

Figure 12 – River Thames Hazard Mapping Breach (2005). Tidal Upriver Breach Inundation Modelling Study 2017

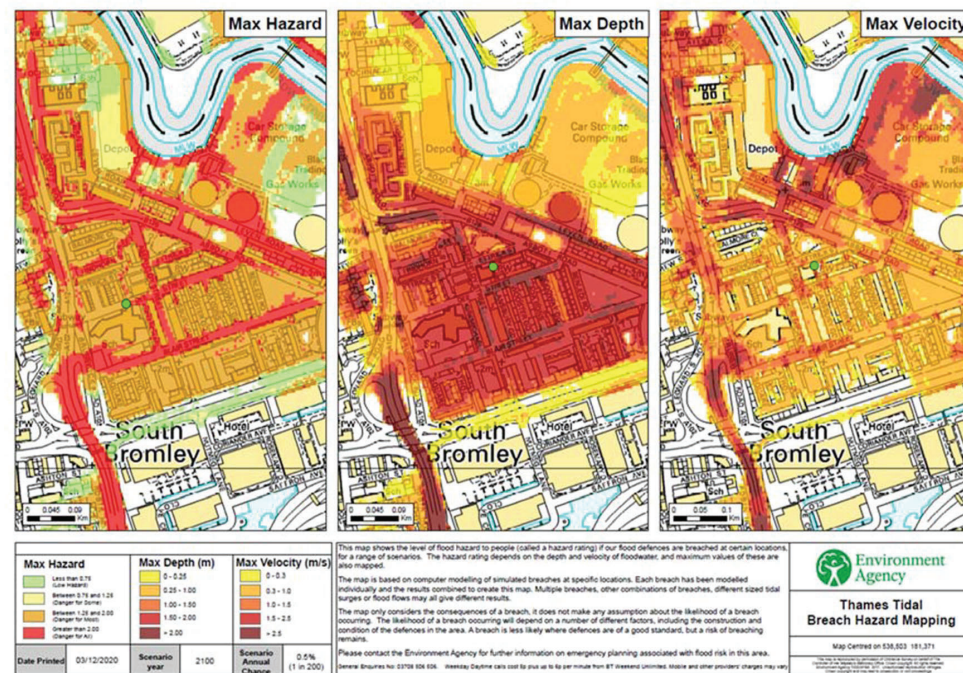


Figure 13 – River Thames Hazard Mapping Breach (2100). Tidal Upriver Breach Inundation Modelling Study 2017

4.5 Surface Water Flooding

Pluvial flooding occurs when natural and engineered systems have insufficient capacity to deal with the volume of rainfall. Pluvial flooding can sometimes occur in urban areas during an extreme, high intensity, low duration summer rainfall event which overwhelms the local surface water drainage systems. This flood water would then be conveyed via overland flow routes dictated by the local topography.

Appendix A, Map 006, of the SFRA indicates that the site is located within a Critical Drainage Area.

The Flood Risk from Surface Water map (Figure 14) shows the majority of the site to be at very low risk of flooding from surface water, with the site access roads identified as being at increased risk.

Potential flood depths along the site access roads for the low, medium and high risk events are presented by Figure 15. Flood depths are shown to be approximately 300 mm, with the exception of the A12 underpass where flood depths are expected to exceed 900 mm.

It should be noted that the modelling approach used to generate the Flood Risk from Surface Water map generally underestimates the capacity of urban drainage networks. It is typically assumed that drainage networks provide a surface water removal rate of 12 mm per hour, equivalent to 33 litres per second per hectare of impermeable area. As such, it is likely that the Flood Risk from Surface Water map overstates the risk of flooding at the site from this source.

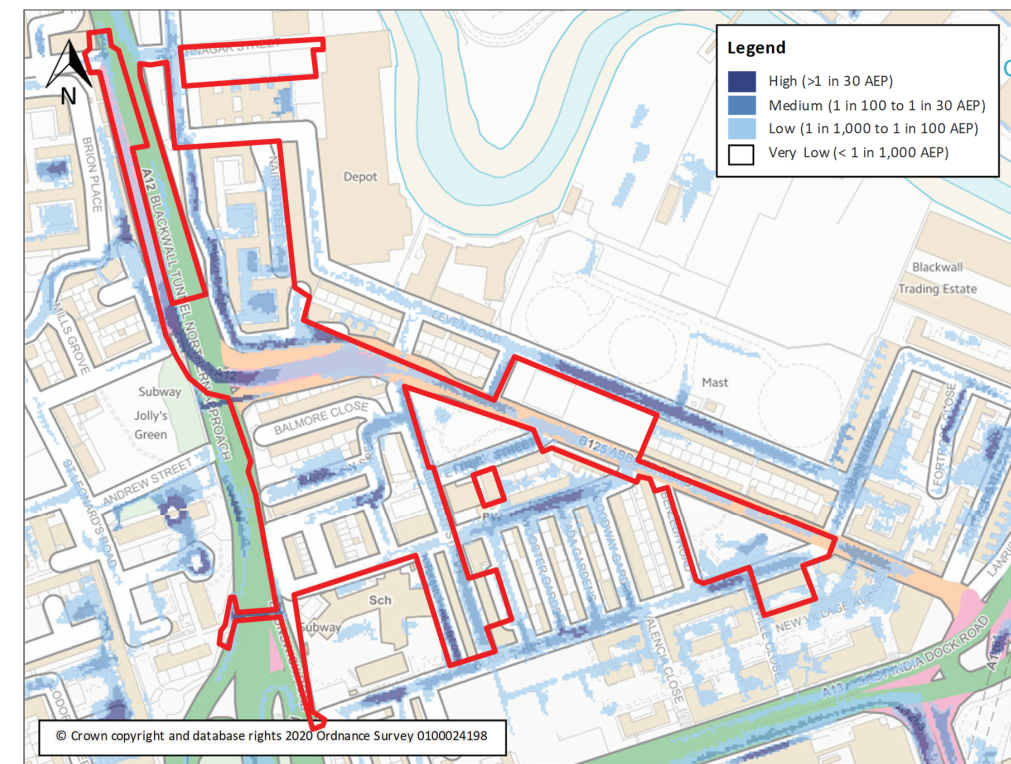


Figure 14 – EA Flood Risk from Surface Water

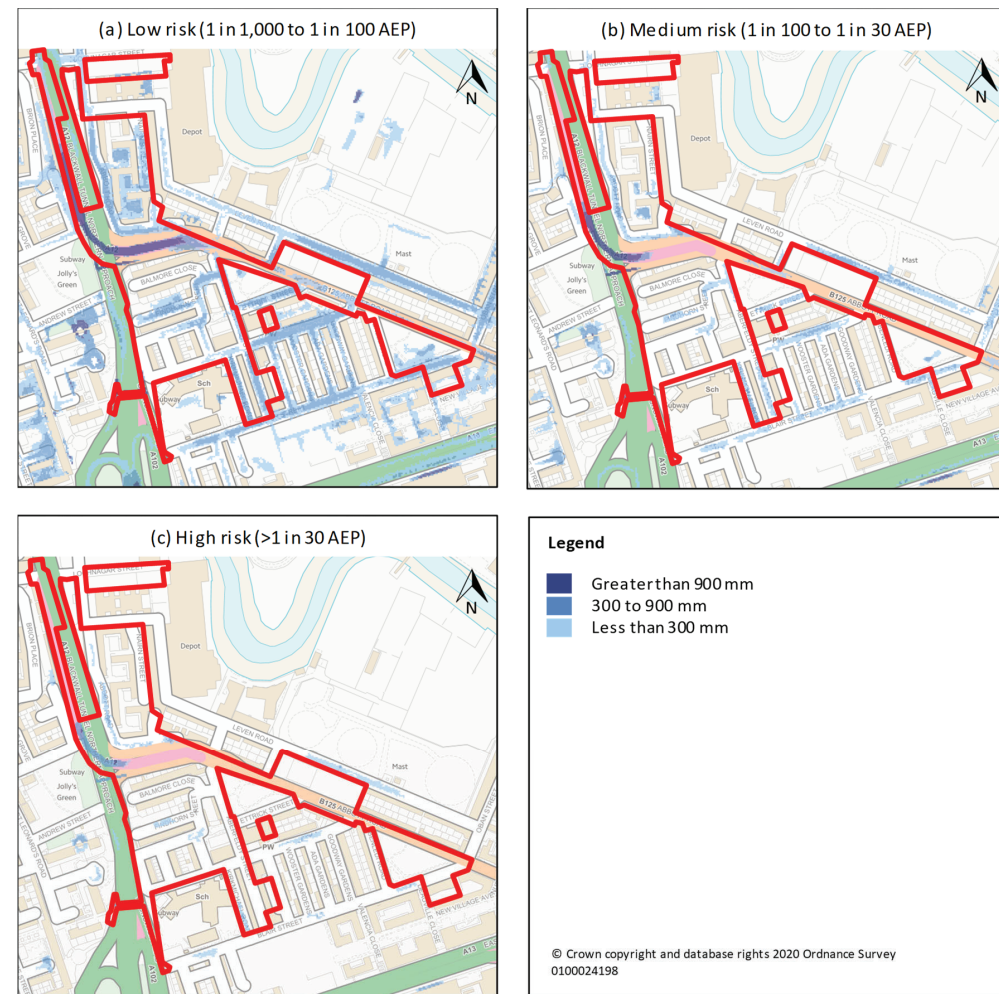


Figure 15 – EA Flood Risk from Surface Water - Depth

4.6 Flood Risk from Reservoirs, Canals and Other Artificial Sources

The Flood Risk from Reservoirs map (Figure 16) indicates that the site may be at risk of flooding from reservoirs. However, all large reservoirs are regularly inspected by reservoir panel engineers with essential safety work carried out as required. As detailed on the gov.uk website, reservoir flooding is therefore extremely unlikely to occur.

There are no canals or other artificial sources located within the vicinity of the site that are expected to present a risk of flooding.

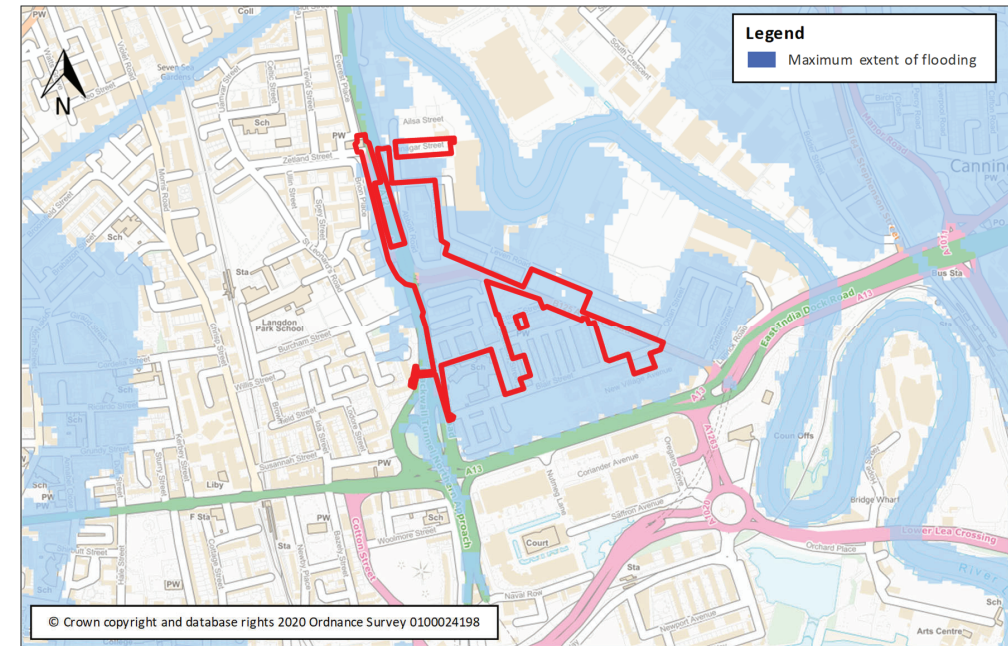


Figure 16 – Flood Risk from Reservoirs Map

4.7 Ground Water Flooding

The British Geological Survey Groundwater Flooding Hazard map (Figure 17) indicates that the majority of the site is at a very low risk of flooding from this source, with the western most side of the site at a significant risk of groundwater flooding.

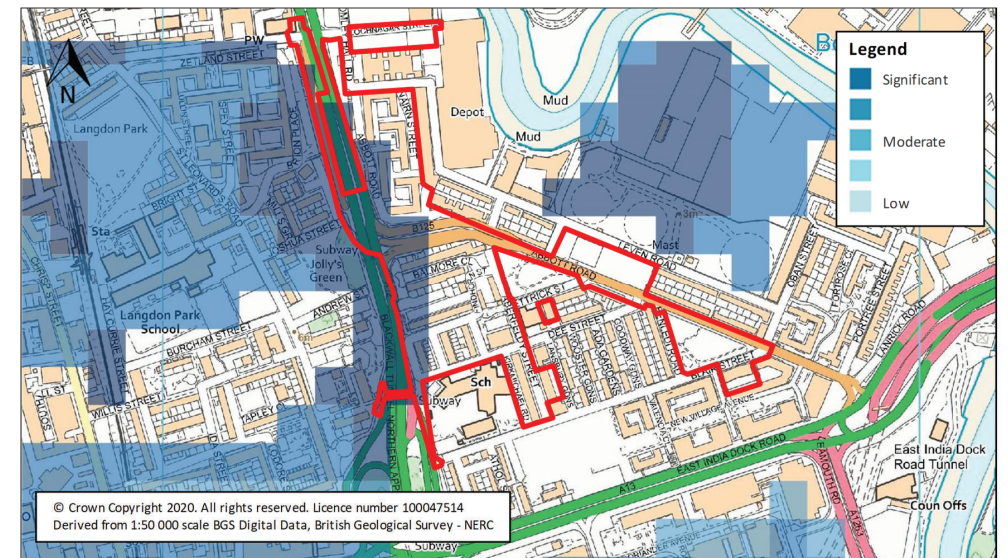


Figure 17 – Groundwater Flooding Hazard Map

5 Flood Risk Mitigation Measures

The risk of flooding to the proposed development will be mitigated through the implementation of the measures proposed within the following section of this report.

5.1 Finished Flood Levels

For the Residential Development the Finished floor levels of the proposed units should be set a minimum of 0.15 m above adjacent ground levels and above peak flood levels in the 2100 climate change breach scenario. Where it is not practicable to raise finished floor levels to this degree, sleeping accommodation (i.e. bedrooms) should be provided at first floor level to ensure that safe refuge is available.

For the Retail Development the Finished floor levels of the proposed units should be set a minimum of 0.15 m above adjacent ground levels.

5.2 Safe Refuge

Evacuation of the site is unlikely to be feasible given that the risk of flooding is principally associated with defence failure, the occurrence of which cannot be predicted. As such, areas of safe refuge should be provided at first floor level for the proposed retail units.

5.3 Flood Resistant and Resilient Construction

Flood resistant and resilient construction techniques should be incorporated into the design of the buildings where appropriate, in line with the CIRIA Code of Practice for Property Flood Resilience (C790). These include design features and finish materials to minimise the entry of water and/or reduce the damage in the unlikely event of the development being inundated.

5.4 Flood Plan

It is recommended that a Flood Plan is prepared in consultation with London Borough of Tower Hamlets emergency planning team. The objectives of the plan would be to reduce the risk to property and life by ensuring that all residents are aware of the potential risk of flooding and the procedures that should be implemented in the event that flooding is expected or has occurred.

This would be achieved by:

- Setting out the measures that would need to be taken if flooding is forecast, during flooding and following an 'all-clear' notification;
- Summarising the roles and responsibilities for flood response and management; and
- Describing how flood warnings are issued, flood warning codes and what they mean, and other sources of flood information

The site is included in an Environment Agency flood alert and warning area. This provides the opportunity for the relevant response procedures set out in the Flood Plan to be invoked in response to receipt of a flood warning from the Environment Agency.

6 Summary and Recommendations

Parmarbrook has been instructed by EcoWorld London Development Company Ltd. to prepare a Flood Risk Assessment (FRA) in relation to the proposed redevelopment of Aberfeldy Village, East India Dock E14 within the London Borough of Tower Hamlets.

The Flood Map for Planning shows the proposed development site is located within the 1 in 100 / 1 in 200 annual probability flood outline and is therefore defined by the NPPF as being situated within flood zone 3.

The River Lee is located a minimum of approximately 160 m east of the site. The Environment Agency has confirmed that the flood defences along the River Lee prevent flooding in up to the 1 in 1,000 AEP event.

The Thames Barrier and the raised defences along the banks of the River Thames provide a present day 1 in 1,000 standard of protection. The TE2100 Plan states that the crest levels of the defences will be raised to maintain this standard of protection to the year 2100.

The site is shown to be at a residual risk of flooding in the event of a failure of the River Thames flood defences. The maximum flood levels at the site are shown to range between 3.65 and 5.10 m AOD in the 2100 climate change scenario.

The Flood Risk from Surface Water map indicates the majority of the site is at a very low risk of flooding from surface water. However, the site access roads identified as being at increased risk.

The Flood Risk from Reservoirs map indicates that the site may be at risk of flooding from reservoirs. However, all large reservoirs are regularly inspected by reservoir panel engineers with essential safety work carried out as required and reservoir flooding is therefore extremely unlikely to occur.

There may be some susceptibility to groundwater flooding at the site.

This report has demonstrated that the proposed development may be completed in accordance with the requirements of planning policy subject to the following:

- Finished floor levels of the residential units set a minimum of 0.15 m above adjacent ground levels;
- Finished floor levels of the residential units raised above the peak flood levels in the 2100 climate change breach scenario, or sleeping accommodation to be provided at first floor level;
- Finished floor levels of the proposed retail units set a minimum of 0.15 m above adjacent ground levels and safe refuge to be provided at first floor level;
- The latest best practice flood resistant and resilient construction techniques to be incorporated into the design of the building where appropriate; and
- Flood Plan to be developed in consultation with London Borough of Tower Hamlets.

APPENDIX A

ILLUSTRATIVE NEW ABERFELDY MASTERPLAN LAYOUT