Drainage Strategy Report

Proposed Development – Stanley House

Preston New Road, Mellor, BB2 7NP

for

Monte Blackburn Ltd.

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1.0 Project Information Brief

Project	**Proposed Development – Stanley House**
Project Location	Preston New Road, Mellor, BB2 7NP
Client	Monte Blackburn Ltd
Project Status	Planning
Construction Value	TBC
Our Reference	23032922

2.0 Introduction

2.1 Background and Scope

The purpose of this report is to provide details on the design of both the surface water and foul drainage systems to support the planning application for the proposed new development at Stanley House, Mellor, Blackburn BB2 7NP.

The proposed development is an extension to the west of the existing Hotel site comprised of a new Spa and Leisure Complex, Banquet Hall, extensions to existing hotel entrance and restaurant, new bedroom block, extended car park, amendment of internal access road, rerouting of Park Public Right of Way and enhancement of existing section of Right of Way, new hard and soft landscaping, and tree planting.

2.2 Site Description and Location

The site is an existing Hotel and Spa situated in the open greenfield areas, accessed off the A677 New Preston Road via Further Lane. It is located adjacent to Rose Cottage and Woodfold Park Stud, to the west, with the Arley Brook running approx. 400m to the south boundary of the site. Beardwood Hospital is approx. 2 kilometres, and Blackburn City Centre a further 2 kilometres to southeast of the site.

The overall area of the Hotel & Spa site is approx. 6.5ha with a total impermeable area (including proposed extension) of approx. 2.6ha. The post code for the site is BB2 7NP, with OS Grid reference of E364987, N429767. A location plan of the site is shown below in Figure 1.

A copy of the site's topographical survey can be found in Appendix A.

Figure 1: Site Location Plan *(©Google Maps)*

3.0 Existing Site Drainage

The existing private foul and surface water drainage infrastructure of the site was obtained together with the site's topographical survey.

The private surface water sewer network picks up the existing roof s, car parks and hardstanding areas and discharges into an existing attenuation pond located to the east of the hotel and spa building. There is an existing headwall outfall from the pond to a ditch course that runs along the east boundary of the site.

It is intended to incorporate surface water drainage of the proposed extension to the site, into the existing private surface water network, discharging into the pond which would be increased in size within the limits of developable area, with a weir-controlled discharge at the headwall outfall.

The private foul water network runs to the north of the hotel and spa site, where it connects into an assumed public foul sewer which ultimately connects into the public sewer network in the A677 Preston New Road.

It is intended to incorporate the foul water drainage of the proposed site extension into the onsite private foul network.

4.0 Proposed Site Drainage

4.1 Surface Water Drainage

The surface runoff of the existing hotel and spa site is known to be sustainably managed via the existing attenuation pond on site which ultimately discharges to an existing ditch course along the east boundary of the site. It is believed that discharge to the ditch course is **unrestricted**.

Therefore, the drainage solution for the proposed extension is intended to be incorporated into the existing surface water system while increasing the size of the attenuation pond and incorporating additional online storage features, to eliminate flooding and manage runoff conveyance for the relevant storm events in accordance with the principles of sustainable drainage.

4.2 Hydraulic Design

A hydraulic design of the proposed surface water drainage network has been undertaken using Causeway Flow modelling package for all storm events up to and including the 100yr plus 40% climate change event. The simulation of the network's performance has also been carried out assuming a **weir level of 138.70mAOD and with maximum flow over the weir of 255 l/s, representing 30% betterment on unrestricted runoff of the 2.6ha impermeable area,** the balancing pond is therefore designed to accommodate storms to ensure no flooding occurs in the critical storm events for the 1-year, 30-year, and 100-year + 40% climate change impact.

With the proposed extension development to the property, there is an increase of approx. 0.85ha in additional roof, hardstanding, and car park areas. This brings the total impermeable area of the 6.5ha site to 2.6ha.

The increase in impermeable area meant that additional online attenuation was required to prevent surface flooding on site. From the hydraulic simulation design, **a total storage of 1,440m³ is required**, with the pond only able to provide 1,200m³ within its expandable limits. The design therefore utilises two (2) additional cellular attenuation tanks along the network to provide the total extra storage volume of 240m³. The design ensures no flooding occurs in the drainage network proposed for this development.

Assessment for the surface water discharge rate and detailed calculations of the hydraulic modelling and simulation results can be found in Appendix C.

4.3 Operation and Maintenance Plan

The proposed surface water network for the drive-thru shall be maintained by the owner's management company in accordance with the maintenance regime recommended in Table 1 below.

Table 1 SW System Operation and Maintenance

SuDS Feature	Operation and Maintenance
Attenuation Pond	Maintain and trim vegetation in and around pond banks twice a year, preferably in April and October to a height of approx. 100mm. Regularly inspect and monitor the general operation, structural condition of the inlet/outlet headwalls and any erosion of banks or scour control features should be identified and rehabilitated as required. Desilting of the pond will usually be on a 10-15 year cycle depending on the ongoing silt level checks.
Cellular Attenuation Tank	Inspect twice in the first year and after major storm events, desilt as required. Tank to be 'accessible' type with inspection chambers for maintenance.
Hydrobrake	The Hydro-brake has no moving parts and no power requirements and provides reliable, low-maintenance, engineered flood management. Periodic desilting of the Hydrobrake sump as well as checking the emergency drain down mechanism is in good working order. The sump should be emptied/checked at least as follows (but with an annual inspection and additional cleansing if required): On completion of drainage works, Year 1, Year 3, then every 5 years.
Channel drains (Aco or similar)	- Regularly inspect and take off grating to remove debris and clogged up deposits to allow free flow of water through channel drains.
Inspection chambers, Manholes, Silt Trap	Inspect six-monthly, empty every 12 months and after every major storm or local flood event

4.4 Foul Drainage

It is proposed to incorporate the foul water drainage of the proposed site extension into the onsite private foul network,

5.0 Drawings and Calculations

LM23004-100-102 Drainage Strategy Plans (3no. Sheets)

LM23004 -150 Catchment Areas Plan

LM23004-200 Exceedance Flow Plan

SD-300 Standard Details – Surfaces

SD-301 Standard Details – Joints

SD-302 Standard Details – Drainage

SD-303 Standard Details – Manholes

SD-304 Standard Details – Attenuation Tanks

Hydraulic Model Calculation (FLOW)

SW Discharge Assessment

Appendix A

Topographical Survey