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Level 2 Strategic Flood Risk Assessment - Site SHELAA/368

Amethyst Horticulture, Land at Newington Nurseries, ME9 7NY

Final

Prepared for	Date
Swale Borough Council	October 2026

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1 Background

This is a Level 2 Strategic Flood Risk Assessment (SFRA) site screening report for site SHELAA/368. The content of this Level 2 SFRA site screening report assumes the reader has already consulted the Swale Borough Council Level 1 SFRA and read the Swale Borough Council Level 2 SFRA main report and is therefore familiar with the terminology used in this report.

1.1 Site details

- Location: Amethyst Horticulture, Land at Newington Nurseries, ME9 7NY
- Site area: 7.8ha
- Existing site use: Brownfield with existing greenhouses
- Proposed site use: Residential
- Proposed use flood risk vulnerability classification: More Vulnerable

The site is situated in Newington and comprises two parcels of land. The northern parcel comprises brownfield land in the south and greenfield land in the north. The southern parcel comprises brownfield land with existing greenhouses. The northern parcel is bounded by greenfield land in the north, east and west and a railway line in the south. The southern parcel is bounded by the railway line in the north, residential housing in the east and west and London Road in the south.

1.2 Topography

Figure 1-1 shows the topography of the site represented by the Environment Agency 1m resolution LiDAR flown in 2023. The northern parcel slopes down from northeast to southwest, with a maximum elevation of 30.5mAOD and a minimum elevation of 20.2mAOD. The southern parcel is relatively flat, with elevations between 24.0mAOD and 23.0mAOD.

A railway embankment with an elevation of 29.2mAOD runs between the two land parcels. The railway line passes over a track, via a bridge, at approximately the mid-point of the southern parcel to the southeastern corner of the northern parcel. There is also another bridge, which the railway runs over, 180m to the west.

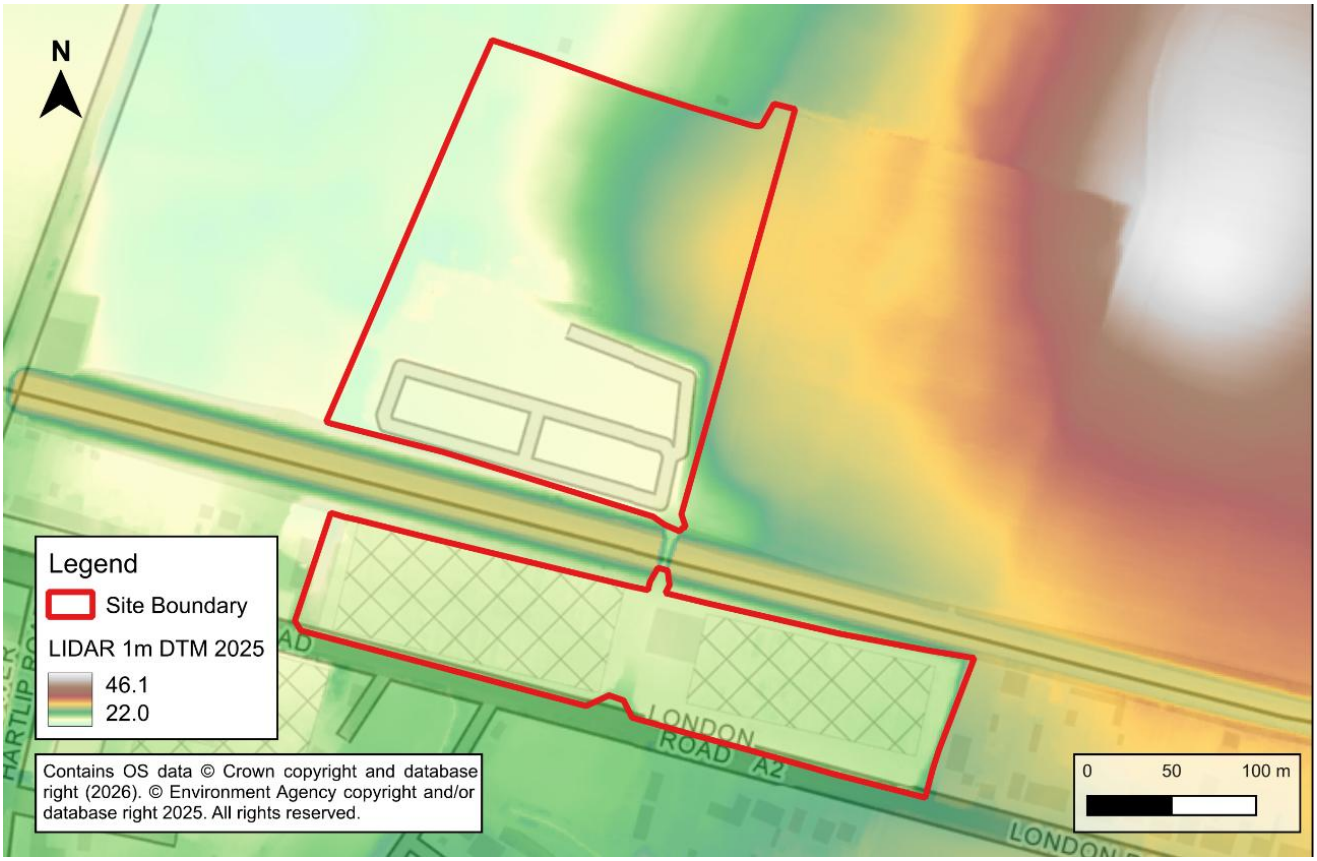


Figure 1-1: Topography of the site

1.3 Geology and soils

Geology at the site consists of:

- Bedrock - Thanet Formation consisting of Sand, silt and clay
- Superficial:
  - Head-Clay and silt along the southern boundary of the northern parcel of the site.
  - There are no unconsolidated quaternary sediments at the rest of the site.

Soils at the site consist of:

- Freely draining slightly acid loamy soils.

The potential influence of the site's geology and soil conditions on drainage is discussed in Section 7.

2 Sources of flood risk

2.1 Existing drainage features

There are no existing drainage features in close proximity to the site. There is an unnamed ordinary watercourse approximately 1km east of the site.

2.2 Flood Zones

2.2.1 Available data

The Environment Agency's Flood Map for Planning (FMfP) has been used within this assessment to determine Flood Zones 2 and 3a. Flood Zones 2 and 3a do not consider defences.

Flood Zone 3b in this area has been defined using the Environment Agency's River and Sea 3.3% AEP defended flood risk extents – present day dataset. The mapping in this location is based on generalised modelling.

2.2.2 Description of risk to the site

According to the Flood Map for Planning, the entire site is located within Flood Zone 1 and is therefore at very low risk of fluvial or tidal flooding.

Table 2-1: Existing fluvial and tidal flood risk based on Environment Agency FMfP

Flood Zone 1 (%)	Flood Zone 2 (%)	Flood Zone 3a (%)	Flood Zone 3b (%)
100	0	0	0

2.3 Fluvial present day defended risk

There are no watercourses located in close proximity of the site, therefore the fluvial flood risk is considered to be negligible.

2.4 Tidal/coastal present day defended risk

2.4.1 Available data

The North Kent Coast modelling study (2024) has been used to understand the tidal flood risk.

2.4.2 Description of risk to the site

According to the North Kent Coast model, the site is not predicted to flood during the present day defended 3.3% AEP (1 in 30-year), 0.5% AEP (1 in 200-year) or the 0.1% AEP (1 in 1000-year) events.

2.5 Surface water present day risk

2.5.1 Available data

The Environment Agency's Flood Map for Planning – Surface Water Spatial Planning map has been used within this assessment to inform the extent and depth of surface water risk. Velocity and hazard data is not currently available from the Environment Agency for this dataset.

2.5.2 Description of risk to the site

During the 3.3% AEP (1 in 30-year) event, the western half of the southern parcel is at risk of surface water flooding, associated with flow paths originating south of the site and ponding along the railway embankment. The eastern half is also inundated during the 1% AEP (1 in 100-year) event. Most of the northern parcel is at very low risk of surface water flooding, with flooding predicted to flow through the railway embankment through the arch tunnel from the southern parcel and via Breach Lane, following the areas of low topography. The southern half of the northern parcel is at risk during the 0.1% AEP (1 in 1000-year) event and the area along the western boundary is at risk during the 1% AEP (1 in 100-year) event with isolated areas of ponding during the 3.3% AEP (1 in 30-year) event.

The existing site has extensive covering of glasshouses and therefore is likely to generate high volumes of surface water runoff.

Table 2-2: Existing surface water flood risk based on the Flood Map for Planning map – Surface Water Spatial Planning map

Event	<0.1% AEP (1 in 1000-year) (%)	0.1% AEP (1 in 1000-year) (%)	1% AEP (1 in 100-year) (%)	3.3% AEP (1 in 30-year) (%)
Percentage of site at risk* (%)	47	53	43	21
Maximum depth (m)	N/A	>2.30	>2.30	1.20-2.30

** The percentage of surface water extents quoted show the percentage 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., 1% AEP (1 in 100-year) includes the 3.3% AEP (1 in 30-year) percentage). The <0.1% AEP event shows the area of the site not predicted to be impacted by surface water flooding.*

2.6 Reservoir

The site is not shown to be at risk of reservoir flooding during the 'dry day' or 'wet day' scenario from the Environment Agency reservoir flood maps.

2.7 Groundwater

The JBA Groundwater Emergence Map shows there is negligible risk to groundwater flooding during a 1% AEP (1 in 100-year) groundwater event.

This assessment does not negate the requirement that an appropriate assessment of the groundwater regime should be carried out at the site-specific Flood Risk Assessment (FRA) stage.

2.8 Sewers

Southern Water has confirmed there may be limited network capacity near the site and phasing of development may be needed alongside network reinforcement prior to occupation of the total number of dwellings indicated. Southern Water should be consulted to confirm requirements.

2.9 Flood history

According to the Environment Agency's Recorded Flood Outlines, the site has not been impacted by any historic flood events.

According to Kent County Council, although not within the site, there have been internal property flooding incidents at the service road off Breach Lane parallel to Hartlip Hill, likely attributable to surface water flooding.

The Kent County Council historic data was provided as point data with an easting and northing. Due to the protection of data, the eastings and northings were plotted on GIS and the number of incidents recorded within a 0.85km^2 area was calculated. Kent County Council's records indicate that the site lies across two reporting areas that contain 5 and 7 recorded flood incidents respectively.

According to Southern Water's Sewer Incident Report Form (SIRF), there have been 28 sewer flood incidents in the ME9 7 postcode area since 2015.

3 Climate change

Increased storm intensities due to climate change may increase the extent, depth, velocity, hazard, and frequency of fluvial, tidal and surface water flooding.

Climate change allowances are determined by the management catchment in which the site is located. The site lies within the Medway Management Catchment. Please see Section 6 of the Swale Borough Council Level 2 SFRA main report for information on climate change allowances.

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 escape must also address the potential increase in severity and frequency of flooding.

3.1 Flood Zones plus climate change

3.1.1 Available data

The Environment Agency's Flood Map for Planning (FMfP) plus climate change has been used within this assessment. This shows the combined extent of Flood Zones 2 and 3 using the following climate change allowances:

- 'Central' allowance for the 2080s epoch (2070-2125) for risk of flooding from rivers
- 'Upper End' allowance for risk of flooding from the sea, accounting for cumulative sea level rise to 2125.

3.1.2 Description of risk to the site

The site is not impacted by the Flood Zones plus climate change dataset.

3.2 Fluvial

3.2.1 Available data

There are no watercourses located in close proximity of the site, therefore the fluvial flood risk due to climate change is considered to be negligible.

3.3 Tidal

3.3.1 Available data

The North Kent Coast modelling study (2024) has been used to understand the tidal and coastal flood risk within the Local Plan area. The mapping provides information for present day and for the Upper End climate change event for the years 2100 and 2125. Only the

2125 event has been assessed in this site summary sheet due to the likely lifetime of development (100-years) for residential sites.

3.3.2 Description of risk to the site

The site is not predicted to be at risk of flooding during the 0.5% AEP (1 in 200-year) 2125 Upper End event.

3.4 Surface water

3.4.1 Available data

The Environment Agency's Surface Water Spatial Planning Dataset, released in May 2026, has been used within this assessment to inform the extent and depth of surface water risk with climate change. Climate change outputs are available for the 3.3% (1 in 30-year), 1%, (1 in 100-year) and 0.1% AEP (1 in 1,000-year) events with the Upper End climate change allowance for the 2070s epoch. There is currently no available velocity or hazard information to use within this assessment.

It should be noted that the Environment Agency's Upper End allowance for the 2050s epoch for the 1% AEP (1 in 100-year) event in the Medway Management Catchment is greater than the 2070s epoch for the 1% AEP (1 in 100-year) event so the climate change uplift may be slightly underestimated.

3.4.2 Description of risk to the site

The extent of surface water flooding in the 3.3% AEP (1 in 30-year) plus climate change event is predicted to increase compared to the 3.3 AEP (1 in 30-year) present day event, to affect almost the entire area of the southern parcel, predicted flood extents are also increased in the northern parcel within the areas of lower elevation.

During the 1% AEP (1 in 100-year) plus climate change event the extent of surface water flooding is also predicted to increase compared to the 1% AEP (1 in 100-year) event, particularly in the southern and western part of the northern parcel of the site within the area of lower elevation.

The maximum flood depth during the 1% AEP (1 in 100-year) plus climate change event is predicted to reach >2.30m in the southern parcel, in a small area along the western boundary. Maximum flood depths for the majority of the southern parcel are predicted to reach 1.2m - 2.3m whilst the majority of the northern parcel has predicted maximum flood depths below 0.3m.

Table 3-1: Comparison of surface water flood risk to the site between the 1% AEP (1 in 100-year) present day and 1% AEP (1 in 100-year) climate change events for the two parcels of land

Event	1% AEP	1% AEP plus climate change
Percentage of site at risk (%) - Northern parcel	10	20
Percentage of site at risk (%) - Southern Parcel	97	98
Maximum depth (m)	1.2-2.3m	>2.30

4 Flood risk management infrastructure

4.1 Defences

The Environment Agency AIMS (Asset Information Management System) dataset shows the site is not protected by any flood defences.

4.2 MEAS Hold the Line Benefit Area

The Medway Estuary and Swale flood and coastal risk management Strategy (MEAS) sets out the Environment Agency's plan to sustainably manage the coastline and tidal defences in the Medway estuary and Swale area. It aims to protect people, properties, designated habitat and agricultural land over the next 100 years.

The site is not within a MEAS (Medway Estuary and Swale Strategy Benefit Areas) Hold the Line Benefit Area.

4.3 Residual risk

A railway embankment runs between the two land parcels, with a road passing underneath via a tunnel. This is located at approximately the mid-point of the southern parcel to the southeastern corner of the northern parcel. In the event of a blockage to this tunnel, there is potential for water levels to exceed the embankment levels and flow overland which may impact the site.

5 Coastal Change Management Area

The site is not located within the Coastal Change Management Area (CCMA). The implications of the CCMA can be found within Appendix J of the Level 1 SFRA.

6 Emergency planning

6.1 Flood warnings and alerts

The site is not located within an Environment Agency Flood Warning or Alert Area.

6.2 Access and escape

Safe access and escape will need to be demonstrated in the 1% AEP (1 in 100-year) plus surface water event. Site layout and design should address the requirements for safe access and escape, avoid impeding surface water flows and preserve the storage of surface water to avoid exacerbation of flood risk elsewhere on the site and in the wider catchment.

6.2.1 Potential access

Current access to the site can be achieved via London Road along the southern boundary of the southern parcel which leads underneath the railway into the northern parcel.

6.2.2 Fluvial

Safe access and escape is possible via London Road during all fluvial events.

6.2.3 Tidal

Safe access and escape is possible via London Road during all tidal events.

6.2.4 Surface water

During the 1% AEP (1 in 100-year) surface water climate change event, London Road is at risk of surface water flooding travelling from the west and the flood depths are predicted to be 0.30 - 0.60m which may hinder potential access. Flood depths within the majority of the southern parcel of the site reach between 1.20m and 2.30m so access and escape would be impeded within the site.

6.3 Dry islands

A dry island is a parcel of land that is elevated above surrounding areas at risk of flooding and is not at risk of flooding itself.

The site is not located on a dry island.

7 Requirements for drainage control and impact mitigation

7.1 Assessment of possible SuDS constraints

- 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.
- BGS data indicates that the underlying geology is sand, silt and clay, therefore permeability could be highly variable across the site. As a result, permeability should be confirmed through infiltration testing. Off-site discharge may be required to discharge surface water runoff from the site. This would need to be in accordance with the SuDS hierarchy.
- 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.
- The topography in the northern parcel slopes from the northeast to the southwest which will accelerate surface water runoff and could increase erosion risks and limit the space available for gravity-fed infiltration features like basins.
- The site is not within a historic landfill site.

7.2 Recommended approach to SuDS design

- 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, Lead Local Flood Authority, and the Environment Agency) at an early stage to understand possible constraints.
- 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.
- Opportunities to incorporate filtration techniques such as filter strips, filter drains and bioretention areas must be considered.
- Opportunities to incorporate source control techniques such as green roofs, permeable surfaces and rainwater harvesting must be considered in the design of the site.
- 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.
- Surface water discharge rates should not exceed the existing greenfield runoff rates for the site for the 50% AEP (1 in-2 year) and 1% AEP (1 in-100) year storm events. 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.

- If it is proposed to discharge runoff to a sewer system, the condition and capacity of the receiving asset should be confirmed through surveys and the discharge rate agreed with the Lead Local Flood Authority alongside confirmation with the asset owner of the available capacity.

8 NPPF and planning implications

8.1 Exception Test requirements

The Local Planning Authority has confirmed 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.

Annex F of the NPPF classifies residential development as "More vulnerable".

The Exception Test is not required for this site because it is within Flood Zone 1. However, consideration needs to be given to the high surface water flood risk to ensure that development remains safe and flood risk is not increased elsewhere.

8.2 Requirements and guidance for site-specific Flood Risk Assessment

At the planning application stage, a site-specific FRA will be required as the proposed development site is:

- within Flood Zone 1 with a site area of 1 hectare or more
- within Flood Zone 1 and the flood map for planning shows it is at risk of flooding from surface water, now or in future

All sources of flooding should be considered as part of a site-specific FRA.

Consultation with the Local Authority, Lead Local Flood Authority, Southern Water, and the Environment Agency should be undertaken at an early stage.

Any FRA should be carried out in line with latest guidance including the National Planning Policy Framework (NPPF), Flood Risk and Coastal Change Planning Practice Guidance (PPG), and Swale Borough Council Local Plan Policies.

The development should be designed with mitigation measures in place where required as outlined in Section 8.3.

8.3 Guidance for site design and making development safe

- A sequential approach to the location of development within the site should be undertaken. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding.
- Where development cannot avoid areas at risk of flooding, then flood resilience and resistance measures e.g. raising of floor levels, including property flood resistance and resilience measures should be implemented, where appropriate. These measures should be assessed to make sure that flooding is not increased either on or off the site.
- Detailed surface water modelling will be required to assess the flood risk and mitigation approach. This should also consider the residual risk of blockage from the railway bridges north of the site.

- The risk from surface water flow routes should be quantified with detailed surface water modelling as part of a site-specific FRA, including a drainage strategy. Runoff magnitudes from the development should not be increased by the development and any ephemeral surface water flow routes should be taken into account within the site and drainage design 1to ensure that flow routes are not re-directed to increase flood risk elsewhere and that floodplain storage is not reduced. A drainage strategy should help inform site layout and design. Surface water discharge rates should not exceed the existing greenfield runoff rates for the site for the 50% AEP (1 in-2 year) and 1% AEP (1 in-100) year storm events.
- 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. Areas of surface water ponding should be used as open space and SuDS or water compatible/essential infrastructure uses only.
- A Flood Response Plan will be required. Arrangements for safe access and escape will need to be provided for the 1% AEP (1 in 100-year) surface water event with an appropriate allowance for climate change, considering depth, velocity, and hazard. Design and access arrangements will need to incorporate mitigation measures, so development and occupants are safe.
- Provisions for safe access and escape 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.

9 Conclusions

According to the FMfP, the entire site is located within Flood Zone 1.

The EA's Flood Map for Planning indicates that the site is not at risk from fluvial flooding during the present day or climate change events.

According to the North Kent Coast model, the site is not predicted to flood during the present-day or climate change events.

In terms of surface water flood risk, the southern parcel has a high proportion of the site at risk and the northern parcel has a lower proportion. During the 3.3% AEP (1 in 30-year) event, the western half of the site's southern parcel is at risk of flooding, associated with a flow path originating south of the site. The eastern half is inundated during the 1% AEP (1 in 100-year) event. The southern half of the northern parcel is at risk during the 0.1% AEP (1 in 1,000-year) event, and the area along the western boundary is at risk during the 1% AEP (1 in 100-year) event. The extent of surface water flooding in the 1% AEP (1 in 100-year) plus climate change event is predicted to increase compared to the 1% AEP (1 in 100-year) event, particularly in the southern and western part of the northern parcel of the site.

There have been 28 sewer flood incidents in the ME9 7 postcode area since 2015 according to Southern Water's SIRF dataset.

Kent County Council's records indicate that the site lies across two reporting areas that contain 5 and 7 recorded flood incidents respectively.

According to Kent County Council, although not within the site, there have been internal property flooding incidents at the service road off Breach Lane parallel to Hartlip Hill, likely attributable to surface water flooding.

The following points should be considered in development of this site:

- A site-specific Flood Risk Assessment including detailed surface water modelling will be required to demonstrate that residential development can be safely accommodated on the site and remain safe for its lifetime. This should include consideration of surface water flooding, as well as residual risk from the railway culverts north of the site. The FRA should demonstrate that development will not increase flood risk on or off site and should incorporate an appropriate allowance for climate change.
- Where development cannot avoid areas at risk of flooding, then flood resilience and resistance measures e.g. raising of floor levels, including property flood resistance and resilience measures should be implemented, where appropriate. These measures should be assessed to make sure that flooding is not increased either on or off the site.
- SuDS (filtration techniques, conveyance features such as swales or discharging to nearby sewers) should be incorporated throughout the site to manage runoff,

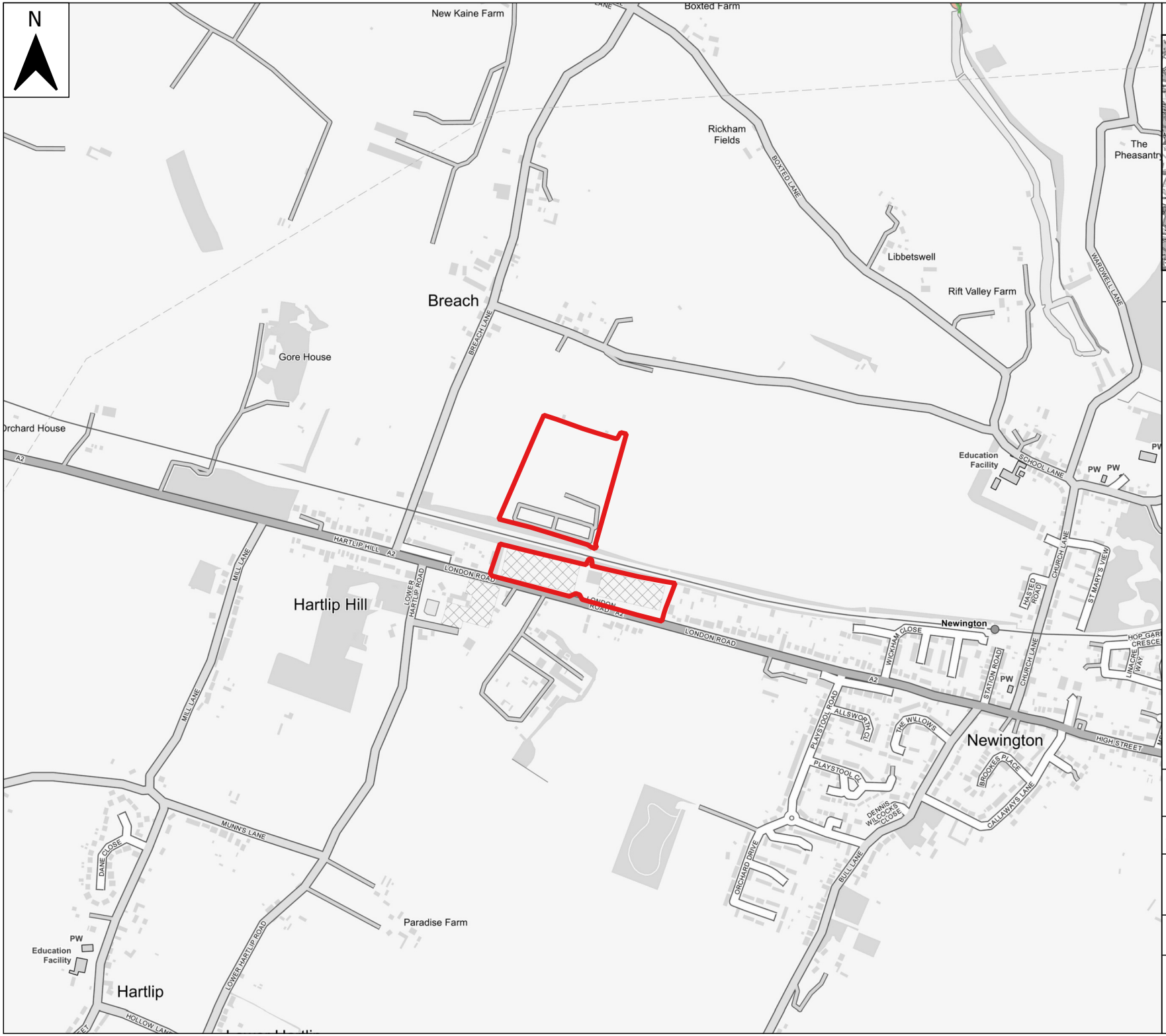
provide climate change resilience and deliver wider water quality, biodiversity and amenity benefits.

- A Flood Response Plan will be required. Arrangements for safe access and escape will need to be provided for the 1% AEP surface water event with an appropriate allowance for climate change, considering depth, velocity, and hazard. Design and access arrangements will need to incorporate mitigation measures, so development and occupants are safe.

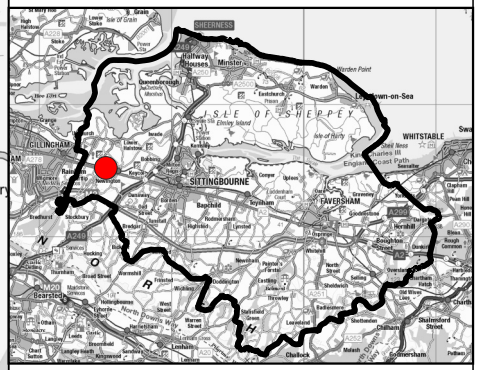
A Sources of information

- National Planning Policy Framework (NPPF) https://www.gov.uk/guidance/national-planning-policy-framework
- Planning Practice Guidance (PPG), Flood Risk and Coastal Change https://www.gov.uk/guidance/flood-risk-and-coastal-change
- Swale Borough Local Plan https://services.swale.gov.uk/media/files/localplan/adoptedlocalplanfinalwebversion.pdf
- Swale Borough Council Sequential and Exception Tests for Planning Applications https://swale.gov.uk/planning-and-regeneration/local-plans/local-plan-review-evidence/flood-risk#h2
- Swale Borough Council Level 1 SFRA https://swale.gov.uk/planning-and-regeneration/local-plans/local-plan-review-evidence/flood-risk#h2
- Kent County Council Local Flood Risk Management Strategy https://www.kent.gov.uk/__data/assets/pdf_file/0016/205621/Local-Flood-Risk-Management-Strategy-2024-2034.pdf
- Flood risk assessments: applying for planning permission https://www.gov.uk/guidance/flood-risk-assessments-applying-for-planning-permission
- Kent County Council's Drainage and Planning Policy Statement https://www.kent.gov.uk/about-the-council/strategies-and-policies/service-specific-policies/economic-regeneration-and-planning-policies/planning-policies/flooding-drainage-and-water-management-policies-and-guidance
- Defra's National standards for sustainable drainage systems (SuDS) https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds
- Flood Map for Planning - Flood Zones dataset https://environment.data.gov.uk/dataset/04532375-a198-476e-985e-0579a0a11b47
- Flood Map for Planning - Flood Zones plus Climate Change https://environment.data.gov.uk/dataset/59065c43-257e-4867-8798-fd2366156a6b
- British Geological Survey (BGS) Geology Viewer https://geologyviewer.bgs.ac.uk/
- Flood Warning sign up https://www.gov.uk/sign-up-for-flood-warnings

B Flood Risk Mapping



Location Plan



Legend

- Swale Borough Outline
- Site boundary

Watercourses

- Statutory Main Rivers
- Ordinary watercourses
- North Kent Marshes Water Level Management Board Watercourses
- North Kent Marshes Water Level Management Board

0 200 400 m

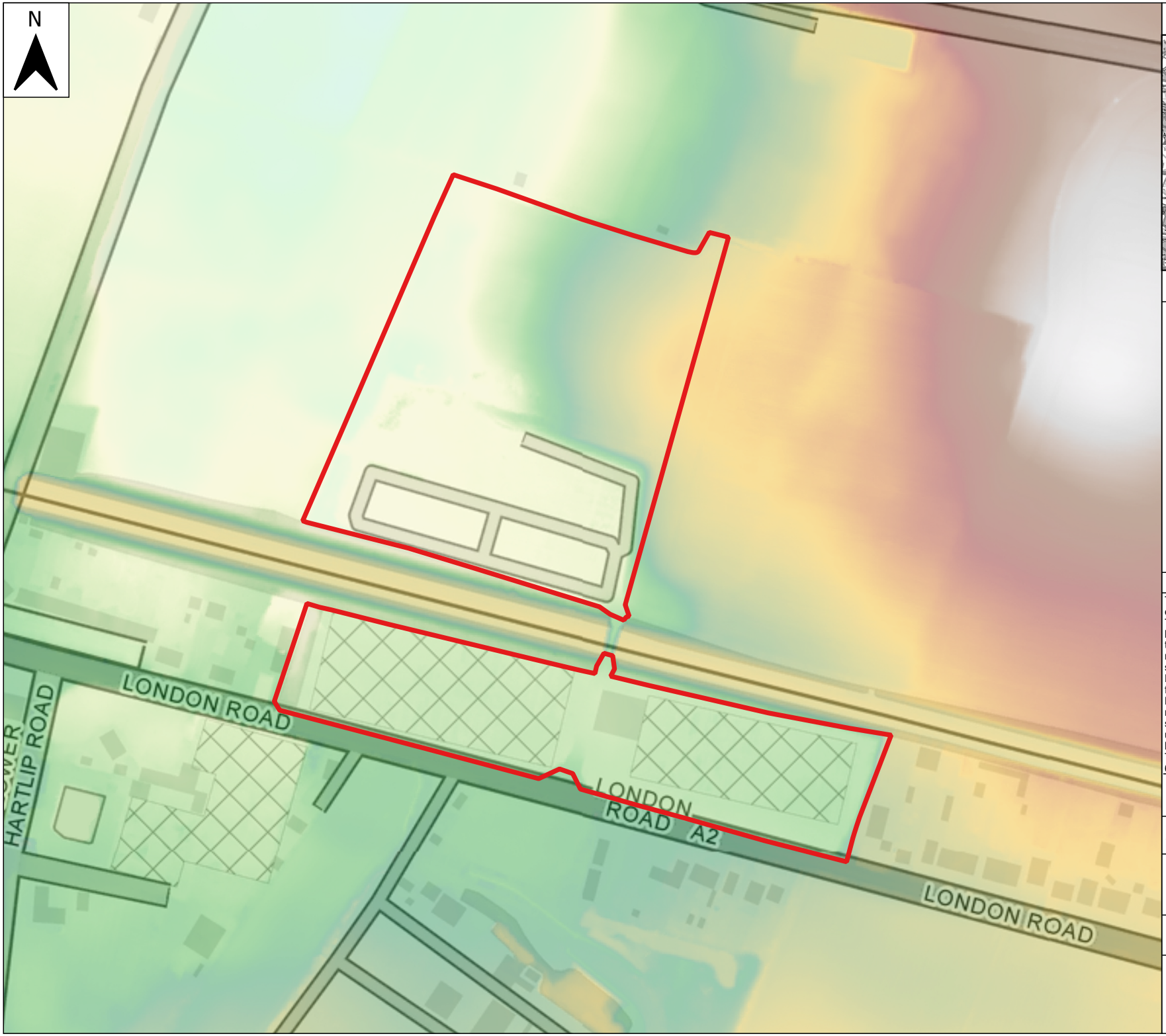
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LEVEL 2 SFRA:
WATERCOURSES - SHELAA-368

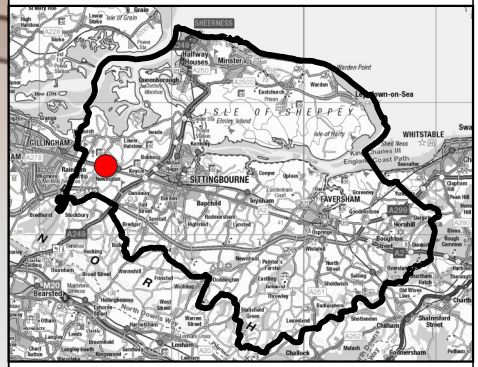
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JBA consulting

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Location Plan



Legend

Swale Borough Outline

Site boundary

Topography

LIDAR 1m DTM (mAOD)

46.08

17.98

Notes

The LIDAR Composite DTM (Digital Terrain Model) is a raster elevation model covering ~99% of England at 1m spatial resolution. The DTM (Digital Terrain Model) is produced from the last or only laser pulse returned to the sensor. We remove surface objects from the Digital Surface Model (DSM), using bespoke algorithms and manual editing of the data, to produce a terrain model of just the surface.

Produced by the Environment Agency in 2022, the DTM is derived from a combination of the EA's Time Stamped archive and National LIDAR Programme surveys, which have been merged and re-sampled to give the best possible coverage. Where repeat surveys have been undertaken the newest, best resolution data is used. Where data was resampled a bilinear interpolation was used before being merged.

The 2025 LIDAR Composite contains surveys undertaken between 6th June 2000 and 1st August 2025.

0 80 160 m

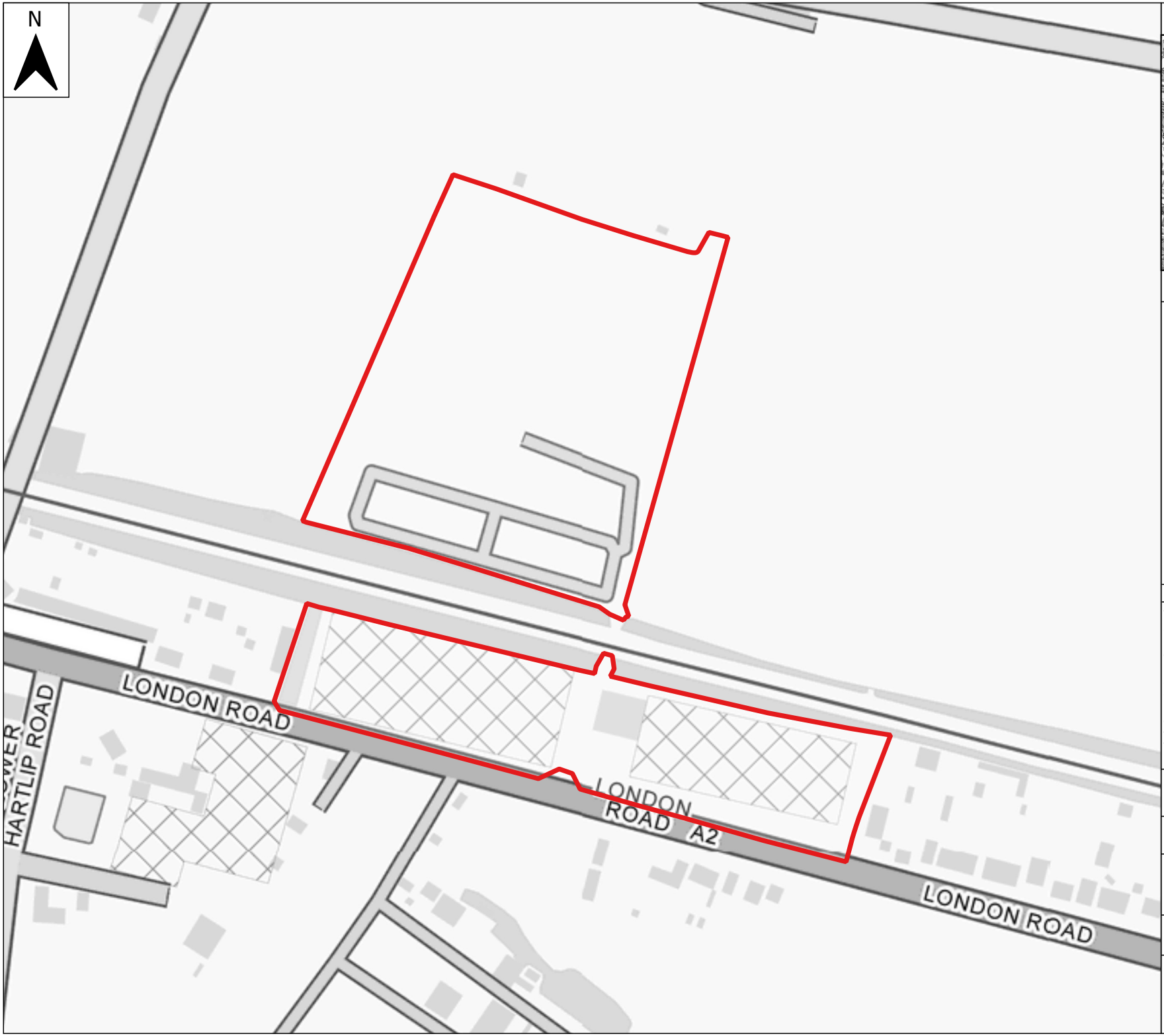
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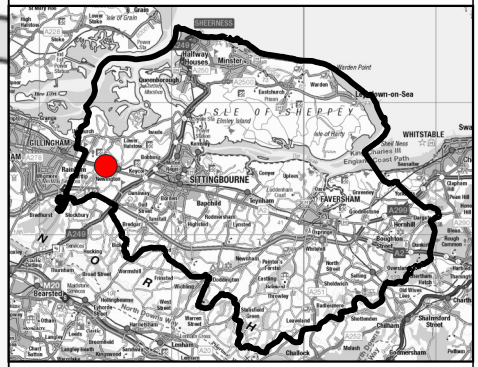
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Making Swale a better place



Location Plan



Legend

- Swale Borough Outline
- Site boundary

Environment Agency recorded flood outlines

- Main Rivers
- Sea

Notes

The Historic Flood Map shows the recorded flood outlines available from the Environment Agency. The dataset records historical flooding from rivers, the sea, groundwater and surface water.

It is possible that the pattern of flooding has changed and area would now flood or not flood under different circumstances.

Please note that not all historical records may be shown on this map, and that it is therefore advised you contact the Environment Agency for updated information.

The map does not include recorded incidents of flooding held by Kent County Council or Southern Water.

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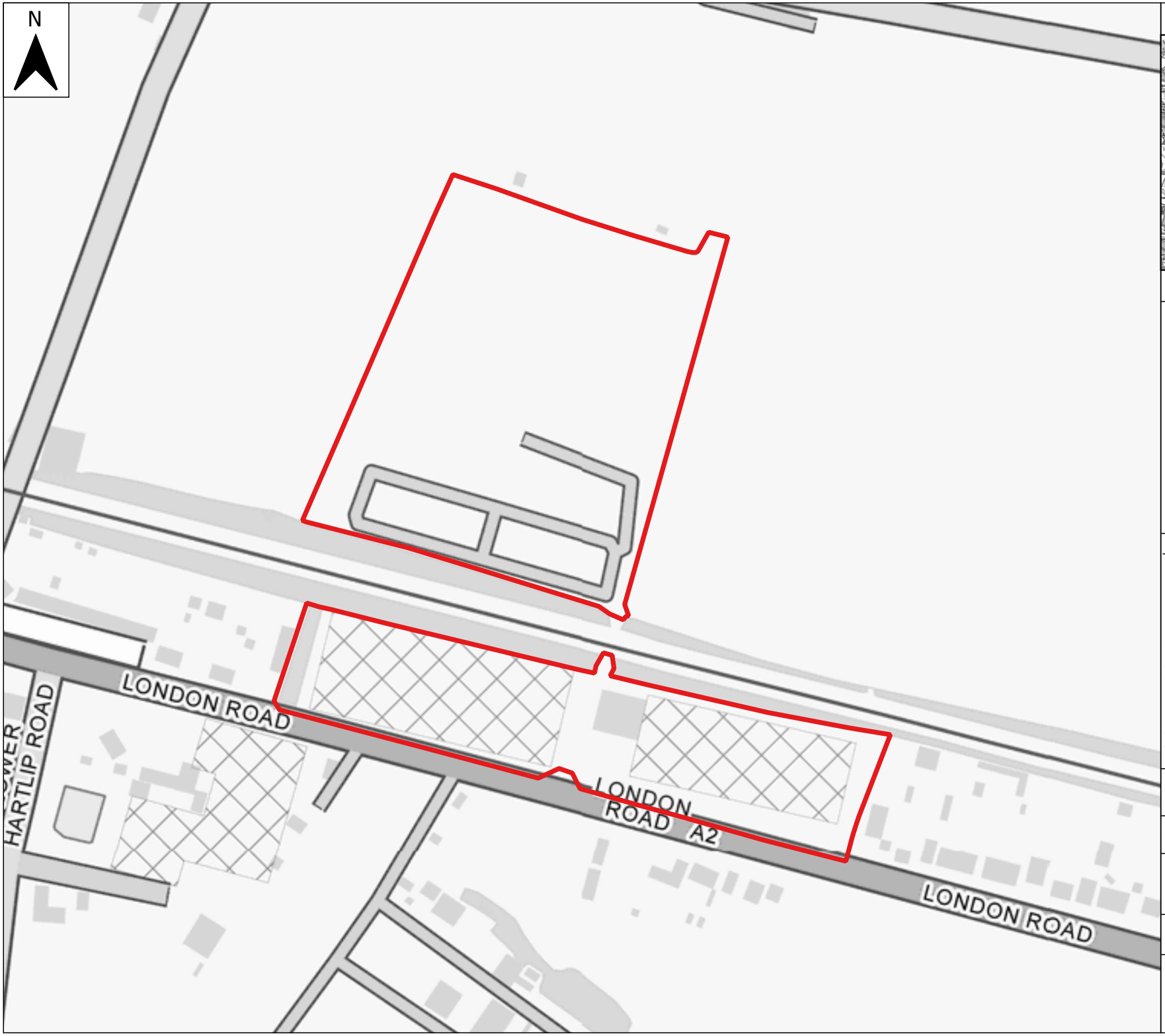
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LEVEL 2 SFRA:
HISTORIC FLOODING - SHELAA-368

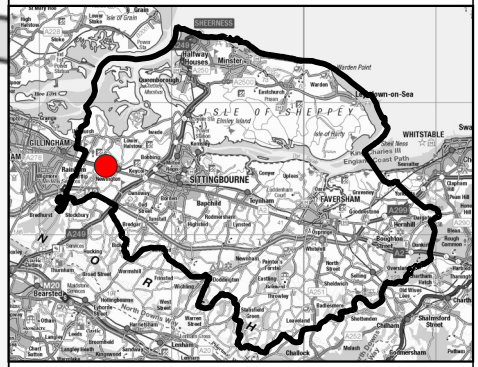
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

Flood Zone

- Flood Zone 2
- Flood Zone 3
- Flood Zone 3b
- Generalised modelling used for Flood Zone 3b

Notes

Flood Zone 1: Land assessed as having a less than 0.1% AEP of river or sea flooding.
Flood Zone 2: Land assessed as having a 0.1% - 1% AEP (1 in 1000-year and 1 in 100-year) of river flooding or a 0.1% - 0.5% AEP (1 in 1000-year and 1 in 200-year) of flooding from the sea.
Flood Zone 3a: Land assessed as having a greater than a 1% AEP (1 in 100-year) of river flooding or a greater than 0.5% AEP (1 in 200-year) of flooding from the sea.
Flood Zone 3b: Land where water has to flow or be stored in times of flood (functional floodplain). The SFRA identifies this Flood Zone as land which floods with an annual probability of 3.3% AEP (1 in 30-year) where detailed modelling exists. Where the 3.3% AEP (1 in 30-year) ouputs are not available, Flood Zone 3a is used as a surrogate as a precautionary approach. If a proposed development is in Flood Zone 3, further analysis should be undertaken in a detailed site specific FRA to define and confirm the extent of Flood Zone 3b.

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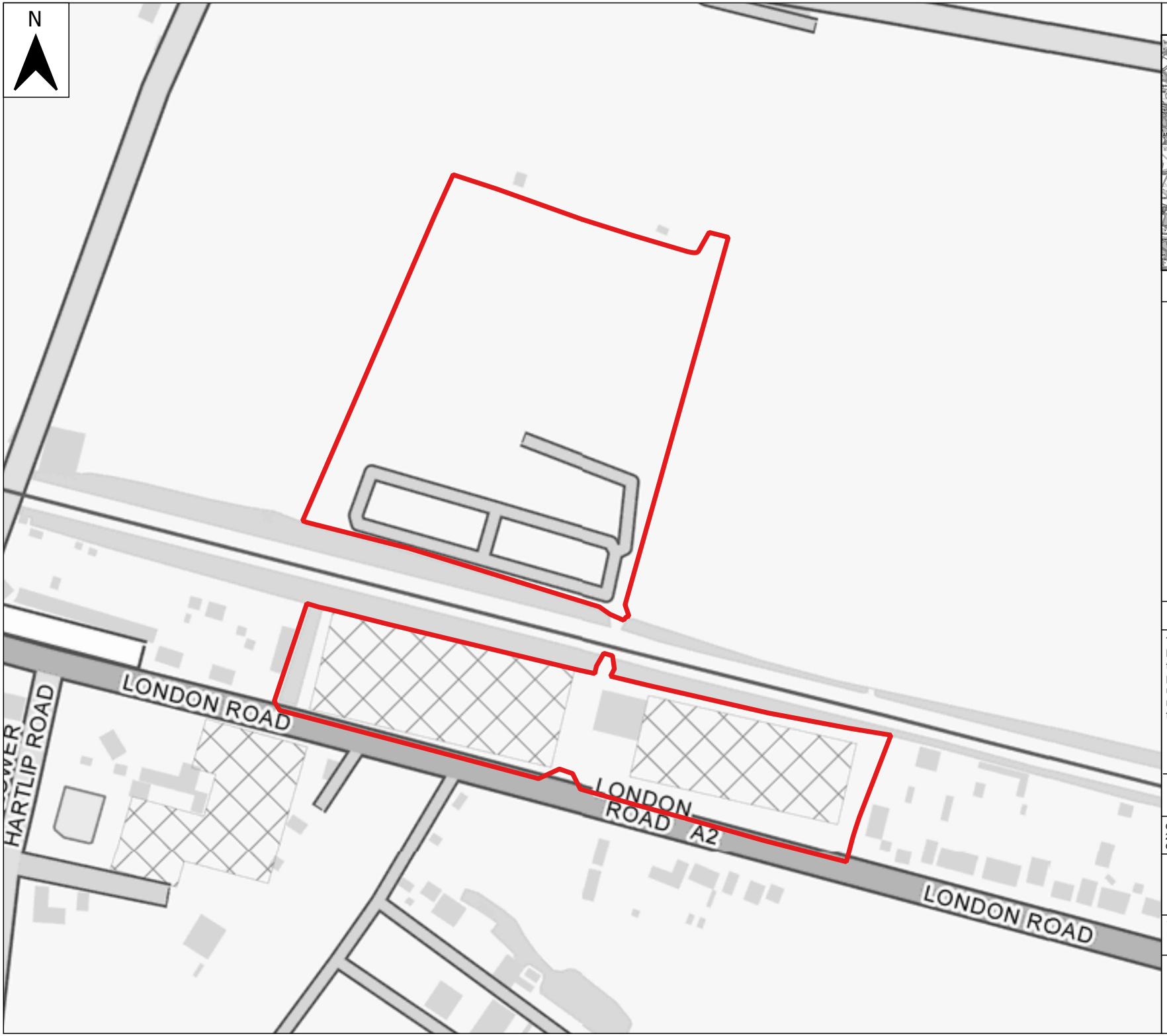
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LEVEL 2 SFRA:
PRESENT DAY FLOOD RISK FROM RIVERS AND SEA (FLOOD ZONES) - SHELAA-368

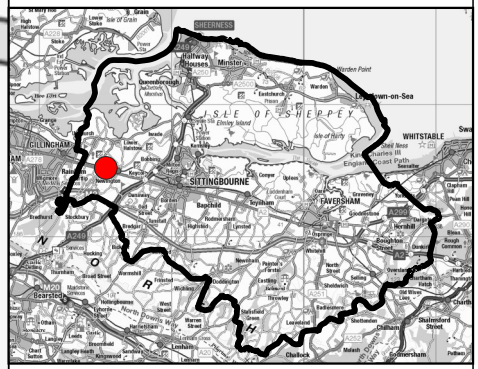
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Location Plan



Legend

- Swale Borough Outline
- Site Boundary
- 1% AEP (1 in 100-year) and 0.1% AEP (1 in 1000-year) undefended extents under the 2125 year climate change scenario

Notes

The Flood Zone plus Climate Change mapping was produced by combining the Flood Zone 2 and Flood Zone 3 extents with the relevant climate change allowances to illustrate the potential future flood risk to the area. This represents an undefended scenario, meaning that existing flood defences are not considered in the modelling. For further information on this flood extent dataset, please refer to the guidance available on;

https://flood-map-for-planning.service.gov.uk/how-to-use-

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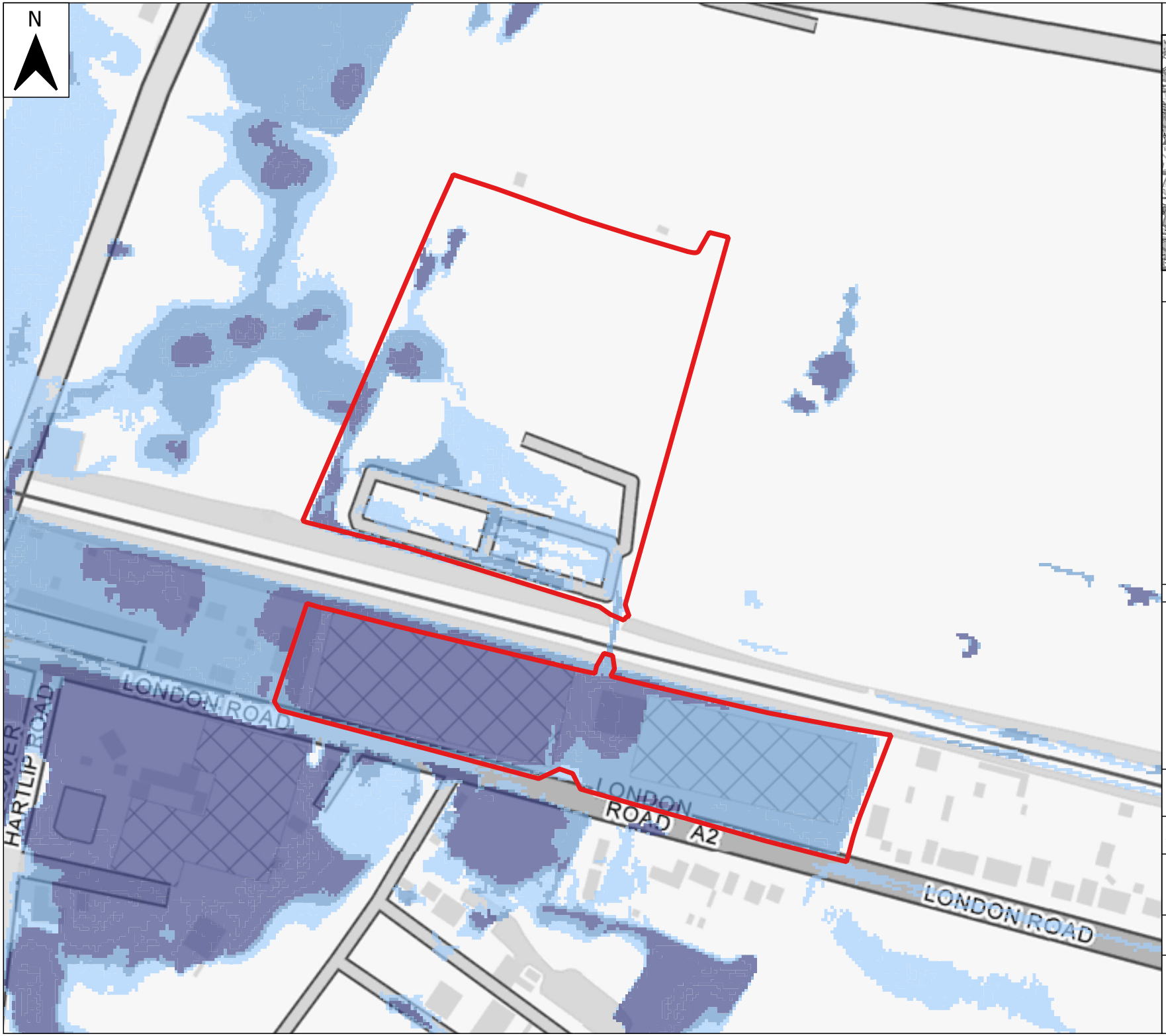
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LEVEL 2 SFRA:
FUTURE FLOOD RISK FROM RIVERS AND SEA - FLOOD MAP FOR PLANNING- SHELAA-368

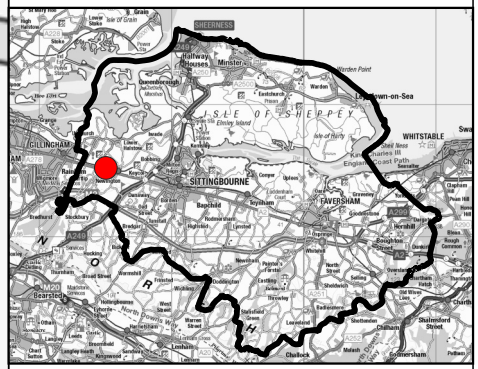
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

FMfP - Surface Water Spatial Planning Extents

- 3.3% AEP (1 in 30-year)
- 1% AEP (1 in 100-year)
- 0.1% AEP (1 in 1000-year)

Notes

The Flood Map for Planning Service includes several layers of information. This includes Surface Water Spatial Planning Extents. These datasets show the extent of land at risk of flooding from surface water to a defined annual exceedance probability (AEP) or chance of flooding each year.
These datasets are designed to only give an indication of flood risk to an area of land and are not suitable for showing whether an individual property is at risk of flooding.

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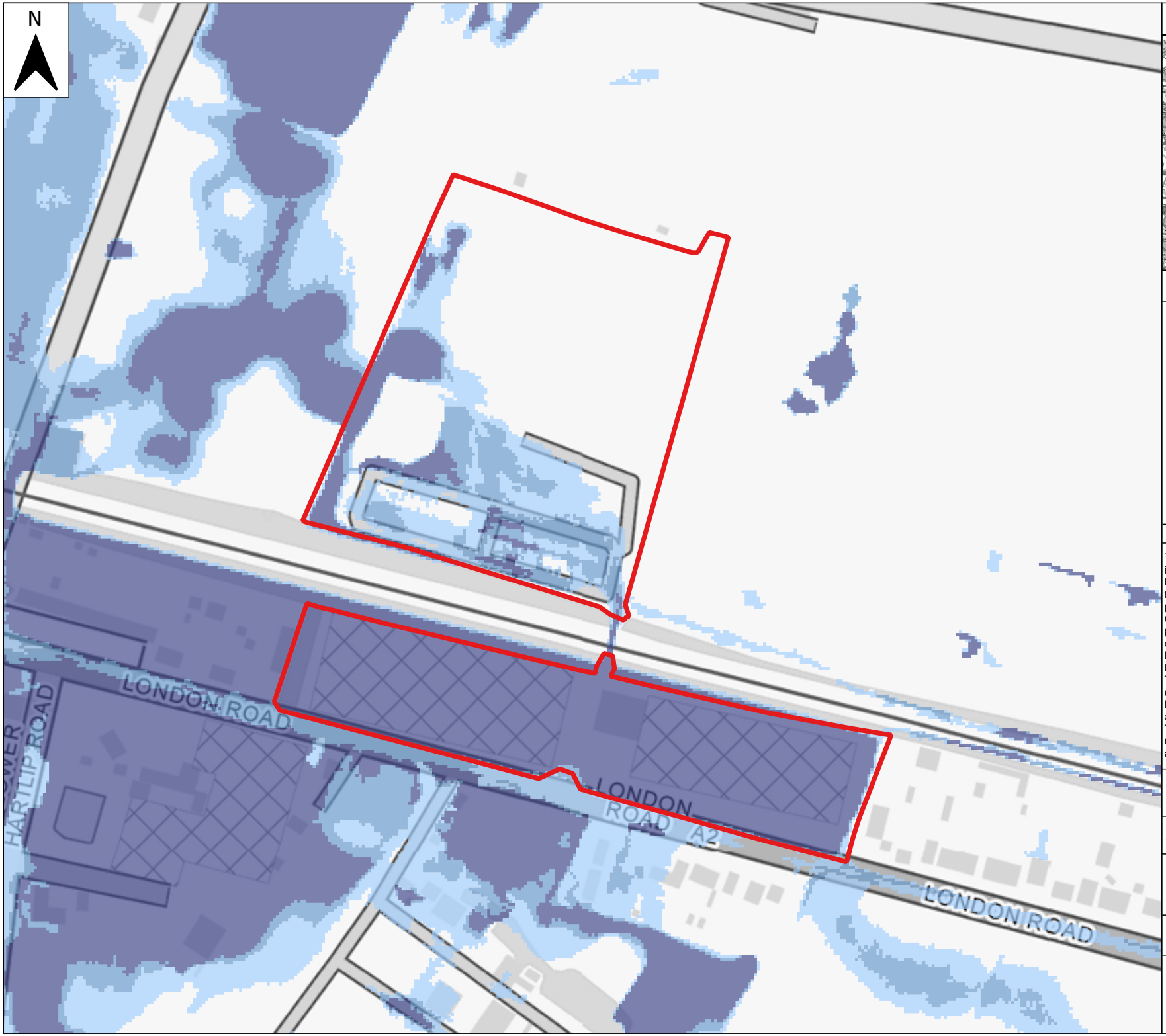
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SWALE BOROUGH COUNCIL
LEVEL 2 SFRA:
SURFACE WATER FLOODING - SHELAA-368

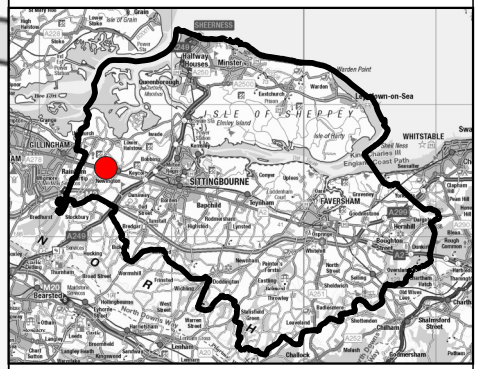
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

FMfP - Surface Water Spatial Planning Extents plus climate change

- 3.3% AEP (1 in 30-year) plus CC
- 1% AEP (1 in 100-year) plus CC
- 0.1% AEP (1 in 1000-year) plus CC

Notes

The Flood Map for Planning Service includes several layers of information. This includes Surface Water Spatial Planning Extents. These datasets show the extent of land at risk of flooding from surface water to a defined annual exceedance probability (AEP) or chance of flooding each year.
Climate change scenarios have been produced to indicate the predicted impacts of climate change on future flood risk. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5.
The 'Upper End' for the 2070s epoch (2061-2125) has been used for the climate change scenarios. We have chosen long-term epochs appropriate to support long-term planning and development decisions.
These datasets are designed to only give an indication of flood risk to an area of land and are not suitable for showing whether an individual property is at risk of flooding.

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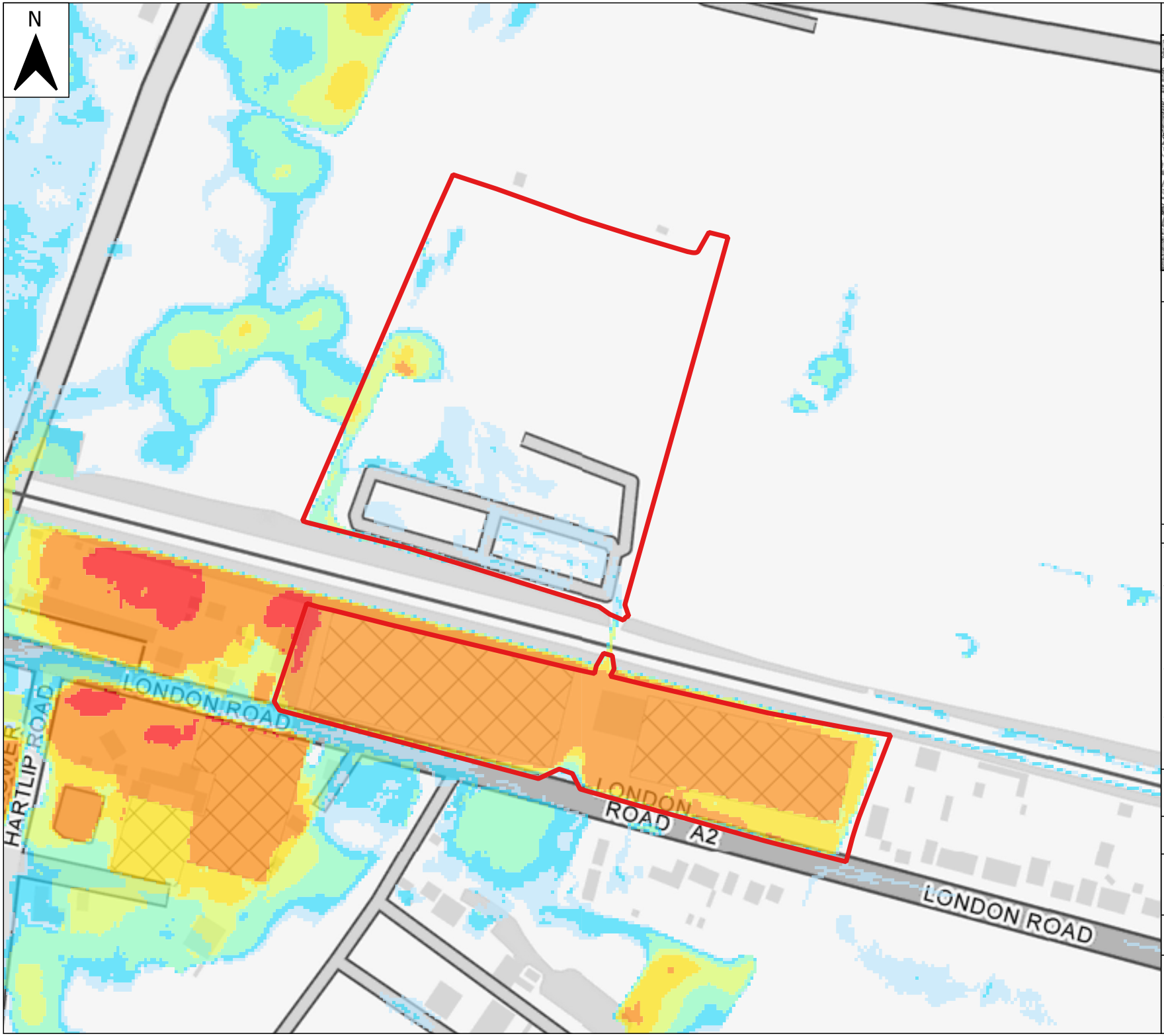
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LEVEL 2 SFRA:
SURFACE WATER FLOODING PLUS CLIMATE CHANGE - SHELAA-368

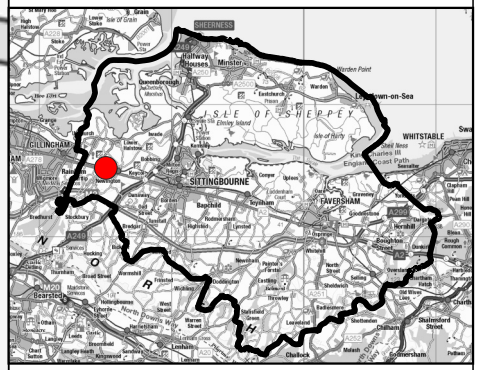
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Location Plan



Legend

Swale Borough Outline

Site boundary

FMfP Surface Water Spatial Planning Depths
1% AEP (1 in 100-year) plus climate change

- <150mm
- 150-300mm
- 300-600mm
- 600-900mm
- 900-1200mm
- 1200-2300mm
- >2300mm

Notes

The Flood Map for Planning Service includes several layers of information. This includes Surface Water Spatial Planning Extents. These datasets show the extent of land at risk of flooding from surface water to a defined annual exceedance probability (AEP) or chance of flooding each year.

Climate change scenarios have been produced to indicate the predicted impacts of climate change on future flood risk. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5.

The 'Upper End' for the 2070s epoch (2061-2125) has been used for the climate change scenarios. We have chosen long-term epochs appropriate to support long-term planning and development decisions.

These datasets are designed to only give an indication of flood risk to an area of land and are not suitable for showing whether an individual property is at risk of flooding. This is because we cannot know all the details about each property.

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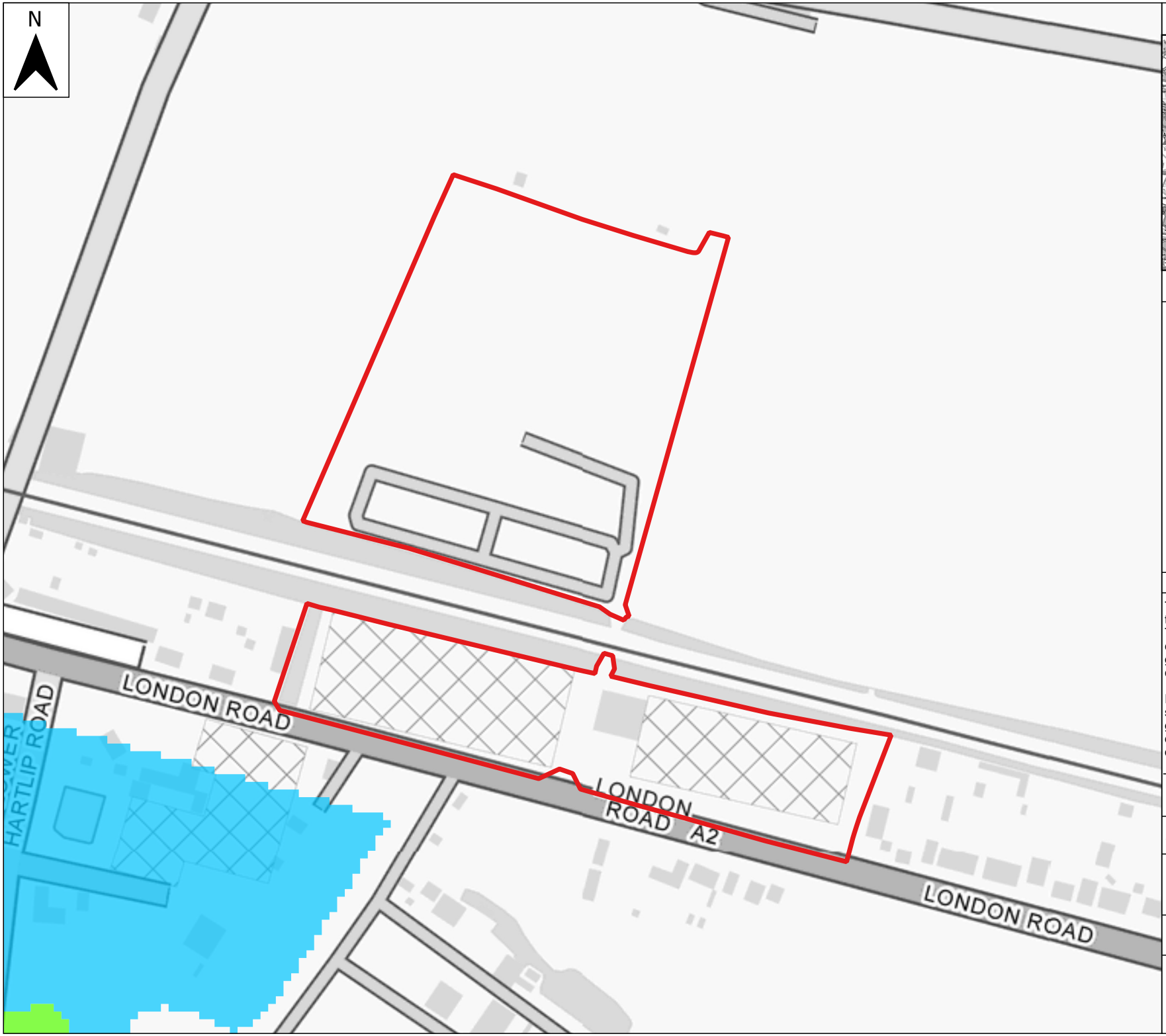
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SURFACE WATER FLOODING PLUS CLIMATE CHANGE DEPTHS - SHELAA-368

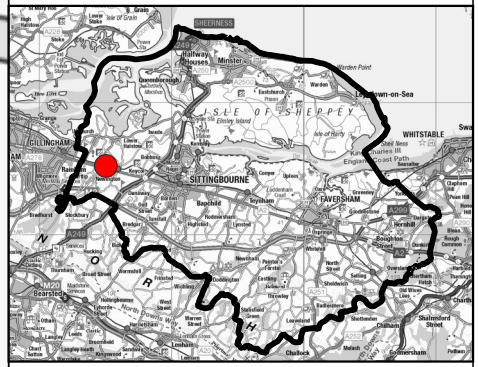
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

JBA Groundwater Flood Map Depths

- Groundwater levels are either at or very near (within 0.025m of) the ground surface.
- Groundwater levels are between 0.025m and 0.5m below the ground surface.
- Groundwater levels are between 0.5m and 5m below the ground surface.
- Groundwater levels are at least 5m below the ground surface.
- Low risk.

Notes

The modelled groundwater levels are not predictions of typical groundwater levels, rather they are flood levels. The 5m resolution JBA Groundwater Flood Map categorises the head difference (m) between the predicted groundwater levels and the surface level into five feature classes based on the 100-year flood model outputs.

It should be noted that the JBA Groundwater Flood Map is suitable for general broad-scale assessment of the groundwater flood hazard in an area, but is not explicitly designed for the assessment of flood hazard at the scale of a single property.

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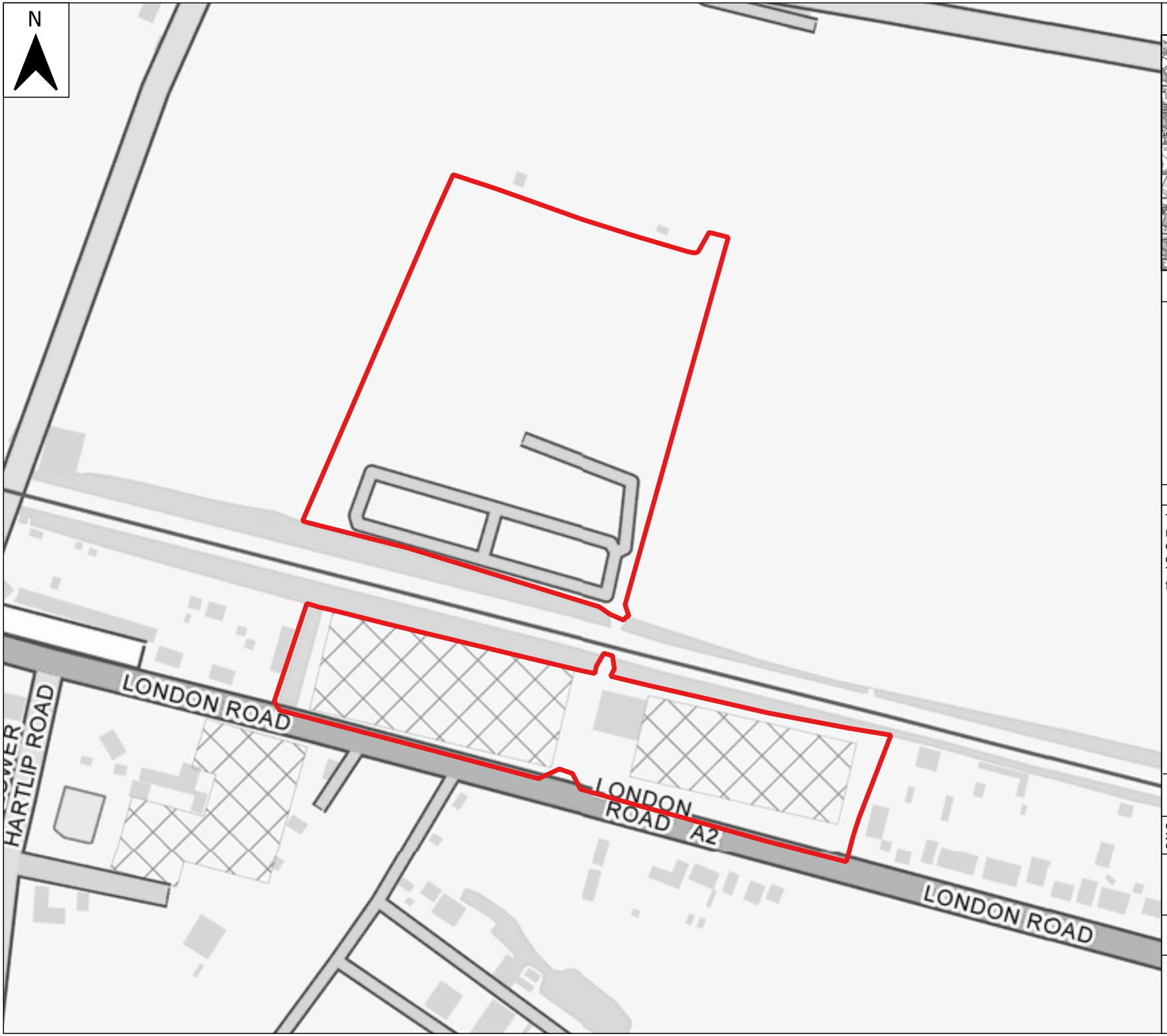
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LEVEL 2 SFRA:
JBA GROUNDWATER FLOOD MAP - SHELAA-368

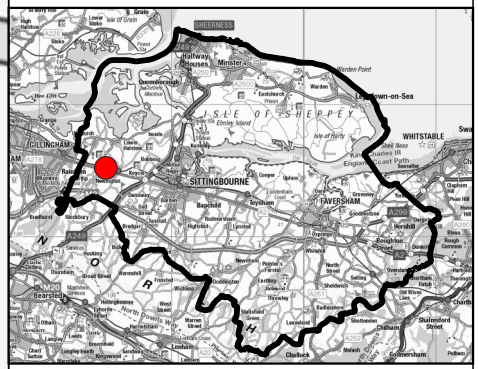
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

Environment Agency Reservoir Flood Extents

- Dry Day
- Wet Day

Notes

The risk of inundation due to reservoir breach or failure of reservoirs within the area has been mapped using the outlines available from the Risk of Flooding from Reservoir dataset, made available by the Environment Agency. The Environment Agency dataset includes areas of sea flooding.

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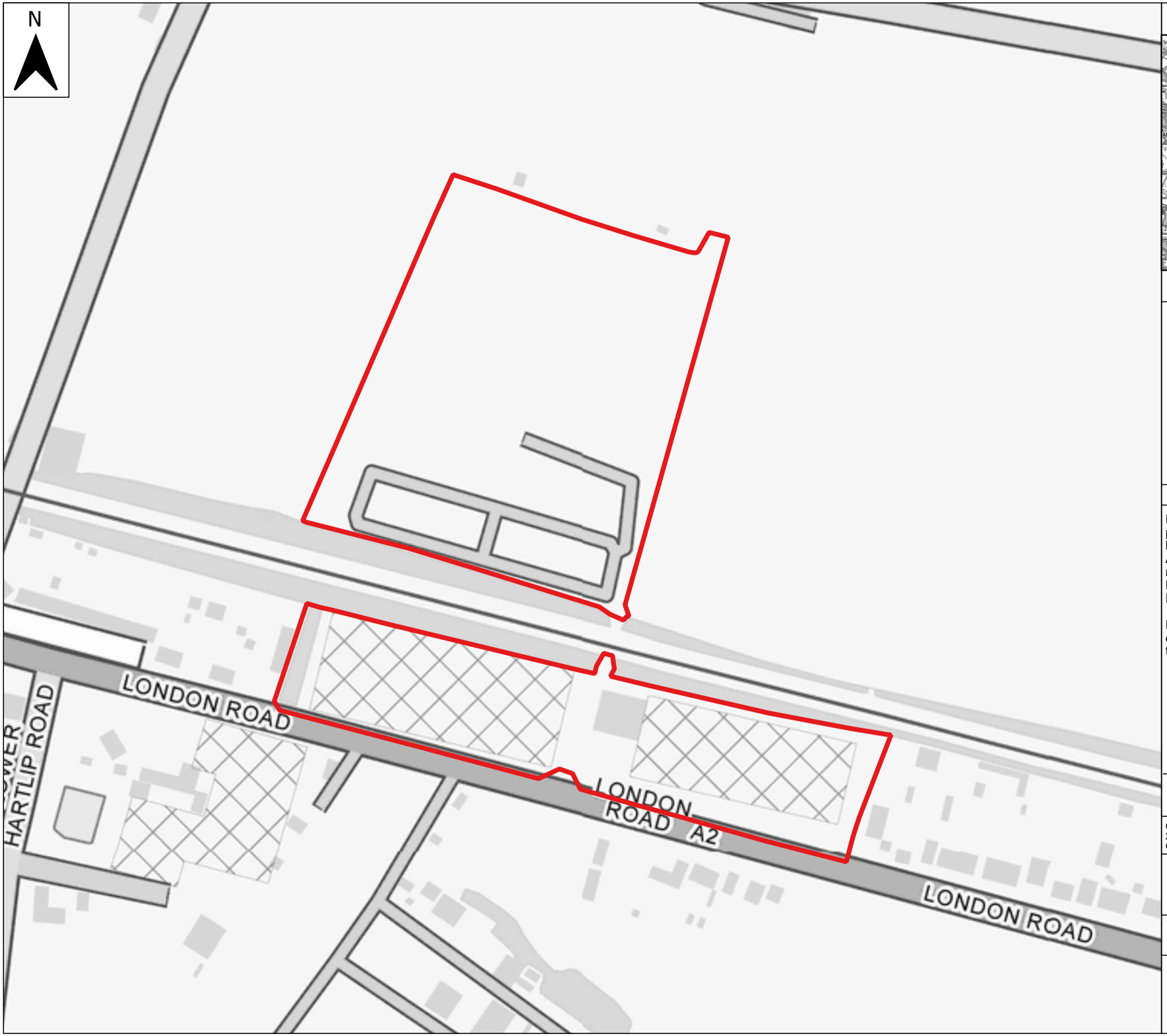
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LEVEL 2 SFRA:
RISK OF FLOODING FROM RESERVOIRS - SHELAA-368

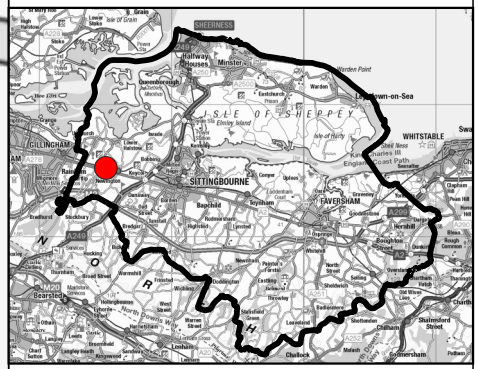
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

Environment Agency Flood Warning and Alerts

- Flood Alert Area
- Flood Warning Area

Notes

Flood Alerts are used by the Environment Agency to warn people of the possibility of flooding and encourage them to be alert, stay vigilant and make early preparations. Flood Alerts are issued earlier than a flood warning to give notice of the possibility of flooding but before the Environment Agency are fully confident that flooding in Flood Warning Areas is expected.

Flood Warnings warn people of expected flooding and encourage them to take action to protect themselves and their property.

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SWALE BOROUGH COUNCIL
LEVEL 2 SFRA:
ENVIRONMENT AGENCY FLOOD WARNINGS AND ALERTS - SHELAA-368

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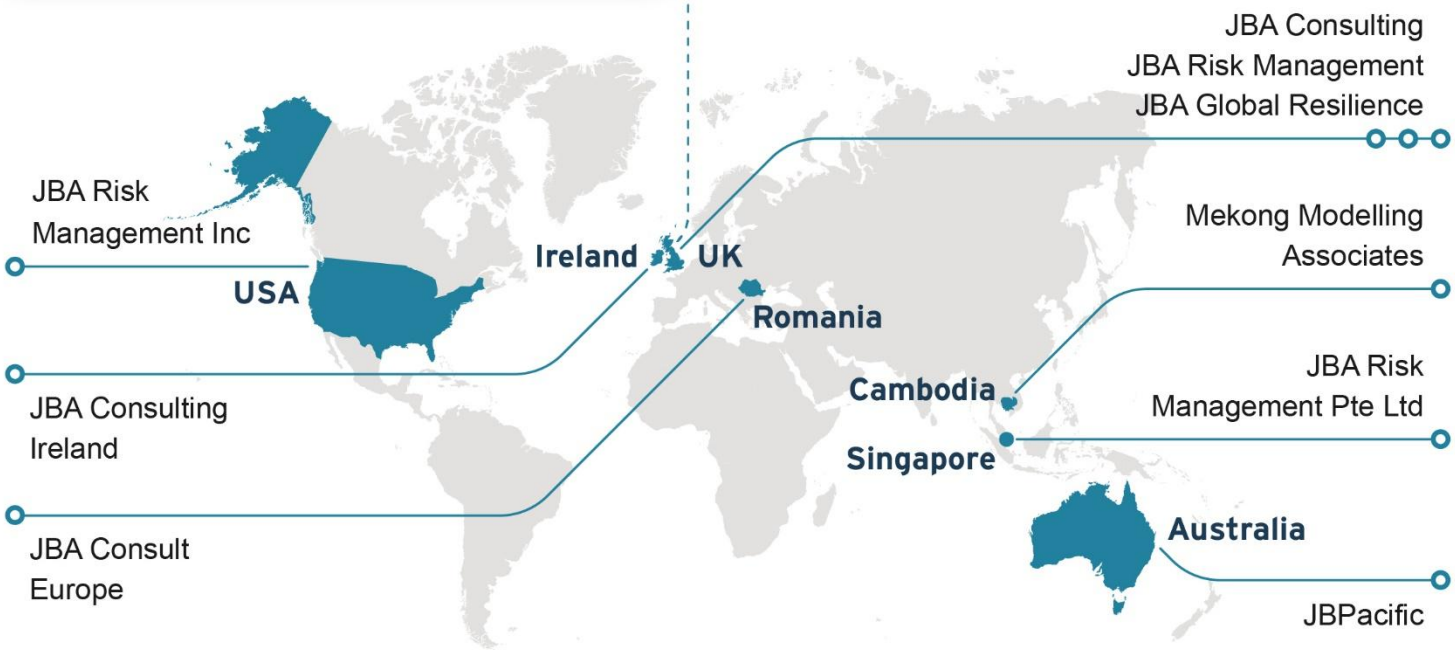
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