5.6.2	Additionally, non-return valves can be fitted on sewer outfall points to prevent backflow in the event of hydraulic overload.
5.7	**Canal Flooding Mitigation Measures**
5.7.1	A canal has not been identified in the vicinity of the Site.
5.8	**Culvert and Bridge Blockage Flooding Mitigation Measures**
5.8.1	Culverts/ bridges which have the potential to cause flooding of the Site have not been identified in the vicinity of the Site.
5.9	**Reservoir Flood Mitigation Measures**
5.9.1	The Site is not a risk of flooding from reservoirs; therefore, mitigation measures are not required.
5.10	**Other Flood Risk Mitigation Measures**
5.10.1	As the Site is not identified as at risk from other sources, mitigation measures are not required.
5.11	**Residual Flood Risk Mitigation Measures**
5.11.1	The risk to the Site has been assessed from all sources of flooding and appropriate mitigation and management measures proposed to keep the users of the development safe over its lifetime. There is however a residual risk of flooding associated with the potential for failure of mitigation measures if regular maintenance and upkeep isn't undertaken. If mitigation measures are not implemented or maintained, the risk to the development will remain as the baseline risk.
5.12	**Further Flood Mitigation Information**
5.12.1	More information on flood resistance, resilience and water entry can be found here: • http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf • www.knowyourfloodrisk.co.uk
5.13	**Emergency Evacuation - Safe Access / Egress and Safe Refuge**
5.13.1	Emergency evacuation from the development and the Site should only be undertaken with an understanding of the flood risks at the Site including available mitigation, the vulnerability of occupants and preferred evacuation routes. The Site and access points at the front of the building would not be impacted by flooding, although access along the Thames towpath should be avoided when river levels are high.

5.14	**Flood Warnings & Alerts**
5.14.1	The EA operates a flood warning service in all areas at risk of flooding; this is available on their website: https://www.gov.uk/check-flood-risk. The Site is located within an EA Flood Alerts and Warning coverage area (ref: 063FWT23Mortlake and 063WAT231S) so is able to receive alerts and/or warnings (Figure 14). All warnings are also available through the EA's 24 hour Floodline Service 0345 988 1188.
5.14.2	The EA aims to issue Flood Warnings 2 hours in advance of a flood event. Flood Warnings can provide adequate time to enable protection of property and evacuation from a Site, reducing risk to life and property.
5.15	**Other Relevant Information**
5.15.1	Occupants should be signed up to receive EAs Flood Alerts and/or Warnings.
5.15.2	Registration to the Environment Agency's flood warning scheme can be done by following this link: https://www.gov.uk/sign-up-for-flood-warnings.

6.0 CONCLUSION

6.1 **Present Flood Risk**

6.1.1 ***Table 7. Present Flood Risk***

Source \ Risk	Very Low	Low	Medium	High
Rivers (fluvial)	✓			
Sea (tidal)	✓			
Surface water (pluvial)	✓			
Groundwater		✓		
Artificial	✓			

6.2 **Development Flood Risk**

6.2.1 ***Table 8. Development Flood Risk***

Source \ Risk	Very Low	Low	Medium	High
Rivers (fluvial)	✓			
Sea (tidal)	✓			
Surface water (pluvial)	✓			
Groundwater		✓		
Artificial	✓			

6.2.2 Accounting for the projected increase in future design flood levels associated with climate change in addition to the implementation of appropriate resilience and mitigation measures, the proposed development is considered to be at **VERY LOW** risk of flooding from rivers and the sea. Surface water (pluvial) flood risks are **VERY LOW**. Groundwater flood risks are **LOW** and flooding risks from artificial sources (i.e., canals, reservoirs and sewers)) are **LOW**.

6.3 **Development Suitability**

6.3.1 More vulnerable developments in a Flood Zone 3 are acceptable according to the NPPF (2023) and associated NPPG (2022).

6.3.2 The Sequential and Exceptions Tests are not required, because the proposals are for a change of use from commercial to residential.

6.4 **Additional Work Required**

6.4.1 No additional works are required to ensure that the proposals are acceptable.

7.0 GLOSSARY

7.1	**Annual Exceedance Probability (AEP)**
7.1.1	The AEP is the chance or probability of a natural hazard event (usually a rainfall or flooding event) occurring annually and is usually expressed as a percentage.
7.2	**Canal & River Trust (CRT)**
7.2.1	The CRT holds the guardianship of 2,000 miles of historic waterways across England and Wales.
7.3	**British Geological Survey (BGS) Geo-Index**
7.3.1	The BGS Geo-Index dataset provides confirmation of the areas where detailed borehole data is publicly available and provides mapped coverage of Bedrock, Superficial and surface geology.
7.4	**Climate Change (CC)**
7.4.1	Predicted changes in future global or regional climate patterns. For flood risk, percentage change allowances have been determined according to predictions of anticipated changes in peak river flow, peak rainfall intensity, sea level rise and offshore wind speed and extreme wave height. CC scenario data exists across different epochs (time periods) to determine the needs for climate resilience measures.
7.5	**Design Flood Event**
7.5.1	Considered to be the flood event for which the design of which a development should be designed to be unaffected by flooding. Typically, equivalent to a present day 1 in 100/200 year event (depending upon the flooding source) including an appropriate allowance for climate change.
7.6	**Environment Agency (EA) and EA Product Data (EAPD)**
7.6.1	The EA is the lead organisation for providing flood and coastal risk management and warnings of flooding from Main Rivers and on the coast. For Sites within or in close elevational proximity to Flood Zone 2 or Flood Zone 3, EAPD is ordered to obtain more detailed flood risk data such as flood depths, breach and overtopping mapping and fluvial/tidal risks associated with CC.
7.7	**Environmental Social Governance (ESG)**
7.7.1	ESG refers to a collection of criteria that measures the sustainability and ethical impact of an investment in a business. ESG criteria are a set of standards for a company's behaviour used by socially conscious investors to screen potential investments. Environmental criteria consider how a company safeguards the environment, including corporate policies addressing CC, for example. Social criteria examine how it manages relationships with employees, suppliers, customers, and the communities where it operates. Governance deals with a company's leadership, executive pay, audits, internal controls, and shareholder rights. If a separate ESG Flood Risk and CC Assessment is needed, additional CC data will be required.

7.8	**Flood Resistance**
7.8.1	Flood resistance, or dry-proofing, stops water entering a building. Mitigation measures that prevent or reduce the likelihood of water entering a property can include raising flood levels or installation of sandbags.
7.9	**Flood Resilience**
7.9.1	Flood resilience or wet-proofing accepts that water will enter the building, but through careful design will minimise damage and allow the re-occupancy of the building quickly. Mitigation measures that reduce the damage to a property caused by flooding can include water entry strategies, raising electrical sockets off the floor, hard flooring.
7.10	**Flood Zone 1**
7.10.1	Areas deemed to be in Flood Zone 1 have been shown to be at less than 0.1% chance of flooding in any given year, this is sometimes known as having a 1:1000 year chance.
7.11	**Flood Zone 2**
7.11.1	Areas deemed to be in Flood Zone 2 have been shown to have between 0.1% – 1% chance of flooding from rivers in any year (between 1:1000 and 1:100 chance) or between 0.1% – 0.5% chance of flooding from the sea in any year (between 1:1000 and 1:200 chance).
7.12	**Flood Zone 3**
7.12.1	Flood Zone 3 is actually split into 2 separate zones; 3a and 3b by the Local Planning Authorities however national scale mapping by the EA does not split the zone and as such their maps only identify a general Flood Zone 3. Areas within Flood Zone 3 have been shown to be at a 1% or greater probability of flooding from rivers or 0.5% or greater probability of flooding from the sea in any year.
7.13	**Flood Zone 3b**
7.13.1	Flood Zone 3b's are classified as functional floodplain and are deemed to be the most at-risk land of flooding from rivers or the sea. Local planning authorities have classified areas at significant risk of flooding to be within Flood Zone 3b. This classification is usually classified as land which has a 5% or greater annual probability of flooding also known as a 1:20 chance in any year (where detailed modelling exists), although this can often be specified differently by the LLFA in the absence of detailed modelling or in the event where they have undertaken their own detailed modelling.
7.14	**Lead Local Flood Authority (LLFA)**
7.14.1	LLFAs are County Councils and Unitary Authorities. They lead in managing local flood risks (i.e. risks of flooding from surface water, ground water and Ordinary (smaller) Watercourses).

7.15	**Liability Risk**
7.15.1	Liability Risks are a type of Operational Risk specifically the risk of being held liable or responsible for an action or inaction, regardless of fault, resulting in a direct or indirect financial loss.
7.16	**Light Detection and Ranging (LiDAR)**
7.16.1	LiDAR data is technology used to create high-resolution models of ground elevation with a vertical accuracy of approximately 10-15 cm and is used to produce Digital Elevation Models (DEM) to produce a bare earth elevation (structures and vegetation stripped away).
7.17	**Main River**
7.17.1	Main Rivers are usually larger rivers and streams, designated as such, and shown on the EA Flood Maps. The EA carries out maintenance, improvement or construction work on main rivers to manage flood risk. Other rivers including land drains are called Ordinary Watercourses.
7.18	**Metres Above Ordnance Datum (m AOD)**
7.18.1	Meters Above Ordnance Datum (m AOD). This gives the actual elevation of the groundwater level referenced to the mean sea level at the UK Ordnance datum at Newlyn, Cornwall for Great Britain.
7.19	**Ordinary Watercourse**
7.19.1	Ordinary Watercourse means a watercourse that does not form part of a Main River and includes a reference to a lake, pond or other area of water which flows into an Ordinary Watercourse. LLFAs lead in managing local flood risks from Ordinary (smaller) Watercourses.
7.20	**Preliminary Flood Risk Assessment (PFRA)**
7.20.1	A PFRA is a LLFA duty under the Flood Risk Regulations 2009 and Flood and Water Management Act 2010, used to gain a high-level overview on the risk of flooding and to record historic flood events and to identify Flood Risk Areas to help inform their Local Flood Risk Management Strategies (LFRMS).
7.21	**Reduction in Risk of Flooding from Rivers and Sea due to Defences**
7.21.1	Areas where the Risk of Flooding from Rivers and Sea has been reduced due to the presence of flood defences. This has superseded the Areas Benefitting from Defences dataset and shows all areas that are protected from defences rather than areas that are only protected to the 1 in 100 year (fluvial) or 1 in 200 year (tidal) events.
7.22	**Risk of Flooding from Rivers and Sea (RoFRaS)**
7.22.1	This dataset shows the chance of flooding from rivers and/or the sea, based on cells of 50m. Each cell is allocated one of four flood risk categories (High (>3.3% AEP), Medium (3.3-1.0% AEP), Low (1.0-0.1% AEP) and Very Low (<0.1% AEP)), taking into account flood defences and their condition. The EA are in the process of updating these maps, awaiting a publication date at the end of 2024.

7.23	**Risk of Flooding from Surface Water (RoFSW)**
7.23.1	Surface water flooding occurs when intense rainfall exceeds the infiltration capacity of the ground and overwhelms the drainage systems. It can occur in most locations even at higher elevations and at significant distances from river and coastal floodplains. The EA's ROFSW mapping was produced in 2013 and has been updated in isolated locations, where the LLFA have produced their own surface water model. It is based on a 2m grid and is split into four flood risk categories (High (>3.3% AEP), Medium (3.3-1.0% AEP), Low (1.0-0.1% AEP) and Very Low (<0.1% AEP)).
7.24	**Shoreline Management Plan (SMP)**
7.24.1	Shoreline Management Plans have been developed for all coastal areas in Great Britain, which are divided into coastal groups and policy units for the management of coastal flooding and erosion. SMP's present shoreline management strategies for each policy unit in the short, medium and long term (to 2105).
7.25	**Strategic Flood Risk Assessment (SFRA)**
7.25.1	All Local Planning Authorities are required to prepare a SFRA for their areas in order to assess the risk from flooding from all sources and as the basis for applying the 'sequential' and exceptions' tests to potential development sites identified for inclusion in their Local Plan. A Level 1 SFRA is prepared for areas where flood risk does not pose a significant hazard and where development pressures are low. A Level 2 SFRA is prepared when land outside flood risk areas can't appropriately accommodate all the necessary development and the NPPF's Exception Test needs to be applied.
7.26	**Surface Water Management Plans (SWMP)**
7.26.1	Under the statutory requirements of the Flood and Water Management Act, each LLFA should produce a SWMP to identify areas prone to surface water flooding, and ground water issues.

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APPENDIX 1: FIGURES

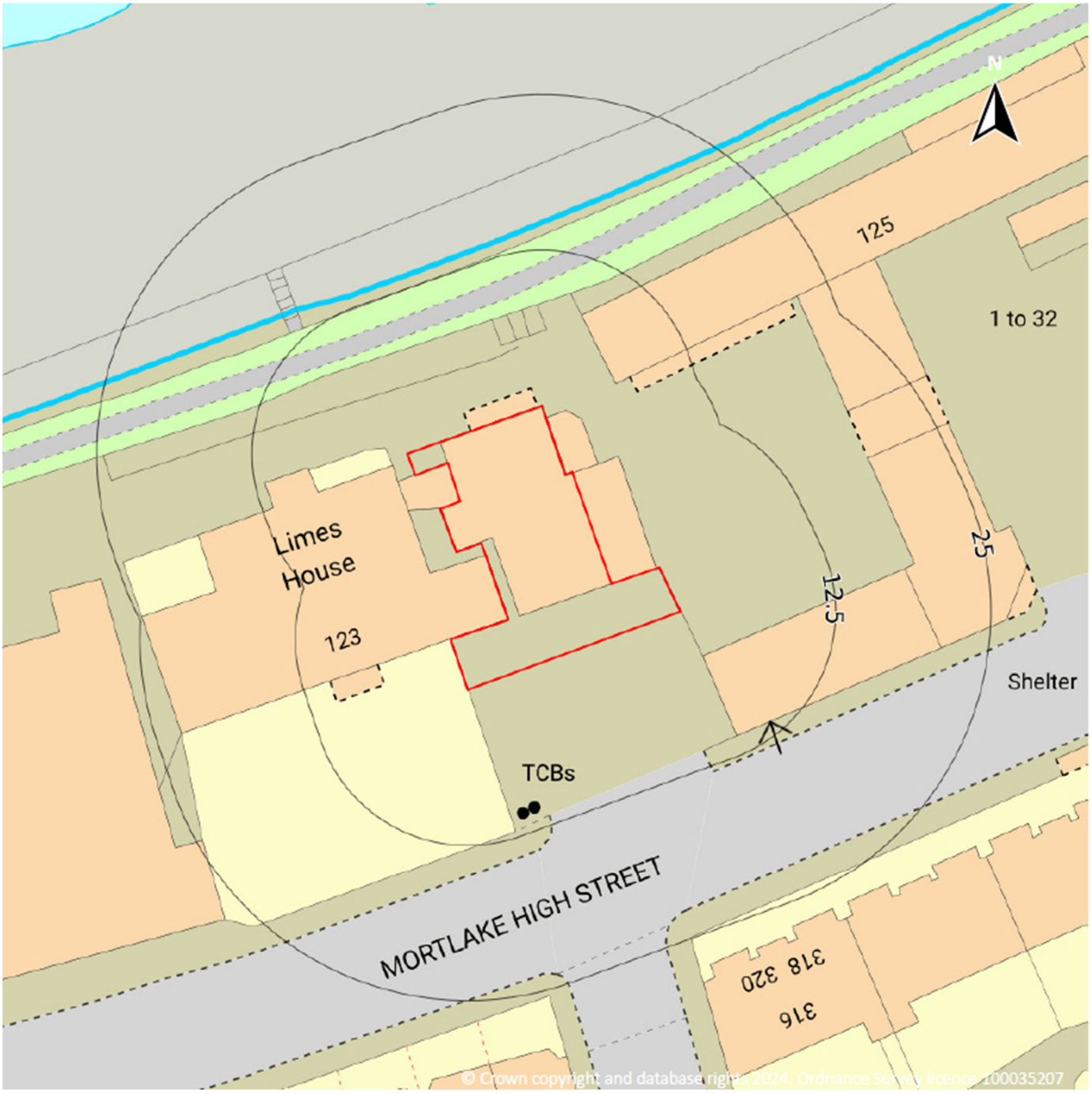

Figure 1: Mastermap Site Location Plan (Ordnance Survey, 2024)
Contains Ordnance Survey data © Crown copyright and database rights 2024.

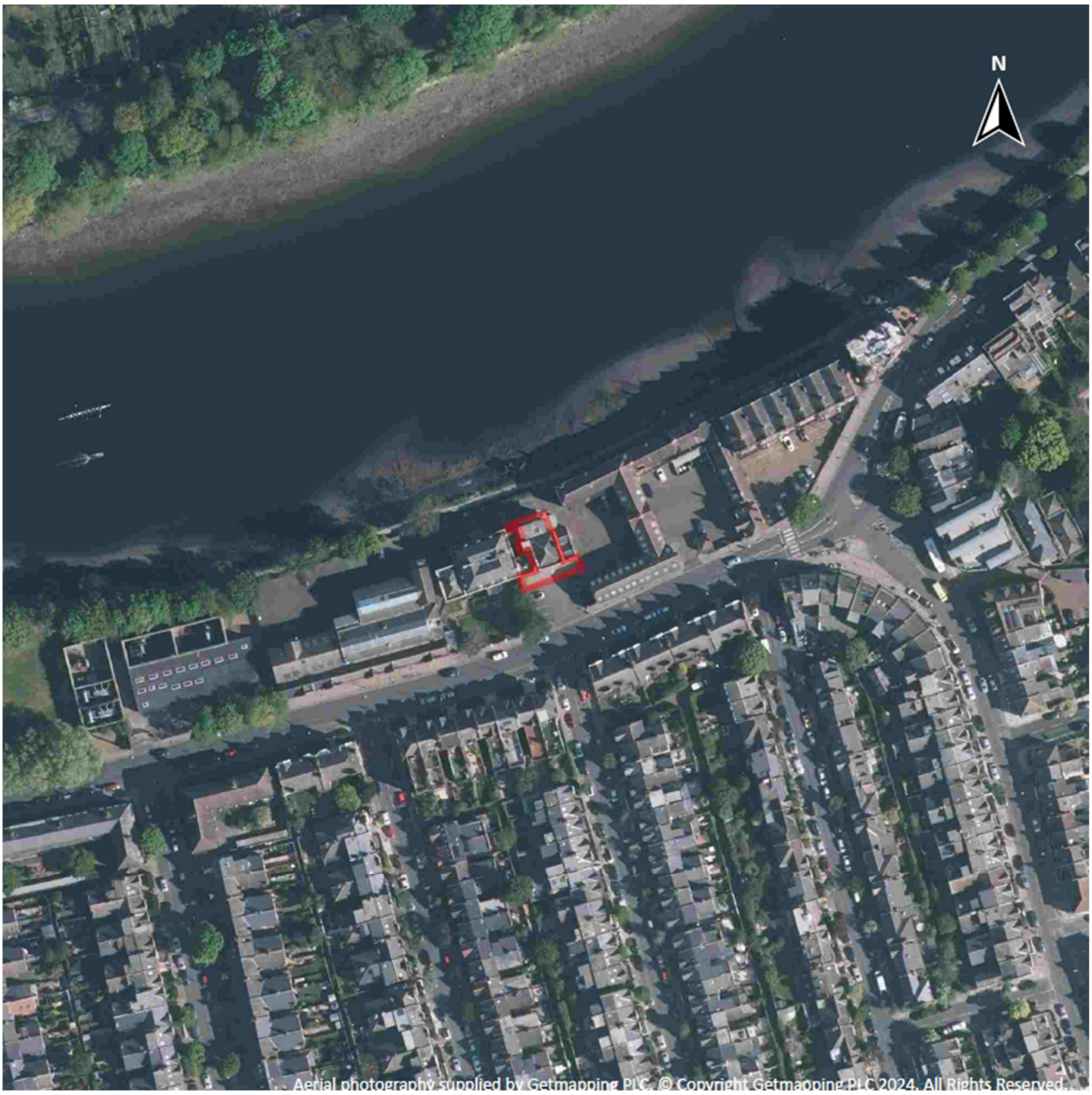

Figure 2: Aerial imagery of the Site (Bluesky, 2024)
BlueSky copyright and database rights 2024.

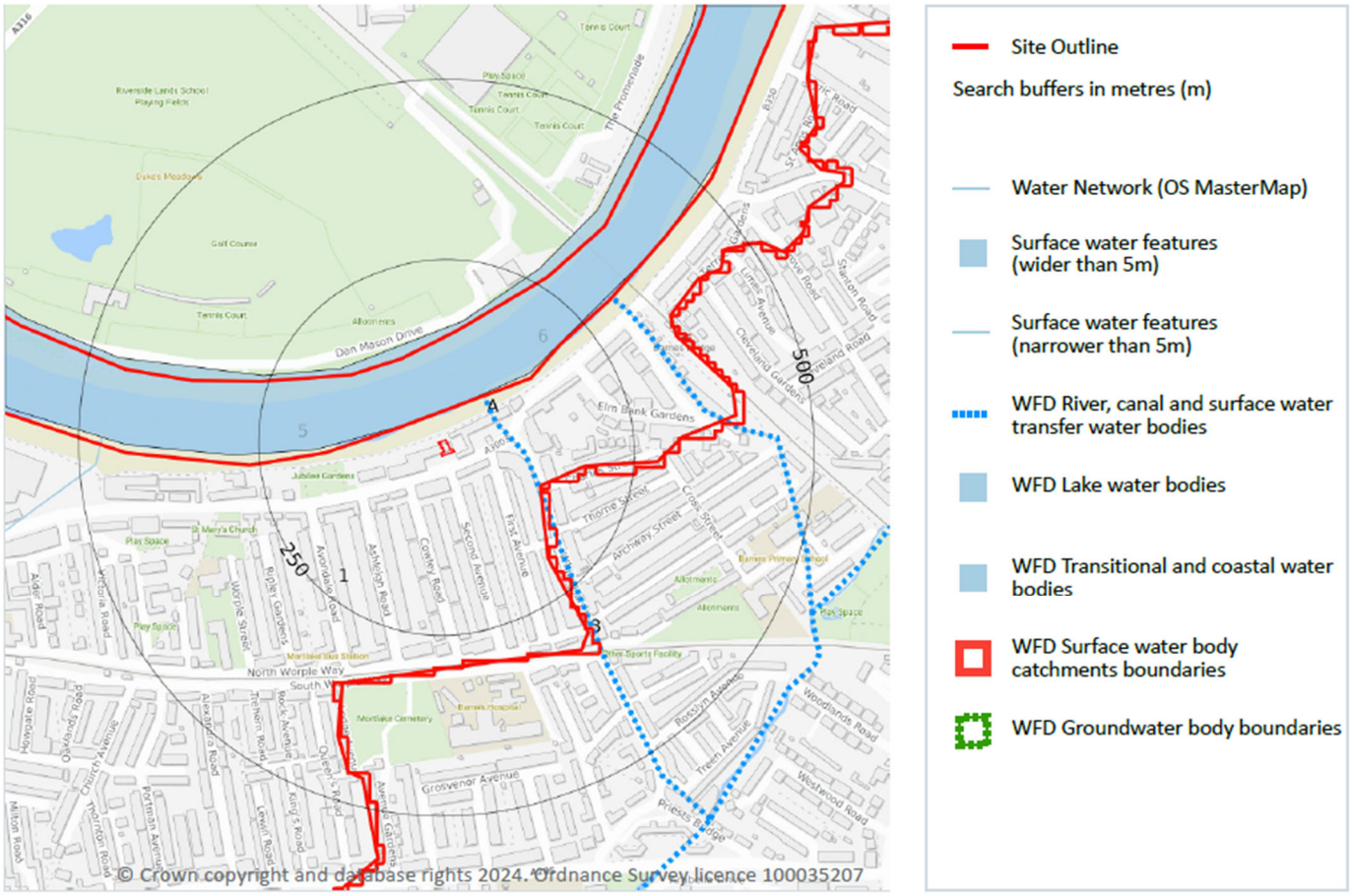

Figure 3: Hydrological Features & Relevant Infrastructure (EA, 2024)
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