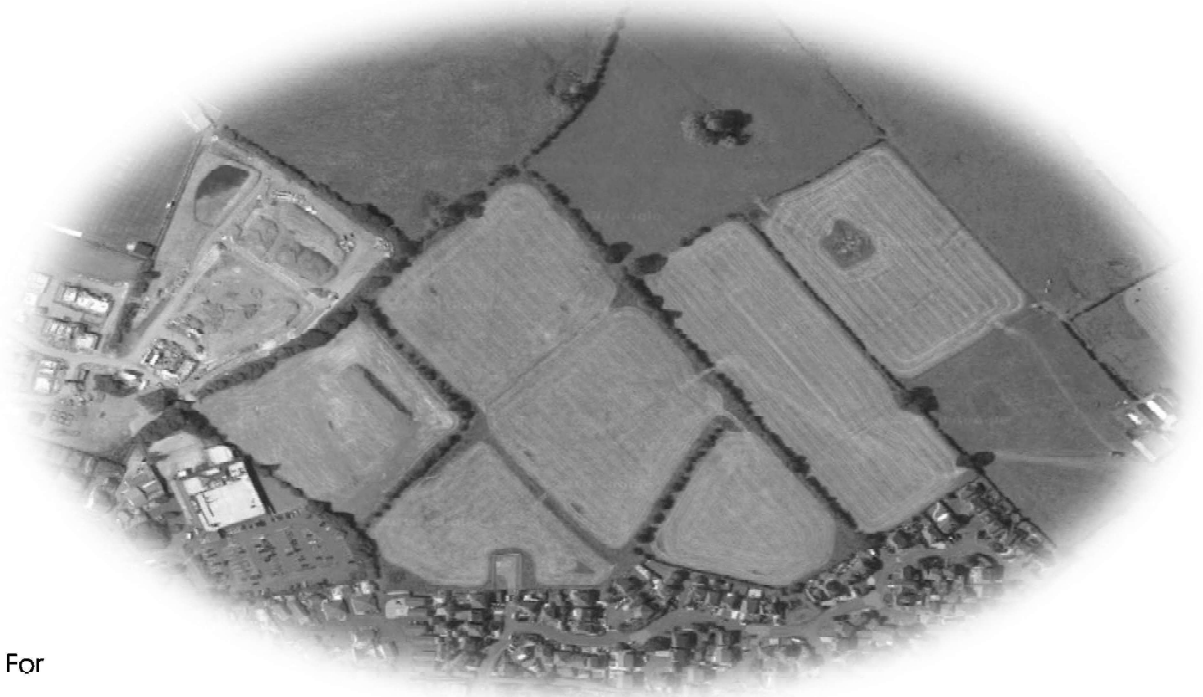




**LAND OFF CHIPPING LANE
PHASE 2 & 3
LONGRIDGE**

**FLOOD RISK ASSESSMENT AND
DRAINAGE MANAGEMENT STRATEGY**



For

Barratt Homes Manchester
4 Brindley Road,
City Park,
Manchester,
M16 9HQ



NOVEMBER 2021

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Document Tracking Sheet

Document Reference: HYD371_CHIPPING.LANE_FRA&DMS
Revision: 2.0
Date of Issue: 22ND NOVEMBER 2021
Report Status: FINAL

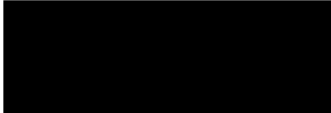
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Revision History:

Rev:	Date:	Status:	Prepared by:	Checked by:	Issued by:
2.0	22.11.2021	FINAL	HB	MB	HB
1.0	05.12.2018	FINAL	MB	DK	MB
0	20.11.2018	DRAFT	MB	DK	MB

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EXECUTIVE SUMMARY

This Flood Risk Assessment and Drainage Management Strategy was commissioned by Barratt Homes referred to hereafter as 'the client'. This report has been prepared to support a full planning application for the construction of residential development on land to the east of Chipping Lane in Longridge. Phase 1 has planning approval (Ref: 3/2014/0764) and is supported by a separate, approved Flood Risk Assessment and Drainage Management Strategy (HYD068_CHIPPING.LANE_FRA&DMS).

This assessment therefore focuses on the residential development proposed as part of Phase 2 & 3 only. Phase 2 & 3 collectively cover 10.66ha, although the proposed development area covers a smaller portion at 6.24ha.

Flood Risk

The site is located wholly within Flood Zone 1 based on the Environment Agency Flood Map for Planning. The proposals are for a residential-led development, which is considered 'More Vulnerable' in Table 2: Flood Risk Vulnerability Classification within Planning Practice Guidance. This 'More Vulnerable' development is confirmed to be appropriate within Flood Zone 1, providing there is no increase in flood risk elsewhere due to the proposals.

Consultations with the Environment Agency, Ribble Valley Borough Council, Lancashire County Council and United Utilities have been undertaken and did not identify any historical incidents of flooding to the site or within the neighbouring areas. This assessment has considered all sources of flood risk. As part of Phase 1, hydraulic modelling of the Ordinary Watercourse was undertaken to determine the potential flow risks associated with the proposed culverting the Ordinary Watercourse for vehicular crossing as part of Phase 1. The full Hydraulic Assessment has been appended to this assessment for full details. To summarise the proposed Phase 2 & 3 development area will, following the implementation of mitigation measures remain flood free in all key storm events, including the 1 in 100-year (1% AEP) plus Climate Change event without having any impact on the neighbouring land/properties.

The primary source of flood risk is considered to be from surface water where the risk varies across the site from 'very low' to 'high' within the natural low-lying areas of site. The risks post-development from surface water will be effectively managed through implementation of the mitigation measures proposed within this assessment. To minimise flood risk from surface water it would also be recommended that natural drainage routes through the site be maintained within the proposals, including the existing Ordinary Watercourse, crossing the site from the southern boundary to the north.

Drainage Strategy

To ensure surface water flood risk to others does not increase, it is important to ensure surface water run-off is appropriately managed in accordance with the sustainable drainage hierarchy. Based on the ground conditions identified by the published online datasets, infiltration is not considered to provide a viable drainage solution for the development due to the impermeable strata. A ground investigation report (Ref: STN3505NM-G01) was also undertaken for Phase 1 and identified soakaways were not suitable to be used as a method for managing surface water run-off.

Assuming infiltration is not feasible, the next method in the drainage hierarchy should be discharge to a watercourse. Most of the site naturally drains to the Ordinary Watercourse

crossing the site at present and the proposals are therefore to mimic the existing situation, discharging surface water run-off from the site to the watercourse using the existing onsite features where practical. Detailed design will need to confirm feasibility of a site wide gravity solution, although this is anticipated as most of the site naturally drains in this manner at present.

In accordance with the SuDS Manual and the Non-Statutory Technical Standards for Sustainable Drainage Systems, all sites should endeavour to achieve as close to pre-development greenfield rates as viable. The proposals are to therefore discharge to the watercourse crossing the site mimicking pre-development greenfield situation, QBar is calculated to be 84.9l/s and will need to be proportioned between the multiple proposed points of outfall.

Restricting the discharge rates will generate a storage requirement during extreme storm events, this will need to be considered in terms of onsite attenuation as part of detailed design. It would be beneficial to implement SuDS features at the outfall location(s) such as ponds or basins for attenuation, conveyance and water quality benefits, although this will need to be considered during detailed design.

This Flood Risk Assessment and Drainage Management Strategy has been prepared in consultation with the relevant interested parties and incorporates their comments where possible. The report is considered to be commensurate with the scale and nature of the development proposals and in summary, the development can be considered appropriate in accordance with the Planning Practice Guidance.

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Specialist Software

- MicroDrainage WinDES (v.14.1) – Calculation of Greenfield run-off rates IH124/ICP-SUDS, Greenfield run-off volumes, rates of rainfall and stormwater storage estimates.
- Flood Estimation Handbook FEH – Determination of Catchment Descriptors and depths of rainfall.

Abbreviations & Acronyms

AEP	Annual Exceedance Probability
BGL	Below Ground Level
BGS	British Geological Survey
CC	Climate Change
CSAI	Cranfield Soil and Agrifood Institute
EA	Environment Agency
FEH	Flood Estimation Handbook
FRA	Flood Risk Assessment
LCC	Lancashire County Council
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
mAOD	Metres Above Ordnance Datum
NGR	National Grid Reference
NPPF	National Planning Policy Framework
NSRI	National Soil Resources Institute
OS	Ordnance Survey
PFRA	Preliminary Flood Risk Assessment
PPG	Planning Practice Guidance
QSE	Quick Storage Estimate
QBAR	Mean Annual Flood
RVBC	Ribble Valley Borough Council
SfA	Sewers for Adoption
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems
TWL	Top Water Level
UU	United Utilities

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1.0 INTRODUCTION

1.1 Planning Policy Context

- 1.1.1 All forms of flooding and their impact on the natural and built environment are material planning considerations. The revised National Planning Policy Framework (NPPF) sets out the Government's objectives for the planning system, and how planning should facilitate and promote sustainable patterns of development, avoiding flood risk and accommodating the impacts of climate change. Government policy with respect to development in flood risk areas is contained within the revised NPPF and the supporting Planning Practice Guidance (PPG) (refer to extracts in **Appendix A**).
- 1.1.2 A Flood Risk Assessment and Drainage Management Strategy (FRA&DMS) has been completed in accordance with the revised NPPF and the PPG to review all sources of flood risk both to and from the proposed development. The report also considers the most appropriate drainage options including the implementation of Sustainable Drainage Systems (SuDS) in line with national policy.
- 1.1.3 The proposals are considered to be predominantly 'residential' in nature and as such is classified as 'More Vulnerable' in Table 2: Flood Risk Vulnerability Classification, within the Planning Practice Guidance. The PPG confirms that this type of land use is appropriate for Flood Zone 1, providing there is no increase in flood risk elsewhere due to the proposals.

1.2 Site Context

- 1.2.1 This FRA&DMS has been prepared to support a full planning application for Phase 2 & 3 of the residential-led development, on land to the east of Chipping Lane in Longridge. This assessment is to support Phase 2 & 3 of the wider/residential led scheme, Phase 2 and 3 will comprise of 198no. residential dwellings collectively with some land allocated for a new school. Phase 1 (for 363no. residential dwellings) already has planning approval (Ref: 3/2014/0764) and is supported by a separate, approved FRA&DMS (Ref: HYD068_CHIPPING.LANE_FRA&DMS).

1.3 Consultation

- 1.3.1 The preparation of this report has been undertaken in consultations with the following interested parties; the Environment Agency (EA), United Utilities (UU), Lancashire County Council (LCC) and Ribble Valley Borough Council (RVBC). Consultation responses can be seen in **Appendix B, C and D**. The NPPF advises that the LPA should consult with the EA who will provide advice and guidance on flood issues at a strategic level and in relation to planning applications.

2.0 EXISTING SITE LOCATION

2.1 Location

2.1.1 The proposed development site will be access via the access road for Phase 1 from Chipping Lane to the west. The Ordnance Survey National Grid Reference (OS NGR) for the site is E: 360405, N: 437794 and the nearest postcode is PR3 3HB (see Location Plan in **Appendix E**). Phase 1 of the wider scheme already has planning approval and is highlighted by the green line in **Figure 1**. This assessment however focuses on Phase 2 & 3 only, which is referred to as 'the site' and is outlined in red in **Figure 1**.

2.1.2 The total site area covers 10.66ha, although when the proposed public open space, recreational areas and the land allocated for the new school are considered, the actual residential development area will cover 6.24ha. The site is bounded to the north and east by undeveloped agricultural land and to the south lies residential dwellings off Redwood Dive. Phase 1 is located to the west of the site with neighbouring residential development, the site will also be accessed from the west through Phase 1.



2.2 Existing and Historical Land Use

2.2.1 The preparation of this report has identified that the site is currently undeveloped agricultural land to the east of Chipping Lane in Longridge. The site comprises of low-density vegetation with taller shrubs along some field boundaries. There are existing onsite drainage features present including the Ordinary Watercourse flowing north into Higgin Brook. Historically the site was utilised for agricultural purposes and no other historical land uses have been determined during the preparation of this report.

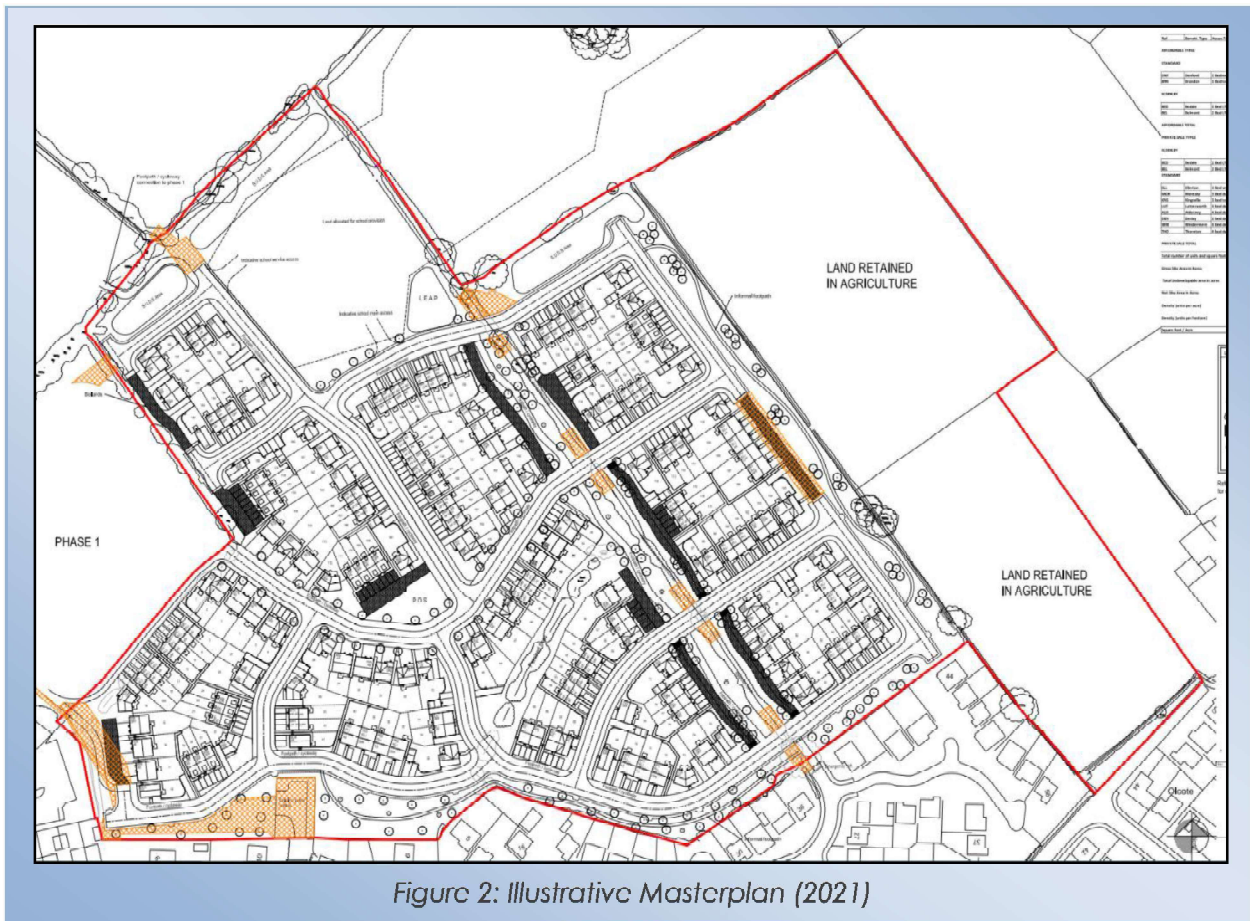
2.3 Topography

- 2.3.1 The topographic levels naturally vary onsite given the land-use. The site generally falls towards the Ordinary Watercourse flowing adjacent to the northern field boundary and to the Ordinary Watercourse crossing the site. There is an overall fall from 121.50mAOD in the south to 106.41mAOD in the north. A full topographical survey has been carried out and is included in **Appendix F**.

3.0 DEVELOPMENT PROPOSALS

3.1 Nature of the development

3.1.1 This planning application is for the construction of 198no. residential dwellings on undeveloped land located to the east of Chipping Lane in Longridge (outlined in red within **Figure 2**). The proposals will be complete with access via the approved Phase 1 scheme, footpaths, car parking, external works lighting, landscaping, boundary walls/fencing, external services and drainage as shown on the illustrative masterplan in **Figure 2** (full layout in **Appendix G**).



3.1.2 The total site area covers 10.66ha and is considered to be 100% permeable at present. Due to the nature of the proposals, the proposed residential development area is smaller than the total site and covers 6.24ha. The development area excludes areas which are proposed to remain undeveloped, used for recreation and allocated for the new school. The post-development impermeable areas of the site will increase due to the nature of the development, to approximately 2.81ha which is 45% of the proposed development area.

3.1.3 There are Ordinary Watercourses present on and adjacent to the site which have been considered within the proposals. In accordance with Lancashire County Council (LLFA) there is a requirement to maintain easements from existing Ordinary Watercourses. LCC typically require an 8m easement to be maintained from the Top of Bank of the watercourses into the development area. The easement should provide clear and unimpeded access for future maintenance. This includes no fencing, walls or buildings should be present within the designated easement. Ordinary Watercourses are

required to remain open channel where possible however, culverting of the watercourse for crossing purposes is typically accepted by LCC. Culverting of the watercourse for vehicle crossing as with Phase 1 is allowed providing the culverting is kept to a minimum and follows LCC design requirements. Early discussion with LCC is advised to get approval of any culvert proposals.

- 3.1.4 In review of Untied Utilities (UU) sewer records, a foul water pumping station has been identified onsite adjacent to the southern boundary, this pumping station has been accounted for within the planning proposals. A public foul water sewer (375mm.dia) associated with the pumping station has also been identified onsite adjacent to the southern boundary. In addition, there is also a public surface water sewer (375mm.dia) which presently crosses the development site from the southern boundary towards Phase 1.
- 3.1.5 National and local policy identifies that Sustainable Drainage Systems (SuDS) should be incorporated into new development where at all feasible. As shown on the proposed planning layout there is scope to incorporate some SuDS features such as a pond/basin within the proposed open space/amenity areas. There is also a blue/green corridor shown on the planning layout to border the Ordinary Watercourse crossing the site. Detailed design will however be required to confirm the specific types, subject to ground investigations and detailed levels review.