Higher Road Longridge

DRAINAGE STRATEGY STATEMENT

31.03.2022

AJP Ref: 220-248

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Drainage Strategy Statement

Prepared for Staley Investments

Higher Road, Longridge

Record of Approval	Originator:	Approved:	Date:
	J. Marshall - Engineer	J. Smith - Director	31.03.2022

Version	Author:	Change Description:	
01			
02			

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Drainage Strategy Statement

1.0 Introduction

This statement has been produced to outline the drainage approach for the proposed development at Higher Road Longridge, that shall be in compliance with the Drainage Hierarchy as outlined in the NPPF.

2.0 DEVELOPMENT AND DRAINAGE STRATEGY

2.1 Effect of Proposed Development on Flood Risk

The existing site covers a total area of 6.50ha and is a Greenfield site, As the existing site is open space with no active drainage systems positively connecting to the UU sewer system, the introduction of the new roof area, access road and parking area, the development will lead to an increase in impermeable area.

For the proposed development, the changes to the existing site will increase the volume of impermeable areas and as such, the proposed development in these areas will lead to an increase in the;

- Volume of surface water ponding on the site
- Volume of surface water runoff leaving the site or discharging into surrounding areas
- Peak discharge rate from the site.

Accordingly, site-wide drainage systems are required to drain the foul and surface water flows arising from the proposed development. Where possible, any existing drainage networks should be utilised. Appropriate design and construction of these systems, which should ensure that there is no increase in offsite flood risk that would otherwise impact downstream areas.

2.2 Existing Drainage Systems

Investigation of the sewerage network determined that the only available S.W system to act as point of discharge was the existing ordinary watercourse to the south of Blackburn Road that currently serves the newly developed Taylor Wimpey Housing estate.

2.3 Proposed Drainage Strategy

As outlined above in section 2.1, site-wide drainage systems are required to drain the foul and surface water flows arising from the proposed development. The proposed drainage systems must ensure that there is no increase in offsite for flood risk, for all storms up to the 1:100-year event with an allowance for climate change; that would otherwise impact downstream areas.

2.3.1 Surface Water Drainage

The Building Regulations - Approved Document H (2002) and the NPPF details a hierarchy of potential methods for disposing of surface water as shown below in order of preference:

- Discharge via infiltration
- Discharge to watercourse
- Discharge to sewer

Considering the hierarchy above, the surface water network for the proposed site should infiltrate to ground where viable.

As laid out within the GRM site investigation information (REF: P9595 REV A) Phase II draft logs show that that the site is underlain by Pendle Grit Member, comprising of clays/sands and Sandstone.

As set out within Section 10.10 the use of infiltration is not recommended due to issues with "springing" and noted dampness of most trial pits. In areas of strata that are more sand than clay they note that:

"If a soakaway drainage strategy were to be considered for the north western area of site, there is the possibility that water from the soakaways could create spring lines on the sandstone/clay interface and flow over the cohesive clay, at the base of any engineered fill, potentially lubricating the fill and creating the potential for slope instability"

As the possibility of infiltration is ruled out by at this point, the intention for the development would be to discharge to watercourse/ waterbody. The nearest waterbody is the ordinary Watercourse to the south of Blackburn Road

Due to the proximity of the watercourse, it should be utilised as a point of discharge for the surface water flows generated by the development, this is dependent upon determining a route down the side of the existing Taylor Wimpey hosing estate.

While every effort to utilise, any suitable existing systems should be made, the drainage systems should be designed to suit the proposed site layout and topography which aims to provide an efficient design.

In line with the Design & Construction Guidance (DCG) the requirements for the design of new surface water drainage systems are as follows:

Below ground piped drainage to be sized to accommodate the 1 in 2-year (50% AEP) design storm without surcharge.

System to be designed not to flood any part of the site in a 1 in 30-year (3% AEP) design storm.

For events in exceedance of the 1 in 30-year design storm and up to and including the 1 in 100-year event, site drainage and topography should be designed where practicable to route surface water run-off away from buildings to safe above-ground storage areas on site, thereby removing flood risk to properties and preventing this run-off from leaving the site and increasing flood risk elsewhere.

For each design case described above, the design storm is the critical storm duration for the site conditions. In the case of the 1 in 100-year design storm, a 40% increase in the peak rainfall intensity is applied to allow for the estimated worst-case impacts of climate change. This is in accordance with Table 5 of the Technical Guidance to the National Planning Policy Framework.

Suitable systems of below ground drainage will be required to contain as a minimum requirement, the 1 in 30-year event. Additionally, any surface water run-off from events that exceed the design capacity of the new drainage system, up to and including the 1 in 100-year (+40%) event, will be contained within the drainage network or retained on-site in safe storage areas.

Should they be required, measures to prevent oil and other contaminants being passed forward to the existing surface water sewer should also be incorporated into the design of the surface water system, through the use of appropriate oil separators or other appropriate pre-treatment methods.

In line with common practice and Lancashire LLFA guidelines, it is proposed the surface water discharge from the proposed development should discharge at rates not in excess of a value equivalent to the Greenfield Qbar rate or the minimum practicable rate of discharge, whichever is the greater; for all respective storm periods.

An assessment of the existing Greenfield surface water run-off from the existing site area has been carried out and demonstrates that it is greater than the minimum practicable rate of 52.90l/s. Therefore, in accordance with reducing flood risk and compliance with Lancashire LLFA requirements, a restricted flow rate equivalent to Qbar is recommended for the proposed development area for all storms up to and including the 1 in 100-year return period, with an allowance for climate change.

Based on the above discharge limit, there shall be a new S.W network to serve the proposed development that shall discharge into the local watercourse; south of the development. Discharge into this watercourse shall be agreed with the LLFA and with the Environment Agency under the Environmental Permit process.

The Outline drainage layout the proposed S.W Network shall discharge no more than 52.9l/s. This network shall consist of oversized pipes and manholes with online SuDS basins, providing effective storage to accommodate all storm events, subject to control by a vortex flow control system prior to discharging to the watercourse via a newly constructed headwall at the standing water level.

The surface water drainage systems are to be designed to restrict the discharge to the required rate, up to and including a 1 in 100-year return period plus % climate change design storm, while ensuring that no flooding occurs within the 100-year return period and that any flood water for extreme events shall be appropriately accommodated away from proposed and existing dwellings.

The surface water drainage strategy and discharge rate should be confirmed via more detailed discussions with United Utilities, the EA and the Lead Local Flood Authority prior to the commencement of any works.

The proposed drainage systems are to comply with Standards contained within the LASOO Non-Statutory Technical Standards for Sustainable Drainage.