

SITE ASSESSMENT - Taverner House and Telephone Exchange

Address: Birkenhead Avenue, Kingston, KT2 6RF

Area: 1.24 Ha
Site Reference: SA 047

Current Use	Proposed Use
Business, Car Park	Residential Only - 278 units

Current Vulnerability Classification	Proposed Vulnerability Classification
Less Vulnerable	More Vulnerable

Current Risk Summary					
Fluvial / Tidal			Groundwater		
FZ2	0	% of Site	<25	100	% of Site
FZ3a	0	% of Site	25-50	0	% of Site
FZ3b	0	% of Site	50-75	0	% of Site
Surface Water			>75	0	% of Site
1 in 30	0.2	% of Site	Artificial		
1 in 100	17.6	% of Site	Reservoir	Y	At risk?
1 in 1000	89.1	% of Site	Canal	N	At risk?
Sewer Flooding			Town Centre		
No. Incidents	220		Y/N	N	

Flood Defences
The site is not in an area benefitting from flood defences.
Flood Warning Area
This site is not within a flood warning area.

FLUVIAL / TIDAL

Risk Assessment (Defended)				
Parameter	FZ3b	FZ3a	*FZ3a+CC	Units
Speed of inundation	N/A	N/A	N/A	Hrs
Min. Depth	N/A	N/A	N/A	m
Max. Depth	N/A	N/A	N/A	m
Max. Velocity	N/A	N/A	N/A	m/s
Max Flood Level	N/A	N/A	N/A	m AOD
Max Ground Level	N/A	N/A	N/A	m AOD
Min Ground Level	N/A	N/A	N/A	m AOD
Max Flood Hazard	N/A	N/A	N/A	N/A
Duration of Flood	N/A	N/A	N/A	Hrs

* The +35% Climate Change Allowance event (upper end allowance extreme case) is reviewed

Risk Assessment (Undefended)			
Parameter	FZ3a	*FZ3a+CC	Units
Speed of inundation	N/A	N/A	Hrs
Min. Depth	N/A	N/A	m
Max. Depth	N/A	N/A	m
Max. Velocity	N/A	N/A	m/s
Max. Hazard	N/A	N/A	N/A
Duration of Flood	N/A	N/A	Hrs

Description of Flood Mechanism
N/A - No fluvial / tidal risk is predicted at this site.

Figure 1 - Fluvial Flood Depth Map

Site Access / Egress
N/A - No fluvial / tidal risk is predicted at this site.

Figure 2 - Fluvial Flood Hazard Map

Mitigation / FRA Requirements
N/A - No fluvial / tidal risk is predicted at this site.

SURFACE WATER

Risk Assessment				
Parameter	1 in 30	1 in 100	1 in 1000	Units
Min. Depth	0.00-0.15	0.00-0.15	0.00-0.15	m
Max. Depth	0.15-0.30	0.30-0.60	0.30-0.60	m
Max. Velocity	0.00-0.25	0.50-1.00	1.00-2.00	m/s
Max. Hazard	0.75-1.25	0.75-1.25	1.25-2.00	N/A

*The 1 in 1000 annual probability extent represents the potential climate change adjusted impact of current risk

Description of Flood Mechanism
<ul style="list-style-type: none"> The site is currently at high risk of surface water flooding, particularly on the northern section and southern and western edges of the site. Gordon Road to the north of the site, and Birkenhead Avenue to the south of the site are predicted to be at risk from surface water flooding. Climate change is predicted to increase the flood extent, depth, velocity, and hazard.

Site Access / Egress
Safe refuge area should be provided on site to account for the predicted impact of climate change on flooding at this site.

Figure 3 - RoFSW Flood Depth Map

Mitigation - Flood Risk Requirements
<ul style="list-style-type: none"> Development should be directed away from the northern area of the site where there is higher risk of surface water flooding. See also SFRA Level 2 Report mitigation requirement numbers 4.2, 4.4, 4.5 and 4.6 for further development stipulations.

Figure 4 - RoFSW Flood Hazard Map

Mitigation - Surface Water Drainage
<ul style="list-style-type: none"> A Kingston SuDS Proforma must be submitted with the planning application. Developments should apply the Sustainable Drainage Hierarchy set out in Policy SI13 of the London Plan. Ground investigations are required to confirm whether infiltration based SuDS are suitable.

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SEWER	GROUNDWATER	ARTIFICIAL
<p align="center">Risk Assessment</p> <ul style="list-style-type: none"> The site falls within a postcode area where there are 220 reported flood incidents from sewer flooding. The site is served by separate surface water and foul sewer networks. <p>Figure 5 - Thames Water Sewer Flood Map</p>	<p align="center">Risk Assessment</p> <ul style="list-style-type: none"> The site is classified as having <25% susceptibility to groundwater flooding. The site is underlain by London Clay bedrock geology. <p>Figure 6 - Areas Susceptible to Groundwater Flooding Map</p>	<p align="center">Risk Assessment</p> <ul style="list-style-type: none"> The site is at risk of flooding from a number of reservoirs including the Barwell Court Lake, Chertsey Settling, Hampton (Distributing, Grand Junction and Sunnyside), Island Barn, Queen Elizabeth II, Queen Mother, Staines (North and South), Walton (Knight), and Wraysbury. The reservoir extent map predicts that if any of these reservoirs breach on a wet day, the site will be at risk of flooding. <p>Figure 7 - Outline Reservoir Flood Map</p>
<p align="center">Mitigation Requirements</p> <ul style="list-style-type: none"> Applicant must consult with TWUL to confirm if the development site has historically flooded. TWUL must agree to any proposed sewer connections. Where historic flooding has occurred, the applicant must show how this risk will be managed for the lifetime of the development. 	<p align="center">Mitigation Requirements</p> <ul style="list-style-type: none"> Applicant should carry out a screening study (as a minimum) to establish if there are any subterranean flood risk issues that may require further investigation. If there is a potential level of impact, mitigation actions must be proposed. Must be prepared by a chartered professional or specialist. 	<p align="center">Mitigation Requirements</p> <ul style="list-style-type: none"> Propose appropriate and proportionate risk management measures. A suitable emergency response plan should be put in place, including an emergency warning system in the event of a reservoir flooding incident. Local Authority Emergency Planning Officers must be consulted to create a reservoir failure emergency and evacuation plan.

PLANNING CONSIDERATIONS

Safety of Development

- A. Can the development be future proofed for climate change considerations?**
- Yes. See SFRA - Level 2 Report mitigation requirement number 4.2 and 4.4 for the required finished floor levels and flood resistant / resilient building stipulations.
- B. Can the development be designed safe throughout its lifetime without increasing flood risk elsewhere?**
- Yes - The development must use surface water drainage techniques to manage surface water runoff onsite through above ground SuDS and / or below ground attenuation. Green drainage infrastructure should be prioritised to provide wider ecological / biodiversity benefits as per London Plan Policy SI 13.
 - See SFRA - Level 2 Report mitigation requirement number 4.5 for compensatory flood storage stipulations.
- C. What is the cumulative impact of the development land use change and will flood risk increase?**
- The development land use is changing from the 'Less Vulnerable' to the 'More Vulnerable' classification, as only residential uses have been proposed.
 - The site is already covered by impermeable surfaces, therefore flood risk is likely to be similar.
- D. How can the development reduce risk overall?**
- Direct development away from the northern section of the site.
 - Include SuDS to manage surface water runoff and reduce run-off rates to comply with Policy DM 4 in Kingston's Core Strategy.
 - Safe refuge area should be provided on site to account for the predicted impact of climate change on flooding at this site.
- E. Will development require a flood risk permit/watercourse consent?**
- No. The site is not within 8m of a Main River or 5m of an Ordinary Watercourse.
- F. Is the Exception Test required?**
- The Exception Test is required for 'More Vulnerable' development in Flood Zone 3a (the northern section, and southern and western edges of the site).
 - This can be passed by making the site safe throughout its lifetime without increasing flood risk elsewhere (see questions A, B, and C). The site could also reduce flood risk overall with appropriate SuDS and flood storage compensation measures implemented (see Mitigation - Surface Water Drainage and Mitigation - Flood Risk Requirements boxes).



