



2075 – Dye House, Prescot

Drainage Strategy
& Maintenance Document

Rev: P04 Date: 19/12/2023

1. Assessment of Drainage Options

The site has been assessed for the suitability of infiltration type surface water drainage systems in accordance with BRE Digest 365; however, given the presence of impermeable clay, the water level did not fall in either test pit and therefore soakaways will not be viable.

For full review of the undertaken investigations please refer to report:

- 230342-EDGE-XX-XX-RP-G-0001 SI Report-[P01]

The site has been assessed for the viability of a surface water connection to a watercourse. The site has the Prescott Brook as a watercourse running through the site which can be utilised for the surface water discharge; the outfall connection would need to be agreed with the EA by way of land drainage consent approval.

The site is Greenfield however has a positive sewer network southeast of the site. Copies of the United Utilities sewer records have been obtained and verified as generally accurate. Existing manholes are to be lifted to check pipe diameters, depths and routes. According to the records the nearby sewers are combined water sewers. Further to Prescott Brook, this routes into a culverted watercourse within Liverpool Rd.

Due to outfall connection point and existing site levels, it is determined that foul drainage connections from the proposed development should be routed to the existing Combined water public sewer network located within the junction of Manchester Rd to Liverpool Rd. A S104 application will be undertaken according to the Water Industry Act to United Utilities for sewer connections.

2. Drainage Proposals

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

2075-SCE-00-00-DR-C-0001-P04-Drainage_Strategy

The Surface Water sewerage for the development is proposed for adoption with surface water connections to the existing public sewers around the site. This therefore ensures that the main sewerage infrastructure shall be owned and maintained by United Utilities. The Lead Local Flood Authority and Environmental Agency are to agree an assumed surface water discharge rate of 5.5l/s into the surface water sewer network.

The sewer system has been designed in accordance with Sewers for Adoption 6th Edition and therefore includes the design for attenuation of flows for up to a 1 in 100 year + 40% climate change storm events without flooding. The outflow to the public sewer will be controlled by a hydrobrake flow control device manhole. Attenuation has been provided in the form of cellular storage. This attenuates up to and including the 1 in 100 year + 40% CC return period for a site impermeable area of 5460m². The hydrobrake has been designed to restrict surface water flows to a discharge rate of 5.5l/s. further to this, as stated in United Utilities Sewerage Guidance Appendix C – 3.a *where debris can enter the control device, static control should have a minimum opening size of 100mm*, in order to achieve this to allow for the adoptability of the hydro brake chamber a 5.5l/s discharge rate has been proposed, details of the hydrobrake can be found in the calculations in and hydro-international details.

The foul sewerage for the development will be proposed for adoption with a free discharge to a proposed combined sewer before out falling to the existing public sewer within the junction of Manchester Rd to Liverpool Rd, the network will comprise of a pumped solution rising main within the adoptable highway before then routing on a gravity solution within the existing highway. This therefore ensures that the main sewerage infrastructure shall be owned and maintained by United Utilities.

SUD's Features

Whilst permeable paving was explored, the negation of infiltration due to ground condition poses elements of risk to the saturation levels of the ground, whilst permeable paving would allow for a delayed time of entry for the surface water into the proposed network.

Further to the above and appreciating that the site does not incorporate much by way of Suds solutions I would like to propose a Vortex Seperator prior to outfall. This feature provides adequate water quality of the surface water flows (draining into a watercourse) in accordance with the Simplified Index Approach as set out within Section 26 of the SUDS Manual (C753) which can be achieved during all phases of the development.

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

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

Drainage Asset	Responsible Organisation	Maintenance Work	Frequency
Highway Pipework / Manholes / Rising main	United Utilities	Inspect pipe work and clear blockages	Annually or after severe storms.
		Inspect manholes and clear blockages	
		Repair any defects in network	
Highway Hydrobrake/ Vortex Separator	United Utilities	Inspect structure and remove any debris/litter on structure	Six monthly or after severe storms.
Foul Water Pumping station	United Utilities	Inspect structure and remove any debris/litter on structure	Three monthly or after severe storms.
Catchpit prior to attenuation	Private ownership/ Management Company	Inspect structure and remove any debris/litter on structure	Three monthly or after severe storms.
Cellular Storage	Private ownership/ Management Company	Inspect structure and remove any debris/litter on structure	Annually or after severe storms.
Private 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	