Appendix A: GeoPDF User Guide

Please tick the boxes next to the dataset titles in the map legend to display the data. If data does not display, it means it is not present in that particular area.

Legend	Description	Reference
Authority Information Wokingham Borough Council boundary	The boundary of the Wokingham Borough, the study area for this SFRA.	**Section 1.5** SFRA study area
Watercourses Main Rivers All Watercourses	Main Rivers – the Environment Agency (EA) statutory main rivers map detailing the watercourses which are designated a Main River by the EA. All Watercourses – the EA Detailed River Network representing the river network based on Ordnance Survey (OS) MasterMap for surface features and EA culvert surveys for underground features (where available).	**Section 1.5** SFRA study area Section 5.3 Hydrology
Flood Zones Indicative Flood Zone 3b Flood Zone 3b Flood Zone 3a Flood Zone 2	The Flood Zones are for use in development planning and flood risk assessments: **Flood Zone 3b** – Functional Floodplain: This zone comprises land where water must flow or be stored in times of flood. **Flood Zone 3a** – High probability: greater or equal to a 1% chance of river flooding in any given year (Excludes Flood Zone 3b, which is derived as part of the SFRA). **Flood Zone 2** – Medium probability: between a 1% and 0.1% chance of river flooding in any given year. Flood Zones 2 and 3a, as shown in the Appendix A mapping, show the same extent as the online Environment Agency's Flood Map for Planning (FMfP) (which incorporates latest modelled data) other than for the following watercourses, where	**Section 3.2.1** Flood Zones – river risk **Appendix B** – for model details and relevant flood outlines

Legend	Description	Reference
	additional detailed modelling was available that has not been incorporated into the FMfP and was used in preference: Blackwater (Flood Zone 3a only), River Loddon, Arborfield, and Emm Brook. Flood Zone 3b is identified as land which would flood with an annual probability of 1 in 30 years where detailed hydraulic modelling exists. The following models have appropriate outputs which have been included: Kennet, Loddon, Thames (Hurley to Teddington), Thames (Pangbourne to Sonning), and Thames (Sonning to Hurley). Where detailed hydraulic modelling exists but the 1 in 30 year event is not available, the layer has been based on the larger, more conservative 1 in 100 year event outline. This is the case for the following models: Blackwater (2007), Blackwater (2009), Foudry Brook, and Emm Brook. Where no detailed hydraulic modelling exists, Indicative Flood Zone 3b should be used, which shows the same extent as Flood Zone 3a.	

Legend	Description	Reference
Fluvial Flood Extent with Climate Change 1% AEP with Central Climate Change allowance 1% AEP with Higher Central Climate Change allowance	These extents are from existing hydraulic models, where the 1% AEP (100-year flow) is upscaled by the EA's climate change allowances for the 2080s epoch for the relevant management catchment. Climate change modelled flood extents can be compared to the 1% AEP flood extent (Flood Zone 3a), and where no detailed modelling exists, compared against Flood Zone 2, for an indication of areas most sensitive to climate change. The Wokingham Borough lies across four management catchments (see Table 4-1 of the main report for further details and allowances). From the modelled outlines available, the following allowances have been included: Central allowance: • Blackwater 2007 – 1% AEP plus 15% CC • Blackwater 2009 – 1% AEP plus 15% CC • Foudry Brook – 1% AEP plus 20% CC • Kennet – 1% AEP plus 25% CC • Loddon Lower – 1% AEP plus 14% CC • Thames (Hurley to Teddington) – 1% AEP plus 35% CC • Thames (Pangbourne to Sonning) – 1% AEP plus 35% CC • Thames (Sonning to Hurley) – 1% AEP plus 35% CC Higher Central allowance: • Blackwater 2007 – 1% AEP plus 25% CC • Blackwater 2009 – 1% AEP plus 25% CC • Kennet – 1% AEP plus 35% CC • Loddon Lower – 1% AEP plus 23% CC • Emm Brook – 1% AEP plus 25% CC	**Section 4** Impact of Climate Change **Appendix B** – for model details and relevant flood outlines
Arborfield Fluvial Flood Extent with	The Arborfield climate change outputs have been included separately in the areas impacted by this model. As this is a pluvial model the 1% AEP (100-year flow) is	**Section 4** Impact of

Legend	Description	Reference
Climate Change 1% AEP plus 25% Climate Change 1% AEP plus 40% Climate Change	upscaled by the EA's peak rainfall climate change allowances for the 2070s epoch for the relevant management catchment. The following outputs are included in the mapping: • 1% AEP plus 25% CC (central climate change allowance) • 1% AEP plus 40% CC (upper end climate change allowance)	Climate Change **Appendix B** – for model details and relevant flood outlines
Risk of Flooding from Surface Water Surface Water Extent 3.3% AEP 1% AEP 0.1% AEP	The EA's Risk of Flooding from Surface Water (RoFfSW) flood maps give an indication of the broad areas likely to be at risk of surface water flooding. This includes flooding that takes place from the surface runoff generated by rainwater. The data includes the extent, velocity, depth, and hazard mapping for the 3.3%, 1% and 0.1% AEP events. The extent of flooding for each of the events is shown in the mapping.	**Section 5.5** Surface water flooding **Appendix E** Summary of flood risk
Surface Water Extent plus Climate Change 3.3% AEP plus 35% Climate Change 1% AEP plus 40% Climate Change	The RoFSW was uplifted to represent surface water climate change for the following events and scenarios: • 3.3% AEP plus 35% CC • 1% AEP plus 40% CC	**Section 4** Impact of Climate Change **Section 5.5** Surface water flooding

Legend	Description	Reference
Risk of Groundwater Flooding EA Areas Susceptible to Groundwater Flooding <25% >=25% <50% >=50% <75% >=75% JBA Groundwater Emergence Map (5m Resolution) Less than 0.025m below surface Between 0.025-0.5m below surface Between 0.5-5m below surface At least 5m below surface No risk	The EA's groundwater flooding susceptibility data shows the degree to which areas of England, Scotland and Wales are susceptible to groundwater flooding on the basis of geological and hydrogeological conditions. This is shown at a resolution of 50m. It does not show the likelihood of groundwater flooding occurring, i.e. it is a hazard not risk-based dataset. JBA's Groundwater Flood emergence map shows the level of groundwater below the surface, at a resolution of 5m. Flood risk could increase when groundwater is already high or emerged, causing additional overland flow paths or areas of still ponding, which may occur at sites other than those shown in the emergence mapping.	**Section 5.7** Groundwater flooding **Appendix E** Summary of flood risk
Risk of Flooding from Reservoirs Wet Day Dry Day	The EA reservoir flood extents show the predicted flooding which would occur if a dam or reservoir fails. The EA provide two scenarios: **Dry Day** – the predicted flooding which would occur if the dam or reservoir fails when rivers are at normal levels. **Wet Day** – the predicted worsening of the flooding which would be expected if a	**Section 5.8** Flooding from reservoirs

Legend	Description	Reference
	river is already experiencing an extreme natural flood.	
Defences Demountable Defence Embankment Wall Natural High Ground	The EA Asset Information Management System (AIMS) spatial Flood Defence dataset, shows flood defences currently owned, managed, or inspected by the EA. A defence is any asset that provides flood defence or coastal protection functions. The main defences within Wokingham Borough are natural high ground, but there are also some embankments, walls and demountable defences.	**Table 6-2** Locations shown in the 'EA AIMS' data set **Section 6.5** Existing and future flood alleviation schemes
Flood Mitigation Flood Alert Areas Flood Warning Areas	The EA issue flood warnings to designated Flood Warning Areas when a river level hits a certain threshold, heavy rainfall or high tides and strong winds are forecast. "Flooding is expected, immediate action is required". Flood Alerts are issued when there is water out of bank for the first time anywhere in the catchment and when forecasts indicate flooding may be possible. "Flooding is possible, be prepared". Both datasets are a polygon GIS shapefile where the above are issued; they are not flood extents.	**Section 5.9** Flood alerts and flood warnings **Appendix D** Flood Alert and Flood Warnings
Flood History EA Historic Flood map	The EA Historic Flood Map shows areas of land that have been previously subject to fluvial flooding in the area. This includes flooding from rivers, the sea and groundwater springs but excludes surface water. If an area is not covered by the Historic Flood Map, it does not mean that it has never flooded, only that currently there are no records of flooding in this area from the EA records. Other historic information is supplemented in the Level 1 report (section 5.1).	**Section 5.1** Historical Flooding **Appendix E** Summary of flood risk