FLOOD RISK ASSESSMENT

for

OAKMERE HOMES

PROPOSED RESIDENTIAL DEVELOPMENT

on

LAND AT CHATBURN ROAD

CLITHEROE

SEPTEMBER 2019

REFORD

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1. INTRODUCTION

1.1 This flood risk assessment has been produced on behalf of Oakmere Homes in support of a planning application for a proposed residential development comprising 39 dwellings on land adjacent Chatburn Road, Clitheroe. A location plan is included within Appendix A.

1.2 The Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the Planning Practice Guidance (NPPG) in relation to Flood Risk and Coastal Change, and describes the existing site conditions and proposed development. It assesses the potential sources of flooding to the site from tidal, fluvial, groundwater, surface water and other sources, taking a risk based approach in accordance with National Policy.

1.3 A drainage strategy has been produced in conjunction with this flood risk assessment.

Site summary

Site Name	Land at Chatburn Road
Location	Clitheroe
NGR (approx.)	SD753431
Application site area	1.83 ha (approx.)
Development type	Residential
Vulnerability	More Vulnerable
Indicative Flood Zone	Flood Zone 1, except along the line of the watercourse where Flood Zones 2 and 3 are identified.
Local Planning Authority	Ribble Valley Borough Council

2. DESCRIPTION OF THE SITE

Existing site

2.1 The proposal relates to a roughly rectangular shaped piece of land (approx. 1.83ha) that lies to the north of Chatburn Road to the northeast of the centre of Clitheroe.

2.2 The adjacent site to the west has a planning permission for 30 residential dwellings, which has been granted by Ribble Valley Borough Council and is under construction.

2.3 Within the site and parallel to its northern boundary runs a watercourse that flows to the west and ultimately discharges into the River Ribble. The watercourse takes surface water runoff from the local area including the application site.

2.4 A topographical survey has been carried out. The site has a fall to the north towards the watercourse that runs within the site and parallel to its northern boundary.

2.5 Access to the site is available from Chatburn Road.

2.6 The existing site comprises grassland.

Proposed development

2.7 The proposed development will comprise 39 residential dwellings. The masterplan is shown on drawing 067/P/01 accompanying the planning application.

2.8 The main access into the developed site will be from Chatburn Road through the residential development under construction immediately adjacent the site to the west.

3. SCOPE OF THE ASSESSMENT

Flood risk planning policy

3.1 The National Planning Policy Framework (NPPF) sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. Supporting Planning Practice Guidance is also available.

3.2 The NPPF sets out the vulnerability to flooding of different land uses. It encourages development to be located away from areas at highest risk (whether existing or future), and states that where development is necessary in such areas, the development should be made safe for its lifetime. It also stresses the importance of preventing increases in flood risk offsite to the wider catchment area.

3.3 The NPPF also states that alternative sources of flooding, other than fluvial (river flooding), should also be considered when preparing a Flood Risk Assessment.

3.4 As set out in NPPF, local planning authorities should only consider development in flood risk areas appropriate where informed by a site specific Flood Risk Assessment. This document will identify and assess the risk associated with all forms of flooding to and from the development. Where necessary it will demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.

3.5 This Flood Risk Assessment is written in accordance with the NPPF.

Flood zones

3.6 In investigating the flood risk relating to the site, the Environment Agency flood zone mapping identifies the proposed development site lies within Flood Zones 1, except along the line of the watercourse where Flood Zones 2 and 3 are identified. The area of the site to be developed lies wholly within Flood Zone 1. Flood Zone 1 is the lowest risk and is identified as land assessed as having a less than 1 in 1000 annual probability of river or sea flooding (<0.1%).

3.7 An extract from the Environment Agency's Flood Zone Map for Planning is shown below.

Strategic Flood Risk Assessment

3.8 The site is within the area covered by the Ribble Valley Borough Council, Strategic Flood Risk Assessment, Level 1, Adoption Report, May 2010.

3.9 No reference is made to the site within the SFRA.

Sequential Test

3.10 A requirement of NPPF is that all plans should apply a sequential, risk-based approach to the location of development, taking into account the current and future impacts of climate change so as to avoid, where possible, flood risk to people and property. The aim of the sequential test is to steer new development to areas with the lowest risk of flooding.

3.11 Strategic Flood Risk Assessments (SFRA) refine information on the probability of flooding, taking other sources of flooding and the impacts of climate change into account. They provide the basis for applying the Sequential Test, on the basis of the flood zones in NPPG Table 1.

3.12 The flood zones are the starting point for this sequential approach. As already stated, the Environment Agency's flood mapping identifies the site as lying within Flood Zone 1, except along the line of the watercourse where Flood Zones 2 and 3 are identified.

3.13 With reference to NPPF, Environment Agency Flood Maps and the SFRA, the site lies within an area identified as being potentially developable and following the sequential approach, development is only proposed in the Flood Zone 1 area of the site.

3.14 The current development proposals are classified as "More Vulnerable" for residential development. Table 3 within NPPG indicates Flood Risk Vulnerability and Flood Zone 'compatibility'. Using Zone 1 and the "More Vulnerable" classification for residential use, NPPG considers that a development of this type would be deemed appropriate for development within Flood Zone 1.

3.15 Subject to the suitable assessment of flood risk, the development would be considered sequentially preferable in this location.

4. CONSULTATIONS AND DATA ACQUISITIONS

Environment Agency

4.1 The Environment Agency's flood zone mapping confirms that the site lies within Flood Zone 1, except along the line of the watercourse where Flood Zones 2 and 3 are identified.

4.2 The Environment Agency historical flood mapping shows no record of any historic flooding occurring at the site.

United Utilities

4.3 Sewer records have been obtained from United Utilities and are included within Appendix B.

4.4 The records show a public foul sewer at the south western corner of the site within Chatburn Road that lies along the site's southern boundary.

Topographical Survey

4.5 A topographical survey has been carried out. The site has a fall to the north towards the watercourse that runs within the site and parallel to its northern boundary.

Site Investigation

4.6 The online Soilscapes viewer has identified that the geology encountered will be slowly permeable seasonally wet acid loamy and clayey soils with impeded drainage. The ground is, therefore, not likely to be conducive to infiltration of surface water.

4.7 This is supported by a site investigation that has been carried out on the adjacent site. The exploratory holes encountered cohesive deposits of low permeability across the site and concluded that the use of soakaway drainage is not considered feasible at the site.

5. SOURCES OF FLOOD RISK

Potential Sources of Flood Risk

5.1 Potential sources of flood risk to the site are identified below. The significance of these sources is investigated further into Section 6.

Fluvial flooding

5.2 A watercourse lies within the site and parallel to its northern boundary and flows to the west to ultimately discharge into the River Ribble.

5.3 The Environment Agency's flood zone mapping confirms that the site lies within Flood Zone 1, except along the line of the watercourse where Flood Zones 2 and 3 are identified. Flood Zone 1 is the lowest risk and is defined as land assessed as having an annual probability of flooding of less than 1 in 1000 (<0.1%).

Tidal flooding

5.4 The site is a significant distance from the nearest tidal estuary and is, therefore, not at risk of flooding from the sea. The site is not identified as being at risk of flooding from the sea by any Environment Agency Flood Zone maps or within the SFRA for the area. As such, coastal and tidal flooding is not considered further within this assessment.

Canals, reservoirs and other artificial sources

5.5 There are no canals, reservoirs or other artificial sources local to the site.

Groundwater

5.6 Groundwater flooding tends to occur after much longer periods of sustained high rainfall. The areas that are at risk tend to be those low-lying areas where the water table is shallow. Flooding tends to occur in areas that are underlain by major aquifers, although groundwater flooding is also noted in localised floodplain sands and gravels. The main causes of groundwater flooding are:

- Natural groundwater rising due to tidal influence, or exceptionally wet periods leading to rapid recharge;
- Groundwater rebound due to cessation of abstraction and mine dewatering;
- Existence of confined aquifers and springs.

5.7 There are no recorded incidents of flooding associated with groundwater levels within the site.

Sewers

5.8 Flooding from a drainage system occurs when flow entering a system exceeds its discharge capacity, the system becomes blocked or, in the case of surface water sewers, it cannot discharge due to high water level in the receiving watercourse. Sewer flooding is often caused by surface water discharging into the combined sewerage system, sewer capacity is exceeded in large rainfall events causing backing up of flood waters within properties or discharging through manholes.

5.9 Surface water (including the risk of sewers and culverted watercourses surcharging) poses the highest risk of more frequent flooding. Surface water drainage from new developments is critical in reducing the risk of localised flooding.

5.10 Where possible the preference for dealing with surface water runoff from the developed site is for it to infiltrate back into the ground or alternatively to a waterbody or watercourse. Only if it is not possible for either of these options is surface water from the development to be allowed into the public sewers.

5.11 Sewer records have been obtained from United Utilities. The records show a public foul sewer at the south western corner of the site within Chatburn Road that lies along the site's southern boundary.

Pluvial runoff

5.12 The Environment Agency Risk of Flooding from Surface Water map indicates the site is at a very low risk of surface water flooding. A very low risk means that each year, this area has a chance of flooding of less than 1 in 1000 (0.1%). A low risk is identified along the line of the watercourse that lies parallel to the site's northern boundary.

5.13 It should be noted that surface water flooding can be difficult to predict, much more so than river or sea flooding as it is hard to forecast exactly where or how much rain will fall in any storm. In addition, local features can greatly affect the chance and severity of flooding.

Development drainage

5.14 Surface water (including the risk of sewers and culverted watercourses surcharging) poses the highest risk of more frequent flooding. Surface water drainage from new developments is critical in reducing the risk of localised flooding.

5.15 If surface water runoff is not managed appropriately, there may be an increased risk presented elsewhere from development drainage, and the aim should be to implement appropriate sustainable drainage systems (SuDS) to treat and contain flows and mimic the existing conditions.

5.16 Where possible the preference for dealing with surface water runoff from the developed site is for it to infiltrate back into the ground or alternatively to a waterbody or watercourse. Only if it is not possible for either of these options is surface water from the development to be allowed into public sewers.

5.17 The proposed development will increase the area of impermeable hardstanding on site, which has the potential to significantly alter the surface water runoff regime of the site and have an adverse effect on flood risk elsewhere in the wider catchment.

6. FLOOD RISK ASSESSMENT

6.1 This section of the Flood Risk Assessment looks at the flood risk to the site before any mitigation measures are put into place and hence identifies where mitigation will be required. Section 7 continues to explain the mitigation measures proposed and the residual risk following implementation of any proposed mitigation.

Risk of Flooding to Proposed Development

Fluvial Flood Risk

6.2 The Environment Agency's flood zone mapping confirms that the site lies within Flood Zone 1, except along the line of the watercourse where Flood Zones 2 and 3 are identified. Flood Zone 1 is the lowest risk.

6.3 It is only proposed to develop the area of the site that lies within Flood Zone 1.

6.4 In addition the topographical survey identifies that the site falls towards the northern boundary and the watercourse. As such the watercourse doesn't pose a flood risk to the site and the risk of fluvial flooding to the proposed development is therefore very low.

Canals, reservoirs and other artificial sources

6.5 There are no canals, reservoirs or other artificial sources that are local to or affect the site.

6.6 The Environment Agency risk of flooding from reservoirs map identifies the site is not at risk.

6.7 As such the risk of flooding from canals, reservoirs and other artificial sources is low.

Groundwater

6.8 There are no recorded incidents of flooding associated with groundwater levels within the site and the flood risk from groundwater is low.

Sewer Flooding and Pluvial Runoff

6.9 A public foul sewer lies at the south western corner of the site within Chatburn Road that lies along the site's southern boundary.

6.10 The ongoing operational and maintenance responsibility of the public sewer system is the responsibility of United Utilities. The risk of flooding from sewers to the development is therefore low.

6.11 The Environment Agency Risk of Flooding from Surface Water map indicates the site is at a very low risk of surface water flooding, except for along the line of the watercourse that lies parallel to the site's northern boundary where a low risk is identified.

6.12 Due to the nature and topography of the adjoining areas there is only limited potential for pluvial runoff from heavy rainfall events to be conveyed towards the site. It is likely that any pluvial runoff from the land to the south of the site, which is higher than the site, would be intercepted by Chatburn Road.

6.13 There is no record of any flooding on the site after heavy rainfall.

6.14 As such the risk is low from sewer flooding and pluvial runoff.

Effect of the Development on the Wider Catchment

Development Drainage

6.15 The proposed development will introduce an area of impermeable hardstanding on site which has the potential to significantly alter the surface water runoff regime of the site and have an adverse effect on flood risk elsewhere in the wider catchment.

6.16 The ground is not conducive to infiltration.

6.17 It is intended that new surface water drainage will be constructed, appropriately sized to take all surface water runoff from the new roofs and hardstanding areas, to discharge into the watercourse that lies parallel to the northern boundary of the site.

6.18 As the surface water runoff from the development will be attenuated to pre-development runoff rates, there will be no change to the flood risk upstream or downstream of this location.

6.19 Outline surface water requirements have been prepared and are discussed within the accompanying drainage strategy.

6.20 As a result of the mitigation measures, the risk of flooding from the development drainage is low.

7. PREDICTED IMPACTS AND MITIGATION

7.1 This section of the FRA sets out the mitigation measures recommended to reduce the risk of flooding to the proposed development and outlines any residual impacts.

Site arrangements

Access / Egress

7.2 If an extreme event was to occur, the access to the site would be from Chatburn Road which lies within Flood Zone 1.

Upstream and downstream effects

7.3 There is no material effect on the floodplain due to the proposed development.

7.4 It is intended that surface water attenuation will be provided within the development site to restrict surface water flows from the developed site to pre-development runoff rates. Attenuation will be provided within oversized pipes and manholes, and a controlled discharge made into the watercourse that lies parallel to the northern boundary of the site. There will, therefore, be no additional risk to upstream or downstream properties.

8. CONCLUSIONS

8.1 This flood risk assessment has been produced on behalf of Oakmere Homes in support of a planning application for a proposed residential development comprising 39 dwellings on land adjacent Chatburn Road, Clitheroe.

8.2 The site to be developed lies within Flood Zone 1, except along the line of the watercourse where Flood Zones 2 and 3 are identified. Flood Zone 1 is the lowest risk.

8.3 As it is only proposed to develop the area of the site that lies within Flood Zone 1, the risk of fluvial flooding is very low.

8.4 There are no recorded instances of historic flooding at the site.

8.5 The risk of flooding from canals, reservoirs and other artificial sources is low.

8.6 The flood risk from groundwater is low.

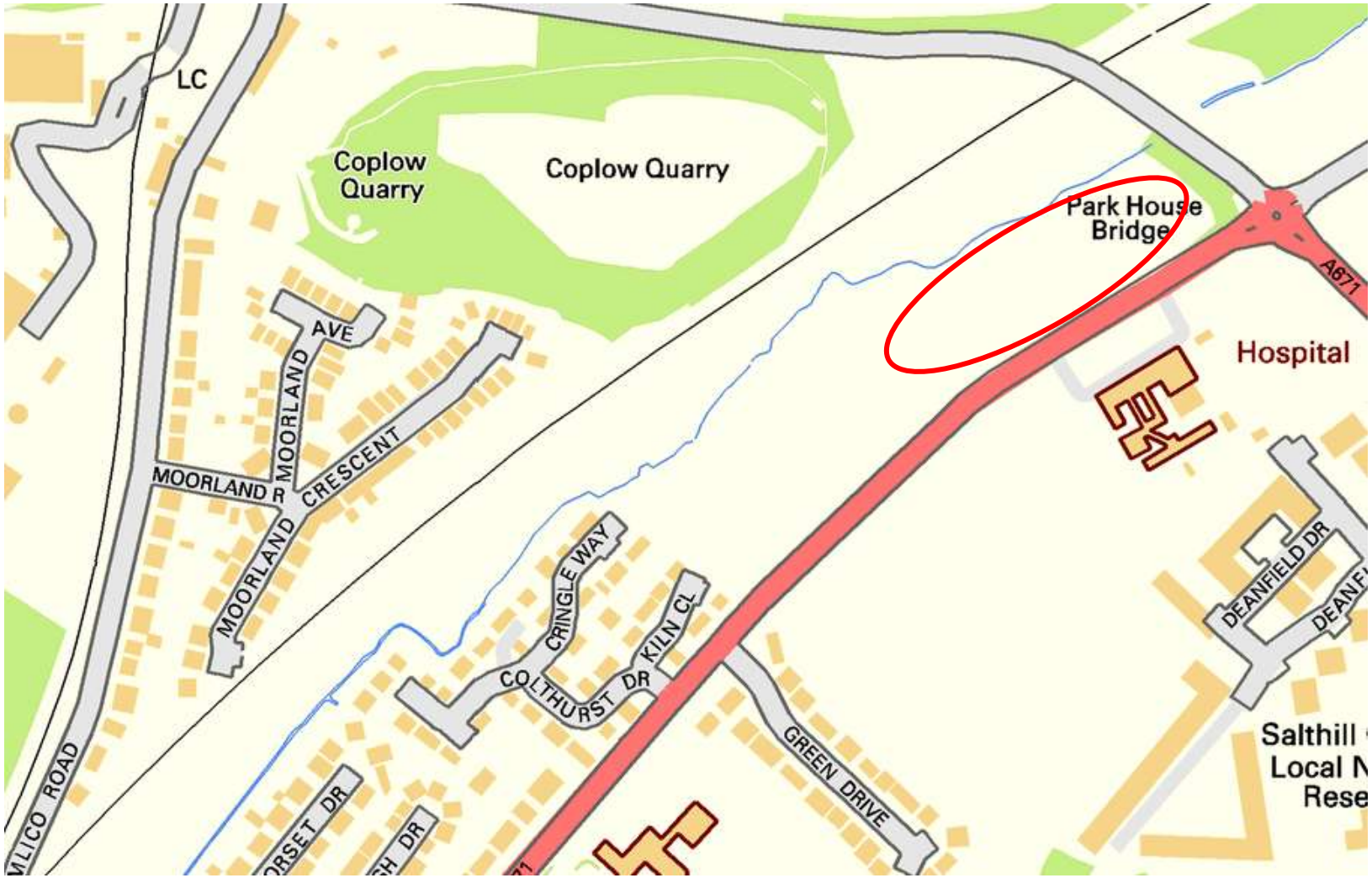
8.7 The Environment Agency Risk of Flooding from Surface Water map indicates the site is at a very low risk of surface water flooding, except for along the line of the watercourse that lies parallel to the site's northern boundary where a low risk is identified.

8.8 The risk from sewer flooding and pluvial runoff is low.

8.9 The risk of flooding from the development drainage is low.

8.10 This Flood Risk Assessment confirms that the development proposals would be acceptable from a flood risk perspective.

APPENDIX A



CHATBURN ROAD – LOCATION PLAN

APPENDIX B

Extract from Map of Public Sewers

The position of underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available.

The actual positions may be different from those shown on the plan and private pipes, sewers or drains may not be recorded.

United Utilities will not accept any liability for any damage caused by the actual positions being different from those shown.

LEGEND

Water Course
Overflow Pipe
Sludge Main
Highway Drain

Combined	Surface Water	Foul	Abandoned	
				Public Sewer
				Private Sewer
				Section 104
				Rising Main

CHATBURN ROAD, CLITHEROE,

Printed By : Property Searches Date: 27/09/2016

DO NOT SCALE

Approximate Scale: 1:2500

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