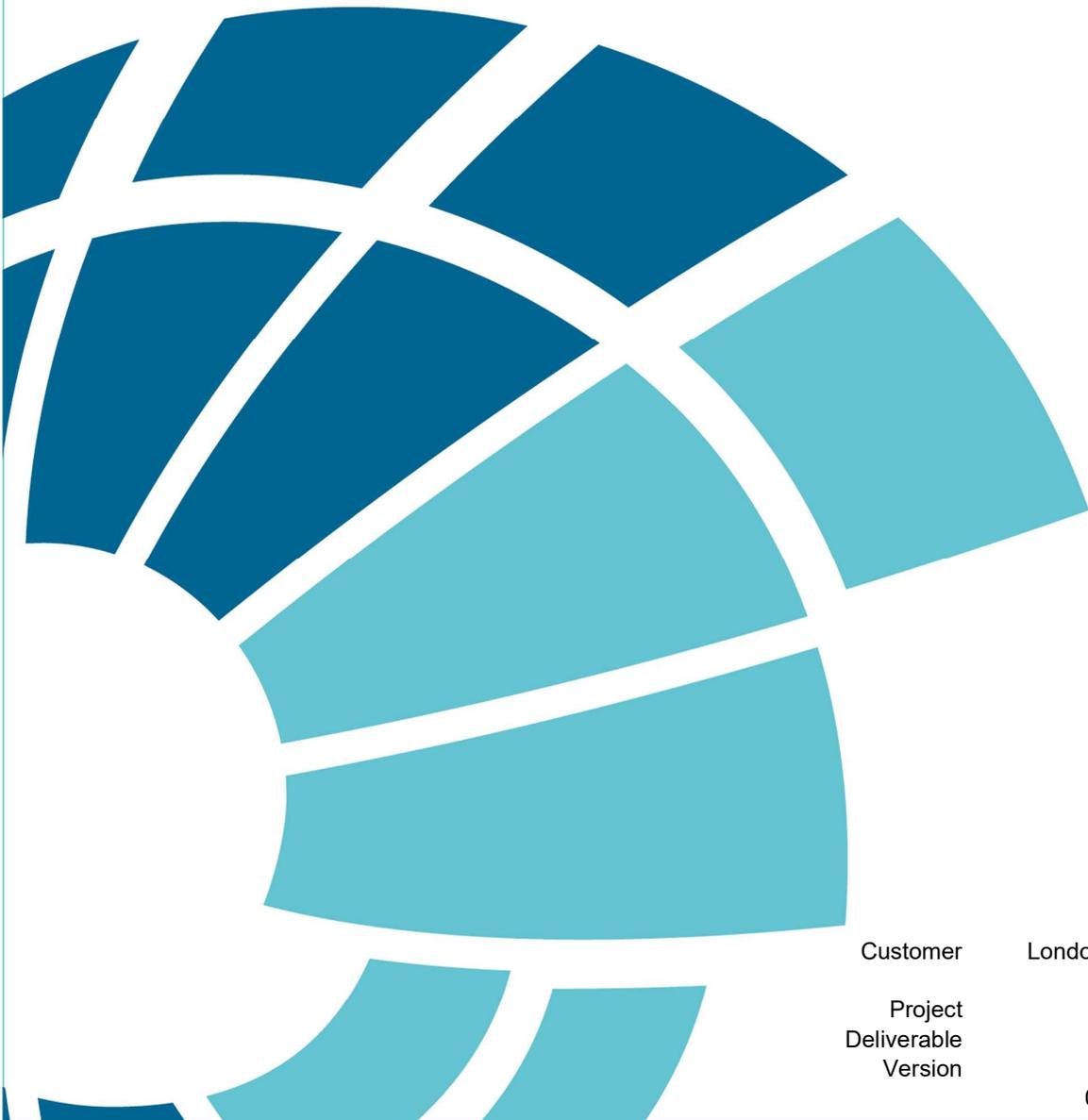


# London Borough of Enfield Level 2 SFRA Initial Site Assessment



Customer	London Borough of Enfield
Project	600819
Deliverable	1
Version	3.0
	09 June 2021



## Document Control

### Document Identification

Title	London Borough of Enfield Level 2 SFRA Initial Site Assessment
Project No	600819
Deliverable No	1
Version No	3.0
Version Date	23 June 2021
Customer	London Borough of Enfield
Classification	BMT (OFFICIAL)
Author	Stephen Henry
Checked By	Stephanie Dufour
Certified By	-
Approved By	Stephanie Dufour
Project Manager	Stephen Henry

### Amendment Record

The Amendment Record below records the history and issue status of this document.

Version	Version Date	Distribution	Record
1.0	19 May 2021	LBE	Draft Issue
2.0	09 June 2021	LBE	Final Issue
3.0	23 June 2021	LBE	Final Issue

This report is prepared by BMT Group Ltd ("BMT") for the use by BMT's client (the "Client"). No third party may rely on the contents of this report. To the extent lawfully permitted by law all liability whatsoever of any third party for any loss or damage howsoever arising from reliance on the contents of this report is excluded.

Where this report has been prepared on the basis of the information supplied by the Client or its employees, consultants, agents and/or advisers to BMT Group Ltd ("BMT") for that purpose and BMT has not sought to verify the completeness or accuracy of such information. Accordingly, BMT does not accept any liability for any loss, damage, claim or other demand howsoever arising in contract, tort or otherwise, whether directly or indirectly for the completeness or accuracy of such information nor any liability in connection with the implementation of any advice or proposals contained in this report insofar as they are based upon, or are derived from such information. BMT does not give any warranty or guarantee in respect of this report in so far as any advice or proposals contains, or is derived from, or otherwise relies upon, such information nor does it accept any liability whatsoever for the implementation of any advice recommendations or proposals which are not carried out under its control or in a manner which is consistent with its advice.

## 1 Introduction

London Borough of Enfield (LBE) have commissioned BMT to undertake an initial assessment of flood risk to the proposed development sites being considered for the Local Plan update. This document assesses flooding from a range of flood sources to each of the 62 sites. The findings from the assessment are included as a separate report for each site within Appendix A. This Technical Note is intended to be used as a guide to aid readers in understanding the information and implications of the site-specific data.

This document has been developed to support LBE in the site sift to refine the sites to be allocated for planning within the Local Plan, and to support LUC PLC in the Integrated Impacts Assessment (IIA) being prepared in support of the Regulation 18 requirements.

Table 1 shows the flooding sources that have been assessed, the designation assigned to each site and the data sources used to support the designations. A Matrix identifying which sites meets which criteria is also included in Appendix B.

*Table 1 - Assessment of Flooding Sources*

Flooding Source	Assessment Criteria	Data Sources
Fluvial (Rivers)	Does the site fall within Environment Agency (EA) Flood Zones 1, 2 or 3?	EA Flood Map for Planning from Rivers and Sea
Surface Water	Is the site within a Critical Drainage Area?  Does the site have predicted peak flood depths of greater than 150mm and 300mm on site in the 1% rainfall event?	LBE Critical Drainage Area data  Edenvale Young Surface Water Flood Modelling results for the Salmons and Pymmes, and National Mapping for the Turkey Brook and Lee Valley catchments
Ground Water	What is the degree of Susceptibility to Groundwater Flooding?  Is the site within 100m of a historic groundwater flooding incident?	Environment Agency Areas Susceptible to Groundwater Flooding (ASTGWF) Map  LBE Historic flood risk incident dataset
Sewers	Is the site within 100m of a historic sewer flooding incident?	LBE Historic flood risk incident dataset

In addition to the above, flood risk from artificial sources (i.e. flood risk from reservoirs, the New River etc.) will be assessed for the sites that require a detailed assessment, however this data has not been made available for use in this initial assessment. Flooding from these sources would be classified as residual risk; flood risk that remains after risk management and mitigation. The Planning Practice Guidance<sup>1</sup> requires that where residual flood remains it must be shown to be safely managed. Site-

<sup>1</sup> <https://www.gov.uk/government/collections/planning-practice-guidance>

specific FRAs should demonstrate consideration and management of residual flood risk at the Planning stage.

## 2 Methodology

---

In order to assess the flood risk associated with each proposed development site, the below methodology was carried out:

- Collection of data sources noted within Section 1.
- Review and preparation of the datasets.
- Preparation of an interface within waterRIDE™ FLOOD Manager software, incorporating all required datasets.
- Development of a template report that covers the required elements of the assessment.
- Automation of the report outputs for each site, to output one report per site.
- Review of the output deliverables.

### 3 Assessment of Flood Risk

---

This section explains the approach taken to assess flood risk to each site, and to assist with interpreting the data provided for each site within Appendix A. In addition to the data presented within this report, reference should be made to Section 1 of the Level 1 Strategic Flood Risk Assessment to further understand specific requirements relating to site specific flood risk assessments.

#### 3.1 Fluvial Flood Risk

An assessment of fluvial (river) flooding has been carried out to determine whether or not each site falls within the EA designated Flood Zones. This assessment for each site is included within Appendix A, identifying the relevant flood zones and a map to indicate which areas of the site fall within which flood zone. It should be noted that the EA Flood Zones relate to flood risk from both rivers and the sea, however due to Enfield's geographic location, the flood risk referred to within this section relates to rivers only, as there are no sources of flood risk from the sea relevant to Enfield.

The Flood Zones are defined as follows:

- Flood Zone 3 Land having a 1 in 100 or greater annual probability of river flooding;
- Flood Zone 2 Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding;
- Flood Zone 1 Land having a less than a 1 in 1,000 annual probability of river flooding.

The Flood Zones are defined using the National Fluvial mapping undertaken on behalf of the EA and are used to guide development away from high flood risk zones and towards area with a lower flood risk.

In order to determine what land uses are compatible, the National Planning Policy Framework (NPPF) guidance for Flood Risk and Coastal Change<sup>2</sup> should be referenced. These tables are included within Appendix C of this report and explain the following:

- Table 1 defines the EA Flood Zones;
- Table 2 defines the vulnerability classification of land use types e.g. Basement Dwellings are defined as 'More Vulnerable';
- Table 3 determines which vulnerability classification is compatible with which Flood Zone.

Using these tables and the information provided for each site within Appendix A it is possible to determine the flood zones within each site, the vulnerability classification of the proposed development and therefore whether or not that land use is appropriate for the site. In accordance with the NPPF '*Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding*'.

For sites that require an Exception Test in accordance with Table 3, the site will need to demonstrate:

- (a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and
- (b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

---

<sup>2</sup> <https://www.gov.uk/guidance/flood-risk-and-coastal-change> (MHCLG, 2014)

### 3.2 Surface Water Flood Risk

An assessment of risk from surface water flooding has been carried out to each proposed site. The assessment for each site is included within Appendix A, based on two criteria:

- Is the site within a Critical Drainage Area (CDA), and
- Does the site have predicted peak flood depths greater than 150mm and 300mm in the modelled 100 year (1% Annual Exceedance Probability) rainfall event.

The CDAs have been defined and identified by LBE during the development of the Borough wide Surface Water Management Plan<sup>3</sup>.

The flood depths on site have been defined using the surface water hydraulic modelling developed for the Pymmes Brook and Salmons Brook catchments by Edenvale Young and the national surface water mapping for the Turkey Brook catchment and the River Lee catchments.

CDAs and surface water flooding may not directly impact the proposed development types appropriate for each site, however for sites within CDAs, or with significant surface water depths, further design work and liaison with LBE Lead Local Flood Authority may be required to understand the implications of surface water flooding to the proposed development.

### 3.3 Groundwater Flood Risk

An assessment of groundwater flood risk has been carried out on the available data to determine the risk to each proposed site. The assessment for each site is based on two criteria:

- The susceptibility of the site to groundwater flooding, based on a range of: <25%, 25-50%, 50-75% and >75%; and
- Whether the site is within 100m of a historic groundwater flooding incident.

Groundwater flood risk may not directly impact the proposed development types, however if the site is within an area susceptible to groundwater flooding, or has known groundwater flooding incidents in the past, additional investigations may be required to understand the risks and possible mitigation required. A groundwater flood risk assessment is recommended for any development in groundwater flood risk areas that involve the creation of useable space below ground.

It should also be noted that the ASTGWF data set does not have a good historic correlation with historic events and the draft Level 1 SFRA<sup>4</sup> notes that the dataset is therefore not representative of groundwater flood risk in LBE.

### 3.4 Sewer Flood Risk

An assessment of sewer flood risk has been carried on the available data to determine the likely flood risk to each proposed site. The assessment for each site is based on whether the site is within 100m of a historic groundwater flooding incident.

For sites that have historic sewer incidents nearby, liaison with Thames Water to understand the cause and implications of these incidents may be required, including capacity issues, upgrades planned and impact of the future development on the public sewer network.

---

<sup>3</sup> Surface Water Management Plan (London Borough of Enfield, 2012)

<sup>4</sup> Level 1 Strategic Flood Risk Assessment (LBE, 2021)

## 4 Summary

---

This report has been developed to guide users to interpret the assessment of flood risk to the proposed initial sites considered for the LBE Local Plan review. It outlines the methodology used for the assessment, the explanation of each data source and the implications of the findings of the assessment. A separate report for each of the 62 sites included in Appendix A.