The Sequential and Exception Tests should be applied to ‘major’ and ‘non major’ development;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

“†” In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

“*” In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

Figure 6: NPPG Table 2

- 6.6Haringey Council’s Strategic Flood Risk Assessment Table 6-2, reproduced as Figure 7 below, describes the basement property type and recommends whether each type is suitable depending on its location in the EA Flood Zones, the LB of Haringey SWMP surface water maps and the iPEG (Increased Probability of Emergence of Groundwater) maps.

Table 6-2 Basement Property Types and Flood Risk

Property Type	Type of Development	Fluvial				LB of Haringey SWMP Surface Water Maps				Reservoir	Groundwater
		FZ3a	FZ3b	FZ2	FZ1	30yr > 0.1m	30yr > 0.3m	200yr > 0.1m	200yr > 0.3m	NRIM	Permeable Superficial Deposits
Type 1	Self Contained Basement Dwelling	✗	✗	✗	✓	✗	✗	✗	✗	✓ (i) (ii)	✗
	Permitted Development Basement is less than 3 metres depth and does not extend beyond the footprint of the original building.	✓ (i)	✗	✓ (i)	✓ (i)	✓ (i)	✓ (i)	✓ (i)	✓ (i)	✓ (i) (ii)	✓ (i)
Type 2	Householder Application Larger than the dimensions of permitted development; greater than 3 metres in depth and extends beyond 3-4 metres outside of the footprint of the original building.	✗	✗	✓	✓	✓	✓	✓	✓	✓ (ii)	✓
Type 3	New Building (Usually a new house) One level basement below footprint of the new house and less than 4 metres beyond the rear main wall of the building.	✗	✗	✓	✓	✓	✓	✓	✓	✓ (ii)	✓
Type 4	New Building with basement excavation Boundary to boundary excavation and/or more than one level and projecting beyond the building footprint of the original building.	✗	✗	✓	✓	✓	✓	✓	✓	✓ (ii)	✓
✗	Development should not be permitted										
✓	The LB of Haringey should, as a minimum maintain a register in conjunction with Building Control of subterranean development that falls under permitted development rights, existing and proposed, to monitor the potential cumulative impact of subterranean development on the drainage regime. Prior to commencement of construction on basement development, assessments shall be submitted and approved by the London Borough of Haringey to demonstrate: - There are suitable assessments to demonstrate there is no risk from surface water, groundwater and/ or fluvial flooding. - Basement extensions in flood risk areas do not contain sleeping accommodation. - There is an internal access to upper levels from the basement extension.										
(i)	It is recommended that regulation of basement development be applied through the building control process.										
(ii)	If the proposal lies within a RIM outline a reservoir breach analysis should be included in a FRA. RIM outlines can be found at http://www.environment-agency.gov.uk/homeandleisure/floods/default.aspx										
✓	The LB of Haringey should, as a minimum maintain a register in conjunction with Building Control of subterranean development that falls under permitted development rights, existing and proposed, to monitor the potential cumulative impact of subterranean development on the drainage regime.										
✓	A FRA appropriate to the size and scale of the basement extension will be required to support the planning application.										
✓	A FRA appropriate to the size and scale of the basement extension will be required to support the application, the FRA should be able to demonstrate that there will be no increase in surface water run off as a minimum, with an aim to reduce the overall surface water run off from the proposed development.										
✓	There should be no sleeping accommodation in the basement extension and internal access can be provided to upper levels. A FRA must be submitted for approval In addition, it should be shown that there is egress from the development to an area outside of National Reservoir Inundation mapped flood outline.										
✓	The FRA will need to demonstrate that the basement extension does not impact upon the existing hydro geological regime and that flood risk from groundwater is not increases to the development or to third parties.										

Figure 7: Basement Property Types and Flood Risk

- 6.7 According to the *Basement Property Types and Flood Risk* table, above, for Type 3 *New Building* developments in FZ1, assessments shall demonstrate:
 - There is no increase in surface water runoff, as a minimum, with an aim to reduce the overall surface water runoff from the proposed development.
 - If the property lies within a NRIM outline - there should be no sleeping accommodation in the basement extension and internal access can be provided to the upper levels.
 - The basement extension does not impact upon the existing hydro geological regime and that flood risk from groundwater is not increased to the development or to third parties.
- 7.0 **Climate Change**
- 7.1 The NPPF requires development to take account of the impacts of climate change. The allowances to be made for climate change effects when assessing flood risk are related to the lifetime of the development.
- 7.2 Guidance from the Environment Agency titled ‘Flood risk assessments: climate change allowances’ was published in February 2016. Climate change allowances are predictions of anticipated change for peak river flow, peak rainfall intensity, sea level rise, offshore wind speed and extreme wave height. There may be circumstances where local evidence supports using other data or allowances. Climate change allowances are set out below.
- 7.3 **Peak River Flow Allowances**
- 7.3.1 Peak river flow allowances show the anticipated changes to peak flow based on the site’s management catchment. The site lies in the London Management Catchment (Department for Environment Food and Rural Affairs, 2022). However, the site is in Flood Zone 1 and has a ‘low’ probability of flooding from rivers and the sea.
- 7.4 **Peak Rainfall Intensity Allowances**
- 7.4.1 Drainage systems need to be designed to make sure there is no increase in the rate of runoff discharged from the site for the upper end allowance. As a minimum, there should be no significant flood hazard to people from on-site flooding for the central allowance. According to the Environment Agency guidance on climate changes allowances, for developments with a lifetime of beyond 2100, FRAs should consider the upper end allowance for both the 1.0% and 3.3% annual exceedance probability events for the 2070s epochs (2061–2125).

Range	Total potential change anticipated for 2010 to 2039	Total potential change anticipated for 2040 to 2059	Total potential change anticipated for 2060 to 2115
Upper End	10%	20%	40%
Central	5%	10%	20%

Table 3:Peak rainfall intensity allowance in small catchments (less than 5km2) or urban drainage catchments (based on a 1961 to 1990 baseline) shows the total potential change anticipated for the 2080s (2070 to 2115) is 20% for the central category and 40% for the upper end category

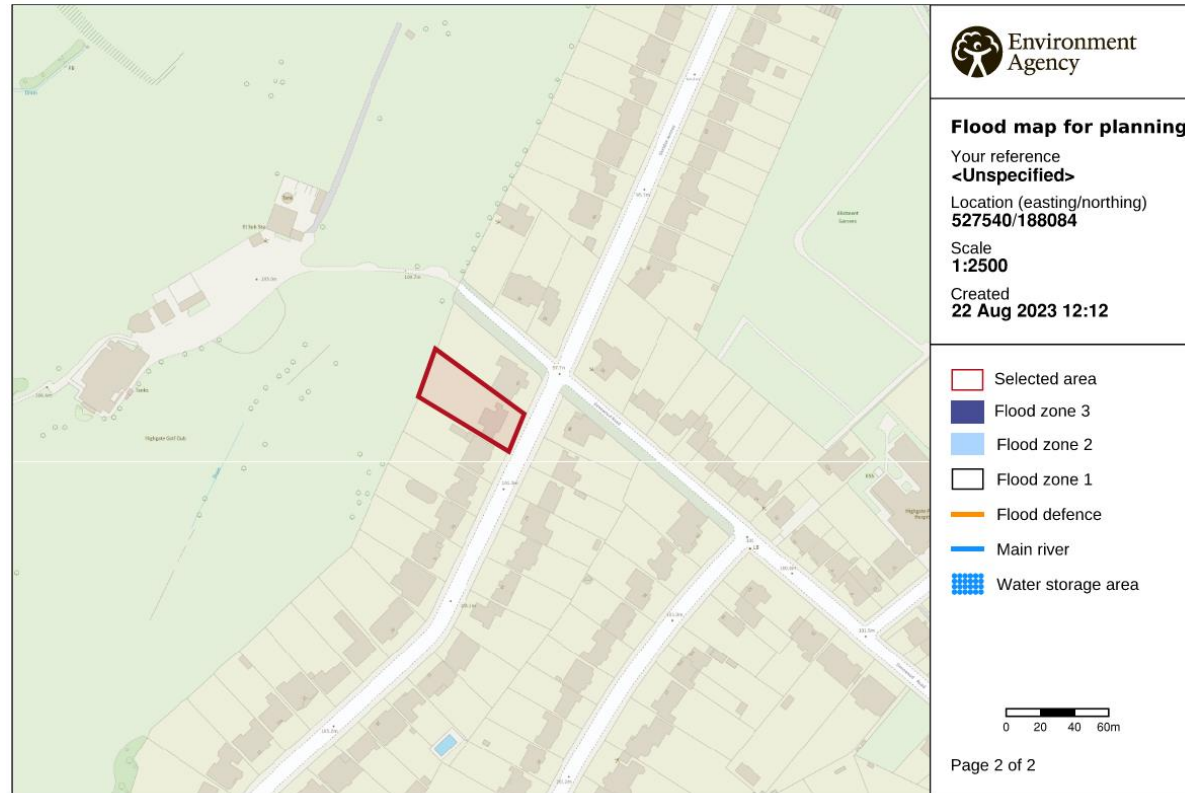
8.0 The Sequential Test and Exception Test

- 8.1 With reference to paragraph 023 (Reference ID: 7-023-20220825) of the Flood Risk and Coastal Change Planning Practice Guidance (NPPG), the sequential approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk.
- 8.2 With reference to paragraph 024 (Reference ID: 7-024-20220825), the proposal is within an existing residential development and is considered to be in a low flood risk area- this is further explained in Section 9.0 of this FRA.
- 8.3 With reference to paragraph 032 (Reference ID: 7-030-20220825), Table 2 of the NPPG (Figure 6) indicates an Exception Test is not required for the proposal.

9.0 Site Specific Flood Risk

9.1 Flooding from Rivers and Sea

- 9.1.1 Fluvial flooding is caused by rivers, watercourses or ditches overflowing. It can also be caused by excessive snow melt or exacerbated by high tides and storm surges for rivers with tidal influences.
- 9.1.2 The Environment Agency’s Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences, and show the extent of the natural floodplain and the additional extent of an extreme flood. In Flood Zone 1 (“Low Probability”), there is a less than 1 in 1000 chance of river and sea flooding occurring each year.
- 9.1.3 The Environment Agency’s Flood Map for Planning, reproduced in Figure 8 and contained in Appendix F, indicates that the site is unaffected by any floodplain and falls entirely within Flood Zone 1 where flooding from rivers and the sea is ‘very unlikely’.



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Figure 8: EA Flood Map for Planning

9.1.4 The probability of flooding from rivers and sea is assessed as 'Very Low'.

9.2 Flooding from Surface Water

9.2.1 Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead, resulting in overland flow or ponding. Overland run-off follows the gradient of the land, whereas ponding occurs when overland flows reach low lying areas. These flood events tend to have a short duration and depend on factors such as geology, topography, rainfall, saturation, extent of urbanisation and vegetation.

9.2.2 The Environment Agency's Risk of Flooding from Surface Water map for the proposed development, taken from the GOV.UK website, is shown in Figure 9. The figure shows minimal areas of the site at 'Medium Risk' with the majority of the site at 'Low' or 'Very Low' risk of flooding from surface water. The adjacent property has areas of 'High Risk'. Where the vehicle and pedestrian access are proposed, the risk of surface water flooding is 'Very Low'.

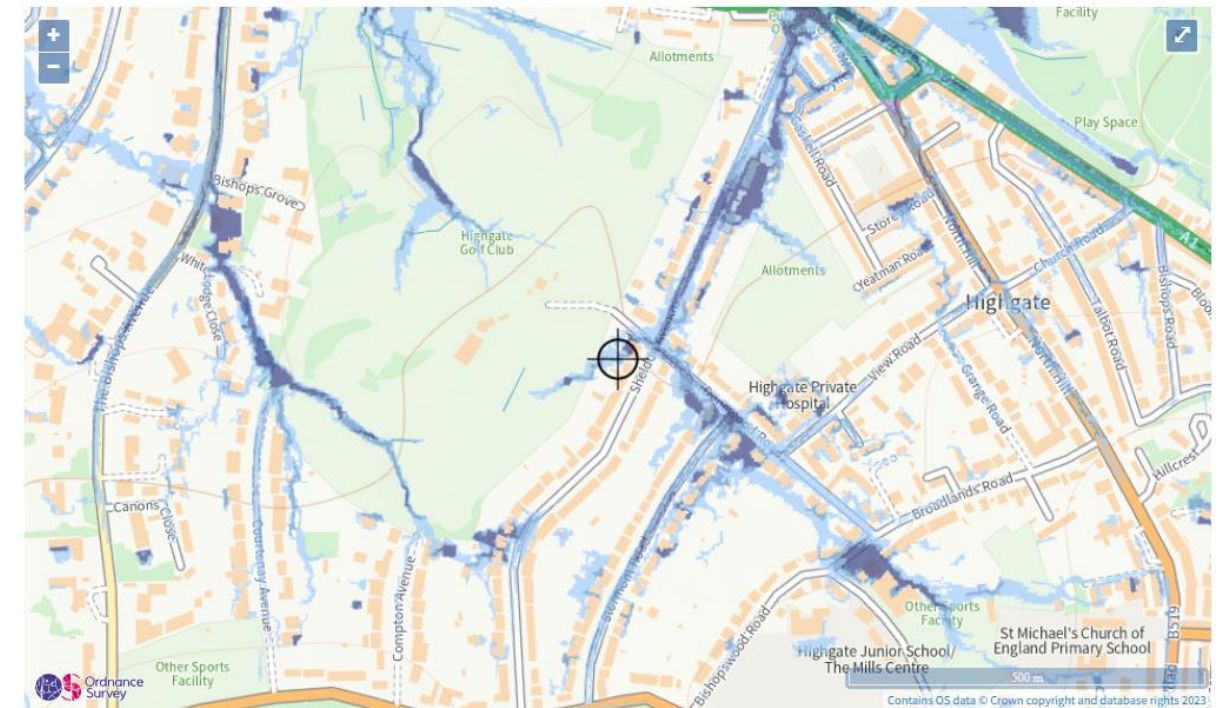
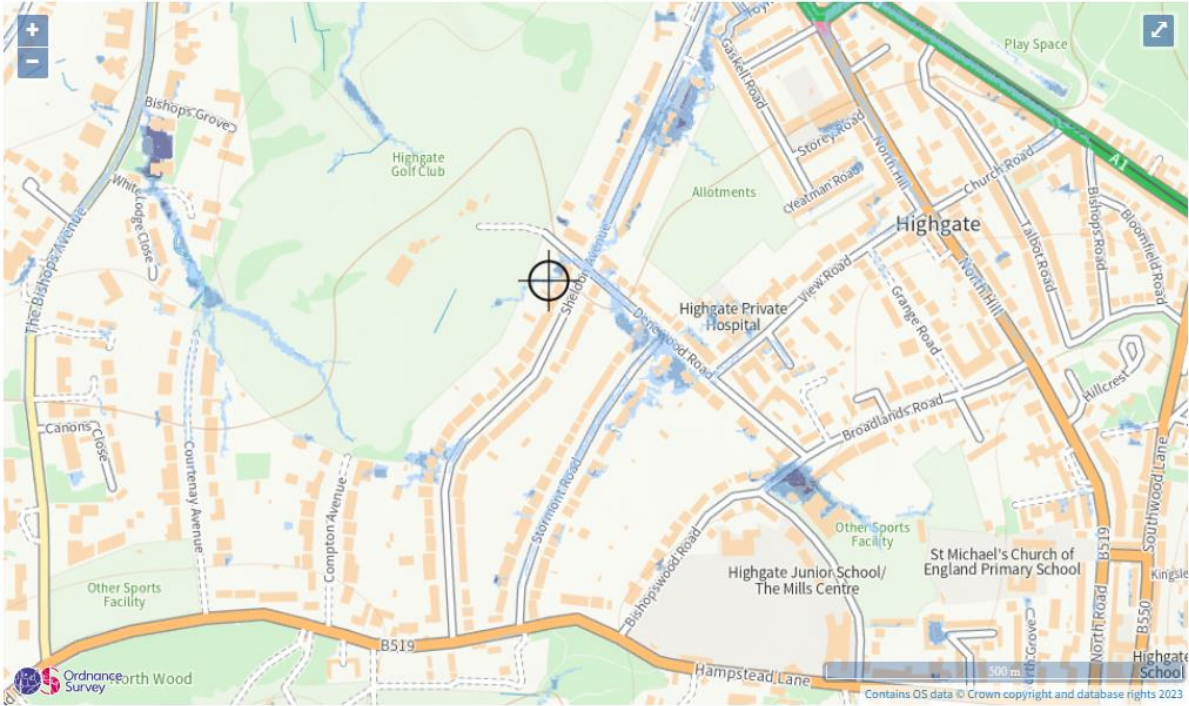


Figure 9: Surface Water Flooding – Extent (GOV.uk, 2023)

9.2.3 The GOV.UK's website reports the highest risk from surface water within the property's boundary is 'Medium'. 'Medium' risk means the area has a chance of flooding between 1% and 3.3% each year. This accounts for ponding or flowing over the ground surface before water enters the underground drainage network or a watercourse.

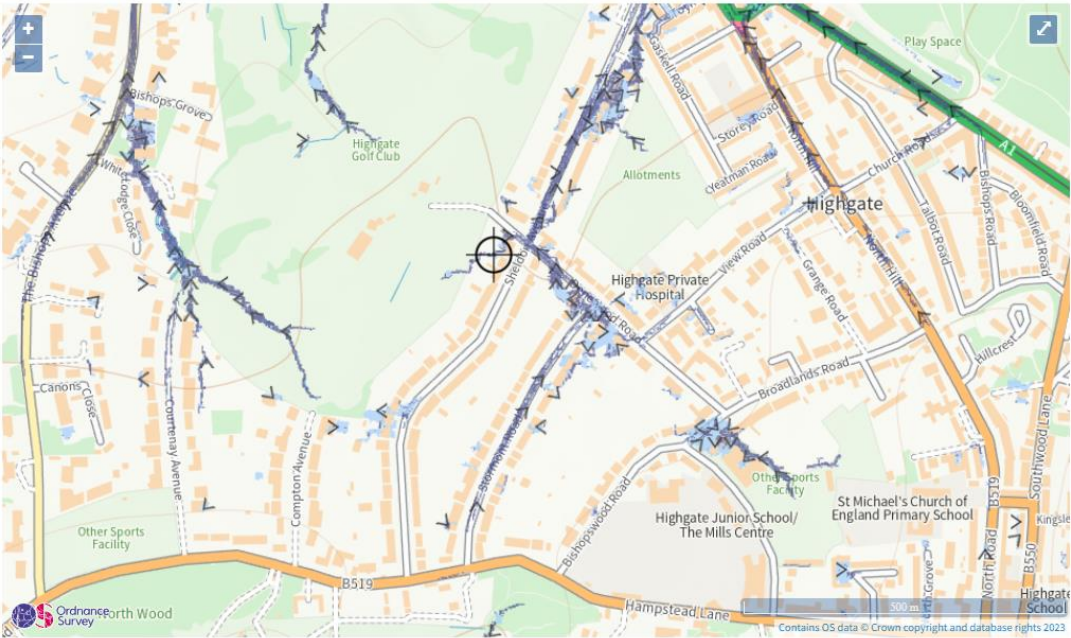
9.2.4 Figure 10 shows that, for the Medium-risk scenario, the rear of the property would be subject to surface water flood depths would below 300mm. The rest of the property is at 'Very Low' flood risk.



Surface water flood risk: water depth in a medium risk scenario
Flood depth (millimetres)

● Over 900mm ● 300 to 900mm ● Below 300mm ⊕ Location you selected

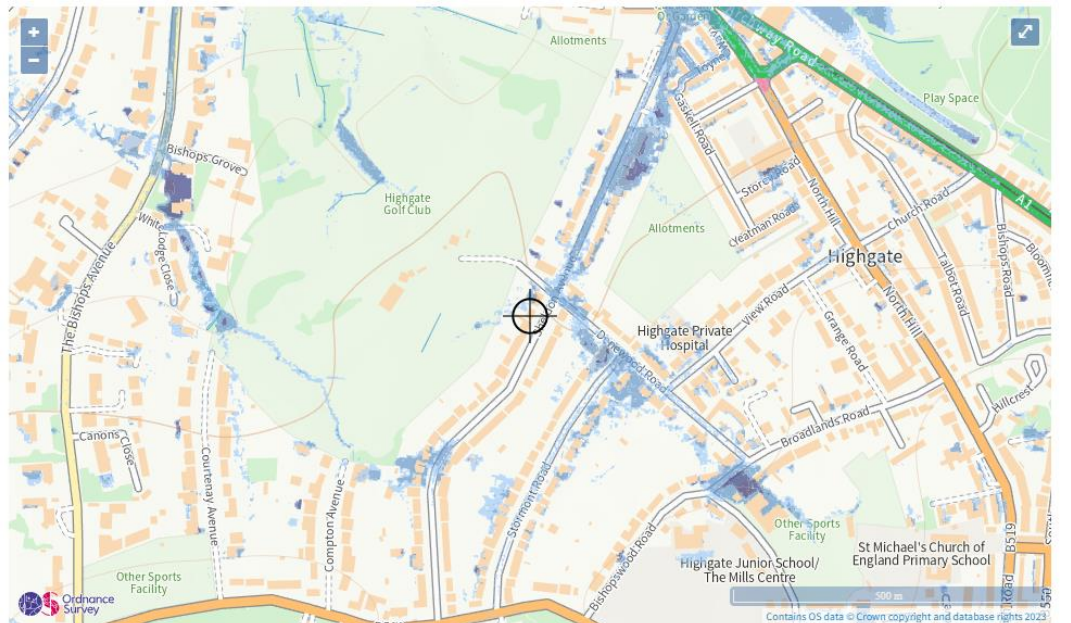
Figure 10: Surface Water Flooding – Medium Risk – Depths (GOV.uk, 2023)



Surface water flood risk: water velocity in a medium risk scenario
Flood velocity (metres/second)

● Over 0.25 m/s ● Less than 0.25 m/s ↗ Direction of water flow ⊕ Location you selected

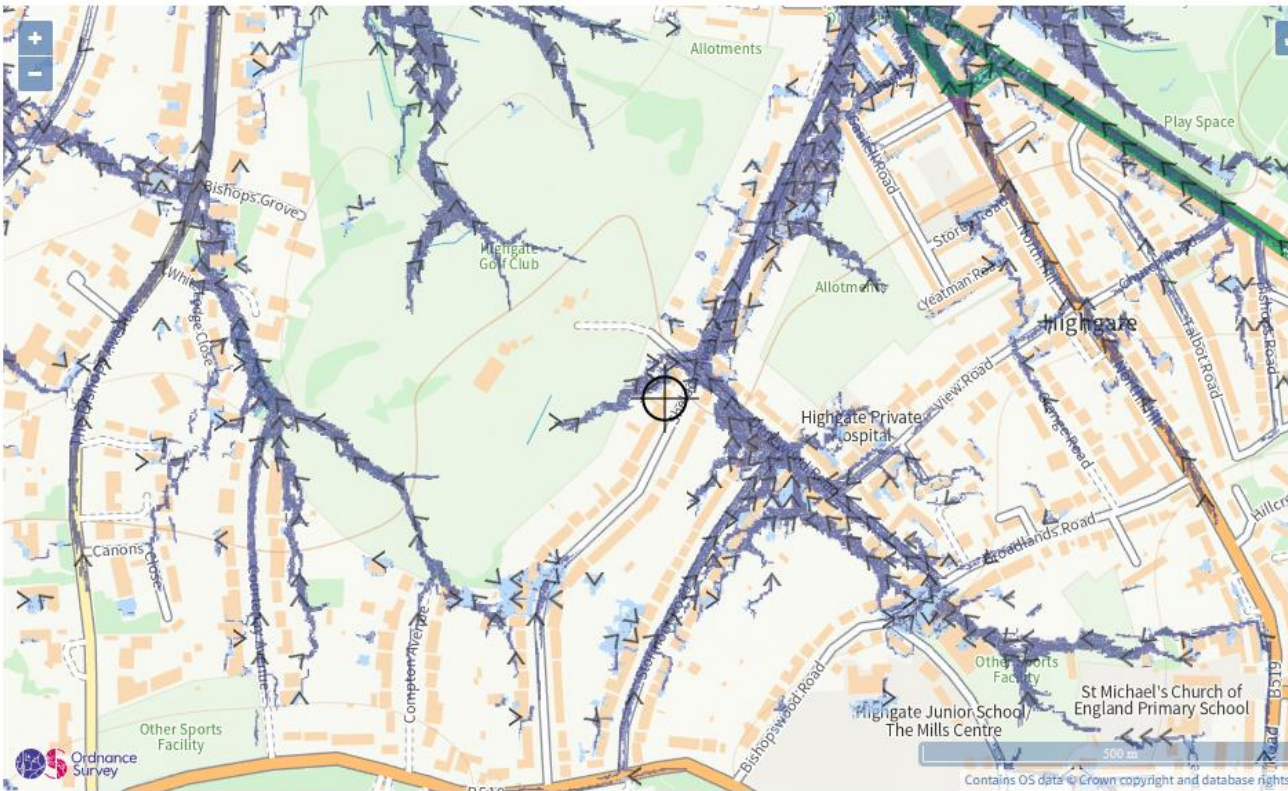
Figure 11: Surface Water Flooding – Medium Risk – Velocities (GOV.uk, 2023)



Surface water flood risk: water depth in a low risk scenario
Flood depth (millimetres)

● Over 900mm ● 300 to 900mm ● Below 300mm ⊕ Location you selected

Figure 12: Surface Water Flooding – Low Risk – Depth (GOV.uk, 2023)



Surface water flood risk: water velocity in a low risk scenario

Flood velocity (metres/second)

Over 0.25 m/s Less than 0.25 m/s Direction of water flow Location you selected

Figure 13: Surface Water Flooding - Low Risk - Velocities (GOV.uk, 2023)

9.2.8 Haringey Council's SWMP Table 3-2: Records of Surface Water Flooding and the Local Flood Risk Management Strategy does not list the area as having historic surface water flooding.

9.2.9 As the majority of the site is subject to 'Very Low' surface water flood risk and the highest risk being 'Medium' is contained in the rear garden, the probability of flooding from surface water is classified as 'Medium' to 'Low'.

9.3 Flooding from Groundwater

9.3.1 Groundwater flooding occurs as a result of water rising from the underlying rocks or water flowing from abnormal springs. This tends to occur after long periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. In low-lying areas, the water table is usually at shallower depths, so during very wet periods, all the additional groundwater flowing towards these areas can cause the water table to rise to the surface causing groundwater flooding.

9.3.2 Haringey Council's Local Flood Risk Management Strategy (LFRMS) states 'Groundwater flooding is more difficult to predict and the most accurate indication of whether flooding is likely in the future will be information on historic flooding locations', the site is not listed as a location with recorded groundwater flooding impact. The Increase Potential for Elevated Groundwater map indicates that the site is not at a greater risk of groundwater flooding. The map is reproduced below and contained in Appendix G.

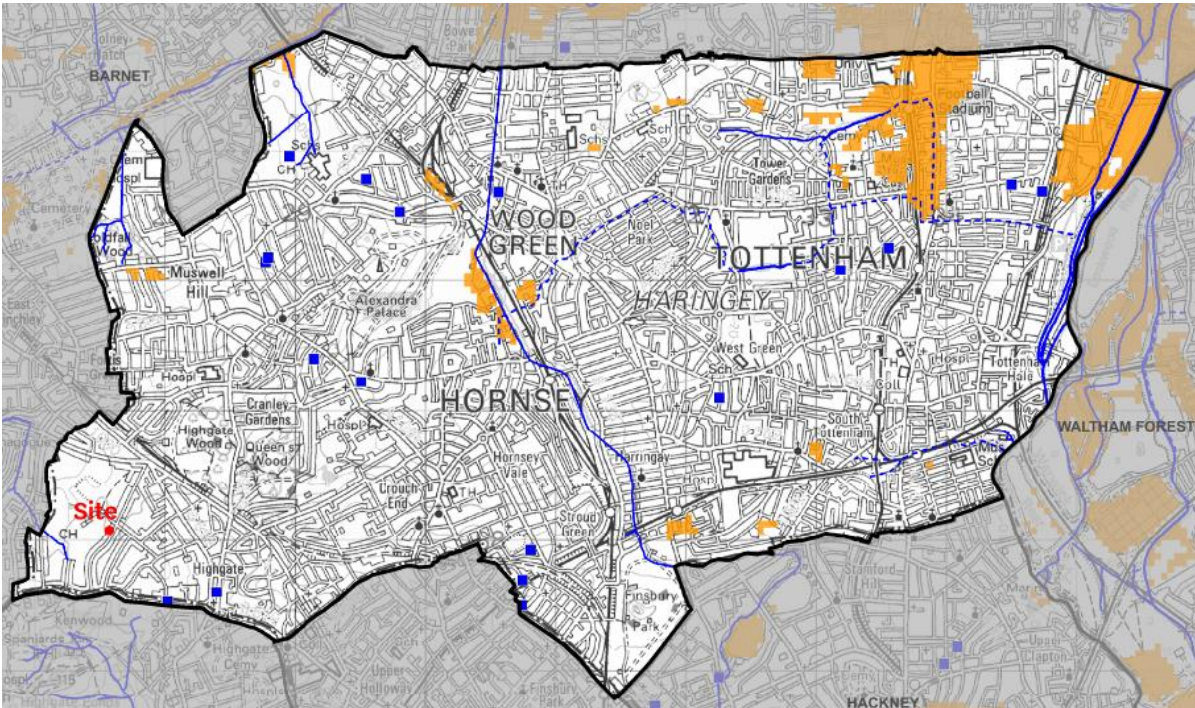


Figure 14: IPEG Map (London Borough of Haringey, n.d)

9.3.3 Haringey Council's SWMP Table 3-4: Records of Groundwater Flooding does not list the area as having historic groundwater flooding.

9.3.4 Based on the desktop study (see Section 4.4), as the soils in the area are clay and have the potential to become waterlogged, there is a lower chance of ground water seeping to the surface. The results of the site investigation, currently underway, would be able to inform the risk of groundwater water flooding to the site.

9.3.5 Based on the evidence above, the risk of groundwater flooding is assessed as 'Low'.

9.4 Flooding from Sewers and Drainage Systems

9.4.1 Flooding from sewers and drainage systems occurs when the sewer or drainage system is overwhelmed as a result of a blockage or excessive flow exceeding its capacity.

9.4.2 The Sewer Flooding History Enquiry from Thames Water resulted in 'the flooding records held by Thames Water indicate that there have been no incidents as a result of surcharging public sewers'. The history enquiry is contained in Appendix A.

9.4.3 The Thames Water Asset Location Map, shown in Figure 3, indicates a foul and surface water public sewer along Sheldon Avenue. The site's outfall manhole is approximately 1.2m deep. Downstream of where the site is connected to the sewer, assumed to be connected to the foul sewer, the Thames Water manhole 5001 is 2.59m deep. There is no information on the upstream manhole, therefore, the levels of the public sewer cannot me compared against the site's private pipe levels.

9.4.4 Haringey Council's SWMP Table 3-5: Number of Thames Water sewer flood records within the London Borough of Haringey lists the postcode N6 4 as having 2 properties recorded to experienced sewer flooding prior to June 2010.

9.4.5 As the site has not been subject to sewer flooding in the past, the risk of flooding from sewers and drainage systems is considered ‘Low’.

9.5 Flooding from Artificial Sources

9.5.1 Artificial sources of flood risk include waterbodies that have been amended by means of human intervention. Where infrastructure retains, transmits, or controls the flow of water, flooding may occur if there is a structural, hydraulic, geotechnical, or mechanical failure of the infrastructure.

9.5.2 The SFRA contains Figure 6–8 *National Reservoir Inundation Maps*, reproduced in Figure 15, indicates the site is not within an area of reservoir flooding. The map is contained in Appendix I.

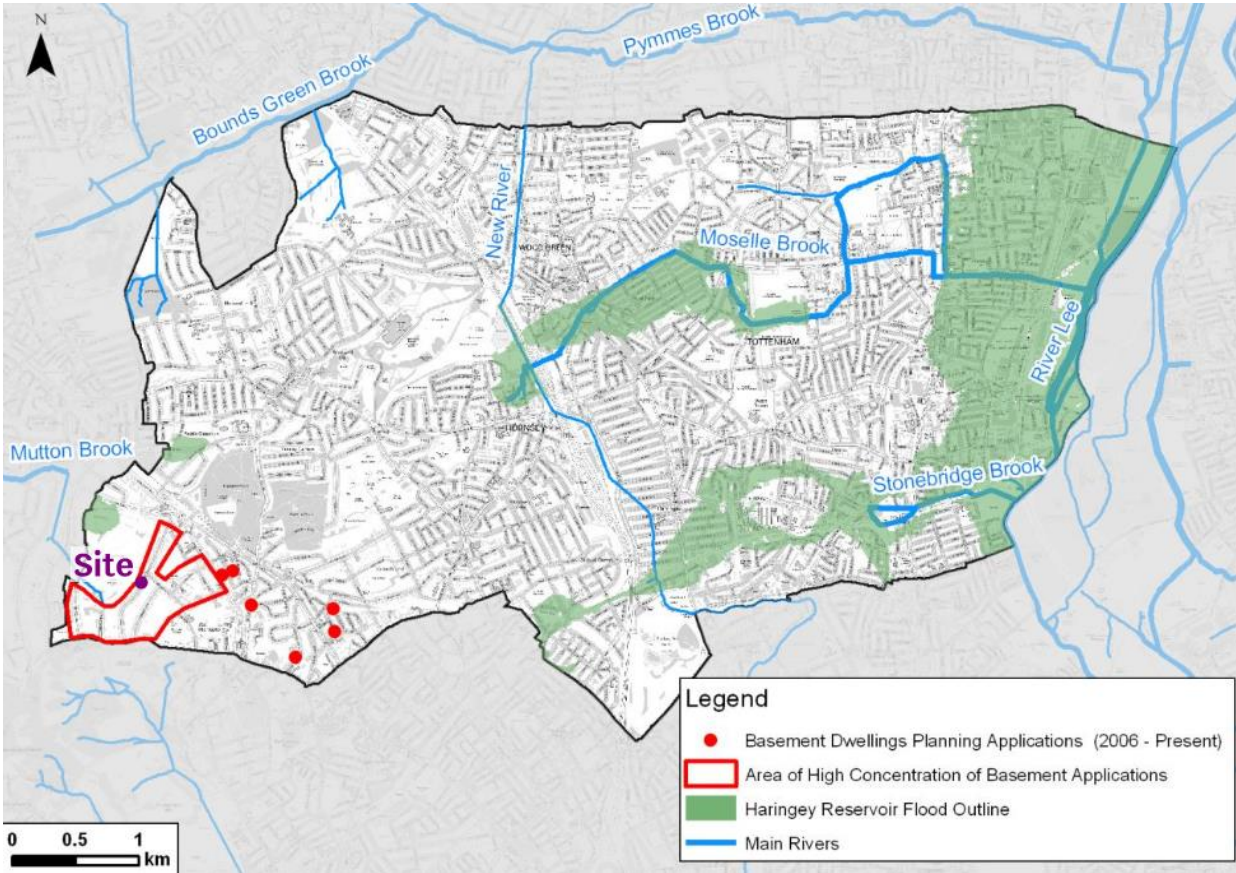


Figure 15: Haringey Council SFRA - National Reservoir Inundation Maps

9.5.3 Based on the EA Flood Map for reservoir flooding, the site is not within an area at risk of flooding. The map is reproduced in Figure 16, below.



Maximum extent of flooding from reservoirs:

● when river levels are normal ● when there is also flooding from rivers ● Location you selected

Figure 16: Maximum extent of flood from reservoirs (GOV.uk, 2023)

9.5.4 Based on the information above, the risk of flooding from artificial sources is assessed as ‘Very Low’.

9.6 Summary of Flood Risk

9.6.1 A summary of the potential flood risks associated with existing conditions (pre-development) is shown in Table 5, below.

Flood Source	Potential Risk			
	Very Low	Low	Medium	High
Fluvial (rivers and sea)	✓			
Surface Water			✓	
Ground Water		✓		
Sewers and Drainage Systems		✓		
Artificial Sources	✓			
Overall		✓		

Table 4: Pre-development Potential Flood Risk from All Sources of Flooding

9.6.2 From the results above, the pre-development potential flood risk from all sources of flooding is considered to be ‘Low’.

10.0 Sustainable Urban Drainage

10.1 To ensure the effective delivery of SuDS schemes, Haringey Council have published the document SuDS Design Requirements for LLFA Technical Assessment, the ‘live’ draft is dated 09/05/2016. Section 4.1 *SuDS Design principles* of the document is reproduced in Table 6, below, and summarises the design principles developments should consider.

Design Principle	Explanation
Source control	Runoff should be dealt with as close as possible to where it falls
Keeping runoff at or near the surface	Careful consideration is required when determining how runoff will be collected and conveyed through the site
Subcatchments	Runoff from sites of reasonable size (for example, greater than 0.5ha) should be managed sequentially within a number of subcatchments. The downstream point of each subcatchment will be defined by placement of a flow control and subcatchments
Controlling flow	Flow controls should be designed so that they can be simply understood and easily accessible. No minimum threshold is set for the control of flows, however design should ensure that the flow control is protected from blockage
Designing for exceedance	The design should demonstrate how exceedance flows will be dealt with in the event of design exceedance or blockage

Table 5: SuDS Design Principles (DRAFT SuDS Design Requirements for LLFA Technical Assessment, 2016)

- 10.2 Haringey Council's SWMP Figure 11 *Infiltration SUDS Suitability Map* shows the site being in an area where infiltration is ‘potentially unsuitable’. The Map is contained in Appendix H.
- 10.3 A SuDS Assessment has been carried out using the guidance set out in The London Plan published by Greater London Authority and The SuDS Manual published by CIRIA. SuDS techniques were assessed as possible surface water disposal methods and priority was given to SuDS which provide multi-functional benefits in line with the drainage hierarchy. Table 7, below, presents the drainage hierarchy taken from Policy SI 13 Sustainable drainage of The London Plan. The feasibility of incorporating different SuDS into the development proposals is outlined.

Method	Feasibility	Explanation
Rainwater as a resource (e.g., rainwater harvesting)	✓	Runoff can be collected from roofs and other impermeable areas, stored, treated (where required) and then used as a supply of water.
Rainwater infiltration to ground at or close to the source	✗	Based on a desktop study of the geology of the site, the infiltration capacity of the soil is of low permeability, therefore, infiltration into the ground is not deemed feasible. This is to be confirmed with an infiltration test.
Rainwater attenuation in green infrastructure for gradual release	✓	Runoff can be attenuated from roofs and other impermeable areas, stored, treated (where required) and then gradually released. Green infrastructure includes permeable paving, bioretention areas and rain gardens.
Rainwater discharge direct to a watercourse	✗	There is no watercourse in the close enough vicinity to the site to make discharge to a watercourse a feasible option.
Rainwater attenuation above ground (including blue roofs)	✓	Runoff can be attenuated from roofs, stored and then gradually released.
Rainwater attenuation below ground	✓	Runoff can be attenuated from roofs and other impermeable areas, stored in an attenuation tank and then gradually released.
Controlled rainwater discharge to a surface water sewer	✓	Runoff can be attenuated from roofs and other impermeable areas, stored, treated (where required) and then gradually released into the public surface water sewer.
Controlled rainwater discharge to a combined sewer	✗	There is no combined sewer within the vicinity of the site.

Table 6: SUDS Hierarchy

- 10.4 Rainwater harvesting (RWH) is the collection of rainwater runoff for use on site. Benefits of RWH systems include meeting the building's water demand, delivering sustainability, improve climate resilience and reduces volume runoff from the site. The collected water can generally be used for a range of non-potable and non-bathing purposes.
- 10.5 Pervious pavements allow rainwater to infiltrate through the surface into underlying foundation layers. Benefits of pervious surfaces include surface water management close to its source, intercepts runoff, reduces volume and frequency of runoff and provides a water quality treatment medium.

11.0 Resistance, Resilience and Mitigation Measures

- 11.1 The guidance document ‘Improving the Flood Performance of New Buildings: Flood Resilient Construction’, dated May 2007, was produced as part of the Department for Communities and Local Government Buildings Regulations (Sanitation) Research Framework, and the joint Defra/Environment Agency Flood Risk Management Research and Development programme. With reference to Section 9.2.4, in a medium-risk scenario, surface water flood depths are modelled to be below 300mm depth. The guidance document suggests a Water Exclusion Strategy:
- Where emphasis is placed on minimising water entry whilst maintaining structural integrity and on using materials and construction techniques to facilitate drying and cleaning. This strategy is favoured when low flood water depths are involved (not more than 0.3m). According to the definitions adopted in this Guidance, this strategy can be considered as a resistance measure but it is part of the aim to achieve overall building resilience.*
- 11.2 With reference to the water exclusion strategy, guidance for different elements of the building is given in Table 8, below:

Building Element	Water Exclusion Strategy
Building Materials	Building materials that are effective for a ‘water exclusion strategy’ include: - Engineering bricks - Cement-based materials including water retaining concrete and dense stone
Foundations	The general principle is to minimise the entry of water through permeable elements of the foundation. Any concrete blocks placed below ground-bearing concrete floor slabs provide a potential path for water to ingress into wall cavities, as these blocks are considerably more permeable than concrete slabs. Concrete blocks used in foundations should be sealed with an impermeable material or encased in concrete to prevent water movement from the ground to the wall construction. Where concrete ground floor slabs are used, the blockwork substructure is often the weakest point in terms of water penetration from the ground into a dwelling. Whereas there is a general perception that water can ingress through the blockwork structure of the external face of a wall into the property, it is less apparent, but equally possible, that water will penetrate from the ground on the inside of the property.
Floors	It is important to carry out structural checks assuming a flood depth of 1m minimum above the slab, even in areas where the design flood water depth is lower. Usual safety factors must be applied in all such calculations. Damp proof membranes - damp proof membranes should be included in any design to minimise the passage of water through ground floors. Impermeable polythene membranes should be at least 1200 gauge to minimise ripping. Floor insulation - floor insulation should be of the closed-cell type to minimise the impact of flood water. No firm guidance can be provided on best location for insulation where the primary source of flooding is from groundwater. For other types of flooding, placing insulation below the floor slab may be adequate but it is important to recognise that the characteristics of the insulations may be affected by the uplift forces generated by the flood water. Floor finishes – suitable floor finishes include ceramic or concrete-based floor tiles, stone and sand/cement screeds. All tiles should be bedded on a cement-based adhesive/bedding compound and water resistant grout should be used. Concrete screeds above polystyrene or polyurethane insulation should be avoided as they hinder drying of the insulation material. Suitable materials for skirting boards include ceramic tiles and PVC. Floor sump – provision of a sump and small capacity automatic pump at a low point of the ground floor is recommended in cases where the expected probability of flooding in any one year is 20% (1 in every 5 years). This system will help the draining process and speed up drying but it may only be effective for shallow depth flooding. Services – under floor services using ferrous materials should be avoided.
Walls	Ensure high quality workmanship at all stages of construction. Masonry walls – where possible, use engineering bricks up to predicted flood level plus one course of bricks to provide freeboard (up to maximum of 0.6m depth above floor level). Blocks and dense facing bricks have improved performance when covered with render. Do not use highly porous bricks such as handmade clay bricks. Framed walls – avoid timber framed walls containing construction materials that have poor performance in floods, for example oriented strand board and mineral fibre insulation. Timber framed walls are not recommended in a ‘water exclusion strategy’.

	External renders – external renders are effective barriers to water penetration and should be used with blocks (or bricks) at least up to the predicted flood level plus the equivalent of a course of bricks as freeboard.
Doors and windows	Doors – raising the threshold, while complying to level access requirements, should be considered as the primary measure. Sealed PVC external framed doors should be sure. Where the use of wooden doors is the preferred option, all effort should be made to ensure a good fit and seal to their frames. Windows/patio doors – similar measures to those used for doors should be taken. Air vents – special designs of air vents are available (e.g., periscopic air vent) to prevent water ingress
Fittings	The main principle is to use durable fittings that are not significantly affected by water and can be easily cleaned. Place fittings on plinths as high as practicable above floors so that they are out of reach of flood water.
Services	Where possible, all service entries should be sealed. Drainage services – non-return valves are recommended to prevent back-flow of sewage in situations where there is an identified risk of the foul sewer surcharging. Water, electricity and gas meters – to be located above predicted flood level. Electrical services – electrical sockets should be installed above flood level. Electrical ring mains should be installed at first floor level with drops to ground floor sockets and switches. Heating systems – boiler units and ancillary devices should be installed above predicted flood level.

Table 7: Flood resilient construction guidance (Department for Communities and Local Government: London, 2007)

- 11.3Any lightwells in basements are to have a minimum of 300mm upstand.
- 11.4Early consultation with a waterproofing specialist is required and a cavity drain system for the basement is recommended.
- 11.5Flood insurance provides funding to repair damages caused by floods. Different flood insurance policies are available to ensure the property is not over-insured or under-insured.
- 11.6The site is not subject to flood alerts and warnings by the Environment Agency.

12.0Dry access and egress

- 12.1The site is located in Flood Zone 1; therefore, dry access and egress is very likely during an extreme fluvial flood event.
- 12.2EA flood maps for surface water flooding show there is a dry access and egress route on Sheldon Avenue, immediately adjacent to the site.

13.0Post-Development Flood Risk

- 13.1The proposed mitigations can manage the risk of flooding from surface water; therefore, the flood risk can be downgraded from ‘Medium’ to ‘Low’. A summary of the flood risks associated with the site post-development is given in Table 9, below.

Flood Source	Potential Risk			
	Very Low	Low	Medium	High
Fluvial (rivers and sea)	✓			
Surface Water		✓		
Ground Water		✓		
Sewers and Drainage Systems		✓		
Artificial Sources	✓			
Overall	✓			

Table 8: Post-development Potential Flood Risk from All Sources of Flooding

14.0 Operation and Maintenance

- 14.1 A maintenance regime to ensure efficient functioning of the drainage system is recommended.
- 14.2 The CIRIA SuDS Manual 2015 gives guidance on the operation and maintenance requirements for the SuDS systems mentioned in Section 10 and is reproduced in Table 7, below.

Pervious Pavements	
Maintenance Schedule	
As required	Stabilise and mow contributing areas. Weed removal. Rehabilitation of surface and upper substructure. Remediation of depressions and cracked blocks. Remediation of landscaping.
Monthly for 3 months after installation	Initial inspection.
3-monthly and 48h after large storms in first six months	Inspect for evidence of poor operation and/or weed growth.
Annually	Weed removal. Brushing and vacuuming. Inspect silt accumulation rates and establish appropriate brushing frequencies.
Every 10–15 years or as required	Rehabilitation of surface and upper substructure by remedial sweeping.

Table 9: Maintenance Schedule for Pervious Pavements (CIRIA, 2015)

Attenuation Storage Tanks	
Maintenance Schedule	
As required	Repair/rehabilitate inlets, outlet, overflows and vents.
Monthly	Inspection. Remove debris from the catchment surface.
Annually	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary. Remove sediment from pre-treatment structures and/or internal forebays. Inspect/check all inlets, outlets, vents and overflows.
Every 5 years or as required	Survey inside of tank for sediment build-up

Table 10: Maintenance Schedule for Attenuation Storage Tanks

Rainwater Harvesting	
Maintenance Schedule	
As required	Repair of overflow erosion damage or damage to tank. Pump repairs.
Three monthly (or as required)	Cleaning and/or replacement of any filters.
Annually (and following poor performance)	Inspection of the tank for debris and sediment build-up, inlets/outlets/withdrawal devices, overflow areas, pumps, filters. Cleaning of tank, inlets, outlets, gutters, withdrawal devices and roof drain filters of silts and other debris.

Table 11: Maintenance Schedule for Rainwater Harvesting Systems



15.0 Conclusions

- 15.1 In accordance with the National Planning Policy Framework, the site would be categorised as lying within Flood Zone 1 – an area assessed as having 1 in 1000 or less annual probability of river or sea flooding (<0.1%).
- 15.2 In accordance with the NPPF, the proposal is classified as a Non-Major Development.
- 15.3 With regard to the Sequential Test, the site lies within an existing residential area and the overall flood risk to the site is considered to be 'Low'.
- 15.4 There is no requirement for an Exception Test to be carried out.
- 15.5 The site is at 'Very Low' risk for fluvial flooding.
- 15.6 The site has been assessed as being at 'Medium' risk from surface water flooding.
- 15.7 The site has been assessed as being at 'Low' risk from groundwater sources.
- 15.8 The site has been assessed as being at 'Low' risk from surcharging sewers.
- 15.9 The site has been assessed as being at 'Very Low' risk from artificial sources.
- 15.10 The overall flood risk to the site is assessed as 'Low'.
- 15.11 The provision of Sustainable Urban Drainage Systems and the mitigation measures as defined by Haringey's Local Plan can mitigate flood risk.
- 15.12 The proposed mitigation measures can mitigate surface water flood risk, therefore, the post-development flood risk to the site is considered to be 'Very Low'.
- 15.13 The comments stated above are based on information received from other consultees. The flood risk classification of this site has been based on the above observations, and the recommendations stated.

APPENDIX A

THAMES WATER

INFORMATION

Symmetrys Limited
Unit 6 The Courtyard Unit 6 The Courtyard

LONDON
N8 8SL

Search address supplied 41
Sheldon Avenue
London
N6 4JP

Your reference 23135 41 Sheldon Avenue

Our reference ALS/ALS Standard/2023_4873470

Search date 17 August 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

Search address supplied: 41, Sheldon Avenue, London, N6 4JP

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 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



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 527540,188084
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

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

Manhole Reference	Manhole Cover Level	Manhole Invert Level
5102	99.15	96.74
5101	99.22	97.32
501A	n/a	n/a
5103	97.48	95.58
5001	97.54	94.95
5002	97.56	93.56
6103	95.7	92.09
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

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.

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.

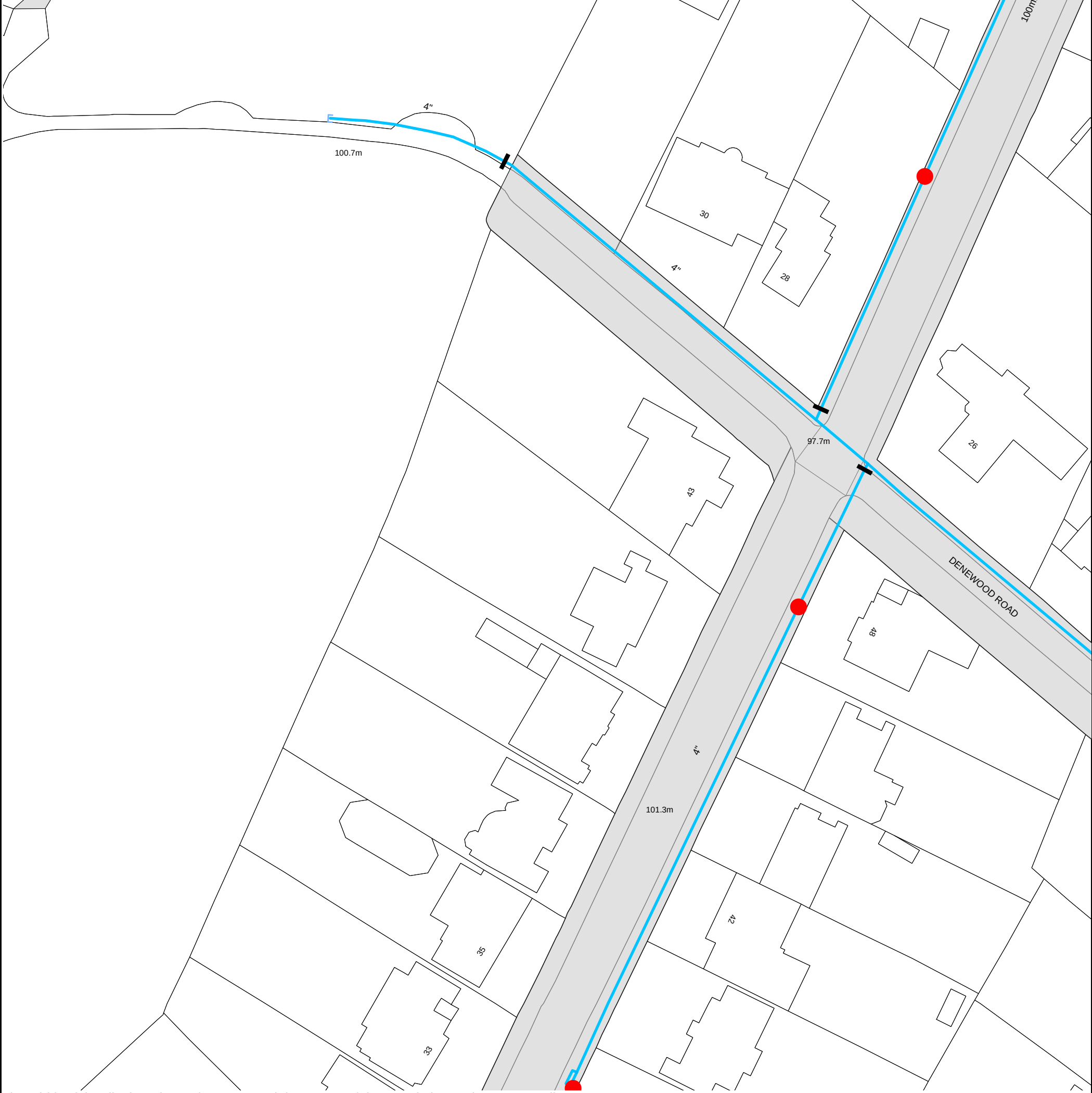
	Agreement
	Chamber
	Operational Site

Ducts or Crossings

	Casement	Ducts may contain high voltage cables. Please check with Thames Water.
	Conduit Bridge	
	Subway	
	Tunnel	

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.



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 527540, 188084.
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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

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

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

Sewer Flooding

History Enquiry



Property
Searches

Symmetrys Limited

Search address supplied 41
Sheldon Avenue
London
N6 4JP

Your reference 23135 41 Sheldon Avenue

Our reference SFH/SFH Standard/2023_4873473

Received date 17 August 2023

Search date 17 August 2023



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



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



0800 009 4540

Search address supplied: 41, Sheldon Avenue, London, N6 4JP

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

- (i) any negligent or incorrect entry in the records searched;
- (ii) any negligent or incorrect interpretation of the records searched;
- (iii) and any negligent or incorrect recording of that interpretation in the search report
- (iv) compensation payments



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



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



0800 009 4540

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

For your guidance:

- A sewer is “overloaded” when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- “Internal flooding” from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- “At Risk” properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company’s reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0800 316 9800 or website www.thameswater.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

APPENDIX B

CCTV SURVEY



DRAINAGE SURVEY REPORT

41 SHELDON AVENUE

Issue

12/09/23

The Drainage Lab Limited

Trinity House, 3 Bullace Lane, Dartford, Kent, DA1 1BB

Company Number 09947690

email: info@thedrainagelab.com

www.thedrainagelab.com

Report Contents

Introduction

Drainage Layout

Manhole Chamber Inventory

CCTV Survey

Conclusion

Recommendations

Introduction

The Drainage Lab Ltd undertook a CCTV drainage survey of the below ground drainage at 41 Sheldon Avenue on Tuesday 5th August.

The weather was hot and dry.

Reference Drawings

vA P1v1 21343B-1 (Prelim) Land Survey

Drainage Layout Schematic



Manhole Chamber Inventory

MH Ref MH 1	Photo MH 
Depth 1100mm	
Cover size 680 x 540mm	
Cover type steel Recessed paving	
Chamber size 660 x 640mm	
Chamber construction brick with ppic base	
Pipe size 100mm	
Channel material plastic	
Pipe material plastic	

MH2 under patio

MH Ref MH 3	Photo MH 
Depth 850mm	
Cover size 650 x 500mm	
Cover type Cast iron	
Chamber size 600 x 550mm	
Chamber construction brick	
Pipe size 100mm	
Channel material clay	
Pipe material clay	
Roots in Chamber	

MH Ref MH 4	Photo MH 
Depth 880mm	
Cover size 680 x 530mm	
Cover type Recessed steel with paving	
Chamber size 600 x 460mm	
Chamber construction Brick	
Pipe size 100mm	
Channel material clay	
Pipe material	

MH Ref MH 5	Photo MH 
Depth 1240mm	
BR1 1170mm	
BR2 1230mm	
Cover size 800 x 660mm	
Cover type steel Recessed paving	
Chamber size 900 x 600mm	
Chamber construction brick	
Pipe size 100mm	
Channel material clay	
Pipe material clay	

CCTV Survey

Drainage Report



Prepared For

Site

41 Sheldon Avenue
London

41 Sheldon Avenue
London

N6 4JP

N6 4JP

THE DRAINAGE LAB
Surveyor: R Street
info@thedrainagelab.com
07968886445

Total Defects for Project



Total DRB Grades for Project





41 Sheldon Avenue - CCTV Survey Report : 05/09/23

Name : THE DRAINAGE LAB
Contact :
Location :
Town :
Region :
Postcode :
Email : info@thedrainagelab.com
Contact Number : 07968886445
Surveyor : R Street
Valid Certification No :

Client Information

Name :
Contact :
Location : 41 Sheldon Avenue
Town : London
Region :
Postcode : N6 4JP
Tel :
Mobile :
Email :
Fax :

Site Information

Name :
Contact :
Location : 41 Sheldon Avenue
Town : London
Region :
Postcode : N6 4JP
Tel :
Mobile :
Email :
Fax :

Total Defects for Project



Total DRB Grades for Project



Report interpretation.

Overview:

Each section of the drainage system is allocated a score indicating areas that require attention. These areas are detailed in the Overview section on the following page and also at the bottom right of the first few pages. We use colour coding as an indicator of severity. Additional information concerning rehabilitation options/recommendations is included in the Overview page, which can also be used as an, "at a glance" indication of system condition. More in depth information for each section, including images can be found later in the report. Grade indicators are as follows:

Grade A: Drain is serviceable no recommendations required

Grade B: There is an issue that might require remedial works

Grade C: There is a defect that requires remedial works, the drain is not serviceable.

Observations:

Each section of drainage reported on (manhole to manhole for example), contains detailed information about that drain and any observations made concerning condition are detailed below the header section. The observations are colour coded and given a severity score, with more significant defects being given a higher score, using a scale from 1 to 5 as detailed below:

Severity 1 to 2: These defects may require remedial monitoring

Severity 3: These defects probably require some form of remedial works

Severity 4 to 5: Defects that will require remedial repair or replacement

General:

The information provided is relevant at the time of survey. The coding system in this report is based on the Manual of Sewer Condition Classification, 5th edition (MSCC5) domestic codes (BS EN 13508-1:2003). This is the official standard for the water industry.

The severity system is based on significant experience in general practice and the 1 -5 grades represent the severity of individual defects: 5 representing a more serious defect.

Please feel free to contact us for further explanation or pricing for remedial works required.

Total Defects for Project



Total DRB Grades for Project





Overview

Section: 1 From: MH1 To: US	Grade B	DRB Grade: B Pipe Size: 100 Material: Polyvinyl Chloride Use: Surface Water
Section: 2 From: MH1 To: BR1	Grade A	DRB Grade: A Pipe Size: 100 Material: Polyvinyl Chloride Use: Combined
Section: 3 From: MH1 To: BR2 MH2	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Surface Water
Section: 4 From: MH2 To: US	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Surface Water
Section: 5 From: MH1 To: MH3	Grade B	DRB Grade: B Pipe Size: 100 Material: Polyvinyl Chloride Use: Combined
Section: 6 From: MH3 To: US	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Foul
Section: 7 From: MH3 To: BR2	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Foul
Section: 8 From: MH3 To: BR3	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Foul

Total Defects for Project



Total DRB Grades for Project





Section: 9 From: MH3 To: BR4	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Foul
Section: 10 From: MH3 To: BR5 HL	Grade B	DRB Grade: B Pipe Size: 100 Material: Polyvinyl Chloride Use: Surface Water
Section: 11 From: MH3 To: MH5	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Combined
Section: 12 From: MH4 To: US	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Foul
Section: 13 From: MH4 To: BR1 HL	Grade B	DRB Grade: B Pipe Size: 100 Material: Polyvinyl Chloride Use: Surface Water
Section: 14 From: MH4 To: MH5	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Combined
Section: 15 From: MH5 To: BR2	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Foul
Section: 16 From: MH5 To: DS SEWER	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Combined
Section: 17 From: MH5 To: VENT	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Other

Total Defects for Project



Total DRB Grades for Project





Section: 18 From: G1 To: DS	Grade A	DRB Grade: A Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Surface Water
Section: 19 From: G2 To: DS	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Surface Water
Section: 20 From: RWP 1 To: DS	Grade B	DRB Grade: B Pipe Size: 100 Material: Polyvinyl Chloride Use: Surface Water

Total Defects for Project



Total DRB Grades for Project





Site: 41 Sheldon Avenue, London

Section 1

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH1	Finish Node Ref:	US	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	S
Start Node Coordinate:		Finish Node Coordinate:		Material:	PVC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	1.1	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		0_0		
00.00m	WL	Water level 0%			0:00:00	
00.00m	DES	S1 Settled deposits fine 30%	S1	0_2	0:00:00	
00.30m	JN	Junction 09 : 0mm Diameter		0_3	0:00:07	
00.70m	REM	General remark		0_4	0:00:16	
01.10m	DES	F1 Settled deposits fine 30%	F1	0_-2	0:00:00	
01.10m	WRF	Finish node type, major connection without		0_99		

Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 1

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH1	Image Provided - Ref: 0_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.00m	0:00:00	S1 DES	Settled deposits fine 0m - 1.1m: 30% Cross sectional area loss - Severity 3	Image Provided - Ref: 0_2 
00.30m	0:00:07	JN	Junction at 09 o'clock: 0mm Diameter	Image Provided - Ref: 0_3 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
00.70m	0:00:16	REM	General remark Perforated pipe	Image Provided - Ref: 0_4 
01.10m	0:00:00	F1 DES	Settled deposits fine Defect End: 30% Cross sectional area loss - Severity 3	
01.10m		WRF	Finish node type, major connection without manhole terminated pipe	Image Provided - Ref: 0_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 2

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH1	Finish Node Ref:	BR1	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	PVC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	1.3	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		1_0		
00.00m	WL	Water level 0%			0:00:00	
00.20m	JN	Junction 03 : 0mm Diameter		1_2	0:00:03	
00.70m	REM	General remark		1_4	0:00:19	
01.00m	LLH	Line of drain/sewer deviates left [half]		1_3	0:00:19	
01.30m	GYF	Finish node type Gully		1_99		

Total Defects for section

DRB Grade for Section

0 0 0 0 0



Descriptive Report with Remarks and Observation Images

Section 2

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH1	Image Provided - Ref: 1_0  0.00m
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.20m	0:00:03	JN	Junction at 03 o'clock: 0mm Diameter	Image Provided - Ref: 1_2  0.15m
00.70m	0:00:19	REM	General remark general condition	Image Provided - Ref: 1_4  0.68m

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
01.00m	0:00:19	LLH	Line of drain/sewer deviates left [half]	Image Provided - Ref: 1_3 
01.30m		GYF	Finish node type Gully BR1	Image Provided - Ref: 1_9999 

Total Defects for section

DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 3

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH1	Finish Node Ref:	BR2 MH2	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	S
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	3.5	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		2_0		
00.00m	WL	Water level 0%			0:00:00	
00.20m	LLQ	Line of drain/sewer deviates left [quarter]		2_2	0:00:02	
00.30m	JDM	Joint displaced medium		2_3	0:00:03	
00.30m	MC	Material of drain/sewer changes		2_4	0:00:04	
01.50m	JDM	Joint displaced medium		2_5	0:00:47	
02.30m	REM	General remark		2_6	0:00:57	
02.70m	JDM	Joint displaced medium		2_7	0:01:00	
03.50m	MHF	Finish node type, manhole		2_99		

Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 3

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH1	Image Provided - Ref: 2_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.20m	0:00:02	LLQ	Line of drain/sewer deviates left [quarter]	Image Provided - Ref: 2_2 
00.30m	0:00:03	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 2_3 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
00.30m	0:00:04	MCVC	Material of pipe changes to Vitrified Clay (i.e. all clayware)	Image Provided - Ref: 2_4 
01.50m	0:00:47	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 2_5 
02.30m	0:00:57	REM	General remark general condition	Image Provided - Ref: 2_6 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
02.70m	0:01:00	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 2_7 
03.50m		MHF	Finish node type, manhole BR2 MH2	Image Provided - Ref: 2_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

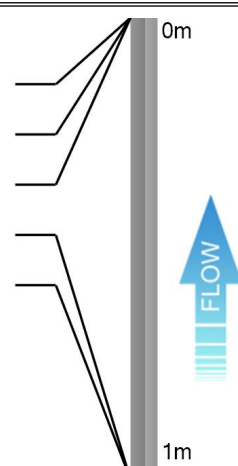
Section 4

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH2	Finish Node Ref:	US	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	S
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	1	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		3_0		
00.00m	WL	Water level 0%			0:00:00	
00.00m	DES	Settled deposits fine 20%		3_2	0:00:00	
01.00m	OB	Other obstacles 80%		3_3	0:00:18	
01.00m	SA	Survey abandoned		3_99		



Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 4

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH2	Image Provided - Ref: 3_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.00m	0:00:00	DES	Settled deposits fine: 20% Cross sectional area loss - Severity 3	Image Provided - Ref: 3_2 
01.00m	0:00:18	OB	Other obstacles: 80% Cross sectional area loss - Severity 3 concrete	Image Provided - Ref: 3_3 

Total Defects for section



DRB Grade for Section





Pos	Video Ref	Code	Description	Image
01.00m		SA	Survey abandoned camera unable to pass	Image Provided - Ref: 3_9999

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 5

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH1	Finish Node Ref:	MH3	Direction:	D
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	PVC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	6.7	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		4_0		
00.00m	WL	Water level 0%			0:00:00	
00.20m	JDM	Joint displaced medium		4_2	0:00:08	
00.20m	MC	Material of drain/sewer changes		4_3	0:00:10	
00.30m	JDM	Joint displaced medium		4_4	0:00:14	
00.30m	CC	Crack, circumferential 09-03		4_5	0:00:14	
01.60m	JDM	Joint displaced medium		4_6	0:00:31	
03.00m	REM	General remark		4_7	0:00:43	
03.60m	JDM	Joint displaced medium		4_8	0:00:54	
05.00m	JDM	Joint displaced medium		4_9	0:01:12	
05.30m	JDM	Joint displaced medium		4_10	0:01:20	
05.30m	MC	Material of drain/sewer changes		4_14	0:01:26	
05.40m	WL	Water level 30%		4_11	0:01:27	
05.70m	JN	Junction 10 : 0mm Diameter		4_12	0:01:30	
06.40m	LRH	Line of drain/sewer deviates right [half]		4_13	0:01:45	
06.70m	MHF	Finish node type, manhole		4_99		

Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 5

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH1	Image Provided - Ref: 4_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.20m	0:00:08	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 4_2 
00.20m	0:00:10	MCVC	Material of pipe changes to Vitrified Clay (i.e. all clayware)	Image Provided - Ref: 4_3 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
00.30m	0:00:14	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 4_4 
00.30m	0:00:14	CC	Crack, circumferential from 09 o'clock to 03 o'clock - Severity 1	Image Provided - Ref: 4_5 
01.60m	0:00:31	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 4_6 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
03.00m	0:00:43	REM	General remark general condition	Image Provided - Ref: 4_7 
03.60m	0:00:54	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 4_8 
05.00m	0:01:12	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 4_9 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
05.30m	0:01:20	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 4_10 
05.30m	0:01:26	MCPVC	Material of pipe changes to Polyvinyl Chloride	Image Provided - Ref: 4_14 
05.40m	0:01:27	WL	Water level: 30% Height/Diameter	Image Provided - Ref: 4_11 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
05.70m	0:01:30	JN	Junction at 10 o'clock: 0mm Diameter	Image Provided - Ref: 4_12 
06.40m	0:01:45	LRH	Line of drain/sewer deviates right [half]	Image Provided - Ref: 4_13 
06.70m		MHF	Finish node type, manhole MH3	Image Provided - Ref: 4_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 6

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH3	Finish Node Ref:	US	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	F
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	2.6	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		5_0		
00.00m	WL	Water level 0%			0:00:00	
00.00m	DES	Settled deposits fine 30%		5_2	0:00:00	
00.70m	JDM	Joint displaced medium		5_3	0:00:08	
01.40m	JDM	Joint displaced medium		5_4	0:00:22	
01.60m	LRH	Line of drain/sewer deviates right [half]		5_5	0:00:24	
02.60m	MHF	Finish node type, manhole		5_99		

Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 6

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH3	Image Provided - Ref: 5_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.00m	0:00:00	DES	Settled deposits fine: 30% Cross sectional area loss - Severity 3	Image Provided - Ref: 5_2 
00.70m	0:00:08	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 5_3 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
01.40m	0:00:22	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 5_4 
01.60m	0:00:24	LRH	Line of drain/sewer deviates right [half]	Image Provided - Ref: 5_5 
02.60m		MHF	Finish node type, manhole US	Image Provided - Ref: 5_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 7

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH3	Finish Node Ref:	BR2	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	F
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	0.3	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		6_0		
00.00m	WL	Water level 0%			0:00:00	
00.00m	DES	Settled deposits fine 10%		6_2	0:00:00	
00.30m	BRF	Finish node type, major connection without		6_99		

Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 7

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH3	Image Provided - Ref: 6_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.00m	0:00:00	DES	Settled deposits fine: 10% Cross sectional area loss - Severity 3	Image Provided - Ref: 6_2 
00.30m		BRF	Finish node type, major connection without manhole BR2	Image Provided - Ref: 6_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 8

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH3	Finish Node Ref:	BR3	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	F
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	0.4	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		7_0		
00.00m	WL	Water level 0%			0:00:00	
00.30m	JDM	Joint displaced medium		7_2	0:00:08	
00.40m	BRF	Finish node type, major connection without		7_99		

Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 8

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH3	Image Provided - Ref: 7_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.30m	0:00:08	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 7_2 
00.40m		BRF	Finish node type, major connection without manhole BR3	Image Provided - Ref: 7_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 9

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH3	Finish Node Ref:	BR4	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	F
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	0.5	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		8_0		
00.00m	WL	Water level 0%			0:00:00	
00.20m	LRQ	Line of drain/sewer deviates right [quarter]		8_2	0:00:01	
00.20m	JDM	Joint displaced medium		8_3	0:00:01	
00.50m	BRF	Finish node type, major connection without		8_99		

Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 9

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH3	Image Provided - Ref: 8_0  A top-down view of a manhole opening. The concrete structure is visible around the dark circular opening. Text in the top left corner reads '41 SHELDON AVENUE MH3 BR4'. A scale marker '0.00m' is in the bottom right corner.
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.20m	0:00:01	LRQ	Line of drain/sewer deviates right [quarter]	Image Provided - Ref: 8_2  A top-down view of a manhole opening, showing some internal structure. Text in the top left corner reads '41 SHELDON AVENUE MH3 BR4'. A scale marker '0.11m' is in the bottom right corner.
00.20m	0:00:01	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 8_3  A top-down view of a manhole opening, showing a joint displacement. Text in the top left corner reads '41 SHELDON AVENUE MH3 BR4'. A scale marker '0.15m' is in the bottom right corner.

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
00.50m		BRF	Finish node type, major connection without manhole BR4	Image Provided - Ref: 8_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 10

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH3	Finish Node Ref:	BR5 HL	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	S
Start Node Coordinate:		Finish Node Coordinate:		Material:	PVC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	1.2	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		9_0		
00.00m	WL	Water level 0%			0:00:00	
00.00m	DES	S1 Settled deposits fine 10%	S1	9_2	0:00:02	
01.20m	DES	F1 Settled deposits fine 10%	F1	9_-2	0:00:02	
01.20m	SA	Survey abandoned		9_99		

Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 10

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH3	Image Provided - Ref: 9_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.00m	0:00:02	S1 DES	Settled deposits fine 0m - 1.2m: 10% Cross sectional area loss - Severity 3	Image Provided - Ref: 9_2 
01.20m	0:00:02	F1 DES	Settled deposits fine Defect End: 10% Cross sectional area loss - Severity 3	
01.20m		SA	Survey abandoned camera unable to pass	Image Provided - Ref: 9_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 11

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	41 Sheldon Avenue	London			05/09/2023
Start Node Ref:	MH3	Finish Node Ref:	MH5	Direction: D	Height/Dia: 100
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use: C	Shape: C
Start Node Coordinate:		Finish Node Coordinate:		Material: VC	Cleaned N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	10	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		10_0		
00.00m	WL	Water level 0%			0:00:00	
00.70m	JDM	Joint displaced medium		10_2	0:00:05	
02.00m	JDM	Joint displaced medium		10_3	0:00:19	
03.50m	REM	General remark		10_4	0:00:33	
03.80m	JDM	Joint displaced medium		10_5	0:00:36	
04.40m	JDM	Joint displaced medium		10_6	0:00:46	
05.60m	JDM	Joint displaced medium		10_7	0:00:59	
06.00m	REM	General remark		10_8	0:01:08	
07.60m	JDM	Joint displaced medium		10_9	0:01:22	
08.20m	JDM	Joint displaced medium		10_1	0:01:28	
09.20m	REM	General remark		10_1	0:01:39	
09.40m	JDM	Joint displaced medium		10_1	0:01:41	
10.00m	MHF	Finish node type, manhole		10_9		

Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 11

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH3	Image Provided - Ref: 10_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.70m	0:00:05	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 10_2 
02.00m	0:00:19	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 10_3 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
03.50m	0:00:33	REM	General remark general condition	Image Provided - Ref: 10_4 
03.80m	0:00:36	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 10_5 
04.40m	0:00:46	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 10_6 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
05.60m	0:00:59	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 10_7 
06.00m	0:01:08	REM	General remark general condition	Image Provided - Ref: 10_8 
07.60m	0:01:22	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 10_9 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
08.20m	0:01:28	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 10_10 
09.20m	0:01:39	REM	General remark general condition	Image Provided - Ref: 10_11 
09.40m	0:01:41	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 10_12 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
10.00m		MHF	Finish node type, manhole MH5	Image Provided - Ref: 10_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

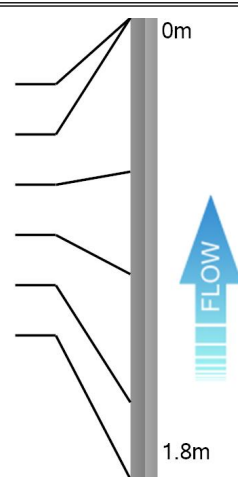
Section 12

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH4	Finish Node Ref:	US	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	F
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	1.8	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		11_0		
00.00m	WL	Water level 0%			0:00:00	
00.60m	JDM	Joint displaced medium		11_2	0:00:08	
01.00m	REM	General remark		11_4	0:00:14	
01.50m	JDM	Joint displaced medium		11_3	0:00:20	
01.80m	BRF	Finish node type, major connection without		11_9		



Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 12

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH4	Image Provided - Ref: 11_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.60m	0:00:08	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 11_2 
01.00m	0:00:14	REM	General remark general condition	Image Provided - Ref: 11_4 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
01.50m	0:00:20	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 11_3 
01.80m		BRF	Finish node type, major connection without manhole US	Image Provided - Ref: 11_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 13

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH4	Finish Node Ref:	BR1 HL	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	S
Start Node Coordinate:		Finish Node Coordinate:		Material:	PVC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	1.5	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		12_0		
00.00m	WL	Water level 0%			0:00:00	
00.00m	DER	S1 Settled deposits coarse 20%	S1	12_2	0:00:00	
01.50m	DER	F1 Settled deposits coarse 20%	F1	12_-	0:00:00	
01.50m	GYF	Finish node type Gully		12_9		

Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 13

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH4	Image Provided - Ref: 12_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.00m	0:00:00	S1 DER	Settled deposits coarse 0m - 1.5m: 20% Cross sectional area loss - Severity 3	Image Provided - Ref: 12_2 
01.50m	0:00:00	F1 DER	Settled deposits coarse Defect End: 20% Cross sectional area loss - Severity 3	
01.50m		GYF	Finish node type Gully BR1 HL	Image Provided - Ref: 12_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 14

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	41 Sheldon Avenue	London			05/09/2023
Start Node Ref:	MH4	Finish Node Ref:	MH5	Direction: D	Height/Dia: 100
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use: C	Shape: C
Start Node Coordinate:		Finish Node Coordinate:		Material: VC	Cleaned N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	15.4	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		13_0		
00.00m	WL	Water level 0%			0:00:00	
00.30m	JDM	Joint displaced medium		13_2	0:00:07	
02.60m	REM	General remark		13_3	0:00:40	
02.90m	JDM	Joint displaced medium		13_4	0:00:43	
05.70m	REM	General remark		13_5	0:01:09	
08.80m	REM	General remark		13_6	0:01:35	
11.90m	REM	General remark		13_7	0:02:05	
12.40m	JDM	Joint displaced medium		13_8	0:02:09	
13.00m	JDM	Joint displaced medium		13_9	0:02:15	
15.40m	MHF	Finish node type, manhole		13_9		

Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 14

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH4	Image Provided - Ref: 13_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.30m	0:00:07	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 13_2 
02.60m	0:00:40	REM	General remark general condition	Image Provided - Ref: 13_3 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
02.90m	0:00:43	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 13_4 
05.70m	0:01:09	REM	General remark general condition	Image Provided - Ref: 13_5 
08.80m	0:01:35	REM	General remark general condition	Image Provided - Ref: 13_6 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
11.90m	0:02:05	REM	General remark general condition	Image Provided - Ref: 13_7 
12.40m	0:02:09	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 13_8 
13.00m	0:02:15	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 13_9 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
15.40m		MHF	Finish node type, manhole MH5	Image Provided - Ref: 13_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

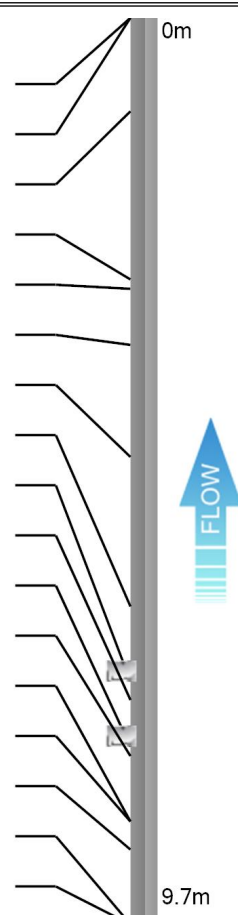
Section 15

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH5	Finish Node Ref:	BR2	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	F
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	9.7	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		14_0		
00.00m	WL	Water level 0%			0:00:00	
01.00m	JDM	Joint displaced medium		14_2	0:00:16	
02.80m	JDM	Joint displaced medium		14_3	0:00:35	
02.90m	REM	General remark		14_4	0:00:37	
03.50m	JDM	Joint displaced medium		14_5	0:00:43	
04.70m	CL	Crack, longitudinal 02		14_6	0:00:57	
06.30m	REM	General remark		14_7	0:01:13	
07.10m	JN	Junction 03 : 0mm Diameter		14_8	0:01:22	
07.30m	CC	Crack, circumferential 07-12		14_9	0:01:36	
07.80m	JN	Junction 02 : 0mm Diameter		14_1	0:01:50	
07.90m	JDM	Joint displaced medium		14_1	0:02:03	
08.60m	JDM	Joint displaced medium		14_1	0:02:09	
08.60m	LRQ	Line of drain/sewer deviates right [quarter]		14_1	0:02:09	
08.90m	JDM	Joint displaced medium		14_1	0:02:15	
09.70m	DEE	Attached deposits, encrustation 02-08 30%		14_1	0:02:25	
09.70m	BRF	Finish node type, major connection without		14_9		



Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 15

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH5	Image Provided - Ref: 14_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
01.00m	0:00:16	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 14_2 
02.80m	0:00:35	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 14_3 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
02.90m	0:00:37	REM	General remark general condition	Image Provided - Ref: 14_4 
03.50m	0:00:43	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 14_5 
04.70m	0:00:57	CL	Crack, longitudinal at 02 o'clock - Severity 1	Image Provided - Ref: 14_6 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
06.30m	0:01:13	REM	General remark general condition	Image Provided - Ref: 14_7 
07.10m	0:01:22	JN	Junction at 03 o'clock: 0mm Diameter	Image Provided - Ref: 14_8 
07.30m	0:01:36	CC	Crack, circumferential from 07 o'clock to 12 o'clock - Severity 1	Image Provided - Ref: 14_9 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
07.80m	0:01:50	JN	Junction at 02 o'clock: 0mm Diameter	Image Provided - Ref: 14_10 
07.90m	0:02:03	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 14_11 
08.60m	0:02:09	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 14_12 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
08.60m	0:02:09	LRQ	Line of drain/sewer deviates right [quarter]	Image Provided - Ref: 14_13 
08.90m	0:02:15	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 14_14 
09.70m	0:02:25	DEE	Attached deposits, encrustation from 02 o'clock to 08 o'clock: 30% Cross sectional area loss - Severity 3	Image Provided - Ref: 14_15 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
09.70m		BRF	Finish node type, major connection without manhole BR2	Image Provided - Ref: 14_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 16

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH5	Finish Node Ref:	DS SEWER	Direction:	D
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	8.6	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		15_0		
00.00m	WL	Water level 0%			0:00:00	
00.70m	R	Roots		15_2	0:00:06	
00.70m	CR	Crack, radiates from 06		15_8	0:00:06	
00.80m	FL	Fracture longitudinal 04		15_9	0:00:13	
01.20m	R	Roots		15_3	0:00:16	
02.50m	CC	Crack, circumferential 10-03		15_4	0:00:30	
04.30m	REM	General remark		15_5	0:00:41	
07.60m	JDM	Joint displaced medium		15_6	0:01:01	
08.50m	LDH	Line of drain/sewer deviates down [half]		15_7	0:01:07	
08.60m	BRF	Finish node type, major connection without		15_9		

Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 16

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH5	Image Provided - Ref: 15_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.70m	0:00:06	R	Roots - Severity 3	Image Provided - Ref: 15_2 
00.70m	0:00:06	CR	Crack, radiates from 06 o'clock - Severity 1	Image Provided - Ref: 15_8 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
00.80m	0:00:13	FL	Fracture longitudinal at 04 o'clock - Severity 3	Image Provided - Ref: 15_9 
01.20m	0:00:16	R	Roots - Severity 3	Image Provided - Ref: 15_3 
02.50m	0:00:30	CC	Crack, circumferential from 10 o'clock to 03 o'clock - Severity 1	Image Provided - Ref: 15_4 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
04.30m	0:00:41	REM	General remark general condition	Image Provided - Ref: 15_5 
07.60m	0:01:01	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 15_6 
08.50m	0:01:07	LDH	Line of drain/sewer deviates down [half] line down to sewer	Image Provided - Ref: 15_7 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
08.60m		BRF	Finish node type, major connection without manhole DS SEWER- LINE DOWN TO SEWER	Image Provided - Ref: 15_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 17

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	MH5	Finish Node Ref:	VENT	Direction:	U
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	Z
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	0	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		16_0		—
00.00m	WL	Water level 0%			0:00:00	—
00.00m	DER	Settled deposits coarse 100%			0:00:02	—
00.00m	SA	Survey abandoned		16_9		—



Total Defects for section



DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 17

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH5	Image Provided - Ref: 16_0  0.00m
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.00m	0:00:02	DER	Settled deposits coarse: 100% Cross sectional area loss - Severity 3	
00.00m		SA	Survey abandoned camera unable to pass	Image Provided - Ref: 16_9999  0.00m

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 18

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	G1	Finish Node Ref:	DS	Direction:	D
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	S
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	0	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		17_0		—
00.00m	WL	Water level 0%			0:00:00	—
00.00m	SA	Survey abandoned		17_9		—



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 18

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole G1	Image Provided - Ref: 17_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.00m		SA	Survey abandoned camera unable to pass gully	Image Provided - Ref: 17_9999 

Total Defects for section



DRB Grade for Section





Site: 41 Sheldon Avenue, London

Section 19

Client:	Location (Street Name): 41 Sheldon Avenue	City/Town/Village London	Cust Job Ref.	Surveyors Name:	Date: 05/09/2023
Start Node Ref:	G2	Finish Node Ref:	DS	Direction:	D
Start Node Depth:	0.00	Finish Node Depth:	0.00	Use:	S
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC
				Cleaned	N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	22.9	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		18_0		0m
00.00m	WL	Water level 0%			0:00:00	
00.50m	DES	S1 Settled deposits fine 20%	S1	18_2	0:00:25	
01.80m	DES	F1 Settled deposits fine 20%	F1	18_-	0:00:25	
04.40m	REM	General remark		18_3	0:01:23	
06.20m	JDM	Joint displaced medium		18_4	0:01:47	
06.20m	LLH	Line of drain/sewer deviates left [half]		18_5	0:01:47	
06.80m	JDM	Joint displaced medium		18_6	0:01:55	
06.80m	LLH	Line of drain/sewer deviates left [half]		18_7	0:01:55	
07.40m	JDM	Joint displaced medium		18_8	0:02:06	
07.40m	CC	Crack, circumferential 10-04		18_9	0:02:06	
07.40m	LLH	Line of drain/sewer deviates left [half]		18_1	0:02:06	
08.30m	REM	General remark		18_1	0:02:18	
10.00m	JDM	Joint displaced medium		18_1	0:02:54	
10.30m	JN	Junction 11 : 0mm Diameter		18_1	0:02:57	
11.20m	JDM	Joint displaced medium		18_1	0:03:24	
11.30m	LLH	Line of drain/sewer deviates left [half]		18_1	0:03:25	
12.20m	JN	Junction 12 : 0mm Diameter		18_1	0:03:38	
12.50m	JDM	Joint displaced medium		18_1	0:03:47	
13.00m	JN	Junction 09 : 0mm Diameter		18_1	0:03:50	
13.70m	JDM	Joint displaced medium		18_1	0:03:59	
15.00m	JDM	Joint displaced medium		18_2	0:04:20	
15.70m	JDM	Joint displaced medium		18_2	0:04:39	
15.90m	REM	General remark		18_2	0:04:41	
19.00m	REM	General remark		18_2	0:05:48	19.00m

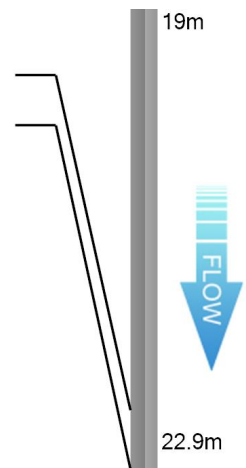
DRB Grade for Section

Total Defects for section



Position	Code	Description
22.40m	REM	General remark
22.90m	SA	Survey abandoned

CD	Pic	Video Ref
	18_2	0:07:16
	18_9	



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 19

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole G2	Image Provided - Ref: 18_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.50m	0:00:25	S1 DES	Settled deposits fine 0.5m - 1.8m: 20% Cross sectional area loss - Severity 3	Image Provided - Ref: 18_2 
01.80m	0:00:25	F1 DES	Settled deposits fine Defect End: 20% Cross sectional area loss - Severity 3	
04.40m	0:01:23	REM	General remark general condition	Image Provided - Ref: 18_3 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
06.20m	0:01:47	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 18_4 
06.20m	0:01:47	LLH	Line of drain/sewer deviates left [half]	Image Provided - Ref: 18_5 
06.80m	0:01:55	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 18_6 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
06.80m	0:01:55	LLH	Line of drain/sewer deviates left [half]	Image Provided - Ref: 18_7 
07.40m	0:02:06	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 18_8 
07.40m	0:02:06	CC	Crack, circumferential from 10 o'clock to 04 o'clock - Severity 1	Image Provided - Ref: 18_9 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
07.40m	0:02:06	LLH	Line of drain/sewer deviates left [half]	Image Provided - Ref: 18_10 
08.30m	0:02:18	REM	General remark general condition	Image Provided - Ref: 18_11 
10.00m	0:02:54	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 18_12 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
10.30m	0:02:57	JN	Junction at 11 o'clock: 0mm Diameter	Image Provided - Ref: 18_13 
11.20m	0:03:24	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 18_14 
11.30m	0:03:25	LLH	Line of drain/sewer deviates left [half]	Image Provided - Ref: 18_15 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
12.20m	0:03:38	JN	Junction at 12 o'clock: 0mm Diameter	Image Provided - Ref: 18_16 
12.50m	0:03:47	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 18_17 
13.00m	0:03:50	JN	Junction at 09 o'clock: 0mm Diameter	Image Provided - Ref: 18_18 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
13.70m	0:03:59	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 18_19 
15.00m	0:04:20	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 18_20 
15.70m	0:04:39	JDM	Joint displaced medium - Severity 3	Image Provided - Ref: 18_21 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
15.90m	0:04:41	REM	General remark general condition	Image Provided - Ref: 18_22 
19.00m	0:05:48	REM	General remark general condition	Image Provided - Ref: 18_23 
22.40m	0:07:16	REM	General remark general condition	Image Provided - Ref: 18_24 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
22.90m		SA	Survey abandoned camera unable to continue	Image Provided - Ref: 18_9999 

Total Defects for section



DRB Grade for Section





Descriptive Report with Remarks and Observation Images

Section 20

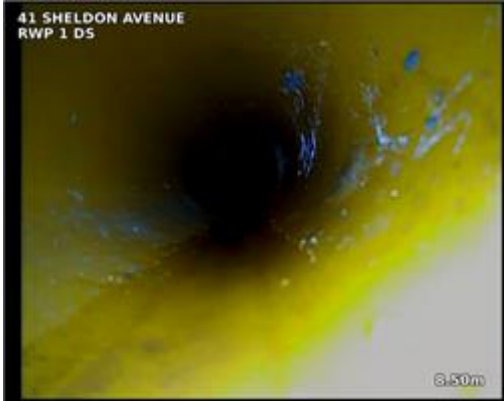
Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole RWP 1	Image Provided - Ref: 19_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.20m	0:00:03	OB	Other obstacles: 10% Cross sectional area loss - Severity 3 screws	Image Provided - Ref: 19_2 
03.80m	0:00:21	REM	General remark general condition	Image Provided - Ref: 19_3 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
08.50m	0:00:38	REM	General remark general condition	Image Provided - Ref: 19_4 
10.30m	0:00:46	JN	Junction at 02 o'clock: 0mm Diameter	Image Provided - Ref: 19_5 
14.10m	0:01:02	REM	General remark general condition	Image Provided - Ref: 19_6 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
15.00m	0:01:06	LRH	Line of drain/sewer deviates right [half]	Image Provided - Ref: 19_7 
15.30m	0:01:14	JN	Junction at 09 o'clock: 0mm Diameter	Image Provided - Ref: 19_8 
18.00m	0:01:38	REM	General remark general condition	Image Provided - Ref: 19_9 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
18.30m	0:01:41	LRH	Line of drain/sewer deviates right [half]	Image Provided - Ref: 19_10 
18.70m		GYF	Finish node type Gully DS	Image Provided - Ref: 19_9999 

Total Defects for section



DRB Grade for Section



Conclusion

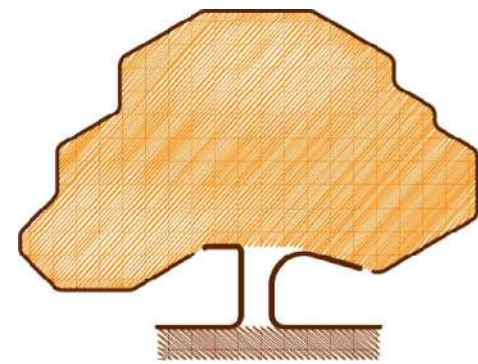
- The drainage serving the property is a private system. The drainage has been altered over the years with a seemingly original clay pipework system with alterations to the rear in newer plastic pipework. There are number of surface water connections into the foul drainage making it combined.
- MH 1 located on the patio at the rear of the house. The upstream pipe terminates with an open end under the patio. Branch BR1 connects a surface water gully which also connects the rainwater pipe on the conservatory. Another gully connects via a junction to branch BR1 which drains a channel gully in addition to foul connections from the utility room.
- MH2 is located under the patio upstream of MH2 BR2 and is not accessible. It serves a live RWP and gully. The upstream pipe has coarse settled deposits in the line.
- Downstream of MH1 the pipe connects to MH3 Branch BR1 which connects a rainwater pipe and gully via a junction. MH3 is located to the right hand side of the property this connects the kitchen via a gully (BR2), an soil vent pipe (SVP) (BR3) draining two 1st floor bathrooms and a 40mm waste pipe (BR4). A channel drain connects at high level to MH3 (BR5 HL).
- MH3 connects to MH5 located on the front drive near the boundary. This is the final chamber and has an interceptor trap present prior to connecting to the public sewer.
- A chamber MH4 is located on the left hand side of the property which connects an SVP and a channel drain in front of the garage. This connects to MH5 branch BR1. Branch BR2 connects the ground floor WC as well as the sink via a junction.
- A rainwater downpipe and gully (G1) to the front right hand side was not able to access beyond the gully trap.
- Using a 32mm flexible camera a gully 'G2' to the rear of the garage was able to be surveyed. This surface water run goes under the garage and turns, running under the drive to the right-hand side of the property. It was surveyed for 22m till the camera was unable to continue, due to multiple bends and feeding through the tight gully trap.
- There is a water meter chamber on the front drive partially in the shrubs.
- Two additional chambers in the rear garden are lighting.
- The drainage is in a serviceable condition. There are some medium displaced joints in the old clay ware pipes. Some minor cracks were observed; minor grade 1 crack MH1 to MH3 and MH5 BR2. The vent pipe to MH5 which is high level within the chamber is collapsed or has been removed beyond the start of the pipe.
- The line to the sewer has a crack and longitudinal fracture and root ingress just downstream of the interceptor trap.

Recommendations

- Clean the foul and surface water pipes to remove settled deposits with high pressure jetting as necessary. Clear large coarse deposits present in pipe MH2 upstream.
- Monitor grade 1 or 2 cracks and line if they deteriorate.
- Points of root ingress are to be sealed and repair any cracks/fractures pipe by lining, this is necessary downstream of the interceptor trap.
- Any critical drainage dimensions should be checked prior to any works.

APPENDIX C

TREE SURVEY



JOHN CROMAR'S
ARBORICULTURAL
COMPANY
LIMITED

THE OLD SCHOOL,
TITLEY, KINGTON,
HR5 3RN.
*at Wheatley, Oxford
& Harpenden, Herts.*

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FAX 01544 231006
MOB 07860 453072
admin@treescan.co.uk
www.treescan.co.uk



KEY TO COLOURS /
LINETYPES USED IN
RELATION TO TREES

GREEN - High Value (A)
BLUE - Moderate Value (B)
BLACK - Low Value (C)
RED - Very short life
expectancy (U)
ORANGE SHAPES: Root
Protection Areas

Spread and trunk colours
correspond directly to
those used in British
Standard 5837:2012,
Table 2.



TOOTHED LINE: Tree spread line

DRG. NAME

TREE VALUE
ASSESSMENT
(AS PER BS
5837:2012) &
ROOT
PROTECTION
AREAS

NOTES

Do not use for setting out purposes.
All dimensions to be checked on site.

Any scale referenced below applies ONLY when plan
printed at ISO A1 size.

The original of this drawing was produced in colour - a
monochrome copy should not be relied upon.

TEXT

FOR FULL DETAILS OF TREE VALUE
PLEASE SEE REPORT

BASED ON

ON CENTRE SURVEYS LTD. DRG. NO.:
21343B/1 SUPPLIED

SITE ADDRESS

41 Sheldon Avenue, Highgate, N6 4JP

DRG. REF.

S1110-J1-P1

SCALE & SIZE

1:200 @ A1

0

REV. NO.

v1

DATE

25-May-23

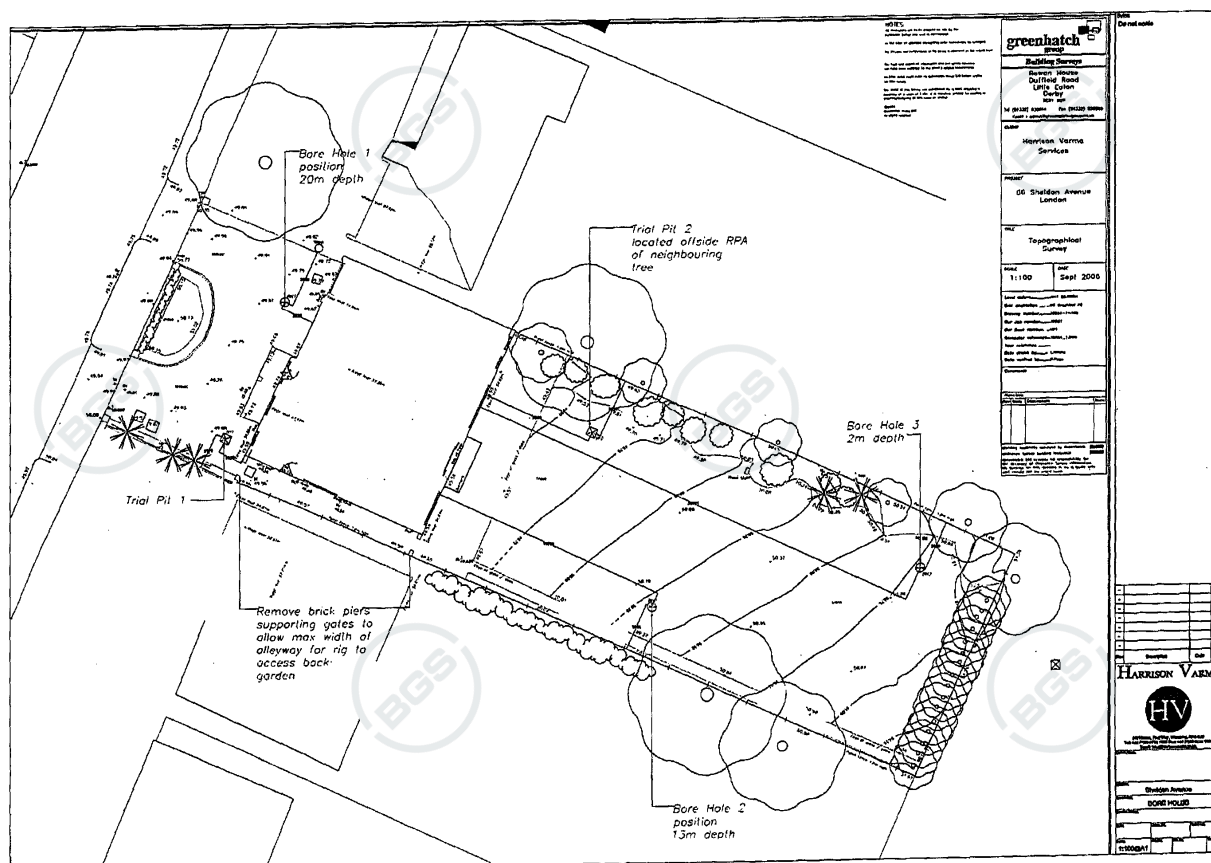
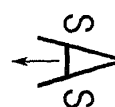
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10

APPENDIX D

BOREHOLE INFORMATION

Site Analytical Services Ltd.						Site 66 SHELDON AVENUE, HIGHGATE, LONDON, N6 4ND		Trial Pit Number TP2	
Excavation Method HAND EXCAVATION		Dimensions 800 X 800		Ground Level (mOD)		Client HARRISON VARMA LIMITED		Job Number 0713290	
		Location TQ 276 882		Dates 09/07/2007		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.25	D1				(0.20) 0.20	MADE GROUND - tarmacadam (100mm) over concrete			
0.50	D2				(0.50)	MADE GROUND - soft to firm grey brown sandy silty clay, fine to medium gravel, brick and concrete fragments			
0.75	D3				0.70 (0.30)	Soft becoming firm mottled brown, orange brown and green grey sandy silty CLAY with occasional fine sub rounded flint gravel			
1.00	D4		09/07/2007: DRY		1.00	Complete at 1.00m			
Plan						Remarks			
						Groundwater was not encountered during excavation D = Disturbed Sample			
						Scale (approx)		Logged By	
						1:25		DC	
								Figure No.	
								0713290.TP2	



Site Analytical Services Ltd.

REF: 07/13280

LOCATION: 66 Sheldon Avenue, Highgate, London N6 4ND

FIG: 1

TITLE: Site Sketch Plan

DATE: August 2007

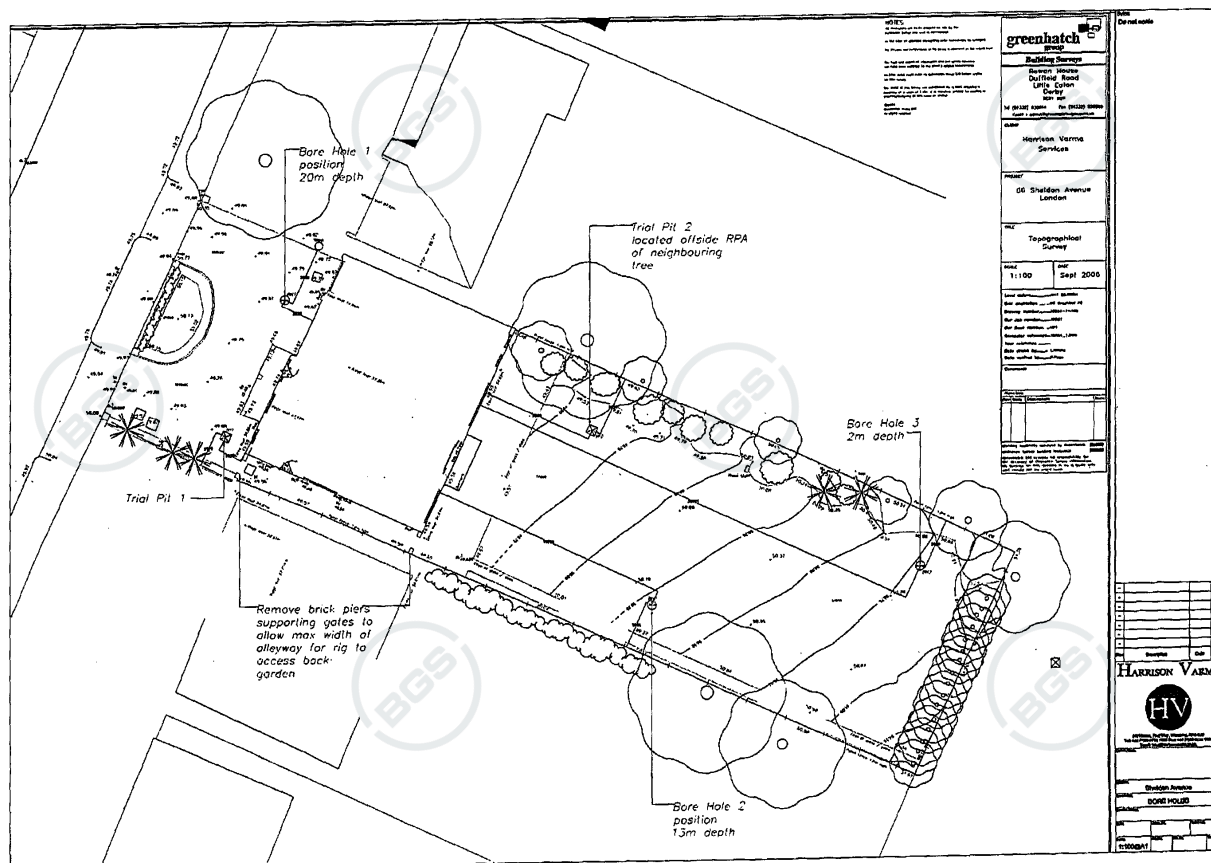
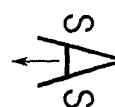
SCALE: NTS



Site Analytical Services Ltd.							Site 66 SHELDON AVENUE, HIGHGATE, LONDON, N6 4ND	Borehole Number BH1	
Boring Method SHELL AND AUGER		Diameter 150mm cased to 3.00m		Ground Level (mOD)		Client HARRISON VARMA LIMITED	Job Number 0713290		
		Location TQ 276 882		Dates 27/06/2007				Engineer	Sheet 1/2
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (Thickness)	Description		
0.30-0.40	D1	1.00	DRY	1/1,1,1,1		(0.50)	MADE GROUND - tarmac over loose grey brown clayey silty sand, fine to medium gravel, ashes, brick rubble and sandstone slabs		
0.60-0.60	D2					0.50	MADE GROUND - soft to firm grey brown sandy silty clay, fine to medium gravel, brick and concrete fragments		
1.00-1.45 1.00-1.10 1.20-1.65	CPT N=4 D3 D4					(0.80)			
1.85-1.95 2.00-2.45 2.00-2.45	D5 CPT N=8 D6	2.00	DRY	1,2/1,2,2,3		(1.10)	Soft to firm mottled brown, orange brown and green grey sandy to very sandy silty CLAY with occasional fine to medium sub rounded flint gravel		
2.75-2.85	D7	3.00	DRY	30 blows		2.40	Firm becoming stiff brown and mottled orange brown and veined blue grey silty CLAY with occasional partings of orange brown silty fine sand and occasional small gypsum crystals		
3.00-3.45	U1					5.80	Stiff dark grey brown fissured silty CLAY with occasional partings of light brown silty fine sand and scattered small gypsum crystals		
4.00-4.10	D8	3.00	DRY	3,3/4,3,4,4		(3.40)			
4.60-4.95 4.60-4.95	SPT N=15 D9					(3.30)			
5.50-5.60	D10								
6.00-6.45	U2	3.00	DRY	40 blows		5.80	Stiff dark grey brown fissured silty CLAY with occasional partings of light brown silty fine sand and scattered small gypsum crystals		
7.00-7.10	D11	3.00	DRY	4,5/5,6,5,6		(3.30)			
7.60-7.95 7.50-7.95	SPT N=22 D12								
8.50-8.60	D13								
9.00-9.45 9.00-9.45	U3 NR D14	3.00	DRY	50 blows SEEPAGES(1) at 9.10m, rose to 8.50m in 20 mins.		9.10	Weak grey CLAYSTONE nodules in a matrix of silty clay		
10.00-10.45	SPT N=35	3.00	DRY	6,7/9,9,9,8		10.00			
Remarks D = Disturbed Sample C = Dynamic Cone Penetration Test, S = Standard Penetration Test U = Undisturbed 100mm Diameter Sample - NR = No Recovery Chiselling from 9.10m to 10.00m for 0.5 hours. Excavating from 0.00m to 1.20m for 1.0 hour.							Scale (approx) 1:50	Logged By DC	
							Figure No. 0713290.BH1		



Site Analytical Services Ltd.							Site 66 SHELDON AVENUE, HIGHGATE, LONDON, N6 4ND		Borehole Number BH1	
Boring Method SHELL AND AUGER		Diameter 150mm cased to 3.00m		Ground Level (mOD)		Client HARRISON VARMA LIMITED		Job Number 0713290		
		Location TQ 276 882		Dates 27/08/2007		Engineer		Sheet 2/2		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
10.00-10.45	D15						Stiff becoming stiff to very stiff dark grey brown fissured silty CLAY with occasional partings of light brown silty fine sand and scattered small gypsum crystals	x		
11.00-11.10	D16							x		
11.50-11.95	U4	3.00	DRY	50 blows				x		
12.50-12.60	D17							x		
13.00-13.45 13.00-13.45	SPT N=32 D18	3.00	DRY	4,6/8,8,9,7				x		
14.00-14.10	D19							x		
14.50-14.95	U5	3.00	DRY	70 blows				x		
15.50-15.60	D20					(10.00)		x		
16.00-16.45 16.00-16.45	SPT N=34 D21	3.00	DRY	4,6/8,8,8,10				x		
17.00-17.10	D22							x		
17.50-17.95	U6	3.00	DRY	85 blows				x		
18.75-18.85	D23							x		
19.55-20.00 19.55-20.00	SPT N=39 D24	3.00	WET	6,9/8,9,10,12 27/08/2007:WETm		20.00		x		
Remarks								Scale (approx) 1:50	Logged By DC	
								Figure No. 0713290.BH1		



Site Analytical Services Ltd.

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LOCATION: 66 Sheldon Avenue, Highgate, London N6 4ND

FIG: 1

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DATE: August 2007

SCALE: NTS

greenhatch group

Building Survey

Survey Name: 66 Sheldon Avenue, Highgate, London N6 4ND

Client: Harrison Varma Services

Project: 66 Sheldon Avenue, London

Survey Type: Topographical Survey

Date: 11/08/2007

Scale: 1:100

Drawn by: [Name]

Checked by: [Name]

Approved by: [Name]

HARRISON VARMA

HV

66 Sheldon Avenue, Highgate, London N6 4ND

020 7611 1111

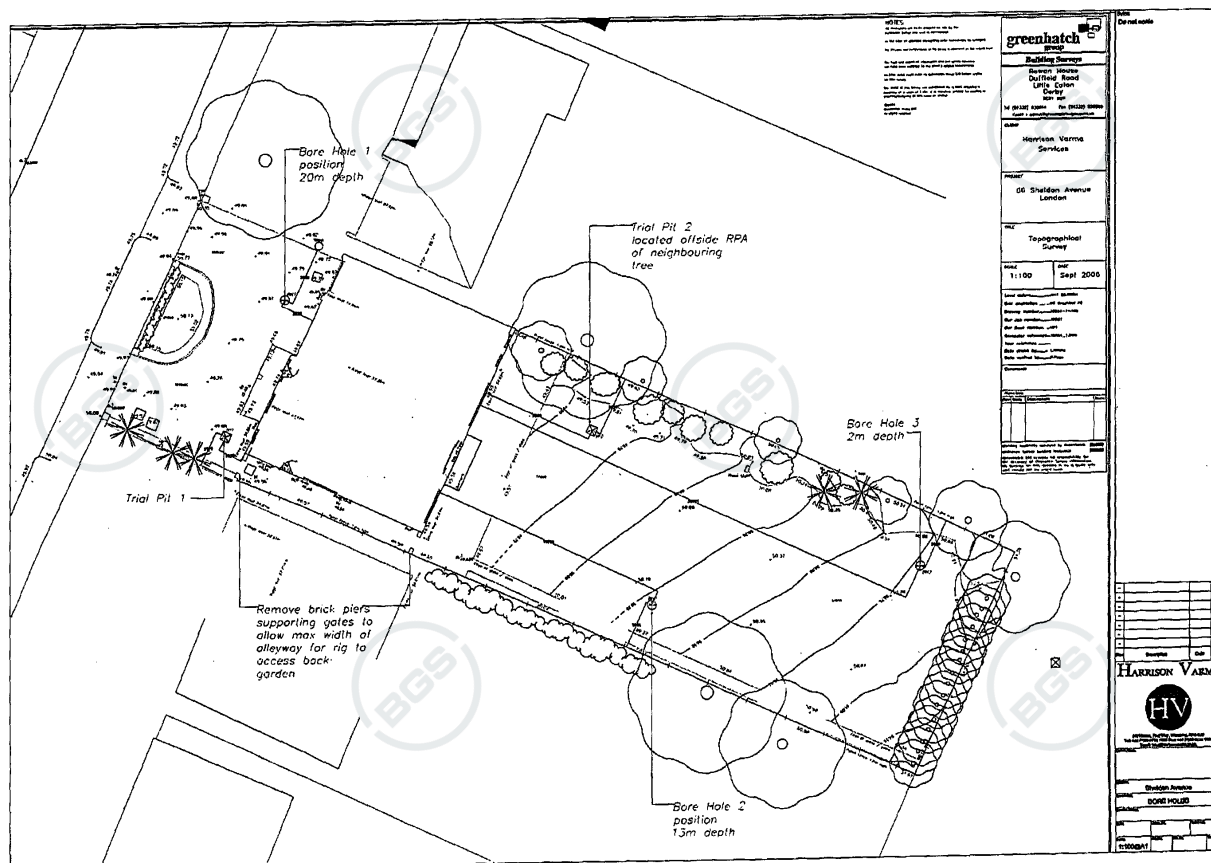
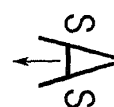
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Site Analytical Services Ltd.						Site 66 SHELDON AVENUE, HIGHGATE, LONDON, N6 4ND		Borehole Number BH2	
Boring Method CONTINUOUS FLIGHT AUGER		Diameter 100mm cased to 0.00m		Ground Level (mOD)		Client HARRISON VARMA LIMITED		Job Number 0713290	
		Location TQ 276 882		Dates 27/08/2007		Engineer		Sheet 1/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.25	D1					(0.30) 0.30	MADE GROUND - grass over loose grey brown clayey topsoil with some gravel and brick fragments		
0.50	D2						Soft becoming firm mottled brown, orange brown and green grey sandy silty CLAY with occasional fine sub rounded flint gravel and rootlets		
0.75	D3					(1.20)			
1.00	D4								
1.00	V1 44								
1.50	D5					1.50	Firm to stiff becoming stiff brown and mottled orange brown and veined blue grey silty CLAY with occasional partings of orange brown silty fine sand and occasional small gypsum crystals		
1.50	V2 78								
2.00	V3 88								
2.00	D6								
2.50	D7								
2.50	V4 100								
3.00	D8					(3.30)			
3.00	V5 115								
3.50	D9								
3.50	V6 118								
4.00	D10								
4.00	V7 126								
4.50	V8 133								
4.50	D11					4.80	Stiff dark grey brown fissured silty CLAY with occasional partings of light brown silty fine sand and scattered small gypsum crystals		
5.00	D12								
5.00	V9 140								
6.00	D13								
6.00	V10 140+								
7.00	D14					(6.20)			
7.00	V11 140+								
8.00	V12 140+								
8.00	D15								
9.00	D16								
9.00	V13 140+					10.00			

Remarks Falling head permeability test carried out at 4.00m depth - water dropped from 0.30m to 0.55m depth in one hour V = Vane Test - Result in kPa D = Disturbed Sample Groundwater was not encountered during boring Excavating from 0.00m to 1.00m for 1.0 hour.		Scale (approx) 1:50	Logged By DC
		Figure No. 0713290.BH2	

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HARRISON VARMA

HV

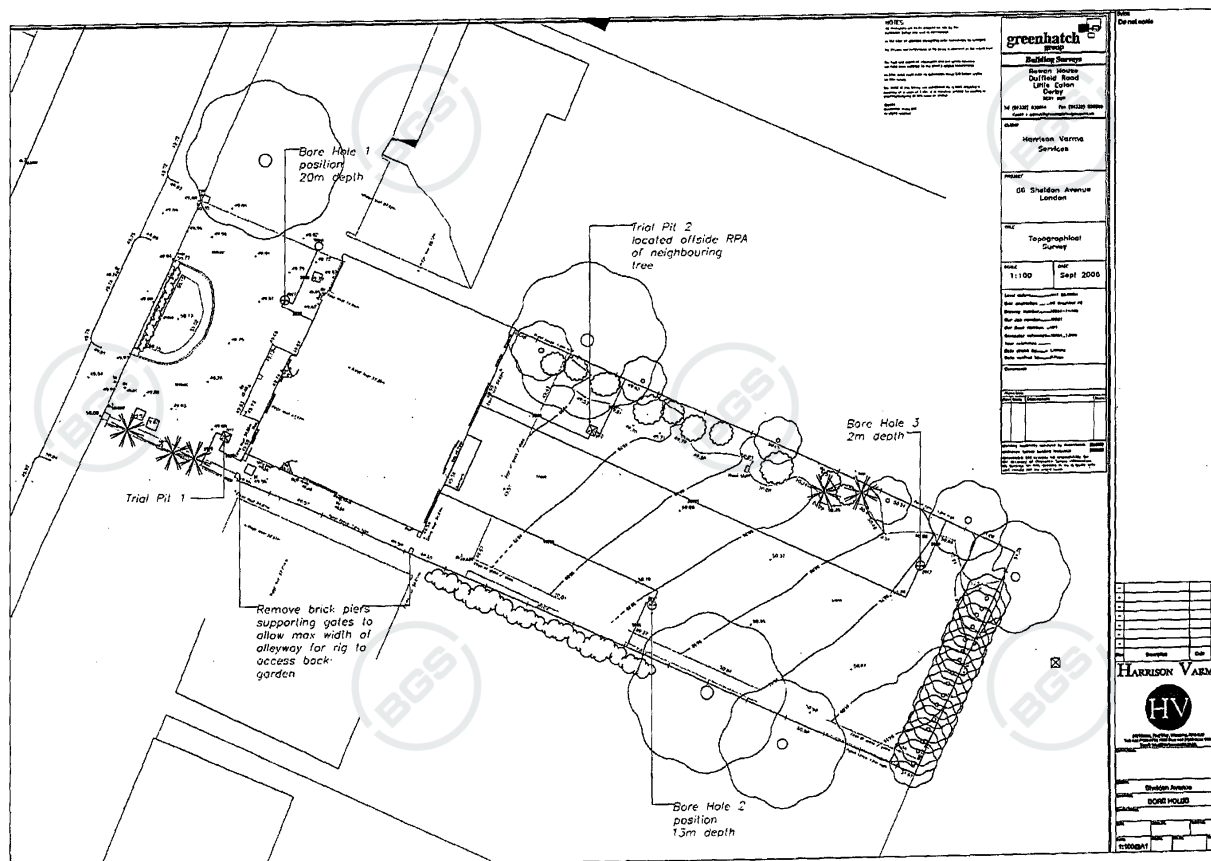
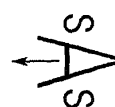
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Site Analytical Services Ltd.							Site	Borehole Number	
Boring Method		Diameter		Ground Level (mOD)		Client	Job Number		
CONTINUOUS FLIGHT AUGER		100mm cased to 0.00m				HARRISON VARMA LIMITED	0713290		
Location		Dates		Engineer		Sheet			
TQ 276 882		09/07/2007				1/1			
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.25	D1					(0.50)	MADE GROUND - grass over loose grey brown clayey topsoil with some gravel and brick fragments		
0.50	D2					0.50			
0.75	D3								
1.00	V1 60					(1.20)			
1.00	D4								
1.50	V2 74					1.70			
1.50	D5					(0.30)			
2.00	D6			09/07/2007: DRY		2.00	Firm to stiff becoming stiff brown and mottled orange brown and veined blue grey silty CLAY with occasional partings of orange brown silty fine sand and occasional small gypsum crystals		
2.00	V3 80						Complete at 2.00m		
Remarks D = Disturbed Samples V = Vane Test - Result in kPa Groundwater was not encountered during boring							Scale (approx) 1:50	Logged By DC	
							Figure No. 0713290.BH3		



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REF: 07/13280

LOCATION: 66 Sheldon Avenue, Highgate, London N6 4ND

FIG: 1

TITLE: Site Sketch Plan

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SCALE: NTS

APPENDIX E PROPOSED DEVELOPMENT PLANS