



## South Norfolk Council Level 2 Strategic Flood Risk Assessment Detailed Site Summary Tables

### Site details

<b>Site Code</b>	<b>SN0218REV/VCEAR2</b>
<b>Address</b>	Land North of The Street, Earsham, South Norfolk, 632019 289001
<b>Area</b>	1.7ha
<b>Current land use</b>	Greenfield
<b>Proposed land use</b>	Residential

### Sources of flood risk

<b>Location of the site within the catchment</b>	<p>The site is located centrally in the Waveney (Starston Brook - Ellingham Mill) Catchment, to the southwest of Bungay. The site is in the south-west of Earsham village and is predominantly surrounded by rural land.</p> <p>The River Waveney flows approximately 450m south of the site, then continues eastward and curves north of the site before heading in a north-easterly direction towards its confluence with Broome Beck.</p>
<b>Existing drainage features</b>	<p>Local topography shows that the site gently slopes downhill from higher ground in the west to lower ground in the south. The site is generally located in an area of lower elevation that follows the watercourse. There are no drainage features within the site boundary or near the site.</p>
<b>Fluvial</b>	<p><b>The proportion of site at risk (Environment Agency's Flood Map for Planning Flood Zones):</b>  <b>FZ3b</b> – 0%  <b>FZ3a</b> – 0%  <b>FZ2</b> – 0%  <b>FZ1</b> – 100%</p> <p><i>The % Flood Zones quoted show the % of the site at flood risk from that particular Flood Zone/event, including the percentage of the site at flood risk at a higher risk zone, e.g. FZ2 includes the FZ3 %. FZ1 is the remaining area outside FZ2 (FZ2 + FZ1 = 100%).</i></p> <p><b>Available data:</b>  The Environment Agency's (EA) Flood Map for Planning has been used within this assessment. This mapping was updated in March 2025 with the release of the new National Flood Risk Assessment 2 (NaFRA2). The Environment Agency's 2022 hydraulic model for the River Waveney has also been used for this assessment.</p> <p><b>Flood characteristics:</b>  The site is not currently at risk of fluvial flooding. Hydraulic modelling and the EA's Flood Map for Planning shows the site is not located within Flood Zone 2 and 3. However, outside of the site boundary Flood Zone 2 covers the centre of Earsham and encompasses part of The Street, within 20m east of the southern boundary.</p>
<b>Coastal and Tidal</b>	<p>The site is not at risk from tidal or coastal flooding.</p>
<b>Surface Water</b>	<p><b>Proportion of site at risk (RoFSW):</b>  <b>3.3% AEP</b> – 15.4%  <b>1% AEP</b> – 22.9%  <b>0.1% AEP</b> – 32.3%</p>

	<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 greater Annual Exceedance Probability (AEP) (e.g. 1% AEP % includes the 3.3% AEP %).</i></p> <p><b>Available data:</b> The Environment Agency's (EA) Risk of Flooding from Surface Water dataset has been used within this assessment. This mapping was updated in January 2025 with the release of the new National Flood Risk Assessment 2 (NaFRA2). This analysis is based on depths and flood extents only, as the updated dataset does not include velocity or hazard information.</p> <p><b>Description of surface water flow paths:</b> The site is predicted to be affected by surface water in all modelled scenarios. In the 3.3% AEP event, there is a large area of pooling that covers 15.4% of the site in the south. This extends further north into the site in the 1% and 0.1% AEP events, covering 22.9% and 32.3% of the site respectively.</p> <p>The 3.3% and 1% AEP events have maximum depths of up to 0.2m, with the 0.1% AEP event predicted to have depths of up to 0.3m. These maximum depths are found in the south of the site, intersecting with the southern border.</p>
<b>Reservoir</b>	The site is not shown to be at risk of reservoir flooding from the available online maps used to <a href="#">check long term flood risk (gov.uk)</a> .
<b>Groundwater</b>	<p>The Environment Agency Areas Susceptible to Groundwater Flooding, provided as 1km grid squares, shows the susceptibility of an area to groundwater flood emergence. This shows that the west of the site has less than a 25% susceptibility to groundwater flood emergence. The north-east of the site has between a 50% and 75% susceptibility to groundwater flood emergence. The south-east of the site has between a 25% and 50% susceptibility to groundwater flood emergence.</p> <p>The JBA Groundwater Emergence Map shows that at almost all of the site groundwater levels are predicted to be at or very near (within 0.025m) of the ground surface. This means that is a risk of groundwater flooding to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots. A very small area at the north-west boundary has a slightly reduced risk, where groundwater levels are predicted to between 0.025m and 0.5m below the ground surface.</p> <p>Considering the topography and the Risk of Flooding from Surface Water mapping, any groundwater emerging will likely pool in the south of the site.</p> <p>The assessment does not negate the requirement that an appropriate assessment of the groundwater regime should be carried out at the site-specific FRA stage.</p>
<b>Sewers</b>	The site is located in a postcode (NR35 2) with 39 recorded historic sewer flooding incidences between May 2013 and March 2024, according to information provided by Anglian Water. There have been seven incidences (six external and one internal) within Earsham, including on Dukesway directly east of the site.
<b>Flood history</b>	<p>The Environment Agency's historic flooding and recorded flood outlines datasets do not have a record of any flooding on or surrounding the site.</p> <p>Norfolk County Council's historic flooding records also do not show any flooding to the site.</p>
<b>Flood risk management infrastructure</b>	
<b>Defences</b>	This site is not protected by any formal flood defences.
<b>Residual risk</b>	There is no residual risk to the site from flood risk management structures.
<b>Emergency planning</b>	
<b>Flood warning</b>	The site is not located in an Environment Agency Flood Alert or Flood Warning area.
<b>Access and egress</b>	There are currently no roads leading directly into the site. However, the site is likely most easily accessed by vehicles via The Street running parallel to the south-eastern

	<p>boundary. Old Railway Road (A143) also runs north of the site, but currently the hedges and treeline obstruct access from this direction.</p> <p>In all modelled fluvial events, there is considerable flood risk outside of the site to the south, east, and north. Flood Zone 2 and 3 follow the path of the River Waveney, and may affect access and egress travelling northeast on Old Railway Road (A143). Several streets in Earsham are covered by Flood Zone 2, such as March Lane and parts of The Street. However, safe access and egress may still be achieved if travelling on Old Road (A143) (which can be accessed via The Street by following the road south) and continuing northwest via Hall Road, which remains clear.</p> <p>The Risk of Flooding from Surface Water mapping shows that there are areas of isolated ponding on the surrounding streets during the 3.3%, 1%, 1% plus climate change and 0.1% AEP events. These extents include a large stretch on The Street, east of the site. Access south-west via Old Railway Road (A143) is obstructed in all events by an area of pooling with depths up to 1.2m.</p> <p>Despite these areas of risk, access to and from the site will likely still be maintained. Safe access and egress are also demonstrated in the 1% AEP plus climate change surface water event. On the streets in Earsham, and roads heading north, maximum depths are predicted to be up to 0.3m. This means access and egress to the site for emergency vehicles is likely still possible. Access to Old Railway Road (A143) from The Street, via road running south of the site, remains clear in the 3.3% and 1% AEP event. In the 1% plus climate change and 0.1% AEP event, there is a small area of ponding at the junction between The Street and Old Railway Road (A143). However, this has depths below 0.2m.</p> <p>Site drainage proposals should address the requirements for access routes, avoid impeding surface water flows and preserve the storage of surface water to avoid exacerbation of flood risk in the wider catchment.</p>
<b>Dry Islands</b>	The site is not located on a dry island.
<b>Climate change</b>	
<b>Implications for the site</b>	<ul style="list-style-type: none"> <li>Increased storm intensities due to climate change may increase the extent, depth, velocity, hazard and frequency of both fluvial and surface water flooding.</li> <li>The site is not at risk of fluvial flooding in the present day or future scenario.</li> <li>Climate change should also be considered for surface water events; at the site-specific stage, the 1% AEP plus climate change event is considered as part of surface water drainage strategies, or surface water modelling. The 1% AEP plus climate change event mapping suggests that the site is likely to be at a slight increased risk of surface water flooding in future, with the area of ponding expanding from covering 22.9% of the site to covering 28.7%.</li> </ul>
<b>Requirements for drainage control and impact mitigation</b>	
<b>Broad-scale assessment of possible SuDS</b>	<p><b>Geology &amp; Soils</b></p> <ul style="list-style-type: none"> <li>Geology at the site consists of: <ul style="list-style-type: none"> <li>Bedrock- Sand (Crag Group)</li> <li>Superficial- Sand and gravel (River Terrace Deposits)</li> </ul> </li> <li>Soils at the site consist of: <ul style="list-style-type: none"> <li>Freely draining slightly acid sandy soils</li> </ul> </li> </ul> <p><b>SuDS</b></p> <ul style="list-style-type: none"> <li>The site is considered to be highly susceptible to groundwater flooding. Groundwater flooding could occur at the surface which may flow to and pool within topographic low spots during very wet winters. Detention and attenuation features should be designed to prevent groundwater ingress from impacting hydraulic capacity and structural integrity. Additional site investigation work may be required to support the detailed design of the drainage system. This may include groundwater monitoring to demonstrate that a sufficient unsaturated zone has been provided above the highest occurring groundwater level. Below ground development such as basements are not appropriate at this site.</li> </ul>

	<ul style="list-style-type: none"> <li>BGS data indicates that the underlying geology is sand which is likely to be free draining. This should be confirmed through infiltration testing, with the use of infiltration maximised as much as possible in accordance with the SuDS hierarchy. This would suggest a lower groundwater flood risk than is indicated by the EA's Areas Susceptible to Groundwater Flooding (AStGWF) map. The AStGWF is a strategic-scale map and only isolated locations within the overall susceptible area are actually likely to suffer the consequences of groundwater flooding, therefore the map should be treated as indicative.</li> <li>The site is not located within a Groundwater Source Protection Zone and there are no restrictions over the use of infiltration techniques with regard to groundwater quality.</li> <li>The site is not located within a historic landfill site.</li> <li>Surface water discharge rates should not exceed pre-development discharge rates for the site and should be designed to be as close to greenfield runoff rates as reasonably practical in consultation with the LLFA. It may be possible to reduce site runoff by maximising the permeable surfaces on site using a combination of permeable surfacing and soft landscaping techniques.</li> <li>If it is proposed to discharge runoff to a watercourse or sewer system, the condition and capacity of the receiving watercourse or asset should be confirmed through surveys and the discharge rate agreed with the asset owner.</li> </ul>
<b>Opportunities for wider sustainability benefits and integrated flood risk management</b>	<ul style="list-style-type: none"> <li>Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, water quality, amenity and biodiversity. This could provide wider sustainability benefits to the site and surrounding area. Proposals to use SuDS techniques should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.</li> <li>Development at this site should not increase flood risk either on or off site. The design of the surface water management proposals should take into account the impacts of future climate change over the projected lifetime of the development.</li> </ul>
<b>NPPF and planning implications</b>	
<b>Exception Test requirements</b>	<ul style="list-style-type: none"> <li>The Local Authority will need to confirm that the sequential test has been carried out in line with national guidelines. The Sequential Test needs to be passed before the Exception Test is applied. The NPPF classifies residential development as 'More Vulnerable'.</li> <li>The site lies entirely outside of Flood Zones 2 and 3. However, there is significant surface water flooding on the site. As such, it is strongly recommended that the Exception Test is applied at this site.</li> </ul>
<b>Requirements and guidance for site-specific Flood Risk Assessment</b>	<p><b>Flood Risk Assessment:</b></p> <ul style="list-style-type: none"> <li>At the planning application stage, a site-specific Flood Risk Assessment is required due to the risk of surface water ponding within the south of the site, as well as the high risk of groundwater emergence.</li> <li>All sources of flooding should be considered as part of a site-specific FRA.</li> <li>The site-specific FRA should be carried out in line with the National Planning Policy Framework; Flood Risk and Coastal Change Planning Practice Guidance, Norwich City Council's Local Plan policies, and the Norfolk County Council Lead Local Flood Authority's Statutory Consultee for Planning Guidance Document.</li> <li>Consultation with the Local Authority, Lead Local Flood Authority, Water Company and the Environment Agency should be undertaken at an early stage.</li> </ul> <p><b>Guidance for site design and making development safe:</b></p> <ul style="list-style-type: none"> <li>Safe access and egress will need to be demonstrated in the 1% AEP plus climate change rainfall event, using the depth, velocity and hazard outputs. Raising of access routes must not impact on surface water flow routes or contribute to loss of floodplain storage. Consideration should be given to the siting of access points with respect to areas of surface water flood risk.</li> <li>The risk from surface water ponding in the site 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 development across any ephemeral surface water</li> </ul>

	<p>flow routes. A drainage strategy should help inform site layout and design to ensure there is no increase in runoff beyond current greenfield rates.</p> <ul style="list-style-type: none"> <li>• The proposed site should discharge surface water at the original pre-development (greenfield) runoff rate. If this is not possible, a significant reduction in the current rate of discharge should be achieved and agreed with the relevant drainage body (LLFA, IDB or Anglian Water).</li> <li>• Developers should refer to Norfolk County Council's 'Norfolk County Council Lead Local Flood Authority Statutory Consultee for Planning Guidance Document' and the Level 1 SFRA for information on SuDS for guidance on the information required by the LLFA from applicants to enable it to provide responses to planning applications.</li> </ul>
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## Key messages

The development is likely to be able to proceed if:

- Safe access and egress can be demonstrated in the 1% AEP plus climate change surface water event. If this is not possible, an appropriate Flood Warning and Evacuation Plan is needed.
- A site-specific Flood Risk Assessment (FRA) is undertaken along with a surface water drainage design and strategy. Due to the large area of surface water ponding in the south of the site, as well as high susceptibility to groundwater flooding, it is recommended that further investigations are carried out.

## Mapping Information

The key datasets used to make planning recommendations regarding this site were the Environment Agency's Flood Map for Planning and the Risk of Flooding from Surface Water map. More details regarding data used for this assessment can be found below.

<b>Flood Zones</b>	Flood Zones 2 and 3 have been taken from the Environment Agency's Flood Map for Planning mapping. This mapping was updated in March 2025 with the release of the new National Flood Risk Assessment 2 (NaFRA2).
<b>Climate change</b>	<p>The Flood Map for Planning (undefended) climate change extents have been used for this assessment. This mapping was updated in March 2025 with the release of the new National Flood Risk Assessment 2 (NaFRA2).</p> <p>The Risk of Flooding from Surface Water dataset updated for climate change has been used, based on the 'Central' allowance for the 2050s epoch (2040-2060) for risk of flooding from surface water. This mapping was updated in January 2025 with the release of the new National Flood Risk Assessment 2 (NaFRA2).</p>
<b>Fluvial depth, velocity and hazard mapping</b>	This site is not shown to be at risk of flooding from fluvial sources.
<b>Surface Water</b>	The Risk of Flooding from Surface Water dataset has been used to define areas at risk from surface water flooding. This mapping was updated in January 2025 with the release of the new National Flood Risk Assessment 2 (NaFRA2).