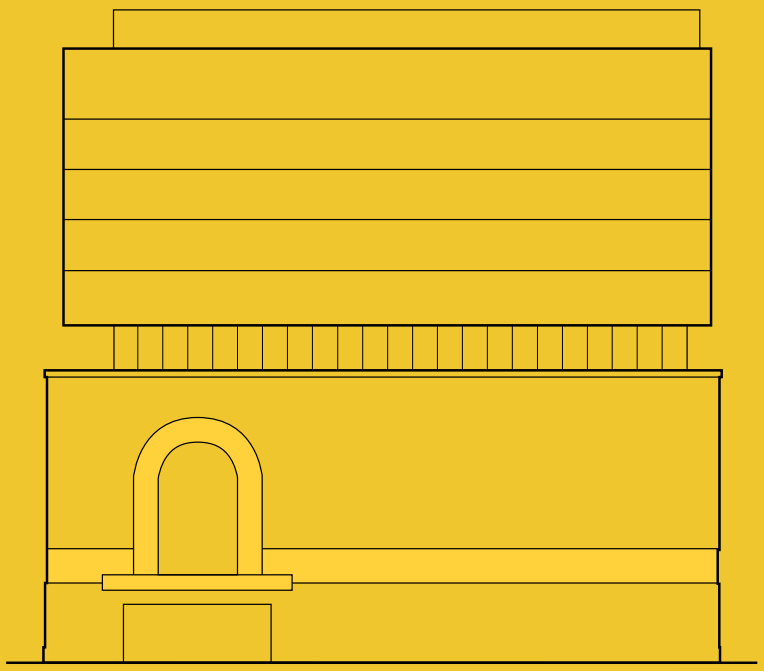


SAVILLE THEATRE

135 SHAFTESBURY AVENUE

FLOOD RISK ASSESSMENT

105465-PEF-ZZ-XX-RP-YE-000010-S2-P04_FRA

PELL FRISCHMANN

Report Ref.	**105465-PEF-ZZ-XX-RP-YE-000010-S2-P04_FRA**
File Path	https://pellf.sharepoint.com/sites/A1BuildingsStructuresandFire/Shared Documents/General/01 - WIP/Documents/Flood Risk/105465-PEF-ZZ-XX-RP-YE-000010-S2-P04_FRA.docx

Suit	Rev	Description	Date	Originator	Checker	Approver
S2	P01	Preliminary Issue	22/12/2023	T. Sturtridge	D. Allum-Rooney	D. Allum-Rooney
S2	P02	Updated based on Comments	16/01/2024	T. Sturtridge	D. Allum-Rooney	D. Allum-Rooney
S2	P03	Updated based on Planning Team	29/01/2024	A Murray	D. Allum-Rooney	D. Allum-Rooney
S2	P04	Updated based on Planning Team comments	30/01/2024	A Murray	D. Allum-Rooney	D. Allum-Rooney

Ref. reference. Rev revision. Suit suitability.

Prepared for

YC Saville Theatre Ltd

2 Bentinck Street
London
W1U 2FA

Prepared by

Pell Frischmann

Suite 4.2 – 1 The Poynt
Wollaton Street
Nottingham
NG1 5FW

Pell Frischmann

Contents

1 Introduction 4
1.1 Project Brief 4
1.2 Sources of Information 4
2 Background & Site Context 5
2.1 Site Location & Existing Use 5
2.2 Local Watercourses 6
2.3 Topography 6
2.4 Geology 7
2.5 Development Proposals 8
3 Policy Context 9
3.1 National Planning Policy Framework 9
3.2 Local Plan Policies 9
3.3 Local SFRA 10
3.4 Local PFRA 10
3.5 Local Flood Risk Management Strategy 10
3.6 Surface Water Management Plan 10
3.7 River Basin District Flood Risk Management Plan 10
3.8 Planning Guidance 10
4 Assessment of Flood Risk 12
4.1 Desk-Based Information 12
4.2 Fluvial Flood Risk 12
4.3 Coastal & Tidal 13
4.4 Groundwater 13
4.5 Surface Water (Pluvial) 14
4.6 Sewers 16
4.7 Canals 17
4.8 Reservoirs 17
5 Flood Risk Mitigation 18
5.1 Sequential Arrangement 18
5.2 Development Levels 18
5.3 Surface Water Drainage Strategy 18
6 Conclusions & Recommendations 19

Figures

Figure 2.1 Site Location Plan 5
Figure 2.2 Local Watercourses 6
Figure 2.3 LiDAR Elevation Data 7
Figure 4.1 Flood Map for Planning 13
Figure 4.2 Medium Risk Surface Water Flooding 15
Figure 4.3 Surface Water Flooding 16

Tables

Table 4.1 Desk-Based Assessment of Flood Risk..... 12

AppendicesAppendix A .....Sewer Asset Plans
Appendix B Camden Flood Proforma
Appendix C Camden SuDS Proforma

1 Introduction

1.1 Project Brief

1.1.1 Pell Frischmann have been appointed by YC Saville Theatre Limited to undertake a Flood Risk Assessment (FRA) to support a planning application for land at 135-149 Shaftesbury Avenue, in the London Borough of Camden (LBC), London.

1.1.2 The purpose of this FRA is to review available information and assess the flood risk posed to the site and proposed development from a range of sources, now and in the future. The FRA has been carried out in accordance with the requirements of the National Planning Policy Framework (NPPF) and associated Planning Practice Guidance (PPG), in respect of flood risk and coastal change.

1.1.3 To complete the FRA, the following key stages of work have been undertaken:

- Collation of desk-based information and undertaken a review of publicly available flood risk information including Environment Agency mapping and local data, policy, and guidance.
- A desktop review of other data that has been made available such as topographical surveys, utility plans and proposed development layout options.
- Consultation with relevant stakeholders to obtain further information on local risks and issues.
- Provision of advice on appropriate flood risk mitigation measures for the proposed development.
- Completion of the relevant Camden Flood Proforma and Camden SuDS Proforma in line with Council requirements (included as **Appendix B** and **Appendix C** respectively)

1.2 Sources of Information

1.2.1 A review of relevant information and guidance from a range of sources has been undertaken and includes the following key documents;

- National Planning Policy Framework (NPPF), December 2023
- Planning Practice Guidance (PPG), August 2022
- Environment Agency Flood Map for Planning and Risk of Flooding from Surface Water datasets from the DEFRA Spatial Data Catalogue
- DEFRA MagicMap, 2023
- British Geological Survey Geology of Britain Viewer, 2023
- British Geological Survey GeoIndex, 2023
- The London Plan, 2021
- Camden Local Plan, 2023
- London Borough of Camden Strategic Flood Risk Assessment, July 2014
- London Borough of Camden Preliminary Flood Risk Assessment, April 2011
- London Borough of Camden Surface Water Management Plan, July 2011
- Camden Planning Guidance Water and Flooding, March 2019
- Thames River Basin District Flood Risk Management Plan 2021-2027, December 2022
- Thames Catchment Flood Management Plan, December 2009

2 Background & Site Context

2.1 Site Location & Existing Use

2.1.1 The site is located at 135-149 Shaftesbury Avenue, Camden, London at the existing Covent Garden Odeon cinema. A site location plan is included for reference as **Figure** 2.1. In total, the site covers approximately 0.08ha.

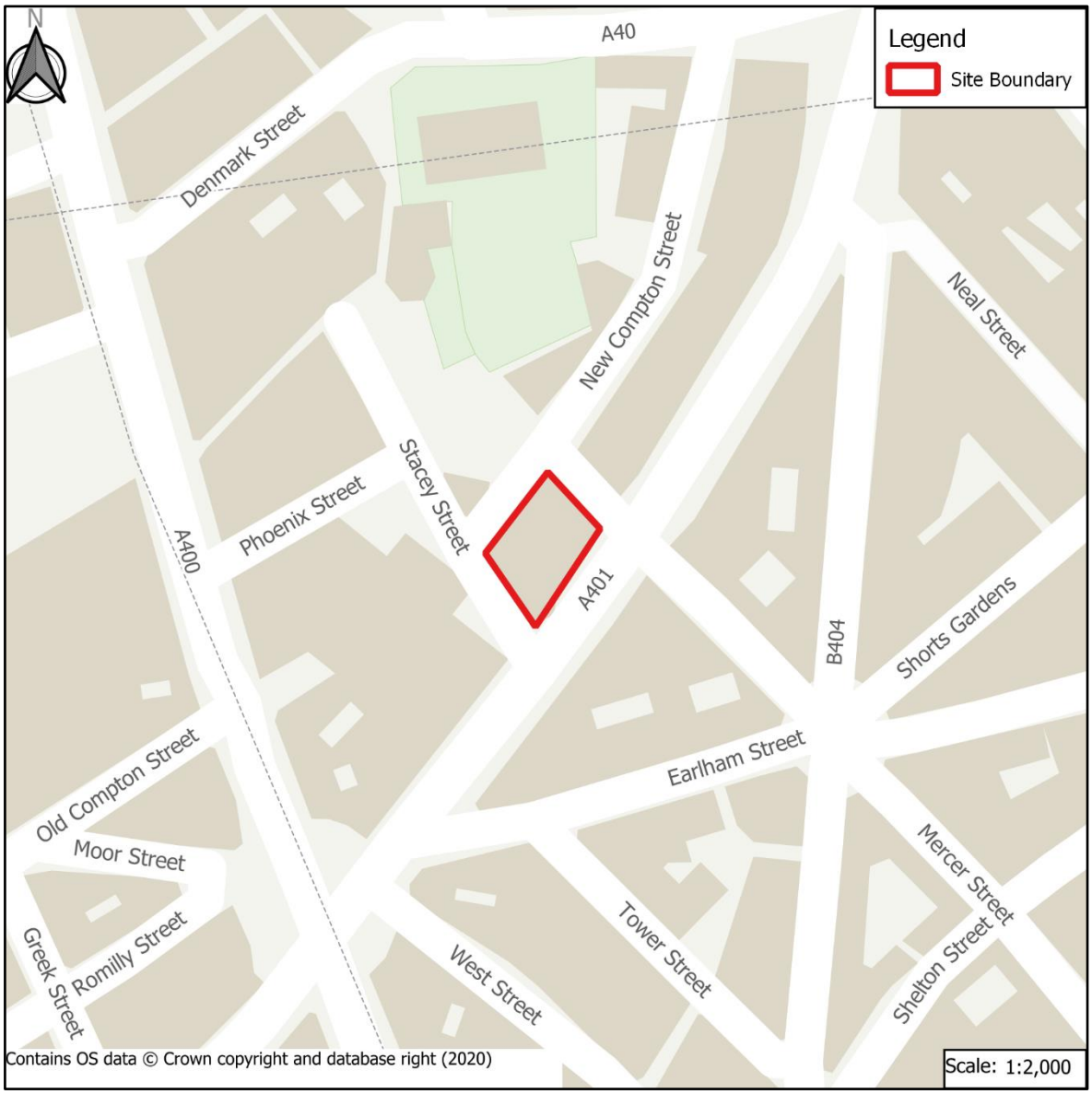


Figure 2.1 Site Location Plan

2.1.2 The site is bound to the north by New Compton Street, the east by St. Giles Passage, to the south by Shaftesbury Avenue (A401), and to the west by Stacey Street.

2.1.3 The site currently exists as the Covent Garden Odeon cinema and is therefore occupied by existing buildings and associated areas of hardstanding. As such, it is considered that the existing site is subject to an engineered regime of drainage involving the positive drainage of large areas of impermeable surfacing and roof footprint.

2.2 Local Watercourses

2.2.1 A review of the OS OpenRivers dataset shows there are no watercourses found within the site boundary. The nearest watercourse, the River Thames, is found approximately 850m to the south of the site.

2.2.2 **Figure** 2.2 shows the locations of local watercourses for context.

Figure 2.2 Local Watercourses

2.3 Topography

2.3.1 LiDAR data, provided by DEFRA, covering the wider area shown in **Figure** 2.3, provides a general overview of the site, suggesting the site does not contain major changes in elevation, apart from the small fall in elevation from north to south with maximum elevations of approximately 23.5mAOD in the north, falling to a minimum elevation of approximately 22.8mAOD in the south.

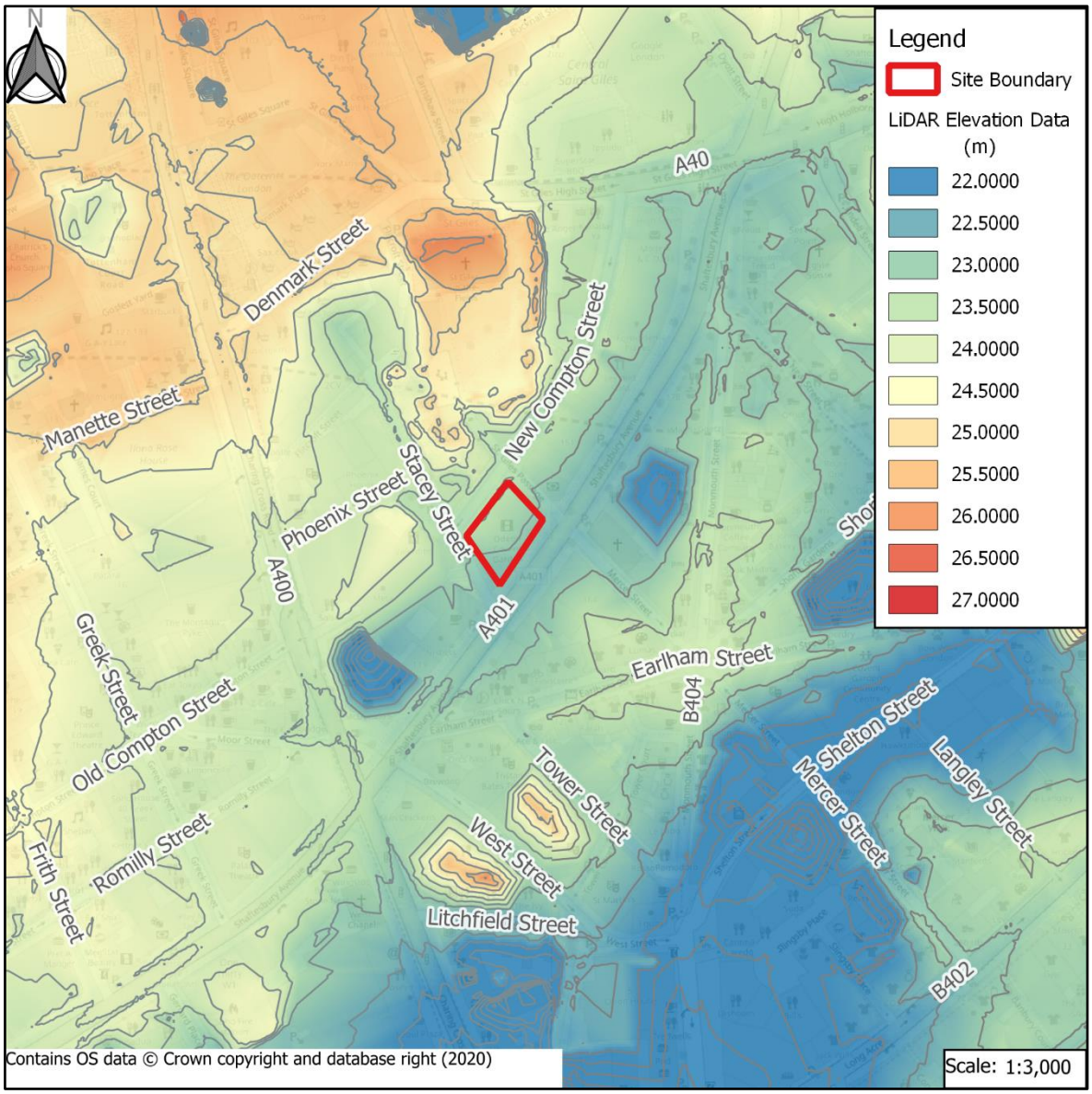


Figure 2.3 LiDAR Elevation Data

2.4 Geology

2.4.1 British Geological Survey (BGS) mapping suggests the site to be wholly underlain by a superficial geology comprising Lynch Hill Gravel Member – Sand and Gravel, and to be wholly underlain by a bedrock geology comprising London Clay Formation – Clay, Silt, and Sand. This generally suggests a low potential for infiltration.

2.4.2 There are no public boreholes within the site boundary available on the BGS's online databases. The nearest borehole is found approximately 25m to the north of the site (borehole reference: TQ28SE1748) and was drilled in April 1992 to a depth approximately 35m bgl. Groundwater was reported to be struck at approximately 12.2m bgl.

2.4.3 Aquifer designations by DEFRA show the site to be underlain by a superficial drift classification of Secondary A, which is defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases form an important source of base flow to rivers. This suggests a low to moderate amount of water available within the superficial geology.

2.4.4 The site is also shown to be wholly underlain by a bedrock aquifer classification of Unproductive. This is defined as rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow. This suggests a little to no water is available within the bedrock strata.

2.4.5 The site does not fall within a Source Protection Zone (SPZ), with the nearest Zone II – Outer Protection Zone found approximately 2km to the east of the site, and 2.3km to the west of the site.

2.5 Development Proposals

2.5.1 The Proposed Development consists of the Part demolition, restoration and refurbishment of the existing Grade II listed building, roof extension, and excavation of basement space, to provide a theatre at lower levels, with ancillary restaurant / bar space (Sui Generis) at ground floor level; and hotel (Class C1) at upper levels; provision of ancillary cycle parking, servicing and rooftop plant, and other associated works.

3 Policy Context

3.1 National Planning Policy Framework

3.1.1 The National Planning Policy Framework[1] (NPPF) was first published in 2012, with a subsequent revision by the Ministry of Housing, Communities and Local Government, appended in July 2018, February 2019, and July 2021. The most recent update was made in December 2023 by the Department for Levelling Up, Housing, and Communities.

3.1.2 The NPPF is the primary source of national planning guidance in England, setting out the Government's planning policies for England, and how they are expected to be applied by local council.

3.1.3 'Chapter 14: Meeting the challenge of climate change, flooding, and coastal change' outlines the guiding principles for managing flood risk as part of the planning process, notably paragraphs 159-169.

3.1.4 The Planning Practice Guidance[2] (PPG) sets out the vulnerability to flooding of different land uses. It encourages development to be in areas of lower flood risk where possible and stresses the importance of preventing increases in flood risk off site to the wider catchment and states that alternative sources of flooding, other than fluvial (river flooding), should be considered when prepared a Flood Risk Assessment.

3.1.5 The Planning Practice Guidance includes a series of tables that define Flood Zones, the flood risk vulnerability classification of development land uses, and 'compatibility' of development within the defined Flood Zones.

3.1.6 Therefore, this FRA has been completed in line with the guidance and requirements for the NPPF and associated PPG.

3.2 Local Plan Policies

3.2.1 The Camden Local Plan[3] was adopted in 2017 and sets out how land within the district can be used and developed, providing policies which the council use to determine application and regeneration activities.

3.2.2 The plan aims to oversee how the council will manage future growth, encourage sustainable development, and ensure changes are appropriate to local need now, and in the future.

3.2.3 More generally, the Local Plan lists policies that influence the design and principles of all development within the district. Those relevant to this FRA are as follows:

- Policy CC1 – Climate Change Mitigation
- Policy CC2 – Adapting to Climate Change
- Policy CC3 – Water and Flooding

3.2.4 Furthermore, due to the Borough's location within London, the Camden Local Plan must also align with the London Plan 2021[4] which also includes polices developments will need to consider. Those relevant from the London Plan include;

- Policy G5 – Urban Greening
- Policy SI5 – Water Infrastructure
- Policy SI12 – Flood Risk Management
- Policy SI13 – Sustainable Drainage

[1] UK Government (December 2023); *National Planning Practice Guidance*; prepared by UK Government
[2] UK Government (August 2022); *Planning Practice Guidance*; prepared by UK Government
[3] London Borough of Camden (2017); *Camden Local Plan*; prepared by LBC
[4] London City Council (March 2021): *The London Plan 2021*; prepared by LCC

3.3 Local SFRA

3.3.1 The London Borough of Camden Strategic Flood Risk Assessment[5] (SFRA) was published in July 2014. The SFRA was prepared to provide an appropriate evidence base for local policymaking, a summary of flood risk issues across the area and to support the application of the sequential test for suitability of allocated sites.

3.3.2 The SFRA also includes relevant background flooding data and a summary of flood risk within the Borough and so appropriate references will be made throughout this site-specific FRA.

3.4 Local PFRA

3.4.1 The London Borough of Camden Preliminary Flood Risk Assessment[6] (PFRA) was published in April 2011. The PFRA was prepared to assist LBC meet their duties to manage local flood risk and deliver any legal requirements placed on them as the LLFA under the Flood Risk Regulations 2009.

3.4.2 The PFRA also identifies the past and future flood risk for the County and includes an assessment of where within the County flooding, including overland flow and direct rainfall, will occur along with the number of properties potentially at risk.

3.5 Local Flood Risk Management Strategy

3.5.1 The London Borough of Camden Flood Risk Management Strategy[7] (FRMS) was produced to comply with Section 9 of the Flood and Water Management Act 2010 and aims to provide a framework for meeting their requirements to develop, maintain, apply, and monitor a local strategy for flood risk management.

3.5.2 The LFRMS provides further information regarding surface water runoff, groundwater and sewer flooding and flood risk around the County and the introduction of flood risk alleviation schemes at various scales, including SuDS.

3.6 Surface Water Management Plan

3.6.1 The London Borough of Camden Surface Water Management Plan[8] (SWMP) was published in July 2011. The SWMP was produced to understand the flood risks that can arise from local flooding, identifying where flood risk issues are, what impact they have, how they can be managed, as well as providing a full flood history of the plan area. This will provide a baseline for Camden Council aim to manage and improve surface water flood risks within the Borough.

3.7 River Basin District Flood Risk Management Plan

3.7.1 The Thames River Basin District Flood Risk Management Plan 2021-2027[9] (RBMP) was prepared by the Environment Agency and published in December 2022. The purpose of this RBMP is to provide a framework for protecting and enhancing the benefits provided by the water environment.

3.8 Planning Guidance

3.8.1 LBC published the planning guidance document 'Water and Flooding'[10] in March 2019. This document was published to provide supplementary detail to policies within the Local Plan by providing detailed

[5] London Borough of Camden (July 2014); *Strategic Flood Risk Assessment*; prepared by URS
[6] London Borough of Camden (April 2011); *Preliminary Flood Risk Assessment*; prepared by LBC
[7] London Borough of Camden (2013); *Camden Flood Risk Management Strategy*; prepared by LBC
[8] London Borough of Camden (July 2011); *Surface Water Management Plan*; prepared by LBC
[9] Environment Agency (December 2022); *Thames River Basin District Flood Risk Management Plan 2021-2027*; prepared by EA
[10] London Borough of Camden (March 2019); *Water and Flooding*; prepared by LBC

guidance on the application of policies from within the Local Plan and to help applicants make successful applications and to aid infrastructure delivery.

3.8.2 These include the requirement to, as far as reasonably practicable, restrict surface water runoff from the site and provide this restriction through the implementation of SuDS features within the site, along with applying the relevant Climate Change uplift to calculations to ensure suitability of SuDS features in the future.

4 Assessment of Flood Risk

4.1 Desk-Based Information

4.1.1 The NPPF states that all potential sources of flood risk must be identified and appraised. Flooding can occur from a variety of sources individually, or in combination and can result from both natural and artificial processes.

4.1.2 **Table** 4.1 provides an initial desk-based review of the level of flood risk from all sources, which are then assessed in further details where the risk is considered significant and merits further investigation.

Table 4.1 Desk-Based Assessment of Flood Risk

Sources of Flood Risk	Degree of Risk			Comments
	Significant	Moderate	Low	
Fluvial			X	The Site is wholly within Flood Zone 1.
Coastal & Tidal			X	The site is removed from the extent of tidal flooding, now and in the future.
Groundwater			X	ow potential susceptibility to groundwater flooding across the area.
Surface Water			X	Isolated areas of surface water risk present around the boundary.
Sewers			X	Limited extent of sewers in the immediate vicinity with low risk from sewers along Shaftesbury Avenue.
Canals			X	None nearby.
Reservoirs & Waterbodies			X	Low risk posed.

4.2 Fluvial Flood Risk

4.2.1 The Environment Agency has produced a resource known as the Flood Map for Planning, which identifies areas at risk of flooding from Main Rivers and the sea. An extract of this mapping is included for reference as **Figure** 4.1.

4.2.2 The mapping shows the site to be wholly within Flood Zone 1 (Low Probability), which is defined in the NPPF as land having a less than 0.1% annual probability of river or sea flooding.

4.2.3 The nearest extent of Flood Zones 2 and 3 (Medium and High Probability respectively) is found approximately 0.8km south of the site and is associated with the River Thames.

4.2.4 As such, the site is considered to be at low risk of flooding from fluvial sources and other local watercourses.

Figure 4.1 Flood Map for Planning

4.3 Coastal & Tidal

4.3.1 The site is located within Flood Zone 1 (Low Probability) and is sufficiently removed from the floodplain extent, which would include tidal influences on the River Thames and potential failure of the flood defence infrastructure.

4.3.2 Therefore, the risk of flooding from coastal or tidal related events is negligible.

4.4 Groundwater

4.4.1 Groundwater flooding occurs when the water table rises above ground elevations. It is most likely to happen in low lying areas underlain by permeable geology. This may be regional scale chalk or sandstone aquifers, or localised deposits of sands and gravels underlain by less permeable strata such as that in a river valley.

4.4.2 Previously mentioned boreholes having reported groundwater strikes at deep levels, alongside a superficial aquifer designation of Secondary A and bedrock aquifer designation of Unproductive, this suggests groundwater within the area will be relatively deep and have limited potential to move within the bedrock strata to the surface.

4.4.3 Mapping included as part of Appendix B – Figure 4e of the SFRA, suggests the site has not been previously recorded to have flooded due to groundwater and to fall within an area of the Borough not considered to be at an increased susceptibility to elevated groundwater.

4.4.4 The SFRA also includes information suggesting that flooding from groundwater within Camden Borough is unlikely due to the majority of the site being underlain by a bedrock geology comprising London Clay formation. The SFRA concludes that areas underlain by London Clay formation are expected to have water tables of either >5m throughout the year, or <3m for part of the year. Suggesting groundwater will remain relatively deep throughout the Borough.

4.4.5 A review of the Desk Study and Ground Investigation Report produced by GEA (document reference: J17183) suggests that due to the existing ground conditions comprising vast areas of made ground and a bedrock geology comprising London Clay, and the depth of the basement extension proposed, the risk of groundwater flooding is considered to be low.

4.4.6 The site is not within a SPZ, with the nearest Zone II – Outer Protection Zone being found approximately 2km to the east of the site, and 2.3km to the west of the site.

4.4.7 Overall, considering the aquifer designations, underlying geology and information on groundwater provided within local documentation, the risk of flooding from groundwater is considered to be low.

4.5 Surface Water (Pluvial)

4.5.1 The risk of flooding from surface water has been mapped by the EA on a strategic scale to understand areas that may be susceptible to ponding of surface water during periods of extreme rainfall.

4.5.2 Mapping included as Figure 6 of the Camden SFRA (2014) shows the site to fall within a Critical Drainage Area known as Group3_005, however, the site does not fall within a Local Flood Risk Zone.

4.5.3 The mapping indicates the site to be predominantly at negligible risk of flooding from surface water. Areas of high risk are found to the south of the site along Shaftesbury Avenue, primarily confined to the channel of the road. The mapping also indicates some medium risk found to the east and west of the site along St. Giles Passage and Stacey Street respectively, however, the extent of this modelled flooding is generally confined to the channel of the roads. Due to elevation rises between the road and the site, the site remains at a low risk of flooding.

4.5.4 In the medium risk event, mapped surface water flooding depths are shown to be concentrated within the carriageway channel, with the kerbs surrounding the site offering approximately 125mm of elevation rise between the road and the pavement. Surface water flooding depths are shown to be approximately <150mm around the pavements, with depths increasing to 150-300mm in the carriageway. However, it should also be noted that the finished floor level of the site, is already raised up from the curb by several steps around the main entrance along Shaftesbury Avenue.

4.5.5 An extract of this mapping is included for reference as **Figure** 4.2.

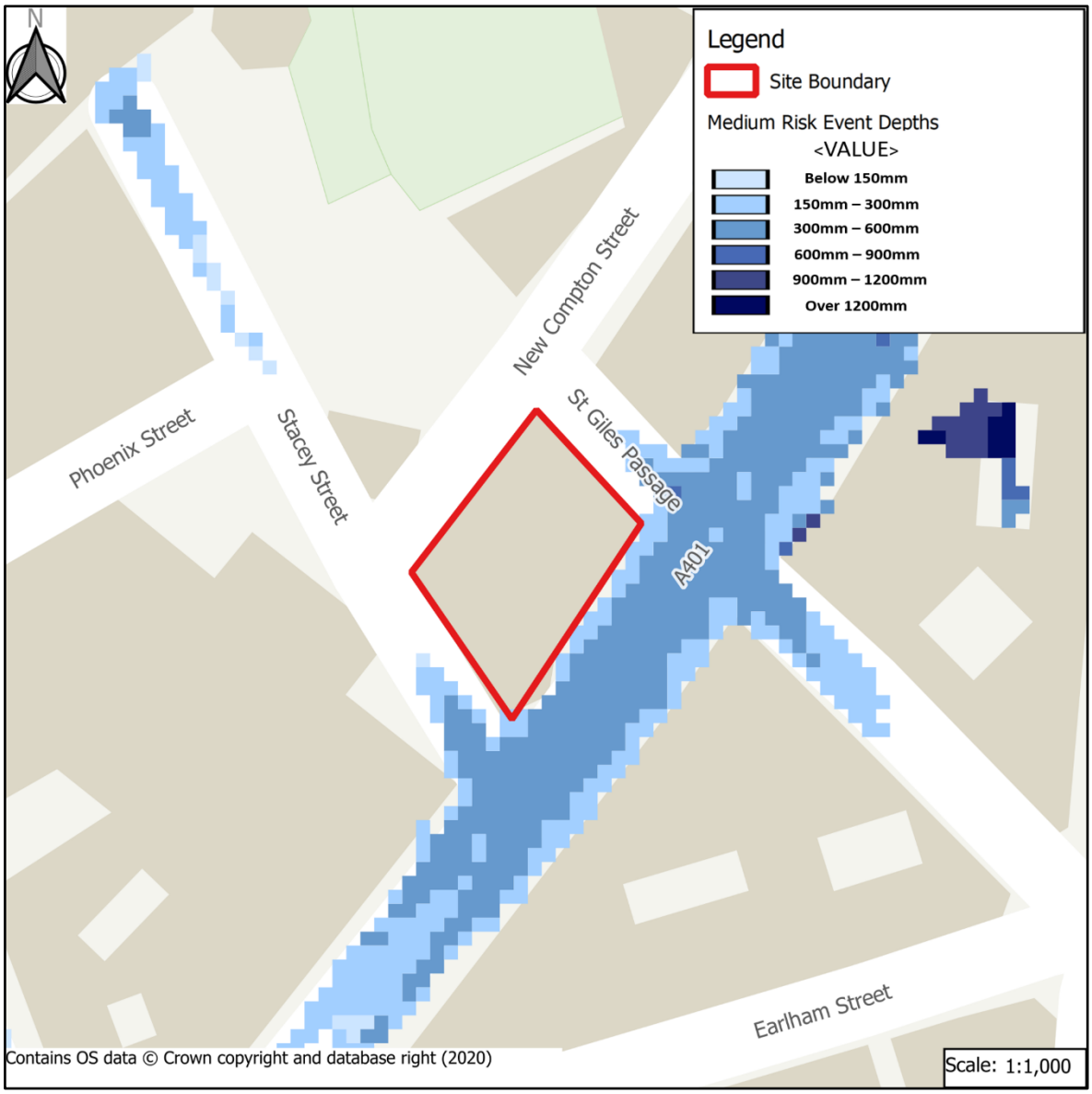


Figure 4.2 Medium Risk Surface Water Flooding

4.5.6 Should the existing highway drainage network fail in the event of extreme rainfall events, exceedance flows will follow existing topography along Shaftesbury Avenue to the southwest, away from the site.

4.5.7 Given the above, the risk posed to the site from surface water flooding is considered to be low.

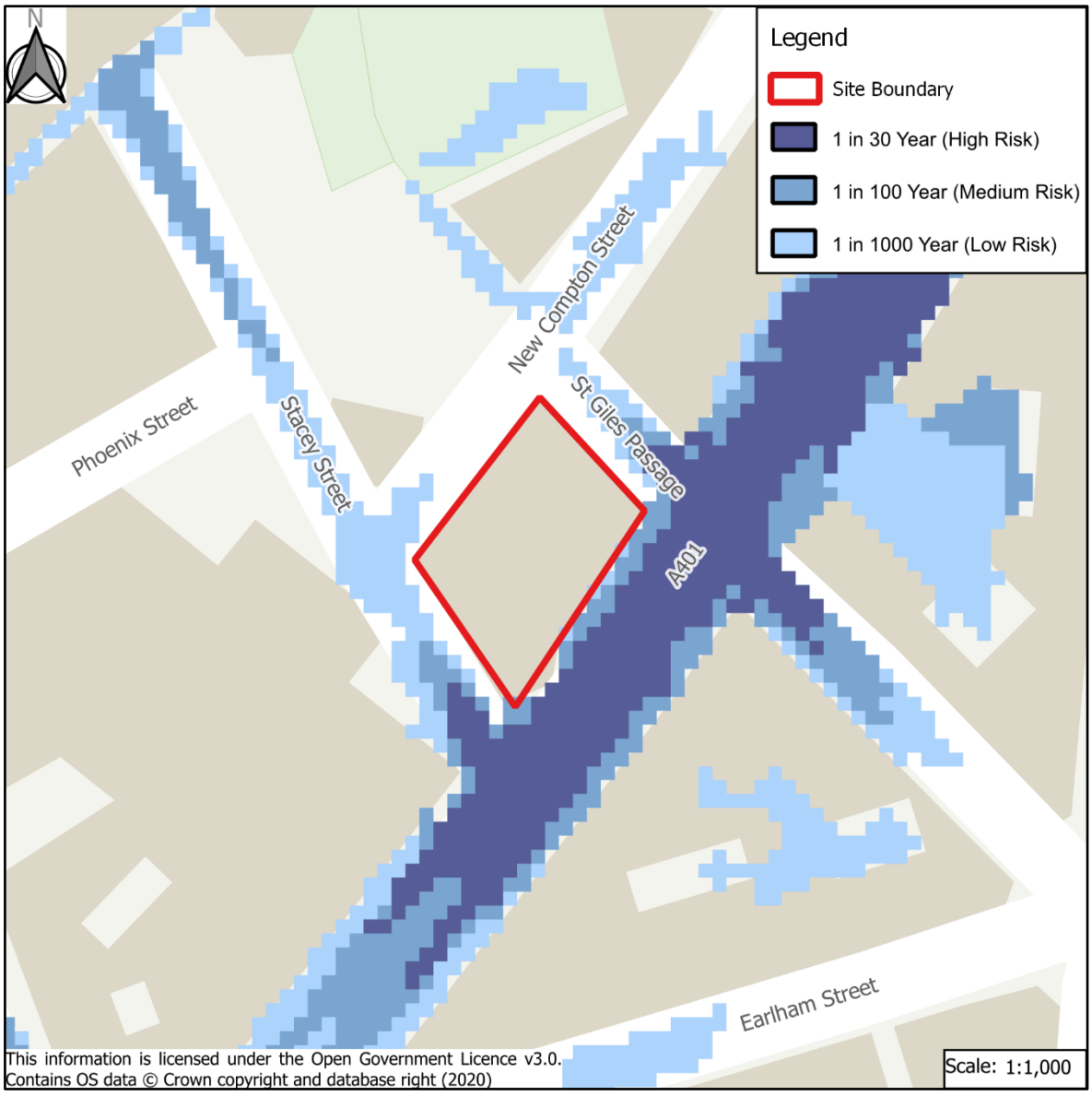


Figure 4.3 Surface Water Flooding

4.6 Sewers

4.6.1 Flooding from sewers typically results from the network capacity being exceeded or because of a blockage to key elements. Flooding usually occurs by way of surcharging manholes, gullies or other features that allow water from sewers to reach the surface, resulting in overland flows that can affect nearby properties.

4.6.2 Sewer asset records (shown in **Appendix A**) show no public sewers within the site boundary, with several public combined sewers found in the surrounding roads, including a trunk combined sewer along Shaftesbury Avenue flowing to the west, with smaller public combined sewers in the north, east and west flowing towards the trunk sewer along Shaftesbury Avenue. Furthermore, several abandoned sewers are found to the north and south of the site along New Compton Street and Shaftesbury Avenue.

4.6.3 Whilst there are several manholes shown along the length of the public foul sewers, topography suggests surcharged flows are likely to be contained within the road channel and follow topography away from the site.

4.6.4 Records do not show private sewer infrastructure and Thames Water are unable to rule out the existence of a private sewer network within the site boundary. It is likely that a network of private foul and surface sewers serve the site in its current form.

4.6.5 If sewer flooding occurs from the Thames Water public sewerage infrastructure, flows will be directed (with topography) away from the site, primary within the channel of Shaftesbury Avenue.

4.6.6 Given the above, the site is considered to be at low risk of flooding from sewers.

4.7 Canals

4.7.1 There are no canals present that pose a risk to the site, as such the risk of flooding from this source is considered to be negligible.

4.8 Reservoirs

4.8.1 The EA has produced strategic scale mapping showing the potential risk of flooding from the failure of large waterbodies and reservoirs, if the relevant impounding structure were to fail.

4.8.2 This mapping confirms the site is far removed from the extent of any modelled flooding from such sources. Furthermore, a review of OS mapping does not identify any other reservoirs or waterbodies near to the site that could pose a risk of flooding.

4.8.3 Therefore, the risk of flooding from reservoirs or large waterbodies is considered to be negligible.

5 Flood Risk Mitigation

5.1 Sequential Arrangement

5.1.1 All types of development are considered acceptable uses within Flood Zone 1 (Low Probability) in line with the Sequential Test guidance included within the NPPF and PPG.

5.1.2 The site is inherently sequentially preferable due to its location within Flood Zone 1 and concluded to be at low risk from other sources and therefore passes the requirements of the Sequential Test.

5.2 Development Levels

5.2.1 There are no specific requirements for finished floor levels to address the low risk of fluvial flooding. Given the nature of the proposals, comprising a change of use, internal refurbishment and extension to upper floors, amendments to finished floor levels, threshold levels etc. are not possible, nor required due to the low risk of flooding.

5.3 Surface Water Drainage Strategy

5.3.1 A surface water drainage strategy has been prepared for the submitted scheme, and details are provided as part of the Drainage Strategy Report by Pell Frischmann (report reference: 105465-PEF-ZZ-XX-RP-CD-000001).

5.3.2 The strategy is based on discharging surface water runoff from the site by mimicking the existing rate of discharge, with the additional volume stored within below-ground attenuation tanks before being discharged to the local surface water sewerage network.

5.3.3 The building development, occupying the entire site, limits the opportunities for SuDS features. It is recommended that, where possible, the introduction of SuDs features such as blue roofs, permeable paving, tree pits and rain gardens etc. are considered. These will act as source control measures by capturing and managing runoff close to it source, while providing amenity and biodiversity improvements, as well as improving the quality of runoff.

5.3.4 Therefore, the development will not have an adverse impact on the flood risk elsewhere subject to the suitable management of surface water generated by the proposed development.

6 Conclusions & Recommendations

6.1.1 This Flood Risk Assessment has been written in support of a planning application for the development of a site known as 135-149 Shaftesbury Avenue, Camden, London. The development is considered more vulnerable due to land use and is considered a suitable development for Flood Zone 1.

6.1.2 To summarise the findings of the FRA:

- The site is wholly within Flood Zone 1 (Low Probability) and so considered to be at low risk of flooding from Main Rivers and the sea.
- The site is shown to be at a low risk of surface water flooding, with areas of high risk found along Shaftesbury Avenue, however topography is likely to encourage these flows away from the site. Surface Water flood depth mapping shows for the medium risk event, flood depths generally do not exceed 150mm around the curbs. Furthermore, raised steps at the entrance to the building along Shaftesbury Avenue raise the FFL above these estimated flood depths from surface water.
- Groundwater flooding is expected to be low, with borehole nearby suggesting groundwater is relatively deep, although a residual risk may remain from elevated groundwater levels.
- There are no public sewers within the site boundary, however several public sewer are shown to be in the local area, notably along Shaftesbury Avenue. However, topography is likely to encourage any surcharged flows away from the site.
- Mapping included as Figure 6 of the Camden SFRA (2014) shows the site to fall within a CDA known as Ground3_005, but the site is mapped to fall outside of a Local Flood Risk Zone.
- There are no canals nearby to the site that would pose a risk, therefore the risk of flooding from this source is low.
- Mapping provided by the EA suggests the site falls outside of any modelled flood extents of from reservoir flooding and as such is at a low risk of flooding from this source.

6.1.3 Recommendations are made in respect of appropriate consideration of maintaining Finished Floor Levels to manage the residual risk of overland flows by conveying water away from dwellings and towards positively drained areas.

6.1.4 In accordance with the requirements of the National Planning Policy Framework (NPPF), this FRA has demonstrated that development could proceed without being subject to significant flood risk and complies within relevant local plan policies.

6.1.5 Furthermore, the development will not result in increased flood risk to third parties if there is suitable management of surface water runoff.

Appendix A Sewer Asset Plans

Asset location search

Thames Water Property Searches

CHECKED

Atkins Telecoms
Stats Enquiries Team The Hub
500Park Avenue
BRISTOL
BS32 4RZ

Search address supplied Site off Shaftesbury Avenue
London
WC2H 8AH

Your reference 97761

Our reference ALS/ALS Standard/2021_4464529

Search date 9 July 2021

Knowledge of features below the surface is essential for every development

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

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

Contact us to find out more.

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

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

0800 009 4540

Asset location search

Property Searches

Search address supplied: Site off Shaftesbury Avenue, London, WC2H 8AH

Dear Sir / Madam

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

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

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

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

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

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

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the address below:

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

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

Asset location search

Thames Water Property Searches

Waste Water Services

Please provide a copy extract from the public sewer map.

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

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

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

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

For your guidance:

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

Clean Water Services

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

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

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

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

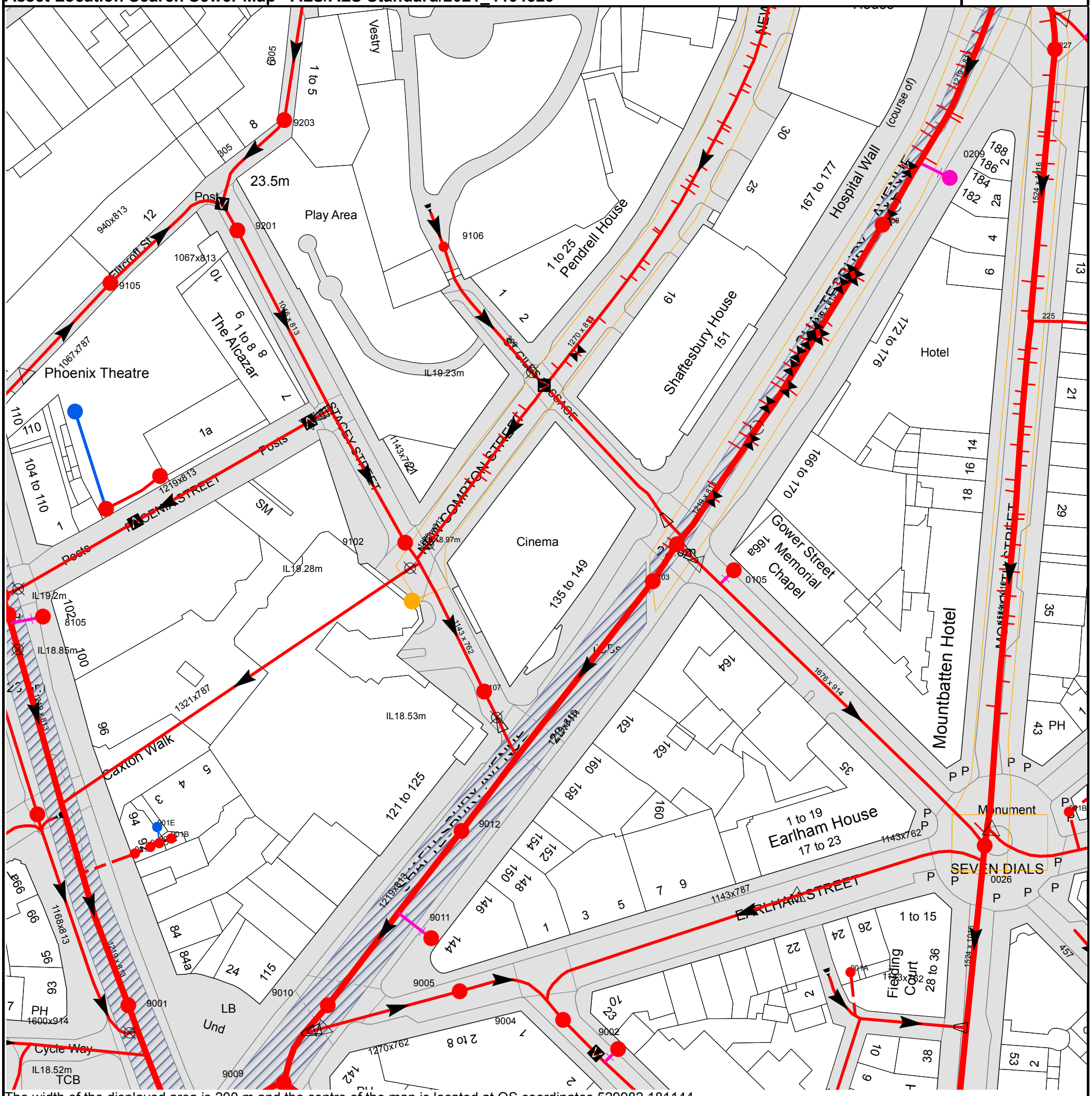
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2021_4464529



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 529982,181144

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 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
9010	23.09	18.14
9011	n/a	n/a
9005	23.1	18.52
9012	22.85	18.2
9004	23.18	18.33
9002	n/a	n/a
001A	n/a	n/a
0026	23.79	18.17
8104	n/a	n/a
8001	23.65	18.79
8105	n/a	n/a
81AD	n/a	n/a
81AC	n/a	n/a
9105	23.84	19.67
91BI	n/a	n/a
9201	23.54	19.41
9203	23.81	19.67
9102	23.34	18.98
9106	24.64	23.3
9107	n/a	n/a
9103	22.76	n/a
AUTO	n/a	n/a
0105	n/a	n/a
0208	n/a	18.37
0209	n/a	n/a
0227	22.93	18.89
001B	n/a	n/a
9001	n/a	18.58
901A	n/a	n/a
901D	n/a	n/a
901E	n/a	n/a
901C	n/a	n/a
901B	n/a	n/a
9009	23.22	18.1

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

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

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

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

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

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Sewer Fittings

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

Air Valve

Dam Chase

Fitting

Meter

Vent Column

Operational Controls

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

Control Valve

Drop Pipe

Ancillary

Weir

End Items

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

Outfall

Undefined End

Inlet

Other Symbols

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

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gulley

Culverted Watercourse

Proposed

Abandoned Sewer

Notes:

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

2) All measurements on the plans are metric.

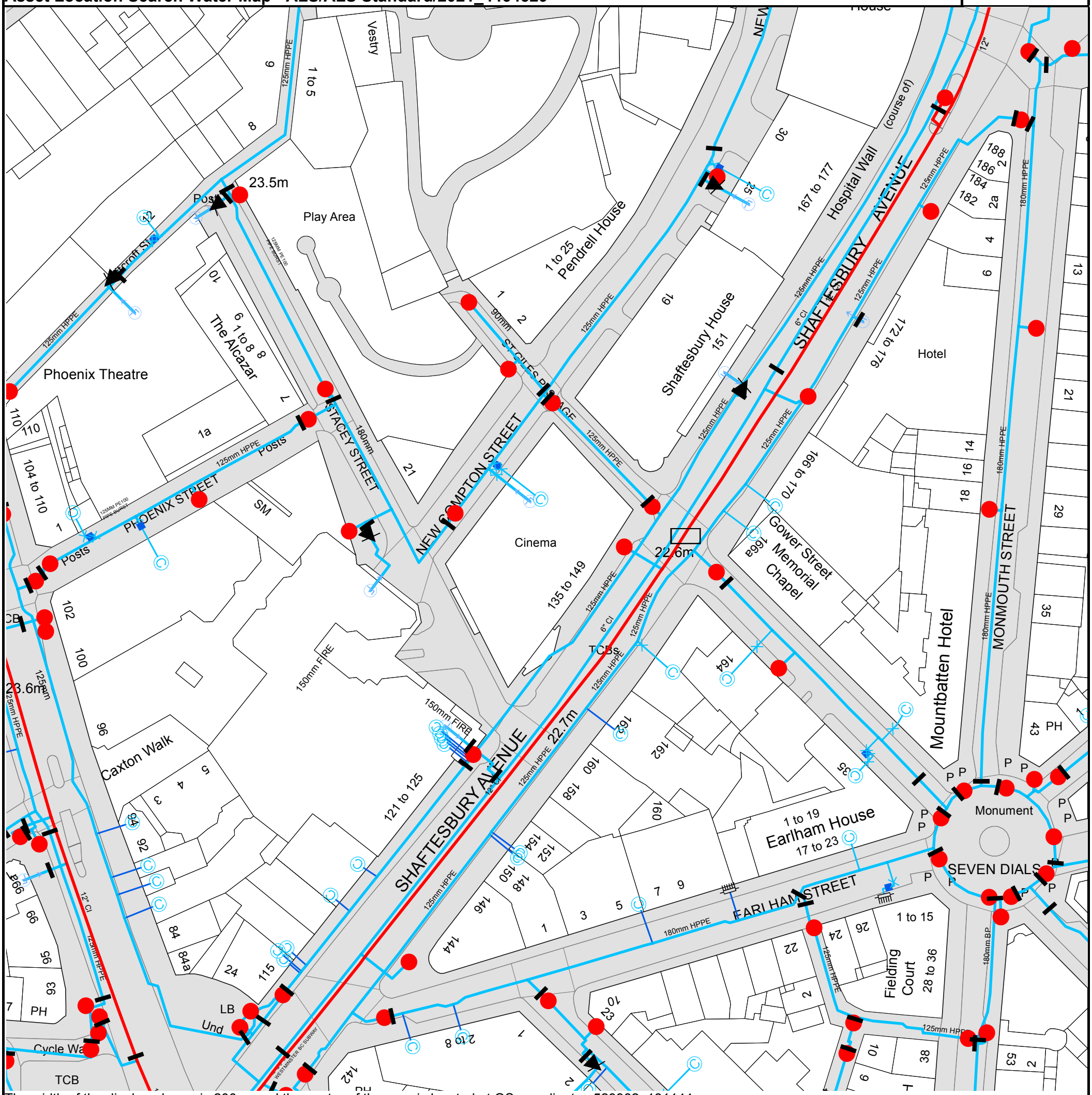
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

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

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

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Searches on 0800 009 4540.

Asset Location Search Water Map - ALS/ALS Standard/2021_4464529



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 529982, 181144.

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

ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

4"

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

16"

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY

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

3" FIRE

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

3" METERED

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

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

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

Valves

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

Hydrants

- Single Hydrant

Meters

- Meter

End Items

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

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

Operational Sites

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

Other Symbols

- Data Logger

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

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

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

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL`s terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	**BACS Payment**	**Telephone Banking**	**Cheque**
Call **0800 009 4540** quoting your invoice number starting CBA or ADS / OSS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number	Made payable to '**Thames Water Utilities Ltd**' Write your Thames Water account number on the back. Send to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW** or by DX to **151280 Slough 13**

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

Appendix B Camden Flood Proforma

Sustainable Drainage (SuDS) Assessment, Evidence and Proposals

Recommendation (Council to complete)	**Assessments**	Document submitted?	Document title	Page/ section reference
	Drainage Statement (DS)	*Yes*	105465-PEF-ZZ-XX-RP-CD-000001	
	GLA-Camden SuDS Pro-forma (fully completed)	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Appendix E & F

Recommendation (Council to complete)	**Policy compliance**	Requirement met?	Document title	Page/ section reference
	DS must include identification of flood risk	Yes	105465-PEF-ZZ-XX-RP-YE-000010	FRA document
	DS must include assessment of existing, greenfield & proposed runoff rates	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Section 3
	DS must include identification of measures, in line with the drainage hierarchy, to reduce runoff rates	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Section 3
	Achieve greenfield runoff rates wherever feasible, or as close as possible	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Sections 3, 4 & 5
	Constrain runoff volumes to greenfield for 100yr 6hr event where feasible	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Sections 3, 4 & 5
	Backstop target for unaltered buildings: >50% reduction in existing run-off	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Sections 3, 4 & 5
	Developments must include SuDS unless inappropriate	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Section 3.5
	Development should follow the detailed London Plan drainage hierarchy	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Section 3.1
	EA climate change factor applied: 2080s upper rainfall intensity allowance (40%)	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Appendix C

Recommendation (Council to complete)	**Evidence supporting Assessments & Proposals**	Evidence submitted?	Document title	Page/ section reference
	Drawings detailing SuDS extent & position (incl. outfalls, control points, levels)	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Appendix D
	Blue-green roof details with area & minimum 150mm substrate for storage	No		
	Results of cross-site infiltration rate or similar tests to show soil (in)compatibility	Yes	Geo-Environmental Report	
	Professional run-off calculations supporting rates & volumes reported in DS	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Appendix C and Section 2
	Drawings showing on&off-site overland exceedance flows	No	105465-PEF-ZZ-XX-RP-CD-000001	No exceedance routes predicted
	Evidence of site surveys and investigations relating to drainage	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Appedix A, B and E
	Lifetime maintenance and adoption arrangements (and maintenance owner)	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Section 3
	Management of health & safety risks related to SuDS design	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Section 3
	Confirmation of discharge capacity (or correspondence) from relevant body eg TW	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Appendix E

Guidelines / notes

Policy CC3 c. consider the impact of development in areas at risk of flooding (including drainage);

Download from www.london.gov.uk/what-we-do/environment/climate-change/surface-

Policy CC3 e. utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible
& Policy CC3 supporting text §8.67

Policy CC3 e. utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible
& Policy CC3 supporting text §8.66

Policy CC3 e. utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible
& Policy CC3 supporting text §8.68

Pro-forma for any schemes in flood risk areas & all major development - Camden LLFA

All yellow boxes **must** be completed on this and all relevant tabs
Complete peach cells with source document and section/page references, required to support/justify responses
Do not edit grey cells
Please note guidelines / notes in column M
Complete all relevant tabs

Introduction: This Proforma is intended to help you understand the Sustainable Drainage and Flood Risk considerations that the Lead Local Flood Authority (LLFA) and Local Planning Authority (LPA) will take into account when considering an application in Camden, as well as helping us to consider the application. This does not replace the need also to provide where required a Drainage Statement, Flood Risk Assessment, and GLA-Camden SuDS Pro-forma, and observe the detailed guidance in ' Camden Planning Guidance (CPG) Water & Flooding'. Any information provided should be referenced to the relevant section of submitted supporting documents. This summary page will help provide key details on the application. Note that certain cells on this and other tabs will be populated automatically from previous answers given.

A. Application details

Planning reference (if known)				
Scheme name	Saville Theatre			
Scheme address	135-149 Shaftesbury Avenue, Camden			
Postcode	WC2H 8AH			
Scale of development as registered	Major			
Scale - policy subcategory	Major - largescale	Residential parts		Non-residential parts
Type(s) of development	Non-residential	new/re-build and refurb/change o		
Site area, hectares	0.08	*100%*		
Of which total permeable area, to nearest 0.0001 ha	0	0%		
Of which total impermeable area, to nearest 0.0001 ha	0.08	100%		

	Existing	Proposed				
	TOTAL pre-development	For demolition	New-build incl. infills, re-build, extensions	Retained (refurbished or change of use)	TOTAL post-development	Net UPLIFT post-development
Total floor area of development (GIA)	0	0	0	0	0	0
of which residential	0	0	0	0	0	0
of which non- residential		0	0	0	0	0
Number of residential units						
List all use class(es)						

Drainage Statement document details	105465-PEF-ZZ-XX-RP-CD-000001
Flood Risk Assessment document details	105465-PEF-ZZ-XX-RP-YE-000010

Recommendation (Council to complete)			
	Site area 1 hectare or greater?	*No*	
	Major application?	*Yes*	
	In Critical Drainage Area?	Yes	
	In or bordering (<50m) Local Flood Risk Zone(s)?	No	
	Name of LFRZ(s):		
	On Historically Flooded Street 1975 or 2002?	No	
	Name of HFS(s):		
	Area at risk of flooding (surface water)?	*No*	
	Elevated groundwater susceptibility or <50m of GW incid	No	
	In area with recorded sewer flooding incident?	No	
	In street with historical underground watercourse?	No	
	Area at risk of flooding (other relevant types)?	*No*	
	Basement proposed - new, enlarged or change of use?	Yes	
	IF YES, list proposed basement uses (all spaces):	Theatre and support facilities	
Approve/Condition/Refuse	*IF YES, are habitable or vulnerable use(s) included?*		
Approve/Condition/Refuse	*IF NO, is other (non-basement) vulnerable development*	Yes	
	Vulnerable development in flood-prone area?	*Yes*	
	Site-specific Flood Risk Assessment (FRA) required?	*CHECK SITE DETAILS*	
Approve/Condition/Refuse	Site-specific FRA submitted?	Yes	**If Yes, go to Flood Risk Proposals tab**
	Drainage Statement (DS) required?	*CHECK SITE DETAILS*	
Approve/Condition/Refuse	DS submitted?	Yes	**If Yes, go to Flood Risk Proposals tab**
	Sustainable drainage (SuDS) proposals required?	*CHECK SITE DETAILS*	
Approve/Condition/Refuse	SuDS proposals submitted?	Yes	**If Yes, go to SuDS Proposals tab**
	FRA/DS/SuDS supporting evidence required?	*CHECK SITE DETAILS*	
Approve/Condition/Refuse	Supporting evidence submitted?	Yes	**If Yes, go to Flood Risk Proposals &/or SuDS Proposals t**

B. Flood Risk and SuDS - Policy & Documents Filter

Flood Risk Assessment, Proposals & Evidence

Recommendation (Council to complete)	**Assessments**	Required?	Document submitted?	Document title	Page/ section reference
	Site-specific Flood Risk Assessment	*CHECK SITE DETAILS*	*Yes*	105465-PEF-ZZ-XX-RP-YE-000010	
	Drainage Statement	*CHECK SITE DETAILS*	*Yes*		
	SuDS Proposals tab completed	*CHECK SITE DETAILS*	Yes	105465-PEF-ZZ-XX-RP-CD-000001	
	SuDS Proposals	*CHECK SITE DETAILS*	*Yes*	105465-PEF-ZZ-XX-RP-CD-000001	
	SuDS Proposals tab completed	*CHECK SITE DETAILS*	Yes	105465-PEF-ZZ-XX-RP-CD-000001	

Recommendation (Council to complete)	**Policy compliance**	Required?	Requirement met?	Document title	Page/ section reference
	Assessments address local, regional & national policies	*CHECK SITE DETAILS*	Yes	105465-PEF-ZZ-XX-RP-YE-000010	Section 3
	include suitable research & quantification of site flood risks	*CHECK SITE DETAILS*	Yes	105465-PEF-ZZ-XX-RP-YE-000010	Section 4
	address cumulative impact of developments	*CHECK SITE DETAILS*	Yes	105465-PEF-ZZ-XX-RP-YE-000010	Section 2
	propose suitable flood ingress internal coping measures	*CHECK SITE DETAILS*	No		
	propose suitable flood risk mitigation measures	*CHECK SITE DETAILS*	Yes	105465-PEF-ZZ-XX-RP-YE-000010	Section 5
	Internal water consumption target 105 l/p/d (residential)	*Yes*	N/A		
	External water consumption target 5 l/p/d (residential)	*Yes*	N/A		
	BREEAM Excellent water consumption target (non-resi >500m2)	*No*	Theatre and Hotel		
	Will not locate vulnerable development in flood-prone area	*Yes*	*No*	105465-PEF-ZZ-XX-RP-YE-000010	Section 5
	Scheme does not increase flood risk on & off site	*CHECK SITE DETAILS*	Yes	105465-PEF-ZZ-XX-RP-YE-000010	Section 6
	Scheme reduces on&off-site flood risk where possible	*CHECK SITE DETAILS*	Yes	105465-PEF-ZZ-XX-RP-YE-000010	Section 5

Recommendation (Council to complete)	**Evidence supporting Assessments & Proposals**	Required?	Evidence submitted?	Document title	Page/ section reference
	Drawings showing site-specific flood risk up to 100yr+40%	*CHECK SITE DETAILS*	Yes	105465-PEF-ZZ-XX-RP-YE-000010	Section 4
	Drawings showing proposed internal coping measures	*CHECK SITE DETAILS*	No		
	Drawings showing proposed flood mitigation measures	*CHECK SITE DETAILS*	Yes	105465-PEF-ZZ-XX-RP-CD-000001	Appendix D
	Drawings showing proposed basement/ground floor uses	*CHECK SITE DETAILS*	Yes	Submitted Layout Plans	
	Building flood risk emergency evacuation plan		No		
	Drawings showing on&off-site overland exceedance flows	*CHECK SITE DETAILS*	No		
	Internal water calculations & proposals (resi)	*Yes*	No		
	External water calculations & proposals (resi)	*Yes*	No		
	BREEAM water calculations & proposals (non-resi >500m2)	*No*	Theatre and Hotel		

Guidelines / notes

Policy CC3 c. consider the impact of development in areas at risk of flooding

Policy CC3 c. consider the impact of development in areas at risk of flooding
(including drainage);

Policy CC3 b. avoid harm to the water environment and improve water quality& e. utilise Sustainable Drainage Systems (SuDS) in line with the drainagehierarchy to achieve a greenfield run-off rate where feasible

including Local Plan CC3, CPG, new London Plan, National Planning Policy Framework
including Strategic Flood Risk Assessment, Update LFRZ Map & EA Mapping
Policy CC3 c. consider the impact of development in areas at risk of flooding
Policy CC3 d. incorporate flood resilient measures in areas prone to flooding;
Policy CC3 d. incorporate flood resilient measures in areas prone to flooding;

Policy CC3 a. incorporate water efficiency measures
Policy CC3 a. incorporate water efficiency measures
Policy CC3 a. incorporate water efficiency measures

Policy CC3 f. not locate vulnerable development in flood-prone areas.
Policy CC3 The Council will seek to ensure that development does not increase flood risk
Policy CC3 The Council will seek to ensure that development...reduces the risk of flooding where possible

allowing 300mm freeboard to potential water ingress points

Policy CC3 a. incorporate water efficiency measures
Policy CC3 a. incorporate water efficiency measures
Policy CC3 a. incorporate water efficiency measures

Appendix C Camden SuDS Proforma

The London Sustainable Drainage Proforma

Introduction

This proforma is intended to accompany a drainage strategy prepared for a planning application where required by national or local planning policy. It should be used to summarise the key outputs from the strategy to allow assessing officers at the Lead Local Flood Authority (LLFA) to quickly assess compliance with sustainable drainage (SuDS) planning

The proforma is divided into 4 sections, which are intended to be used as follows:

1. Site and project information - Provide summary details of the development, site and drainage
2. Proposed discharge arrangement – Summarise site ground conditions to determine potential for infiltration. Select a surface water discharge method (or mix of methods) following the hierarchical approach set out in the London Plan.
3. Drainage strategy – Prioritise SuDS measures that manage runoff as close to source as possible and contribute to the four main pillars of SuDS; amenity, biodiversity, water quality and water quantity.
4. Supporting information – Provide cross references to the page or section of the drainage strategy report where the detailed information to support each element can be found. This may be more than one reference for each

Policy

Drainage strategies for developments in the London Borough of [insert borough] need to comply with the following policies on SuDS:

1. Camden Local Plan Policy CC3
2. London Plan policy 5.13 and draft New London Plan policy SI13
3. The National Planning Policy Framework (NPPF)

Technical Guidance

- Post-development surface water discharge rate should be limited to greenfield runoff rates. Proposals for higher discharge rates should be agreed with the LLFA ahead of submission of the Planning Application. Clear evidence should be provided with the Planning Application to show why greenfield rates cannot be achieved.
- Greenfield runoff rate is the runoff rate from a site in its natural state, prior to any development. This should be calculated using one of the runoff estimation methods set out in Table 24.1 of CIRIA C753 The SuDS Manual.
- Attenuation storage volumes required to reduce post-development discharge rates to greenfield rates should be calculated using one of the runoff estimation methods set out in Table 24.1 of CIRIA C753 The SuDS Manual.
- 'CC' refers to climate change allowance from the current Environment Agency guidance.
- An operation and maintenance strategy for proposed SuDS measures should be submitted with the Planning Application and include the details set out in section 32.2 of CIRIA C753 The SuDS Manual. The manual should be site-specific and not directly reproduce parts of The SuDS Manual.
- Other useful sources of guidance are:
  - Camden Planning Guidance 'Water and Flooding'
  - The London Plan Sustainable Design and Construction SPG
  - DEFRA non-statutory technical standards for sustainable drainage
  - Environment Agency climate change guidance
  - CIRIA C753 The SuDS Manual
  - Camden's 'SuDS in planning applications' webpage

Camden

GREATER**LONDON**AUTHORITY

LoDEG

1. Project & Site Details

Project / Site Name (including sub-catchment / stage / phase where appropriate)	Saville Theatre
Address & post code	135-149 Shaftesbury Avenue, London WC2H 8AH
OS Grid ref. (Easting, Northing)	E 529981
	N 181146
LPA reference (if applicable)	
Brief description of proposed work	6-storey extension, plus plant, on top of existing Building. Part-demolition, retention and refurb of existing grade II listed building. New basement levels formed accommodating new theatre
Total site Area	800 m^2
Total existing impervious area	800 m^2
Total proposed impervious area	800 m^2
Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	No
Existing drainage connection type and location	Combined sewer drainage to the south of the site.
Designer Name	Santino Paoli
Designer Position	Graduate Engineer
Designer Company	Pell Frischmann

2. Proposed Discharge Arrangements

2a. Infiltration Feasibility

Superficial geology classification	No recorded superficial geology (BGS)
Bedrock geology classification	London Clay Formation
Site infiltration rate	m/s
Depth to groundwater level	12.2 m below ground level
Is infiltration feasible?	No

2b. Drainage Hierarchy

	Feasible (Y/N)	*Proposed (Y/N)*
1 store rainwater for later use	Y	Y
2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
3 attenuate rainwater in ponds or open water features for gradual release	N	N
4 attenuate rainwater by storing in tanks or sealed water features for gradual release	Y	Y
5 discharge rainwater direct to a watercourse	N	N
6 discharge rainwater to a surface water sewer/drain	Y	Y
7 discharge rainwater to the combined sewer.	Y	Y

2c. Proposed Discharge Details

Proposed discharge location	new surface and foul sewers across site
Has the owner/regulator of the discharge location been consulted?	Yes

Camden

GREATERLONDONAUTHORITY

LoDEG

3. Drainage Strategy

3a. Discharge Rates & Required Storage

	Greenfield (GF) runoff rate (l/s)	*Existing discharge rate (l/s)*	*Required storage for GF rate (m^3)*	*Proposed discharge rate (l/s)*
Qbar	0.12			
1 in 1	0.11			
1 in 30	0.29	43.9		
1 in 100	0.4	81.3		
1 in 100 + CC				
Climate change allowance used		40%		
3b. Principal Method of Flow Control				

3c. Proposed SuDS Measures

	Catchment area (m^2)	*Plan area (m^2)*	*Storage vol. (m^3)*
Rainwater harvesting	0		0
Infiltration systems	0		0
Green roofs	0	TBC	TBC
Blue roofs	0		
Filter strips	0	0	0
Filter drains	0	0	0
Bioretention / tree pits	0	0	0
Pervious pavements	0		0
Swales	0		0
Basins/ponds	0	0	0
Attenuation tanks	0		
Total	**0**	**0**	**0**

4. Supporting Information

4a. Discharge & Drainage Strategy	*Page/section of drainage report*
Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	Factual Ground Investgation Report - RSK Geosciences - December 2021
Drainage hierarchy (2b)	Section 3.1
Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	Section 3.2
Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	Section 3.3
Proposed SuDS measures & specifications (3b)	Section 3.5
4b. Other Supporting Details	*Page/section of drainage report*
Detailed Development Layout	Appendix B/BBUK Landscape
Detailed drainage design drawings, including exceedance flow routes	105465-PEF-ZZ-XX-DR-CD-0500
Detailed landscaping plans	RPS
Maintenance strategy	Section 3.6
Demonstration of how the proposed SuDS measures improve:	
a) water quality of the runoff?	Section 3.5
b) biodiversity?	Section 3.5
c) amenity?	Section 3.5