ORANGE DESIGN STUDIO.

Flood Risk Assessment

Prepared on behalf of
Newgate Garage,
Newgate, Mirfield,
WF14 8DB

Contents

1 Introduction.

1.1 The following document has been prepared as a Flood Risk Assessment for the extension to the existing garage building and proposed outbuilding located off of Newgate, Mirfield, WF14 8DB.

1.2 This Flood Risk Assessment has been undertaken in accordance with the National Planning Policy Framework (NPPF) and supplementary Planning Policy Guidance.

1.3 The following assessment discusses the present and future flood risk to the site over the lifetime of the development, using a risk-based approach and reference to the Sequential Test and Exception Test where appropriate.

1.4 This report also discusses and recommends mitigation measures that should be applied to the development to reduce the effects of a potential flood event, to ensure the development does not increase flood risk elsewhere and to protect the end users from the effects of flooding.

2 Existing Situation.

2.1 Existing Site Description

2.1.1 The site is located off of Huddersfield Road within Mirfield.

2.1.2 Newgate Garage occupies land at both East and West off Newgate. The area has a rich industrial historic background, as Newgate Garage has been in this location since the 1950's. Residential dwellings were built around this location after, around the early 2000's.

2.1.3 The site itself is currently an existing garage with adjoining hardstanding areas, like the car park across from the main garage which also holds a small unit and container.

2.1.4 Vehicular access is currently gained via Newgate Road.

2.1.5 The closest watercourse is River Calder which runs along the Western boundary. The river flows from North to South in this part of the river.

2.2 Existing Site Analysis

2.2.1 Figure attached to this document shows the existing permeable and impermeable areas. Majority of the site is impermeable.

3 Consultation.

3.1 Environment Agency

3.1.1 As part of this Flood Risk Assessment, the Environment Agency have been consulted regarding the flood risk for this site.

3.1.2 The response from the Environment Agency confirms that the site falls within Flood Zone 2 and 3 - having a 1 in 100 or greater annual probability of river flooding.

3.1.3 The site is defended by high ground, private walls, industrial unit and natural bank.

3.1.4 Watercourse levels have been provided for the River Calder for a 1 in 100 year + climate change and 1 in 1000 year flood scenario.

3.2 Project Mirfield

3.2.1 The Project Mirfield website www.projectmirfield.co.uk was reviewed as part of the flood risk assessment. The website contains some really useful information regarding historic flood events and most recently the 2015 Boxing Day floods.

3.2.2 The website shows video footage and photos from the 2015 Boxing Day floods and estimates the volume of flood water which surged across the Mirfield flood plains. This can be reviewed at www.projectmirfield.co.uk/uncategorized/thegrand-total-of-flood-water-on-boxing-day-2015-calculates-to-263130-9-cubicmetres-of-flood-water.

3.2.4 Video footage shows that Newgate Garage was affected by these floodings, as well as neighbouring properties.

4 Proposed Development.

4.1 The proposals include an extension to the existing garage and the development of a outbuilding.

4.2 The outbuilding will act as storage for the garage and emergency storage for equipment in times of flooding.

4.3 A plan provided by the architect is contained that show the nature of the proposals and the area of development.

4.4 Access to the site will continue to be gained from Newgate Road, off of Huddersfield Road.

4.5 On assessing the proposed site layout, the permeable and impermeable areas of the site will remain the same.

4.6 The existing mains foul and surface water connections will be retained.

4.7 Please refer to separate documents to view plans and elevations of existing and proposed.

5 Sequential and Exception Test.

5.1 Sequential Approach

5.1.1 Please refer to the separate document that covers the Flood Risk Sequential Test.

5.1.2 The proposals include for the development of the existing garage building with the end use remaining the same.

5.1.3 This includes creating a new extension to the existing garage and outbuilding that tie into the existing structure.

6 Assessment of flood risk.

6.1 Surface Water Flooding

6.1.1 The main risk of flooding from overland flow comes from the river Calder, flowing along the Western border of Newgate Garage.

6.1.2 The Environment Agency have provided a surface water flooding plan which shows the building to be within a very low risk area with a less than 1 in 1000 (0.1%) chance in any given year. The access road to the site however does have a low-risk area with a less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year.

6.1.4 As the proposals do not increase the number of impermeable areas within the site compared to that of the existing, the proposals will not increase the amount of surface water run-off and will have no significant effect on the existing surface water drainage system on site.

6.1.5 It is concluded that the risk of flooding from surface water flooding to the site is no worse from the proposals than the existing scenario. The mitigation measures proposed for the development as discussed in section 7 will also protect against any flooding from this source should the risk increase over the lifetime of the development.

6.2 Flooding from Rivers

6.2.1 As discussed in Section 3, the site falls within Zone 3 having a 1 in 100 or greater annual probability of river flooding (>1%).

6.2.2 The length of the river Calder that is in close proximity to the site is defended in the form of high ground, walls and natural banks.

6.2.3 Boxing day 26th December 2015 the River Calder breached its banks, and reached a new river levels breaking the old River level by 345mm, from 5.04mm to 5.395mm

6.3 Flooding from Sewers

6.3.1 If any of the sewers/drainage apparatus adjacent to the site were to surcharge and flood, it is likely that any floodwaters would be shallow, relatively slow moving and constrained within the limits of the carriageway.

6.3.2 At the time of writing the report there was no evidence available to suggest the site has been directly affected from flooding from overloaded sewers/drainage apparatus in the past.

6.3.3 As the proposals do not change the end use of the development it is concluded that the risk of flooding from sewer flooding to the site is no worse from the proposals than the existing scenario.

6.4 Flooding from Climate Change

6.4.1 It is generally considered that the intensity of rainfall will increase by up to 10% by the year 2025 and that winter months will become proportionately wetter.

6.4.2 Peak river flows are anticipated to increase by up to 20% due to climate change.

6.4.3 These factors should be considered when establishing relevant criteria for the hydraulic design of any surface water infrastructure given the expected lifetime of the development.

6.4.4 Section 7 discusses mitigation measures to be put in place which would provide additional protection for the proposed development which would more than offset any increase in flood risk due to climate change.

Mitigation of Flood Risk.

7.1 Essential Mitigation Measures

7.1.1 It is important that any proposed development that has the potential to change the flood mechanisms on a site are designed such that there is no increased flood risk to the site itself, or sites upstream and downstream of the development.

7.1.2 The site lies within an Environment Agency flood alert area. To obtain up to date flood warnings Call Floodline on 0845 988 1188, select option 1 and enter quickdial number 137401 to get more information. Any flood warnings will also be broadcast on local television and radio.

7.1.3 If the site was to flood, then it is considered that if required (if employees and visitors do not evacuate at the time of a flood alert from the Environment Agency) they should take refuge from any floodwaters by simply moving to the first floor of the development as finished floor levels are above the anticipated 1 in 100 year + climate change flood level for this site.

7.1.5 Access for visitors and employees out of the garage is easy and simple. High-ground can be found up Huddleston Court, with street access opposite to Kingdom Hall, or by heading North up Newgate Road where the street level is considerably higher than the proposed works street level.

7.1.6 The owners of Newgate Garage are aware of the risk to flooding and have measurements in place when necessary.

7.1.7 The developer should also refer to the publication 'Preparing for Floods' published by the Office of the Deputy Prime Minister in October 2003. This document is an interim guidance for improving the flood resistance of domestic properties and small businesses.

7.2 Recommended Mitigation Measures

7.2.1 The layout of external surfaces within the new development should ensure that the grades of such surfaces fall away from any access points into the building to reduce the risk of flooding from overland flow.

7.2.2 Consideration should be given to introduce a removable flood gate to all ground floor doorways and air brick covers which can be installed quickly should the

development become at risk of flooding to stop the ingress of flood water.

7.2.3 The replacement of any chipboard / reconstituted wood fixtures and fittings with plastic or steel fittings at ground floor level should be considered to decrease the need for replacement after a flood event.

7.2.4 All electrical circuits on the ground floor of the building should be at least 600mm above the finished floor levels at ground floor level in accordance with Part M of the Building Regulations 2000. The electrical circuits should be run to sockets and switches from the ceiling cavity between the ground and first floors to ensure that they are not affected should any flood water enter the building.

8 Conclusion.

8.1 This report serves to review and assess the sources of potential flooding to the site, the impact of the proposed development on the flooding mechanisms of the site and the impact on existing development both upstream and downstream of the site.

8.2 The report has been undertaken in accordance with the National Planning Policy Framework (NPPF) and it is concluded that the development is suitable for this location taking into account the proposed end use site.

8.3 Suitable mitigation measures have been recommended in Section 7 that will reduce this risk to acceptable levels for the end user should a flood event occur.

8.4 This report concludes that the proposed development can take place without being at an unacceptable risk of flooding and without increasing the risk to the site itself or other sites in the vicinity.