

Project No. & Name:	9001 – Gate Street, Manchester	Prepared by:	Rev:	Date:
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DRAINAGE STRATEGY

Background

1. The below Drainage Strategy Report has been created by WML to support and inform detailed Planning Conditions for Gate Street, Openshaw.
2. The Report relates to the proposed residential development located on land off Gate Street, Openshaw. It is understood that the development will comprise the construction of 11No. new houses and associated parking/landscaping over 2 separate plots.
3. The Strategy is to be read in conjunction with the Phase 2 Ground Investigation Report, Ref: 9001-WML-00-XX-RP-G-0002, WML Consulting (October 2019) and WML Consulting drainage drawing 9001-WML-ZZ-XX-DR-C-1001.

Surface Water Drainage Strategy

4. The proposed drainage strategy for this site will incorporate the principles of, and where appropriate demonstrate compliance with the NPPF and the SUDS manual.
5. The proposed drainage system should be designed in accordance with BS EN 7524 and Building Regulations Part H (2010). Approved Document H indicates the following hierarchy for the disposal of surface water drainage from the new development sites, firstly discharge via infiltration, secondly discharge via watercourse and lastly discharge to sewer.
6. These options are discussed in further detail below.
7. **Surface water discharge via infiltration:** The preliminary site investigation has confirmed that the site is predominantly underlain by cohesive strata which are unlikely to be sufficiently permeable for the use of soakaways and other infiltration techniques.
8. **Surface water discharge via watercourse:** there are no existing watercourses near or within the site, hence discharge to watercourse is not feasible in this instance.
9. **Surface water discharge via public sewer:** as discharge via infiltration and via watercourse is not feasible, discharge of surface water via a connection to the public sewerage system will be required.
10. It is understood that there are existing combined public sewers located within the adjacent Gate Street and service alleys. The proposed drainage strategy put forward within this document is based on connection to these public combined sewers.
11. A CCTV drainage survey of the existing drainage system should be undertaken to determine the size, depth and condition of the existing public sewers prior to detailed design.
12. The existing site had been previously developed but currently consists of 2No. plots of soft landscaped areas bounded by paving and wooden fence posts either side of Gate Street. As the site was previously developed it is classified as a brownfield site.
13. The current site runoff has been calculated using a rainfall intensity of 50mm/Hr and has resulted in an existing site flow rate of 11.1 l/s for Plot 1 and 9.4 l/s for Plot 2.
14. As the site is classified as a brownfield site, there is a requirement under the SFRA for a reduction in surface water runoff of 50%.
15. Due to the risk of blockage associated with flow rates of less than 5 l/s it is proposed to restrict surface water runoff for all storm events up to and including the critical 1:100 year event + 40% climate change allowance to 5 l/s for each re-developed plot.
16. To provide the required reduction in surface water discharge rate it is proposed to provide a tanked storage system with a flow control device prior to discharging to the public sewer network.

Foul Water Drainage Strategy

17. It is proposed to collect foul water traditional soil stacks and discharge to the nearest public sewer located within the adjacent service alleys.

SUDs Review

18. As the site consists residential buildings, storing water for later use could be a viable option. The use of hard standing areas and car parking are not considered a good enough quality to be considered for water reuse schemes, however water butts located on rain water pipes could be used for ground keeping/domestic purposes. This should be discussed with the client at detailed design stage.
19. Due to the small surface area (roof) available, the implementation of green roof systems and long term rainwater harvesting techniques are not considered suitable for this development.
20. Permeable paving has been considered for the storage of surface water for the development. However due to space required to store the volume of water resulting from large storm events and the minimal void space within the permeable sub base, it is considered that permeable paving is not a suitable option for this temporary development.

Maintenance Plan

1. It is understood that the new drainage network will be privately owned and maintained by the client or an appointed maintenance company on their behalf and will not be offered up for adoption by United Utilities.
2. The proposed drainage system has been designed in accordance with the current standards and guidelines to achieve a minimum self-cleansing velocity, however excessive debris in the system could still result in loss of performance.
3. The proposed drainage design will consist of traditional manholes, pipes and channels.
4. It is proposed to check the underground drainage system and lift manhole/inspection chamber covers to ensure that the pipework associated with each chamber is operating correctly twice yearly and ensure drainage channels are free from debris.
5. Any problems encountered should be investigated by CCTV survey if required and any remedial works necessary carried out in a timely manner.
6. It is recommended that the biannual inspections take place in spring and autumn where there is additional risk of blockage from debris associated with fallen leaves etc.
7. Attenuation has been provided in the form of 2No. below ground storage crate systems. A recommended maintenance schedule, checklist and a preferred cleaning procedure should be included from the supplier in the O&M Manual however it is anticipated that this should include twice yearly checking that the upstream manholes are free from debris and ensure that no sediment is being passed into the storage crates.
8. The drainage proposals include multiple Hydrobrake flow control units or similar. It is recommended that the hydrobrake is inspected twice a year during the full site drainage as noted above.

The manufacturer also provides a cleaning, maintenance and repair service for the hydrobrake that covers the following;

- a. Scheduled cleaning
 - b. Emergency breakdown assistance
 - c. On-site repairs
 - d. Equipment strip-down
 - e. Planned maintenance
 - f. Planned spares replacements
9. The above should be considered by the Client upon first occupation of the development as part of the general site maintenance plan.