Carley Daines and Partners Limited

Consulting Civil and Structural Engineers

BRIGHAM STREET - OPENSHAW

DRAINAGE MAINTENANCE PLAN

The site drainage plan is shown on Carley Daines and Partners drawing reference 13127-11, Engineering Layout.

The drainage system comprises separate foul and surface water networks which drain by gravity, with the foul water discharging directly into the existing public combined water sewer, via two new connections to the public sewer from drag out chamber in private land; whilst the surface water is attenuated on site with a controlled discharge via HydroBrake chambers into the existing public combined water sewer. The surface water is split into two networks: highway drainage within the road which comprises of 600mm diameter pipes and drains the water from highways gullies only, which is discharged into the combined sewer at 3l/s; and the plot drainage which remains in private land, is attenuated in a below ground attenuation crate system, and discharges into the public sewer at 2l/s; giving an total surface water flow off site of 5l/s. The highway drainage is to be adopted by Manchester City Council highways department as a highway drain under the Section 38 application and will be maintained for its lifetime by MCC, whilst the plot drainage will remain private, under the ownership and maintenance responsibilities of the landowner. Both SW connections and both FW connections will be subject to Section 106 approvals by United Utilities in order to make new connections to the public sewer system.

The foul water from the properties discharge from internal fittings directly into individual polypropylene 450mm diameter inspection chambers, which in turn discharge into a 150mm diameter pipe to the rear of the plots, thus complying with building regulations. 11 of the 22 plots will discharge into the public sewer into manhole C3, whilst the southern 11 plots will discharge into manhole C5. Surface water from rooftops and surface water from the private hardstanding areas such as driveways drain into a 150mm diameter surface water system to the rear of the new properties, which are stored in a 105m^3 below ground attenuation tank to the south of the site. From the attenuation tank, SW MH S4 contains a HydroBrake at 2l/s which will discharge at a controlled flow rate into the public sewer. As all plot foul and surface water drains remain private and are not to be adopted, responsibility and ownership falls under the landowner, and will be maintained by them, or an appointed maintenance team.

Surface water flow from the plot side of the development will discharge into the existing sewer at a flow rate restricted to 2l/s via a HydroBrake in chamber S4. This chamber will remain private, however should be constructed to adoptable standards and the requirements of the flow control manufacturer, and the maintenance of which would be undertaken by the site/ landowner.

The drainage systems will be maintained by the landowner whether directly or whether the developer should choose instruct a private management and maintenance team to control the regular maintenance and upkeep of all areas which could affect the drainage systems.

The systems have been designed to be self-cleansing, however, silt and debris may accumulate within the system over time. The system will be inspected and cleansed prior to Practical Completion and handover, following which the following schedule will be adopted. A further inspection will be carried out at the end of the 12-month contractual Maintenance Period.

Action	Frequency
GENERAL	
Clear external areas of litter	Monthly
Clear gutters, gullies and drainage channels of leaves and debris	Twice yearly, Spring & Autumn
Inspect inspection chambers and manholes for build-up of debris & potential blockages, jet and clear where required	Six monthly.
Inspect flow control chamber and attenuation tank for potential build up of silt/ debris, and jet clear where required. Ensure all parts, inlet/outlet pipes are operating correctly, and repair if needed	Monthly for first three months, then six monthly.

Avoid use of weedkillers and pesticides to prevent chemical pollution.

Avoid de-icing agents wherever possible to allow bio-remediation of pollutants.

24 months after Practical Completion, the Maintenance Schedule will be reviewed and adjusted as necessary in the light of experience over the previous two years.

Carley Daines And Partners Limited
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