APPENDIX M

DAGENHAM LEISURE PARK

DAGENHAM LEISURE PARK

Area Name: Dagenham Leisure Park
Location: Dagenham
River Catchment: Gores Brook
NPPF Flood Zone (majority of area): Flood Zone 1
NPPF Flood Zone (worst case): Flood Zone 1

Introduction

The Dagenham Leisure Park strategic development site is approximately 0.04km^2 in area and is located in the centre of Barking and Dagenham (refer to Appendix A). The area is bounded by Beacontree Ambulance Station to the north, a residential area to the east, Cook Road to the south and Goresbrook Sports Ground to the west.

The existing land use at the site consists of a number of commercial buildings and associated car parking. The proposals for development of the site include the retention of the existing development on the site and introduction of new residential development.

Description of Flood Risk

Flood Zones

The entire area of the Dagenham Leisure Park strategic development site is located within Flood Zone 1 and is therefore not considered to be at risk of flooding from fluvial or tidal sources.

Surface Water

The Environment Agency Risk of Flooding from Surface Water map indicates that the site is generally at low risk of surface water flooding. The only area predicted to be at a high risk of flooding is a small area at the western end of the existing car park. Surface water flooding within the Dagenham Leisure Park strategic development site is illustrated in Figure M3.

Groundwater

The increased Potential for Elevated Groundwater map (iPEG), developed for the Barking and Dagenham SWMP, indicates that Dagenham Leisure Park is not within an area identified as having an increased potential for groundwater to interact with or rise to within 2m of the ground surface.

Defence or Reservoir Failure

The Dagenham Leisure Park strategic development site is located in Flood Zone 1 and is therefore not within an area benefitting from flood defences or at risk of flooding due to breach of any flood defences.

The Environment Agency Risk of Flooding from Reservoirs map indicates the area is not at risk of reservoir flooding.

Flood Warning Areas

The Dagenham Leisure Park strategic development site is not located within an Environment Agency Flood Warning or Flood Alert area.

Impact of Climate Change

The Dagenham Leisure Park strategic development site is not predicted to be at risk of fluvial or tidal flooding, now or in the future.

The effects of climate change will potentially increase the frequency and intensity of surface water flood risk within the Borough. A comparison of the Environment Agency 1 in 100 (1%) annual probability and

1 in 1000 (0.1%) annual probability predicted surface water flood extents, provided in the Level 1 SFRA report, suggests that although the Dagenham Leisure Park strategic development site is at low risk from surface water at present, areas across the south of the site may be at an increased risk in the future.

Planning Recommendations

Spatial Planning and Development Control

Development of the site should be undertaken in accordance with the principles as set out within Section 1 of this report and Section 7 of the Level 1 SFRA. It is understood that the proposed development within the Dagenham Leisure Park strategic development site comprises the retention of the existing development and introduction of new residential development.

A site-specific flood risk assessment is required for developments in Flood Zone 1 where the development is 1 hectare or greater or at significant risk of flooding from other sources (i.e. surface water, sewerage systems or reservoirs).

The need and scope of a site-specific flood risk assessment in Flood Zone 1 should be discussed and agreed with the Council. However, it is recommended that, at minimum, a site-specific flood risk assessment is provided for development at risk of surface water flooding up to the 1 in 30 (3.33%) annual probability event, or at risk of flooding to a depth greater than 300mm during the 1 in 100 (1%) annual probability event.

Within a development site, a sequential approach should be adopted that takes into account all sources of flood risk including the potential effects of climate change.

To ensure the flood resistance of a building, it is recommended that ground floor levels are situated 300mm above adjacent ground level, or above the estimated 1 in 100 (1%) annual probability flood depth.

Basement structures are considered acceptable in Flood Zone 1, although where possible they should be designed to prevent the overland flow of water entering the basement structure up to and including the 1 in 30 (3.33%) annual probability event.

Sustainable Drainage Systems

Development sites in the Dagenham Leisure Park strategic development site are likely to comprise of smaller sites that may be spatially constrained.

Controlling runoff to greenfield rates can be problematic for smaller developments as this would result in the use of very small flow control structures that will be liable to blockage. Similarly, providing large attenuation structures and 'good' SUDS techniques such as swales and ponds in urban areas can be difficult to achieve given space constraints, the urban character and the value of land for development. Existing urban sites, particularly those with an industrial heritage, may also contain contaminated soils.

SUDS techniques as discussed in Section 7.7 of the Level 1 SFRA should still be promoted wherever possible. However, it is recognised that many SUDS techniques are likely to be inappropriate. Techniques such as green roofs, permeable paving and rain gardens that receive, treat and attenuate surface water runoff at source are likely to be most appropriate, with attenuation for larger events provided in below ground storage units that could be located beneath public open space and car parks. The use of lined structures in sites that may be contaminated will still offer treatment and attenuation benefits.

As this is a previously developed site it should strive to achieve betterment over existing discharge rates. Minimum betterment of 20% is considered appropriate whilst also taking the potential effects of climate change into consideration, with developers striving to achieve pre-developed greenfield rates as far as practicable.

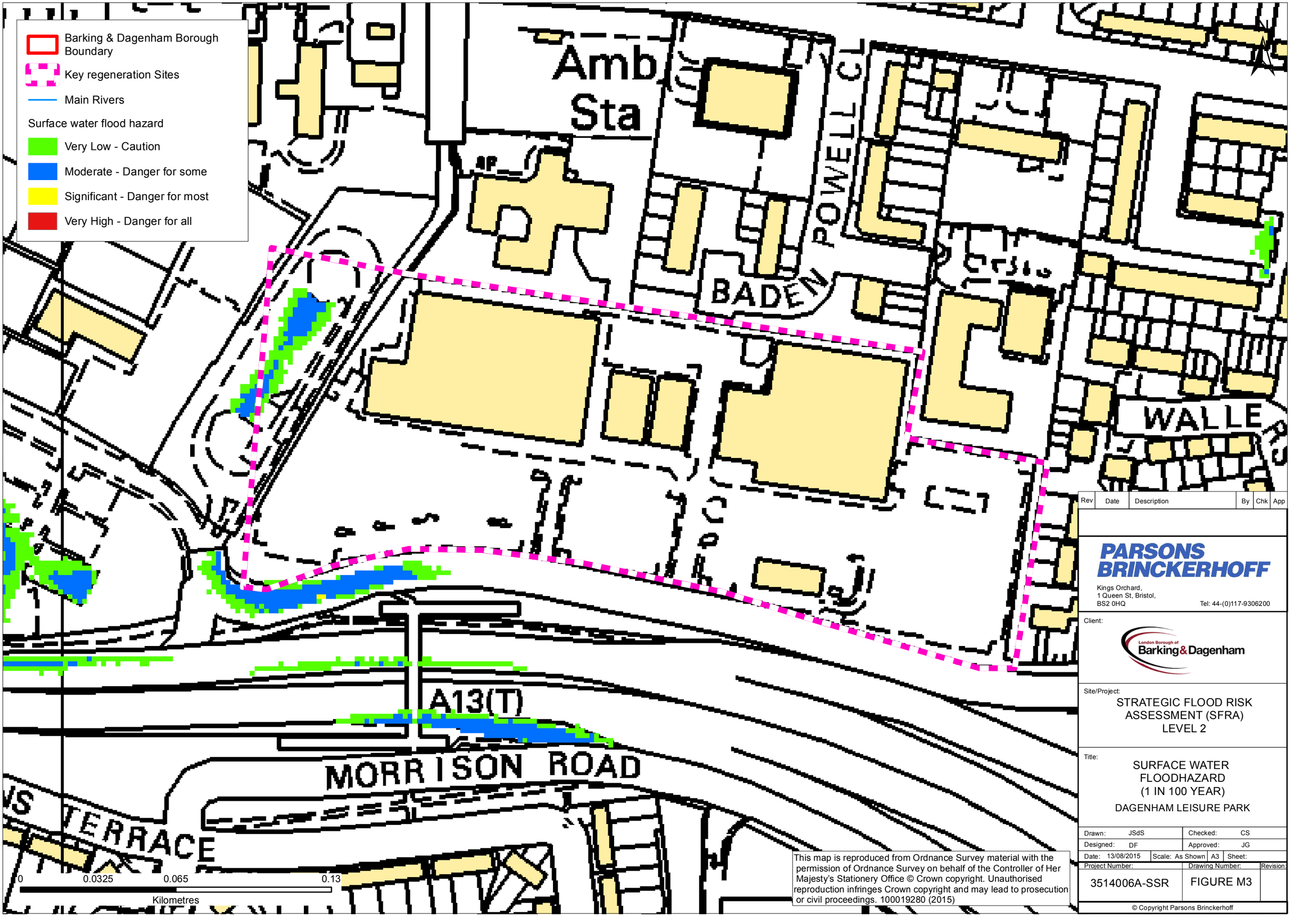
Where the peak discharge from the site is less than 5l/s, it may be acceptable to limit discharge to a minimum rate of 5 l/s up to the 1 in 100 (1%) annual probability event to reduce the risk of blockage.

However, a flow control device that reduces peak flows below 5 l/s is still acceptable and should be promoted when:

- A robust maintenance regime and appropriate maintenance contract is provided by the developer; and
- An appropriate overflow device can be included within the design that will direct flows to less vulnerable areas should the flow control device block and surcharge.

Reducing the flow rate to below 2l/s is, however, considered to pose greater risk and this would be considered an appropriate minimum discharge rate for most development unless robust controls are in place for managing residual risk.

Where the development is too small to warrant the use of storage features it is essential that SUDS techniques appropriate to the development are implemented to maximise the other benefits, principally reducing discharge during small rainfall events, maximising infiltration potential, improving resilience to climate change, providing treatment and enhancing biodiversity.



File Name:: N:\Water Engineering\3514006A - LBBD SFRA_WORKING FOLDER\Y GIS\Mxd\Phase II\3514006A-SSR-Surface Water Flood Hazards.mxd

Login: desouzaj

Plot Date: 13/08/2015

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Client: London Borough of Barking & Dagenham

Site/Project:
STRATEGIC FLOOD RISK ASSESSMENT (SFRA) LEVEL 2

Title:
SURFACE WATER FLOODHAZARD (1 IN 100 YEAR)
DAGENHAM LEISURE PARK

Drawn: JSdS		Checked: CS	
Designed: DF		Approved: JG	
Date: 13/08/2015	Scale: As Shown A3	Sheet:	
Project Number:	Drawing Number:	Revision:	
3514006A-SSR	FIGURE M3		