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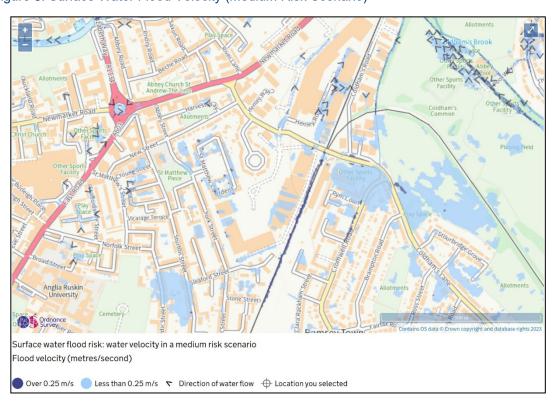
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Figure 7: Surface Water Flood Depth (Medium Risk Scenario)

Figure 8: Surface Water Flood Velocity (Medium Risk Scenario)





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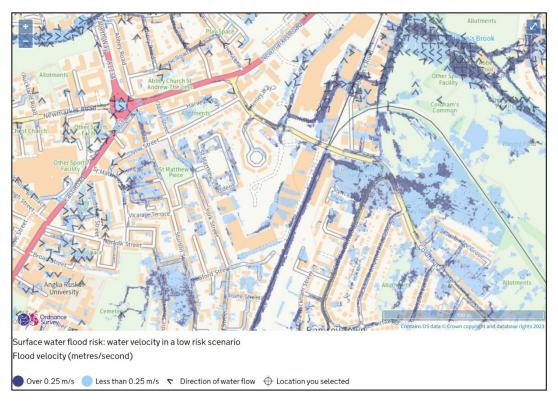
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Figure 9: Surface Water Flood Depth (Low Risk Scenario)

Figure 10: Surface Water Flood Velocity (Low Risk Scenario)





Groundwater Flooding

4.14. Based upon Appendix D10 of the Level 1 SFRA the majority of the Site is shown to be at low potential for groundwater flooding. The majority of the Site is designated as having 'Potential for groundwater flooding of property situated below ground level' which is typical of an area with a relatively shallow groundwater table. Refer to extract in Figure 11.

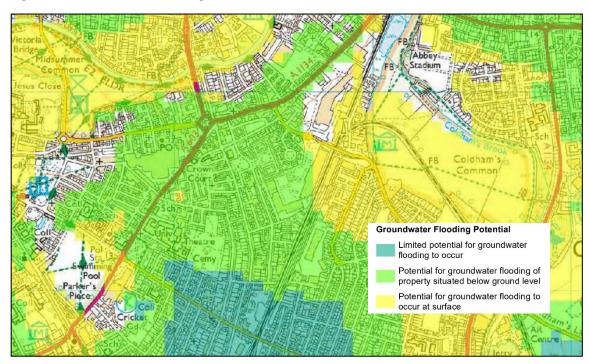


Figure 11: Groundwater Flooding Potential

- 4.15. It is evident from local topography that the Site does not lie in a topographic depression in which groundwater could emerge and inundate the Site after progressing overland.
- 4.16. Based upon limited evidence of flooding incidents in the locale, the presence of Made Ground beneath the Site almost entirely covered by impermeable surfacing, the risk of groundwater emergence resulting in inundation of buildings is considered to be very low at the present day and remaining low over the anticipated lifetime of the Proposed Development incorporating allowances for climate change.
- 4.17. Despite the overall low risk, it is prudent to consider some basic mitigation measures to ensure the lower ground floors remain dry and functional. Ensuring that the lower ground floors are adequately waterproofed using appropriate membranes and sealants.
- 4.18. Additionally, designing the structure to withstand hydrostatic pressure from potential groundwater and using materials resistant to water damage for lower ground floor constructions will enhance resilience. Incorporating allowances for climate change in the design to account for potential future changes in groundwater levels and developing an emergency response plan to address potential groundwater flooding scenarios, even if they are deemed unlikely, will provide added security and peace of mind for the lower ground floors of the proposed development.



Sewer & Water Main Flooding

- 4.19. Based upon Appendix D11 of the Level 1 SFRA, the Site lies within an area of *'2-5 recorded incidents of sewer flooding'* which represents one of the lowest risk bands. As a result, the Site can be deemed to be at low risk of flooding from public sewers.
- 4.20. Asset records indicate the presence of a short section of 375mm diameter public surface water sewer that traverses an existing area of soft landscaping at the very northern tip of the Site just to the east of the Coldham's Lane access. Refer to Figure 12.
- 4.21. The 375mm diameter public surface water sewer conveys flows in an easterly direction beneath Coldham's Lane just to the north of the Site. Immediately adjacent to the north eastern boundary of the Site, the sewer increases to 525mm diameter. A 525mm diameter public foul sewer conveys flows in a westerly direction beneath Coldham's Lane. Refer to Figure 12.
- 4.22. A 525mm diameter public surface water sewer and 300mm diameter public foul sewer convey flows in a north westerly direction beneath York Street adjacent to the south western boundary of the Site. Refer to Figure 13.
- 4.23. Coldham's Lane highway surfaces are generally cambered away from the Site and intermediate footpath levels are elevated thus providing resistance to overland flood flows from surcharged sewers entering the Site. Whilst the York Street highway is elevated above the Site, overland flood flows from surcharged sewers would tend to progress northwards following the local topography rather than enter the Site. Based upon the above, it is considered that the risk of sewer flooding is very low at the present day and remaining low over the anticipated lifetime of the Proposed Development incorporating allowances for climate change.
- 4.24. Public water main records indicate the presence of potable water mains routed beneath the Coldham's Lane and York Street carriageways. Other water mains in the locale are nominal bore.
- 4.25. Burst water mains and failure of public sewerage infrastructure could inherently pose a residual risk to any site, and are not specifically covered within a FRA. However, risk to the Site is considered to be low due to the natural sloping topography providing pathways for excess flows from burst mains to progress overland away from the Site towards lower lying land.
- 4.26. Existing private drainage arrangements are covered further within Chapter 6 of this report. Excess surface water ponding would be readily accommodated at shallow depth across the extensive areas of car parking. Flood risk to the Site from the existing private foul drainage arrangements, which incorporate a small package foul pumping station in the south east of the Site, is considered to be low. Even in the event of failure or blockage of the pumping station, or power outage, excess flows from the network would tend to be accommodated within the service yard located a few metres downgradient.