

JBA Project Code 2013s7544
Contract Calder Valley SFRA
Client Kirklees Highway Service
Day, Date and Time 14 January 2014
Author Mike Williamson
Subject Proposed critical drainage areas



1 Introduction

One of the requirements of the SFRA is to provisionally identify the possible locations of critical drainage areas (CDAs) to help inform development policies and the possible need for detailed SWMPs. For the purpose of this SFRA a CDA is considered to be an area contributing surface water runoff, either as direct overland flow or from the existing sewer network, which causes flooding at locations within that area. The risk of flooding is thereby confirmed, either by historical evidence, through an assessment of the updated Flood Map for Surface Water or through 'on the ground' local evidence provided by the Council.

2 Methodology

The criteria for the proposal of CDAs is summarised below:

- Areas at surface water risk, according to the uFMfSW, that are within Flood Zone 1
- Areas with clusters of allocated new development within Flood Zone 1 that are at risk from surface water flooding – within the 1 in 100 year uFMfSW outline
- Areas with clusters of current buildings (using National Receptor Database (NRD) intersected with MasterMap properties) within Flood Zone 1 that are at risk from surface water flooding

2.1 GIS Processing

The following steps were carried out to enable the Council to delineate their proposed CDAs:

1. Erasing the 1 in 100 year uFMfSW outline by Flood Zone 2. This produced an outline of the 1 in 100 year uFMfSW event within Flood Zone 1 (uFMfSW100yr_erasedFZ2.shp)
2. All development sites that were at risk from the 1 in 100 year uFMfSW outline but had no fluvial risk were queried (SHLAA_Sites_uFMfSW100yr_NoFluvial.shp, UDP_Sites_uFMfSW100yr_NoFluvial.shp)
3. All NRD property points of type 'dwelling' were intersected with the MasterMap building polygons. The intersected buildings were then queried against the outline output from Step 1 to produce a later of dwellings at risk from the 1 in 100 surface water event, not at fluvial risk. The NRD dwelling points that intersected the buildings at risk were queried in order to carry out the density analysis in the next step (NRD_uFMfSW100yr_NoFluvial.shp)
4. Spatial analysis of the NRD points at surface water risk, from Step 3, was carried out using a 'point density' calculation tool in ArcGIS. This produced a cluster hotspot grid (Figure 1) from which rough CDAs could be digitised (PointDensityGrid.tiff)
5. The outputs from Steps 1, 2, 3 and 4 are shown on Figure 1. From this the Council can draw up proposed CDAs based on the risk clustering and their local knowledge using the enclosed GIS files

NOTE TO FILE

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Figure 1 – Risk Clustering for Proposed CDAs

