

SITE ASSESSMENT - Seven Kings Car Park

Address: Seven Kings Car Park, Sury Basin, Kingston upon Thames

Area: 0.49 Ha
Site Reference: KNK01

Current Use	Proposed Use
Multi-storey car park	Residential-led mixed-use development, including commercial, business and service uses

Current Vulnerability Classification	Proposed Vulnerability Classification
Less Vulnerable	More Vulnerable

Current Risk Summary					
Fluvial / Tidal			Groundwater		
FZ2	100	% of Site	<25	40.75	% of Site
FZ3a	5.98	% of Site	25-50	0	% of Site
FZ3b	0	% of Site	50-75	59.25	% of Site
Surface Water			>75	0	% of Site
1 in 30*	0	% of Site	Artificial		
1 in 100**	0.04	% of Site	Reservoir	YES	At risk?
1 in 1000*	0.08	% of Site			
Sewer Flooding					
No. Incidents					88

Flood Defences
Site is not in an area benefitting from flood defences.
Flood Warning Area
The EA Flood Warning Service is available at this site.

* return periods for potential flood events * FZ3a (surface water)

FLUVIAL / TIDAL

Risk Assessment (Thames Defended)				
Parameter	FZ3b	FZ3a	*FZ3a+CC	Units
Time of Onset	N/A	326.00	253.00	Hrs
Min. Depth	N/A	0.07	0.23	m
Max. Depth	N/A	0.35	1.4	m
Max. Velocity	N/A	0.33	0.55	m/s
Max Flood Level	N/A	6.93	7.94	m AOD
Max Ground Level	N/A	7.88	7.88	m AOD
Min Ground Level	N/A	6.32	6.32	m AOD
Max Flood Hazard	N/A	0.99	2.07	N/A
Duration of Flood	N/A	>13	>86	Hrs

* The +35% Climate Change Allowance event is reviewed

Risk Assessment (Thames Undefended)			
Parameter	FZ3a	*FZ3a+CC	Units
Time of Onset	326.00	N/D	Hrs
Min. Depth	0.07	N/D	m
Max. Depth	0.35	N/D	m
Max. Velocity	0.37	N/D	m/s
Max. Hazard	1.01	N/D	N/A
Duration of Flood	>13	N/D	Hrs

Description of Flood Mechanism

- The site is partially at risk from fluvial flooding from the River Thames, which covers the western edge of the site.
- The flood risk extent for the climate change scenario for the River Thames covers all the site area.
- Climate change is predicted to increase the flood depth, hazard, velocity and flood levels in the defended scenario only.
- The site will be partially flooded from the onset and will remain flooded for in excess of 86 hours.

[Figure 1 - Fluvial Flood Depth Map](#)

Site Access / Egress

Site access and egress routes should be directed towards the area at lower risk of flooding on Sury Basin or Seven Kings Way.

[Figure 2 - Fluvial Flood Hazard Map](#)

Mitigation / FRA Requirements

- Self-contained basement dwellings and bedrooms are not permitted in FZ3a (western edge of the site). See SFRA Level 2 Report mitigation requirement numbers 4.10 for additional basement stipulations.
- A FRA must be submitted as part of a planning application.
- Include appropriate flood resistance or resilience measures to address predicted flood depths.
- See SFRA Level 2 Report mitigation requirement numbers 4.2 and 4.3 for further development stipulations.
- Develop a Flood Emergency and Evacuation Plan for the site.
- Site users should be signed up to the EA's Flood Warning Service.

SURFACE WATER

Risk Assessment				
Parameter	1 in 30	1 in 100	1 in 1000	Units
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. Hazard	N/A	N/A	N/A	N/A

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

Description of Flood Mechanism

N/A - surface water flood risk at the site is negligible

Site Access / Egress

N/A - surface water flood risk at the site is negligible

[Figure 3 - RoFSW Flood Depth Map](#)

Mitigation - Flood Risk Requirements

N/A - surface water flood risk at the site is negligible

[Figure 4 - RoFSW Flood Hazard Map](#)

Mitigation - Surface Water Drainage

N/A - surface water flood risk at the site is negligible



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SEWER	GROUNDWATER	ARTIFICIAL
Risk Assessment	Risk Assessment	Risk Assessment
<ul style="list-style-type: none"> The site falls within a postcode area where there are 88 reported flood incidents from sewer flooding. The site is assumed to be served by separate surface water and foul sewer networks. 	<ul style="list-style-type: none"> The site is classified as having 59.25% of the site $\geq 50\%$ <75% susceptibility to groundwater flooding (west of the site) and 40.75% of the site <25% susceptibility to groundwater flooding (east of the site). The site is underlain by London Clay bedrock geology and superficial deposits of Langley Silt. 	<ul style="list-style-type: none"> This site is risk of flooding from reservoirs based on the EA reservoir Wet Day Extent.
Figure 5 - Thames Water Sewer Flood Map	Figure 6 - Areas Susceptible to Groundwater Flooding Map	Figure 7 - Outline Reservoir Flood Map
Mitigation Requirements	Mitigation Requirements	Mitigation Requirements
<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. 	<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. 	<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 Section 4 mitigation requirement number 4.2 for the required 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 Section 4 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 'less vulnerable' to 'more vulnerable'.
 - The site is covered by impermeable areas other than a small area of landscaping along the western boundary. This offers an opportunity to improve flood attenuation through the new development.
 - Development must mitigate any increase in impermeable area to the site with flood plain compensation and runoff storage to prevent any increase in flood risk. An increase in impermeable area coverage on site will increase surface water runoff and flood risk if not managed properly.
- D. How can the development reduce risk overall?**
- Development should be directed away from the western boundary of the site where there is a risk of fluvial flooding.
 - Site access and egress routes should be directed towards the part of Sury Basin or Seven Kings Way which is at lowest risk of flooding.
 - By complying with Policy DM4 from Kingston Local Plan through including SuDS to ensure that the development is not vulnerable to surface water, sewer and groundwater flooding and to reduce the overall level of flood risk in the borough and beyond.
 - By complying with SFRA - Level 2 Report Section 4 mitigation requirement numbers 4.2, 4.3 and 4.5.
- E. Will development require a flood risk permit/watercourse consent?**
- No. The site is not located within 8m of a Main River or 5m of an Ordinary Watercourse.
- F. Can the site pass the Exception Test?**
- Yes. The Exception Test is required for this site as 5.98% of the site area in Flood Zone 3a (fluvial) and 0.04% of the site in Flood Zone 3a (surface water) and the proposed vulnerability classification is 'More Vulnerable'.
 - 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 - Flood Risk Requirements' and 'Mitigation - Surface Water Drainage' boxes).





