

Welwyn Hatfield Council Strategic Flood Risk Assessment Level 2 Detailed Site Summary Tables



Site details	Site Code	Pea106				
	Address	73 & 83 Bridge Road East				
	Area	1.33ha				
	Current land use	Brownfield				
	Proposed land use	Residential				
Sources of flood risk	Existing drainage features	No existing drainage features in or around site.				
	Fluvial	Proportion of site at risk				
		FZ3b	FZ3a	FZ2	FZ1	
		0%	0%	0%	100%	
		The site is 100% within FZ1 and there are no watercourses near to the site.				
	Surface Water	Proportion of site at risk (RoFfSW)				
		30-year	100-year	1,000-year		
		5%	23%	40%		
		Max depths (m) (out of bank)				
		0.30-0.60 (negligible)		0.30-0.60	0.60-0.90	
		Max velocity (m/s) (out of bank)				
		0.00-0.25		0.25-0.50	0.50-1.00	
		Max hazard rating (out of bank)				
		Danger for some		Danger for most (negligible)	Danger for most	
		<p><i>The % SW extents quoted show the % of the site at surface water risk from that particular event, including the percentage of the site at flood risk at a higher risk zone (e.g. 100-year includes the 30-year %). The % given are indicative only and more detailed work to refine this at a site-specific scale may be required.</i></p>				
<p>Description of surface water flow paths: The reason this site warrants a L2 assessment, is due to surface water flood risk and access in the vicinity of the site. The surface water flood risk surrounds the existing building in the western half of the site, with the main risk being from the 100-year and 1,000-year events, with small areas of ponding in the 30-year event. The 1,000-year event also extends along the southern boundary into the other half of the site. There is also some ponding of the 1,000-year surface water along the eastern edge of the site. The areas of greatest surface water hazard are immediately surrounding the existing building in the west of the site in the 100-year ('Danger for some') and 1,000-year events ('Danger for most'). In the 30-year and 100-year events, the velocities are very low (predominantly 0.00-0.25m/s) with low depths, mainly 0.15-0.30m with a negligible area of depths 0.30-0.60m. The areas of greatest depths in the 100-year and 1,000-year events are to the east and south of the existing building in the west of the site, which is entirely surrounded by surface water flooding. Developers should steer development away from the west of the site where the risk is greatest.</p>						

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	Reservoir	The site is not shown to be at risk of reservoir flooding from the available online maps.		
	Flood history	The EA's historic flood map shows no history of flooding at the site.		
Flood risk management infrastructure	Defences	Defence Type	Standard of Protection	Condition
		-	-	-
	This site is not protected by any formal flood defences.			
	Residual risk	-		
Emergency planning	Flood warning	The site is not covered by the EA's Flood Warning Service.		
	Access and egress	<p>Safe access and egress will need to be demonstrated in the 1 in 100-year plus climate change rainfall events, using the depth, velocity and hazard outputs.</p> <p>Safe access and egress can be obtained via Bridge Road East in the 100 and 30-year surface water events, from the south-eastern portion of the site along Bridge Road East. Risk is highest in the south-western portion of the site around the Bridge Road East and Swallowfields junction. There is a medium risk from surface water flooding here, with there being a significant risk from the 1,000-year events.</p> <p>The depths of surface water flooding along access/ egress routes should be investigated in a site-specific assessment, to confirm whether access for emergency vehicles could still be obtained during 1,000-year event east along Bridge Road East and around the junction with Swallowfields in all return periods.</p>		
Climate Change	Implications for the site	<ul style="list-style-type: none"> Increased storm intensities due to climate change may increase the extent, depth, velocity, hazard and frequency of surface water flooding. Climate change needs to be considered for surface water events; at the site-specific stage, the 100-year +40% event is considered as part of surface water drainage strategies, or surface water modelling. The current day 1,000-year extent provides an indication of the likely increase in extent of the more frequent events. This would require a detailed FRA to assess the site layout and design. <p>Developers should consider SuDS strategies to reduce the impacts of climate change from surface water in a detailed site-specific FRA.</p>		

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Requirements for drainage control and impact mitigation	Broad scale assessment of possible SuDS	<ul style="list-style-type: none"> • Geology at the site consists of: <ul style="list-style-type: none"> ○ Bedrock – White Chalk ○ Superficial – Sand and Gravel • The site is located within a Groundwater Source Protection Zone. As such infiltration techniques should only be used where there are suitable levels of treatment although it is possible that infiltration may not be permitted. Proposed SuDS should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints. • Source control techniques are likely to be suitable for this site. • Infiltration likely to be suitable. Mapping suggests a low risk of ground water flooding however, site investigations should be carried out to assess potential for drainage by infiltration. • Detention features may be feasible providing site slopes are <5% at the location of the detention feature. If groundwater is a risk to the site, then a liner may be required to mitigate against potential contamination issues. • Filtration systems are probably suitable providing site slopes are <5% and the depth to the water table is >1m. If the site has contamination issues, or is at risk from groundwater, then a liner will be required. • All forms of conveyance features are likely to be suitable. Where slopes are >5%, features should follow contours or utilise check dams to slow flows. • The site is not designated by the Environment Agency as previously being a landfill site. • Developers should refer to Hertfordshire County Council's SuDS Design Guidance and SuDS Policy Statement, as well as the Level 1 SFRA, for information on suitable types of SuDS, the management train and opportunities and constraints in site master-planning.
NPPF and planning implications	Exception Test requirements	<p>The Local Authority have carried out the Sequential Test in line with national guidance. The Sequential and Exception Test document (November 2019) provides the detail on how this has been undertaken and can be found on the Local Authority website. The Sequential Test will need to be passed before the Exception Test is applied. Residential development is classified as 'More Vulnerable'. The Exception test will need to be applied if:</p> <ul style="list-style-type: none"> • More Vulnerable and Essential Infrastructure development is located in FZ3a and for Highly Vulnerable development located in FZ2. • Highly Vulnerable infrastructure should not be permitted within FZ3a and FZ3b. • More Vulnerable and Less Vulnerable Infrastructure should not be permitted within FZ3b.

	<p>Requirements and guidance for site-specific Flood Risk Assessment</p>	<p>Flood Risk Assessment:</p> <ul style="list-style-type: none"> • At the planning application stage, a site-specific Flood Risk Assessment will be required if any development is located within Flood Zones 2 or 3 or is greater than one hectare. Other sources of flooding should also be considered. • All sources of flooding, particularly the risk of surface water and groundwater flooding, should be considered as part of a site-specific flood risk assessment. • Any FRA should be carried out in line with the National Planning Policy Framework; Flood Risk and Coastal Change Planning Practice Guidance; Welwyn Hatfield Council's Local Plan policies, and the LLFA's SUDS guidance and Policy Statement. • Consultation with the Local Authority, Local Lead Flood Authority and the Environment Agency should be undertaken at an early stage. • The development should be designed using a sequential approach. Development should be steered away from areas of fluvial flood risk and surface water flow routes, preserving these spaces as green infrastructure. Development must be in line with Table 3: flood risk vulnerability and flood zone compatibility of the NPPG. <p>Guidance for site design and making development safe:</p> <ul style="list-style-type: none"> • The developer will need to show, through an FRA, that future users of the development will not be placed in danger from flood hazards throughout its lifetime. It is for the applicant to show that the development meets the objectives of the NPPF's policy on flood risk. For example, how the operation of any mitigation measures can be safeguarded and maintained effectively through the lifetime of the development. (Para 048 Flood Risk and Coastal Change PPG. • Safe access and egress will need to be demonstrated in the 1 in 100-year plus climate change rainfall events, using the depth, velocity and hazard outputs. Raising of access routes must not impact on surface water flow routes. Consideration should be given to the siting of access points with respect to areas of surface water flood risk. • Resilience measures will be required if buildings are situated in the flood risk area. Raising Finished Floor Levels above the design event may remove the need for resilience measures. • The risk from surface water flow routes should be quantified as part of a site-specific FRA, including a drainage strategy, to ensure that runoff from the development is not increased by placing development across any ephemeral surface water flow routes. A drainage strategy should help inform site layout and design to ensure there is no increase in runoff beyond the current greenfield rates. • New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. • Betterment on the existing site runoff rate should be sought to ensure that there is no increase in surface water flood risk elsewhere. Ideally, surface water runoff should be fully attenuated to the greenfield rate. • Developers should refer to Hertfordshire County Council's SuDS Design Guidance, SuDS Policy Statement and the Level 1 SFRA for information on SuDS. • New development must seek opportunities to reduce overall level of flood risk at the site, for example by: <ul style="list-style-type: none"> ○ Reducing volume and rate of runoff ○ Relocating development to zones with lower flood risk ○ Creating space for flooding.
Mapping Information		
Flood Zones	There are no Flood Zones at this site and no fluvial risk.	

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Climate change		No fluvial risk at the site, hence no climate change outputs. Climate change for surface water should be considered at the site-specific assessment stage.
Fluvial depth, velocity and hazard mapping		No mapping is available for this site.
Surface Water		The Risk of Flooding from Surface Water has been used to define areas at risk from surface water flooding. This dataset is not suitable for identifying whether an individual property will flood. It is based on the confidence in the modelling at that location; because of the way the mapping has been produced and is indicative, the maps are not appropriate to act as the 'sole evidence' for any specific planning or regulatory decision or assessment of risk in relation to flooding without further supporting studies or evidence. Please consult all layers and outputs provided on the RoFfSW mapping for further details.
Surface water depth, velocity and hazard mapping		The surface water depth, velocity and hazard mapping for the 1 in 100-year event (considered to be medium risk) is taken Environment Agency's Risk of Flooding from Surface Water.