

## Job Reference: S4461

Project: Vertu Toyota Chesterfield	Client: Vertu Motors Plc
Subject: Flood Risk Assessment	Author: Joe Langdon
Date: 25 <sup>th</sup> March 2024	Authorized: Andrew Webb



### 1.0 Background

BDN Ltd has been commissioned by Vertu Motors to undertake a Flood Risk Assessment for the proposed demolitions, internal & external alterations to the existing motor dealership, unit 2 Lockoford Lane.

This technical note details the findings of the assessment and provides outline proposals for the flood mitigation measures.

### 2.0 Site Location and Description

The site is in the town of Chesterfield, which is situated within the Borough of Chesterfield, Derbyshire. The site is surrounded by residential properties to the southern border and highways to remaining borders. The main access to the site is by Lockoford Lane, which runs perpendicular to the southern boundary of the site. The main use of the land surrounding the site is either residential or commercial.

### 3.0 Flood Assessment

Potential sources of flooding and associated mechanisms for review are as follows:

- River (Fluvial and Tidal) Sources - Potential flooding resulting from watercourses near to the site or from the sea.
- Overland/Surface water (Pluvial) Flooding - Potential flooding because of surface water flows from adjacent land.

#### 3.1 River (Fluvial) Flooding

The proposed site is considered as Less Vulnerable Infrastructure and as such is suitable for development within Flood Zones 1, 2 and 3a. The EA mapping service which is used to confirm the extent of a flood zone within the vicinity of a site shows that the site is located within Flood Zone 1.

Based on the guidance within the NPPF the site is suitably located with respect to fluvial flooding, there is therefore no need for consideration of fluvial flood defence.

#### 3.2 Overland (Pluvial) Flooding

Pluvial and overland flow results from rainfall that fails to infiltrate the surface and travels over the ground surface. This is exacerbated by low permeable urban development or low permeability soils and geology (such as clayey soils).

Local topography and built form can have a strong influence on the direction and depth of flow. The EA flood map has identified that the site as high risk (more than 3.3% each year).

Surface water flooding can be exacerbated if development increases the percentage of impervious area which has the potential to change the surface water flow regime for the site and the surrounding



North East (Head Office)  
The Old School, Simpson Street,  
Sunderland, SR4 6DR

North West  
Room 110, Ulverston Business  
Centre, Ulverston, LA12 7LQ

T: [REDACTED]  
E: [REDACTED]  
W: [www.bdnltd.com](http://www.bdnltd.com)

area. It is important to ensure that any surface water flows generated by the change to impermeable area are collected on site and do not pass into neighbouring land.

With the design of the surface water management of the site in line with the above principles and no increase in impermeable area, no further consideration of this flooding mechanism is required.

#### 4.0 Conclusion

The Level 1 FRA shows that the site is at minimal risk from the flooding mechanisms assessed in this document. Thorough consideration must be given to the proposed drainage strategy to ensure that any potential risk of flooding on the site is managed, suitable access and egress is provided, and building are suitable protected. On this basis a Level 2 FRA is not required for the site.

The proposed development is suitably located based on the proposed land use and flood zone classification.

Yours Sincerely,



**Andrew Webb** BSc (Hons)  
**Civil Engineering Director**

T: [REDACTED] E: [REDACTED] W: [www.bdnltd.com](http://www.bdnltd.com)