



**Chelmsford City Council Level 2  
Strategic Flood Risk Assessment  
Detailed Site Summary Tables**

**Site details**

|                                 |                                      |
|---------------------------------|--------------------------------------|
| <b>Site Code</b>                | <b>SGS11c</b>                        |
| <b>Address</b>                  | Land West of Barbrook Way, Bicknacre |
| <b>Area</b>                     | 18.0ha                               |
| <b>Current land use</b>         | Greenfield                           |
| <b>Proposed land use</b>        | Residential                          |
| <b>Flood Risk Vulnerability</b> | More Vulnerable                      |

**Sources of flood risk**

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Location of the site within the catchment</b> | <p>The site is located to the west of the village of Bicknacre. The existing site consist of agricultural fields, and is bordered by Priory Road to the north, residential dwellings to the east, and fields to the south and west.</p> <p>The site is located within the Sandon Brook (East arm) catchment, which has an area of 30.8km<sup>2</sup> and is within the Chelmer Operational Catchment of the Combined Essex Management Catchment. The Sandon Brook (East arm) has not been designated as an artificial or heavily modified catchment.</p> |
| <b>Topography</b>                                | Environment Agency 1m resolution LiDAR shows that the topography across the site gently slopes downwards from the south-east section of the site to north-west corner of the site. The maximum elevation along the south-east boundary is approximately 54.6mAOD and the lowest is 48.6mAOD.                                                                                                                                                                                                                                                             |
| <b>Existing drainage features</b>                | At the south-west corner an ordinary watercourse enters the site, flowing north along the western boundary, where it takes a right angle to flow east along the northern boundary of the site. A second ordinary watercourse flows parallel to the first watercourse, along a field boundary approximately 90m to the east. The ordinary watercourses converge at the entrance of the site before continuing north, flowing underneath Priory Road. As it crosses under Priory Road, it becomes the Bicknacre Brook and flows east through the village.  |
| <b>Critical Drainage Area</b>                    | The site is not located within a Critical Drainage Area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Fluvial and tidal</b>                         | <p><b>The proportion of site at risk FMFP:</b><br/> <b>FZ3 – 0%</b><br/> <b>FZ2 – 0%</b><br/> <b>FZ1 – 100%</b></p> <p><b>Available data:</b><br/> The proportion of the site at flood risk is determined from the Environment Agency's Flood Map for Planning Flood Zones. This represents the undefended scenario.</p> <p><b>Flood characteristics:</b><br/> This site is not at risk from fluvial flooding from Main Rivers or at risk from tidal flooding.</p>                                                                                       |

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | <p>There is no detailed modelling available for this site, however, it is likely that flood risk associated with the ordinary watercourses will be attributed to surface water flooding and discussed in the section below.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Surface Water | <p><b>Proportion of site at risk (RoFSW):</b><br/> <b>3.3% AEP</b> – 13%<br/> Max depth – 0.6m<br/> Max velocity – 1.00m/s<br/> <b>1% AEP</b> – 15%<br/> Max depth – 0.9m<br/> Max velocity – 1.00m/s<br/> <b>0.1% AEP</b> – 21%<br/> Max depth – 1.2m<br/> Max velocity – 1.00m/s</p> <p><i>The % Surface Water 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 %).</i></p> <p>The Environment Agency's Risk of Flooding from Surface Water (2025) mapping was used in this assessment for the of surface water flooding.</p> <p><b>Description of surface water flow paths:</b></p> <p>To the south-west of the site are two surface water flow paths, one flowing from the south-west and the second flows east to west. Approximately 100m south of the site boundary the surface water flow paths converge and continue on the trajectory of the first flow path, entering the site along the southern boundary. The flow path flows north-east through the site and leaves at the access point with Priory Road. During the 3.3% AEP event mapping indicates that the maximum depths of the flow route will be 0.6m with a velocity of 1.0m/s. The hazard rating for the deepest areas of flood risk has been rated as 'Significant - Dangerous for most people'.</p> <p>During the 1% AEP event, the extent of the surface water flow route widens, the depth also increases to 0.9m, however the velocity and hazard rating remains the same as the 3.3% AEP event at 1.00m/s and 'Significant - Dangerous for most people' respectively.</p> <p>During the 0.1% AEP event, a second surface water flow route enters the site from the west, along the centre of the western boundary, and combines with the main flow path through the site. The extent of the main flow path also increases and reaches depths of up to 1.2m in the northern section of the site and has a has a hazard rating of 'Extreme - Dangerous for all'.</p> |
| Reservoir     | <p>The Environment Agency's (EA) risk of flooding from reservoirs dataset shows that the site is not at risk from reservoir flooding in the wet or dry day scenario.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Groundwater   | <p>JBA's Groundwater Emergence Map, is provided as 5m resolution grid squares.</p> <p>The site is shown to have negligible risk of groundwater emerging in this area, and any groundwater emergence incidence has a chance of less than 1% annual probability of occurrence. There will be a remote possibility that incidence of groundwater flooding could lead to damage to property or harm to other sensitive receptors at, or near, this location.</p> <p>The risk from groundwater should be confirmed and quantified as part of a site-specific flood risk assessment (FRA).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sewers</b>                               | <p>Sewer flooding records were not available for this assessment.</p> <p>The entirety of Chelmsford is identified as a Flood priority catchment in Anglian Water's Drainage and Wastewater Management Plan (DWMP).</p> <p>Developers should consult Anglian Water as part of any development proposal to ensure development does not exacerbate existing issues and maximise opportunities for development to deliver benefits in line with the long term strategic aims set out in the DWMP.</p>                                                                                                                                                                                                                    |
| <b>Flood history</b>                        | <p>The Environment Agency's Historic Flood Map does not show any records of flooding on the site. However, the mapping shows an extent of flooding approximately 75m north of the entrance of the site.</p> <p>Essex County Council as Lead Local Flood Authority (LLFA) has no records of flooding within the site boundary. The closest incident is approximately 50m to the north of the site, across Priory Road. A Section 19 Flood Investigation Report was published in 2015 for an area of Bicknacre.</p>                                                                                                                                                                                                    |
| <b>Flood risk management infrastructure</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Defences</b>                             | The Environment Agency AIMS dataset shows there are no formal flood defences in the vicinity of the site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Residual risk</b>                        | The site is at residual risk in the event of failure or collapse of the culvert which runs beneath Priory Road.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Emergency planning</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Flood warning</b>                        | The site is not located in an Environment Agency Flood Alert or Flood Warning Area. A Flood Alert for 'the lower River Chelmer, including the River Ter and brooks around Sandon' Area begins approximately 80m north of the site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Access and egress</b>                    | <p>The access and egress to the site will be via Barbrook Way, the surface water flow route does not flow through this section of the site, therefore it is likely that safe access and egress will be achieved from this site.</p> <p>Arrangements for safe access and egress will need to be demonstrated for 1% AEP plus an appropriate allowance for climate change, using the depth, velocity, and hazard outputs. Given the considerable risk to the site during surface water scenarios, consultation with risk management authorities (RMAs) early on should be implemented to ensure an appropriate flood evacuation plan is put in place for the site if safe access/egress routes cannot be provided.</p> |
| <b>Dry Islands</b>                          | The flood risk mapping suggests that the site will not become a dry island during a flood event.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Climate change</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Implications for the site</b>            | <p><b>Management Catchment: Combined Essex Management Catchment</b></p> <p>Increased storm intensities due to climate change may increase the extent, depth, velocity, hazard, and frequency of both fluvial and surface water flooding.</p> <p><b>Fluvial</b></p> <p>The Environment Agency Flood Map for Planning now has climate change allowances incorporated into the data.</p> <p>The fluvial flood extents associated with the Bicknacre Brook extends south into the northern section of the site, where the site access will be located.</p> <p><b>Surface Water:</b></p>                                                                                                                                  |

|                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                | <p>Climate change allowances, up to 2060, have been applied to the NaFRA2 dataset for surface water flooding using the UK Climate Projections (UKCP18).</p> <p>Across the site, the extent of the 3.3% AEP event plus climate change corresponds to the 1% AEP present day scenario. During the 1% AEP plus climate change scenario, the extent of the surface water flooding associated with the unnamed ordinary watercourse extends further into the site but does not reach the same extent as the 0.1% AEP present day scenario.</p> <p>During the 0.1% AEP event plus climate change, the extent of the surface water flooding across the site is significantly greater than the 0.1% AEP present day event. Based on the information presented, it can be inferred that this site is sensitive to surface water climate change.</p> <p>Development proposals at the site must address the potential changes associated with climate change and be designed to be safe for the intended lifetime. The provisions for safe access and egress must also address the potential increase in severity and frequency of flooding.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <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 Geology –<br/>North and west section of site: London Clay Formation consisting of clay, silt and sand.<br/>South and east section of site: Claygate Member consisting of clay, silt and sand.</li> <li>◦ Superficial Geology –<br/>North and west section of site: Head consisting of clay, silt, sand and gravel with a small section of Alluvium along the northern boundary.<br/>South and east section of site: no superficial deposits recorded</li> </ul> </li> <li>• Soils at the site consist of: <ul style="list-style-type: none"> <li>◦ Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils</li> </ul> </li> </ul> <p><b>SuDS</b></p> <ul style="list-style-type: none"> <li>• The site is not considered to be susceptible to groundwater flooding, due to the nature of the local geological conditions. This should be confirmed through additional site investigation work.</li> <li>• British Geological Survey data indicates that the underlying geology is a mixture of clay, silt and sand which is likely to be with highly variable permeability. This should be confirmed through infiltration testing. Off-site discharge in accordance with the SuDS hierarchy may be required to discharge surface water runoff from the site.</li> <li>• The site is not located within a Groundwater Source Protection Zone.</li> <li>• The site is located within a Nitrate Vulnerable Zones (2017): <ul style="list-style-type: none"> <li>◦ River Chelmer (surface water)</li> <li>◦ Sandlings and Chelmsford (groundwater)</li> </ul> </li> <li>• The site is not located within a Drinking Water Safeguard Zone, but is located in a Drinking Water Protected Area.</li> <li>• The site is not located within a historic landfill site.</li> <li>• Surface water discharge rates should not exceed the existing greenfield runoff rates for the site. Opportunities to further reduce discharge rates should be considered and agreed 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>• The Risk of Flooding from Surface Water (RoFSW) mapping indicates the presence of surface water flow paths during all events. Existing flow paths should be retained and integrated with blue-green infrastructure and public open space.</li> </ul> |

|                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                             | <ul style="list-style-type: none"> <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 (Local Planning Authority, 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> <li>Opportunities to incorporate source control techniques such as green roofs, permeable surfaces, and rainwater harvesting must be considered in the design of the site.</li> <li>SuDS are to be designed so that they are easy to maintain, and it should be set out who will maintain the system, how the maintenance will be funded and they should be supported by an appropriately detailed maintenance and operation manual.</li> <li>Opportunities to incorporate filtration techniques such as filter strips, filter drains and bioretention areas must be considered. Consideration should be made to the existing condition of receiving waterbodies and the Water Framework Directive objectives for water quality. The use of multistage SuDS treatment will clean and improve water quality of surface water runoff discharged from the site and reduce the impact on receiving water bodies.</li> <li>The potential to utilise conveyance features such as swales to intercept and convey surface water runoff should be considered. Conveyance features should be located on common land or public open space to facilitate ease of access. Where slopes are &gt;5%, features should follow contours or utilise check dams to slow flows.</li> </ul> |
| <b>NPPF and planning implications</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Exception Test requirements</b>                                                          | <p>The site is classified as 'More Vulnerable' and has high risk surface water flow route through the western section of the site, flowing north-east toward Priory Road. The Exception Test is not required under the NPPF; however the Sequential Test must be passed unless a site-specific FRA demonstrates that the site can be developed safely without increasing the risk of surface water flooding elsewhere. It must be shown that the development will be safe for its lifetime and the risk of flooding from all sources can be managed through a sequential approach to design.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <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 FRA will be required as the proposed development site is: <ul style="list-style-type: none"> <li>Greater than one hectare</li> <li>At risk from surface water flooding</li> </ul> </li> <li>All sources of flooding should be considered as part of a site-specific FRA.</li> <li>Consultation with Chelmsford City Council, Essex County Council, Anglian Water, and the Environment Agency should be undertaken at an early stage.</li> <li>Any FRA should be carried out in line with the National Planning Policy Framework (NPPF); Flood Risk and Coastal Change Planning Practice Guidance (PPG); and the Council's Local Plan's SuDS Policy.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"> <li>Assessment of surface water risk to the site should be supported by detailed modelling, and consideration of the post-development site-layout and drainage features as well as the present undeveloped risk.</li> </ul> <p><b>Guidance for site design and making development safe:</b></p> <ul style="list-style-type: none"> <li>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).</li> <li>The risk from surface water flow routes should be quantified as part of a site-specific FRA, including a drainage strategy, so runoff magnitudes from the development are not increased by development across any ephemeral surface water flow routes. A drainage strategy should help inform site layout and design to ensure runoff rates are limited to pre-development greenfield rates.</li> <li>Arrangements for safe access and egress will need to be provided for the 1% AEP fluvial and rainfall events with an appropriate allowance for climate change, considering depth, velocity, and hazard. Design and access arrangements will need to incorporate measures, so development and occupants are safe. Given the significant risk to the site and proximity to the watercourse, a flood warning and evacuation plan should be prepared for the site if safe access and egress cannot be provided during an extreme event. See Section 8.6 of the Level 1 Strategic Flood Risk Assessment (SFRA) for details of the requirements for plans.</li> <li>Provisions for safe access and egress should 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>Flood resilience and resistance measures should be implemented where appropriate during the construction phase, e.g. raising of floor levels and use of boundary walls. These measures should be assessed to make sure that flooding is not increased elsewhere.</li> </ul> |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Key messages

The site is in Flood Zone 1, with a high risk of surface water flooding in the western section of the site. With regards to managing the flood risk, development may be able to proceed if:

- Safe access and egress can be demonstrated in the surface water 1% AEP plus climate change events. This includes measures to reduce flood risk along these routes such as raising access, but not displacing floodwater elsewhere. Given the significant risks to the site, a suitable flood warning and evacuation plan will be required if development is located within areas of risk and/or safe access and egress cannot be provided in an extreme event.
- A carefully considered and integrated flood resilient and sustainable drainage design is put forward, with development steered away from the areas identified to be at risk of surface water, fluvial and groundwater flooding across the site.
- A site-specific FRA demonstrates that site users will be safe throughout the lifetime of the development and that development of the site does not increase the risk of surface water/fluvial flooding on the site and downstream.

### Mapping Information

The key datasets used to make planning recommendations for this site were the Environment Agency's Flood Map for Planning and the Environment Agency's 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.                                                                                                                                     |
| <b>Climate change</b>                                                | Climate change allowances have been incorporated into the Environment Agency's Flood Map for Planning.<br>Climate change allowances have been incorporated into the Environment Agency's Risk of Flooding from Surface Water mapping. |
| <b>Fluvial and tidal extents, depth, velocity and hazard mapping</b> | N/A – not required for this assessment                                                                                                                                                                                                |
| <b>Surface Water</b>                                                 | The Risk of Flooding from Surface Water map has been used to define areas at risk from surface water flooding.                                                                                                                        |
| <b>Surface water depth, velocity and hazard mapping</b>              | The Risk of Flooding from Surface Water map has been used in this assessment.                                                                                                                                                         |