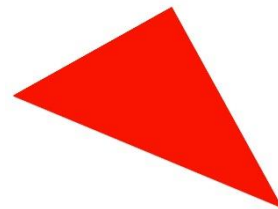


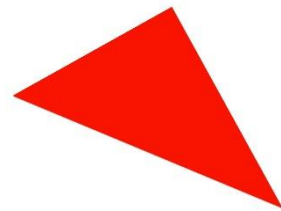
13881 – 1468 ASHTON OLD ROAD - OPENSHAW
SuDS SUITABILITY ASSESSMENT

METHOD	COMMENT	SUITABILITY FOR DEVELOPMENT
Green Roofs	Can be used on suitable low rise buildings to provide retention, attenuation and treatment of rainwater, and promotes evaporation and local biodiversity	<u>Not suitable:</u> Architectural proposals for the development involve a pitched roof arrangement, which are not suitable for green roofs.
Rainwater Harvesting	Rainwater harvesting reduces the total run-off volume from the developed site, and reduces treated water consumption.	<u>Not suitable:</u> - Additional costs of installation would have severe effect on viability of the development. - Running and maintenance costs would not be acceptable to our client and future occupiers. - The ability to restrict peak flow rates and short term peak columns is non-existent where a critical storm event occurs. - Lack of available space on site to store storm water, not feasible.
Infiltration Options	Reduces total run-off volume from the development.	<u>Not suitable:</u> Ground intrusive investigations indicate that the underlying ground is not suitable for infiltration.
Permeable Surfacing (Infiltration)	- Reduces total run-off volume from the development. - Can be used to enhance water quality.	<u>Not suitable:</u> Ground intrusive investigations indicate that the underlying ground is not suitable for infiltration.
Swales, Basins & Ponds	- Provide areas for above ground surface run-off storage. - Swales also allow filtering of particulate matter, improving water quality.	<u>Not suitable:</u> - Space constraints on site do not permit large above ground areas for flood storage. - No scope to reduce development area due to site viability.
Bio-Retention	Collect and retain run-off to help improve water quality, prior to discharge in piped system on infiltration.	<u>Not suitable:</u> Space constraints on site do not permit large above ground areas for flood storage.



		No scope to reduce development area due to site viability.
Geocellular Storage	- Suitable for sites within insufficient space for basins etc. - Suitable for sites where topography prevents the use of open basins etc. - Can be very effective infiltration devices subject to ground conditions.	<u>Suitable:</u> - Subject to detailed design and drainage layout geocellular storage can be utilized below private car parking areas. - United Utilities and Sewers For Adoption would require storms up to and including 1:30 year to remain in adoptable system, with geocellular storage provided for storms from 1:30 up to 1:100 +45%cc.
Large Diameter Pipes, Culverts or Tanks	- Suitable for sites with insufficient space for basins etc. - Provide a volume of below ground storage with a high void ratio and good man entry provision to allow for future maintenance and cleaning. - Generally be suitable for adoption by the water company (e.g. United Utilities).	<u>Suitable</u> - Oversized pipes and manholes can be readily accommodated on-site and provide a viable and cost efficient drainage solution by attenuation. - Off line storage will be utilized for storms above 1:30 year, where layout and design permits.

Based on the SuDS assessment above, plus an assessment of the local site conditions, the SuDS hierarchal approach for discharge of surface water at the development site is considered in greater detail below:



METHOD	SUITABILITY	SUITABILITY FOR DEVELOPMENT
Infiltration to ground	No	Ground intrusive site investigations conclude that the underlying ground is to be unsuitable for infiltration. On the basis of these findings, we shall explore further options of the SuDS hierarchy. <i>"In view of the cohesive nature of the underlying drift geology, soakaways are not considered to be a viable drainage solution, due to impermeability."</i>
Connection to Watercourse	No	There is no watercourse or culvert in close proximity to the site, therefore we shall explore further options of the SuDS hierarchy.
Connection to Surface Water Sewer	No	There are no suitable surface water sewers in close proximity to the site, therefore we shall explore further options of the SuDS hierarchy.
Connection to a Combined Sewer	Yes	There is an existing public combined water sewer in close proximity to the site. There is an existing private connection to this sewer via a private manhole in the adjacent site, and the associated private combined drain runs through the rear garden of the proposed property. A new manhole on the existing line is proposed for both new foul and surface water connections (at 5l/s). Further permissions to connect to the public sewer should be sought and granted by United Utilities via a Section 106 (part 1) application.

As the site investigation indicates that the ground is not suitable for surface water discharge via infiltration, further options of the SuDS hierarchy are to be reviewed. There are no watercourses or dedicated surface water sewers within the vicinity of the site. Therefore, as all options prove unsuitable, we would ask as a last resort to be considered for a connection into the combined sewer system via an existing private drain within the site which makes a connection, at the flow rate agreed by United Utilities, and set at a generally considered minimum (due to blockage/ flood risk) of 5l/s. This would be achieved via a HydroBrake flow control.

SuDS elements which are appropriate to the site have been explored above and shall be used where suitable and practical. In this instance the use of suitable sizes pipes and manholes to accommodate storms up to and including 1:100 years plus 45% climate change, with the use of a HydroBrake flow control to restrict overall discharge off site.

Due to the ground conditions, SuDS methods such as permeable paving are unsuitable, and therefore for hardstanding external areas, ACO drainage channels (or similar approved) will be used to direct the surface water run off into the proposed drainage system.

Carley Daines and Partners Limited

January 2025.