Former Sipson Garden Centre

Flood Risk Assessment and Drainage Strategy

Virtus

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Quality information

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1. Introduction

1.1 Commission

AECOM has been commissioned by Virtus Data Centres (the 'Applicant') to prepare a Utilities Statement to support an Outline planning application for the development of a new data centre (hereafter referred to as the 'proposed Development'), located in Sipson, Heathrow, London (the 'Site').

This Flood Risk Assessment (FRA) and Drainage Strategy considers the flood risk posed to, and by the Proposed Development from all sources (based on publicly available data), as well as potential mitigation options (where required, and demonstrated by the Drainage Strategy) and associated constraints. AECOM's approach to this FRA involved a desk-based review of publicly available information to identify likely flood sources and mechanisms for the site. The assessment has been prepared in accordance with the National Planning Policy Framework 2026 (NPPF)[1] and supporting Planning Practice Guidance (PPG)[2].

The Drainage Strategy demonstrates how surface water and foul water from the development will be managed. The drainage strategy is indicative at this stage and is subject to Reserved Matters and Detailed Design at a later stage.

1.2 Scope of Assessment

The scope of the FRA is to:

- Review current relevant local planning policy documents related to flood risk.
- Obtain and review data from the Environmental Agency (EA) concerning potential flood sources, local surface water drainage, and other relevant information. Confirm key requirements regarding flood risk and drainage for the new development and identify any constraints that may influence the layout and/or drainage design.
- Review geological information to assess likely ground conditions and potential groundwater levels.
- Evaluate the level of flood risk to the site from all sources.
- Highlight any design requirements necessary to ensure that the development does not increase offsite flooding.
- Identify potential mitigation measures for the proposed development and review the masterplan in terms of flood risk constraints, if required.

1.3 Aims and Objectives

The aim of this FRA is to consider the flood risk posed to, and arising from, the Proposed Development. To achieve this. The following objectives must be met:

- Assess and interpret the available information to identify potential sources of flood risk, including fluvial, tidal, groundwater, sewer, surface water, and artificial sources.
- Summarise how surface water will be managed in relation to the proposed development.
- Proposed recommendations for appropriate flood risk mitigation measures where applicable.
- Produce an FRA report in full accordance with NPPF to accompany the planning application.

[1] Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2 (accessed September 2026)
[2] Available at: https://www.gov.uk/government/collections/planning-practice-guidance (accessed September 2026)

2. Site Description

2.1 Location

The site is located on Grey Belt land to the east of the M4 Heathrow Spur at National Grid Reference TQ073780, and covers an area of approximately 6.9 ha (69,000m²), refer to Figure 1 below.



Figure 1: The Proposed Development Site Location (source Google Maps)

The site is irregular in shape and comprises the former Sipson Garden Centre and associated land. The northern part of the site contains the former garden centre buildings, areas of hardstanding, a car park, and external areas previously used for the display and storage of goods associated with the garden centre use. The southern part of the site comprises an undeveloped field.

The site is bounded to the east by a section of the M4 motorway in the vicinity of Heathrow Airport. A further section of the M4 motorway runs immediately to the north of the site. The western boundary is formed by the A408, from which the site gains vehicular access. A small number of residential properties are located to the south-west of the site, fronting the A408.

The Holiday Inn Hotel, which is currently being refurbished, is situated immediately north of the site, while The Plough public house occupies the north-western corner of the site boundary. The Plough is designated as a locally listed building. To the south of the site are residential properties forming part of the settlement of Sipson.

2.2 Site Designation

The site forms part of the Green Belt as designated in the development plan; however, a significant proportion of the site comprises previously developed land.

The site is considered to constitute Grey Belt land.

2.3 Proposed Development

The proposed development comprises the demolition of existing structures and the construction of a new data centre facility with an anticipated operational capacity of approximately 54MW. The development would provide approximately up to 54,000 sqm of gross internal floorspace, including data halls, administration block, plant, and associated ancillary infrastructure.

The Applicant is submitting an Outline planning application (with all matters reserved except for access) for the redevelopment of the former Sipson Garden Centre site to provide a data centre facility, including associated energy infrastructure, security measures, landscaping, and access arrangements.

2.4 Planning History

Full planning permission was granted on 7 March 2025 (LPA Ref. 67666/APP/2023/3721) for the redevelopment of the site to provide a Centre of Excellence for the servicing and repair of Airside Support Vehicles (Use Class B2). The approved scheme comprises a service building containing seven service bays and one storage bay, an ancillary two-storey office building, together with associated hardstanding, parking, and other supporting infrastructure.

This planning application was approved following a resolution to grant planning permission at Planning Committee in June 2024.

2.5 Topography

In general, the site appears to be relatively flat with a consistent level of approximately 30 m above ordnance datum (AOD). However, on a smaller scale, the topographical map below indicates localised low points located centrally on the site and on the entrance to the access road. These areas, highlighted in the figure below, may be more susceptible to surface water ponding. This data is also reinforced by the lidar data supplied by Hillingdon council the lead local flood authority in this area (LLFA) which also shows West of TWR the site lies between 31-40m.



Figure 1 Topographical Map (Source: https://en-gb.topographic-map.com/)

2.6 Geology and Hydrogeology

The British Geological Survey (BGS) [3] website indicates that the superficial deposits underlying the site and the surrounding area comprise of Langley Silt. Langley Silt appears yellow-brown with medium- to fine-grained materials and has an average thickness of approximately 3 m. The superficial deposits are underlain by London Clay, which is typically described as a poorly laminated, blue-grey to grey-brown silty clay.

A review of historical borehole[4] records Appendix B within the surrounding area broadly reflects the findings of the BGS geological map. The borehole data identifies very stiff, brown to orange silty clay at depths to approximately 1.7 m below ground level (bgl). Below this depth, the strata changes to coarse flint gravel, extending from 1.7 m to 9.8 m bgl. At greater depth, the borehole encounters the underlying bedrock, comprising London Clay.

Both the Langley Silt and London Clay deposits have relatively low permeability, which may restrict natural infiltration and increase the potential for surface waterlogging and ponding during periods of heavy rainfall. London Clay is also susceptible to seasonal shrink–swell behaviour. During wetter and colder periods, the clay can become saturated and expand, while during drier periods it can lose moisture and shrink. This seasonal expansion and contraction can result in ground movement, which may affect underground infrastructure and buried services.

The presence of the coarse flint gravel layer is potentially favourable for infiltration of surface water, subject to intrusive ground investigation.

The Defra MAGIC[5] website identifies the superficial aquifer beneath the site as unproductive principal superficial aquifer. Defining it as a low-permeable drift deposit (like clay or silt) that holds negligible significance for water supply or river base flow.

The Defra MAGIC Groundwater Vulnerability Map classifies the site as having Medium to Low Groundwater Vulnerability and identifies the underlying groundwater as unproductive. This classification indicates that the soil and underlying geological strata provide a moderate to high degree of natural protection against pollutants. The low permeability of the underlying materials reduces the rate at which water and potential pollutants can infiltrate into the ground, contributing to the classification of the underlying groundwater as unproductive.

Source Protection Zones (SPZs) are designated around public groundwater abstraction source to safeguard drinking water supplies from contamination. According to Defra's MAGIC mapping[6], the nearest SPZs are located

[3] Available at: https://magic.defra.gov.uk/MagicMap.html (Accessed September 2026)

[4] Available at: Borehole records - British Geological Survey (Accessed September 2026)

[5] Available at: https://magic.defra.gov.uk/MagicMap.html (Accessed September 2026)

[6] Available at: Magic Map Application (Accessed September 2026)

approximately 5.0km southwest of the Proposed Development, past Heathrow airport. Consequently, the site does not lie within a SPZs.

2.7 Hydrology

There are several watercourses in proximity to the proposed site. There is a small watercourse (known as Frogs Ditch) flows approximately 2.2 km to the east, likely separated hydrologically from the site by the TRW. Additionally, several larger watercourses and rivers are also located to the east, with the nearest being the River Colne, approximately 2 km from the site. Both identified water courses are illustrated in Figure 3

Due to flat topography, the Site is unlikely to be hydraulically connected to the local watercourses, and satellite imagery as well as surface water flood risk mapping (discussed later) indicate that surface water is held in local topographic depressions that can form ephemeral ponds.

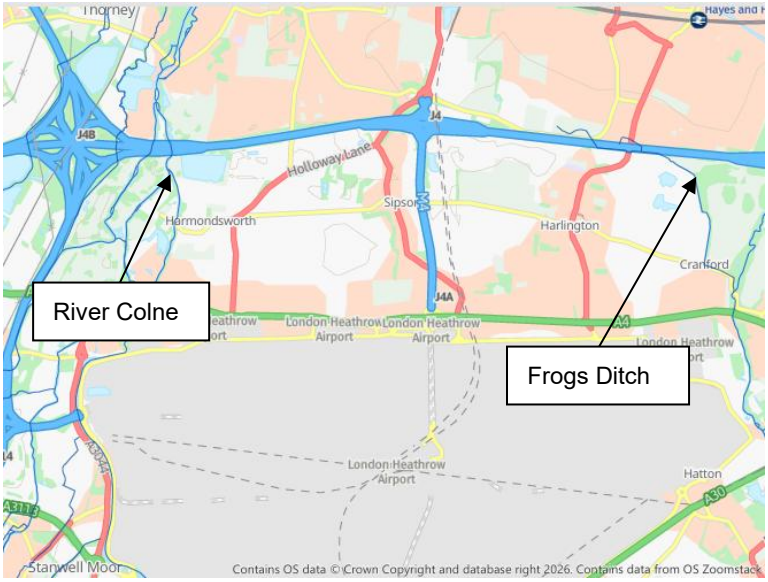


Figure 2 Watercourses (source:https://www.arcgis.com/apps/webappviewer/index.html)

2.8 Existing Sewers

The asset location record drawings received from Thames Water indicate that they have a 525mmØ foul sewer in Sipson Road to the west of the proposed development site. There is also a 300mm Ø foul sewer adjacent to Sipson Road at the south of the proposed development site, with a short section of foul sewer entering the site with a symbol denoting 'Undefined End'. This will require further investigation during the next stage of design.

With the exception of the short section of foul sewer to the south of the site, the asset location record drawings do not identify any connections from the existing site on to the Thames Water network. This will require further investigation and engagement with Thames Water to confirm connection arrangements.

See Appendix D for existing sewer information.

3. Planning Policy and Guidance

National planning policy sets out the overarching policy framework and local planning policy sets out the flood risk planning requirements for the local area, both of which must be adhered to. For this FRA, national guidance includes the NPPF and the accompanying Annex F, while local policy relates to the Local Development Plan.

3.1 National Planning Policy

Section 14 of the NPPF 2026[7] and the associated PPG set out national policy relating to flood risk and the application of the sequential, risk-based approach to development.

The NPPF 2026 Policy F7 seeks to ensure that development is directed to areas of lowest flood risk and that new development does not increase flood risk elsewhere. In accordance with the NPPF, a site-specific Flood Risk Assessment (FRA) is required for development proposals located within Flood Zones 2 and 3, sites of 1 hectare (ha) or greater within Flood Zone 1, and development located in areas with critical drainage problems or where other sources of flooding may affect the site.

As stated in the NPPF, Annex F: Managing Flood Risk and Coastal Change[8], these flood zones refer to the probability of river and sea flooding, ignoring the presence of defences. The flood zones are shown on the EA's Flood Map for Planning (Rivers and Sea), available on the EA's website. The flood zones are defined in Table 1 of the PPG which has been reproduced in Table 1 below.

Table 1. NPPF Annex F, Table 1 Flood Zones [abbreviated]

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding.
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding.
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea.
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters.

In accordance with EA's Flood Map the proposed development site is located entirely within Flood Zone 1, which has a low probability of flooding from rivers and sea.

The NPPF considers the vulnerability of different types of development to flooding. Development vulnerability classifications are set out in Annex F of NPPF. The compatibility of flood risk vulnerability classifications with the various flood zones is detailed in Table 2 of the Annex F[9], which is reproduced in Table 2 below.

Table 2. NPPF Annex F, Table 2 Flood Risk Vulnerability and Flood Zone Compatibility

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

[7] Available at: https://assets.publishing.service.gov.uk (Accessed July 2026)
[8] Available at: https://www.gov.uk/guidance/national-planning-policy-framework-annex-f (Accessed July 2026)
[9] Available at: https://www.gov.uk/guidance/national-planning-policy-framework-annex-f (Accessed July 2026)

Zone 3b	Exception Test required	X	X	X	✓

Key:

✓ Exception Test not required

X Development should not be permitted

In accordance with Annex F of NPPF 2026, the Proposed Development site comprises a data centre which is classified as 'Essential infrastructure'. As shown in Table 2, 'Essential infrastructure' development is appropriate within Flood Zone 1 and does not require the Sequential Test or Exception Test. The proposed development is therefore considered acceptable in in terms of flood risk policy.

3.2 Critical Drainage Area

The Proposed Development site is located outside of the Critical Drainage Areas (CDA)[10] identified by Hillingdon Council. CDAs are areas known to be at an increased risk of surface water flooding, typically occurring in the lower parts of the catchments where floodplains are constrained by existing development and where high tides levels can restrict the discharge of surface water to receiving watercourse. Development within a CDA should ensure that post development surface water runoff is managed using sustainable drainage principles and the proposed development does not increase flood risk either on-site or elsewhere.

3.3 Local Development Plan

The Hillingdon Local Plan: Part 1 was adopted in November 2012 and sets out the strategic planning policies and long-term vision for 2026. A subsequent Part 2 of the Local Plan was adopted in January 2020, providing more detailed development management policies to guide planning decisions and support the implementation of the Borough's strategic objectives.

Policy EM6 (2012): Management of Flood risk [11]

- *The Council will require new development to be directed away from Flood Zones 2 and 3 in accordance with the principles of the National Planning Policy Framework (NPPF).*
- *The subsequent Hillingdon Local Plan: Part 2 – Site Specific Allocations LDD will be subjected to the Sequential Test in accordance with the NPPF. Sites will only be allocated within Flood Zones 2 or 3 where there are overriding issues that outweigh flood risk. In these instances, policy criteria will be set requiring future applicants of these sites to demonstrate that flood risk can be suitably mitigated.*
- *The Council will require all development across the borough to use sustainable urban drainage systems (SuDS) unless demonstrated that it is not viable. The Council will encourage SuDS to be linked to water efficiency methods. The Council may require developer contributions to guarantee the long-term maintenance and performance of SuDS to an appropriate standard.*

Policy DMEI 9 Management of flood risk[12]

- *Development proposals in Flood Zones 2 and 3a will be required to demonstrate that there are no suitable sites available in areas of lower flood risk. Where no appropriate sites are available, development should be located on the areas of lowest flood risk within the site. Flood defences should provide protection for the lifetime of the development. Finished floor levels should reflect the Environment Agency's latest guidance on climate change.*
- *Development proposals in these areas will be required to submit an appropriate level Flood Risk Assessment (FRA) to demonstrate that the development is resilient to all sources of flooding. C)*
- *Development in Flood Zone 3b will be refused in principle unless identified as an appropriate development in Flood Risk Planning Policy Guidance. Development for appropriate uses in Flood Zone 3b will only be approved if accompanied by an appropriate FRA that demonstrates the development will be resistant and resilient to flooding and suitable warning and evacuation methods are in place.*

[10] Available at: Surface Water Management Plan maps | Hillingdon Council (Accessed September 2026)
[11] Available at: Local Plan | Local Plan and Review | Hillingdon Council (Accessed September 2026)
[12] Available at: Local Plan | Local Plan and Review | Hillingdon Council (Accessed September 2026)

- *Developments may be required to make contributions (through legal agreements) to previously identified flood improvement works that will benefit the development site.*

- *Proposals that fail to make appropriate provision for flood risk mitigation, or which would increase the risk or consequences of flooding, will be refused.*

3.4 London Borough of Hillingdon Climate Action Plan

The London Borough of Hillingdon Climate Action Plan[13] was formally adopted in July 2021 and sets out actions for the period 2025–2028. This is in response to the Council's declaration of a climate emergency in 2020. The Action Plan states that the Council will continue working towards achieving carbon neutral for itself and services by 2030. The Council has already reduced its operational carbon footprint by 54% and has an ambition for the borough to achieve net zero carbon emissions by 2050.

To support these targets, the Council aims to ensure that new major developments achieve zero-carbon standards, protect existing trees, promote sustainable transport, and encourage biodiversity improvements through the planning process. These biodiversity measures include protecting and enhancing green spaces, increasing tree planting and using green infrastructure to support carbon sequestration and flood-risk management.

In terms of flood risk, the Climate Action Plan recognises the importance of climate change adaptation and resilience in responding to the impacts of climate change that have already occurred and those expected in the future. The Plan identifies biodiversity measures which can contribute to climate resilience and help manage environmental impacts. In relation to flood risk specifically, the Plan refers to the Council's Local Flood Risk Management Strategy as the key document for flood-risk management and resilience measures

3.5 Hillingdon Local Flood Risk Management Strategy

The Hillingdon Local Flood Risk Management Strategy [14](LFRMS) sets out its approach to managing local flood risk from surface water, groundwater and ordinary watercourses, in accordance with its role as the LLFA. The latest strategy was adopted in July 2024.

The Strategy aims to improve the management of flood risk through better understanding of flood sources, community engagement, identification of flood risk management opportunities, and ensuring new development accounts for and mitigates flood risk

3.5.1 Highlighted sources

The LFRMS highlights that the borough is susceptible to pluvial flooding, with the local topography and underlying geology contributing to the accumulation of surface water. The borough is also susceptible to fluvial flooding, which occurs when the flow within a river exceeds its capacity, causing water to spill onto the surrounding floodplain. The principal rivers within Hillingdon include the River Colne, River Crane and River Pinn. Another potential source of flooding highlighted is groundwater flooding. Groundwater levels are generally highest during early spring and lowest during early autumn. Groundwater flooding is not necessarily directly associated with a specific rainfall event but can affect the permeability of the ground which could result in flooding.

The borough's sewer network primarily consists of separate surface water and foul water systems, which are managed by Thames Water Utilities Limited. Parts of the sewer network are ageing, and blockages can be difficult to identify. Tree root intrusion is identified as a notable cause of blockages, along with vegetation and other debris. Sewer flooding can be complex to assess due to the extensive nature of the sewer network, with some sections of the system not fully mapped.

There are also areas of combined sewer systems within the borough, where foul and surface water discharge into the same network. These systems are more susceptible to flooding during periods of heavy rainfall, as increased flows can overload the ageing network and cause the sewers to surcharge, potentially resulting in the discharge of foul sewage.

[13] Available at: Strategic Climate Action Plan.pdf (Accessed September 2026)
[14] Available at: Local Flood Risk Management Strategy (Accessed September 2026)

3.5.2 Community

The LFRMS highlights the important role of communities and landowners in local flood risk management. Local knowledge of flood risk and historic flooding can aid more flood management decisions and mitigation schemes. Landowners are responsible for managing drainage on and from their land and should take appropriate measures to reduce flood risk, ensuring that these measures do not increase flood risk to surrounding properties. Landowners adjacent to rivers, streams or ditches also have responsibilities as riparian landowners, including maintaining the free flow of water and preventing obstruction, pollution or unauthorised diversion of watercourses.

3.5.3 Flood risk management and mitigation

In line with the Climate Action Plan, the LFRMS considers the potential impacts of future climate change and the ageing London sewer network. More frequent and intense periods of rainfall are expected to increase the risk of flooding, particularly where drainage infrastructure has limited capacity. This is exacerbated by the loss of greenspace within gardens and increasing urbanisation, resulting in greater areas of impermeable hardstanding and a reduction in overall permeability and water storage capacity. The ageing drainage network across London may therefore have limited capacity to accommodate the increased frequency and intensity of rainfall events, increasing the potential for surface water and sewer flooding.

LFRMS Flood risk management aims:

- Reduce risk in areas at greatest risk of flooding to ensure investment is used effectively
- Use sustainable drainage systems (SuDS) and natural flood management (NFM) where possible
- Share knowledge on flood risk and what work is being undertaken with the public, as to how they can be involved and protect themselves, property and business
- Work with partners to provide a collective response to flood risk management

3.6 SuDS Hillingdon's Guidance

Within LFRMS it states that Planning applications (where appropriate) are required to demonstrate the use of SuDS in accordance with a number of policies:

- National Planning Policy Framework (Paragraphs 159-169)[15]
- Flood Risk and Coastal Change Planning Practice Guidance [16]
- London Plan Policies SI 12 and 13[17]
- Non-statutory Technical Standards for Sustainable Drainage Systems [18]
- Hillingdon Local Plan Policies EM 1, EM 6, DMEI 9 and DMEI 10 [19]

3.7 LLFA involvement in drainage strategy

The LLFA has a statutory duty to review the proposed drainage elements of major planning applications under the Act. Major planning applications are defined as:

- Developments of 10 or more dwellings
- A site area of 0.5 ha or greater
- Buildings with a floor space of 1,000m² or greater

[15] Available at: National Planning Policy Framework - GOV.UK (Accessed September 2026)
[16] Available at: Flood risk and coastal change - GOV.UK (Accessed September 2026)
[17] Available at: london.gov.uk/sites/default/files/the_london_plan_2021.pdf (Accessed September 2026)
[18] Available at: National standards for sustainable drainage systems - GOV.UK (Accessed September 2026)
[19] Available at: Local Plan | Local Plan and Review | Hillingdon Council (Accessed September 2026)

The LLFA will provide comments on the proposed surface water drainage strategy of the development along with proposed measures for the management of flood risk to the site. The Environment Agency will also be consulted with respect to any development within 8m of a main river or in Flood Zone 3.

The LLFA, as part of the planning application process, will review:

- If the drainage hierarchy set out in the London Plan (2021)[20] is being adhered to and that the most sustainable drainage features possible have been proposed.

The London plan hierarchy is as follows

1. Rainwater use as a resource
2. Rainwater infiltration to ground at or close to source
3. Rainwater attenuation in green infrastructure features for gradual release
4. Rainwater discharge direct to a watercourse
5. Controlled rainwater discharge to a surface water sewer or drain
6. Controlled rainwater discharge to a combined sewer

- If the proposed runoff rates are equal to or lower than greenfield runoff rates, or as close as reasonably practical with sufficient justification.
- If sufficient calculations supporting greenfield, existing and proposed runoff rates for 1 in 1 year (100% chance of occurrence each year), 1 in 30 year (3.3% chance of occurrence each year) and 1 in 100 year (1% chance of occurrence each year) rainfall events are provided, with an appropriate climate change allowance.
- If the proposed attenuation storage volume meets or exceeds the required attenuation storage volume for the site.
- If maintenance tasks of proposed SuDS (including actions and frequencies) and a maintenance provider have been stated.

All of this information, along with sufficient supporting evidence, should be submitted in a formal planning application made to the local planning authority.

3.8 Climate Change

The Proposed Development site is located within the London Management Catchment, as defined by the EA's climate change allowance mapping[21]. The applicable peak river flow climate change allowance is presented in Table 3.

Table 3. Peak river flow climate change allowances for London management catchment

London Management	Central	Higher	Upper
2020s	10 %	14 %	26 %
2050s	7 %	14 %	30 %
2080s	17 %	27 %	45 %

The Environment Agency peak rainfall climate change allowances have been used to determine the anticipated increase in rainfall intensity for the design of the surface water drainage system[22]. As the Proposed Development

[20] Available at: london.gov.uk/sites/default/files/the_london_plan_2021.pdf (Accessed September 2026)
[21] Available at: https://environment.data.gov.uk (Accessed September 2026)
[22] Available at: https://environment.data.gov.uk (Accessed July 2026)

site drains a small urban catchment (less than 5 km²), the peak rainfall intensity allowances are applicable and are presented in Table 4.

Table 4. Peak rainfall intensity climate change allowances in small or urban drainage catchments

Epoch	3.3 % annual exceedance rainfall event		1 % annual exceedance rainfall event	
	Central allowance	Upper end allowance	Central allowance	Upper end allowance
2050s	20 %	35 %	20 %	40 %
2070s	20 %	35 %	25 %	50 %

In accordance with Environment Agency guidance, the Upper End climate change allowance has been adopted for the drainage strategy. Accordingly, the proposed drainage system should be designed to accommodate a 40% increase in rainfall intensity for the 3.3% AEP (1 in 30 year) event and a 45% increase for the 1% AEP (1 in 100 year) event, representing the anticipated impacts of climate change over the 2070s design epoch.

4. Flood Risk – To Development

The NPPF requires that all potential sources of flooding that could affect the Proposed Development site are considered. This section of the FRA assesses the flood risk posed to the Proposed Development site from: rivers, the sea, rising groundwater, directly from rainfall on the ground surface, overwhelmed sewers and drainage systems, and from reservoirs, canals, lakes and other artificial flood sources.

4.1 Fluvial

Fluvial flooding occurs when watercourses exceed their capacity following prolonged or intense rainfall.

According to the Environment Agency's (EA) Flood Map for Planning, refer to Figure 3 and Figure 4 below, the Proposed Development site lies entirely within Flood Zone 1, which has a very low probability of flooding from fluvial less than 0.1% AEP (1 in 1000-year).

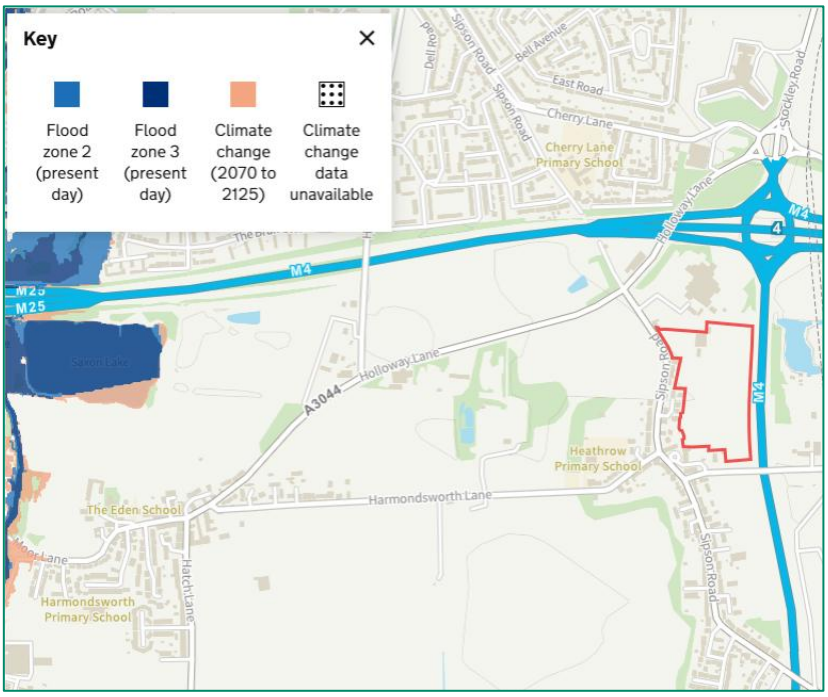


Figure 3 Environment Agency's Flood Map for Planning (Source: https://flood-map-for-planning.service.gov.uk)



Figure 4 Rivers and Sea Map Flood Risk (Source:https://check-long-term-flood-risk.service.gov.uk/rivers-and-sea)

As identified in previous section, the nearest ordinary watercourse the River Colne is located approximately 2km west of the site. The site is topographically more than 10m higher than this watercourse and is separated by local topography.

Historic fluvial flooding is predominantly concentrated along the main river corridors within the London Borough of Hillingdon. The most extensive areas are associated with the River Colne to the west of the proposed site, where the historic flood outline matches surrounding low-lying areas. Additional flooding is shown along the River Pinn to the north of the site where it runs through the urbanised area of Uxbridge. See Appendix C.

Analysis of the long-term flooding data [23] indicates that the proposed site is located outside the predicted 0.1% (1 in 1,000-year) future flood extent.

Based on the above, the risk of fluvial flooding is very low therefore fluvial flooding is not considered further within this assessment.

4.2 Tidal

Tidal flooding occurs when sea levels or tidal waters exceed their normal limits, affecting coastal and estuarine areas.

The Proposed Development site is located approximately 80km inland from the coast. According to the EA's Flood Map for Planning the site lies entirely within Flood Zone 1 and is not located within an area at risk of flooding from coastal, tidal or estuarine sources. The nearest potential tidal flood source is the River Thames; however, the risk to the site is considered negligible due to its distance from the Thames (10km) and the protection provided by the Thames Barrier.

Based on the above, the risk of tidal flooding is very low therefore tidal flooding is not considered further within this assessment.

[23] Available at: Technical map - Check your long term flood risk - GOV.UK (accessed September 2026)

4.3 Pluvial

Pluvial (surface water) flooding occurs when rainfall exceeds the infiltration capacity of the ground or the capacity of drainage systems, resulting in overland flow. The risk is typically greater where soils have low permeability and where there are extensive impermeable surfaces.

According to the EA Flood Map for Surface Water (refer to Figure 5), parts of the Proposed Development site are located within areas at risk of surface water flooding, indicating a high probability of flooding from intense or prolonged rainfall events. Areas of the site are shown to have a greater than 3.3% annual probability of flooding, equivalent to a 1 in 30-year event.

The areas identified as having a medium to high probability of surface water flooding are central to the site and along the access road. These flood extents closely correspond with the topographical low points previously identified in Figure 2, indicating that local depressions within the site have the potential to collect and retain surface water, resulting in localised ponding. The EA surface water mapping therefore confirms the influence of site topography shown in refer to Figure 5.

A further contributing factor to the surface water flood risk is the low permeability of the underlying geology. As previously highlighted, the superficial Langley Silt deposits and the underlying London Clay bedrock both are moisture-retentive soils. These low-permeability strata reduce the rate at which rainfall can infiltrate into the ground, causing the soil to become saturated during periods of prolonged or intense rainfall. Consequently, surface water runoff can exceed the capacity of the ground to absorb water, increasing the likelihood of localised flooding and ponding across the site.



Figure 5 Surface Water Map for Flood Risk (Source: https://check-long-term-flood-risk.service.gov.uk/map)



Figure 6 Recorded historic flood data (source: Recorded Flood Outlines)

A Review of Product 4 data for the wider Proposed Development site indicates that there are no recorded flooding within the site itself. However, the data identifies several recorded flooding incidents within the neighbouring greenfield areas. This indicates that surface water flooding has occurred within the surrounding area, suggesting that locally there are impermeable ground conditions.

Based on the above, the risk of surface water flooding is high and should be managed appropriately through the implementation of the proposed surface water drainage system.

4.4 Groundwater

Groundwater flooding occurs when groundwater levels rise above the ground surface, typically following prolonged periods of rainfall. This type of flooding is most likely to occur in low-lying areas underlain by permeable geological formations (aquifers).

The LFRMS[24] states *the borough experienced heavy rainfall during the winter of 2013–2014, which resulted in a number of flooding incidents across various locations. No single source was identified as the cause of flooding, with incidents attributed to a combination of river, surface water and groundwater sources*. The extents of historic flooding are presented in Appendix C.

Groundwater flooding has not been identified as a primary source of flood risk to the Proposed Development site; however, it may act as a contributing factor. Groundwater levels are generally highest during early spring and lowest during early autumn. Elevated levels can reduce the capacity of the ground to receive and infiltrate rainfall. This is relevant to the Proposed Development, where the underlying soils are anticipated to comprise silt and clay and the site has been identified as being underlain by an Unproductive Aquifer. Elevated groundwater levels, combined with the low-permeability nature of the underlying soils, could therefore further restrict infiltration and increase the potential for surface water ponding and accumulation during periods of prolonged or intense rainfall.

A review of borehole TQ07NE206 see Appendix B, located within the Proposed Development site and extracted on 26/03/1991, identified brown silty clay, assumed to comprise Langley Silt, with gravel encountered beneath the silt from approximately 2.5 m below ground level. The borehole was excavated to a depth of 4.5 m, with no groundwater encountered during the investigation. The other borehole (TQ07NE336 see Appendix B) undertaken within the site also made no reference to the presence of groundwater. The records of these of these boreholes does not confirm the groundwater level and testing should be carried out as part of site ground investigations.

At the time of preparing this report, no site-specific ground investigation was available. Ground investigation should include soakaway testing and Groundwater monitoring between November to April. The findings of this investigation should look to confirm groundwater levels and assess the suitability of infiltration-based drainage

[24] Available at: Local Flood Risk Management Strategy (Accessed September 2026)

measures during detailed design. Subject to the results of these investigations, the risk of groundwater flooding at the site is considered to be low.

4.5 Artificial Sources

Artificial sources of flooding include the failure or overtopping of man-made water-retaining structures, such as reservoirs, canals, embankments and ponds.

A review of the EA's Reservoir Flood map indicates that the Proposed Development site is not located within an area at risk of flooding in the unlikely event of reservoir failure. The nearest reservoir floods extents are associated with several reservoirs (The Queen Mother Reservoir, Wraysbury Reservoir, King George VI Reservoir & the Staines Reservoirs) located over 4.5km southwest of the site, refer to Figure 6. Furthermore, the site is situated approximately 10m above the mapped reservoir flood extent, based on local topography.



Figure 7 Reservoir flooding extents map (source: Check your long term flood risk - GOV.UK)

The flooding extents are mostly located south of the reservoirs. Review of online topographical data indicates that the reservoir's surrounding area is at a lower elevation, directing flows from the artificial water sources southwards and away from the Proposed Development site.

Based on the information above, the site is considered to be at low risk of flooding from artificial sources.

4.6 Sewers

Sewer flooding can occur when the capacity of the sewer network is exceeded during periods of intense or prolonged rainfall, or where blockages or mechanical failures prevent the system from operating effectively.

No anecdotal evidence or records of historical sewer flooding at the site have been identified. Furthermore, the proposed development will be served by an appropriate drainage strategy designed in accordance with current standards to ensure that surface water and foul water are managed effectively.

Based on the information above, the risk of flooding from public sewer network is considered to be low.

4.7 Flood Risk Summary

The flood risk to the Proposed Development is summarised in Table 5.

Table 5. Summary of Flood Risk to the Proposed Development

Flood Mechanism	Source	Flood Risk to the Development	Mitigation Required?
Fluvial	Main River / Ordinary Watercourse	Very low	No
Tidal	Estuary	Negligible	No
Pluvial (Surface Water)	Flat terrain and poor permeability	High	Yes, to be developed in drainage strategy
Groundwater	Underlying geology, groundwater levels	Low	No
Artificial Sources	The Queen Mother Reservoir Wraysbury Reservoir King George VI Reservoir Staines Reservoirs	Low	No
Sewers	Surrounding private drainage networks	Low	No

5. Flood Risk – From Development

The NPPF requires that Flood Risk Assessments for new development demonstrate mitigation measures for surface water flood risk to the site without increasing surface water flood risk elsewhere. New development typically creates additional impermeable surfaces, which reduce infiltration and promote more rapid runoff to surface water drainage systems or watercourse. If the surface water runoff if not appropriately managed, this can place additional pressure on drainage systems and receiving watercourses, increase the risk of flooding both on and off site. Consequently, new developments should incorporate appropriate surface water management measures, such as SuDS to control runoff and ensure that flood risk is not increased on and off site.

5.1 Surface Water Management

A Preliminary Drainage Strategy has been produced for managing surface water runoff for the Proposed Development. The drainage strategy is indicative at this stage and is subject to Reserved Matters and Detailed Design at a later stage, The key points are summarised below with the Preliminary Drainage Strategy Drawing presented within Appendix D.

- Linear drainage channels to service yard areas
- Gullies for access roads.
- The substation is likely to require filter drains and gullies and oil separation.
- Roof areas will be served by downpipes.
- Impermeable areas will drain via these means into a buried pipe network consisting of carrier drains and manholes, with oil separation for areas where HGV's are likely to manoeuvre.
- The ramp down to the loading bay area will require an ACO drain that will discharge to the foul network due to the risk of oil spills.
- Combination of ponds and buried storage tanks to provide attenuation for surface water runoff. Based on review of the site impermeable catchment (circa 4.55ha), and using greenfield runoff rates as a guide for restriction of discharge (in the absence of infiltration rate data), would require approximately 4,800m³ of storage, with 1,000m³ of this stored in ponds.
- Rainwater harvesting storage and equipment.
- Surface Water and Sustainable Drainage Systems (SuDS)

The site is underlain by mainly clay layers, with a gravelly layer at circa 5m deep. The gravel layer, subject to intrusive ground investigation, may be suitable for infiltration through the use of soakaways. There is a risk that surface water would need to be pumped to the nearest watercourse as there are no surface water sewers adjacent to the site, but this option has not been progressed further at this stage based on the assumption that infiltration will be available.

The Site is brownfield and includes areas of impermeable hard standing and roofs. The existing drainage regime does not appear to include existing drainage and runoff is assumed to be held on-site (areas of surface water flood risk) in some areas, or to flow overland onto the Highway (Sipson Road). The proposed catchment will include impermeable roof areas for the facility, with access roads, parking and service yard areas, as well as an electricity substation area.

The proposed drainage regime for surface water interception will include ACO channels to service yard areas (due to the topographically flat nature of the site), with gullies for access roads. The substation is likely to require filter drains and gullies. Roof areas will be served by downpipes. Impermeable areas will drain via these means into a buried pipe network consisting of carrier drains and manholes. The ramp down to the loading bay area will require an ACO drain that will discharge to the foul network.

It is proposed to use a combination of ponds and buried storage tanks to provide attenuation for surface water runoff. Based on review of the site impermeable catchment (circa 4.55ha), and restricting discharge rates would require approximately 4,800m³ of storage, with 1,000m³ of this stored in ponds. The total attenuation volume will be refined down and optimised at future design stages.

Ponds will provide water quality benefits as per C753 SuDS Manual. Oil interceptors will be required for service yard areas and the substation. Bunded areas should be provided for any areas for delivery of fuel and/or oil.

It is also proposed to provide rainwater harvesting storage and equipment. However, this is not taken to provide part of the attenuation volume in planning applications.

Management and Operations

During construction site runoff will be managed by the contractor as per an approved CEMP, to prevent silty construction runoff from impacting downstream areas.

Management of will be by the development's appointed private Management/Estates Company, in accordance with CIRIA C753 The SuDS Manual. This includes regular inspection and maintenance as per the extracted guidance, below, typical for ponds and cellular storage tanks (i.e. infiltration systems in this case).

TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks

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

TABLE 23.1 Operation and maintenance requirements for ponds and wetlands

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – public areas	Monthly (during growing season)
	Cut the meadow grass	Half yearly (spring, before nesting season, and autumn)
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Inspect water body for signs of poor water quality	Monthly (May – October)
	Inspect silt accumulation rates in any forebay and in main body of the pond and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal options	Half yearly
	Check any mechanical devices eg penstocks	Half yearly
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1m above pond base; include max 25% of pond surface)	Annually
	Remove 25% of bank vegetation from water's edge to a minimum of 1m above water level	Annually
	Tidy all dead growth (scrub clearance) before start of growing season (Note: tree maintenance is usually part of overall landscape management contract)	Annually
	Remove sediment from any forebay.	Every 1–5 years, or as required
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays.	Every 5 years, or as required
Occasional maintenance	Remove sediment from the main body of big ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, eg every 25–50 years
Remedial actions	Repair erosion or other damage	As required
	Replant, where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required
	Realign rip-rap or repair other damage	As required
	Repair / rehabilitate inlets, outlets and overflows.	As required

Figure 8 CIRIA C753 Maintenance and Operation Guidance – tanks and ponds

5.2 Foul Water

New buried foul drainage is to be provided to connect foul flows to the Thames Water foul sewer in Sipson Road. Using Flows and Loads (British Water) the daily flows for a population of 102 staff, with no canteen:

- 102 x 50l/head/day = 5.1m³ peak daily volume
- With an 18-hour working day gives a peak instantaneous flow of 0.7l/s

Given the low peak rate and volume there would be a low risk that Thames Water would not approve a connection. It is recommended that a pre-application to Thames Water is made at the next design stage.

Foul drainage will also be required to take connections from M&E equipment, as well as the loading bay ramp area. However, the chance of flows from these areas occurring at the same time as domestic-type foul loads is low, i.e. the chance of instanteous peaks in domestic-type foul load occurring at the same time as other peak flows is low. It is also understood that the facility will be air-cooled rather than water-cooled, and therefore, foul demand from equipment is expected to be low. Foul drainage may also need to take flows from firefighting water – the chance of this occurrence is low, so would not be considered in peak and daily flows. Cooling water flows into the foul network are not expected at this stage.

Foul drainage external to the building will consist of buried carrier drains and manholes.

5.3 Residual Risk

There remains a residual risk of flooding associated with the potential blockage, failure or inadequate performance of the surface water drainage system. Hard and soft landscaping will be designed to route overland flow routes to

SuDS features and away from buildings and pedestrian access routes. Risk of blockage etc. can be effectively mitigated through the implementation of a regular inspection, maintenance and monitoring regime to ensure the system continues to operate as designed. Further details of the proposed maintenance arrangements will be provided in a later design stage.

6. Conclusion

6.1 Overview

This Flood Risk Assessment (FRA) has assessed the potential flood risks to and from the site in the context of both the existing site and the proposed development. The site is located entirely within Flood Zone 1, which is defined as land having a low probability of flooding from rivers and the sea (less than 0.1% Annual Exceedance Probability (AEP), equivalent to a 1 in 1,000 annual chance of flooding).

In accordance with the NPPF 2026, the proposed development, a data centre, is classified as Essential infrastructure. This classification is compatible with Flood Zone 1, and the proposed development is therefore considered acceptable in terms of flood risk policy.

6.2 Flood Risk – To Development

The following potential sources of flooding which could affect the site have been considered and assessed as follows:

- The risk from fluvial sources is considered to be very low;
- The risk from tidal flooding is considered to be negligible;
- The risk of pluvial (surface water) flooding is considered to be medium to high. Surface water from the Proposed Development will be managed through a Drainage Strategy, with a low residual risk;
- The risk of groundwater flooding is considered to be low;
- The risk of flooding from artificial sources is considered to be low; and
- The risk of sewer flooding is considered to be low.

6.3 Flood Risk – From Development

A preliminary drainage strategy has been prepared for the proposed development, setting out the proposed surface water management strategy. The drainage strategy is indicative at this stage and is subject to Reserved Matters and Detailed Design at a later stage. Subject to the implementation of the proposed mitigation measures and ongoing maintenance, it is considered that the risks and impacts associated with flooding can be managed to an acceptable level throughout the lifetime of the development.

Appendix A Drainage Strategy Plan

ISO A1 594mm x 841mm

KEY:

- SURFACE WATER DRAIN
- LINEAR CHANNEL DRAIN
- SURFACE WATER MANHOLE
- ATTENUATION CRATES
- HEADWALL
- FLOW ROUTE
- FOUL WATER DRAIN
- FOUL WATER MANHOLE
- FOUL CHANNEL DRAIN
- EXISTING SEWER
- EXISTING MANHOLE
- RED LINE BOUNDARY



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Ordnance Survey AC0000808122

0 25 50 m
1:1000

AECOM

PROJECT

VIRTUS
Project Green Fingers

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NOTES

1. ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
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3. THIS DRAWING IS TO BE USED FOR THE STATED PURPOSE OF ISSUE ONLY AND MUST NOT BE USED FOR ANY OTHER PURPOSE THAN THAT INDICATED.
4. ONLY WRITTEN DIMENSIONS SHALL BE USED. CRITICAL DIMENSIONS AND LEVELS SHALL BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO WORK COMMENCEMENT.
5. ANY DISCREPANCIES IN DIMENSIONS OR DETAILS ON OR BETWEEN THESE DRAWINGS SHALL BE DRAWN TO THE ATTENTION OF THE PROJECT MANAGER FOR CLARIFICATION.
6. THIS DRAWING IS FOR STRATEGY PURPOSES ONLY. IT IS NOT TO BE USED FOR DETAILED DESIGN OR CONSTRUCTION PURPOSES.
7. IT IS ANTICIPATED THAT CHANNEL DRAINAGE WILL BE REQUIRED FOR THE ON-SITE ROADS, DUE TO THE LIMITED LONGITUDINAL ROAD GRADIENTS THAT MAY BE ACHIEVED.

ISSUE/REVISION

I/R	DATE	DESCRIPTION	BY	CK	AP
P03	12-10-2026	Stage 2 Design Masterplan Update	JP	NT	BM
P02	18-09-2026	Stage 2 Design Update	JP	NT	BM
P01	22-07-2026	Stage 2 Design	OW	NT	BM

SUITABILITY

S2 - Suitable for information

PROJECT NUMBER

60749800

SHEET TITLE

PRELIMINARY DRAINAGE STRATEGY

SHEET NUMBER

PGF-ACM-DC-00-00-DR-CE-100400

SCALE 1:1000 @ A1

REVISION P03

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Appendix B Borehole Records

British Geological Survey

BGS ID: 574034 : BGS Reference: TQ07NE206
British National Grid (27700) : 507327,178135

Norwest Holst Soil Engineering Ltd.

Trial Pit No. **242**

TRIAL PIT LOG

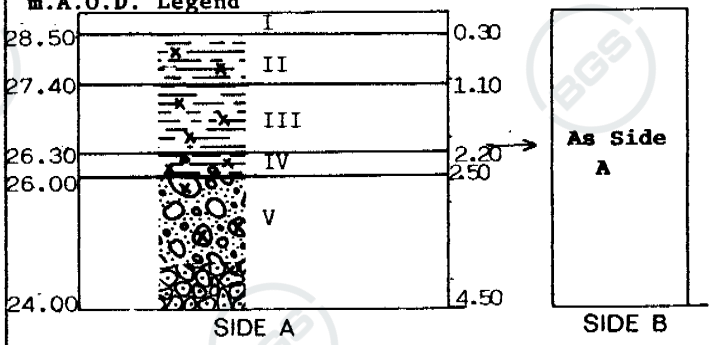
Sheet 1 of 1

Contract No. P9047 (PART 2)
Location HEATHROW S A S
Client HEATHROW AIRPORT LTD.
Excavation Plant JCB 3CX
Dimensions (l x b x h) 3.00 x 1.00 x 4.50m

TQ07NE 206

Co-ords E507327 N178135
Ground Level 28.50 m.A.O.D.
Date 26/3/91

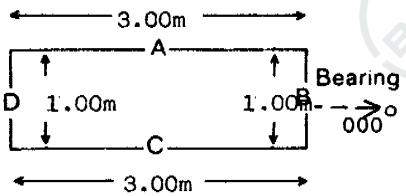
ELEVATIONS:—



SIDE A

SIDE B

PLAN (Not to scale)



SAMPLES

No. & Type	Depth m.
D	0.50
B	1.00
D	1.50
B	2.00
D	2.30
D	2.50
B	3.00
D	3.50
B	4.00
D	4.50

MEXIPROBE at 0.65m
CBR readings at 75mm penetration

Position 1	2	3	4	5
0.7	0.5	1.0	0.5	1.5
1.5	1.8	3.0	3.0	2.4
4.0	2.5	2.5	4.5	2.5
2.5	3.7	2.8	8.0	3.5
3.0	2.7	9.5	8.0	11.6
6.5	12.7	>15	11.0	>15
>15	>15		>15	

As Side A

SIDE C

As A

As Side A

SIDE D

G = reading affected by gravel.

No.	Depth m.	STRATA DESCRIPTION	Cv kN/m²
I	0.00–0.30	Firm brown friable silty clay TOPSOIL with occasional fine subrounded to rounded flint gravel, occasional brick fragment on surface, root penetration to 0.30m.	HAND VANE at 0.20m 38/44 45/44 34G/27 58/46 27G
II	0.30–1.10	Soft to firm orange brown friable silty to very silty CLAY. (BRICKEARTH)	at 0.50m 35 32 32 32 34 28 24 72
III	1.10–2.20	Stiff orange brown very silty CLAY, with occasional dark brown vertical traces of rootlets. (BRICKEARTH)	33 at 1.20m
IV	2.20–2.50	Firm to stiff orange brown very silty CLAY with some to much fine to medium angular to subrounded flint gravel. (BRICKEARTH)	
V	2.50–4.50	Moderately dense orange slightly silty SAND and fine to medium angular to subrounded flint GRAVEL. (TERRACE GRAVEL) ...below 3.80m becomes fine to coarse gravel with occasional cobble sized flint.	to stiff to test → off scale or very stiff
		Pit complete at 4.50m. Backfilled on completion.	

NOTES Cv Approximate value of undrained shear strength from hand vane
Groundwater: Trial Pit dry
Pumping: None
Supports/Stability: None/slight spalling in sand + gravel.

Interpretation of deposits i.e. Terrace Gravel etc.

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 574164 : BGS Reference: TQ07NE336
British National Grid (27700) : 507388,178090

Soil Mechanics

BOREHOLE No. H002

Sheet 1 of 4

Equipment & Methods
Cable tool boring in 150mm diameter from ground level to 25.00m

Location No. 7600
Location HEATHROW ACCESS ROAD
TQ07NE/336

Carried out for
Heathrow Airport Limited

Ground Level
28.08 m A.O.D.

Coordinates
507388 E
178090 N

Date
28.11.89 to 29.11.89

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests: Depth	Sample Type	Sample No.	Test	Field Records
TOPSOIL (Driller's description)	28.08		(0.40)					
	27.68		0.40					
Very stiff brown and orange brown very silty CLAY. (ALLUVIAL CLAY)			(1.30)	1.00 – 1.45	U	1		45 blows
				1.50	D	2		
	26.38		1.70					
Dense brown, grey brown and black angular to subrounded fine to coarse flint GRAVEL (in places predominantly coarse) with some fine to coarse sand, becoming with some fine to medium and much coarse sand. (RIVER TERRACE DEPOSITS)			(3.30)	2.00 – 2.50	B	3	C N=46	6,9,10,10,12,14
				3.00 – 3.50	B	4	C N=36	5,6,8,8,9,11
				4.00 – 4.50	B	5	C N=39	6,7,8,10,11,10
	23.08		5.00					
Medium dense brown, grey brown and black angular to subrounded fine to coarse (predominantly coarse) flint GRAVEL with much becoming a little fine to coarse sand. (RIVER TERRACE DEPOSITS)			(2.50)	5.00 – 5.50	B	6	C N=24	3,4,5,6,6,7
				6.00 – 6.50	B	7	C N=19	3,4,3,5,5,6
				7.00 – 7.50	B	8	C N=18	2,4,4,4,5,5
	20.58		7.50					
Medium dense brown,grey brown and black angular to subrounded fine to coarse becoming predominantly medium to coarse flint GRAVEL with much coarse sand and some fine to medium sand. (RIVER TERRACE DEPOSITS)			(2.30)	8.00 – 8.50	B	9	C N=14	3,2,3,3,3,5
				9.00 – 9.50	B	10	C N=10	4,3,2,2,3,3
	18.28		9.80					
Firm brown CLAY (WEATHERED LONDON CLAY)	18.08		10.00	9.80 – 10.25	U	11		

Remarks

1. Falling head test performed in the gravel.

Logged by AWSF

Scale 1:50

Fig. 49

Notes:
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. (c) Soil Mechanics
All depths and reduced levels in metres. Thicknesses given in brackets in depth column. 10.01.90/09.58 (Ver 4.1.1)

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 574164 : BGS Reference: TQ07NE336
British National Grid (27700) : 507388,178090

Soil Mechanics

BOREHOLE No. H002

Sheet 2 of 4

Equipment & Methods: As sheet 1

Location No. 7600

TQ 07 NE / 336

Location: HEATHROW ACCESS ROAD

Carried out for: Heathrow Airport Limited

Ground Level | Coordinates | Date: As sheet 1

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests: Depth	Sample Type	Sample No.	Test	Field Records
Stiff grey brown CLAY with extremely to very closely spaced inclined rough irregular generally planar and undulose slightly gleyed fissures and rare wood fragments. (LONDON CLAY)			(1.50)	9.80 – 10.25	U	11		45 blows
				10.30	D	12		
	16.58		11.50					
rare wood fragment				12.00 – 12.45	D	13	S N=22	3,4,5,5,6,6
Very stiff grey brown CLAY with very closely to closely spaced subhorizontal to inclined rough irregular generally planar gleyed fissures with rare subhorizontal partings and occasionally 1-4mm lenses of dark grey green silt. (LONDON CLAY)			(5.60)	14.00 – 14.40	U	14		50 blows
				14.45	D	15		
				16.00 – 16.45	D	16	S N=31	4,6,6,7,8,10
	10.98		17.10					
CLAYSTONE (Driller's description)			(0.50)					
	10.48		17.60					
rare pyritized wood fragment				18.00 – 18.40	U	17		80 blows
				18.45	D	18		
LONDON CLAY (As above)			(3.80)					

Remarks

Logged by: AWSF

Scale: 1:50

Fig. 49

Notes:
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. (c) Soil Mechanics
All depths and reduced levels in metres. Thicknesses given in brackets in depth column. 10.01.90/09.58 (Ver 4.1.1)

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 574164 : BGS Reference: TQ07NE336
British National Grid (27700) : 507388,178090

Soil Mechanics

BOREHOLE No. H002

Sheet 3 of 4

TQ07NE/336

Equipment & Methods: As sheet 1

Location No. 7600

Location: HEATHROW ACCESS ROAD

Carried out for: Heathrow Airport Limited

Ground Level | Coordinates | Date: As sheet 1

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests: Depth	Sample Type	Sample No.	Test	Field Records
				20.00 – 20.45	D	19	S N=34	5,6,8,8,8,10
LONDON CLAY (As sheet 2.)			(3.80)					
	6.68		21.40					
CLAYSTONE (Driller's description)			(0.50)					
	6.18		21.90					
				22.20 – 22.55	U	20		95 blows
				22.60	D	21		
Very stiff grey brown CLAY with very closely spaced subhorizontal to subvertical rough irregular generally planar gleyed fissures and rare subhorizontal partings of dark grey green silt with rare shell fragments. (LONDON CLAY)			(3.10 pen)					
				24.50 – 24.95	D	22	S N=39	5,7,8,9,10,12
	3.08		25.00					
BOREHOLE ENDS AT 25.00 m.								

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
1989 28.11	–	3.00	3.00	0.00	Falling head test
29.11	–	9.80	9.80	DRY	
29.11	–	25.00	9.80	DRY	End of borehole

Remarks

2. Standpipe installed upon completion.

Logged by: AWSF

Scale: 1:50

Fig. 49

Notes:

Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. (c) Soil Mechanics 10.01.90/09.58 (Ver 4.1.1)

All depths and reduced levels in metres. Thicknesses given in brackets in depth column.

Contact BGS: ngdc@bgs.ac.uk

Appendix C Historic Flood mapping

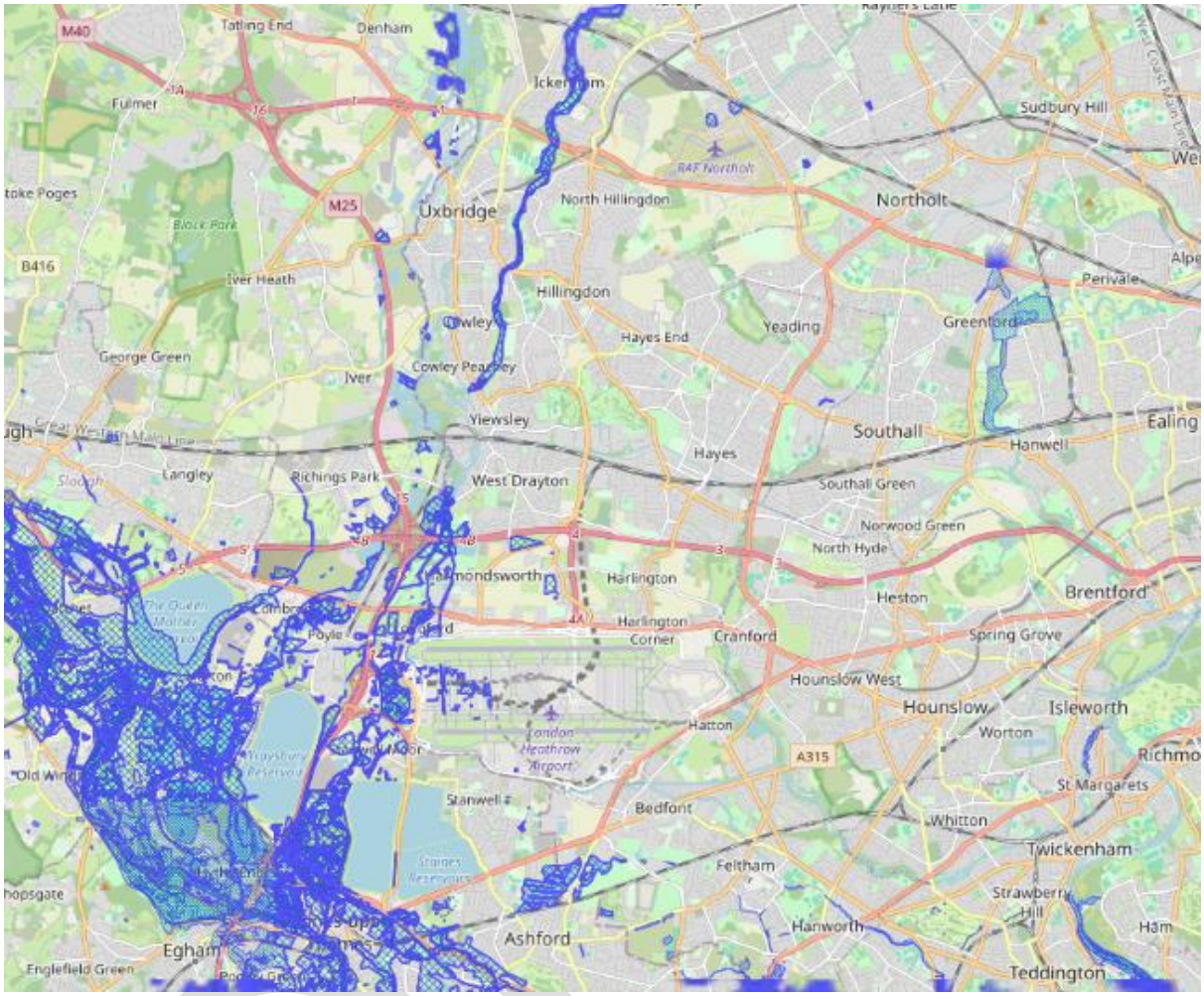
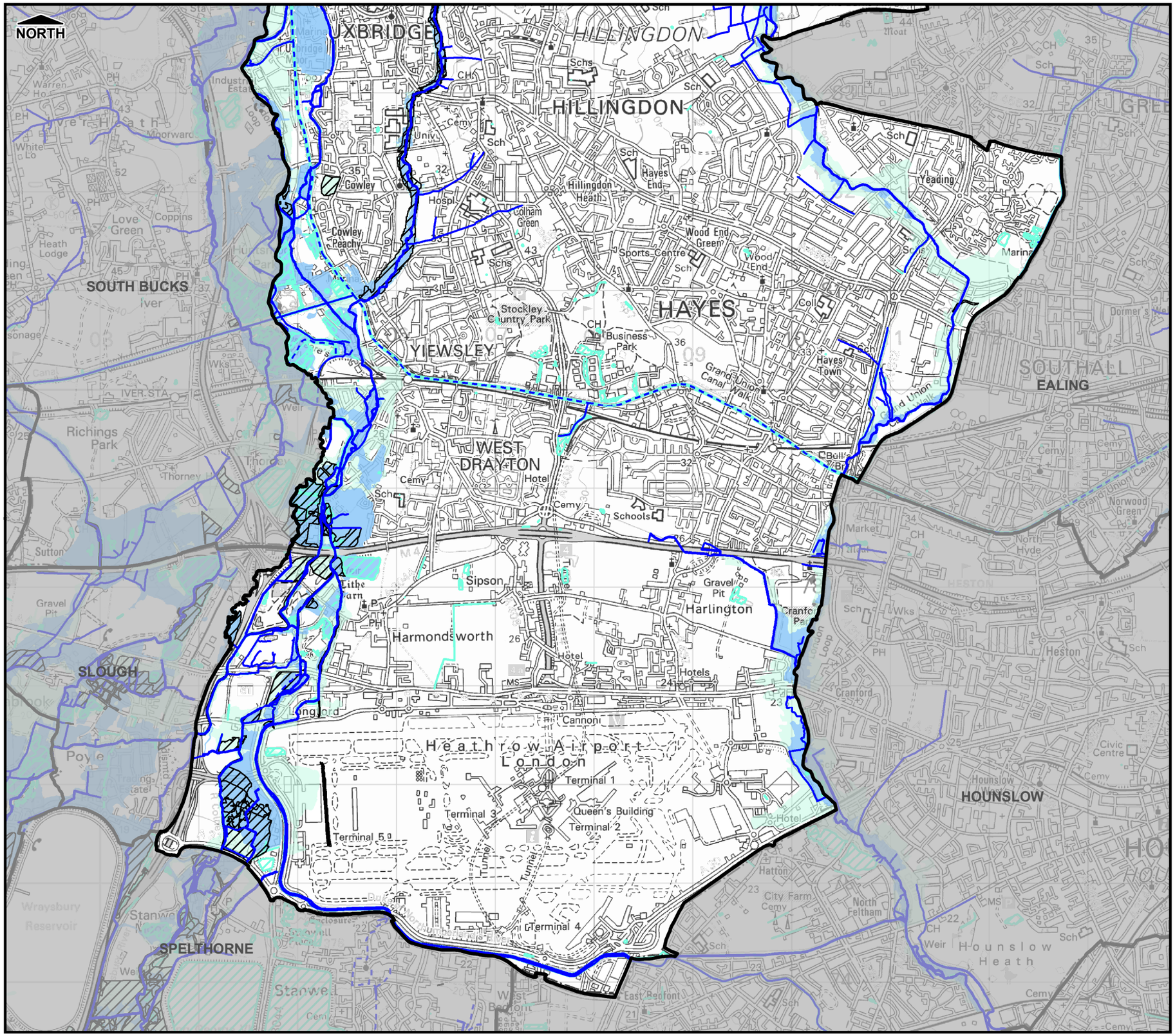


Figure 9 Recorded historic flood data (source: Recorded Flood Outlines)

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED



Legend

- Borough Administrative Boundary
- Main River
- Ordinary Watercourse
- Culverted Watercourse (Main River)
- Permanent Water Bodies
- Fluvial Flooding Incidents
- Historic Fluvial Flood Outline
- Environment Agency Flood Zone 3
- Environment Agency Flood Zone 2

Notes

1. Environment Agency Flood Zone 3 represents a 1% AEP flood event.
2. Environment Agency Flood Zone 2 represents a 0.1% AEP flood event.

London Borough of Hillingdon

HILLINGDON LONDON

Surface Water Management Plan

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Scale at A3	Date	Drawn by	Approved by
1:40,000	08/04/2011	R.MOORE	P.HLINOVSKY

Environment Agency Flood Map and Fluvial Flooding Incidents

Consultants
CAPITA SYMONDS Scott Wilson
Flood Risk Management
Capita Symonds
Level Seven,
52 Grosvenor Gardens,
Belgravia,
London
SW1W 0AU

Drain London Programme Board Members

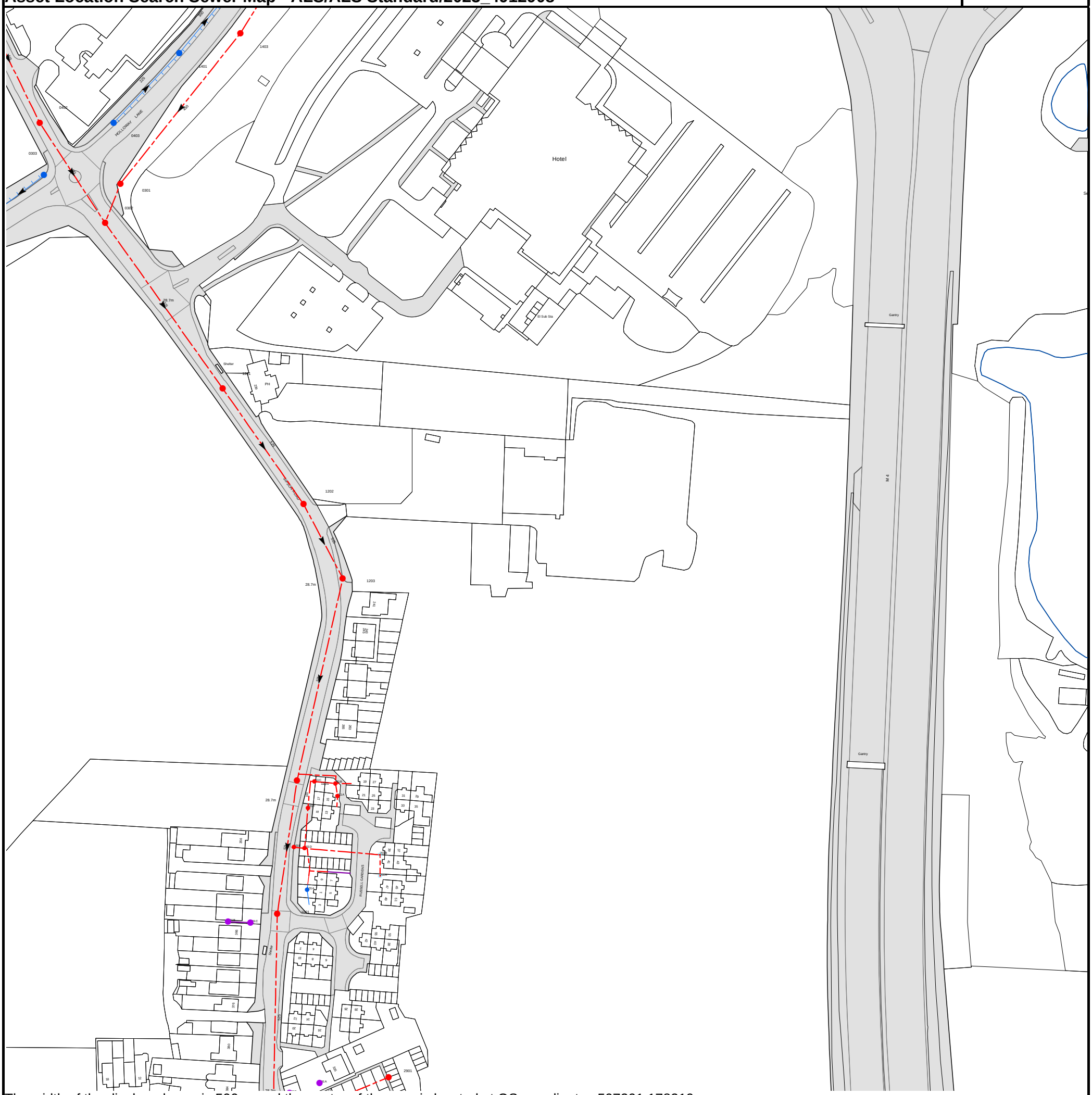
Environment Agency · Thames Water · LONDON COUNCILS · GREATERLONDONAUTHORITY

FIGURE 7.2

Filepath: L:\Environment\zwet\CS046913_DrainLondon_Tier2\Group1\ARC\mxds\GP1_Hillingdon_Fig7.2_EAFloodMap_FlvIncidents.mxd

Appendix D Thames Water Records

Asset Location Search Sewer Map - ALS/ALS Standard/2023_4912908



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 507291,178219

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
101A	n/a	n/a
101D	n/a	n/a
101E	n/a	n/a
101F	n/a	n/a
111C	n/a	n/a
1001	28.61	22.49
1101	28.68	22.64
1202	28.53	22.86
191A	n/a	n/a
111B	n/a	n/a
111A	n/a	n/a
1203	28.81	22.79
201B	n/a	n/a
201A	n/a	n/a
2901	28.36	26.06
101C	n/a	n/a
101B	n/a	n/a
1201	28.59	22.98
0302	28.86	23.1
0301	29.07	23.23
0303	n/a	n/a
0402	28.83	23.21
0403	n/a	n/a
1401	n/a	n/a
1403	28.44	23.73

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

Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

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

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

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

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

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

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

Sewer Fittings

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

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

Operational Controls

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

- Ancillary
- Drop Pipe
- Control Valve
- Weir

End Items

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

- Inlet
- Outfall
- Undefined End

Other Symbols

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

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

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Chamber
- Operational Site

Ducts or Crossings

- Casement

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

- Conduit Bridge
- Subway
- Tunnel

Notes:

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

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

Prepared for: Virtus