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Level 2 Strategic Flood Risk Assessment - Site SHELAA/436

15 The Laurels, Bell Farm Lane, Minster, ME12 4JA

Final

Prepared for
Swale Borough Council

Date
October 2026

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1 Background

This is a Level 2 Strategic Flood Risk Assessment (SFRA) site screening report for site SHELAA/436. 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: 15 The Laurels, Bell Farm Lane, Minster, ME12 4JA
- Site area: 0.06ha
- Existing site use: Brownfield
- Proposed site use: Gypsy and Traveller site
- Proposed use flood risk vulnerability classification: Highly Vulnerable

The site is situated to the east of Minster, within East End and comprises gypsy and traveller properties. The site is bounded by Bell Farm Lane along the southern boundary, with a caravan park beyond. Further gypsy and traveller sites lie to the east and west with greenfield land further to the west.

1.2 Topography

Figure 1-1 shows the topography of the site represented by the Environment Agency (EA) 1m resolution LiDAR. The site's topography slopes down from the southwest to the northeast with the highest elevation being 44.5mAOD in the southwest along Bell Farm Lane and the lowest being 42.6mAOD in the northwest of the site associated with the drainage ditch. There is also lower elevation along the eastern boundary due to the drainage ditch.

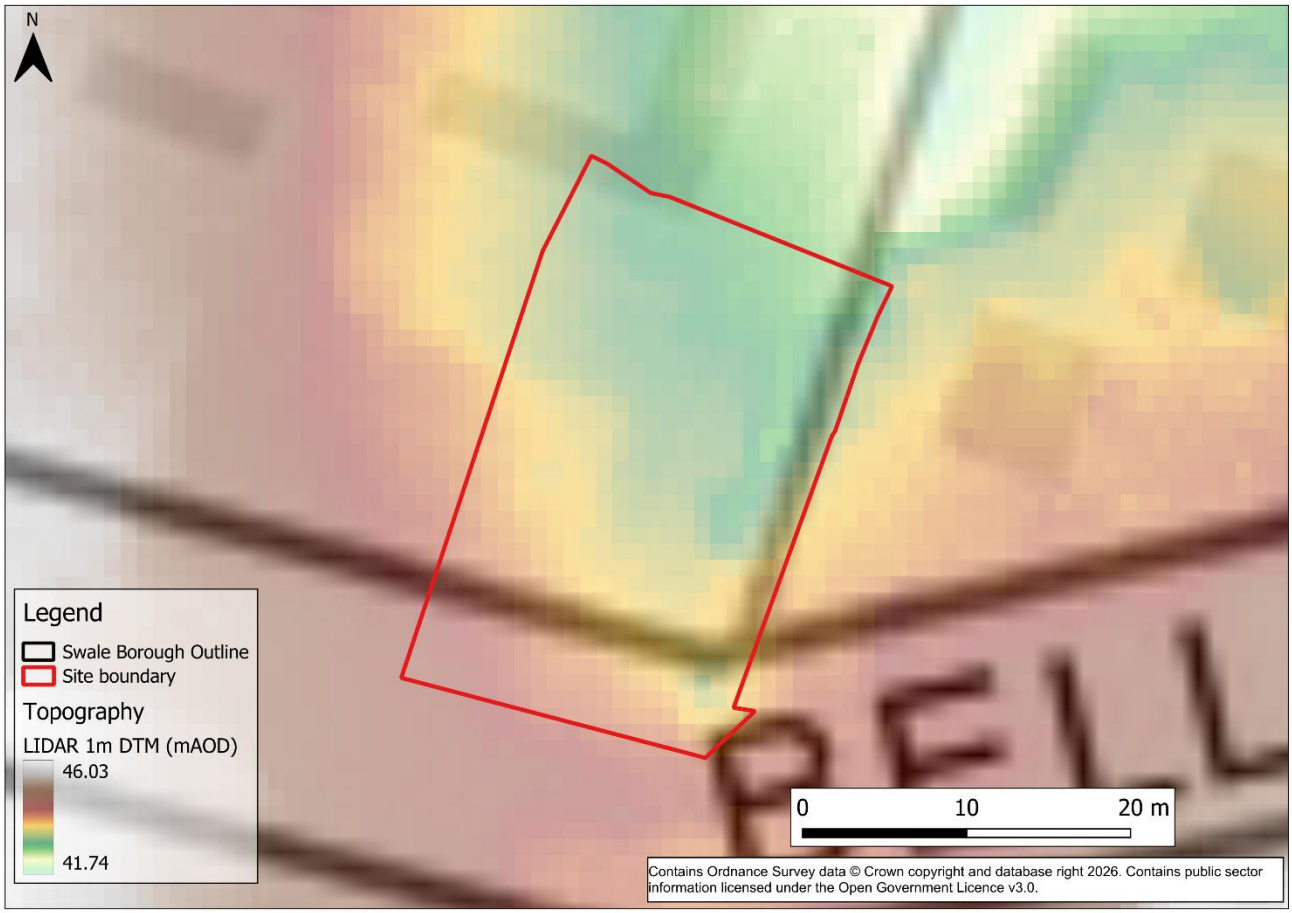


Figure 1-1: Topography of the site.

1.3 Geology and soils

Geology at the site consists of:

- Bedrock - Claygate Member consisting of clay, silt and sand.
- Superficial - Head consisting of clay and silt.

Soils at the site consist of:

- Slightly acid loamy and clayey soils with impeded drainage.

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 is a drainage ditch along the eastern boundary. The topography suggests that the surface water from the site may drain here, which flows into the sea situated 140m north of the site.

The site is within the North Kent Marshes Water Level Management Board district.

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.

The 3.3% AEP (1 in 30-year) defended extent from the North Kent Coastal model has been used to determine Flood Zone 3b in this area.

2.2.2 Description of risk to the site

The entire site is within Flood Zone 1 and is therefore at a very low risk of fluvial or tidal flooding.

Table 2-1: Existing fluvial and tidal flood risk based on the Flood Zones

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

2.3 Fluvial present day defended risk

The drainage ditch flowing along the eastern border of the site has not been mapped in the Environment Agency's Flood Zones. The Environment Agency's Flood Map for Planning – Surface Water Spatial Planning map has been used to inform the fluvial risk from the drainage ditch within this site summary sheet.

Fluvial modelling of the drainage ditch may be required as part of a detailed flood risk assessment to accurately represent the fluvial flood risk at the site.

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 coastal 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

The site is not predicted to be at risk of flooding during the 3.3% AEP (1 in 30-year) (high risk) event.

However, flooding from the drainage ditch is anticipated during both the 1% AEP (1 in 100-year) (medium risk) and 0.1% AEP (1 in 1000-year) (low risk) events. In these scenarios, the flood extents are predicted to extend approximately 8m and 15m from the drainage ditch respectively. The maximum depth increases from between 0.15m and 0.30m in the 1% AEP (1 in 100-year) event to between 0.30m and 0.60m in the 0.1% AEP (1 in 1000-year) event, both present west of the drainage ditch.

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* (%)	58	42	23	0
Maximum depth (m)	N/A	0.30-0.60	0.15-0.30	N/A

** 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% (1 in 30-year)*

AEP percentage). The <0.1% AEP (1 in 1000-year) 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 EA 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 have not provided any additional information regarding the sewers and the site.

2.9 Flood history

According to the Environment Agency's Historic Flood Map, the site has not been impacted by previous 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 within a reporting area with one recorded flood incident.

According to Southern Water's Sewer Incident Report Form (SIRF), there have been 18 sewer flood incidents in the ME12 4 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 North Kent 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 within the Flood Zones plus climate change extent.

3.2 Fluvial

The drainage ditch flowing along the eastern border of the site has not been mapped in the Environment Agency's FMfP plus climate change dataset. The Environment Agency's Flood Map for Planning – Surface Water Spatial Planning map has been used to inform the fluvial risk from the drainage ditch within this site summary sheet.

Fluvial modelling of the drainage ditch may be required as part of a detailed flood risk assessment to accurately represent the future fluvial flood risk at the site.

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 gypsy and traveller sites.

3.3.2 Description of risk to the site

The site is not predicted to flood in the 0.5% AEP (1 in 200-year) 2125 Upper End tidal 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 1000-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 North Kent 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 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 southeast, northeast and central areas where the topography is low and a drainage ditch is present. The maximum flood depth is predicted to increase from between 0.15m and 0.30m to between 0.30m and 0.60m.

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

Event	1% AEP (1 in 100-year)	1% AEP (1 in 100-year) plus climate change
Percentage of site at risk (%)	24	37
Maximum depth (m)	0.15-0.30	0.30-0.60

4 Flood risk management infrastructure

4.1 Defences

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

4.2 Residual risk

The unnamed watercourse is culverted underneath Bell Farm Lane. There is potential for the culvert to collapse or build-up of debris causing water levels to exceed the bank levels and flow overland and downstream which may impact the site.

4.3 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.

5 Coastal Change Management Area

The site is located within the Coastal Change Management Area (CCMA). This has been defined here by Erosion Zone 2 - NCERM SMP 2105 95% climate change No Active Intervention and Managed Realignment meaning there is a risk of coastal erosion.

The Local Plan's emerging CCMA Policy C6 states that permanent new residential development would not be permitted within the CCMA. As the proposed use is residential, it is not an appropriate site for allocation.

6 Emergency planning

6.1 Flood warnings and alerts

The site is not located in an Environment Agency Flood Warning or Flood 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 climate change fluvial and surface water events as well as the 0.5% AEP (1 in 200-year) plus climate change tidal event. Site drainage proposals should address the requirements for access routes, avoid impeding surface water flows and preserve the storage of surface water to avoid exacerbation of flood risk elsewhere on the site and in the wider catchment.

6.2.1 Potential and existing routes to site

Current and future access and escape to and from the site can be achieved via Bell Farm Lane along the southern boundary of the site.

6.2.2 Fluvial

There is flood free access and escape via Bell Farm Lane to and from the site during all fluvial events.

6.2.3 Tidal

There is flood free access and escape via Bell Farm Lane to and from the site during all tidal events.

6.2.4 Surface water

During the 1% AEP (1 in 100-year) surface water plus climate change event, flooding is predicted along Bell Farm Lane with depths of 300-600mm, so safe access and egress for vehicles may not be possible.

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 Broadscale assessment of possible SuDS

- 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 clay, silt and sand and therefore permeability could be highly variable. 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 slopes from southwest to northeast which will accelerate surface water runoff, increase erosion risks, and limit the space available for gravity-fed infiltration features like basins.
- The site is not located within a historic landfill site.

7.2 Opportunities for wider sustainability benefits and integrated flood risk management

- 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.
- Consideration should be made to the existing condition of receiving waterbodies and their water quality. The use of multistage SuDS treatment will improve water quality of surface water runoff discharged from the site and reduce the impact on receiving water bodies.
- 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 pre-development runoff rates for the site for the 50% AEP (1 in-2 year) and 1% AEP (1 in-100 year) storm events and should be designed to be as close to greenfield runoff rates as reasonably practical in consultation with the LLFA. It may be possible to reduce site runoff by maximising the permeable surfaces on site using a combination of permeable surfacing and soft landscaping techniques.
- 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 Lead Local Flood Authority alongside confirmation with the asset owner of the available capacity.
- The site is within the North Kent Marshes Water Level Management Board (WLMB) district who may have additional requirements regarding discharge rates (directly or indirectly) into their district. The WLMB should be consulted during the detailed design of the site to establish the Board's requirements, approval to discharge into IDB watercourses (directly or indirectly) and ordinary watercourse consents.

8 NPPF and planning implications

The Local Plan's emerging CCMA Policy C6 states that permanent new residential development would not be permitted within the CCMA. As the proposed use is residential, it is not an appropriate site for allocation

If it was found to be suitable the following points should be considered in development of this site.

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 gypsy and traveller development as "Highly vulnerable".

The Exception Test is not required for this site because it is within Flood Zone 1.

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 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, North Kent Marshes WLMB 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

- Planning applications should be accompanied by a Coastal Change Vulnerability Assessment (CCVA) in line with the requirements set out in the Local Plan Policy C6 and the PPG, and will need to demonstrate that the development will be safe over its planned lifetime and not have an unacceptable impact on coastal change. The site is within CCMA Erosion Zone 2 so residential development will need to be time limited to 2055 and is therefore not suitable for allocation.
- 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.
- Developers should consider utilising the drainage ditch along the eastern boundary as a green corridor.
- A detailed hydraulic model of the drainage ditch within the site may be required at FRA stage to accurately represent the risk from this watercourse and set the level of any mitigation measures required.
- The risk from surface water flow routes should be quantified as part of a site-specific FRA, including a drainage strategy, so runoff volumes from the development are not increased by development. A drainage strategy should help inform site layout and design to ensure runoff rates are as close as possible to pre-development greenfield rates, with areas of surface water ponding retained as open space and SuDS or water compatible/essential infrastructure uses only.
- A Flood Response Plan may be needed should the development site remain at risk once mitigation measures have been implemented. Arrangements for safe access and escape will need to be provided for the 1% AEP (1 in 100-year) surface water and fluvial event 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.
- 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 site is within Flood Zone 1.

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

The drainage ditch flowing along the eastern border of the site has not been mapped in a fluvial model. The surface water dataset has been used to inform the fluvial risk from the drainage ditch within this site summary sheet.

In terms of surface water flood risk, the site is not predicted to be at risk of flooding during the 3.3% AEP (1 in 30-year) event. However, flooding from the drainage ditch is anticipated during both the 1% AEP (1 in 100-year) and 0.1% AEP (1 in 1000-year) events. In these scenarios, the flood extents are predicted to extend approximately 8m and 15m from the drainage ditch respectively. 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 southeast, northeast and central areas.

There have been 18 sewer flood incidents in the ME12 4 postcode area since 2015 according to Southern Water's Sewer Incident Report Form (SIRF).

According to Kent County Council's historic records, the site lies within a reporting area with one recorded flood incident.

The Local Plan's emerging CCMA Policy C6 states that permanent new residential development would not be permitted within the CCMA. As the proposed use is residential, it is not an appropriate site for allocation

If it was found to be suitable the following points should be considered in development of this site:

- Planning applications should be accompanied by a Coastal Change Vulnerability Assessment (CCVA) in line with the requirements set out in the PPG and will need to demonstrate that the development will be safe over its planned lifetime and not have an unacceptable impact on coastal change. The site is within CCMA Erosion Zone 2 so development will need to be time limited to 2055 which is not suitable for residential use.
- A site-specific Flood Risk Assessment will be required which demonstrates that residential development can be safely accommodated on the site for its lifetime, including consideration of surface water and fluvial flooding. The FRA should demonstrate that development will not increase flood risk on or off site and should incorporate an appropriate allowance for climate change.
- The nearby drainage ditch has not been modelled and therefore, site-specific hydraulic modelling may be required to represent accurate fluvial flood risk to the site.

- Development should be steered outside the areas of surface water flood risk on site. 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 and fluvial 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.

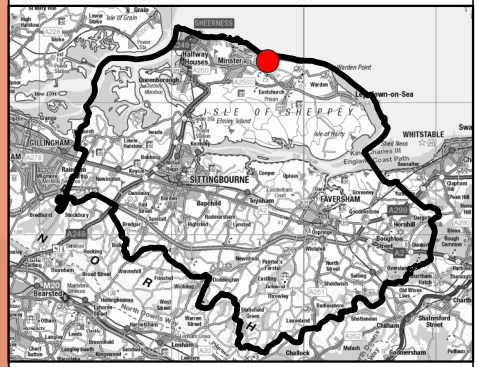
A Sources of information

- 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
- Lower Medway Internal Drainage Board Watercourses
- Lower Medway Internal Drainage Board Area

0 20 40 m

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SWALE BOROUGH COUNCIL
LEVEL 2 SFRA:
WATERCOURSES - SHELAA-436

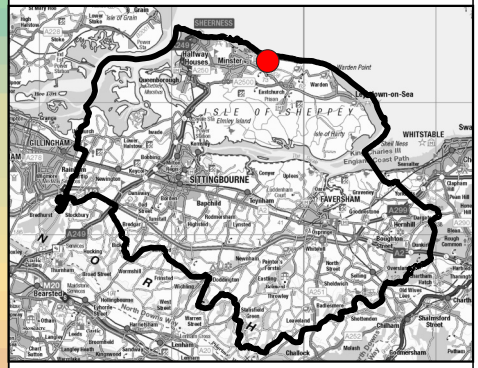
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Making Swale a better place



Location Plan



Legend

Swale Borough Outline

Site boundary

Topography

LIDAR 1m DTM (mAOD)

45.41

41.74

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.

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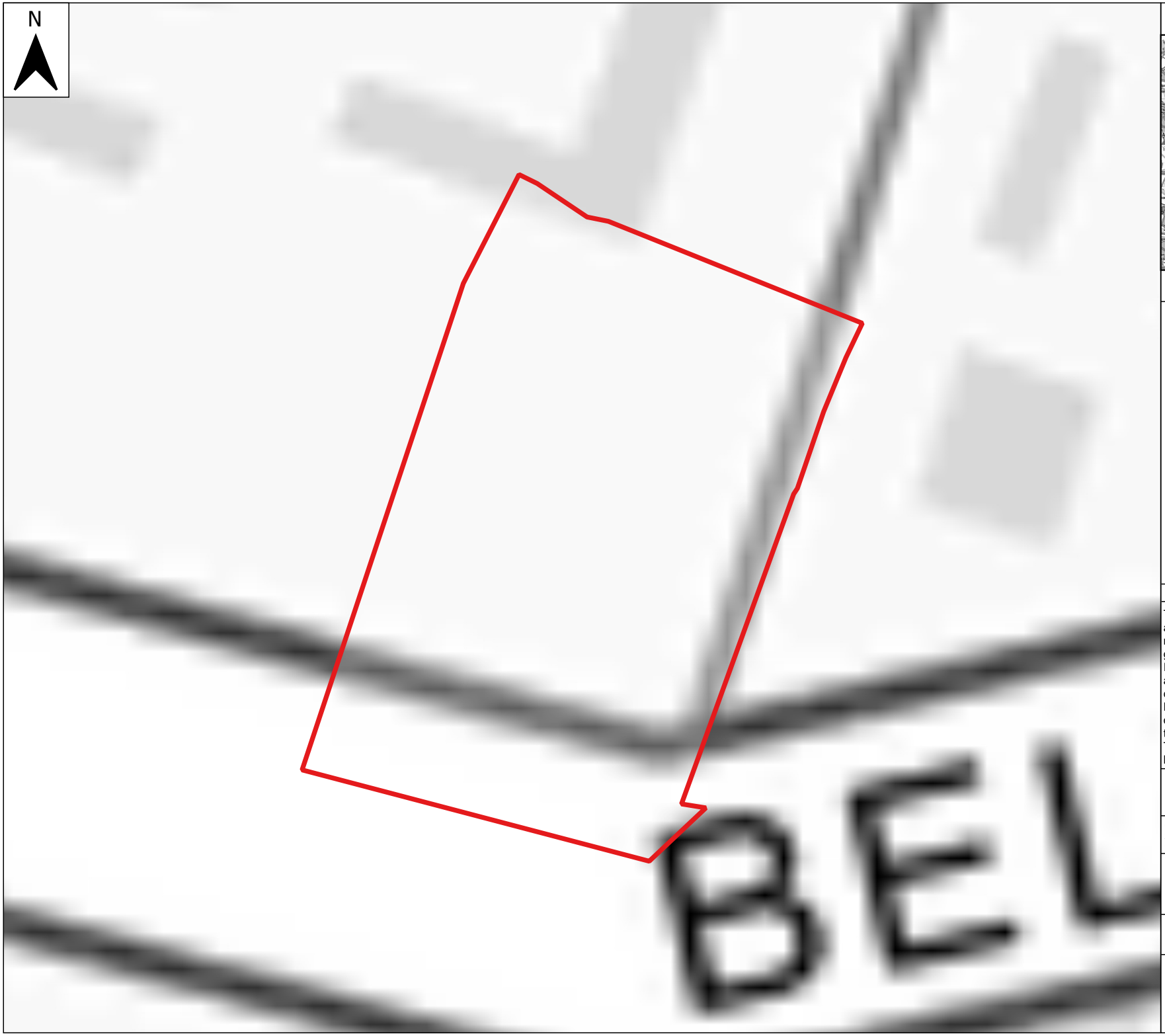
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SWALE BOROUGH COUNCIL
LEVEL 2 SFRA:
TOPOGRAPHY - SHELAA-436

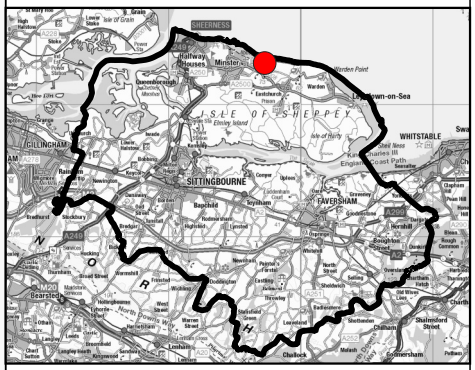
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Location Plan



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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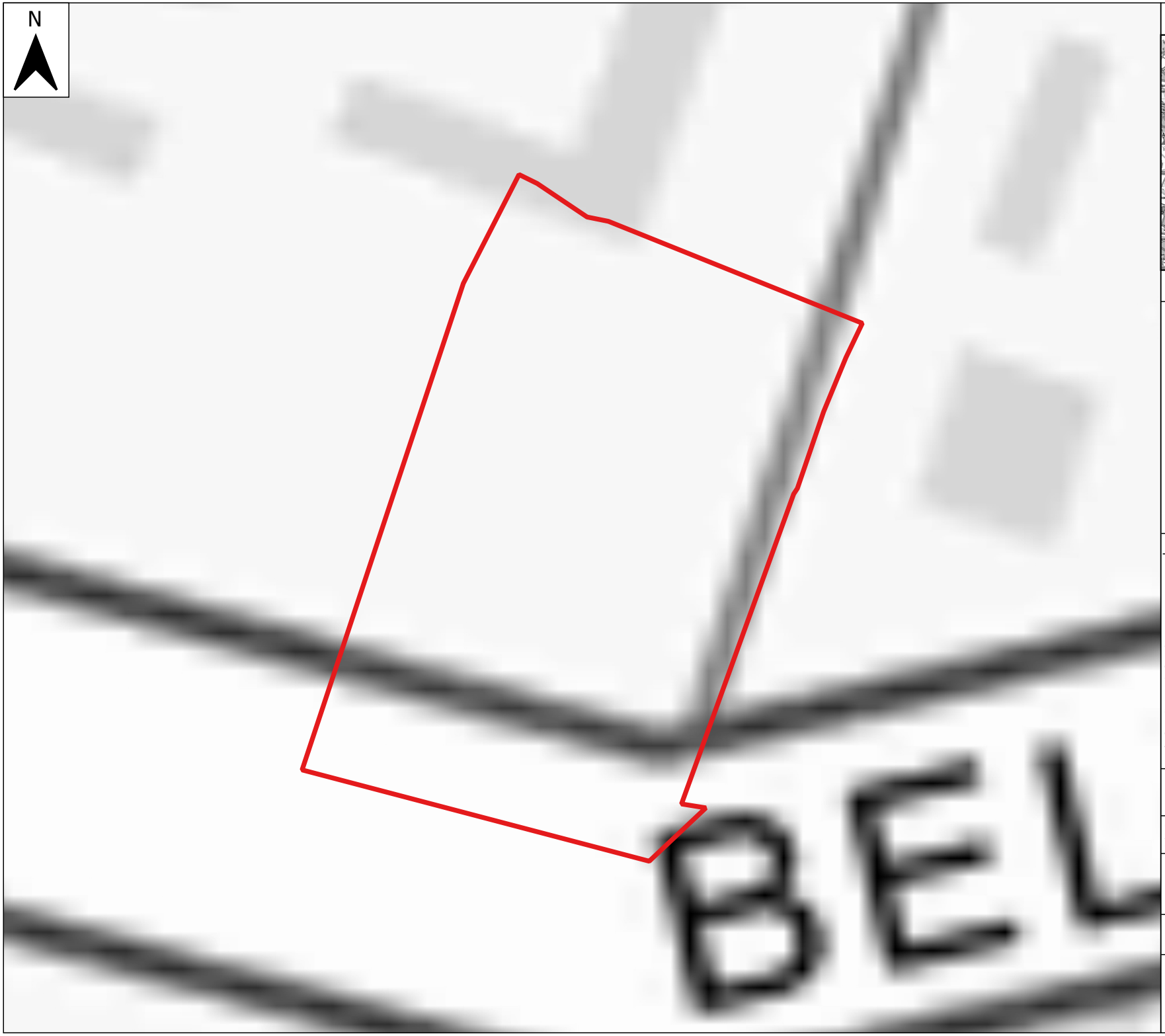
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LEVEL 2 SFRA:
HISTORIC FLOODING - SHELAA-436

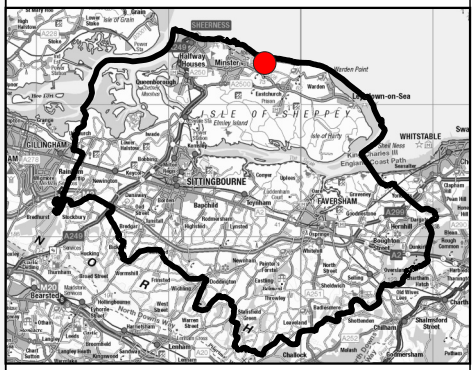
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Making Swale a better place



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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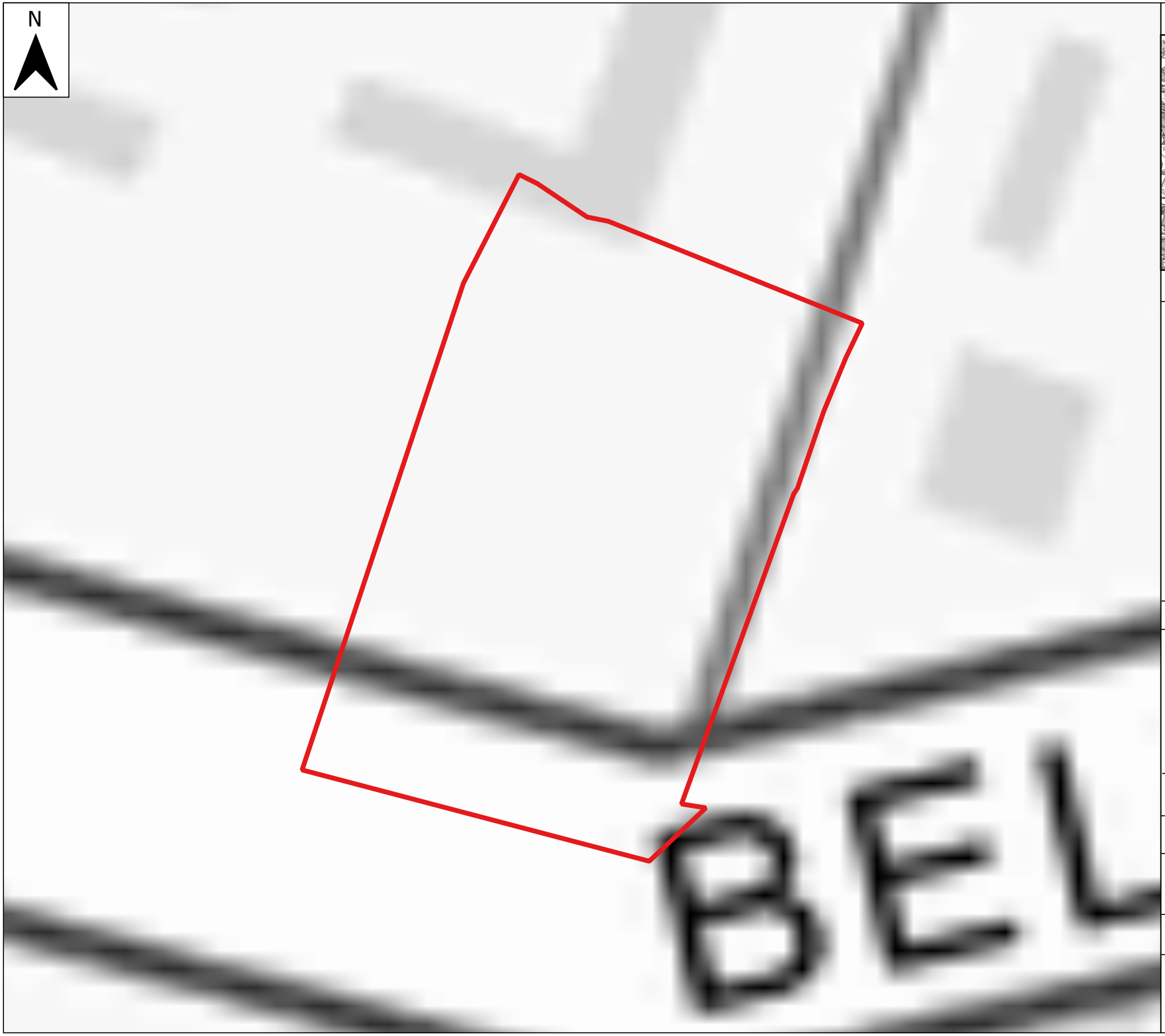
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PRESENT DAY FLOOD RISK FROM RIVERS AND SEA (FLOOD ZONES) - SHELAA-436

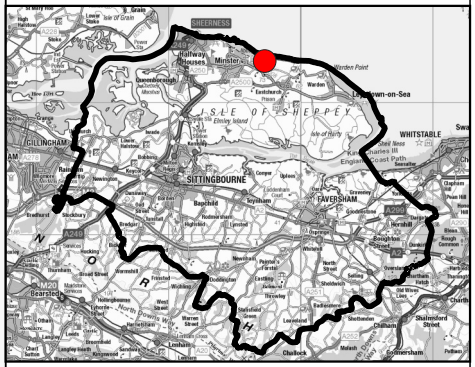
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Location Plan



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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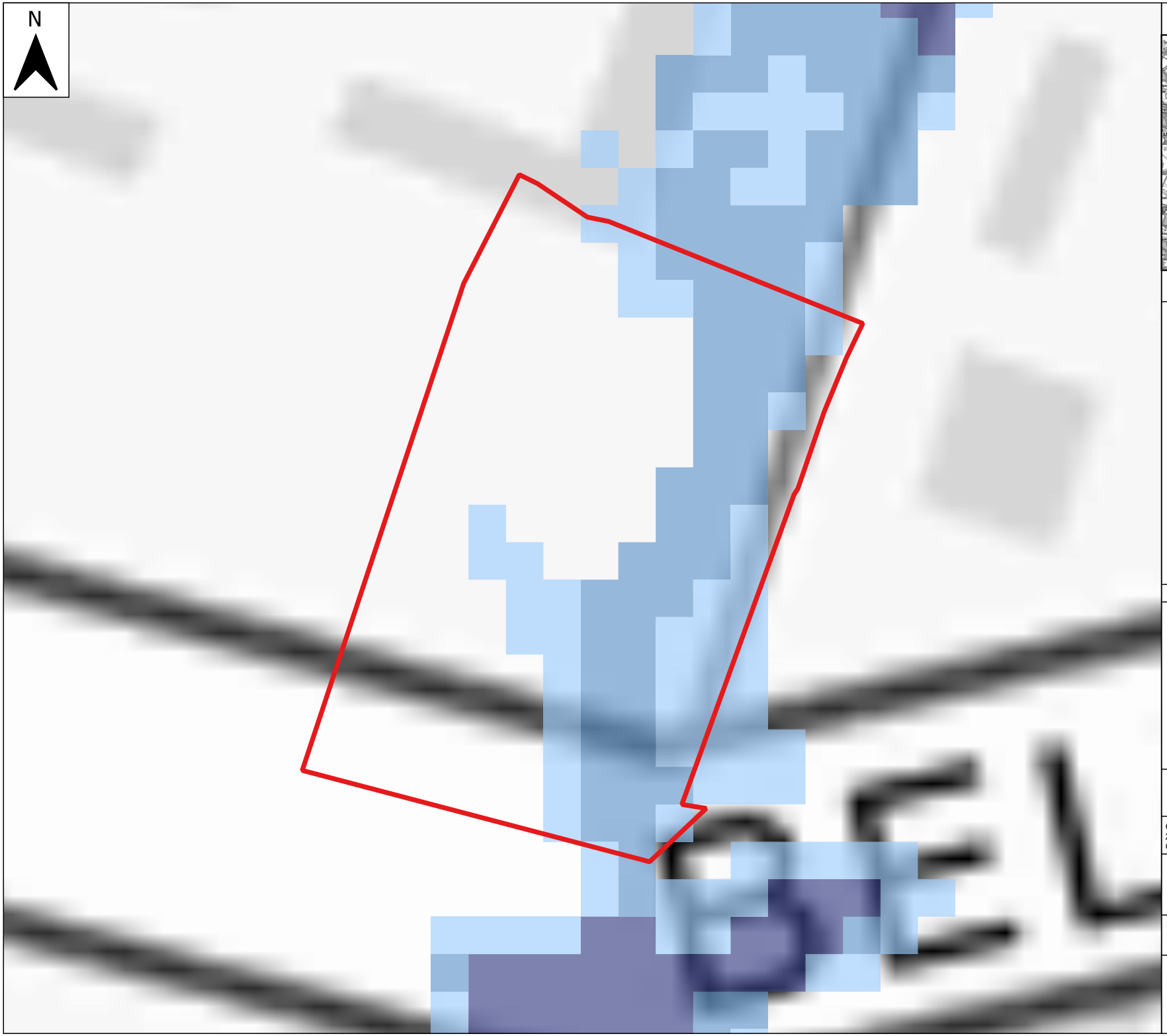
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SWALE BOROUGH COUNCIL
LEVEL 2 SFRA:
FUTURE FLOOD RISK FROM RIVERS AND SEA - FLOOD MAP FOR PLANNING- SHELAA-436

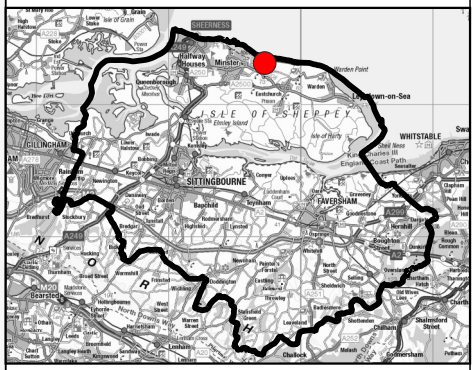
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Location Plan



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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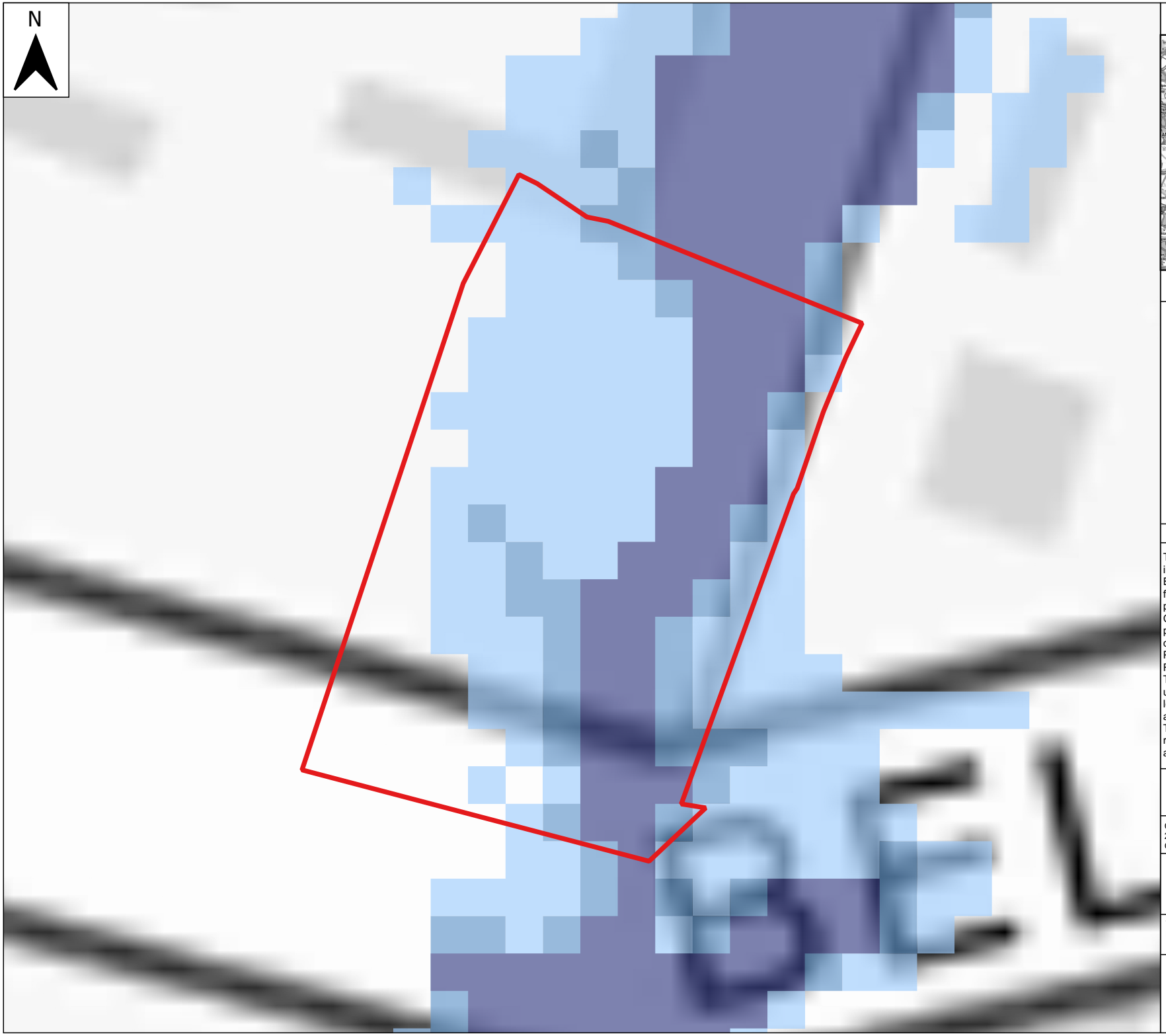
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SWALE BOROUGH COUNCIL
LEVEL 2 SFRA:
SURFACE WATER FLOODING - SHELAA-436

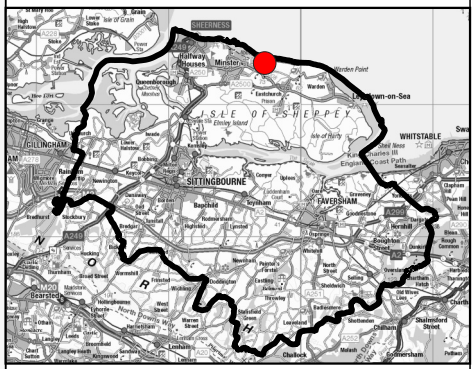
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Location Plan



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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SWALE BOROUGH COUNCIL
LEVEL 2 SFRA:
SURFACE WATER FLOODING PLUS CLIMATE CHANGE - SHELAA-436

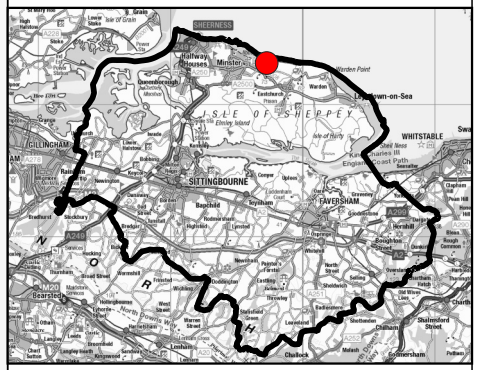
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Location Plan



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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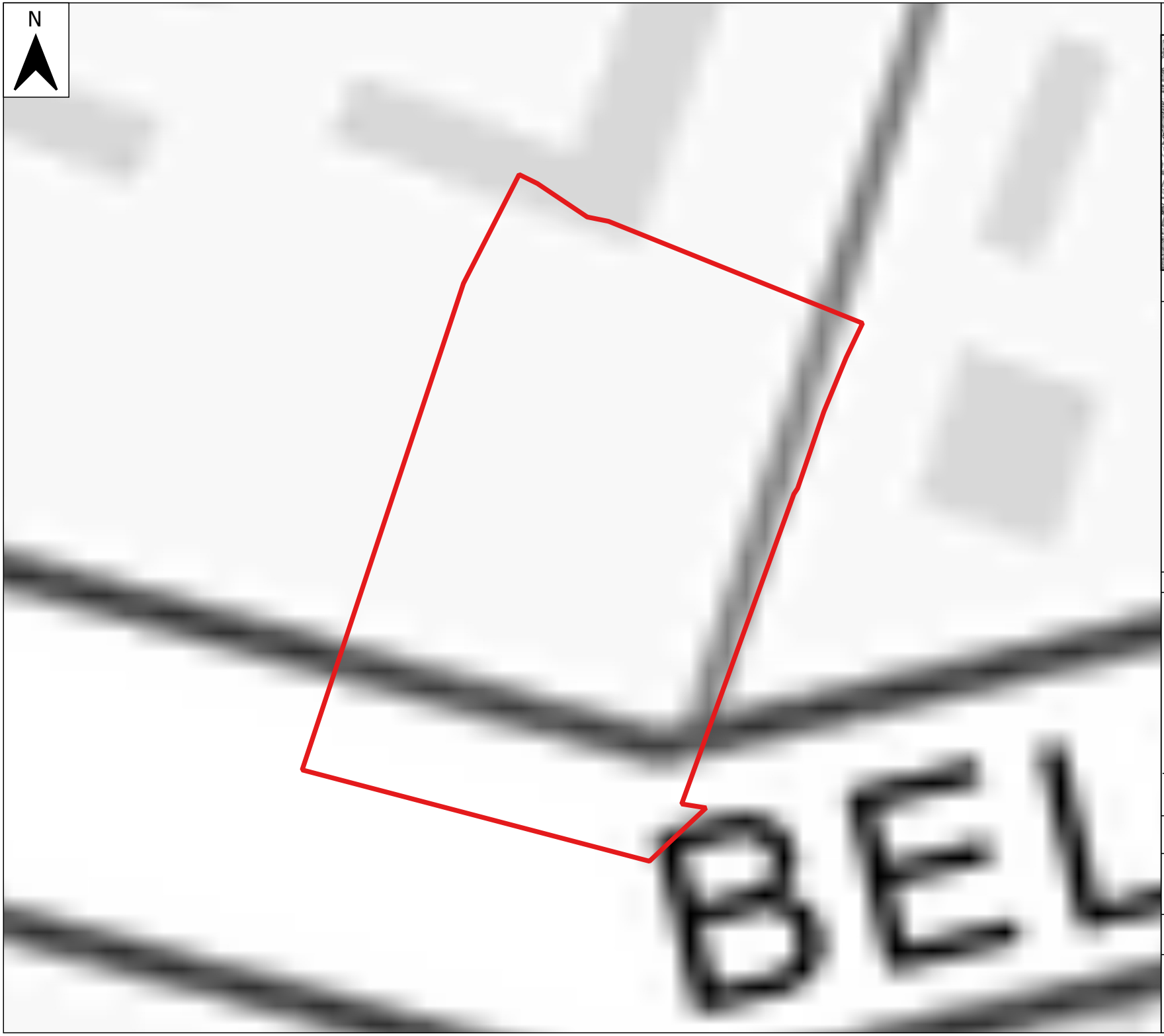
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SWALE BOROUGH COUNCIL
LEVEL 2 SFRA:
SURFACE WATER FLOODING PLUS CLIMATE CHANGE DEPTHS - SHELAA-436

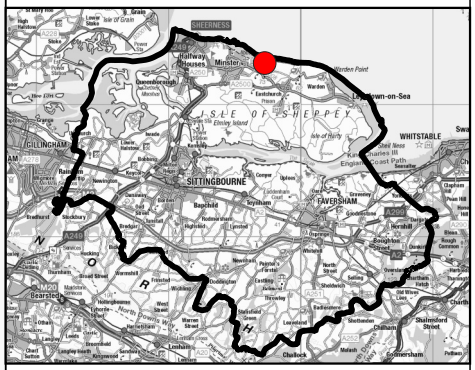
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Location Plan



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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SWALE BOROUGH COUNCIL
LEVEL 2 SFRA:
JBA GROUNDWATER FLOOD MAP - SHELAA-436

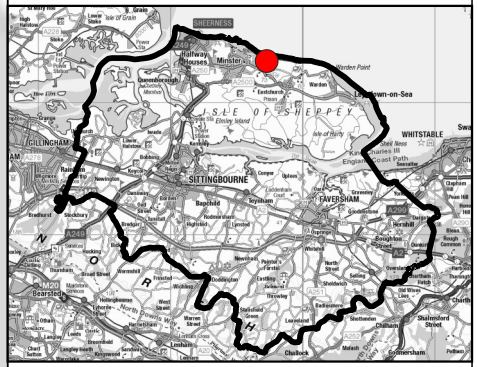
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

Environment Agency Reservoir Flood Extents

- Dry Day
- Wet Day
- Reservoir Locations within Swale

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.

0 20 40 m

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LEVEL 2 SFRA:
RISK OF FLOODING FROM RESERVOIRS - SHELAA-436

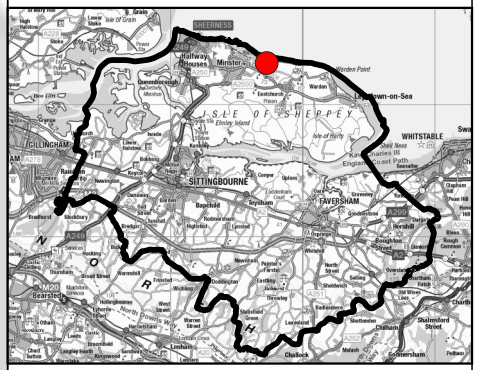
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Location Plan



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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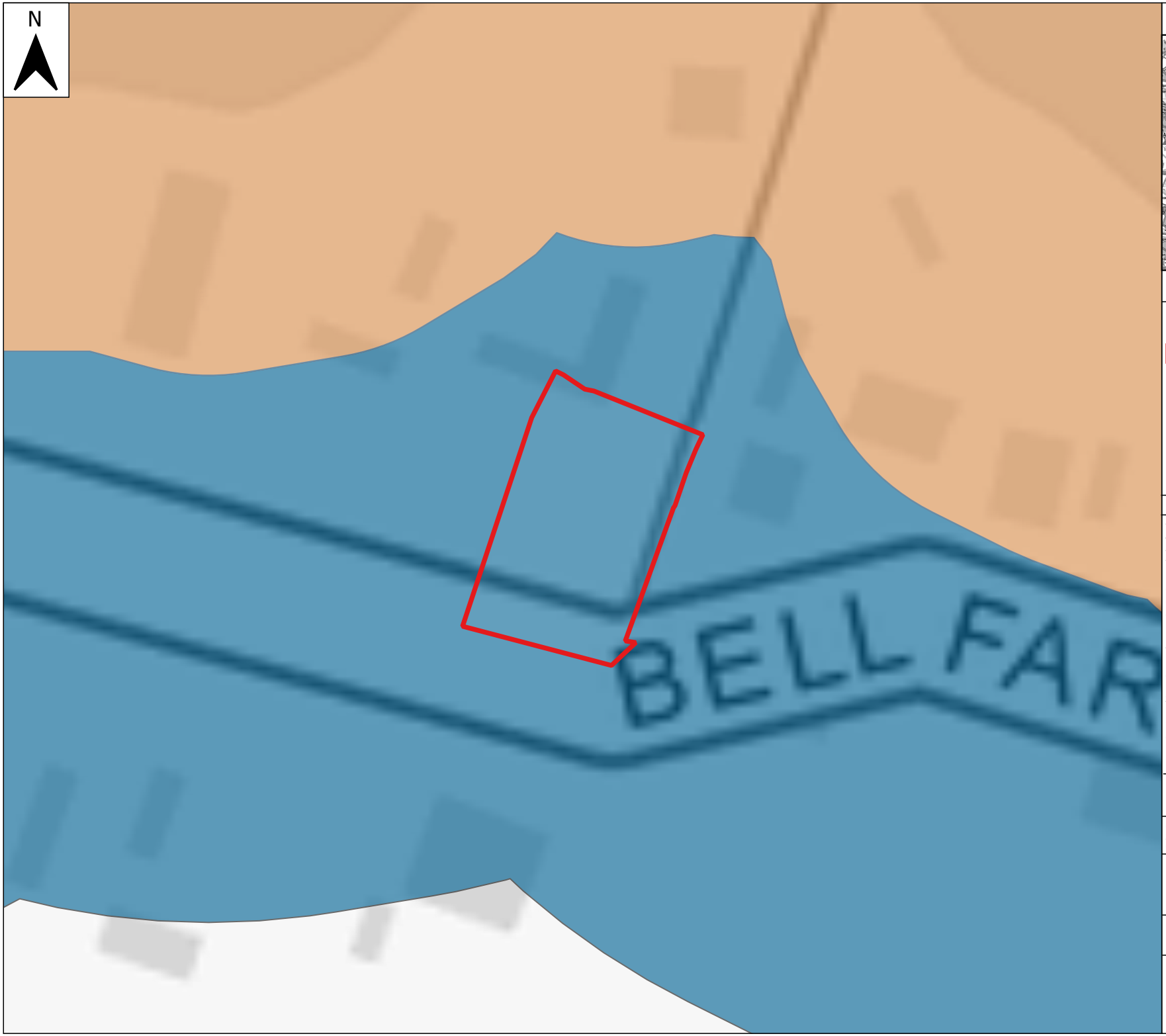
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SWALE BOROUGH COUNCIL
LEVEL 2 SFRA:
ENVIRONMENT AGENCY FLOOD WARNINGS AND ALERTS - SHELAA-436

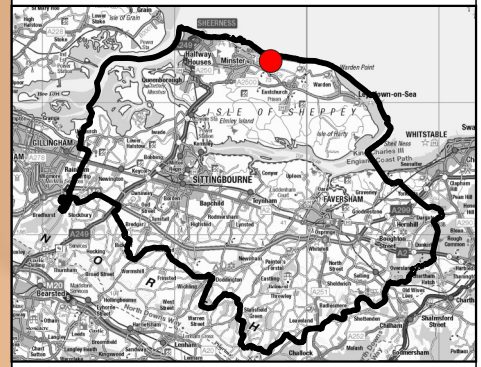
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

Coastal Change Management Area

- Erosion Zone 1
- Erosion Zone 2
- North Kent Coast model Defended 3.3% AEP (1 in 30-year) 2125 Upper End

Notes

The North Kent Coast 2125 Upper End defended 3.3% AEP flood extent has been used to identify land which is predicted to be at risk of inundation by 2125.
The National Coastal Erosion Risk Map (NCERM) Shoreline Management Plan (SMP) 2055 plus 95% (Upper End) climate change allowance and 2105 plus 95% (Upper End) climate change allowance datasets have been used to identify the areas where the whole period covered by the SMP is No Active Intervention or Managed Realignment and there is predicted to be a coastal erosion risk over the next 100 years. It is noted that the SMP considers the year 2105 and does not consider 100 years into the future. However, this is the best readily available information.
Using the two epochs, the CCMA is divided into two separate zones:
• Erosion Zone 1 (defined as the Environment Agency's Coastal Erosion Climate Change (Upper End) to 2055 zone; and
• Erosion Zone 2 (defined as the Environment Agency's Coastal Erosion Climate Change (Upper End) to 2105 zone).

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LEVEL 2 SFRA:
COASTAL CHANGE MANAGEMENT AREAS - SHELAA-436

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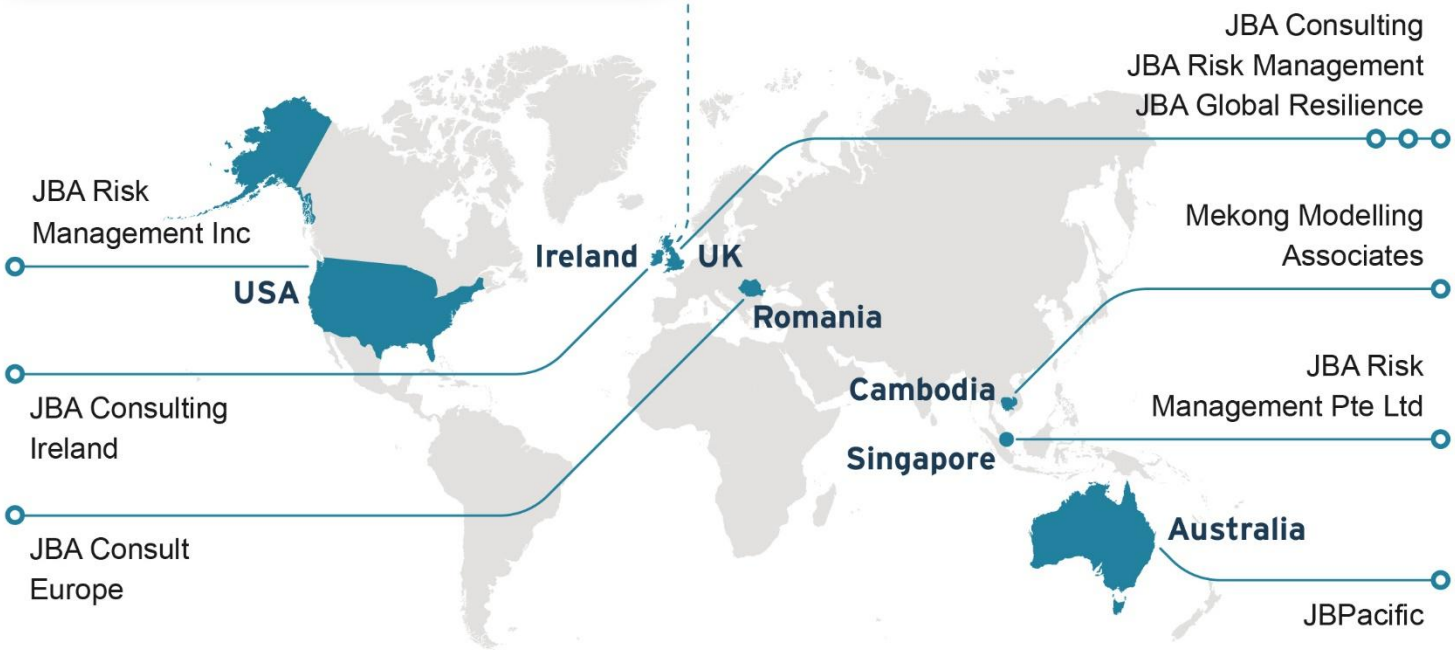
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