



Martin Grant Land

LONDON ROAD, HITCHIN

Flood Risk Assessment





Martin Grant Land

LONDON ROAD, HITCHIN

Flood Risk Assessment

REPORT (VERSION1) PUBLIC

PROJECT NO. UK0041258.0839

OUR REF. NO. UK0028795.1577

DATE: MARCH 2026

WSP

2 London Square

Cross Lanes

Guildford, Surrey

GU1 1UN

Phone: +44 148 352 8400

WSP.com

CONTENTS

1	INTRODUCTION	1
1.1	CONTEXT	1
1.2	SCOPE AND METHODOLOGY	1
1.3	ADVISORY INFORMATION	2
2	SITE BACKGROUND	3
2.2	SITE DESCRIPTION	3
2.3	TOPOGRAPHY	3
2.4	GEOLOGY AND HYDROGEOLOGY	4
2.5	EXISTING SEWER AND DRAINAGE INFRASTRUCTURE	7
3	PROPOSED DEVELOPMENT	8
3.1	DEVELOPMENT PROPOSALS	8
3.2	DEVELOPMENT LIFESPAN	8
3.3	VULNERABILITY CLASSIFICATION	8
4	CONSULTATION, POLICY AND GUIDANCE	9
4.1	STAKEHOLDER CONSULTATION	9
4.2	LEGISLATION, POLICY AND GUIDANCE	10
4.3	CLIMATE CHANGE GUIDANCE	11
5	SEQUENTIAL AND EXCEPTION TEST	13
6	ASSESSMENT OF FLOOD RISK	14
6.1	INTRODUCTION	14
6.2	HISTORIC FLOOD RISK	14

6.3	FLOOD RISK FROM TIDAL AND FLUVIAL SOURCES	14
6.4	FLOOD RISK FROM SURFACE WATER	17
6.5	FLOOD RISK FROM GROUNDWATER	19
6.6	FLOOD RISK FROM SEWERS	19
6.7	FLOOD RISK FROM ARTIFICIAL SOURCES	20
7	SURFACE WATER DRAINAGE	21
7.1	INTRODUCTION	21
7.2	EXISTING SURFACE WATER DRAINAGE	21
7.3	DESIGN CRITERIA	21
7.4	PROPOSED SURFACE WATER DRAINAGE	22
7.5	WATER QUALITY	25
7.6	SUDS OPERATION AND MAINTENANCE	26
7.7	HIGHWAY DRAINAGE ATTENUATION BASIN	27
	FLOOD RISK MITIGATION MEASURES	28
7.8	BRIEF CONSIDERATIONS	28
7.9	PROPOSED MITIGATION MEASURES	28
7.10	SAFE ACCESS AND EGRESS	28
8	CONCLUSIONS	29

TABLES

Table 4-1 - Stakeholder Correspondence	9
Table 4-2 - Upper and Bedford Ouse Management Catchment Peak Rainfall Allowances	12
Table 4-3 - Upper and Bedford Ouse Management Catchment Peak River Flow Allowances	12
Table 5-1 - Flood risk vulnerability and flood zone compatibility	13
Table 7-1 - Drainage Attenuation Results Summary	25
Table 7-2 - Infiltration Basin –Operation and maintenance requirements	26

FIGURES

Figure 2-1 – Site Location Plan	3
Figure 2-2 - Environment Agency Existing Ground Levels	4
Figure 2-3 - British Geological Survey – Bedrock	5
Figure 2-4 - British Geological Survey - Superficial Deposits	6
Figure 3-1 - Proposed Development at Hitchin (Source: CSA Environmental Drg. No. CSA/3922/122(D))	8
Figure 6-1 – EA Flood Risk Map for Planning (2025)	15
Figure 6-2 – EA Flood Risk from River and Sea (2025)	16
Figure 6-3 – EA Risk of Flooding from Rivers and the Sea including Climate Change (2025)	17
Figure 6-4 – EA Flood Risk from Surface Water (2025)	18
Figure 6-5 – EA Flood Risk from Surface Water including Climate Change (2025)	19
Figure 7-1 - Schematic of Primary Drainage Conveyance Measures	23
Figure 7-2 - Drainage Catchments and Infiltration Basins	24

1 INTRODUCTION

1.1 CONTEXT

- 1.1.1. WSP UK Ltd (WSP) has been commissioned to produce a Flood Risk Assessment (FRA) and accompanying Surface Water Drainage Strategy on behalf of Martin Grant Land ('the Applicant'), in support of an outline planning application for the development of up to 41 residential properties, landscaping, drainage, and associated works (the 'Proposed Development').
- 1.1.2. This FRA has been carried out with reference to the National Planning Policy Framework (NPPF) and associated Flood Risk and Coastal Change Planning Practice Guidance (PPG), and the CIRIA Sustainable Drainage Systems (SuDS) Manual (C753, 2015).
- 1.1.3. The outcomes of pre-application consultation with key flood risk stakeholders, namely the Environment Agency, Anglian Water, North Hertfordshire District Council (NHDC), and Hertfordshire Country Council (as the Lead Local Flood Authority (LLFA)), are referenced throughout as appropriate.

1.2 SCOPE AND METHODOLOGY

SCOPE

- 1.2.1. This FRA comprises an assessment of the risk of flooding within the Site and surrounding area, assessing risks posed to and arising from the Proposed Development during its operation from all potential sources of flood risk.
- 1.2.2. The report also establishes the mitigation measures required to ensure the sustainability and safety of the Proposed Development.

METHODOLOGY

- 1.2.3. This FRA uses a source-pathway-receptor led approach for assessing flood risk, with the individual parts of that chain being defined as follows:
 - Sources - the potential source of flood risk to be assessed, such as direct rainfall, watercourses, the sea, groundwater or infrastructure (i.e. flood defence structures).
 - Pathways – the means by which the source of flood risk can impact potential receptors. A specific combination of sources and pathways is referred to as a flood mechanism, such as tidal overtopping of sea defences as a result of high tides and storm surge.
 - Receptors - comprise those persons or assets that could be vulnerable to the flood mechanisms identified.
- 1.2.4. The flood sources that have been assessed in this FRA include potential flooding from fluvial, tidal/coastal, surface water, groundwater, sewer and drainage infrastructure, and artificial sources (reservoirs and canals).
- 1.2.5. The receptors that have been assessed are the Proposed Development, users of and visitors to the Proposed Development, and other developments and people within the surrounding area.
- 1.2.6. The following sources of information have been used to inform this FRA:

- British Geological Survey (BGS) GeolIndex Onshore viewer¹;
- BGS Geology Viewer²;
- Department for Environment, Food and Rural Affairs (DEFRA) MAGIC Mapping³;
- Environment Agency Catchment Data Explorer⁴;
- Environment Agency Flood Map for Planning⁵;
- Environment Agency LiDAR Digital Terrain Model⁶;
- Environment Agency's online Long Term Flood Risk map⁷;
- Google Maps, Aerial Imagery⁸;
- Ordnance Survey Mapping (OSM)⁹; and
- UK Centre for Ecology and Hydrology's Flood Estimation Handbook (FEH) Web Service¹⁰.

1.3 ADVISORY INFORMATION

- 1.3.1. WSP UK Ltd has prepared this report in accordance with the instructions of our client, Martin Grant Land, for their sole and specific use relating to the above Site. Any person who uses any information contained herein does so at their own risk and shall hold WSP UK Ltd. harmless in any event. The conclusions and recommendations contained herein are limited by the availability of background information and the planned use for the Site.
- 1.3.2. Third party information has been used in the preparation of this report which WSP UK Ltd by necessity assumes is correct at the time of writing. Whilst reasonable checks have been made on data sources and the accuracy of the data, WSP UK Ltd accepts no liability in relation to the report should any data, information or condition be incorrect or have been concealed, withheld, misrepresented, or otherwise not fully disclosed to WSP UK Ltd. In any event, WSP UK Ltd. shall not be liable for any loss or damages arising under, or in connection to, the use of this report.
- 1.3.3. This document contains public sector information licensed under the Open Government Licence v3.0. This document makes partial use of third-party information and contains Environment Agency information (© Environment Agency).
- 1.3.4. WSP UK Ltd makes no warranties or guarantees, actual or implied, in relation to this report, or the ultimate commercial, technical, economic, or financial effect on the project to which it relates, and bears no responsibility or liability related to its use other than as set out in the contract under which it was supplied.

¹ [GeolIndex - British Geological Survey](#)

² https://geologyviewer.bgs.ac.uk/?_ga=2.241530178.1350753581.1760263341-745825928.1760263340

³ <https://magic.defra.gov.uk/MagicMap.aspx>

⁴ <https://environment.data.gov.uk/catchment-planning/>

⁵ <https://flood-map-for-planning.service.gov.uk/>

⁶ [Defra Survey Data Download](#)

⁷ [Technical map - Check your long term flood risk - GOV.UK](#)

⁸ <https://www.google.com/maps>

⁹ <https://osmaps.ordnancesurvey.co.uk>

¹⁰ [Map - FEH Web Service](#)

2 SITE BACKGROUND

- 2.1.1. The site is located in St Ippolyts, Hitchin, North Hertfordshire. The Ordnance Survey (OS) Grid Reference for the approximate centre of the site is TL19138 27480 and the nearest postcode is SG4 7NF. The site falls under the Hertfordshire County Council and North Hertfordshire District Council (NHDC) authority area. A site location plan is provided in Figure 2-1 below.

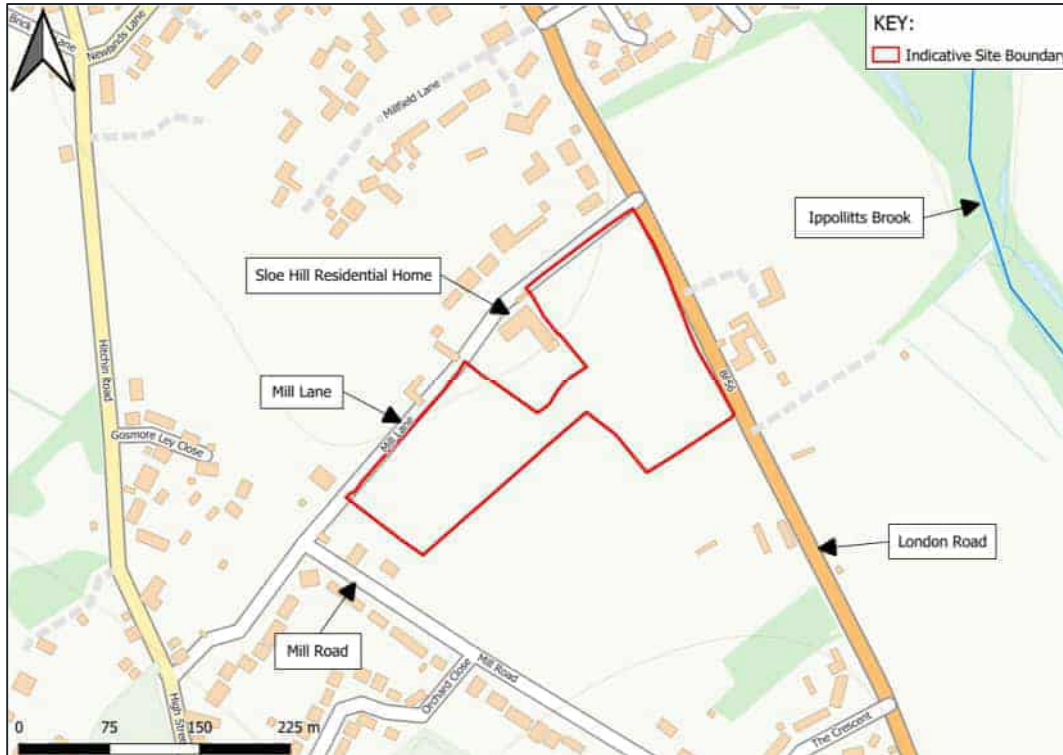


Figure 2-1 – Site Location Plan

2.2 SITE DESCRIPTION

- 2.2.1. The site encompasses approximately 3.3 hectares (ha) of greenfield land. Mill Lane runs along the northwestern boundary, Mill Road is situated to the southwest, and London Road (B656) borders the eastern edge. Residential and commercial areas of Hitchin town are directly to the north, while those of St Ippolyts are to the south and east. Greenfield areas are located to the south, east, and west. The site surrounds Sloe Hill Residential Home near its centre.

2.3 TOPOGRAPHY

- 2.3.1. Oak Surveys Limited undertook a topographical survey in 2019. The survey indicated that ground levels range from approximately 82 m AOD¹¹ to 74 m AOD, generally sloping from the northwest to the southeast. The lowest ground level of 74.95 m AOD is shown towards the southwest of the site and the highest ground level of 81.56 m AOD is shown towards the northern centre of the site. It is acknowledged that the survey is six years old but given the nature of the site (greenfield) it is very

¹¹ m AOD - metres Above Ordnance Datum

unlikely that any topographical changes would have occurred in the intervening period. A copy of the topographical survey can be found in Appendix A.

- 2.3.2. The Environment Agency's (EA) Light Detection and Ranging (LiDAR) 1 m Digital Terrain Model (DTM) 2022 data concur with the results from the topographical survey, as shown in Figure 2-2 below.

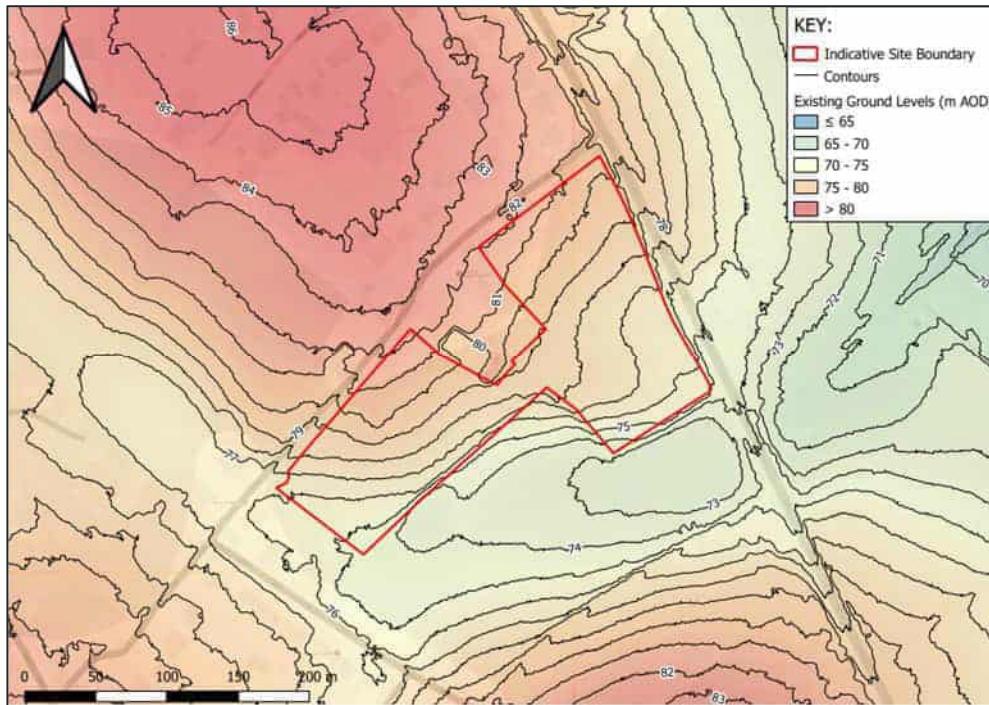


Figure 2-2 - Environment Agency Existing Ground Levels

2.4 GEOLOGY AND HYDROGEOLOGY

GEOLOGY

- 2.4.1. According to publicly available mapping produced by the British Geological Survey (BGS), the majority of the site, particularly towards the centre and eastern areas, is underlain by Zig Zag Chalk formation. The western portion of the site is characterised by West Melbury Marly Chalk Formation, also consisting of chalk, while the westernmost point is underlain by Gault Formation, comprising mudstone. An excerpt from the BGS bedrock geology mapping is presented in Figure 2-3 below.
- 2.4.2. BGS mapping shows that most of the site is underlain by superficial Glaciofluvial Deposits from the mid Pleistocene era, comprising sand and gravel. The southernmost area contains deposits of Head, which include clay, silt, sand, and gravel. An excerpt from the BGS superficial geology mapping is provided below in Figure 2-4.



Figure 2-3 - British Geological Survey – Bedrock



Figure 2-4 - British Geological Survey - Superficial Deposits

HYDROGEOLOGY

- 2.4.3. Based on DEFRA's Magic mapping, bedrock underlying the site is classified as being a Principal aquifer. BGS defines Principal aquifers as having a high permeability and significant water storage capacity. These aquifers are capable of supporting large-scale abstractions for public water supply.
- 2.4.4. The site's underlying superficial deposits are predominately Secondary A aquifers, which provide local water supplies and sometimes support river base flow. Along the southern and western edges, the land is classified as Secondary (Undifferentiated) aquifers, where rock characteristics make further classification unclear due to the variable characteristics.
- 2.4.5. MAGIC mapping indicates the site's eastern area falls within a Zone III Source Protection Zone (SPZ), where all groundwater flows to an abstraction point. The western area lies in a Zone II SPZ, defined as groundwater taking up to 400 days to reach the abstraction point, which helps protect against slowly degrading contaminants.
- 2.4.6. According to Cranfield Soils mapping, the site is covered entirely by freely draining, slightly acidic loamy soils. These soils allow water to pass through at a moderate rate, reducing risk of waterlogging.
- 2.4.7. During consultation, the Environment Agency indicated that groundwater below the site flows in an easterly direction, towards the Ippollits Brook, a minor watercourse located about 0.26 km east of the site.

EXISTING WATERBODIES

- 2.4.8. The River Purwell, classified as an EA Main River, is situated approximately 2.4 km north of the site. A chalk stream, it originates from subterranean springs within chalk bedrock, which initially give rise

to Ippollitts Brook. The brook flows northwards, increasing in size before it becomes designated as the River Purwell.

- 2.4.9. A pond is situated approximately 0.22 km northeast of the site and is likely to be hydrologically connected to Ippollitts Brook.
- 2.4.10. There is a field drain located approximately 0.5 km west of the site, along with three ponds located between approximately 0.6 km – 0.85 km west of the site. However, these do not appear to be hydraulically linked to the site.
- 2.4.11. There are no open watercourses within the site.

2.5 EXISTING SEWER AND DRAINAGE INFRASTRUCTURE

- 2.5.1. The site is currently classified as a greenfield site, draining via a combination of natural overland runoff and localised infiltration.
- 2.5.2. The site lies within the Ashbrook sewer catchment, which is managed by Anglian Water, the statutory sewerage undertaker for the site.
- 2.5.3. According to the Anglian Water Assets Plan (2019) provided in Appendix B, there is a 150 mm foul water sewer located along the eastern section of Mill Lane. The plan also indicates the presence of a foul water sewer along Mill Road, as well as along the southern border of the field adjacent to the south of the site
- 2.5.4. Mapping for London Road and Mill Road indicates road gullies near the site boundary, though their connection to the public sewer network is unknown.
- 2.5.5. Any easements associated with the public sewer network should be incorporated into the detailed design of the Proposed Development as the project progresses.

3 PROPOSED DEVELOPMENT

3.1 DEVELOPMENT PROPOSALS

- 3.1.1. The Proposed Development will involve the erection of up to 41 residential homes, landscaping, drainage, and associated works. Figure 3-1 shows the Proposed Development drawing.



Figure 3-1 - Proposed Development at Hitchin (Source: CSA Environmental Drg. No. CSA/3922/122(D))

3.2 DEVELOPMENT LIFESPAN

- 3.2.1. This FRA has been written based on the Proposed Development having a lifespan of 100 years.

3.3 VULNERABILITY CLASSIFICATION

- 3.3.1. In accordance with Annex 3 (Flood risk vulnerability classification) of the National Planning Policy Framework (NPPF) Flood Risk and Coastal Change PPG, the Proposed Development is considered 'More Vulnerable' with respect to flood risk due to the proposed residential dwellings.

4 CONSULTATION, POLICY AND GUIDANCE

4.1 STAKEHOLDER CONSULTATION

- 4.1.1. Pre-application consultation has been undertaken with the following key flood risk stakeholders to inform this Flood Risk Assessment (FRA):
- Environment Agency (EA);
 - Anglian Water (AW);
 - Hertfordshire County Council (HCC); and
 - North Hertfordshire District Council (NHDC).
- 4.1.2. Consultation with HCC includes a post-submission meeting with members of Hertfordshire County Council's LLFA team to discuss points they made in their 18th December 2025 planning review response letter (refer to Appendix C). The meeting was attended by HCC, WSP and MGL and a way forward was agreed as to addressing the points.
- 4.1.3. A summary of the correspondence undertaken with the stakeholders identified above is given in Table 4-1 below, with full copies provided in Appendix C for reference. Where relevant, details from the responses have been used within this report.

Table 4-1 - Stakeholder Correspondence

Stakeholder Correspondence	Date of Consultation	Response
EA	May 2025	The EA confirmed that they hold no record of historic flood events recorded within the vicinity of the site. They stated that there are no EA defences within 500 m or which impact upon the site. The EA confirmed that there are currently no designated areas with critical drainage problems (ACDPs) that cover the site. The EA provided hydrogeological setting information, noting that an EA monitoring borehole (TL12/015), is located approximately 85 m southeast of the site and has average groundwater levels between 4.2 metres below ground level (m bgl) and 6.2 m bgl. They provided water quality requirements for surface water runoff, which are further discussed in the Surface Water Drainage Strategy (SWDS).
AW	April 2025	AW confirmed that there have been instances of flooding within the vicinity of the site, however, they could not provide information on the source, dates or extent of flooding.
HCC (Lead Local Flood Authority)	April 2025	HCC confirmed that they do not have any recorded reports of flooding within the site. The nearest reported flooding incident was to a property approximately 380 mm to the northwest. They are unaware of any flood defence structures at the site or in the surrounding area.

Stakeholder Correspondence	Date of Consultation	Response
		Further detail was provided on attenuation system requirements and water quality, and this is further discussed in the SWDS. Refer to HCC letter dated 18 December 2025 in Appendix C for a copy of their planning review response.
NHC	April 2025	NHC did not provide further details apart from what is available on their website and in the Local Plan. They suggested obtaining pre-application advice.

4.2 LEGISLATION, POLICY AND GUIDANCE

4.2.1. This FRA has been informed by, and makes reference to where appropriate, the following legislation, policy and guidance documents.

LEGISLATION

- Environment Act (2021)¹²;
- The Environment Permitting (England and Wales) Regulations (2016)¹³;
- Flood and Water Management Act (2010)¹⁴;
- The Flood Risk Regulations (2009)¹⁵;
- The Groundwater (Water Framework Directive) (England) Direction (2016)¹⁶;
- Land Drainage Act (1991)¹⁷;
- The Water Environment (Water Framework Directive) (England and Wales) Regulations (2017)¹⁸;
- Water Industry Act (1991)¹⁹; and,
- Water Resources Act (1991)²⁰.

NATIONAL POLICIES AND GUIDANCE

- Building Regulations Approved Document H, Ministry of Housing, Communities and Local Government (2015)²¹;
- Environment Agency Flood Risk Assessments: Climate Change Allowances guidance (2022)²²;
- National Planning Policy Framework (NPPF), Ministry of Housing, Communities & Local Government (2025)²³;

¹² <https://www.legislation.gov.uk/ukpga/2021/30/contents>

¹³ <https://www.legislation.gov.uk/uksi/2016/1154/contents>

¹⁴ <https://www.legislation.gov.uk/ukpga/2010/29/contents>

¹⁵ <https://www.legislation.gov.uk/uksi/2009/3042/contents/made?view=plain>

¹⁶ https://www.legislation.gov.uk/uksi/2015/1623/pdfs/uksiod_20151623_en.pdf

¹⁷ <https://www.legislation.gov.uk/ukpga/1991/59/contents>

¹⁸ <https://www.legislation.gov.uk/uksi/2017/407/contents>

¹⁹ <https://www.legislation.gov.uk/ukpga/1991/56/contents>

²⁰ <https://www.legislation.gov.uk/ukpga/1991/57/contents>

²¹ <https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h>

²² <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

²³ <https://www.gov.uk/guidance/national-planning-policy-framework>

- National Standards for Sustainable Drainage Systems, Department for Environment, Food and Rural Affairs (DEFRA) (2025)²⁴ ;
- Planning Practice Guidance (PPG) Flood Risk and Coastal Change, Ministry of Housing, Communities & Local Government and Department for Levelling Up, Housing and Communities. (2022)²⁵; and
- The SuDS Manual (C753), CIRIA, (2015)²⁶.

LOCAL/REGIONAL POLICIES AND GUIDANCE

- Hertfordshire County Council Lead Local Flood Authority SuDS Policy Statement (2015)²⁷;
- Hertfordshire County Council Local Flood Risk Management Strategy 2 (2019)²⁸;
- Hertfordshire County Council Preliminary Flood Risk Assessment (PFRA) (2011)²⁹;
- Hertfordshire County Council Review of Hertfordshire's Local Flood Risk Management Strategy Issues & Options document (2016)³⁰;
- North Hertfordshire District Council Strategic Flood Risk Assessment Update (2016)³¹; and
- North Hertfordshire Local Plan 2011-2031 (2025)³².

4.3 CLIMATE CHANGE GUIDANCE

- 4.3.1. The Environment Agency's guidance on climate change allowances provides up to date predictions on the changes in peak river flows, peak rainfall intensities, and sea levels that are expected to occur as a result of climate change.
- 4.3.2. The allowances are considered as part of this assessment to ensure that the Proposed Development would remain safe and would not increase flood risk elsewhere over its intended design life in accordance with the requirements of the NPPF.
- 4.3.3. The Environment Agency confirmed during consultation that the assessment should follow East_Anglian_External Climate Change Allowances Guidance_March2022.
- 4.3.4. The anticipated impact of climate change on sea levels is not relevant to this assessment as the site is not located in the vicinity of the coast or a tidal estuary.

²⁴ <https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds>

²⁵ <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

²⁶ <https://www.calderdale.gov.uk/docs/planning/ciria-c753-the-suds-manual.pdf>

²⁷ <https://democracy.hertfordshire.gov.uk/Data/Cabinet/201503231400/Agenda/KolCNnV2fqB7TRmzIIMB8VYz8OUip.pdf>

²⁸ <https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/water/flood-risk-management/lfrms-for-hertfordshire-non-technical-summary.pdf>

²⁹ <https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/water/flood-investigations/archive-consultations/hcc-preliminary-flood-risk-assessment.pdf>

³⁰ <https://democracy.hertfordshire.gov.uk/Data/Environment,%20Planning%20and%20Transport%20Cabinet%20Panel/201606301000/Agenda/UPiLEZ5oiL9Jp0cUS32fZfT6yGMgG.pdf>

³¹ <https://www.north-herts.gov.uk/sites/default/files/NHE12a%20-%20North%20Hertfordshire%20District%20Council%20SFRA%20Update%202016%20%28p1-26%29.pdf>

³² <https://www.north-herts.gov.uk/north-herts-local-plan-2011-2031>

PEAK RAINFALL INTENSITY

- 4.3.5. The EA's climate change allowances for peak rainfall intensity are to be used for the design of surface water drainage infrastructure and for the assessment of surface water flood risk in small catchments with an area of less than five square kilometres.
- 4.3.6. The latest allowances for peak rainfall intensity for the Upper and Bedford Ouse Management Catchment, of which the site is located, are summarised in Table 4-2 below.

Table 4-2 - Upper and Bedford Ouse Management Catchment Peak Rainfall Allowances

Epoch	3.3% Annual Exceedance Rainfall Event		1% Annual Exceedance Rainfall Event	
	Central Allowance (%)	Upper end allowance (%)	Central Allowance (%)	Upper end allowance (%)
2050s	20	35	20	40
2070s	25	35	25	40

- 4.3.7. The Environment Agency's climate change guidance provides advice on the application of allowances for peak rainfall intensity for developments with an expected lifetime beyond 2100, stating that developments should use the upper end allowance for both the 1% and 3% annual exceedance probability (AEP) events for the 2070s epoch (between 2061 and 2125).

PEAK RIVER FLOW

- 4.3.8. The EA's allowances for peak river flow details the anticipated changes to peak flow by sub-catchments of river basin districts known as management catchments.
- 4.3.9. The latest allowances for peak river flow for the Upper and Bedford Ouse Management Catchment, in which the site is located, are summarised in Table 4-3 below.

Table 4-3 - Upper and Bedford Ouse Management Catchment Peak River Flow Allowances

Epoch	Central (%)	Higher Central (%)	Upper (%)
2020s	5	10	24
2050s	4	11	30
2080s	19	30	58

- 4.3.10. The EA's climate change guidance advises that the central allowance should be used for More Vulnerable developments (i.e. the Proposed Development) within Flood Zones 2 and 3a. Although no guidance is specifically given for More Vulnerable developments within Flood Zone 1, the central allowance will be used as a conservative approach. As the Proposed Development has a lifespan of at least 100 years, the 2080s epoch would be appropriate.

5 SEQUENTIAL AND EXCEPTION TEST

- 5.1.1. The purpose of the Sequential Test is to ensure that land use planning takes due regard of all sources of flood risks, to ensure that areas at low or no risk of flooding are developed in preference to areas at higher risk. The Sequential Test aims to steer development, if possible, towards areas at the lowest risk of flooding.
- 5.1.2. Table 2 (Flood risk vulnerability and flood zone 'incompatibility') of the NPPF Flood Risk and Coastal Change PPG identifies different land use vulnerabilities that are appropriate within each of the Flood Zones; this has been replicated in Table 5-1 below. This shows that 'More Vulnerable' developments are permitted within Flood Zone 1.

Table 5-1 - Flood risk vulnerability and flood zone compatibility

Flood Risk Vulnerability Classification	Flood Zone 1	Flood Zone 2	Flood Zone 3A	Flood Zone 3B
More Vulnerable	Development is appropriate	Development is appropriate	Exception Test required	Development is not permitted

- 5.1.3. While a Low risk of surface water exists to the south of the site, no development is proposed in this area. Accordingly, the Proposed Development can be considered to satisfy the Sequential Test requirements, and an Exception Test is not necessary.

6 ASSESSMENT OF FLOOD RISK

6.1 INTRODUCTION

- 6.1.1. The following section provides an overview of flood risk to the site, along with flood risk to and from the Proposed Development. An assessment has been undertaken for each source that could affect the Proposed Development in accordance with the NPPF Flood Risk and Coastal Change PPG.

6.2 HISTORIC FLOOD RISK

- 6.2.1. A review of the Environment Agency's (EA) Historic Flood Map shows that there are no historical records of flooding at the site or the surrounding area.
- 6.2.2. The EA confirmed that they do not hold any records of flooding within the site.
- 6.2.3. Hertfordshire County Council (HCC) confirmed that the nearest reported flood incident occurred at a property approximately 380 m northwest of the site. Anglian Water confirmed that there have been instances of flooding within the vicinity of the site, however, they were not able to provide the source, date or extent of the incident.

6.3 FLOOD RISK FROM TIDAL AND FLUVIAL SOURCES

- 6.3.1. The Proposed Development is not located in the vicinity of the coast or a tidal watercourse. The risk of coastal and tidal flooding to the site is negligible and the risk of the Proposed Development exacerbating this risk is also considered to be negligible. As a result, the risk of flooding detailed below is linked to fluvial sources.

FLOOD MAP FOR PLANNING

- 6.3.2. The EA's Flood Map for Planning presents the indicative flood risk to the Proposed Development from fluvial and tidal sources for an undefended, present-day scenario.
- 6.3.3. The flood zones are defined as follows:
- **Flood Zone 1** comprises land assessed as having a less than 1 in 1000 annual exceedance probability (AEP) of river or sea flooding in any year (<0.1%);
 - **Flood Zone 2** comprises land assessed as having between a 1 in 100 (1%) and 1 in 1000 (0.1%) AEP of river flooding; or between a 1 in 200 (0.5%) and 1 in 1000 (0.1%) AEP of sea flooding in any year; and
 - **Flood Zone 3** comprises land assessed as having a 1 in 100 (1%) or greater AEP of river flooding; or a 1 in 200 (0.5%) or greater AEP of sea flooding in any year.
- 6.3.4. An extract of the Flood Map for Planning is shown in Figure 6-1 below and Appendix D.
- 6.3.5. The mapping indicates that the entirety of the site is located within Flood Zone 1, indicating a Low risk of flooding from fluvial sources.

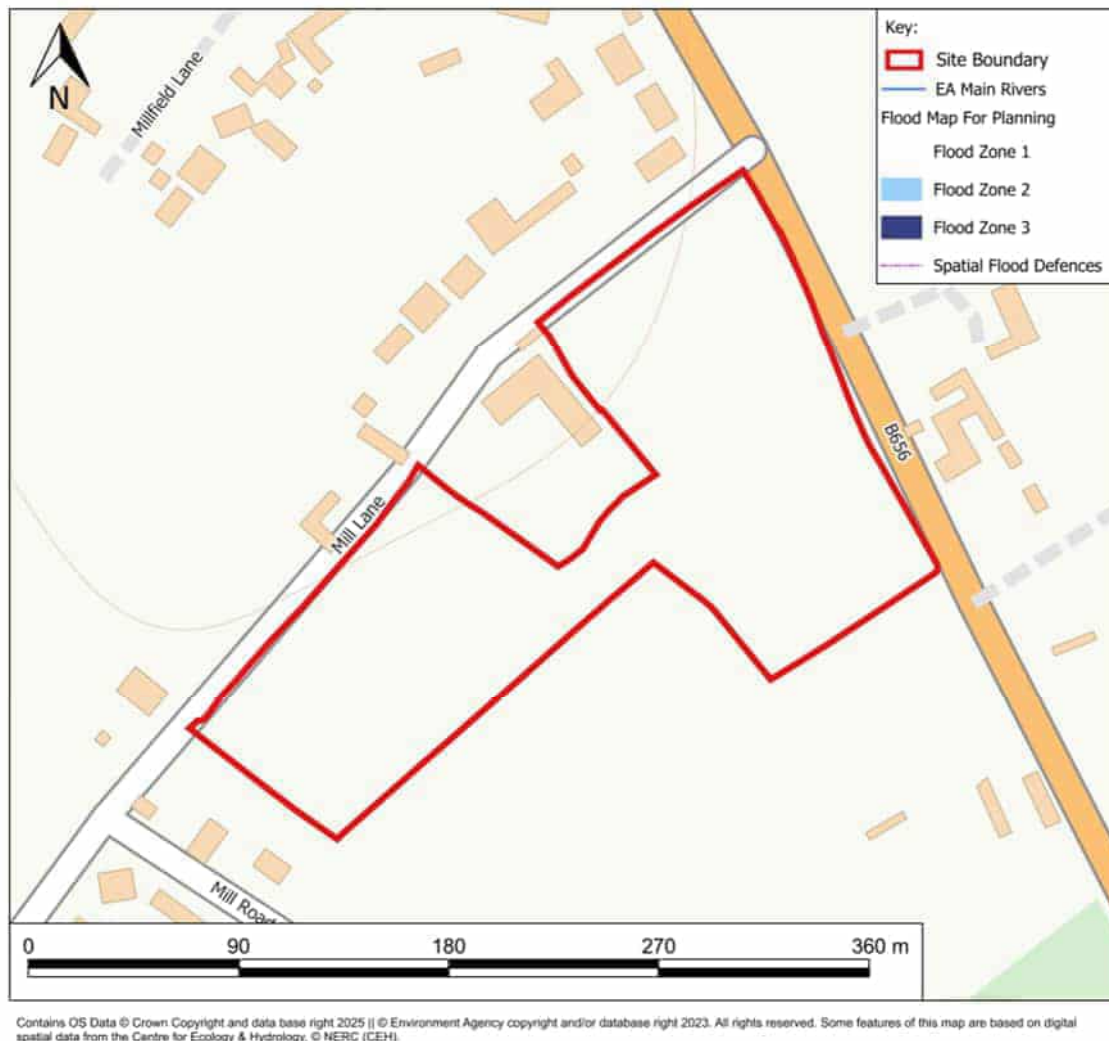


Figure 6-1 – EA Flood Risk Map for Planning (2025)

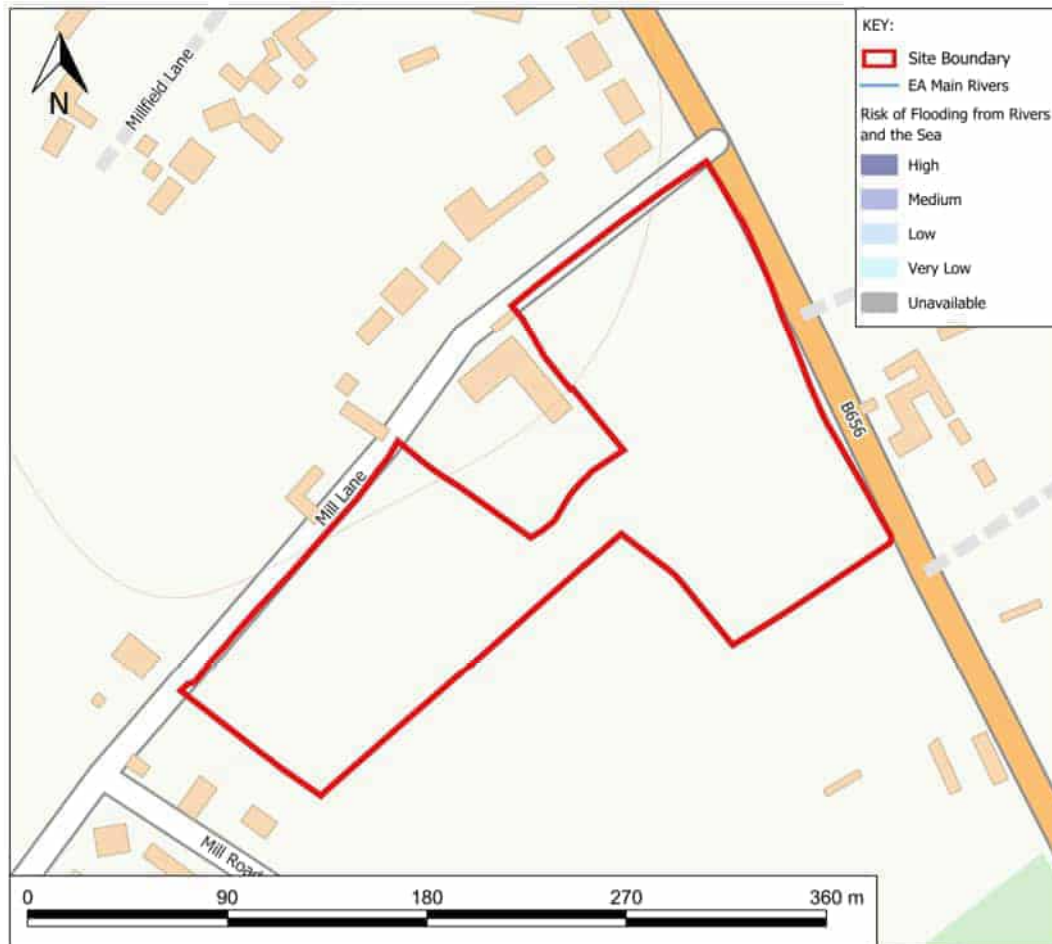
RISK OF FLOODING FROM RIVERS AND SEA

6.3.6. The EA's Risk of Flooding from Rivers and Sea mapping shows the chance of flooding from rivers and the sea to the site, taking into account the presence and condition of flood defences.

- The level of risk is displayed as one of four likelihood categories:
 - High – greater than or equal to 1 in 30 (3.3%) chance of flooding in any year
 - Medium – Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance of river flooding in any given year; or less than 1 in 30 (3.3%) but greater than or equal to 1 in 200 (0.5%) chance of sea flooding in any given year;
 - Low – Less than 1 in 100 (1%) chance of river flooding or less than in 200 (0.5%) chance of sea flooding, but greater than or equal to 1 in 1000 (0.1%) chance of flooding from rivers or sea in any given year; and
 - Very low – less than 1 in 1000 (0.1%) chance of flooding in any given year (not mapped).

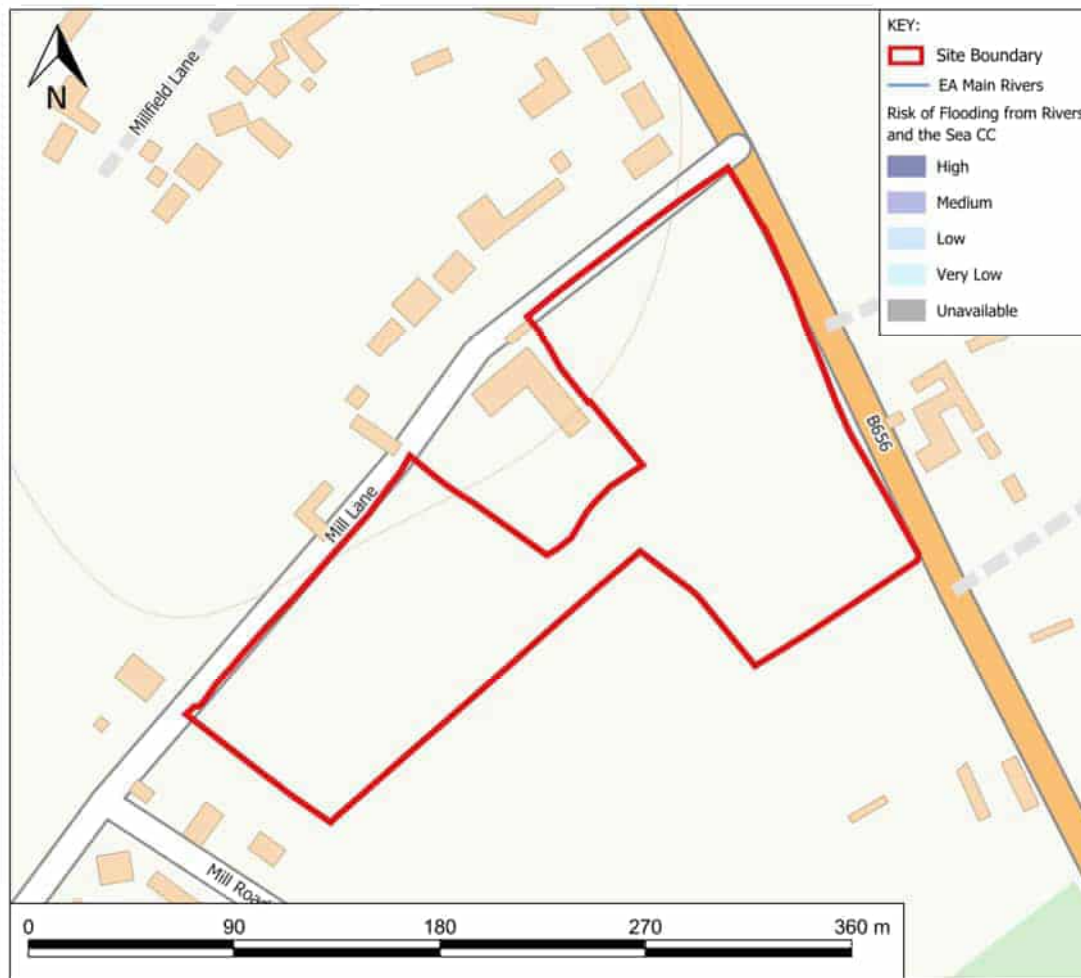
6.3.7. Extracts of the EA's Risk of Flooding from Rivers and Sea mapping for the present-day scenario and the future baseline are provided in Figure 6-2 and Figure 6-3, respectively and Appendix D.

6.3.8. The mapping indicates that the site is at a Very Low risk of flooding from rivers and sea for both a present day and future scenario.



Contains OS Data © Crown Copyright and data base right 2025 | © Environment Agency Copyright and/or Database Rights 2023. All rights reserved.

Figure 6-2 – EA Flood Risk from River and Sea (2025)



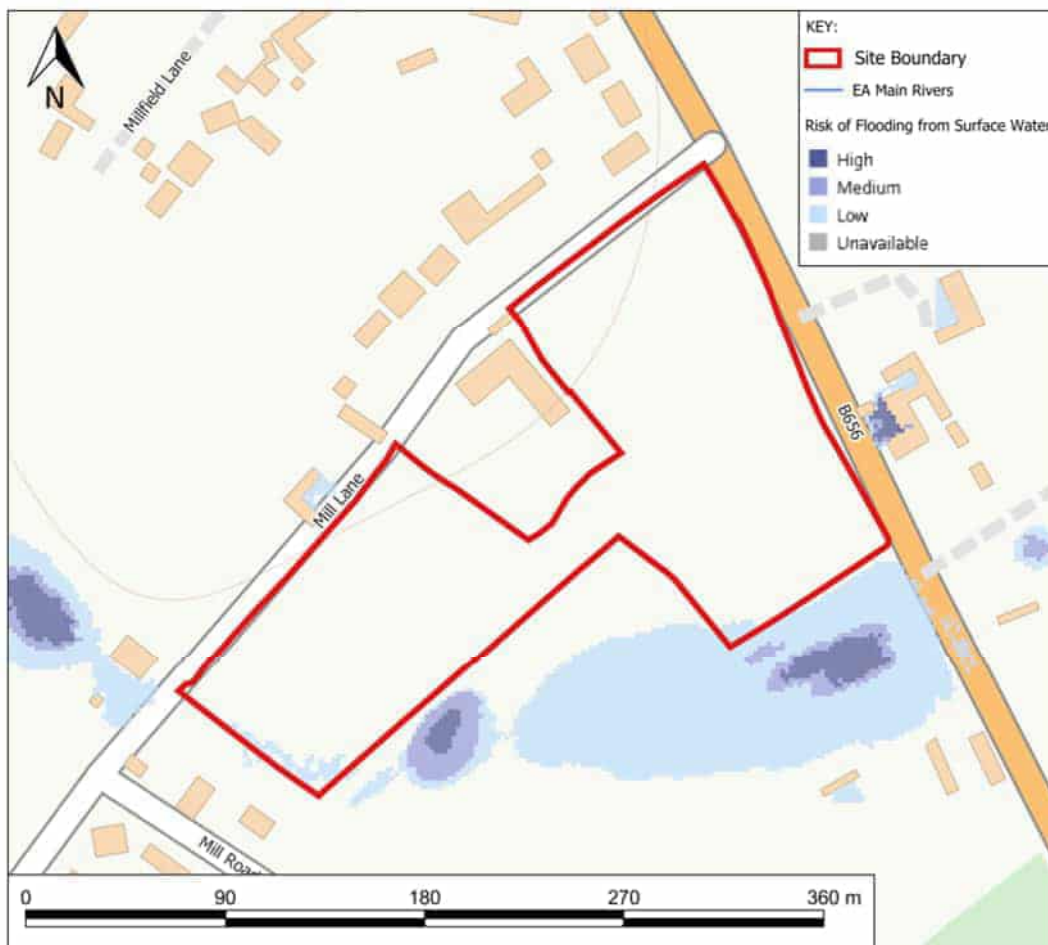
Contains OS Data © Crown Copyright and data base right 2025 | © Environment Agency copyright and/or database right 2025. All rights reserved.

Figure 6-3 – EA Risk of Flooding from Rivers and the Sea including Climate Change (2025)

6.4 FLOOD RISK FROM SURFACE WATER

- 6.4.1. During storm events rainfall may exceed the capacity of the underlying soil or drainage infrastructure provision, resulting in overland flows potentially leading to pluvial (surface water) flooding.
- 6.4.2. The EA's Risk of Flooding from Surface Water mapping categorises the results of their surface water modelling into one of four likelihood categories:
- High - greater than or equal to 1 in 30 (3.3%) chance of flooding in any year;
 - Medium – Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance of flooding in any given year;
 - Low – Less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) chance of flooding in any given year; and
 - Very Low – less than 1 in 1000 (0.1%) chance of flooding in any given year (not mapped).
- 6.4.3. An excerpt from the EA's Risk of Flooding from Surface Water mapping for a present-day scenario and the 2040 and 2060 scenario are provided in Figure 6-4 and Figure 6-5, respectively.

- 6.4.4. The mapping indicates that the site is predominantly located in an area of Very Low risk of surface water flooding with a small area of Low risk to the southwestern and southeastern edges of the site. This is relatively similar for the future scenario, with only a slight increase in the extent of flood risk to the southwestern edge, indicating that climate change does not substantially increase flood risk.
- 6.4.5. The mapping suggests surface water flood risk is associated with localised depressions in topography south of the site where there is a Low, Medium and High risk of flooding from this source.
- 6.4.6. The residential dwellings will be built in an area of Very Low risk of flooding from surface water. Therefore, it is considered that the Proposed Development will not be at risk of surface water flooding, and will not increase surface water flood risk to neighbouring property or land.



Contains OS Data © Crown Copyright and data base right 2025 || © Environment Agency copyright and/or database right 2025. All rights reserved.

Figure 6-4 – EA Flood Risk from Surface Water (2025)

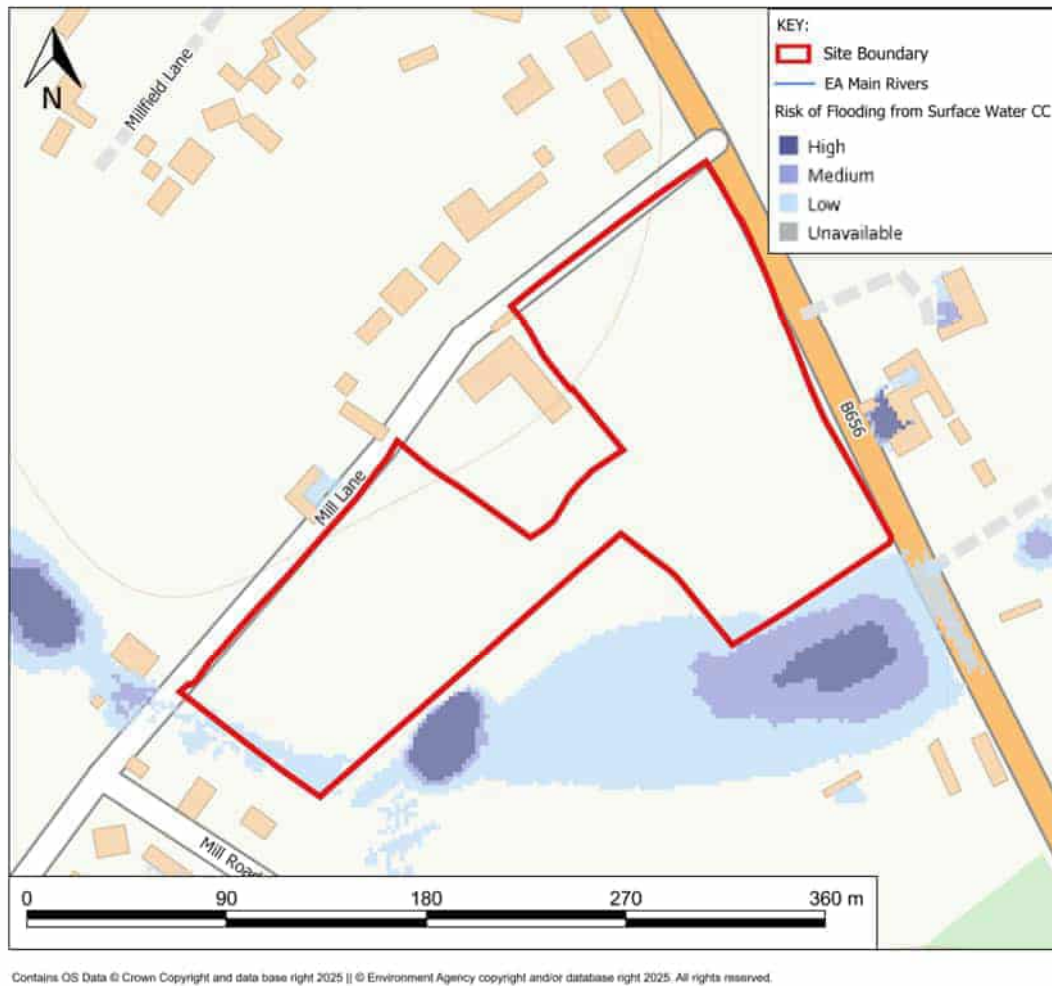


Figure 6-5 – EA Flood Risk from Surface Water including Climate Change (2025)

6.5 FLOOD RISK FROM GROUNDWATER

- 6.5.1. Groundwater flooding occurs when water emerges from underground, either at specific points or diffuse locations. Groundwater flooding typically happens after prolonged rainfall, which leads to increased infiltration and recharge into local aquifers, causing the water table to rise above normal levels.
- 6.5.2. The site's geology and soils suggest that flood risk from groundwater is low under normal conditions, but there is a potential for groundwater flooding during prolonged or extreme rainfall events, especially due to the high permeability of the Principal aquifer.

6.6 FLOOD RISK FROM SEWERS

- 6.6.1. Flooding from artificial drainage infrastructure occurs when flow entering a system exceeds the conveyance or discharge capacity. Exceeding the capacity of drainage infrastructure can cause surcharging or flooding from the system, therefore by leading to ponding or overland surface water flow.
- 6.6.2. As previously stated, Anglian Water confirmed that there have been instances of flooding within the vicinity of the site, however, they were unable to provide the source, date or extent of the incident.

- 6.6.3. As the asset location plan does not show there to be drainage infrastructure within the site, the risk of sewer flooding to the Proposed Development is considered to be low.

6.7 FLOOD RISK FROM ARTIFICIAL SOURCES

- 6.7.1. Artificial sources of flooding can include reservoirs, lakes and canals. The potential effects of flood risk management infrastructure and other structures need to be considered.

FLOOD RISK FROM RESERVOIRS

- 6.7.2. Reservoir flood maps have been created for over 2,000 reservoirs in England and Wales. These maps show the likelihood of flooding from large reservoirs that retain at least 25,000 cubic metres of water above natural ground level. The maps show the largest area that might be flooded if a reservoir were to fail in a credible worst-case scenario for both a dry day and a wet day (i.e. when the rivers are in flood) scenarios.
- 6.7.3. There are no reservoirs within close proximity to the site, with the closest reservoirs (Tring Reservoirs) being located approximately 28 km west of the site. Therefore, based on the information available, the overall flood risk from reservoirs is considered to be negligible.

FLOOD RISK FROM OTHER ARTIFICIAL SOURCES

- 6.7.4. There are no canals or pumped catchments within the vicinity of the site. Therefore, the overall flood risk from other artificial sources is considered to be negligible.

7 SURFACE WATER DRAINAGE

7.1 INTRODUCTION

- 7.1.1. The scope of the drainage section of this report is to provide a strategy for the management of surface water runoff from the Proposed Development, providing attenuation and restricting discharge to pre-development rates. With reference to Section 6.4, Flood Risk from Surface Water, the scope also covers how extreme rainfall events will be managed within the drainage system to ensure that the development does not increase flood risk either on-site or off-site.
- 7.1.2. Within this scope, the surface water drainage strategy addresses the direct impacts of the Proposed Development on a previously undeveloped site, where the introduction of impermeable surfaces will alter natural flow paths and reduce permeable areas.

7.2 EXISTING SURFACE WATER DRAINAGE

- 7.2.1. Data confirming the layout and levels of the surface water drainage network in the vicinity of the site are currently unavailable. Detailed information on the existing road network will be required to assess the potential for connectivity of exceedance flows from the proposed basins.
- 7.2.2. For the purposes of this report, it is assumed that surface water infrastructure exists to the east and west of the site along London Road and Mill Road, as indicated by road gullies visible on publicly available maps. The RSK report (RSK London Road 1920378-L01 (00), 2019) identifies a foul sewer network managed by Anglian Water and a distribution main network operated by Affinity Water. These datasets will be reviewed and incorporated during the detailed design stage to finalise the drainage design.
- 7.2.3. At present, there is no evidence of formal drainage infrastructure on the site, with runoff likely managed through natural infiltration, land drains, or naturally formed channels. As outlined in Section 6.4, Flood Risk from Surface Water, the site is subject only to minor areas of low risk in the south-west corner. Existing drainage on site is likely to be generally effective, although there may be areas of less efficient management within the defined low-risk zone.

7.3 DESIGN CRITERIA

PLANNING POLICY

- 7.3.1. The National Planning Policy Framework (NPPF) ensures that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest flood risk.
- 7.3.2. The National Standards for Sustainable Drainage Systems (SuDS) published by Department for Environment, Food & Rural Affairs (DEFRA) sets criteria for the assessment and design of surface water drainage systems for new developments.

DRAINAGE DESIGN OBJECTIVES

- 7.3.3. Sustainable drainage design is considered an integral part of managing flood risk in new developments. By adopting sustainable drainage solutions, the project will meet the objectives of the Hertfordshire County Council (HCC) SuDS Design Guidance, local strategy for flood risk management and national standards.

- 7.3.4. The SuDS design shall provide surface water runoff treatment to ensure mitigation of pollution hazards from the intended land use before infiltration to the ground.
- 7.3.5. The proposed SuDS design shall provide enhancement of biodiversity by creating beneficial habitats and contribute to the local amenity by providing opportunities for recreation.

7.4 PROPOSED SURFACE WATER DRAINAGE

- 7.4.1. Surface water runoff generated by the Proposed Development will be managed within the site boundary through a suitably designed surface water management strategy, prepared in line with the NPPF, the national standards and local drainage policies.
- 7.4.2. The surface water drainage strategy will ensure that the proposed development does not increase surface water flood risk downstream. All runoff arising from the site is intended to be contained within the site boundary with no discharge occurring through means other than that of exceedance flows in the event such conditions arise.
- 7.4.3. Part H of the Building Regulations: Drainage and Waste Disposal establishes a hierarchy for surface water disposal. This hierarchy stipulates that surface water runoff not collected for reuse must be discharged to one or more of the following in order of priority:
- Discharge into the ground (infiltration); or, where not reasonably practicable;
 - Discharge to a surface water body; or, where not reasonably practicable;
 - Discharge to a surface water sewer, highway drain, or another drainage system; or, where not reasonably practicable; and
 - Discharge to a combined sewer.
- 7.4.4. Discharge to ground is considered feasible owing to the high permeability of the underlying soils, as supported by the available geological information, trial pit records, and conservative assumptions regarding infiltration rates presented in this section.
- 7.4.5. The total impermeable catchment area associated with the proposed residential development, including access roads, recreational paths, cycle routes, and storage areas, has been identified as 1.44ha. To account for potential future urban creep, an additional 10% of the catchment area has been included in the assessment.
- 7.4.6. For the purposes of the outline drainage design, the catchment has been divided between two attenuation features. The first basin, located to the east, will receive runoff from a 1.10 ha catchment, while the second basin to the west will provide storage for runoff from a 0.34 ha catchment.
- 7.4.7. Based on indicative site levels, as shown in Section 2.3, Topography (Figure 1-2, LiDAR 1m DTM, EA 2022), the general flow of surface water is from the higher areas towards the proposed pond locations at the lower parts of the site.
- 7.4.8. In the eastern part of the site, surface water is expected to flow towards the south-eastern corner, where a conveyance swale, integrated into the landscaping can direct flows westwards to the basin. For the western catchment, surface water will be conveyed via a network of swales designed to direct runoff efficiently to the second basin located south of the proposed residential development.
- 7.4.9. It is envisaged that the spine road network through the site will be provided with traditional pipework carrier drainage as the primary means of surface water conveyance. Opportunities to integrate road

edge-collection measures with SuDS type features – such as roadside rain gardens and tree pits – will be explored further during the detailed design phase. Figure 7-1 provides a schematisation of the anticipated site-wide conveyance measures.



Figure 7-1 - Schematic of Primary Drainage Conveyance Measures

- 7.4.10. The figure below presents the locations of the two basins, with their size reflecting the results of the outline design and the footprint indicating the top surface area required. Corresponding dimensions are provided in Table 7-1.
- 7.4.11. The eastern basin (Infiltration Basin 1) is located immediately south of recreational paths and the residential development, while the western basin (Infiltration Basin 2) is positioned to the south of the residential development, between the development and recreational routes.
- 7.4.12. It is intended that the proposed SuDS features will also include source control measures for attenuation and water quality purposes - such as porous paving and green roofs, as effective means of run-off control. Such options would be explored during further stages of design development.
- 7.4.13. A designated area within the Proposed Development has been identified for the proposed surface water basins, intended to provide both storage and infiltration to ground. Two infiltration basins will receive stormwater runoff, delivering pollutant treatment and controlled discharge via infiltration.
- 7.4.14. The basins have been designed to manage the 1% AEP storm event with a 40% allowance for climate change, ensuring the system remains resilient under future conditions and in accordance with Lead Local Flood Authority (LLFA) requirements. Based on guidance received from Hertfordshire County Council, the attenuation systems have been sized using FEH2013 rainfall data with the runoff coefficient (Cv) set to 1, in line with LLFA specifications. The results of the greenfield runoff assessment and storage calculations are shown in Appendix E.



Figure 7-2 - Drainage Catchments and Infiltration Basins

- 7.4.15. Table 7-1 below provides a summary of the required infiltration basin volumes (with supporting calculations included in Appendix E), calculated on the basis of a 1 in 3 side slope and a water depth of 2 metres under the 1% (1 in 100) event with climate change allowance. Incorporating a 0.5 metre freeboard, the total design depth of the basins is 2.5 metres.
- 7.4.16. For the purposes of this preliminary design, a 0.5 metre freeboard has been applied as a guiding parameter in determining the maximum indicative footprint of the basins. However, in line with the CIRIA SuDS Manual (C753), a freeboard of 0.3 metres is generally considered sufficient. At the detailed design stage, the risks associated with flooding and exceedance events will be assessed, and an appropriate solution will be developed both to manage exceedance flows and to determine whether a reduction in freeboard is feasible.

Table 7-1 - Drainage Attenuation Results Summary

Attenuation Type Proposed	Drainage Catchment Imp. Area Incl. 10% Urban Creep (ha)	Allowable Discharge Rate Qbar (l/s)	Infiltration Coefficient (m/hr)	Attenuation Volume Required (m³)
Infiltration Basin 1	1.215	0.59	0.0108	1368
Infiltration Basin 2	0.341	0.18	0.0108	380

- 7.4.17. Vegetated detention basins will provide interception, with no runoff occurring during the majority of small rainfall events. Water will be absorbed into the basin's topsoil layer and subsequently managed through evapotranspiration and infiltration.
- 7.4.18. There is strong evidence from the geological maps contained within the RSK site report undertaken in 2019 (RSK London Road 1920378-L01 (00)) that the site is predominantly underlain by chalk bedrock. This is supported by trial pit records, which indicate that for depths up to 3.5 m, the ground comprises glaciofluvial deposits of medium-dense, slightly gravelly sand, with no groundwater encountered at these levels. The RSK site report is provided in the Appendix F of this report, with exploratory hole records included in Appendix D of the RSK report.
- 7.4.19. A supplementary ground investigation – including infiltration testing – was undertaken in December 2025. The infiltration tests were not trial pit-based soakaway tests undertaken in accordance with BRE 365, rather falling head tests undertaken within window sample boreholes. However, the results did indicate infiltration rates in two out of the three tests were at least an order of magnitude above the practicable threshold set by the LLFA: 4×10^{-4} m/s and 3.51×10^{-5} m/s. The factual report associated with this phase of ground investigation and infiltration tests is included in this report as Appendix G.
- 7.4.20. On this basis, it is reasonable to assume that infiltration basins could be accommodated within the site, with these assumptions broadly consistent with the Infiltration to Ground section of the National Standards for Sustainable Drainage Systems (DEFRA). Paragraph 1.15 of the guidance indicates that the base of infiltration features should be at least 1 m above the maximum groundwater level. This assumption remains subject to the results of infiltration testing across the site.
- 7.4.21. It should be noted, however, that the trial pit investigations were limited to the western part of the Proposed Development and did not provide full coverage across the entire site. At this stage, it is assumed that the ground conditions in the remaining areas will not differ significantly from those recorded, although this will be subject to confirmation through further site-specific investigations at the detailed design stage.

7.5 WATER QUALITY

- 7.5.1. The C753 CIRIA manual has informed the pollution hazard assessment using the mitigation indices methodology, which confirms that infiltration basins are effective in mitigating pollution risks arising from residential development and associated access roads. As the site is located above a Principal Aquifer, careful consideration will be required in the design of the basins to ensure that water quality is appropriately safeguarded. In line with CIRIA guidance, and based on the nature of the proposed

development, the indices approach confirms that infiltration basins are suitable, provided their detailed design gives due regard to aquifer protection.

7.6 SUDS OPERATION AND MAINTENANCE

- 7.6.1. Maintenance arrangements should be incorporated into the planning and management of new developments from the outset. Long-term management of SuDS features must be considered during the early design stages to ensure their continued effectiveness.
- 7.6.2. Suitable access for maintenance activities should be provided and, where appropriate, integrated with public pathways. The maintenance requirements for the infiltration basin are summarised in Table 7-2 below and include regular grass cutting, sediment removal, and inspection of associated components. In some instances, sediment testing may be required prior to excavation to determine suitable disposal methods in accordance with environmental guidance and regulatory requirements.

Table 7-2 - Infiltration Basin –Operation and maintenance requirements

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris.	Monthly
	Cut grass- for spillways and access routes.	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin.	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants.	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage.	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices.	Annually
	Tidy all dead growth before start of growing season.	Annually
	Remove sediment from inlets, outlet and forebay.	Annually (or as required)
	Manage wetland plants in outlet pool – where provided.	Annually

Maintenance schedule	Required action	Typical frequency
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required.	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseedling or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

SOURCE: CIRIA C753 SUDS MANUAL 2015

7.7 HIGHWAY DRAINAGE ATTENUATION BASIN

- 7.7.1. Surface water runoff from the adoptable highway access road will be routed to an infiltration basin located in the north-east corner of the site.
- 7.7.2. The basin has been designed to manage the 1% AEP storm event with a 40% allowance for climate change. An infiltration coefficient of 0.0108 m/hr has been assumed in the sizing. The infiltration basin has been designed to have a water depth of 1.0 m with 1 in 3 side slopes and a 0.15m freeboard, with supporting calculations provided in Appendix H. The basin receives runoff from the north-east road catchment, which has an area of approximately 0.107 ha, and provides an estimated attenuation volume of approximately 121 m³.

FLOOD RISK MITIGATION MEASURES

7.8 BRIEF CONSIDERATIONS

- 7.8.1. Following a review of the flood risks to the Proposed Development, the following section discusses the management measures proposed to ensure the Proposed Development remains safe over its lifetime and does not exacerbate flood risk to neighbouring property or land (including allowances for the effects of climate change).

7.9 PROPOSED MITIGATION MEASURES

SURFACE WATER FLOOD RISK

- 7.9.1. The southern sections of the site are subject to a low risk of surface water flooding during periods of intense rainfall. To mitigate this risk, the residential dwellings will be positioned away from the southern edges of the site where there is a slight risk of surface water flooding. In addition, all residential dwellings will be constructed with finished floor levels set at a minimum of 150 mm above adjacent ground levels.
- 7.9.2. Drainage basins have been proposed and designed to manage the 1% (1 in 100) storm event with a 40% allowance for climate change, ensuring the system remains resilient under future conditions and in accordance with Lead Local Flood Authority (LLFA) requirements.

GROUNDWATER FLOOD RISK

- 7.9.3. To protect against potential groundwater emergence, particularly during prolonged wet periods, the site will be designed to minimise deep excavations unless appropriate groundwater protection measures are implemented.

7.10 SAFE ACCESS AND EGRESS

- 7.10.1. The main vehicular access to the Proposed Development will be to / from London Road, with another access being provided to / from Mill Lane. Both roads are located within Flood Zone 1 and have a very low risk of surface water flooding, and therefore, can be used to access and exit the site during times of fluvial and tidal flood events, as well as periods of intense rainfall.

8 CONCLUSIONS

- 8.1.1. This Flood Risk Assessment (FRA) has been carried out with reference to the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG) – Flood Risk and Coastal Change, along with existing information available on the Environment Agency website, and local flood risk information available from North Hertfordshire District Council and Hertfordshire County Council (HCC) as the Lead Local Flood Authority (LLFA).
- 8.1.2. The Proposed Development is located entirely within Flood Zone 1, indicating an annual flood probability of less than 0.1% from rivers or the sea. Accordingly, the associated flood risk from these sources is classified as very low.
- 8.1.3. The Proposed Development is predominantly located in an area of very low risk of surface water flooding with localised areas of low risk to the southern edges of the site. Therefore, the overall flood risk from surface water is low.
- 8.1.4. The risk of groundwater flooding is considered low, based on site geology, soil characteristics, and available groundwater data. However, the potential for groundwater emergence during extreme rainfall events is acknowledged, and further site-specific infiltration and groundwater monitoring is recommended at the detailed design stage.
- 8.1.5. The risk of flooding from sewers is low, with no evidence of drainage infrastructure within the site. In addition, The risk from artificial sources (reservoirs, canals, etc.) is negligible, with no such features in proximity to the site.
- 8.1.6. A surface water drainage strategy has been designed in accordance with the National Standards for Sustainable Drainage Systems, and HCC's SuDS guidance.
- 8.1.7. Surface water runoff will be managed on-site via two infiltration basins, sized to accommodate the 1% (1 in 100) storm event plus a 40% climate change allowance, ensuring resilience to future conditions.
- 8.1.8. The drainage design incorporates SuDS features such as infiltration basins, swales, and provision for source control measures (e.g., permeable paving, green roofs), which will be further developed at the detailed design stage.
- 8.1.9. Finished floor levels for all dwellings will be set a minimum of 150 mm above adjacent ground levels to provide additional protection against surface water and groundwater emergence.
- 8.1.10. Safe access and egress will be maintained via London Road and Mill Lane, both of which are in Flood Zone 1 and at very low risk of flooding.