Site Name: Greenwich Millenium Village (Phases 3-5)

Site ID:	GP9	**Site Address:**	Greenwich Peninsula	**Area (ha):**	8.8
Current Use:	Vacant	**Proposed Use:**	Residential and A, B1 and D uses	**Vulnerability Classification:**	More Vulnerable

Tidal Source:

Flood Zone 1 (<0.1% AEP): 40%	**Flood Zone 2 (0.1% AEP):** 60%	**Flood Zone 3 (1% AEP):** 54%	**Flood Zone 3b (5%AEP):** 0%	**Area Benefiting from Defences:** 100%

Flood Zones and Flood Defences

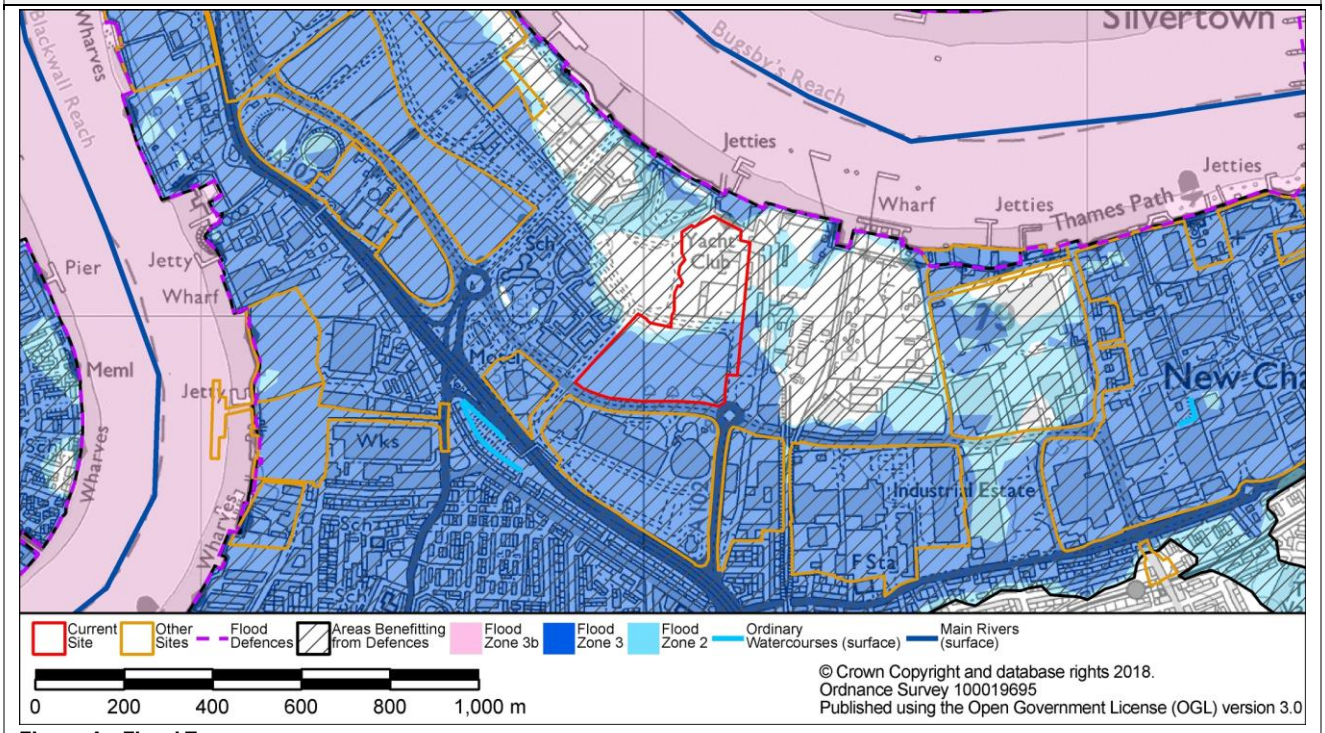

Figure A - Flood Zones

Flood Defence Source:	tidal	**Upstream of Thames Barrier?**	Yes
Flood Defence Type:	wall	**Standard of Protection:**	1000
Flood Warning Area	Tidal Thames from Woolwich Arsenal to Deptford Creek (60% Overlap)	**Emergency Rest Centre**	Greenwich Yacht Club

Residual Tidal Flood Risk

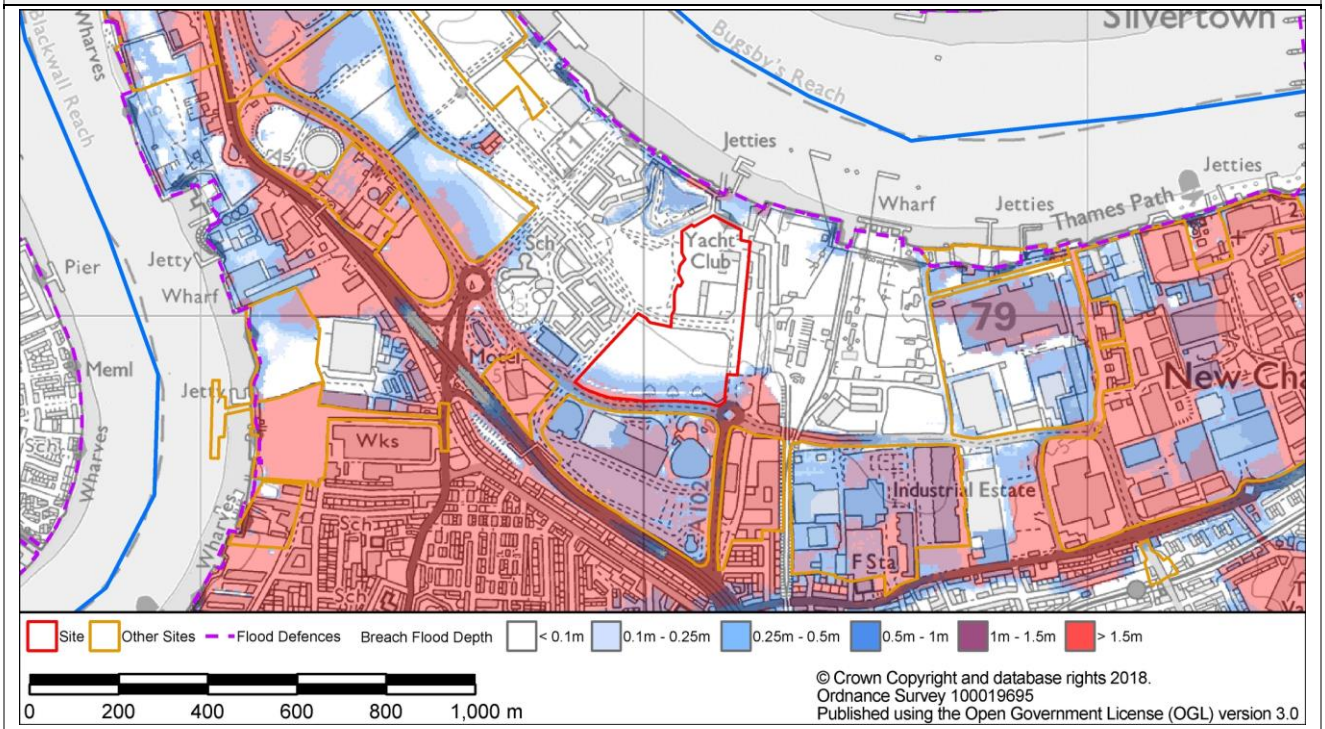

Figure B - Maximum Flood Depth (Upriver Breach Assessment, MLWL 2100)

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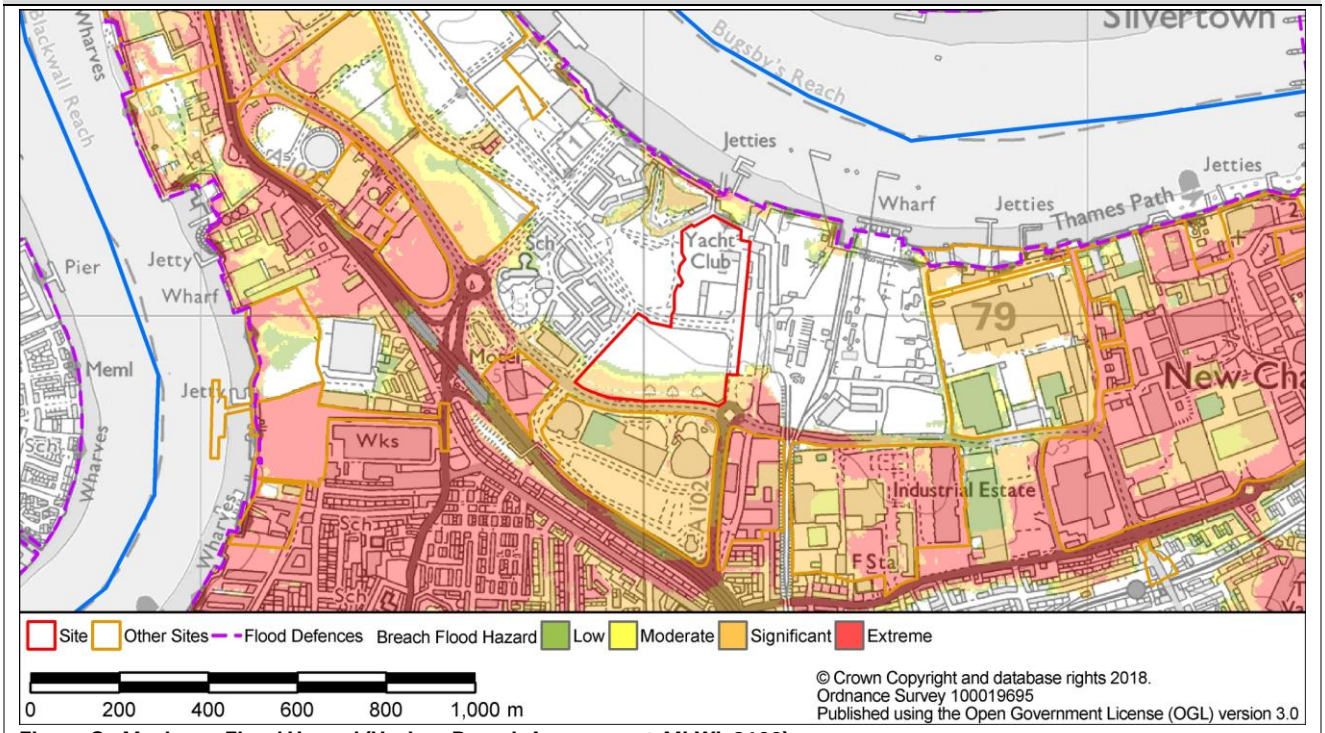

Figure C - Maximum Flood Hazard (Upriver Breach Assessment, MLWL 2100)

Surface Water Source	
Risk of Flooding from Surface Water (RoFSW)	High

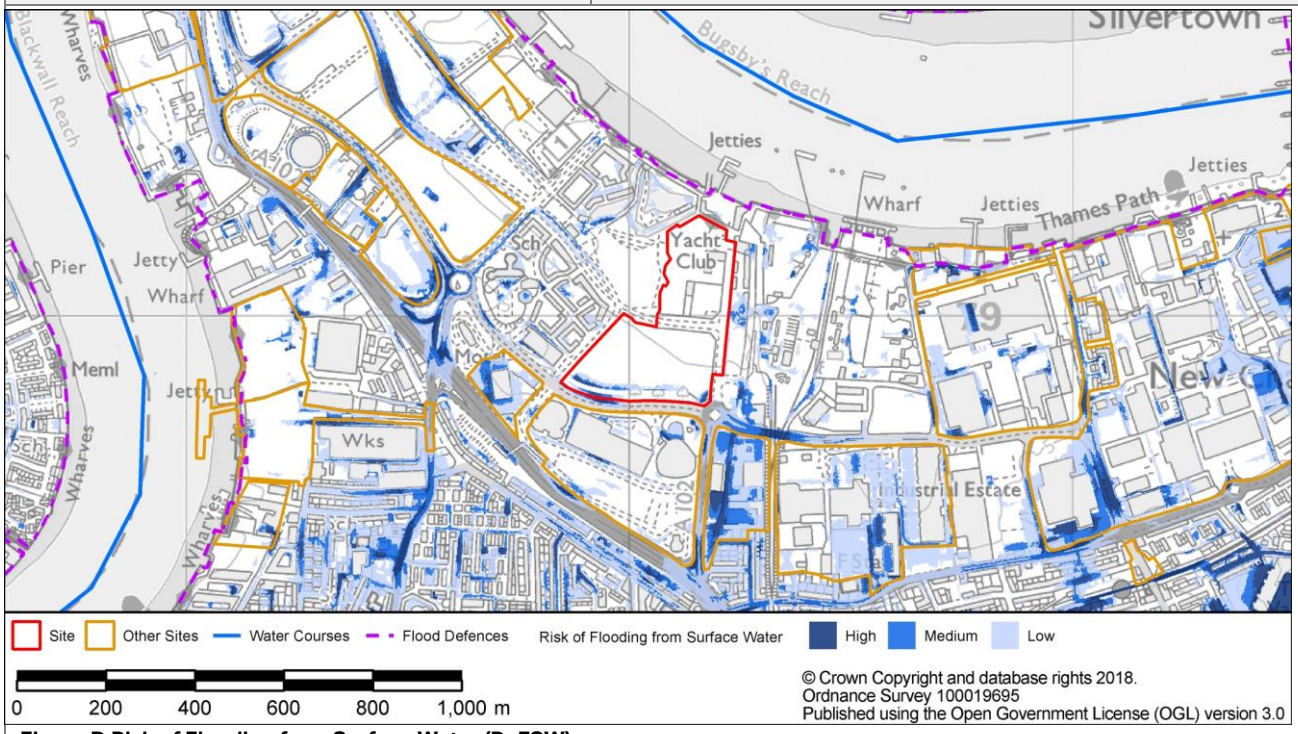

Figure D Risk of Flooding from Surface Water (RoFSW)

Critical Drainage Area	Group6_014 (1% Overlap)

Groundwater Source			
Bedrock Geology	Lambeth Group, Thanet Sand Formation	**Superficial Geology**	Alluvium - Clay, Silty, Peaty, Sandy
Bedrock Aquifer Designation	Secondary A (100% Overlap)	**Superficial Aquifer Designation**	Secondary (undifferentiated) (100% Overlap)
Potential Groundwater Flooding Zone	Zone A		

Other Sources	
Sewer Flooding (within 4 digit postcode)	Internal Flood Incidents: 2 External Flood Incidents: 0
Artificial sources	

Site Specific Recommendations

Site Name: Greenwich Millenium Village (Phases 3-5)

The site is predominantly located within Flood Zone 3. The other part of the site is located within Flood Zone 1 and 2.The site is located in an area that benefits from the Thames Barrier defences and is at residual risk of tidal flooding. More Vulnerable uses must be located on the first floor or above, with Less Vulnerable uses at ground level. More vulnerable development should be located within Flood Zone 1 where possible. Basements are not permitted within Flood Zone 3 and are discouraged within areas of Flood Zone 2. The ROFSW map shows that site and surrounding area may be at high risk of surface water flooding. An assessment of the local surface water flow paths should be made during the development of the site design. Buildings and other more vulnerable aspects of the development should be placed away from those areas at risk of surface water ponding. The redevelopment of the Greenwich Peninsula will provide opportunities for incorporating flood resilience measures. Further information on the redevelopment of the Peninsula can be found at-
http://www.royalgreenwich.gov.uk/downloads/download/434/greenwich_peninsula_west_masterplan

Finished floor levels should be set at whichever level is higher: 300mm above the general ground level of the site or 600mm above the estimated sea level for a 1 in 200 year (0.5%AEP) event (including climate change). A number of flood resistance and resilience measures can be implemented into new developments to mitigate potential flooding. Guidance on resilience measures can be found in the document 'Improving the Flood Performance of New Buildings, Flood Resilient Construction' published by The Department for Communities and Local Government (CLG).

Potential overland flow paths from surface water should be determined and appropriate solutions proposed to minimise the impact of the development, whilst ensuring that flows are not diverted towards other properties elsewhere. Developers should consider using design for exceedance approaches by using urban areas and infrastructure to help manage local flooding. Flow paths should be assessed to inform the strategic location of SuDS and techniques to route flows around the edge of buildings. Careful consideration should be given to the use of fences and landscaping walls so as to prevent causing obstruction to flow routes.

Unobstructed safe access routes to and from the development should be provided. These should provide access to higher ground that is not at risk from tidal flooding. Safe egress points would be most appropriately located to the north of the site in the area of Flood Zone 1. The local area is covered by the 'Tidal Thames from Woolwich Arsenal to Deptford Creek' Environment Agency Flood Warning Area. A Flood Warning and Evacuation Plan (FWEP) must be prepared for the site, detailing how flood warning will be provided as well as how the safety of occupants and access to/from the development will be ensured. Further details of what should be included can be found in the Developer Guidance.

Reference to the SWMP Appendix D Figure D6 identifies that (prior to the completion of a site investigation to determine precise local conditions) infiltration of surface water into the ground is potentially Unsuitable for the site. Some parts of the site are historic landfills. Site investigations will be required prior to the development of a Drainage Strategy for the site. Development should utilise sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so. The site is located within the Group6_014 Critical Drainage Area. The potential development must not increase flood risk to other areas within the CDA. Where an increased risk exists, developers need to provide a Drainage Strategy to demonstrate how they intend to address this, by what methods, over what timeframe and how maintenance of such works would be funded over its lifetime. This should include a consideration of SuDS in line with the London Plan 5.13 and Local Plan Policies. Surface water run-off should be managed in line with Royal Greenwich's surface water management requirements, as set out in Chapter 4 of the Developer Guidance.

Summary

The site is predominantly within Flood Zone 3, defended by the Thames Barrier, and has a residual risk of tidal flooding. More Vulnerable uses must be located on the first floor or above, with Less Vulnerable uses at ground level. Tidal flood risk mitigation measures should be implemented into the site design to manage flood risk. It is recommended that effective surface water management measures are implemented, including careful site and building layout and the incorporation of SuDS, in order to reduce flooding both on the site and routing of flood water to other areas. Due to the extent of flood risk on the site, a flood warning and evacuation plan should be implemented to ensure access to and from the site. On this basis, it is likely that this site could pass the Exception Test.