

Preliminary flood risk assessment: London Borough of Croydon

This addendum by London Borough of Croydon (2017) updates the council's preliminary flood risk assessment report published in 2011. Read the addendum in conjunction with the [preliminary assessment report](#).

Addendum

The preliminary flood risk assessment (PFRA) and flood risk areas (FRAs) for London Borough of Croydon (LBC) were reviewed during 2017, using all relevant current flood risk data and information.

Past flood risk

Four Flood Investigation Reports (FIRs)¹ have been completed since delivery of the PFRA in 2011. Whilst the FIRs assess flooding primarily in areas with a known flood history, they have improved understanding of the flood processes/mechanisms in the study areas. FIRs have been completed for the following areas/events:

- Caterham Bourne 2014;
- Merstham Bourne 2014;
- Purley Oaks Road 2015; and,
- Caterham Drive 2016.

The FIRs also provide details on flood extents and depths during the flood events, which has improved LBC's understanding of the impacts of flooding from such incidents and provides a clear record which can be referenced in the future informing flood management decisions.

Understanding of flooding mechanisms has been improved in the following areas:

- Caterham Drive, associated with surface water flooding;
- Areas following the path of the Merstham Bourne, particularly in proximity to Coulsdon South Railway Station where the watercourse is an open channel;
- Areas following the path of the Caterham Bourne, extending from Bourne Park at the local authority boundary with Surrey County to Purley Cross and Purley Oaks Road. Flooding was attributed to a number of sources; groundwater, surface water, fluvial and sewer flooding, of which groundwater was the dominant source of flooding; and,
- Purley, South Croydon, Coulsdon, Kenley, Thornton Heath and New Addington, associated with surface water flooding.

The FIRs have also provided the opportunity to clarify and re-enforce the roles and responsibilities of RMAs with regards to flood risk.

Future flood risk

The Environment Agency Risk of Flooding from Surface Water Map has further refined understanding of the risk posed by surface water flooding. The mapping is replicated within the Croydon Local Flood Risk Management Strategy and London Boroughs of Croydon, Merton, Sutton and Wandsworth Level 1 Strategic Flood Risk Assessment (SFRA, 2015). It is acknowledged that this mapping was carried out at a national scale and is therefore not appropriate for site-specific assessment, however it improves LBC's understanding of key areas of surface water risk, including locations of flowpaths. This focuses the lead local flood authority (LLFA) towards high risk areas when providing flood risk advice to the Local Planning Authority (LPA).

¹ An investigation into a flooding event that a lead local flood authority (LLFA) is required to carry out under Section 19 of the [Flood and Water Management Act 2010](#), and according to [the LLFA's local flood risk management strategy](#)

The 'heat map'² provided by the Environment Agency to support this PFRA review provides a high level assessment of the potential change in flood risk as a result of more intense rainfall events. Whilst a specific climate change scenario has not been mapped, the 1 in 1000 year event has been used as a proxy for a 1 in 100 year event including a climate change allowance. The assessment indicates that significant areas of Croydon may experience increased surface water flood risk in the future as a result of climate change. A surface water modelling study was carried out in 2015 as part of the Drain London Tier 3 project investigating flood mitigation options within the following Critical Drainage Areas: CDA_040 - Purley Cross' CDA_041 - Brighton Road; CDA_42 - South and Central Croydon. The model extent covered approximately two thirds of Croydon. The study refined the baseline surface water modelling within the model extent, and then investigated the feasibility and cost-effectiveness of a range of flood risk mitigation measures.

A second flood alleviation options study has also been carried out for Welcomes Road/Kenley Lane. This study also refined the baseline surface water modelling for the area and investigated the potential of a range of flood mitigation measures. The outputs of this study have been incorporated into the Environment Agency's Risk of Flooding from Surface Water mapping.

A modelling study of the flood risk from the Caterham Bourne is currently being carried out, with results expected in 2017. Once completed, this study will notably improve LBC's understanding of the potential flood risk posed by the ephemeral, groundwater-fed watercourse.

The British Geological Survey (BGS) Susceptibility to Groundwater Flooding dataset provides a strategic-level assessment of groundwater flood risk based on analysis of potential groundwater levels and the spatial distribution of geology with sufficient permeability to allow groundwater flooding to occur. This dataset is included within the London Boroughs of Croydon, Merton, Sutton and Wandsworth Level 1 SFRA.

The BGS dataset has informed decisions by the LLFA in its role as statutory consultee for drainage associated with major development. The dataset indicates areas where confirmation of groundwater levels within a development site is particularly important due to a raised risk of the presence of groundwater. In addition it indicates areas where future development including basements may be particularly impacted by groundwater flooding.

Flood risk areas (FRAs)

The following FRA has been identified for the purposes of the Flood Risk Regulations (2009) 2nd planning cycle:

- Greater London (includes part of the London Borough of Croydon)

Other changes

Figures 1 - 7 in Annex 6 of the 2011 PFRA are now considered to have been superseded by more up to date information contained within the South West London Level 1 Strategic Flood Risk Assessment (2015)

<https://www.croydon.gov.uk/planningandregeneration/framework/lpevidence/climatechange/flooding>.

A new figure is to be included within Annex 6 of the PFRA Update; Figure 1: 'Absolute Increase in People at Risk of Surface Water Flooding (100yr to 1000yr events)'.

London Borough of Croydon

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² Information provided by the Environment Agency to support LLFAs in reviewing PFRA's in 2017