

APPENDIX I

CHADWELL HEATH LSIS

CHADWELL HEATH LOCAL SIGNIFICANT INDUSTRIAL SITE (FRESHWATER ROAD)

Area Name: Chadwell Heath Local Significant Industrial Site (Freshwater Road)

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 Chadwell Heath strategic development site is approximately 0.31 km² in area and is located in the north of Barking and Dagenham (refer to Appendix A). The area is bounded by the railway line to the north, the A1112 to the east and residential areas to the south and west.

The existing land use in the area is industrial, comprising the Freshwater Industrial Area. The proposed development of Chadwell Heath includes the development of c. 3,500 residential units with some existing industrial units being retained.

Description of Flood Risk*Fluvial and Tidal*

The entire area of the Chadwell Heath strategic development site is 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 Chadwell Heath strategic development site is generally at low risk of surface water flooding, however the east extent of the site falls within the Whalebone Lane South Local Flood Risk Zone (LFRZ) as identified in the Barking and Dagenham SWMP. Modelling suggests that surface water flooding of between 0.6 - 0.9m in depth could occur at the junction of Selinas Road and Coppen Road during a 1 in 100 (1%) annual probability rainfall event with an associated flood hazard classification of 'significant' (Danger to most). Moderate flooding is also predicted at the western extent of Freshwater Road which is outside of the development site extent but could potentially affect site access and egress.

Flood hazards associated with surface water flooding during the 1 in 100 (1%) annual probability event are illustrated in Figure I3.

Groundwater

The increased Potential for Elevated Groundwater map (iPEG), developed for the Barking and Dagenham SWMP, indicates the east of Chadwell Heath is within the area identified as having an increased potential for groundwater to interact with or rise to within 2m of the ground surface. For details of the iPEG map refer to the Level 1 SFRA report Section 5.3 and Appendix I. Groundwater emergence could pose flood risk to basement or below ground structures, as well as generate overland flows that are likely to pond in areas of flat topography or be similar in location to those discussed as part of the surface water flood analysis.

Defence or Reservoir Failure

The Chadwell Heath 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 that the area is not at risk of reservoir flooding.

Flood Warning Areas

The Chadwell Heath strategic development site is not located within an Environment Agency Flood Warning or Flood Alert area.

Impact of Climate Change

The Chadwell Heath 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 flooding at the eastern extent of Freshwater Road (LFRZ area as identified in the SWMP) may be vulnerable to the impacts of climate change. In addition a number of other areas around and within 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 Chadwell Heath strategic development site comprises residential development with some existing industrial units being retained.

A site-specific flood risk assessment is required for developments in Flood Zone 1 where the development is 1 hectare or greater in area 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.

In particular the development of the site should take into consideration the high surface water flood risk identified at the junction of Selinas Road and Coppen Road. Development in this area should ensure that it is resilient to the risk of surface water flooding including the consideration of alternative access routes should access along these roads become unavailable.

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 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.

Consideration should also be given to the impact of flooding from other sources to the ability to provide safe access and egress. Dry access should be provided outside of the extent of areas indicated to be at risk of surface water flooding during the 1 in 100 (1%) annual probability event where possible. Where this is not possible, safe access with 'very low' flood hazard should be demonstrated for all residential development proposals, and safe access with 'moderate' flood hazard should be demonstrated for all industrial/commercial development proposals.

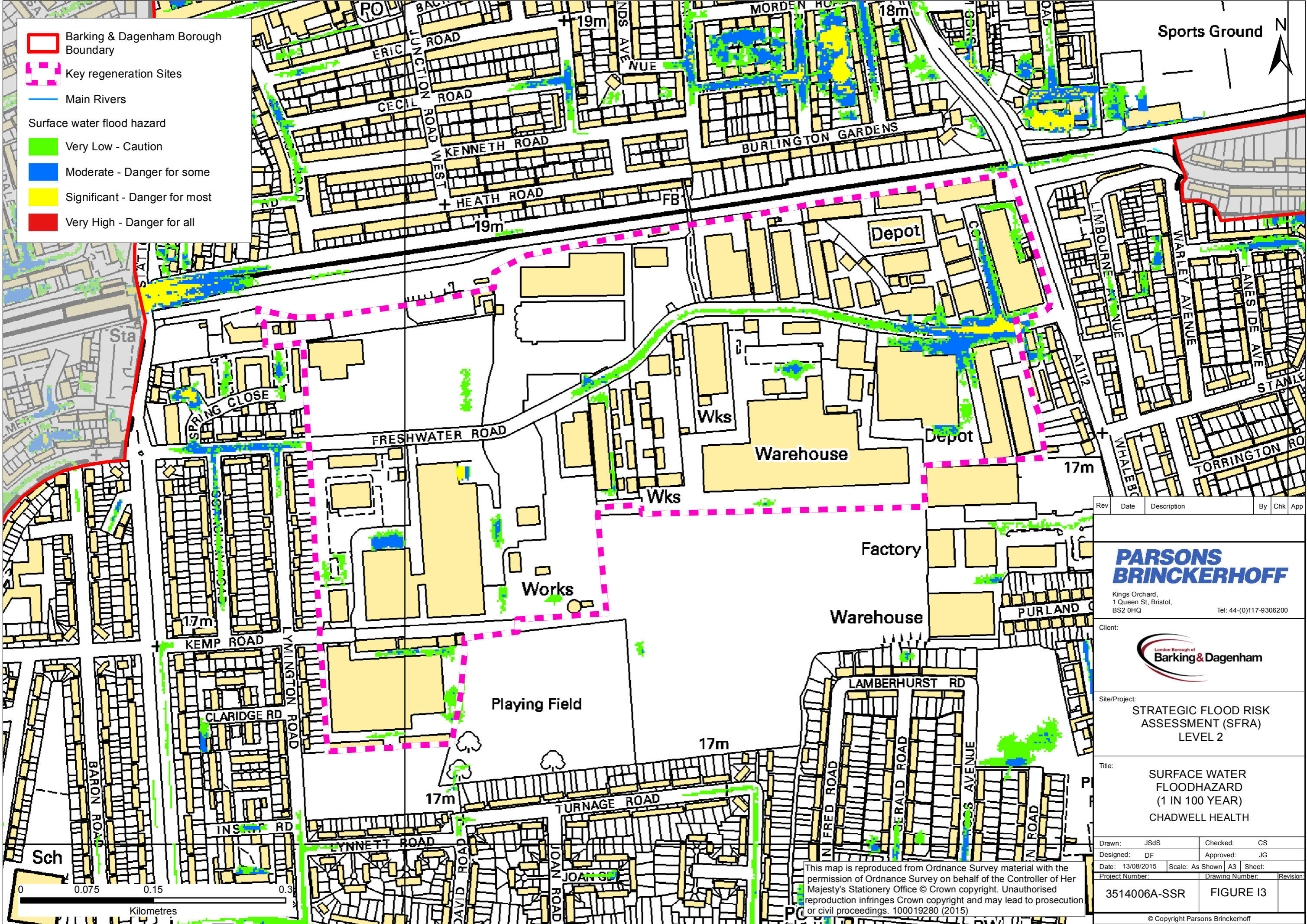
Sustainable Drainage Systems

SUDS techniques as discussed in Section 7.7 of the Level 1 SFRA should be promoted wherever possible. The site should seek opportunities to integrate SUDS within the design of the site and provide an exemplar of best practice techniques including good use of green space to accommodate a variety of SUDS features in order to control and treat runoff from the site.

The development of the Chadwell Heath strategic development site is likely to be completed in phases as plots of land are made available for development. The type of drainage system(s) adopted at the site may be constrained by the size of the development sites brought forward at different times and the contamination risks posed by the site's current and historic industrial heritage. However it is deemed likely that given the size of the development site there will be opportunities to provide a system that demonstrates exemplar SUDS within the larger development sites and/or that serves multiple smaller developments within the site by implementing an overall drainage strategy.

As this is a previously developed site it should strive to achieve betterment over existing discharge rates. Given the site's relatively high elevation within the catchment, developers should strive to achieve pre-developed greenfield rates as far as practicable in order to assist in the reduction of flood risk within areas at a lower elevation. Where this is not practicable a minimum betterment of 20%, whilst taking the potential effects of climate change into consideration, should be achieved.

-  Barking & Dagenham Borough Boundary
-  Key regeneration Sites
-  Main Rivers
- Surface water flood hazard
-  Very Low - Caution
-  Moderate - Danger for some
-  Significant - Danger for most
-  Very High - Danger for all



Rev	Date	Description	By	Chk	App

PARSONS BRINCKERHOFF

Kings Orchard,
1 Queen St, Bristol,
BS2 0HQ Tel: 44-(0)117-9306200



Client:
STRATEGIC FLOOD RISK ASSESSMENT (SFRA) LEVEL 2

Site/Project:
SURFACE WATER FLOODHAZARD (1 IN 100 YEAR) CHADWELL HEALTH

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 I3**

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. 100019280 (2015)

File Name: N:\Water Engineering\3514006A - LBBD SFRA - WORKING FOLDER\GIS\IMdPhase 1\3514006A-SSR-Surface Water Flood Hazards.mxd
Plot Date: 13/08/2015
Login: desouzaj