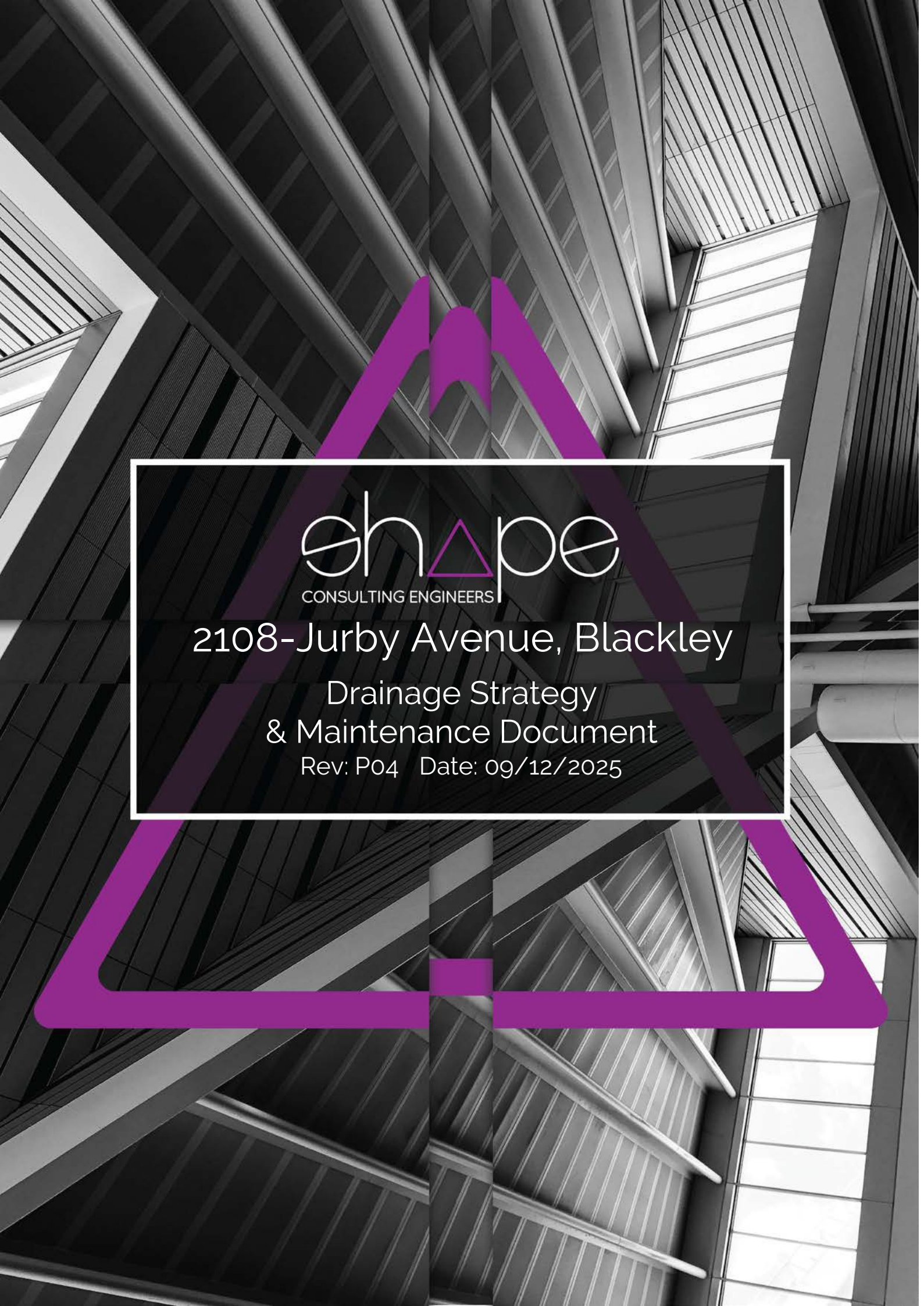


CONSULTING ENGINEERS

2108-Jurby Avenue, Blackley

Drainage Strategy & Maintenance Document

Rev: P04 Date: 09/12/2025

1. Assessment of appropriate drainage outfall

Infiltration

The site has been assessed for the suitability of infiltration type surface water drainage systems in accordance with BRE Digest 365, as recorded in the Phase 1&2 Geo-environmental Report prepared by Caulmert Limited. One infiltration test was conducted and failed, after an initial drop, with the water remaining at the same level after one hour and twenty minutes on test. Infiltration drainage via soakaways is therefore not considered suitable for the proposed development.

Watercourse

The site has been assessed for the viability of a surface water connection to an existing local watercourse. There is no local watercourse within the vicinity of the site therefore connection into a watercourse is not viable.

Surface Water Sewer

The site is greenfield but is already served by a positive sewer network, located within the sites existing access. Copies of the United Utilities (UU) sewer records have been obtained but were found to be inaccurate following CCTV and drainage survey conducted by Team Drainage UK (now defunct).

Combined Water Sewer

The UU sewer record shows a 225mm diameter combined water sewer running from a manhole within Jurby avenue outside house no. 12 down to the southeast towards the French Barn Lane Allotments. The CCTV and drainage survey however found the line of the existing sewer to change direction at a manhole located at the back of the edging kerb at the end of Jurby Avenue, where it was then traced to run eastwards towards Plant Hill Park.

Additionally, a sewer connecting from the west into the manhole at the end of Jurby Avenue (not shown on the UU sewer records) was traced during the CCTV and drainage survey. This sewer, when investigated was found to be dry and appeared to be in an abandoned condition and to have been private. This conclusion is supported by historic evidence

attained from a 1963/64 map extract which illustrates that the existing sewer must have served the former terrace housing development that resided there but has since been demolished.

Furthermore, a desktop assessment of both the pipe size and cover levels of the UU apparatus to the west of this sewer demonstrated that the sewer cannot have been served by this infrastructure. Contact was made with UU to inform them of these findings, to which UU have agreed their validity. This section of sewer will therefore be grubbed out to facilitate the developments construction.

Considering the size of development proposed and its associated impermeable area, this live combined water sewer, which runs from the end of Jurby Avenue towards the east, is considered to be a suitable outfall for both the foul water effluent and surface water flow generated on site. It is therefore determined that drainage connections, for both foul and surface water from the proposed development should be routed to this sewer.

A S106 application will be undertaken in accordance with the Water Industry Act to United Utilities to establish suitable sewer connection arrangements.

2. Existing Site

A desktop study and phase 2 site investigation has been carried out.

This report indicates that the site formally comprised a residential development that has been demolished for in excess of 10 years.

Ground water strikes where located across the development. With standing ground water in 1No. borehole (WS4-6), which is located in the south-east of the development.

A groundwater strike was located in WS5-6, which lies below the proposed attenuation tank for the surface water network. The strike was encountered at 2.7m depth (approx. 86.30m AOD). However, no standing groundwater was observed.

Although no standing groundwater was present at this location, the attenuation tank is proposed to be sited at 1.0m above the strike level.

The existing site comprises of undeveloped landscaped areas, following the demolition of the historic housing development in excess of 10 years ago. The site is therefore classified as greenfield.

Greenfield calculations have been completed using the online www.uksuds.com Greenfield runoff rate estimation tool. The results are summarised in the table below:

Return Period	Rate (l/s)
1 year	1.0
2 year	1.0
30 year	1.9
100 year	2.3
QBar	1.1

In accordance with industry guidance, including the most recent DEFRA National standards for sustainable drainage systems (SuDS) issued 30th July 2025:

3.18 The peak allowable discharge rate from the development to surface waters or sewers for the 50% AEP event shall be limited to the equivalent 50% AEP greenfield runoff rate, or 3 l/s/ha, whichever is the greater.

Therefore, surface water runoff for the proposed development is to be restricted to 3.0l/s.

3. Proposed drainage strategy

Details of the proposed drainage are shown on the following drawing:

2108-SCE-00-00-DR-C-0001-T05 – Drainage Strategy

The main sewerage for the development will be kept private with foul and surface water connecting to the existing combined sewer network via one proposed combined sewer gravity connection on-site. No foul and surface water drainage shall be offered for adoption, with all drainage owned and maintained by the client or management company. United Utilities have agreed via a pre-development application to 5.0l/s discharge rate from the onsite surface water drainage to the public combined water sewer. However, as note above, the proposal will be to further restrict this rate to **3.0l/s** in accordance with current national guidance.

The surface water sewer system has been designed in accordance with Building regulations Part H, NPPF and current industry guidelines and therefore includes the design for attenuation of flows for up to a **1 in 100 year + 45%** climate change storm events without flooding. The outflow to the public sewer will be controlled by a hydrobrake device installed within the final downstream manhole.

Attenuation has been provided in the form of cellular storage that will provide 52.8m^3 of storage. This attenuates up to and including the **1 in 100 year + 45% CC** return period for the sites impermeable area of 0.156 ha. The hydrobrake has been designed to restrict surface water flows to a discharge rate of **3.0 l/s**.

Detailed hydraulic calculations have been completed using Causeway Flow to prove the system is capable of attenuating flows and restricting the discharge rate as intended.

United Utilities have agreed via a pre-development application that the foul drainage will discharge with an assumed free discharge to the existing foul sewer surrounding the site.

A proposed maintenance plan shown in Table 1 (overleaf) breaks down the maintenance responsibility and regimes of the other various assets.

4. Drainage management & maintenance

Table 1: Proposed Maintenance (in accordance with best practice and CIRIA C753 – The SuDS Manual).

Drainage Asset	Responsible Organization	Maintenance Work	Frequency
Pipework / Manholes	Private Ownership / Management Company	Inspect pipe work and clear blockages	Annually or after severe storms.
		Inspect manholes and clear blockages	
		Repair any defects in network	
Hydro brake	Management Company	Inspect structure and remove any debris/litter on structure	Six monthly or after severe storms.
Catchpits prior to attenuation	Management Company	Inspect structure and remove any debris/litter on structure	Three monthly or after severe storms.
Cellular Storage	Management Company	Inspect structure and remove any debris/litter on structure	Annually or after severe storms.
Gulleys & ACO Channel Drains	Management Company	Inspect structure and remove any debris/litter on structure.	Annually or after severe storms

*Repair any defects in the drainage network and replace any malfunctioning parts or structures as required. This is the responsibility of the appointed management company.