

# Level 2 Strategic Flood Risk Assessment

London Borough of Croydon

Project number: 60602685

November 2021

## Quality information

<b>Prepared by</b>	<b>Checked by</b>	<b>Verified by</b>	<b>Approved by</b>
Lauren Lewis Water Consulting Apprentice	Sarah Littlewood Principal Consultant	Emily Craven Associate	Emily Craven Associate

## Revision History

<b>Revision</b>	<b>Revision date</b>	<b>Details</b>	<b>Authorized</b>	<b>Name</b>	<b>Position</b>
1	14 <sup>th</sup> October 2020	Draft Report	EC	Emily Craven	Associate
2	25 <sup>th</sup> August 2021	Final Report	SL	Sarah Littlewood	Principal Consultant
3	17 <sup>th</sup> November 2021	Revisions to sites in Appendices A and B	SL	Sarah Littlewood	Principal Consultant

### Prepared for:

London Borough of Croydon

### Prepared by:

AECOM Limited  
Midpoint, Alencon Link  
Basingstoke  
Hampshire RG21 7PP  
United Kingdom

T: +44(0)1256 310200  
aecom.com

© 2021 AECOM Limited. All Rights Reserved.

This document has been prepared by AECOM Limited (“AECOM”) for sole use of our client (the “Client”) in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

## Table of Contents

1.	Introduction.....	1
1.1	Terms of reference.....	1
1.2	Project Background.....	1
1.3	Level 1 SFRA.....	1
1.4	Exception Test.....	2
2.	Level 2 SFRA.....	2
2.1	Datasets.....	2
2.2	Site Proformas.....	7
2.3	Future Updates.....	9
	Appendix A Areas of Focused Intensification.....	10
	Appendix B Areas of Moderate Intensification.....	11
	Appendix C Sites requiring Exception Test.....	12
	Appendix D Other Sites.....	13

## Tables

Table 1-1	Flood risk vulnerability and Flood Zone 'compatibility' (PPG, 2014).....	2
Table 1-2	Datasets and information used for Level 2 Site Proformas.....	8

# 1. Introduction

## 1.1 Terms of reference

- 1.1.1 AECOM has been commissioned by the London Borough of Croydon to review and update their Level 1 and Level 2 Strategic Flood Risk Assessments (SFRA).

## 1.2 Project Background

- 1.2.1 The [National Planning Policy Framework](#)<sup>1</sup> (NPPF) and associated [Planning Practice Guidance](#) for Flood Risk and Coastal Change (PPG)<sup>2</sup> set out the active role Local Planning Authorities (LPAs) should take to ensure that flood risk is understood and managed effectively and sustainably throughout all stages of the planning process. The NPPF outlines that Local Plans should be supported by a Strategic Flood Risk Assessment (SFRA) and LPAs should use the findings to inform strategic land use planning. The overall approach of the NPPF to flood risk is broadly summarised Paragraph 103:

*When determining planning applications, LPAs should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where, informed by a site-specific FRA following the Sequential Test, and if required the Exception Test, it can be demonstrated that:*

- *within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location, and*
- *development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by*

## 1.3 Level 1 SFRA

- 1.3.1 The Level 1 SFRA has been updated for the Borough<sup>3</sup>. The purpose of the Level 1 SFRA is to collate and analyse the most up to date readily available flood risk information for all sources of flooding and provide an overview of flood risk issues across the study area.
- 1.3.2 The Level 1 SFRA provides guidance on:
- The application of the Sequential Test by London Borough of Croydon when allocating future development sites to inform their Local Plans, as well as by developers promoting development on windfall sites.
  - Managing and mitigating flood risk, the application of sustainable drainage systems (SuDS), and the preparation of site-specific Flood Risk Assessments (FRAs).
  - Potential flood risk management objectives and policy considerations which may be developed and adopted by the London Borough of Croydon as formal policies within their developing Local Plans.
- 1.3.3 Using the strategic flood risk information presented within the Level 1 SFRA, London Borough of Croydon have undertaken the Sequential Test to document the process whereby future development is steered towards areas of lowest flood risk.

<sup>1</sup> Department for Communities and Local Government. 2012. *National Planning Policy Framework*. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework-2>

<sup>2</sup> Department for Communities and Local Government. 2014. *Planning Practice Guidance: Flood Risk and Coastal Change*. Available at: <http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/>

<sup>3</sup> AECOM, September 2020, Level 1 Strategic Flood Risk Assessment for London Borough of Croydon.

## 1.4 Exception Test

- 1.4.1 Where it is not possible to accommodate potential development sites outside those areas identified to be at risk of flooding, the Exception Test may be required, as set out in Table 1-1. The purpose of the Exception Test is to ensure that where it may be necessary to locate development in areas at risk of flooding, new development is only permitted in Flood Zone 2 and Flood Zone 3 where the flood risk is clearly outweighed by other sustainability factors and where the development will be safe during its lifetime, considering climate change.
- 1.4.2 The NPPF states that for the Exception Test to be passed:
- Part 1 - “It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by the SFRA where one has been prepared; and
  - Part 2 - A site-specific Flood Risk Assessment must demonstrate that 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.”
- 1.4.3 Both elements of the test will have to be passed for development to be allocated or permitted.
- 1.4.4 In order to determine Part 1 of the Exception Test, applicants should assess their scheme against the objectives set out in the LPA’s Sustainability Appraisal<sup>4</sup>. In order to demonstrate satisfaction of Part 2 of the Exception Test, relevant flood risk management and mitigation measures should be applied and demonstrated within a site-specific flood risk assessment (FRA). Section 6 ‘Managing and Mitigating Flood Risk’ and Section 7 ‘Site Specific Flood Risk Assessments’ within the Level 1 SFRA should be referred to in order to support Part 2 of the Exception Test.

**Table 1-1 Flood risk vulnerability and Flood Zone ‘compatibility’ (PPG, 2014)**

	Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	1	✓	✓	✓	✓	✓
	2	✓	✓	Exception Test Required	✓	✓
	3a	Exception Test Required	✓	✗	Exception Test Required	✓
	3b	Exception Test Required	✓	✗	✗	✗

✓ - Development is appropriate    ✗ - Development should not be permitted

## 2. Level 2 SFRA

### 2.1 Datasets

- 2.1.1 This report comprises the Level 2 SFRA for the London Borough of Croydon. The scope of the Level 2 SFRA is to consider the detailed nature of the flood characteristics within a flood zone including, where appropriate and the data is available:
- flood probability
  - flood depth
  - flood velocity
  - rate of onset of flooding, and

<sup>4</sup> London Borough of Croydon, September 2016, Sustainability Appraisal Report. <https://new.croydon.gov.uk/planning-and-regeneration/planning/planning-evidence-and-information/sustainability-appraisal-and-health-impact-assessment>

- duration of flood.

2.1.2 For the Croydon study area, the following sources of information have been obtained.

## River Wandle Modelling Outputs

2.1.3 In August 2017, JBA Consulting on behalf of the Environment Agency updated the hydraulic model for the River Wandle to account for the climate change allowances at that time, which included the following:

- 2080s Central allowance: 25%
- 2080s Higher central allowance: 35%
- 2080s Upper end allowance: 70%

2.1.4 The outputs from this model have been provided for use in the Level 2 SFRA for sites within the Wandle floodplain, including the Norbury Brook.

2.1.5 The climate change allowances have since been revised in July 2021<sup>5</sup> and are now as follows:

- 2080s Central allowance: 17%
- 2080s Higher central allowance: 27%
- 2080s Upper end allowance: 54%

**2.1.6 As a result, the assessment that has been undertaken provides a conservative assessment for the Level 2 SFRA.**

2.1.7 Outputs showing the maximum flood depth and hazard rating associated with flooding from the River Wandle and Norbury Brook watercourses are presented within this Level 2 SFRA. It is noted that information on the rate of onset of flooding the duration of flooding has not been made available for this modelling.

2.1.8 Flood hazard mapping categorises the danger to people for different combinations of flood water depth and velocity. The derivation of these categories is based on the methodology set out by Defra in Flood Risks Assessment Guidance for New Development FD2320/TR2<sup>6</sup> using the following equation:

*Flood Hazard Rating = ((v+0.5)\*D) + DF Where v = velocity (m/s), D = depth (m), DF = debris factor*

Flood Hazard		Description
Low	HR < 0.75	Caution – Flood zone with shallow flowing water or deep standing water
Moderate	0.75 ≥ HR ≤ 1.25	Dangerous for some (i.e. children) – Danger: flood zone with deep or fast flowing water
Significant	1.25 > HR ≤ 2.0	Dangerous for most people – Danger: flood zone with deep fast flowing water
Extreme	HR > 2.0	Dangerous for all – Extreme danger: flood zone with deep fast flowing water

## Risk of Flooding from Surface Water

### Flood Extents

2.1.9 The outputs of the Environment Agency's Risk of Flooding from Surface Water (RoFSW) mapping include GIS layers showing the extent of flooding from surface water that could result from a flood with a 3.33%, 1% and 0.1% chance of happening in any given year.

2.1.10 It is noted that the Risk of Flooding from Surface Water is not to be used at property level. Because of the way they have been produced and the fact that they are indicative, the maps are not appropriate to act as the sole evidence for any specific planning or regulatory decision or assessment of risk in relation to flooding at any scale without further supporting studies or evidence. However, the mapping provides

<sup>5</sup> Environment Agency, Updated July 2021 Flood risk assessments: climate change allowances <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

<sup>6</sup> Defra and Environment Agency (2005) FD2320/TR2 Flood Risk Assessment Guidance for New Development

a useful source of information to identify the risk of surface water flooding to the wider area in which a site is located, and the general patterns of surface water flow and ponding.

### Depth Mapping

- 2.1.11 The depth maps for the 1% AEP (1 in 100 year) and 0.1% AEP (1 in 1000 year) modelled events have been used within the site proformas to provide a high level indication of the level of risk posed to sites and wider areas.

## Surface Water Modelling

- 2.1.12 London Borough of Croydon secured Defra funding to update local surface water modelling and Risk of Flooding from Surface Water (RoFSW) mapping information, as part of the Boosting Action for Surface Water programme. Arcadis Consulting (UK) Limited were subsequently commissioned by London Borough of Croydon to undertake detailed and up-to-date surface water modelling for two key Critical Drainage Areas (CDAs) covering the Purley Cross to River Wandle CDA and Caterham Drive area<sup>7</sup>.
- 2.1.13 The project required the development of a detailed and integrated 1D-2D hydraulic model of the catchment to provide the necessary resolution and confidence in the prediction of flood depths and extent, commensurate with the requirements for the Environment Agency RoFSW.
- 2.1.14 The outputs from this modelling have been used to inform this Level 2 SFRA, where coverage is available. The maximum depth outputs and hazard outputs have been presented for both the 1% AEP (1 in 100 year) event the 0.1% AEP (1 in 1000 year) event.
- 2.1.15 Where these outputs are available, these have been referred to in place of the existing RoFSW outputs.

### BGS Susceptibility to Groundwater Flooding

- 2.1.16 The BGS Susceptibility to Groundwater Flooding dataset has been used to undertake a high level screening of the sites in London Borough of Croydon in combination with recorded groundwater flooding records.
- 2.1.17 It is noted that this dataset cannot be used on its own to indicate risk of groundwater flooding and should not be used to inform planning decisions at a site scale. It is suitable for use in conjunction with a large number of other factors, e.g. records of previous incidence of groundwater flooding, to establish relative risk of groundwater flooding.

## Sites for Assessment

- 2.1.18 The Level 2 SFRA provides an assessment of 'Areas of Focussed Intensification' (AFI), 'Areas of Moderate Intensification' (AMI) and specific development sites which have been identified by London Borough of Croydon. The sites have been grouped as described below and presented in Appendices A - D.

### Appendix A: Areas of Focussed Intensification

- 2.1.19 London Borough of Croydon have identified 5 Areas of Focussed Intensification (AFI). An assessment of the flood risk posed to these areas has been made and presented in Appendix A.
- AFI3 North of Coulsdon District Centre
  - AFI4 Reedham station / North and West of Purley District Centre
  - AFI5 Brighton Road
  - AFI6 Forestdale
  - AFI7 London Road (West Croydon to Thornton Heath Pond)

<sup>7</sup> Arcadis, July 2020, Croydon Surface Water Modelling and Mapping Technical Report – RoFSW Update Purley Cross to River Wandle CDA and Caterham Drive Area.

## Appendix B: Areas of Moderate Intensification

2.1.20 London Borough of Croydon have identified 10 Areas of Moderate Intensification (AMI). An assessment of the flood risk posed to these areas has been made and presented in Appendix B.

- AMI2 Coulsdon South
- AMI3 Waddon
- AMI4 Purley East
- AMI5 Purley/Kenley
- AMI6 Selsdon
- AMI7 South Croydon/Sanderstead
- AMI8 Purley North
- AMI9 Addiscombe (cluster of 2)
- AMI10 Purley/Coulsdon
- AMI11 Kenley Station

## Appendix C: Sites where the Exception Test is required

2.1.21 Development sites where Highly Vulnerable or More Vulnerable development is proposed in Flood Zone 2 and/or 3 and which therefore require the application of the Exception Test in accordance with the matrix in Table 1-1 are presented in the assessment sheets in Appendix B.

- Site 35: Purley Baptist Church, 2-12 Banstead Road
- Site 54: 375-401 Brighton Road
- Site 101: Toby Carvery, Brantwood Road
- Site 324: Purley Oaks Depot, 505-600 Brighton Road
- Site 347: Tesco, 2 Purley Road
- Site 405: Capella Court & Royal Oak Centre, 725 Brighton Road
- Site 411: Palmerston House, 814 Brighton Road
- Site 683: Purley Back Lanes, 16-28 Pampisford Road
- Site 946: Stubbs Mead Depot, Factory Lane

## Appendix D: Other Sites

2.1.22 Site assessments have been provided for the following development sites. Based on the vulnerability classification of the proposed development and the Flood Zone classification these do not currently require the application of the Exception Test (Table 1-1), however they have been included within the Level 2 SFRA for one or more of the following reasons:

- i. The site is in Flood Zone 3 and the proposed use is Less Vulnerable. The Exception Test is not currently required, but in the event More Vulnerable development types (i.e. residential) are added to the site, the Exception Test would be needed.
- ii. Whilst not in Flood Zone 3 currently, the site is still at fluvial flood risk (i.e. Flood Zone 2) or will be in the future when looking at the climate change modelling for the River Wandle.
- iii. The site is at risk of surface water flooding (defined as within a Critical Drainage Area) and consideration of how the development can be safe should be made as part of a site proforma.

2.1.23 The following sites have been assessed:

- Site 1: Land Fronting North Downs Road and Overbury Crescent
- Site 2: Blackhorse Lane Station
- Site 28: Bowyers Yard, Bedwardine Road
- Site 30: Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street



- Site 40: West Croydon Bus Station
- Site 41: Direct Line House, 3 Edridge Road
- Site 47: 3-7 Park Street
- Site 51: Land and car park between Belgrave Road and Grosvenor Road
- Site 58: 140 & 140a Hermitage Road
- Site 59: Garages at rear of 96 College Green and land at Westow Park, Upper Norwood
- Site 61: Car park, 54-58 Whytecliffe Road South
- Site 64: 112a and 112b Brighton Road
- Site 85: The Forestdale Centre
- Site 106: CACFO, 40 Northwood Road
- Site 123: Prospect West and car park to the rear of, 81-85 Station Road
- Site 125: Sainsburys, Trafalgar Way
- Site 130: 1-9 Banstead Road
- Site 136: Supermarket, car park, 54 Brigstock Road
- Site 144: Sofology
- Site 147: IKEA
- Site 149: Tesco, Thornton Heath
- Site 184: 1-19 Derby Road
- Site 190: Car park to the rear of Leon House, 22-24 Edridge Road
- Site 194: St George's Walk, Katharine House and Park House, Park Street
- Site 203: West Croydon station and shops, 176 North End
- Site 211: Poplar Walk car park and, 16-44 Station Road
- Site 220: 9-11 Wellesley Road
- Site 222: Multi-storey car park, 1 Whitgift Street
- Site 231: Segas House, Park Lane
- Site 284: Asharia House, 50 Northwood Road
- Site 314: Valley Park (B&Q and Units A-G Daniell Way), Hesterman Way
- Site 326: Ambassador House, 3-17 Brigstock Road
- Site 332: Superstores, Drury Crescent
- Site 334: Valley Leisure Park, Hesterman Way
- Site 351: Furniture Village, 222 Purley Way
- Site 355: 2 Trafalgar Way
- Site 357: Norwood Heights Shopping Centre, Westow Street
- Site 372: Car park, Lion Green Road
- Site 374: Reeves Corner former buildings, 104-112 Church Street
- Site 393: Whitgift Centre, North End
- Site 410: 100 Brighton Road
- Site 490: 95-111 Brighton Road and 1-5, 9-15 and 19 Old Lodge Lane
- Site 495: Dairy Crest dairy, 823-825 Brighton Road
- Site 504: Stroud Green Pumping Station, 140 Primrose Lane

- Site 937: Kempsfield House, 1 Reedham Park Avenue
- Site 945: Waitrose, 110-112 Brighton Road
- Site 948: 230 Addington Road
- Site 951: 1485-1489 London Road

## 2.2 Site Proformas

- 2.2.1 Site assessment proformas have been prepared for each of the AFIs, AMIs and development sites identified above to assess the risk of flooding from all sources and provide recommendations for how development could be delivered on the site that would 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.
- 2.2.2 Table 2-1 provides an overview of the content of the site proformas. The datasets used in the Level 2 SFRA are described in full in Section 2.1 and the Level 1 SFRA<sup>8</sup>.
- 2.2.3 Not all of the datasets are relevant to all the sites. For example, where a site is not within the floodplain of the River Wandle Figures 2 and 3 within the proforma will not contain any data.
- 2.2.4 When assessing the risk from surface water flooding, the Arcadis surface water modelling outputs should be used preferentially (Figures 7-10). However, for sites not covered by the additional surface water modelling, the RoFSW outputs are used (Figures 4-6).

---

<sup>8</sup> AECOM, September 2020, Level 1 Strategic Flood Risk Assessment for London Borough of Croydon.

Table 2-1 Datasets and information used for Level 2 Site Proformas

Proforma Field	Dataset / information used
<b>Site Name</b>	As provided by London Borough of Croydon.
<b>Site ID</b>	As provided by London Borough of Croydon.
<b>Area (ha)</b>	The area of the site (hectares).
<b>Proposed use</b>	As provided by London Borough of Croydon. Where this was not specified, mixed-use including residential has been assumed.
<b>Vulnerability classification</b>	Based on proposed use and in accordance with PPG Flood Risk and Coastal Change Table 1.
<b>Flood Zone and Historic Flooding</b>	
<b>Proportion within each Flood Zone and Areas Benefitting from Defences</b>	Flood Map for Planning (Rivers and Sea) Flood Zone 2; Flood Map for Planning (Rivers and Sea) Flood Zone 3; Flood Map for Planning (Rivers and Sea) Areas Benefitting from Defences; Level 1 SFRA Flood Zone 3b Functional Floodplain outline.
<b>Figure 1</b>	Map containing Site Boundaries, Watercourses, Flood Zones, ABD, Flood Records.
<b>Flood Warning Area</b>	Name of the Environment Agency Flood Warning Area that covers the site.
<b>Flood Records within 500m of the site</b>	As provided by London Borough of Croydon.
<b>River Flooding</b>	
<b>Figure 2</b>	Maximum Flood Depth Map for the River Wandle and Norbury Brook for the 1% AEP event including climate change. River Wandle (including the Norbury Brook) Climate Change Modelling, August 2017, JBA Consulting on behalf of the Environment Agency. Defended flood event information for the 1% AEP event including 35% increase in flow for climate change.
<b>Figure 3</b>	Maximum Flood Hazard Map for the River Wandle and Norbury Brook for the 1% AEP event including climate change. River Wandle (including Norbury Brook) Climate Change Modelling, August 2017, JBA Consulting on behalf of the Environment Agency. Defended flood event information for the 1% AEP event including 35% increase in flow for climate change.
<b>Surface Water Flooding</b>	
<b>Critical Drainage Area</b>	As defined in the Surface Water Management Plan and Level 1 SFRA for London Borough of Croydon <sup>9</sup> . Defined as 'a discrete geographic area (usually within an urban setting) where there may be multiple and interlinked sources of flood risk and where severe weather is known to cause flooding of the area thereby affecting people, property or local infrastructure'. The CDAs for the London Borough of Croydon are not restricted to Flood Zone 1.
<b>Drainage Catchment</b>	As defined in the Level 1 SFRA for London Borough of Croydon <sup>9</sup> . Drainage catchments outline the area of the land that influences the surface water drainage at a certain point. The scale of a drainage catchment varies depending on the point of interest. The extent of a natural drainage catchment follows peaks in the local topography that surface water will drain from. The DCs determined in this study are based on the natural catchments and watersheds that cover the four boroughs, which are provided within the Flood Estimation Handbook CD-ROM and have then been amended using local knowledge to account for significant infrastructure within the study area that could impact on drainage such as railway lines.
<b>Figure 4</b>	Risk of Flooding from Surface Water outputs. The extent of surface water flooding during the 3.3%, 1% and 0.1% AEP modelled events.
<b>Figure 5</b>	Risk of Flooding from Surface Water outputs. The depth of flooding during the 1% AEP event.
<b>Figure 6</b>	Risk of Flooding from Surface Water outputs. The depth of flooding during the 0.1% AEP event.
<b>Figure 7</b>	Arcadis Surface Water Modelling. Flood Depth (m). 1% AEP event.
<b>Figure 8</b>	Arcadis Surface Water Modelling. Flood Hazard Rating. 1% AEP event.
<b>Figure 9</b>	Arcadis Surface Water Modelling. Flood Depth (m). 0.1% AEP event.
<b>Figure 10</b>	Arcadis Surface Water Modelling. Flood Hazard Rating. 0.1% AEP event.
<b>Groundwater Flooding</b>	
<b>Bedrock Geology</b>	Bedrock geology underlying the site, based on BGS mapping.
<b>Superficial Geology</b>	Superficial geology underlying the site, based on BGS mapping.
<b>Within an area of increased potential for elevated groundwater</b>	As identified in the SWMP <sup>9</sup> , the increased Potential for Elevated Groundwater map shows those areas where there is an increased potential for groundwater to rise sufficiently to interact with the ground surface or be within 2 m of the ground surface. Such groundwater rise could lead to the following consequences: <ul style="list-style-type: none"> <li>- flooding of basements of buildings below ground level</li> <li>- flooding of buried services or other assets below ground level</li> <li>- inundation of farmland, roads, commercial, residential and amenity areas.</li> <li>- flooding of ground floors of buildings above ground level, and</li> <li>- overflowing of sewers and drains.</li> </ul>

<sup>9</sup> Capita AECOM, 2011, London Borough of Croydon Surface Water Management Plan.

	<p>Areas not shown to have increased potential for elevated groundwater should be considered to have a low potential for elevated groundwater – Lack of information does not imply 'no potential' of elevated groundwater in that area.</p> <p>Includes groundwater flood mapping provided by JBA Consulting, Copyright © Jeremy Benn Associates Limited 2008 - 2011, partially derived from data supplied by the Environment Agency.</p>
<b>Susceptibility to Groundwater Flooding</b>	<p>The BGS dataset 'Susceptibility to Groundwater Flooding' is divided into three classes; (1) High – areas with the potential for groundwater flooding to occur at the surface; (2) Medium – areas which may experience groundwater flooding of property situated below the ground surface i.e. basements; (3) Low – areas with limited potential for groundwater flooding to occur. Further information is provided in Section 4.4 of the Level 1 SFRA.</p>
<b>Other sources</b>	
<b>Risk of flooding from reservoirs</b>	As identified on the Environment Agency Long Term Flood Risk Map <sup>10</sup> .
<b>Summary</b>	
	A written overview of the risk of flooding to the site from all sources based on the information within the proforma.
<b>Site Specific Recommendations</b>	
	<p>Recommendations for how development could be delivered on the site to meet the requirements of part 2 of the Exception Test i.e. that it will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall.</p> <p>Recommendations are made in line with the development management measures presented within the Level 1 SFRA<sup>8</sup> and typically address the following:</p> <ul style="list-style-type: none"> <li>- Applying sequential approach within development site</li> <li>- Setting back development from the edge of watercourses</li> <li>- Finished floor levels</li> <li>- Floodplain compensation storage</li> <li>- Access and egress arrangements</li> <li>- Flood Warning and Evacuation procedures</li> <li>- Surface water management</li> <li>- Further investigation of groundwater levels.</li> </ul>

## 2.3 Future Updates

2.3.1 SFRA's are intended to be living documents, that are kept up to date as information on flood risk management changes. The Environment Agency [SFRA guidance](#) available online<sup>11</sup> states that in order to remain up to date, it is necessary to update a SFRA to incorporate any changes to:

- the predicted impacts of climate change on flood risk
- detailed flood modelling - such as from the Environment Agency or lead local flood authority
- the local plan, spatial development strategy or relevant local development documents
- local flood management schemes
- flood risk management plans
- shoreline management plans
- local flood risk management strategies
- national planning policy or guidance.

<sup>10</sup> <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>

<sup>11</sup> <https://www.gov.uk/guidance/local-planning-authorities-strategic-flood-risk-assessment>

# Appendix A Areas of Focused Intensification

AFI3 North of Coulsdon District Centre

AFI4 Reedham station / North and West of Purley District Centre

AFI5 Brighton Road

AFI6 Forestdale

AFI7 London Road (West Croydon to Thornton Heath Pond)

# Appendix B Areas of Moderate Intensification

AMI2 Coulsdon South

AMI3 Waddon

AMI4 Purley East

AMI5 Purley/Kenley

AMI6 Selsdon

AMI7 South Croydon/Sanderstead

AMI8 Purley North

AMI9 Addiscombe (cluster of 2)

AMI10 Purley/Coulsdon

AMI11 Kenley Station

# Appendix C Sites requiring Exception Test

Site 35: Purley Baptist Church, 2-12 Banstead Road

Site 54: 375-401 Brighton Road

Site 101: Toby Carvery, Brantwood Road

Site 324: Purley Oaks Depot, 505-600 Brighton Road

Site 347: Tesco, 2 Purley Road

Site 405: Capella Court & Royal Oak Centre, 725 Brighton Road

Site 411: Palmerston House, 814 Brighton Road

Site 683: Purley Back Lanes, 16-28 Pampisford Road

Site 946: Stubbs Mead Depot, Factory Lane

# Appendix D Other Sites

The need to complete the NPPF Exception Test (Table 1-1) is identified through reference to the site vulnerability and Flood Zone classification. However, approximately 50 additional sites have been included in the Croydon Level 2 assessment for one or more of the following reasons:

## Group 1

The site is in Flood Zone 3 and the proposed use is Less Vulnerable. The Exception Test is not currently required, but in the event More Vulnerable development types (i.e. residential) are added to the site, the Exception Test would be needed.

Site 495: Dairy Crest dairy, 823-825 Brighton Road

## Group 2

Whilst not in Flood Zone 3 currently, the site is still at fluvial flood risk (i.e. Flood Zone 2) or could be in the future when looking at the climate change modelling for the River Wandle.

Site 125: Sainsburys, Trafalgar Way

Site 144: Sofology

Site 147: IKEA

Site 314: Valley Park (B&Q and Units A-G Daniell Way), Hesterman Way

Site 332: Superstores, Drury Crescent

Site 334: Valley Leisure Park, Hesterman Way

Site 351: Furniture Village, 222 Purley Way

Site 355: 2 Trafalgar Way

## Group 3

The site is at risk of surface water flooding (defined as within a Critical Drainage Area) and consideration of how the development can be safe should be made as part of a site proforma.

This group has been subdivided into Group 3A, sites identified to be at risk of surface water flooding; and Group 3B where the sites are not shown to be at significant risk of surface water flooding.

## Group 3A

Site 30: Purley Leisure Centre, car park and former Sainsbury's Supermarket, High Street

Site 40: West Croydon Bus Station

Site 51: Land and car park between Belgrave Road and Grosvenor Road

Site 61: Car park, 54-58 Whytecliffe Road South

Site 64: 112a and 112b Brighton Road

Site 85: The Forestdale Centre

Site 106: CACFO, 40 Northwood Road

Site 123: Prospect West and car park to the rear of, 81-85 Station Road

Site 130: 1-9 Banstead Road

Site 136: Supermarket, car park, 54 Brigstock Road



Site 149: Tesco, Thornton Heath

Site 203: West Croydon station and shops, 176 North End

Site 222: Multi-storey car park, 1 Whitgift Street

Site 284: Asharia House, 50 Northwood Road

Site 326: Ambassador House, 3-17 Brigstock Road

Site 372: Car park, Lion Green Road

Site 374: Reeves Corner former buildings, 104-112 Church Street

Site 410: 100 Brighton Road

Site 490: 95-111 Brighton Road and 1-5, 9-15 and 19 Old Lodge Lane

Site 945: Waitrose, 110-112 Brighton Road

### **Group 3B**

Site 1: Land Fronting North Downs Road and Overbury Crescent

Site 2: Blackhorse Lane Station

Site 28: Bowyers Yard, Bedwardine Road

Site 41: Direct Line House, 3 Edridge Road

Site 47: 3-7 Park Street

Site 58: 140 & 140a Hermitage Road

Site 59: Garages at rear of 96 College Green and land at Westow Park, Upper Norwood

Site 184: 1-19 Derby Road

Site 190: Car park to the rear of Leon House, 22-24 Edridge Road

Site 194: St George's Walk, Katharine House and Park House, Park Street

Site 211: Poplar Walk car park and, 16-44 Station Road

Site 220: 9-11 Wellesley Road

Site 231: Segas House, Park Lane

Site 357: Norwood Heights Shopping Centre, Westow Street

Site 393: Whitgift Centre, North End

Site 937: Kempsfield House, 1 Reedham Park Avenue

Site 948: 230 Addington Road

Site 951: 1485-1489 London Road

