



FORMER JOHN LEWIS DEPOT, LETCOMBE STREET, READING
(ALSO KNOWN AS JLP MILL LANE)

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY
JULY 2025

FAIRHURST

CONTROL SHEET

CLIENT: John Lewis Partnership BTR Ltd

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1. Introduction

1.1 Background

1.1.1 Fairhurst have been appointed to undertake a Flood Risk Assessment (FRA), on behalf of John Lewis Partnership BTR Ltd to support a planning application for a redevelopment of the site comprising of residential dwellings together with flexible community space off Letcombe Street, Reading. The site location is shown below in Figure 1.

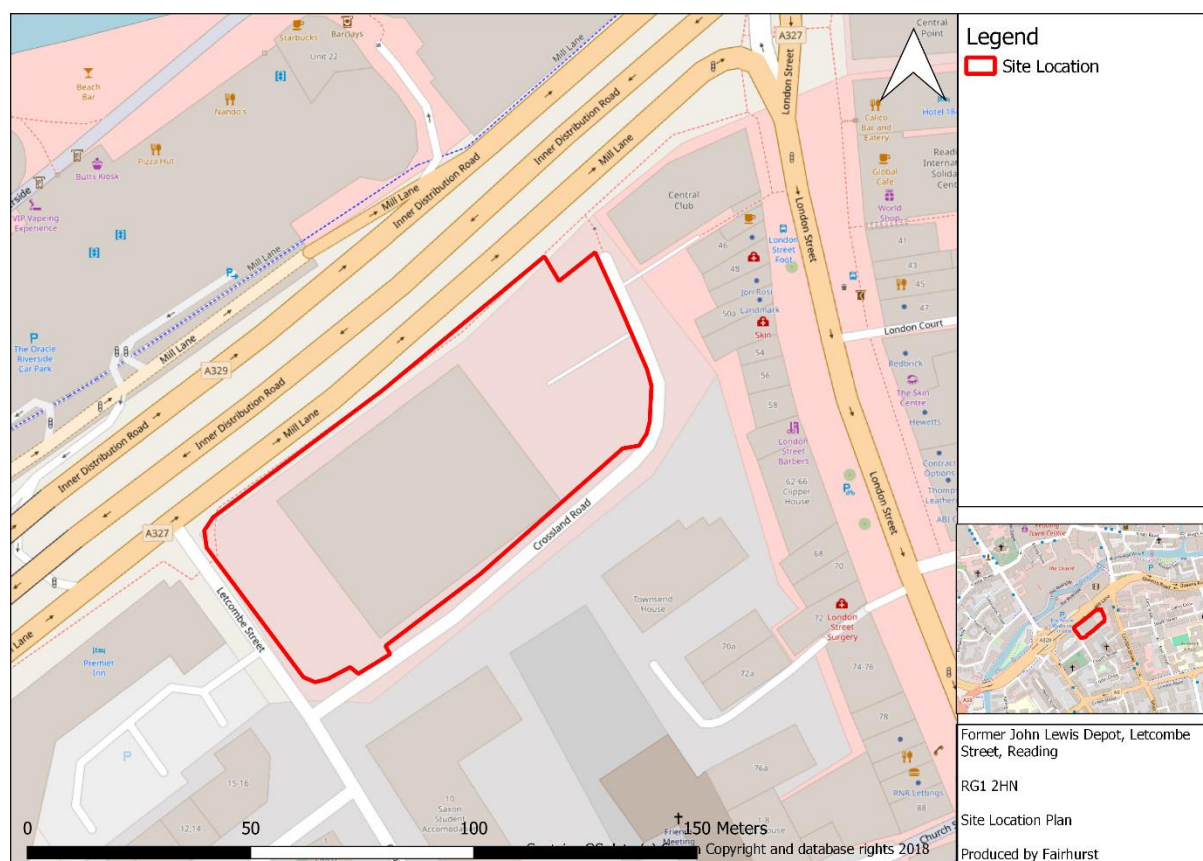


Figure 1 Site Location

1.1.2 The site is located on the edge of the town centre in Central Reading (as defined in the adopted Local Plan (2019)). The site is located within Flood Zone 1, and is outside, but adjacent to the edge of, the Market Place and London Street Conservation Area. The site is also within an Area of Archaeological Potential and Air Quality Management zone which covers the entirety of central Reading. Further definitions and guidance of the flood zones, in accordance with the Planning Practice Guidance (PPG) are summarised in Table 3, Section 3 of this report.

1.1.3 This proposed development is for the demolition of the existing building and redevelopment of the site comprising erection of a new building, for up to 170 build to rent residential dwellings (Use Class C3) together with flexible community space (Use Class F1/F2), residents' facilities, landscaping, public realm, amenity space and cycle parking. The proposed site plans are located in **Appendix A**.

1.2 Scope of the Study

1.2.1 The aim of this FRA is to undertake a flood risk study that is appropriate to the nature and scale of the site. The FRA will consider the risk of flooding from all sources (tidal/coastal, fluvial, pluvial, artificial, groundwater and existing sewerage assets), assess how the proposed development will affect flood risk to the site and the surrounding area and recommend mitigation measures where required.

1.2.2 The objectives of the FRA are to:

- Collect and review existing information relating to flood risk to the site from all sources listed above;
- Consult with Reading Borough Council in their role as the statutory consultee as the Lead Local Flood Authority (LLFA) in relation to flood risk and their requirement for management of any risk;
- Assess flood risk to the proposed development and surrounding area as a result of the development, while including an allowance for climate change; and
- Outline any mitigation measures that may be needed to ensure the proposed works will be safe and not increase flood risk elsewhere until the final construction works have been completed and will meet the requirements of the National Planning Policy Framework (NPPF) and the LLFA.

2. Existing Site Information

2.1 Site Description and Location

- 2.1.1 The application site is located on the edge of the town centre in Central Reading within close proximity of key local services and facilities including The Oracle shopping centre opposite, the Premier Inn hotel adjacent to the west and Reading railway station located approximately 1km to the north.
- 2.1.2 The site itself is bound by Mill Lane and the A329 to the north, Letcombe Street to the south-west and Crossland Road to the south-east, from which the Site is accessed. The site currently comprises the existing JLP warehouse building with associated car parking and servicing areas to the north-east and south-west of the building. The satellite image of the site can be seen in Figure 2 and the site location plan is located in **Appendix A**.
- 2.1.3 The site currently comprises an existing warehouse with customer collection facilities, ancillary car park and servicing area. The use of the existing building became surplus to requirements as a customer collection centre in 2021, with its functions having been transferred to the John Lewis department store at Broad Street, Reading.

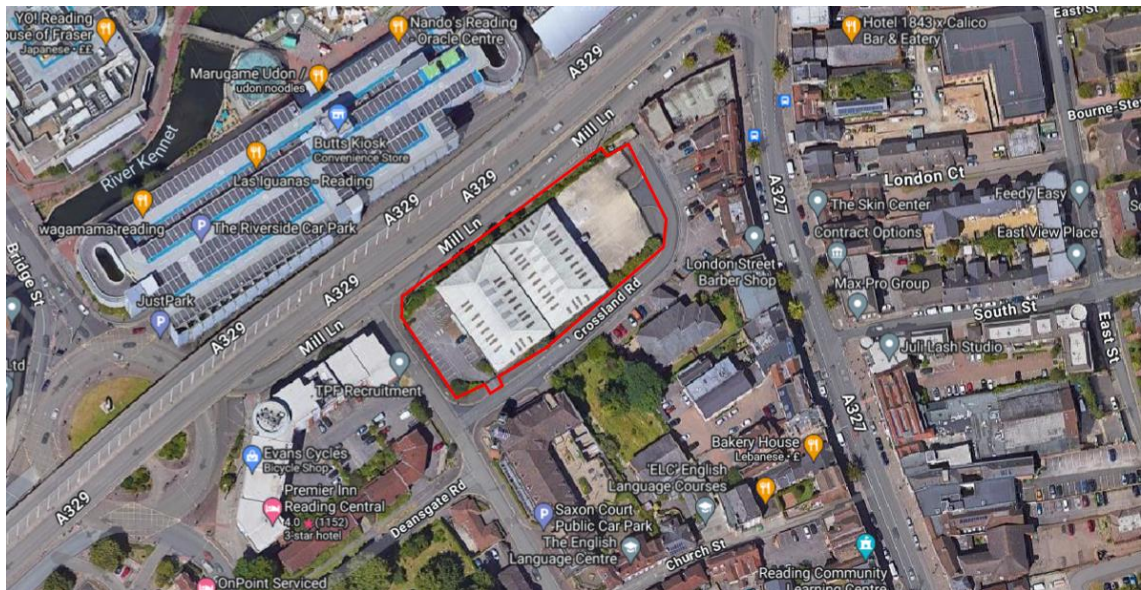


Figure 2: Satellite image of site

2.1.4 A summary of the site and its characteristics is located below in Table 1.

Table 1: Site Location Summary	
Site Name	Former John Lewis Depot, Letcombe Street, Reading (also known as JLP Mill Lane)
Site Address	RG1 2HN
Site Area (Ha)	0.44
National Grid Reference	SU 71697 73087
Existing Land Use	Brownfield
Proposed Land Use	Residential
Local Planning Authority	Reading Borough Council
Environment Agency Area	Thames
Sewerage Undertaker	Thames Water
Flood Zone	Zone 1

2.2 Topographic Levels

2.2.1 Levels across the site are fairly flat with levels being between 38mAOD and 42mAOD. The highest point of the site is the south-eastern boundary at 41.39mAOD, it then falls to the low spot in the south-western car park area of the site at 38.79mAOD. The south-eastern car park slopes slightly upwards from north to south with a level increase from 39.37mAOD to 40.40mAOD at the entrance. The south-western car park has levels sloping downwards going from 38.95mAOD to 39.54mAOD from north to south.

2.2.2 The external levels produced and used throughout the design strategy are based on the levels shown on the topographical survey, which can be found in **Appendix B**.

2.3 Existing Watercourses

2.3.1 The nearest watercourse is the River Kennet approximately 120m north of the site, it runs from the east to the west acting as a tributary of the River Thames. Another watercourse nearby is the Holy Brook approximately 540m to the west of the site. This watercourse runs from the west to the east and joins into the River Kennet at various points including near Fobney Street towards the west and Abbey Street to the east.

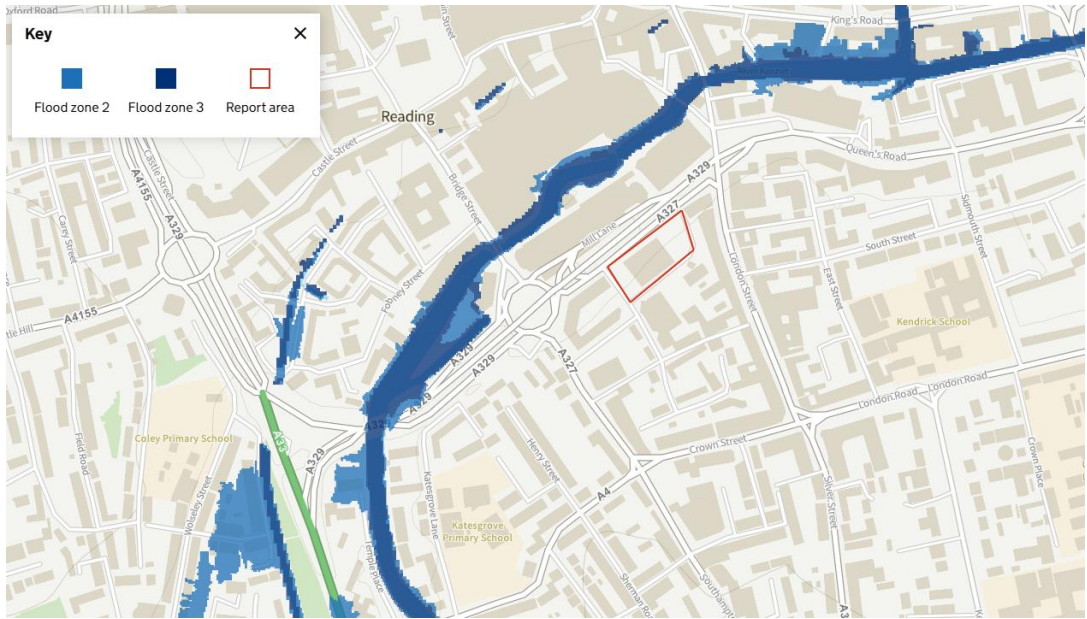


Figure 3: Watercourse location shown on the EA’s Fluvial Flood Map for Planning

2.4 Existing Drainage Regime

- 2.4.1 The development site is brownfield containing an existing warehouse accommodating the former John Lewis Depot. This is due to be demolished ahead of the construction of the proposed development.
- 2.4.2 Existing Thames Water surface water and combined sewer network with manholes are present adjacent to the site.
- 2.4.3 The methodology outlined in Institute of Hydrology Report No. 124, with appropriate adjustments to suit a site that is less than 50 Ha has been applied. This was undertaken using ‘uksuds.com’ Greenfield runoff rate estimation, which automatically makes the adjustment for small sites. See Table 2 below and **Appendix C** for further details.

Table 2: Existing Runoff Rates from site per hectare	
Return Period (Yr.)	Runoff Rate (l/s)
1	0.53
Mean Annual Flow Rate (Q_{bar})	0.63
30	1.44
100	2

2.5 Geology and Ground Conditions

- 2.5.1 Ramboll have conducted a Phase I and II Environmental Site Assessment for the site in August 2024. This report was included within the application submission. The information below is taken from the Ramboll Phase I and II Environmental Site Assessment report found within **Appendix D** (attached separately).

Superficial Deposits

- 2.5.2 The site investigation recorded superficial deposits comprising the Taplow Gravel Formation (Sand and Gravel) present along the southern site boundary.

Made Ground

- 2.5.3 The site investigation noted that the site contains Tarmacadam surfacing overlying made ground towards the west of the site and concrete hardstanding overlying made ground was found towards the east of the site. Made ground with unknown composition was found throughout the entire site.

Solid Geology (bedrock)

- 2.5.4 The solid geology of the site is underlain by the Lewes Nodular Chalk Formation (Seaford Chalk Formation) and Newhaven Chalk Formation.

Hydrogeology

- 2.5.5 The chalk bedrock (Lewes Nodular Chalk Formation (Seaford Chalk Formation) and Newhaven Chalk Formation) are classed as a principal aquifer by the Environment Agency, whereas the superficial deposits comprising the Taplow Gravel Formation (Sand and Gravel) are classified as a secondary aquifer. There are currently three licensed groundwater abstractions within 1km of the site. These are located 620m north-west with Primark Stores Limited as the licence holder, 720m south-east with Royal Berkshire Hospital as the licence holder and 800m in an unknown location with details unknown. The site is not situated within an Environment Agency (EA) designated groundwater source protection zone.

3. Legislative Framework

3.1 National Planning Policy Framework and Guidance

- 3.1.1 One of the key aims of the National Planning Policy Framework (NPPF) and Planning Policy Guidance (PPG) is to ensure that flood risk is taken into account at all stages in the planning process to avoid *“inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.”* This is detailed in Para 170 of the NPPF.
- 3.1.2 A risk-based approach should be adopted at all levels of planning. Applying the source pathway-receptor model to planning for development in areas of flood risk requires:
- A strategic approach which avoids adding to the causes or “sources” of flood risk, by such means as avoiding inappropriate development in flood risk areas and minimising run-off from new development onto adjacent and other downstream properties, and into the river systems;
 - Managing flood “pathways” to reduce the likelihood of flooding by ensuring that the design and location of the development maximises the use of Sustainable Drainage System (SuDS), and takes account of its susceptibility to flooding, the performance and processes of river/coastal systems and appropriate flood defence infrastructure, and of the likely routes and storage of floodwater, and its influence on flood risk downstream; and
 - Reducing the adverse consequences of flooding on the “receptors” (i.e. people, property, infrastructure, habitats and statutory sites) by avoiding inappropriate development in areas at risk of flooding.
- 3.1.3 A flood risk assessment should be carried out to the appropriate degree at all levels of the planning process, to assess the risks of all forms of flooding to and from development taking climate change into account. A sequential risk based approach should be applied to determine the suitability of land for development in flood risk areas.
- 3.1.4 Flood risk has been categorised as High, Medium and Low based on the probability of inundation. Extracts from Tables 1 and 2 of the Flood Risk and Coastal Change are provided below, which highlights the likely response to planning applications within each flood zone. The NPPF was used to determine both the flood zone and the classification of the development – findings and resulting actions are shown and discussed in sections 3.3-3.5 below.

- 3.1.5 In areas at risk of river or sea flooding, preference should be given to locating new developments in Flood Zone 1. If there is no reasonably available site in Flood Zone 1, the flood vulnerability of the proposed development can be taken into account in locating development in Flood Zone 2 and then subsequently Flood Zone 3. Within each flood zone, new development should be directed to sites at the lowest probability of flooding from all sources.

3.2 Local Planning Policy & Guidance

Reading Borough Local Plan

- 3.2.1 Reading Borough Local Plan (adopted 2019) guides development in Reading up to 2036. The site is currently allocated in the Reading Local Plan (2019) (Policy CR14g) for public car parking to facilitate an additional 1,600-2,000sqm retail provision at The Oracle Shopping Centre opposite. However, the CR14g allocation is no longer deliverable, as explained further within the Planning Statement.

Relevant specific policies within the Local Plan include:

Policy CC3: Adaption to climate change

- 3.2.1.1 All developments will demonstrate how they have been designed to incorporate measures to adapt to climate change. The following measures shall be incorporated into development:
- *Wherever possible, new buildings shall be orientated to maximise the opportunities for both natural heating and ventilation and reducing exposure to wind and other elements;*
 - *Proposals involving both new and existing buildings shall demonstrate how they have been designed to maximise resistance and resilience to climate change for example by including measures such as solar shading, thermal mass, heating and ventilation of the building and appropriately coloured materials in areas exposed to direct sunlight, green and brown roofs, green walls, etc.;*
 - *Use of trees and other planting, where appropriate as part of a landscape scheme, to provide shading of amenity areas, buildings and streets and to help to connect habitat, designed with native plants that are carefully selected, managed and adaptable to meet the predicted changed climatic conditions; and*
 - *All development shall minimise the impact of surface water runoff from the development in the design of the drainage system, and where possible incorporate mitigation and resilience measures for any increases in river flooding levels as a result of climate change.*

Policy EN16: Pollution and Water Resources

- 3.2.1.2 *Development will only be permitted where it would not be damaging to the environment and sensitive receptors through land, noise or light pollution; where it would result in no deterioration in, or ideally enhance, ground and surface water quality; and where adequate water resources, sewerage and wastewater treatment infrastructure will be in place to support the proposed development prior to occupation.*
- 3.2.1.3 *Proposals for development that are sensitive to the effects of noise or light pollution will only be permitted in areas where they will not be subject to high levels of such pollution, unless adequate mitigation measures are provided to minimise the impact of such pollution.*
- 3.2.1.4 *Development will only be permitted on land affected by contamination where it is demonstrated that the contamination and land gas can be satisfactorily managed or remediated so that it is suitable for the proposed end use and will not impact on the groundwater environment, human health, buildings and the wider environment, during demolition and construction phases as well as during the future use of the site.*

Policy EN18: Flooding and Sustainable Drainage Systems

- 3.2.1.5 *Development will be directed to areas at lowest risk of flooding in the first instance, following the Sequential and Exceptions Test set out in the NPPF, and taking into account the effects of climate change. It will consider flooding from all sources, including fluvial, surface water, groundwater and sewer flooding. Where development in areas at risk of flooding is necessary, it will not reduce the capacity of the flood plain to store floodwater, impede the flow of floodwater or in any way increase the risks to life and property arising from flooding. Wherever possible, development should be designed to reduce flood risk, both on and off-site.*
- 3.2.1.6 *All major developments must incorporate sustainable drainage systems (SuDS) as appropriate and in line with the Government's Technical Standards. Smaller schemes are encouraged to incorporate SuDS, where possible. Runoff rates should aim to reflect greenfield conditions and, in any case, must be no greater than the existing conditions of the site. Schemes should ensure that the movement of water through vertical infiltration as well as horizontal run-off does not worsen contamination effects. Wherever possible, SuDS provision should maximise ecological benefits, link into the existing Green Network, incorporate tree planting and landscaping and avoid damage to existing significant trees, including through changes to the site hydrology. All new developments in areas of flood risk should give priority to SuDS.*

3.2.2 Strategic Flood Risk Assessment (SFRA)

- 3.2.2.1 The site according to Reading Borough Council's SFRA (2017) falls within Flood Zone 1. There is no further site specific information found within the SFRA (2017).

3.2.3 Preliminary Flood Risk Assessment (PFRA)

3.2.3.1 A Preliminary Flood Risk Assessment (PFRA) is prepared by the Lead Local Flood Authorities and is an assessment of floods that have taken place in the past and floods that could potentially take place in the future. It generally considers flooding from surface water runoff, groundwater and ordinary watercourses.

3.2.3.2 There is no mention of the site in the Reading Borough Council's PFRA (2011).

3.2.4 Other Relevant Policy, Standards and Guidance

3.2.4.1 CIRIA C753 Sustainable SuDS Manual (2015) provides best practice guidance and advice on the planning, design, construction, operation and maintenance of all SuDS to facilitate their effective implementation within the proposed development.

3.2.4.2 CIRIA C624 Development and Flood Risk (2004) – Guidance for the Construction Industry sets out practical guidance in assessing flood risk as part of the development process.

3.3 Proposed Development and Flood Risk Vulnerability

3.3.1 The NPPF and PPG advocate the use of the risk-based 'Sequential Test' to direct development away from areas shown to be in the highest flood risk areas, the NPPF aims to ensure that the development is safe throughout its lifetime, without increasing flood risk and where possible reducing flooding risk. Table 3 below, extracted from Table 1 of the Flood Risk and Coastal Change section of the PPG defines the level of flood risk within England.

3.3.2 The site is classified as a 'Major Development'¹, as more than 10 dwellings are to be built. Therefore, the LLFA will be a statutory consultee responsible for assessing the surface and foul water drainage proposals, including the sustainable drainage where appropriate.

¹ Flood Risk and Coastal Change (Paragraph: 039 Reference ID: 7-039-20220825)
<https://www.gov.uk/guidance/flood-risk-and-coastal-change>

Table 3: NPPF Flood Zone Definitions		
Flood Zone	Flood Zone Classification	Description
Flood Zone 1	Low Probability	Land having a less than 1 in 1,000 annual probabilities of river or sea flooding
Flood Zone 2	Medium Probability	Land having between a 1 in 100 and 1 in 1,000-year annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 year annual probability of sea flooding.
Flood Zone 3a	High Probability	Land having a 1 in 100 year or greater annual probability of river flooding; or Land having a 1 in 200 year or greater annual probability of sea flooding
Flood Zone 3b	Functional Flood Plain	Land having a 1 in 20 year or greater annual probability of flooding. This zone comprises land where water must flow or be stored in times of flooding. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of Functional Flood Plain and its boundaries accordingly, in agreement with the Environment Agency.

Paragraph 078 Reference ID: 7-078-20220825²

² Flood Risk and Coastal Change (<https://www.gov.uk/guidance/flood-risk-and-coastal-change>)

3.3.3 The EA's Flood Map for Planning shows the site to be located entirely within Flood Zone 1.

3.4 Vulnerability Classification

3.4.1 The flood zones, land use vulnerability classifications and corresponding compatibility are shown on the Flood Risk and Coastal Change sections of the PPG. The Government's mapping indicates the entire site is located in Flood Zone 1.

3.4.2 The development is considered as 'More Vulnerable' in accordance with Annex 3: Flood Risk Vulnerability Classification, as shown in Table 4 below.

3.4.3 Table 4 shown below, from the Flood Risk and Coastal Change shows that more vulnerable infrastructure is permitted within Flood Zone 1.

3.4.4 The development fulfils the following criteria fulfilled within the NPPF: *'Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels'*.

3.4.5 Based on the above information, in terms of flood risk, the NPPF permits development of **'More Vulnerable'** classification on sites located in Flood Zone 1.

Table 4: Flood Risk Vulnerability and Flood Zone 'Incompatibility'						
Flood Zones		Flood Risk Vulnerability Classification				
		Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone (See Table 3)	Flood Zone 1	✓	✓	✓	✓	✓
	Flood Zone 2	✓	Exception Test Required	✓	✓	✓
	Flood Zone 3a	Exception Test Required	X	Exception Test Required	✓	✓
	Flood Zone 3b	Exception Test Required	X	X	X	✓

3.5 Sequential and Exception Test

3.5.1 The Sequential Test, as set out in the PPG, aims to steer developments to areas with the lowest risk of flooding (i.e. to direct developments to Flood Zone 1, where possible).

3.5.2 For the exception test to be passed:

- It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk; informed by an SFRA where one has been provided; and
- A site specific FRA must demonstrate that the development will be safe for its lifetime taking into account of the vulnerability of its users, without increasing flood risk elsewhere and, where possible will reduce flood risk overall.

3.5.3 Both elements of the exception test noted above need to have passed for the development / works to be permitted.

The Sequential Test

3.5.4 No sequential test is required as the development is located entirely within Flood Zone 1, as confirmed within Table 4 above.

The Exception Test

3.5.5 The site is classified as '**More Vulnerable**' as in accordance with NPPF: Annex 3. This shows that the proposed development does not require an Exception Test due to the site being more vulnerable and within Flood Zone 1.

4. Sources of Flood Risk Information

4.1 Environment Agency (EA) Flood Maps for Planning

- 4.1.1 The EA Flood Maps for Planning show that the Proposed Development is located in Fluvial Flood Zone 1 (see **Appendix E**). This is land having an annual probability of river flooding less than 0.1% annual probability of Fluvial or Coastal / Tidal flooding.

4.2 Strategic Flood Risk Assessment

- 4.2.1 The SFRA, dated June 2017, was produced to assist Reading Borough Council in spatial planning decisions that are required to inform the Local Development Framework preparation. Using information and analysis gathered during the assessment, a strategic overview of the flood risk was carried out to identify any potential conflicts between development pressures and current flood risk and potential flood risk in the future to help determine the allocations of land for both housing and employment.
- 4.2.2 No historic flooding events were detailed for the RG1 postcode. It was, however, stated that the 'Central Reading' area had experience four groundwater flooding events during 2000 to 2001, and that the area is 'typically at high probability of such flooding (75-100%) based on the underlying geological characteristics'.

4.3 Preliminary Flood Risk Assessment

- 4.3.1 The Reading Borough Council PFRA was published in June 2011 and is a high level screening exercise that compiles information on significant 'local flood risk' from past and future floods, based on readily available and derivable information.
- 4.3.2 Local flood risk is defined as flood risk originating from sources other than main rivers, the sea and large reservoirs. This principally refers to flood risk from surface water runoff, groundwater and Ordinary Watercourses.

4.4 Local Flood Risk Management Strategy

- 4.4.1 The Local Flood Risk Management Strategy (LFRMS) details the Council's preferred strategy to manage the risk from 'local' sources of flooding. This most recent report, published in 2015, is Reading Borough Council's summary for the Public Consultations. Local sources of flooding are those from Ordinary Watercourses (small streams and channels), pluvial (surface water runoff as a result of heavy rainfall) and groundwater (where water held beneath the ground reaches the surface). The LFRMS includes a Flood Risk Action Plan which identifies the practical steps that the Council and other partners need to take to reduce their risks from flooding.

4.5 Catchment Flood Management Plan (CFMP)

- 4.5.1 The CFMP was compiled by the Environment Agency and published in December 2009 and sets out their preferred plan for sustainable flood risk management over the next 50 to 100 years. CFMPs can be used to help target limited resources where the risks are greatest.

- 4.5.2 The site lies within the Thames CFMP, and in the sub-area of 'Reading'. This CFMP identifies flood risk management policies to assist all key decision makers in the catchment. It was produced through a wide consultation and appraisal process, however it is only the first step towards an integrated approach to flood risk management.
- 4.5.3 The Reading catchment sub-area's risk and mitigation methods have been summarised from the CFMP: *'These sub-areas contain 10% (170km²) of the total area of floodplain within the Thames CFMP but have 40% (56,000 properties with a 1% risk of flooding from rivers) of the properties at risk. This figure is estimated to increase by between 5% and 25% in the future due to the impacts of climate change as most of these areas are in wide flat floodplains of major rivers'.*

5. Flood Risk from External Sources

5.1 Overview

5.1.1 The NPPF requires the effects of all sources of flood risk to the site consequential to any development to be considered within a site specific FRA. The FRA should demonstrate how these risks are to be managed so that the development and surrounding areas remain safe throughout the lifetime of the development, taking into account an allowance for climate change.

5.2 Fluvial (Rivers)

5.2.1 The EA's Flood Map for Planning shows that the site is located entirely within Fluvial Flood Zone 1. **Figure 4** below shows the EA flood maps. The full map can be found in **Appendix E**. This indicates that the site is at a fluvial flood risk as a result of storm events less than 0.1% AEP (1 in 1,000 year annual exceedance probability event).

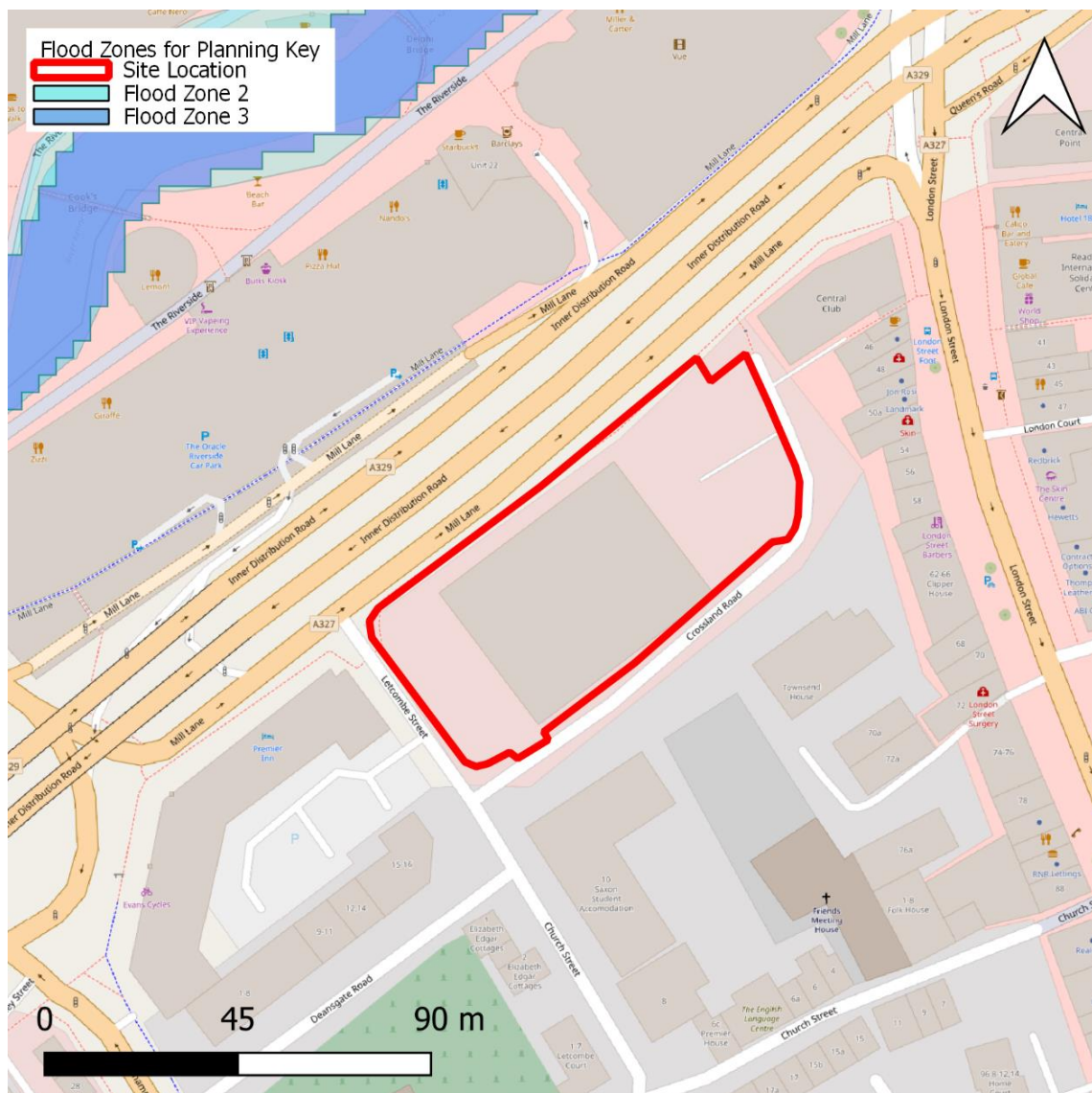


Figure 4: EA Flood Maps

5.3 Pluvial (Overland Flows)

- 5.3.1 Overland flows are a result of saturated ground being unable to accommodate any further infiltration and excess flows follow the natural topography and flow to lower lying areas of the site. This is further exacerbated where permeability of the ground is low or there have been a drought and the ground surface has been 'baked' preventing infiltration into the layers below. The most common situation of overland flows is where large areas of impermeable surfacing occurs such as highways or car parks that has insufficient drainage in place.
- 5.3.2 The published EA Flood Maps for Planning and the EA model have been produced taking into account the existing building. The proposed footprint of the building stretching along the north western perimeter of the existing car park would prevent any water from flowing into the development. This can be seen in **Figure 5** below and in **Appendix E**.

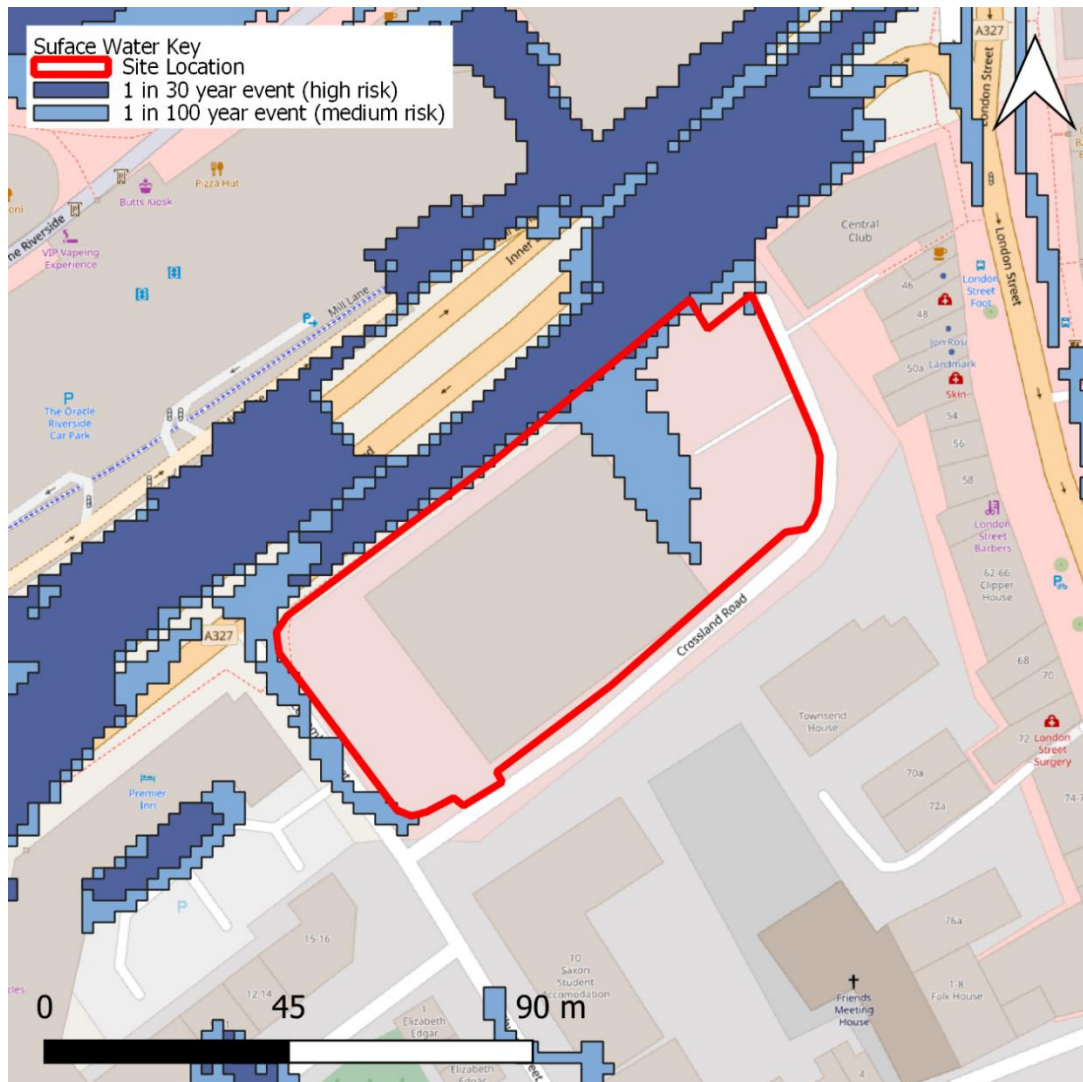


Figure 5: Pluvial Flood Maps

5.4 Drainage Infrastructure

- 5.4.1 Flooding can occur from all drainage infrastructure as a result of insufficient capacity within the system from additional development, poor design, or an unknown collapse or blockage. These can result in surcharging and flooding from the drainage networks via manhole or gullies thus causing overland flows.
- 5.4.2 Public sewers are managed by the local water company, who provide routine maintenance to their assets, however areas of unmaintained or blockages can go unreported.
- 5.4.3 Thames Water has provided local sewer asset maps for the site and surrounding area. These are shown in **Appendix F**.

5.5 Groundwater

- 5.5.1 Groundwater flooding can occur when groundwater levels exceed the ground surface levels as a result of prolonged rainfall events resulting in a saturated ground. The underlying ground conditions, as detailed earlier in Geology and Ground Conditions section, has a major influence on where this type of flooding occurs. It is most common in low lying areas underlain by permeable rocks (aquifers) at a shallow depth.
- 5.5.2 There is always a risk of groundwater rising to the surface from perched layers within the superficial deposits, although this may be a perceived risk.
- 5.5.3 The Ramboll Phase I and II Environmental Site Assessment on groundwater states '*Groundwater was discovered between 2.70m bgl and 3.36m bgl and this shallow groundwater should be considered during any future foundation designs.*' This report can be found in **Appendix D (attached separately)**.

5.6 Artificial Sources

- 5.6.1 Reservoirs and other artificial water bodies have the potential to hold a large volume of water, often above ground level. The current agreed limit under the Flood and Water Management Act 2010 states the reservoir act comes into force when above ground attenuation surpasses 10,000m³ of attenuated water.
- 5.6.2 Should the containment of these waterbodies fail (e.g. breach or overtopping), there is a sudden release of deep fast moving water with little warning able to be provided. However, due to regular maintenance, there is a low risk posed from such an event. Reservoir flooding is extremely unlikely to occur and there has been no loss of life in the UK from reservoir flooding since 1925.
- 5.6.3 EA mapping shows that the site is not at risk from artificial sources such as reservoirs, even when the rivers are concurrently flooding.

5.7 Future Flood Risk from Climate Change

- 5.7.1 In assessing the potential flood risk at the site over the lifetime of the development, climate change will be considered and taken into account during the assessment.
- 5.7.2 Climate change allowances are based upon guidance provided by the EA and are based upon their predicted change for difference scenarios of carbon dioxide (CO₂) emissions into the atmosphere. There are different allowances for different epochs or periods of time that cover the next century.
- 5.7.3 The guidance assesses a range of allowances based upon percentiles and these statistically describe the proportion of possible CO₂ scenarios that fall below a climate change level, i.e. 50th percentile is the point at which half of the possible climate change scenarios fall below and half fall above it. The guidance assesses a central allowance which is based upon the 50th percentile, higher central is based upon the 70th percentile and the upper end is based upon the 90th percentile.
- 5.7.4 The latest climate change guidance in relation to the site-specific flood risk assessment, 'Flood Risk assessments; climate change allowances', was published in 2016, with subsequent updates in October 2021 for the peak river flow allowances, and updated provided in December 2019 for sea level rises based upon the publication of the UKCP18 projections.
- 5.7.5 It is considered that the proposed development has a design life of 60 years, therefore the 2070's epoch has been used for this assessment. For the 1% annual exceedance rainfall event for the upper end allowance shows 40% increase in peak rainfall allowance.

5.8 Flood Risk from the Development

- 5.8.1 On sites where there is an increase in impermeable area, or a development located within a flood zone, there is always the potential to increase the risk of flooding as a result of development.

Flood Plain Storage

- 5.8.2 The site is not located within Flood Zone 3 so no compensatory storage will be required, as floodplain storage is not being reduced due to the development.

Flood Flow Routes

- 5.8.3 There are no known flood flow routes through the development. The design of the proposed site levels and drainage system will provide protection for all storm events up to and including the 1 in 100 year plus an allowance for climate change.
- 5.8.4 Any excess flows above this level of protection will be directed away from proposed dwellings or at risk areas of development. The flows will be directed to areas within the site boundary and remain onsite until they are available to drain away via the proposed drainage system.

Urban Creep

- 5.8.5 No urban creep has been made within this assessment. The proposed development is for the erection of a new building for residential dwellings, and as such there are no extra areas required for building.

6. Flood Mitigation Measures

6.1 Finished Floor Levels

- 6.1.1 The finished floor level should be situated a minimum of 300mm above the design flood level or 150mm above external ground levels, whichever is greater.
- 6.1.2 For this residential development as the site is in Flood Zone 1, the external levels of this development should be a minimum 150mm below the finished floor level, this is to allow for any conveyance routing around the property as a result of overland flow generation within the development.

6.2 Flood Resistance Measures

- 6.2.1 Flood resistance is the use of structures to prevent the entry of water into the building.
- 6.2.2 The finished floor level of the dwelling should be designed to be higher than the proposed highway level. This cannot always be achieved within the site design. Where this is the case threshold drainage / ACO channels should be installed at the bottom of the development's entrances and access areas. The second option is to relocate the level access into the building to the rear / side elevation. In extreme events greater than the design storm event, pluvial flooding can occur from the onsite drainage, however the site design should force flows to travel around the building and into a safe area within the site. The proposed footprint of the building stretching along the north western perimeter of the existing car park would prevent any water from flowing into the development, particularly from the River Kennet.
- 6.2.3 Rainwater entering the development will be drained via a new surface water sewer network, which discharges into the adjacent Thames Water sewer. The flows will be restricted into said existing sewer at 0.5l/s by a Hydrobrake, with the attenuated flows being held within 135m³ of cellular storage at two separate locations. The full details of the proposed drainage arrangements are located within **Appendix I**.

6.3 Flood Resilience Measures

- 6.3.1 Flood resilience is the use of practices aimed at making the building resilient to the effects of floodwater that has entered the building. With the site being only at low risk from pluvial flooding – being in flood zone 1, resilience measures are not necessary.

7. Surface Water Drainage Assessment

7.1 Hierarchy of Discharge

7.1.1 Following the hierarchy of discharge, in accordance with Paragraph 56 in Flood Risk and Coastal Change section of the PPG and Building Regulations, surface water flows should be discharged in the following order:

1. Discharge via infiltration, as the first priority where achievable. If not feasible move to step two.
2. Discharge via watercourse / water feature, as the second priority. If not feasible move to step 3.
3. Discharge to public surface water sewer, as the third priority. Where this is not feasible, move to step 4.
4. Discharge to the public combined / foul sewer.

7.1.2 The aim of this approach is to try mimic the existing drainage regime.

Method 1 – Infiltration

The Ramboll Phase I and II Environmental Site Assessment report does not mention infiltration capability for the site. Due to the presence of made ground and the brownfield nature of the site as well as possible presence of shallow groundwater table, discharge via infiltration might not be possible.

Method 2 – Watercourse

The nearest watercourse is the River Kennet, located 120m north of the site. If used for discharge, a sewer network would need to be constructed across developed brownfield third party private land. Due to the considerable length of the pipe required, the construction of an outfall, and the developed nature of the third party land surrounding the site, pursuing this option would be cost prohibitive and will necessitate obtaining permissions from respective land owners. This sewer will also need to be to adoptable standards with the required easement which will occupy space currently not available on the third party land. Therefore, this method of discharge is deemed not feasible, and method 3 should be considered instead.

Method 3 – Surface Water Sewer

An existing Thames Water surface water sewer runs along Letcombe Street to the south-west of the site, as shown in Appendix F. This sewer can be used as a connection point, making method 3, discharging via the Thames Water surface water sewer, feasible. Confirmation of this connection with Thames Water is in Appendix H.

Therefore, method 4 does not need to be considered.

7.2 Surface Water Drainage Strategy

- 7.2.1 The following surface water drainage strategy is proposed to serve the development proposals. It is considered that this strategy demonstrates that an acceptable surface water drainage strategy for the site can be achieved to meet both the NPPF, and associated Reading Borough Local Plan requirements for a full planning application.
- 7.2.2 Part of proposed surface water drainage system is located towards the north of the site, with manholes S1, S2, and S3 running from east to west to discharge into the existing Thames Water surface water network between MH 6051 and MH 6052.
- 7.2.3 Due to constrained space around the site perimeter, siphonic drainage will be utilised for the surface water drainage from the roofs, designed by a specialist. This reduces surface water drainage pipe runs around the proposed building working well with the current constraints. Remaining surface water drainage is located towards the south of the development with two cellular storage tanks located within the courtyards, with net storage capacities of 41m³ and 94.1m³.
- 7.2.4 A surface water package pumping station is proposed towards the south of the site with a hydrobrake towards the north of the site which will discharge the surface water at two points between an existing line connecting Thames Water surface water manholes 6051 and 6052 on Letcombe Street. The hydrobrake controls the flow of surface water discharge by acting as an orifice under low-flow conditions and introducing a vortex which creates back pressure, thereby restricting flow under high-flow conditions. There is minor flooding within a 1 in 100 storm event + climate change, however flooding only occurs at short term flood events, will pond before draining back into the network after 4 hours. The exceedance drawing can be found in **Appendix J**.
- 7.2.5 The eastern courtyard drains via permeable paving within the footpaths while the western courtyard drains via a central rain garden, with footpaths being super elevated towards the rain garden. The surface water enters the network via a trench in the permeable paving with an outlet pipe that drains to the cellular tank.
- 7.2.6 The proposed drainage layout drawing can be found in **Appendix I**.

7.3 Surface Water Discharge Rate

- 7.3.1 In order to comply with the national guidance published by Department for Environment Food and Rural Affairs (DEFRA), 'The Non-Statutory Technical Standards for Sustainable Drainage Systems', runoff from greenfield developments should not exceed the equivalent greenfield rates for the 1 in 100-year return periods.
- 7.3.2 The LLFA guidance requires discharge rates from new developments to be restricted to the equivalent greenfield runoff rate, however, the local water authority could stipulate that they require the minimum discharge rate to be based upon an orifice size of 75mm to prevent future blockage risk within the flow control system.
- 7.3.3 Thames Water has confirmed a restriction on surface water discharge rate to 2 l/s. See **Appendix H** for correspondence with Thames Water. The surface water network south of the site discharges at a rate of 0.5 l/s, while north of the site discharges at a rate of 1.5 l/s which totals to 2 l/s for the proposed development site.
- 7.3.4 Table 5 below summarises the existing and proposed design discharge rate based upon the impermeable area of the site development giving an area of 0.44 Ha. Refer to **Appendix C** for Greenfield runoff calculations.

Table 5: Existing and Proposed Discharge Rates from Development		
Return Period	Existing Runoff Rate (l/s)	Proposed Discharge Rate
1	0.53	Surface Water proposed discharge rate is 2 l/s as agreed with Thames Water.
Q_{bar}	0.63	
30	1.44	
100	2	
100 + Climate Change	2.90	

7.4 Surface Water Attenuation

- 7.4.1 Onsite storage is proposed via two underground attenuation tanks located in the courtyards toward the south of the site. These tanks have net storage areas of 41m³ and 94.1m³ and provides surface water storage and ease the flow of water during times of heavy rainfall. These tanks are connected to a package pumping station directing the flow out of the site. An alternative method involving the use of a SuDS basin was considered; however, this was not feasible due to site constraints and existing manhole levels.

8. Water Quality

- 8.1** CIRIA Document C753 – The SuDS Manual provides guidance on the required water quality management and good practice design standards for all new and existing developments.
- 8.2** Chapter 26 of The SuDS Manual ‘Water Quality Management: Design Methods’, and within this chapter is the Simple Index Approach which is guided by defining the land use and SuDS performance based upon years of research and data collection.
- 8.3** The steps to the simple index approach are as follows:
- Step 1: Allocate suitable pollution hazard indices for the proposed land use.
 - Step 2: Select SuDS with a total pollution mitigation index that equals or exceeds the pollution hazard index.
 - Step 3: Where the discharge is to protected surface waters or groundwater, consider the need for a more precautionary approach.
- 8.4** The pollution hazard indices range from 0 (no pollution hazard for this contamination type) to 1 (high pollution hazard for this contamination type). These are detailed in **Table 6**, which can be seen below.

Table 6: Extract from Table 26.2 from CIRIA SuDS Manual				
Land Use	Pollution Hazard Level	Total Suspended Solids (TTS)	Metals	Hydrocarbons
Residential roofs	Very Low	0.2	0.2	0.05
Other roofs, typically commercial	Low	0.3	0.2	0.05
Individual property driveways, residential car parks, and non-residential car parks with infrequent change i.e. <300 traffic movements/day	Low	0.5	0.5	0.4
Commercial yard and delivery area, non-residential car parking with frequent change, all roads except low traffic roads and trunk roads / motorways	Medium	0.7	0.6	0.7
Sites with heavy pollution	High	0.8	0.8	0.9

8.5 The proposed development is classified as residential, therefore falls within the low pollution hazard level. The pollution hazard indices for this classification are as follows:

- Total Suspended Solids – 0.5
- Metals – 0.5
- Hydrocarbons – 0.4

8.6 The land use classifications are assessed on three separate categories, Total Suspended Solids, Metals and Hydrocarbons. Table 26.3 from The SuDS Manual define the mitigation indices for different most common SuDS components used within the industry. See Table 7 below.

Table 7: Extract from Table 26.3 of CIRIA SuDS Manual			
Type of SuDS Component	TSS	Metals	Hydrocarbons
Filter Strip	0.4	0.4	0.5
Filter Drain	0.4	0.4	0.4
Swale	0.5	0.6	0.6
Bio retention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond	0.7	0.7	0.5
Wetland	0.8	0.8	0.8
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to and approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area.		

8.7 Where the mitigation index of an individual component is insufficient, two components (or more) in series will be required, where:

$$\text{Total SuDS mitigation index} = \text{mitigation index} + 0.5(\text{mitigation index})$$

8.8 A factor of 0.5 is used to account for the reduced performance of a secondary component associated with already reduced inflow concentrations.

8.9 For this development, the following SuDS components have been used;

Permeable paving - Using this component provides the following total mitigation indices:

- Total Suspended Soils – 0.7
- Metals – 0.6
- Hydrocarbons – 0.7

8.10 Based on the above mitigation indices, there is sufficient levels of treatment provided within this drainage system to satisfy the requirements set within CIRIA C753 SuDS Manual and the local authorities sustainable drainage design guide.

8.11 A summary of the site specific SuDS components as per CIRIA C753 is shown in Table 8 below. This table provides details on all of the suitable SuDS components that has been included within the design and what has been ruled out with required justifications.

Table 8: SuDS Components Suitability				
Measure	Provides Storage	Provides Treatment	Suitability	Comments
Filter Strip	X	X	X	Not enough space or gradient within the available green space to adequately include in design.
Rainwater Harvesters	✓	X	X	Refer to M&E design
Filter Drain	✓	✓	X	Not enough space or gradient within the available green space to adequately include in design.
Swale	✓	✓	X	Not enough space or gradient within the available green space to adequately include in design, including the necessary ancillary infrastructure
Bio retention system	✓	✓	X	Not enough space or gradient within the available green space to adequately include in design, including the necessary ancillary infrastructure
Permeable pavement	X	✓	✓	Have been used in all appropriate car parking spaces and courtyard for treatment purposes only.
Detention basin	X	X	X	Not enough space or gradient within the available green space to adequately include in design, including the necessary ancillary infrastructure.
Pond	✓	✓	X	Not enough space or gradient within the available green space to adequately include in design, including the necessary ancillary infrastructure Biodiversity benefits unlikely to be harnessed in city centre location.
Wetland	✓	✓	X	Not enough space or gradient within the available green space to adequately include in design, including the necessary ancillary infrastructure

				Biodiversity benefits unlikely to be harnessed in city centre location.
Proprietary treatment systems	X	✓	X	Not required, because the drainage layout will not drain surface water from highways.

8.12 Due to the small external area, there is minimal space for large scale Sustainable Urban Drainage System. The importance on providing suitable SUDS usage has been considered with the provision of raingardens and permeable paving where appropriate.

9. Management and Maintenance

- 9.1** The Local Authority SuDS Office Organisation (LSAOO) guidance document; Non-Statutory Technical Standards for Sustainable Drainage requires a future maintenance statement / plan to satisfy / validate planning applications.
- 9.2** All maintenance responsibilities will be confirmed through the discharge of suitably worded planning condition where the developer will confirm who they intend to undertake the required management and maintenance of the drainage infrastructure on site.

10. Foul Water Assessment

- 10.1** The foul drainage system will be designed in accordance with the 'Design and Construction Guidance for foul and surface water sewers offered for adoption under the code for adoption agreements for water and sewerage companies operating wholly or mainly in England'.
- 10.2** Based upon the design criteria specified in 'The Code', residential dwellings are designed using a peak flow rate of 4000 litres per day (0.05 l/s) and commercial / industrial is based upon 0.6 l/s per hectare of developable land.
- 10.3** This assessment covers the drainage design for a primarily residential development with commercial use on the ground floor. Therefore, 0.05 l/s has been used to calculate the peak flow rate. Consequently, with the proposed 170 dwellings, the peak foul flow rate will be 85 l/s.
- 10.4** Pre-Planning enquiry has been carried out and response from Thames Water is within **Appendix H**. This stipulates a maximum discharge rate into their systems of 2 litres/second for all storm events up to a 1 in 100 year event, with an additional 40% of predicted rainfall accounting for climate change.
- 10.5** The proposed foul network is a gravity system with manholes F1 to F7 located towards south of the development and manholes F8 to F11 located towards north of the site are discharging into the existing Thames Water network between manholes MH6005 and MH 6002.

11. Conclusions

11.1 Flood Risk Summary

Fluvial Flood Risk

- 11.1.1 The site is located entirely within Flood Zone 1 so it is only at risk from flooding for storm events greater than 0.1% AEP (1 in 1,000 year annual exceedance probability event).

Pluvial Flood Risk

- 11.1.2 EA Flood Maps show a small area within the site's red line boundary being at medium risk from surface water flooding. The proposed development extends over the existing car park which will prevent the majority of water flows from entering the site and will assist in mitigating these risks.

Ground Water

- 11.1.3 The Ramboll Phase I and II Environmental Site Assessment states that groundwater was found between 2.70m and 3.36m below ground level. The investigation advises that the shallow groundwater should be considered for any future foundation designs.

Artificial Sources

- 11.1.4 EA mapping shows that the site is not at risk from artificial sources such as reservoirs, even when there is concurrent River flooding.

11.2 Surface Water Strategy

- 11.2.1 Surface water drainage network for the proposed development runs on either side of the development with siphonic roof drainage included within the development, designed by specialists.
- 11.2.2 Thames Water has confirmed a restriction on surface water discharge rate to 2 l/s. The surface water network south of the site discharges at a rate of 0.5 l/s via a surface water pump, while north of the site discharges at 1.5 l/s. Onsite attenuation is also proposed as part of the surface water drainage strategy.

11.3 Foul Water Strategy

11.3.1 Foul water drainage network has a peak flow rate for the whole site of 8.5 l/s and is entirely gravity fed. The foul water network discharges into the existing Thames water combined sewer network at two points along the existing sewer line between manholes 6005 and 6002 located on Letcombe Street.

11.4 Mitigation Measures

11.4.1 To ensure lifetime safety to the development, flood resilience and resistance measures should be installed as part of the development. The finished floor levels are to be 150mm above external levels as a best practice as well as to prevent the development being put at risk of flooding if any overland flows within the development occur.

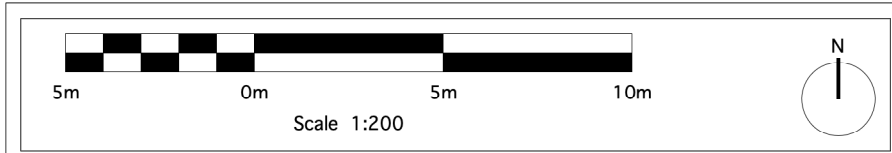
11.5 Summary

11.5.1 In conclusion, the contents of this report satisfies all of the relevant planning policies, and has taken all pertinent flood risk into account. The findings of this report have been incorporated into the developments design, and it is therefore compliant with all relevant governing guidance.

12. Report Conditions

- 12.1** The report is based upon the information that has been acquired and/or made available to Fairhurst via the various searches and consultations completed as part of this assessment. In some cases, anecdotal information has been relied upon, where documented evidence has been absent.
- 12.2** The conclusions drawn in the above report are considered correct, although any subsequent additional information may allow refinement of the conclusions.
- 12.3** All work carried out in preparing this report has utilised Fairhursts' professional knowledge and understanding of the current UK standard and codes, terminology and legislation. Changes in this guidance may occur at any time in the future, and therefore cause any conclusions to become inappropriate or incorrect. Should this be the case then an updated assessment will be required based upon the latest released guidance.
- 12.4** This report has been produced using information contained within online mapping and documents prepared by others, where this is the case a footnote link has been provided for corroboration of the data. Fairhurst can accept no liability or responsibility for the accuracy of the information provided.

Appendix A
Proposed Site Plans



- NOTES**
1. All dimensions in millimetres unless otherwise shown.
 2. All levels in metres above Ordnance Datum (mAOD) unless otherwise shown.
 3. All dimensions to be checked on site and any discrepancies reported to Employer before pricing / work starts.
 4. Any ambiguities or discrepancies within this drawing and any other information given elsewhere must be reported to Camlins and the Employer for clarification before pricing work proceeds.
 5. All drawings to be read in conjunction with other Camlins drawings and specification information as appropriate.
 6. Refer to relevant Engineer's and Architect's information as appropriate for confirmation of all engineering and architectural details.
 7. All works to be carried out in accordance with the latest British Standards and appropriate codes of practice as a minimum.

- KEY**
- Planning application site boundary
 - Legal boundary
 - Highways boundary
 - Proposed Specimen Trees - refer to drawing SY743-275-0051 General Arrangement - Tree Planting Plan
 - Hedge - mixed native species, maintained at nom. 1100mm high
 - Hedge - evergreen, yew maintained at 700mm high
 - Planting beds - mixed shrubs and perennials
 - Small set stone paving
 - Footway paving to Highway Authority adoptable standard
 - Footway paving to Highway Authority adoptable standard in contrasting colour
 - Concrete block paving to Highway Authority adoptable standard
 - Resin bound aggregate surfacing, with aluminium edging
 - Pre-cast concrete steps
 - Timber benches nom. 450mm high
 - Concrete flag maintenance margin, nom. 300 wide
 - Brick retaining wall with balustrade guarding where required.
 - Steel guardrail
 - Indicative loose furnishings
 - Steel gates (Swing)
 - Raised timber planters
 - Landscape integrated play (stepping logs, boulders and balance beams)

Rev.	Date	Description	LT	PSS
			Revised by	Checked by

Camlins

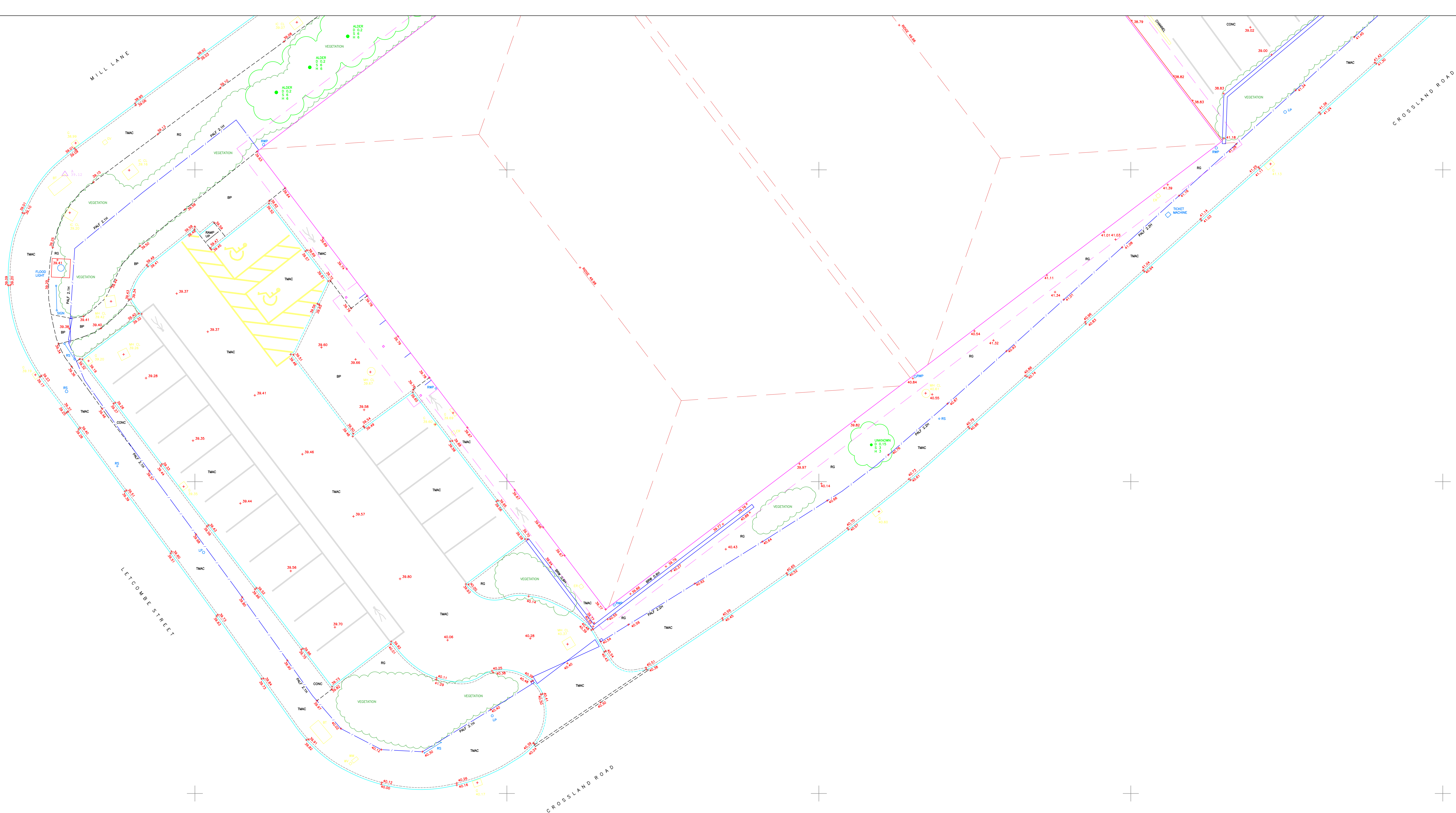
New Zealand House, Abbey Foregate,
Shrewsbury, Shropshire, SY2 8PD
01743 250 775
www.camlins.com

Former John Lewis Depot, Letcombe Street, Reading (also known as JLP Mill Lane)
John Lewis Partnership BTR Ltd

General Arrangement - Public Realm and Landscape

Status	Drawn by	Checked by
Planning	LT	PSS
Drawing Number	Revision	Scale
SY743-275-0001	-	1:200@A1
		Date
		07.05.2025

Appendix B
Topographical Survey

[illegible]

GRID & DATUM
Coordinates - related to OS grid via GPS observations
Levels - related to OS datum via GPS observations
Units - metres

Station	Easting	Northing	Level
A	471651.667	173079.726	39.89
B	471743.466	173130.411	39.89
C	471743.729	173084.389	41.11
D	473683.421	173004.046	41.11



NOTES

SHEET LAYOUT

—

2

Ref	Address/Street				Date
 THE SURVEY ASSOCIATION					
					
Cloud 10 Ltd, 27 Old Gloucester Street, London, WC1N 3AX T: 020 4537 5522 E: admin@cloud10ltd.co.uk www.cloud10ltd.co.uk					
Title					
Topographical Survey Sheet 2 of 2					
Project					
Mill Lane, Reading					
Client					
- - -					
Scale					
1:100 @ A0					
Supplier	FW	Measured	Nov 2021	Revision	
Checked	ET	Issued	Nov 2023	-	
Drawing Name					
071A - T					

Appendix C

Runoff Rate Calculations

Calculated by:	Afif Hossain
Site name:	JLP Mill Lane
Site location:	Reading

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	51.45216° N
Longitude:	0.96954° W
Reference:	821408192
Date:	Dec 19 2023 13:54

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):	0.38
-----------------------	------

Methodology

Q _{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

Soil characteristics

	Default	Edited
SOIL type:	2	2
HOST class:	N/A	N/A
SPR/SPRHOST:	0.3	0.3

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

Hydrological characteristics

	Default	Edited
SAAR (mm):	642	642
Hydrological region:	6	6
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

Default

Edited

Q_{BAR} (l/s):	0.63	0.63
1 in 1 year (l/s):	0.53	0.53
1 in 30 years (l/s):	1.44	1.44
1 in 100 year (l/s):	2	2
1 in 200 years (l/s):	2.34	2.34

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Appendix D

Phase I and II Environmental Site Assessment

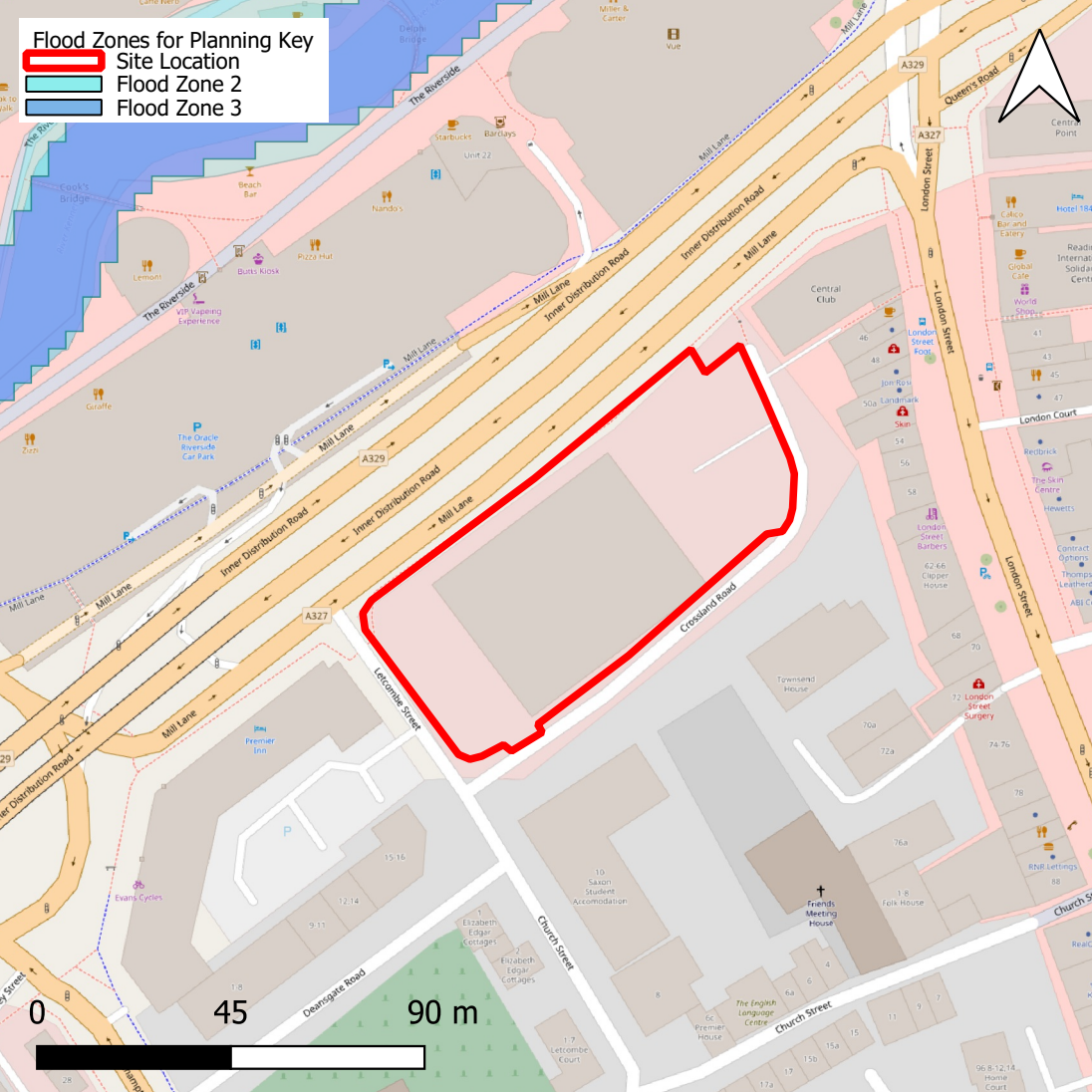
ATTACHED SEPARATELY

Appendix E

Flood Zone Maps

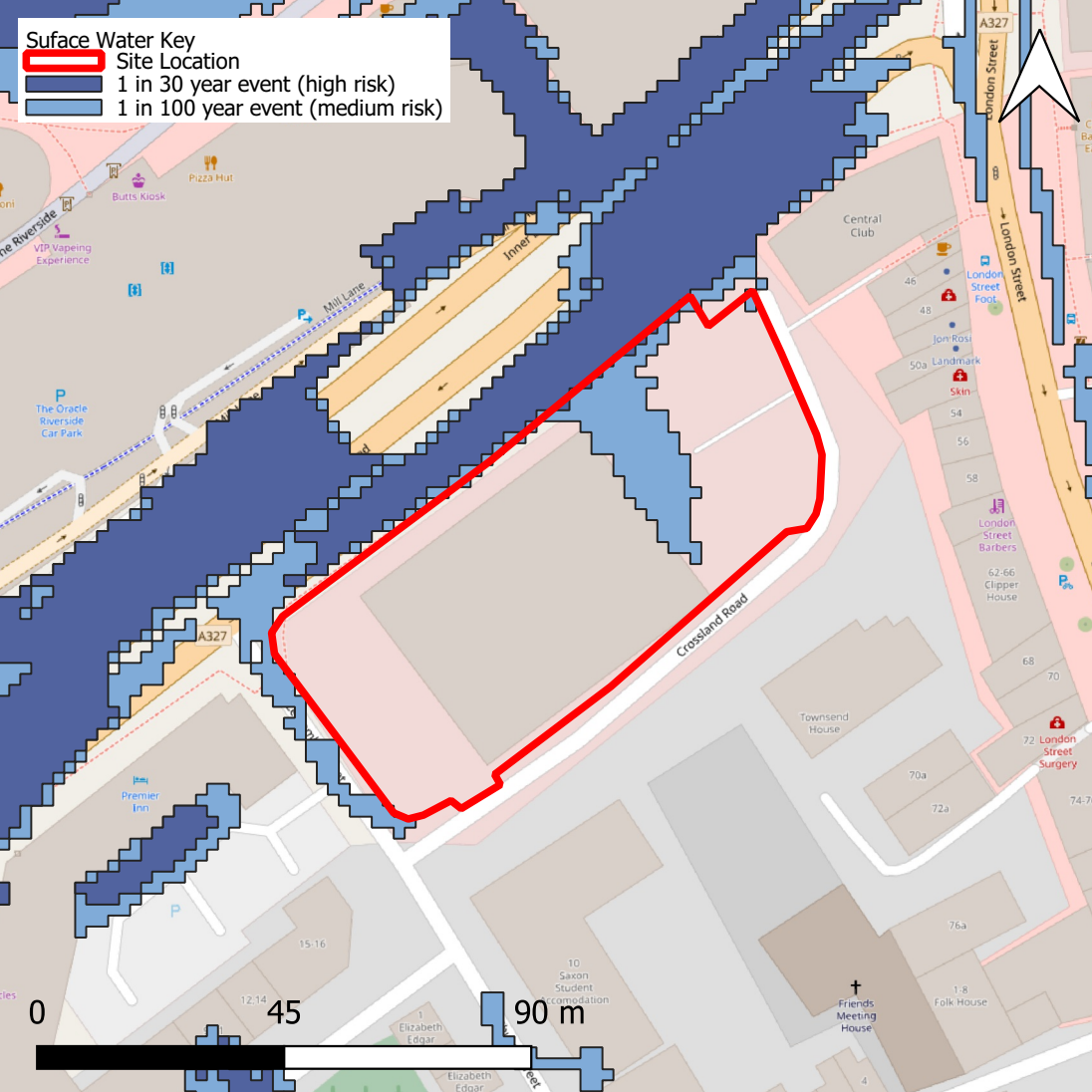
Flood Zones for Planning Key

- Site Location
- Flood Zone 2
- Flood Zone 3



 Site Location

1 in 100 year event (medium risk)

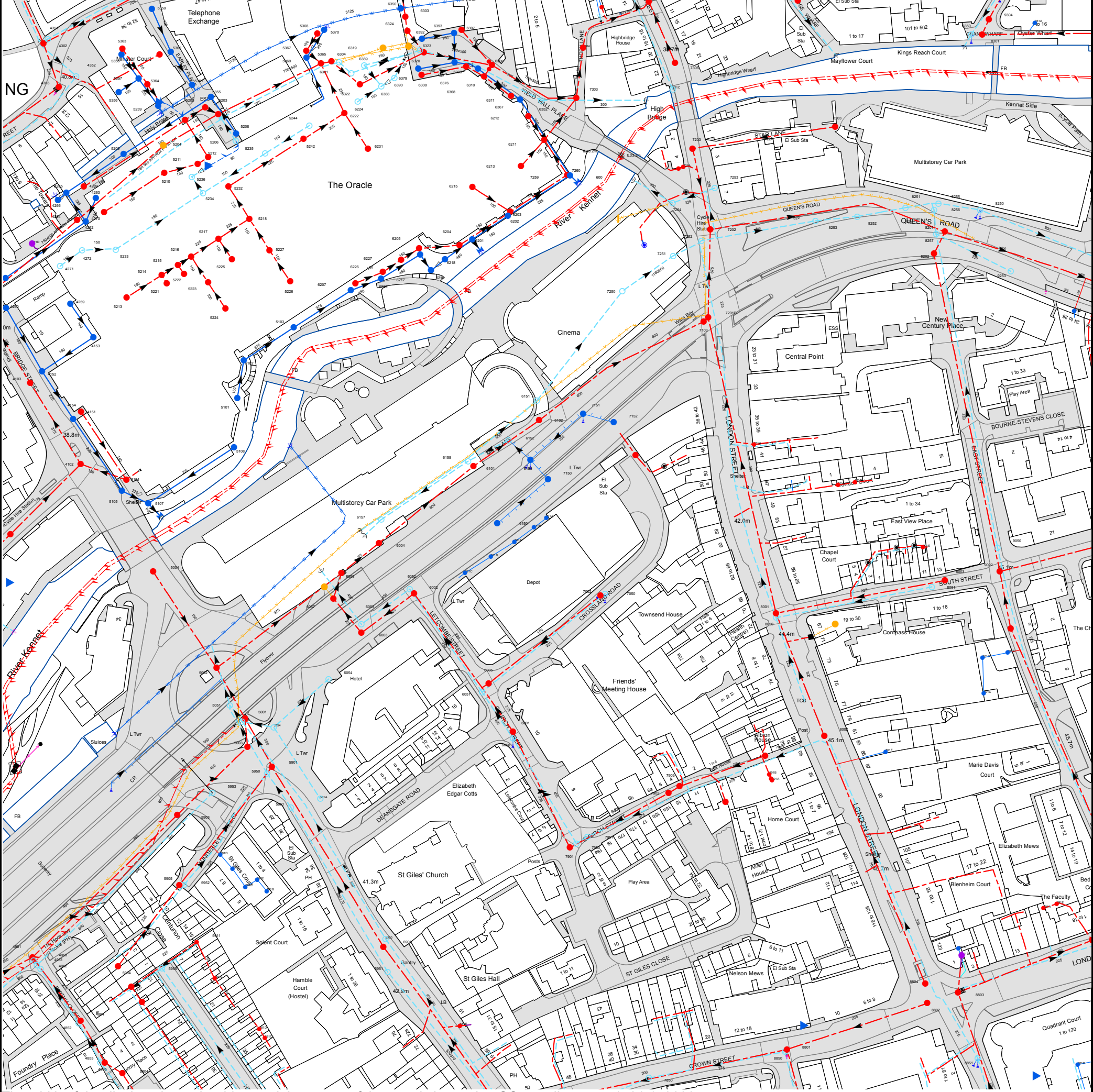


Appendix F

Thames Water Asset Maps



Asset Location Search Sewer Map - ALS/ALS Standard/2021 4550067



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 471701,173098
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
8350	37.17	35.99
8301	37.13	35.74
9304	37.28	35.69
931A	n/a	n/a
8251	38.26	36.28
801E	n/a	n/a
8051	45.66	44.14
8202	38.17	n/a
8256	n/a	n/a
8257	n/a	n/a
8255	n/a	n/a
8201	38.24	34.65
8003	45.56	42.4
8250	38.67	36.09
801D	n/a	n/a
801C	n/a	n/a
9050	44.24	42.8
9002	44.85	41.02
901B	n/a	n/a
9001	45.8	41.54
9253	n/a	n/a
921A	39.03	36.184
911A	n/a	n/a
911D	39.01	n/a
981D	n/a	n/a
981C	n/a	n/a
991B	n/a	n/a
991A	n/a	n/a
991E	n/a	n/a
581C	n/a	n/a
581D	n/a	n/a
681E	n/a	n/a
5807	n/a	n/a
581A	n/a	n/a
6951	42.07	39.51
5955	n/a	n/a
6901	41.96	38.37
5911	n/a	n/a
6950	41.89	38.99
421D	n/a	n/a
4266	39.2	37.63
4303	40.95	37.5
4265	39.2	37.83
4264	39.2	35.82
4269	39.2	36.75
4262	39.2	37.47
4263	39.2	38.14
4270	38	37.19
5233	37.07	36.11
5356	39.95	39
5209	39.8	37.97
5239	39.9	38.8
5210	38	36.9
5204	39.4	36.37
5236	37	35.79
5211	38	37.73
5234	37.08	35.83
5205	39.2	36.19
5212	38	36.67
5355	39.25	38.17
5104	39.7	36.92
4102	39.04	36.61
4154	38.9	37.35
4151	39.1	37.16
4103	38.95	36.37
4152	38.9	37.42
4153	39.2	37.63
4260	39.45	37.7
4259	38.6	37.85
5213	38	36.75
5221	38.2	36.77
5223	38.2	37.04
4261	39.6	38.33
5214	38	36.61
5222	38.2	36.76
4271	37.05	36.3
5215	38	36.56
5216	38	36.52
4272	37.05	36.22
4101	38.99	36.76
5105	39.7	37.13
5107	39.45	36.69
5004	n/a	n/a
5903	39.81	35.81
6319	37.8	36.37
6322	37.68	35.35
6389	38.35	37.5
6390	38.3	37.18
6350	39.11	n/a
6303	38.98	35.72
6324	38.85	37

Manhole Reference	Manhole Cover Level	Manhole Invert Level
6379	38.2	37.4
5361	39.75	38.35
5364	39.95	39.01
5357	39.95	38.9
4352	40.88	n/a
5365	38.25	35.42
6304	38	36.38
6321	38	35.4
5369	39.25	37.95
5358	39.95	39
53NF	n/a	n/a
5360	40.9	39.5
5367	39.25	37.5
5363	39.95	39.15
4302	41.55	38.44
4351	41.63	39.72
5368	39.25	37.75
5370	39.25	37.75
5359	42.4	41
5353	42.49	n/a
6212	38.2	36.34
6352	38.09	36.23
6367	38.2	36.89
7303	38.37	35.09
6311	38.2	36.53
731C	n/a	n/a
6310	38.2	36.33
6308	38.2	36.59
6368	38.2	36.96
6309	38.2	36.4
6306	38.2	35.23
7306	38.77	35.77
6376	38.2	37.1
6323	38.4	35.25
6320	38.4	36.3
7304	38.52	35.09
6392	38.45	37.4
6393	38.45	37.22
6307	38.45	37.4
731B	n/a	n/a
731A	n/a	n/a
7305	38.56	34.77
8355	38.03	36.39
7151	38.8	37.03
6151	38.19	n/a
7103	n/a	n/a
7201B	38.96	n/a
7250	38.6	n/a
6216	38.45	36.84
6218	38.25	36.72
7251	38.48	36.2
6217	38.2	36.86
6204	38.2	36.75
7252	38.41	n/a
6201	38	36.25
7202	38.45	34.9
8253	n/a	n/a
8252	38.25	35.98
6202	38	37.01
6203	38	36.56
7264	38.9	36.26
7253	37.92	36.99
6215	37.5	36.43
7260	39	36.4
7259	39.6	36.36
721A	n/a	n/a
6213	37.5	36.43
7203	38.52	n/a
6211	38.2	36.13
8203	37.29	35.95
5203	39.1	35.59
5217	38	36.44
5224	38.2	37.31
5232	38	36.28
5225	38.2	37.86
5108	38.2	37.28
5206	38.9	37.3
5208	38.95	38.32
5101	38.65	37.45
5102	39.1	37.11
5218	38	36.37
5235	37.05	35.99
5227	38.2	36.82
5226	38.2	37.04
5103	38.45	37.07
5242	38	36.11
5244	37.05	36.16
6222	38.35	35.96
6206	38.2	36.93
6207	38.2	37.2
6224	38.3	37.43
6231	n/a	n/a
6225	39	36.9

Manhole Reference	Manhole Cover Level	Manhole Invert Level
6388	38.3	37.32
6226	39	37.06
6227	39	36.95
6205	38.2	36.88
601C	n/a	n/a
6158	38.2	36.05
6101	38.56	34.99
6051	40.17	39.04
6005	40.17	38.02
601B	n/a	n/a
6150	38.91	n/a
6152	38.4	36.16
6001	40.7	38.17
6050	40.75	39.43
601A	n/a	n/a
6153	39.48	36.62
611B	n/a	n/a
6102	38.34	34.95
611A	n/a	n/a
7150	38.74	n/a
7002	41.07	39.06
7050	41.06	39.62
7152	38.68	n/a
71YY	n/a	n/a
711A	n/a	n/a
7001	44.85	42.63
8050	44.16	42.19
8001	44.12	n/a
8002	45.3	42.15
811A	n/a	n/a
811B	n/a	n/a
801F	n/a	n/a
5905	40.38	38.29
5952	40.37	39.14
5953	n/a	n/a
5002	n/a	n/a
591D	n/a	n/a
5051	39.49	37.18
591F	n/a	n/a
5050	39.28	37.37
5001	39.29	35.75
591C	n/a	n/a
5003	39.16	n/a
591E	n/a	n/a
591B	n/a	n/a
5950	39.5	n/a
5901	39.65	36.93
5054	n/a	n/a
5951	39.74	n/a
591A	n/a	n/a
6054	n/a	n/a
6057	38.9	35.58
6058	38.97	35.3
6053	39.07	36.94
6003	39.06	35.82
6004	38.67	n/a
6157	38.1	35.9
6052	39.21	37.32
6002	39.14	35.95
7850	44.47	42.17
8851	46.26	43.81
8850	45.06	42.74
8801	45.09	42.17
8802	46.24	n/a
8803	46.33	43.18
8804	46.39	43.09
891D	n/a	n/a
891C	n/a	n/a
7901	42.32	39.82
7950	42.27	40.5
7951	42.35	40.67
79ZV	n/a	n/a
7902	43.4	40.93
7903	43.58	41.16
891A	n/a	n/a
891B	n/a	n/a
4901	39.98	36.1
4950	39.97	38.57
4951	40.08	38.44
4952	40.11	39.24
4852	42.58	41.39
4804	42.47	40.17
4853	43.09	41.78
4805	43.08	42.12
5904	n/a	n/a
5804	n/a	n/a
5806	n/a	n/a

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



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.

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

Valves

	General Purpose Valve
	Air Valve
	Pressure Control Valve
	Customer Valve

Hydrants

	Single Hydrant
--	----------------

Meters

	Meter
--	-------

End Items

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

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

Operational Sites

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

Other Symbols

	Data Logger
--	-------------

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

	Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.
	Private Main: Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.



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
	Sludge Rising Main
	Combined Rising Main
	Proposed Thames Water Rising Main
	Vacuum

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 'D' on a manhole level indicates that data is unavailable.

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
	Gully
	Culverted Watercourse
	Proposed
	Abandoned Sewer

- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. 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.

Appendix G

MicroDrainage Calculations


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Date 10/04/2024 09:13
File 156833 MD Model 23-02-20...
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Checked by



Network 2020.1.3

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
----------------	--------------	--------------	-------------	--------------------	-------------------	--------------------

1.000	User	-	100	0.014	0.014	0.014
	User	-	100	0.007	0.007	0.020
	User	-	100	0.004	0.004	0.025
	User	-	100	0.008	0.008	0.033
1.001	User	-	100	0.004	0.004	0.004
	User	-	100	0.002	0.002	0.007
1.002	-	-	100	0.000	0.000	0.000
2.000	User	-	100	0.085	0.085	0.085
	User	-	100	0.008	0.008	0.094
	User	-	100	0.033	0.033	0.126
3.000	-	-	100	0.000	0.000	0.000
2.001	-	-	100	0.000	0.000	0.000
2.002	-	-	100	0.000	0.000	0.000
4.000	User	-	100	0.002	0.002	0.002
	User	-	100	0.048	0.048	0.050
5.000	User	-	100	0.079	0.079	0.079
	User	-	100	0.002	0.002	0.081
2.003	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.297	0.297	0.297

W A Fairhurst & Partners		Page 5																
1 Arngrove Court Barrack Road Newcastle upon Tyne NE4 6DB																		
Date 10/04/2024 09:13 File 156833 MD Model 23-02-20...	Designed by fmoore Checked by																	
Micro Drainage Network 2020.1.3																		
Synthetic Rainfall Details <table><tr><td>Region</td><td>England and Wales</td><td>Cv (Summer)</td><td>0.750</td></tr><tr><td>M5-60 (mm)</td><td>18.700</td><td>Cv (Winter)</td><td>0.840</td></tr><tr><td>Ratio R</td><td>0.400</td><td>Storm Duration (mins)</td><td>30</td></tr><tr><td>Profile Type</td><td>Summer</td><td></td><td></td></tr></table>			Region	England and Wales	Cv (Summer)	0.750	M5-60 (mm)	18.700	Cv (Winter)	0.840	Ratio R	0.400	Storm Duration (mins)	30	Profile Type	Summer		
Region	England and Wales	Cv (Summer)	0.750															
M5-60 (mm)	18.700	Cv (Winter)	0.840															
Ratio R	0.400	Storm Duration (mins)	30															
Profile Type	Summer																	
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1 Arngrove Court Barrack Road Newcastle upon Tyne NE4 6DB					
Date 10/04/2024 09:13		Designed by fmoore			
File 156833 MD Model 23-02-20...		Checked by			
Micro Drainage		Network 2020.1.3			
Online Controls for Storm					
Hydro-Brake® Optimum Manhole: S3, DS/PN: S1.002, Volume (m³): 6.9					
Unit Reference MD-SHE-0029-5000-1495-5000					
Design Head (m) 1.495					
Design Flow (l/s) 0.5					
Flush-Flo™ Calculated					
Objective Minimise upstream storage					
Application Surface					
Sump Available Yes					
Diameter (mm) 29					
Invert Level (m) 38.105					
Minimum Outlet Pipe Diameter (mm) 75					
Suggested Manhole Diameter (mm) 1200					
Control Points Head (m) Flow (l/s) Control Points Head (m) Flow (l/s)					
Design Point (Calculated) 1.495 0.5 Kick-Flo® 0.262 0.2					
Flush-Flo™ 0.129 0.3 Mean Flow over Head Range - 0.4					
The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated					
Depth (m) Flow (l/s) Depth (m) Flow (l/s) Depth (m) Flow (l/s) Depth (m) Flow (l/s)					
0.100 0.3 1.200 0.5 3.000 0.7 7.000 1.0					
0.200 0.3 1.400 0.5 3.500 0.7 7.500 1.0					
0.300 0.3 1.600 0.5 4.000 0.8 8.000 1.1					
0.400 0.3 1.800 0.5 4.500 0.8 8.500 1.1					
0.500 0.3 2.000 0.6 5.000 0.9 9.000 1.1					
0.600 0.3 2.200 0.6 5.500 0.9 9.500 1.1					
0.800 0.4 2.400 0.6 6.000 0.9					
1.000 0.4 2.600 0.6 6.500 1.0					
Pump Manhole: S9, DS/PN: S2.003, Volume (m³): 4.5					
Invert Level (m) 37.450					
Depth (m) Flow (l/s) Depth (m) Flow (l/s) Depth (m) Flow (l/s) Depth (m) Flow (l/s)					
0.100 1.5000 0.700 1.5000 1.300 1.5000 1.900 1.5000					
0.200 1.5000 0.800 1.5000 1.400 1.5000 2.000 1.5000					
0.300 1.5000 0.900 1.5000 1.500 1.5000 2.100 1.5000					
0.400 1.5000 1.000 1.5000 1.600 1.5000 2.200 1.5000					
0.500 1.5000 1.100 1.5000 1.700 1.5000 2.300 1.5000					
0.600 1.5000 1.200 1.5000 1.800 1.5000 2.400 1.5000					
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Date 10/04/2024 09:13		Designed by fmoore																									
File 156833 MD Model 23-02-20...		Checked by																									
Micro Drainage		Network 2020.1.3																									
Pump Manhole: S9, DS/PN: S2.003, Volume (m³): 4.5 <table><tr><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td><td>Depth (m)</td><td>Flow (l/s)</td></tr><tr><td>2.500</td><td>1.5000</td><td>2.700</td><td>1.5000</td><td>2.900</td><td>1.5000</td><td></td><td></td></tr><tr><td>2.600</td><td>1.5000</td><td>2.800</td><td>1.5000</td><td>3.000</td><td>1.5000</td><td></td><td></td></tr></table>				Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	2.500	1.5000	2.700	1.5000	2.900	1.5000			2.600	1.5000	2.800	1.5000	3.000	1.5000		
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																				
2.500	1.5000	2.700	1.5000	2.900	1.5000																						
2.600	1.5000	2.800	1.5000	3.000	1.5000																						
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File 156833 MD Model 23-02-20...	Checked by	
Micro Drainage		Network 2020.1.3

Storage Structures for Storm

Cellular Storage Manhole: S5, DS/PN: S2.001

Invert Level (m) 38.300 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	54.0	0.0	0.801	0.0	0.0
0.800	54.0	0.0			

Cellular Storage Manhole: S9, DS/PN: S2.003

Invert Level (m) 37.500 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	82.5	0.0	1.201	0.0	0.0
1.200	82.5	0.0			

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Appendix H

Thames Water Pre-Planning Response

Sophie Clarke-Bernal

From: DEVELOPER.SERVICES@THAMESWATER.CO.U
<DEVELOPER.SERVICES@THAMESWATER.CO.UK>
Sent: 21 February 2024 08:32
To: Afif Hossain
Cc: Stuart Conley; Sujay Kumar; Steven Kirsopp; Civils Newcastle
Subject: RE: RE: RE: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

Dear Afif,

Site Address: JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN
Wastewater Pre-Planning Ref: DS6111205

Thanks for your email below.

Your surface water flows should be restricted to a maximum range of **2-5** litres/sec/hectare for all storm events up to and including 1:100yr+40%CC in accordance with CIRIA guidelines.

Please refer to the site local authority SUD's strategy requirement, some local authority have different run-off rate requirements.

e.g London Borough of Hillingdon request **2** l/s/ha.

The surface water discharge rate should be calculated based on the total impermeable area of the site, looking at the information you have submitted the site is approximately 0.38 hectares (3800sqm) therefore the site should not discharge more than 2.0 litres/sec, again please refer to site local authority SUD's strategy requirement.

Should you have any queries please do not hesitate to contact me.

Kind regards,

Colins Akemche

Clean & Waste Pre-Planning Engineer
Adoption Team - Developer Services

Thames Water - Developer Services - Ground Floor West - Clearwater Court - Vastern Road
Reading -Berkshire - RG1 8DB - Tel: 0800 009 3921

Email: developer.services@thameswater.co.uk - Web: www.developerservices.co.uk

Original Text

From: Afif Hossain <afif.hossain@fairhurst.co.uk>
To: DEVELOPER.SERVICES@THAMESWATER.CO.U
<DEVELOPER.SERVICES@THAMESWATER.CO.UK>
Sujay Kumar <sujay.kumar@fairhurst.co.uk>;Steven Kirsopp
CC: <steven.kirsopp@fairhurst.co.uk>;Civils Newcastle <civilsnewcastle@fairhurst.co.uk>;Stuart
Conley <stuart.conley@fairhurst.co.uk>
Sent: 14.02.24 10:30:09
Subject: RE: RE: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1
2HN - (Pre Planning Enquiry)

This e-mail originated from outside of Thames Water. Do not click links, open attachments or reply, unless you recognise the sender's e-mail address and know the content is safe. If in doubt, contact the Digital Service Desk. Report Phishing via the Report Message option.

Good Morning,

Just to keep up to date with this, we are currently gathering information regarding internal drainage with the M&E consultants and will get back to you with this information as soon as possible. In the meantime, would it be possible for you to give us some information regarding the maximum surface water discharge rate at which we are able to discharge in to the existing Thames Water surface water sewer for each connection point? Thank you.

Kind Regards,

Afif

Afif Hossain MEng (Hons) GMICE
Graduate Civil Engineer



1 Arngrove Court
Barrack Road
Newcastle upon Tyne, NE4 6DB
Tel: 0191 221 0505 DD: 0191 816 1546
Website: www.fairhurst.co.uk

Why not take a look at our Practice Profile to see the diverse range of skills we can offer. Just click [<HERE>](#)

🌱 Consider the environment. Please don't print this e-mail unless you really need to.

From: DEVELOPER.SERVICES@THAMESWATER.CO.U <DEVELOPER.SERVICES@THAMESWATER.CO.UK>

Sent: 05 February 2024 09:56

To: Afif Hossain <afif.hossain@fairhurst.co.uk>

Cc: Sujay Kumar <sujay.kumar@fairhurst.co.uk>; Steven Kirsopp <steven.kirsopp@fairhurst.co.uk>; Civils Newcastle <civilsnewcastle@fairhurst.co.uk>

Subject: RE: RE: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

Dear Afif,

Site Address: JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN

Wastewater Pre-Planning Ref: DS6111205

Thanks for your email below along with supporting information.

Due to the proposed 3 different discharging points for foul water, can you provide me with a development breakdown with the number or units discharging at each point.

Discharge point 1	F2 - 7002	number of flats
Discharge point 2	F9 – between 6005 & 6002	number of flats
Discharge point 3	F5 - 6005	number of flats

Should you have any queries please do not hesitate to contact me.

Kind regards,

Colins Akemche

Clean & Waste Pre-Planning Engineer
Adoption Team - Developer Services

Thames Water - Developer Services - Ground Floor West - Clearwater Court - Vastern Road
Reading -Berkshire - RG1 8DB - Tel: 0800 009 3921

Original Text

From: Afif Hossain <afif.hossain@fairhurst.co.uk>
To: DEVELOPER.SERVICES@THAMESWATER.CO.UK
CC: Sujay Kumar <sujay.kumar@fairhurst.co.uk>; Steven Kirsopp <steven.kirsopp@fairhurst.co.uk>; Civils Newcastle <civilsnewcastle@fairhurst.co.uk>
Sent: 29.01.24 10:46:39
Subject: RE: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

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Hello,

Please find attached the latest proposed drainage layout and updated pre-planning enquiry form as requested. Thank you.

Kind Regards,

Afif

Afif Hossain MEng (Hons) GMICE
Graduate Civil Engineer



1 Arngrove Court
Barrack Road
Newcastle upon Tyne, NE4 6DB
Tel: 0191 221 0505 DD: 0191 816 1546
Website: www.fairhurst.co.uk

Why not take a look at our Practice Profile to see the diverse range of skills we can offer. Just click [<HERE>](#)

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From: DEVELOPER.SERVICES@THAMESWATER.CO.UK <DEVELOPER.SERVICES@THAMESWATER.CO.UK>
Sent: 23 January 2024 09:55
To: Afif Hossain <afif.hossain@fairhurst.co.uk>
Cc: Sujay Kumar <sujay.kumar@fairhurst.co.uk>
Subject: RE: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

Dear Afif,

Site Address: JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN
Wastewater Pre-Planning Ref: DS6111205

Thank you for your email below.

Please be advised any information regarding our assets can be obtained by contacting our Property Searches Team on the following:

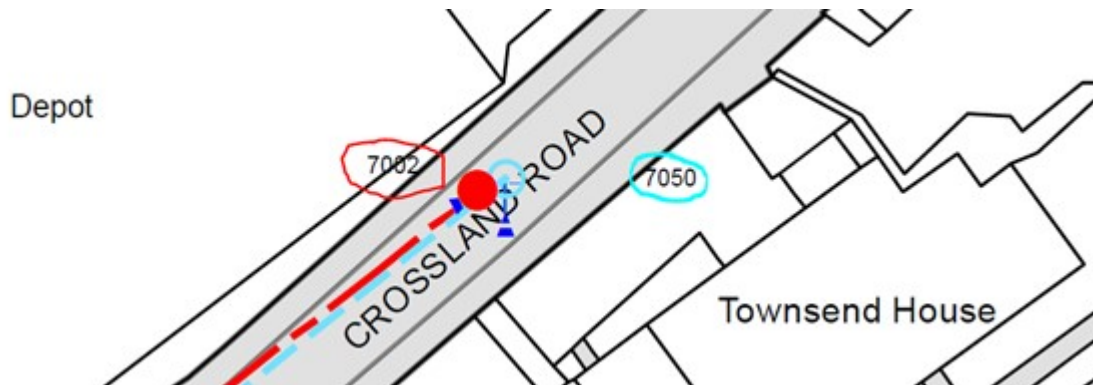
Property searches

Email: onlinecustomers@thameswater.co.uk

Web: [Contact us - Thames Water Property Searches \(thameswater-propertysearches.co.uk\)](http://Contact us - Thames Water Property Searches (thameswater-propertysearches.co.uk))

Tel: 0800 009 4540

I believe the sewer records/information you have is no different to what we currently have on our system.



The surface water manhole on Crossland Road is referenced 7050, the manhole levels can be found on page 6 of 8 (Ref 7050 – cover level 41.06 – invert level 39.62)

The foul water manhole also on Crossland Road is referenced 7002, the manhole levels can also be found of page 6 of 8 (Ref 7002 – cover level 41.07 – invert level 39.06).

7150	38.74	n/a
7002	41.07	39.06
7050	41.06	39.62
7152	38.68	n/a

As stated within the sewer records, accuracy cannot be guaranteed therefore the information is indicative. We would always recommend a sewer survey to be undertaken should you wish to have accurate information.

Should you have any queries please do not hesitate to contact me.

Kind regards,

Colins Akemche

Clean & Waste Pre-Planning Engineer
Adoption Team - Developer Services

Thames Water - Developer Services - Ground Floor West - Clearwater Court - Vastern Road
Reading -Berkshire - RG1 8DB - Tel: 0800 009 3921

Email: developer.services@thameswater.co.uk - Web: www.developerservices.co.uk

Original Text

From: Afif Hossain <afif.hossain@fairhurst.co.uk>

To: [DEVELOPER.SERVICES@THAMESWATER.CO.U](mailto:DEVELOPER.SERVICES@THAMESWATER.CO.UK)
<DEVELOPER.SERVICES@THAMESWATER.CO.UK>

CC: Sujay Kumar <sujay.kumar@fairhurst.co.uk>

Sent: 16.01.24 15:24:25

Subject: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

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Hello Darnell,

Please find attached the Thames Water Sewer Map provided by the client for the development area of JLP Mill Lane with post code RG1 2HN, National Grid Reference: SU 71697 73087 (see also attached site location plan). Can you please send an updated sewer map as the one we have seems to be incorrect with combined manhole 7002 overlapping an unnamed surface water manhole on Crossland Road and no foul water networks in the area. Along with this could you please provide the cover and invert levels of the manholes in the area. After we have received this information we will update our drainage strategy accordingly and provide you with the information required to progress with the enquiry. Thank you.

Kind Regards,

Afif

Afif Hossain MEng (Hons) GMICE
Graduate Civil Engineer



engineering solutions, delivering results

1 Arngrove Court
Barrack Road
Newcastle upon Tyne, NE4 6DB
Tel: 0191 221 0505 DD: 0191 816 1546
Website: www.fairhurst.co.uk

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From: DEVELOPER.SERVICES@THAMESWATER.CO.UK <DEVELOPER.SERVICES@THAMESWATER.CO.UK>

Sent: 16 January 2024 14:56

To: Afif Hossain <afif.hossain@fairhurst.co.uk>

Subject: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

Dear Mr Hossain,

Site Address: JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN

Wastewater Pre-Planning Ref: DS6111205

Thank you for your wastewater Pre-planning application at: JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN

A preliminary review has been undertaken and based upon the information supplied it has been determined that we are missing the following:

Essential information: Foul Water

Combined discharge:

The proposed combined discharge at the above site is not permitted because there are separate foul and surface water sewers near the proposed development site.

Section 106 of the water Industry Act 1991 requires that where separate foul and surface water sewers are provided, the respective foul and surface water drainage should be split and should drain to the respective foul and surface water sewers.

Based on this, the foul water drain will need to discharge into the existing foul sewer and surface water into the existing surface water sewer.

Once the above information has been amended, I will proceed with further review and provide feedback on the capacity within the foul and surface water network.

Should you have any queries please do not hesitate to contact me.

Kind regards,

Darnell Francis on behalf of Colins Akemche

Technical Coordinator Build Overs, Thames Valley

Service Delivery

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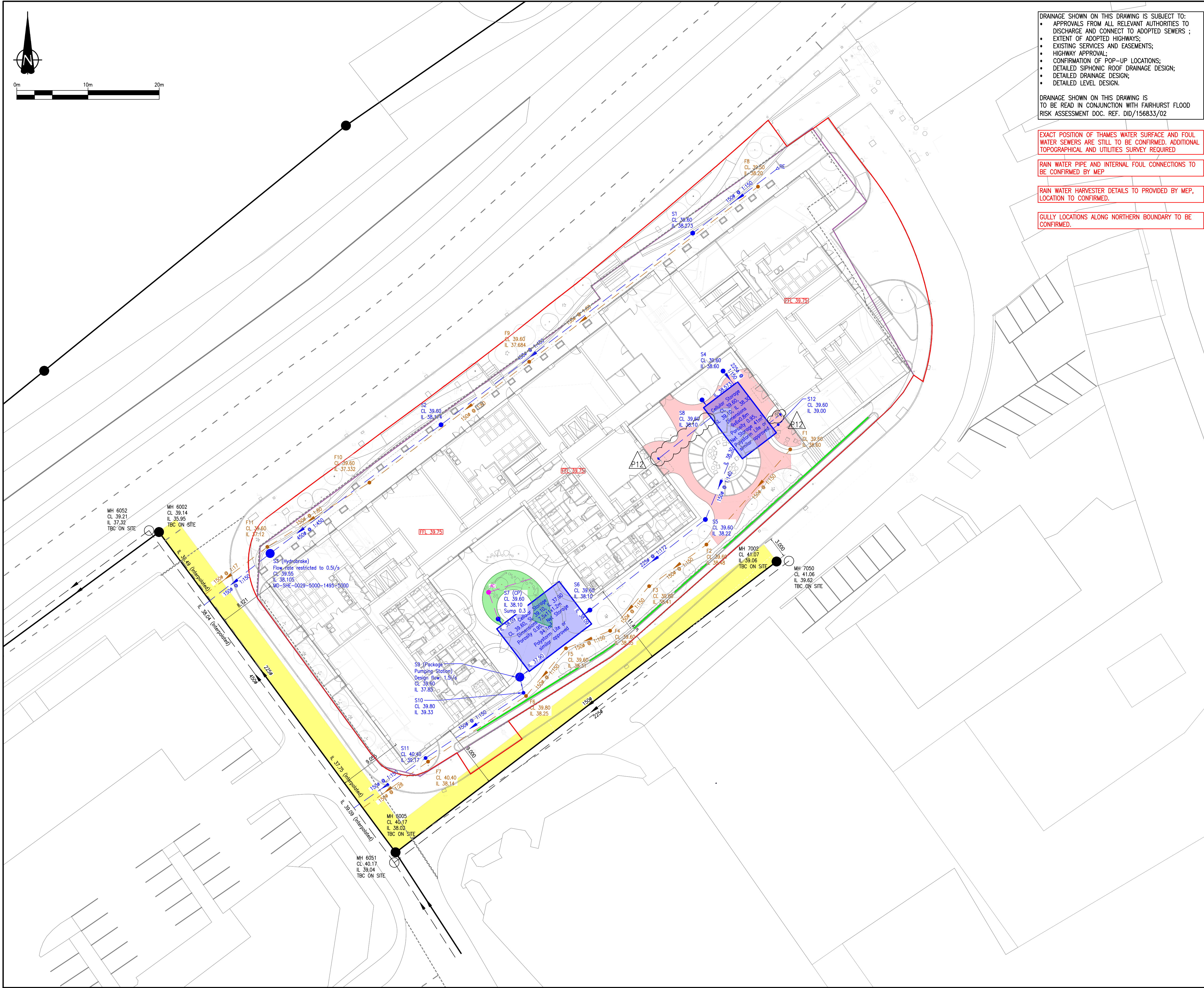
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Appendix I

Proposed Private and Adoptable Drainage Strategies



DRAINAGE SHOWN ON THIS DRAWING IS SUBJECT TO:

- APPROVALS FROM ALL RELEVANT AUTHORITIES TO DISCHARGE AND CONNECT TO ADOPTED SEWERS ;
- EXTENT OF ADOPTED HIGHWAYS;
- EXISTING SERVICES AND EASEMENTS;
- HIGHWAY APPROVAL;
- CONFIRMATION OF POP-UP LOCATIONS;
- DETAILED SIPHONIC ROOF DRAINAGE DESIGN;
- DETAILED DRAINAGE DESIGN;
- DETAILED LEVEL DESIGN.

DRAINAGE SHOWN ON THIS DRAWING IS TO BE READ IN CONJUNCTION WITH FAIRHURST FLOOD RISK ASSESSMENT DOC. REF. DID/156833/02

EXACT POSITION OF THAMES WATER SURFACE AND FOUL WATER SEWERS ARE STILL TO BE CONFIRMED. ADDITIONAL TOPOGRAPHICAL AND UTILITIES SURVEY REQUIRED

RAIN WATER PIPE AND INTERNAL FOUL CONNECTIONS TO BE CONFIRMED BY MEP

RAIN WATER HARVESTER DETAILS TO PROVIDED BY MEP, LOCATION TO CONFIRMED.

GULLY LOCATIONS ALONG NORTHERN BOUNDARY TO BE CONFIRMED.

Do not scale from this drawing.
SAFETY HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARD/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.
RISKS LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DESIGN ASSESSMENT FORM NO.
CONSTRUCTION EXISTING LIVE SERVICES. WORKING ADJACENT TO A LIVE CARRIAGEWAY. WORKING AT HEIGHT (EXCAVATIONS).
FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE
IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

- NOTES**
1. This drawing is based on the following received information:
Camlins, SY743-275-0001 – General Arrangement – Public Realm and Landscape,
Hoare Lea, 08278-HRL-PH-00-DR-P-503002 Connect to Drain
Cloud 10, 0714 – T(1) – Topographical Survey (1 of 2),
Cloud 10, 0714 – T(2) – Topographical Survey (2 of 2),
Cloud 10, 0714 – U(1) – Utilities Survey (1 of 2),
Cloud 10, 0714 – U(2) – Utilities Survey (2 of 2).
 2. This drawing is to be read in conjunction with all of the relevant FAIRHURST drawings.
 3. All Invert levels and cover levels are to be confirmed as per the site survey information.
 4. All private drainage to be built accordance with Building Regulation requirements.
 5. The position, line and diameter of all existing drainage apparatus should be confirmed on site prior to the commencement of the works. Any discrepancies should be reported to the Engineer in writing immediately.
 6. All internal drainage routing and exact setting out to be confirmed.
 7. Contractor to confirm if new drainage clashes with existing foundations or masonry walls. Engineer advise should be sought.

KEY	
	Site Planning Boundary
	Site Ownership Boundary
	Proposed surface water sewer
	Proposed cellular attenuation tank
	Proposed siphonic rainwater down pipe (siphonic drainage design by others)
	Proposed permeable paving with trench
	Proposed foul water sewer
	Existing Thames Water combined sewer
	Existing Thames Water surface water sewer
	Proposed external retaining wall
	3m Easement – Thames Water Sewer
	Proposed rain garden with access chamber and perforated pipe

P12	01/01/23	REVISED TO SUIT NEW SITE LAYOUT + PERMEABLE PAVING CONNECTIONS. AS CLOUDED.	HW	FM	JG
P11	16/05/23	REVISED TO SUIT NEW SITE LAYOUT.	FM	JG	JG
P10	02/05/23	DISTANCE FROM FACE OF BUILDING TO THAMES WATER ASSET ADDED.	FM	JG	JG
P09	02/05/23	SITE OWNERSHIP BOUNDARY UPDATED, PERMEABLE PAVING REVISED TO SUIT NEW BOUNDARY. AS CLOUDED.	FM	JG	JG

Rev.	Date	Description	Drwn.	Chkd.	Appd.
FAIRHURST					
Client:					
1 Ann Grove Court Barnack Road, Newcastle-upon-Tyne NE4 6DB Tel: 0191 221 0505 Fax: 0844 381 4412					

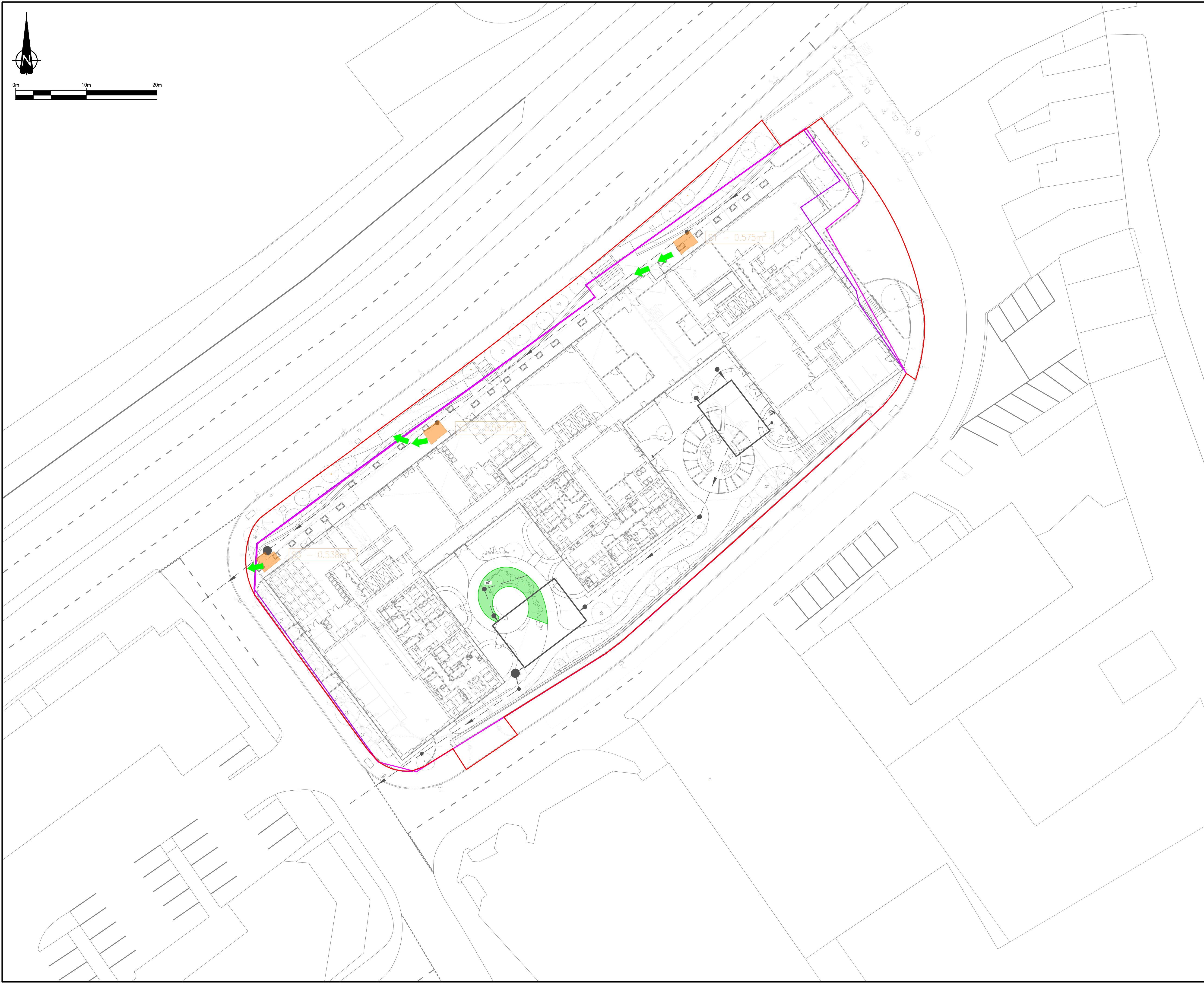
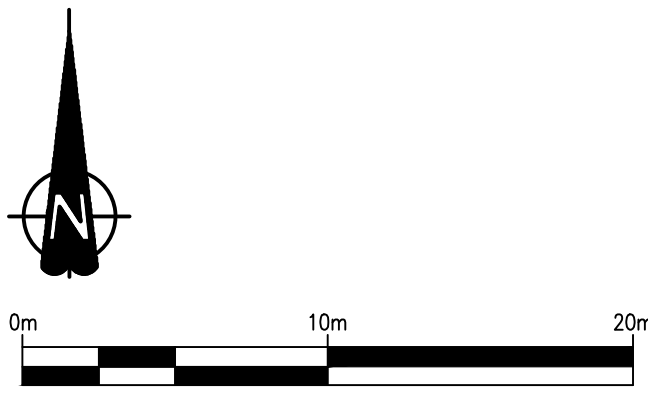
Project Title:
**FORMER JOHN LEWIS DEPOT
LETCOMBE STREET, READING.**

Drawing Title:
PROPOSED DRAINAGE LAYOUT

Scale at A1: 1:250	Status: RIBA Stage 2		
Drawn: SNK	Checked: SKT	Approved: JG	
Date: 19/01/24	Date: 19/01/24	Date: 19/01/24	
Drawing No.: 08278-FAI-CV-XX-M2-C-2001	Revision: P12		

Appendix J

Exceedance Drawing



Do not scale from this drawing.

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARD/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.

RISKS LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DESIGN ASSESSMENT FORM NO.

CONSTRUCTION:
EXISTING LIVE SERVICES.
WORKING ADJACENT TO A LIVE CARRIAGEWAY.
WORKING AT HEIGHT (EXCAVATIONS).

FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE.

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

NOTES

1. This drawing is based on the following received information:
Camlins, SY743-275-0001 - General Arrangement - Public Realm and Landscape,
Hoare Lea, 08278-HRL-PH-00-DR-P-503002 Connect to Drain
Cloud 10, 0714 - T(1) - Topographical Survey (1 of 2),
Cloud 10, 0714 - T(2) - Topographical Survey (2 of 2),
Cloud 10, 0714 - U(1) - Utilities Survey (1 of 2),
Cloud 10, 0714 - U(2) - Utilities Survey (2 of 2).

2. This drawing is to be read in conjunction with all of the relevant FAIRHURST drawings.

KEY

- Site Planning Boundary
- Site Ownership Boundary
- Proposed drainage
- Flood area (1 in 100 year + Climate Change and a depth of 0.1m)
- Direction of flow

P03	01/01/25	UPDATED TO SUIT NEW SITE LAYOUT	FM	JG	JG
P02	05/02/25	SITE OWNERSHIP BOUNDARY REVISED.	FM	JG	JG
Rev.	Date	Description	Drawn	Chkd.	Appd.

FAIRHURST

1 Arngrove Court
Barrack Road,
Newcastle-upon-Tyne
NE4 6DB
Tel: 0191 221 0505
Fax: 0844 381 4412

JOHN LEWIS PARTNERSHIP

Project Title:

**FORMER JOHN LEWIS DEPOT
LETCOMBE STREET, READING.**

Drawing Title:

EXCEEDANCE PLAN

Scale at A1:	Status:		
1:250	RIBA Stage 2		
Drawn:	Checked:	Approved:	
FM	JG	JG	
Date:	Date:	Date:	
28/01/25	28/01/25	28/01/25	
Drawing No.:	Revision:		
08278-FAI-CV-XX-M2-C-2006	P03		

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