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Level 2 Strategic Flood Risk Assessment - Site CFS2024/129

Smeed Dean Works, Eurolink Industrial Estate, Castle Road, ME10 3SQ

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 CFS2024/129. 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: Smeed Dean Works, Eurolink Industrial Estate, Castle Road, ME10 3SQ
- Site area: 4.29ha
- Existing site use: Greenfield
- Proposed site use: Employment
- Proposed use flood risk vulnerability classification: Less Vulnerable

The site is situated in the northeast of Sittingbourne and comprises greenfield land. It is bounded by an unnamed road off of Swale Way in the southwest and west, a nature reserve with ponds and wetlands to the east and northeast, and an industrial site to the south and southwest.

1.2 Topography

Figure 1-1 shows the topography of the site represented by the Environment Agency (EA) 1m resolution LiDAR flown in 2022. The general topography of the site slopes down from the southwest to the northeast towards the wetlands from 7.9mAOD to 1.0mAOD. However, there are areas of greater elevation in the northwest and southwest of the site due to manmade mounds of built-up sediment produced from ongoing building works. These mounds reach up to 12.3mAOD. There are also areas of lower elevation in the northwestern corner.

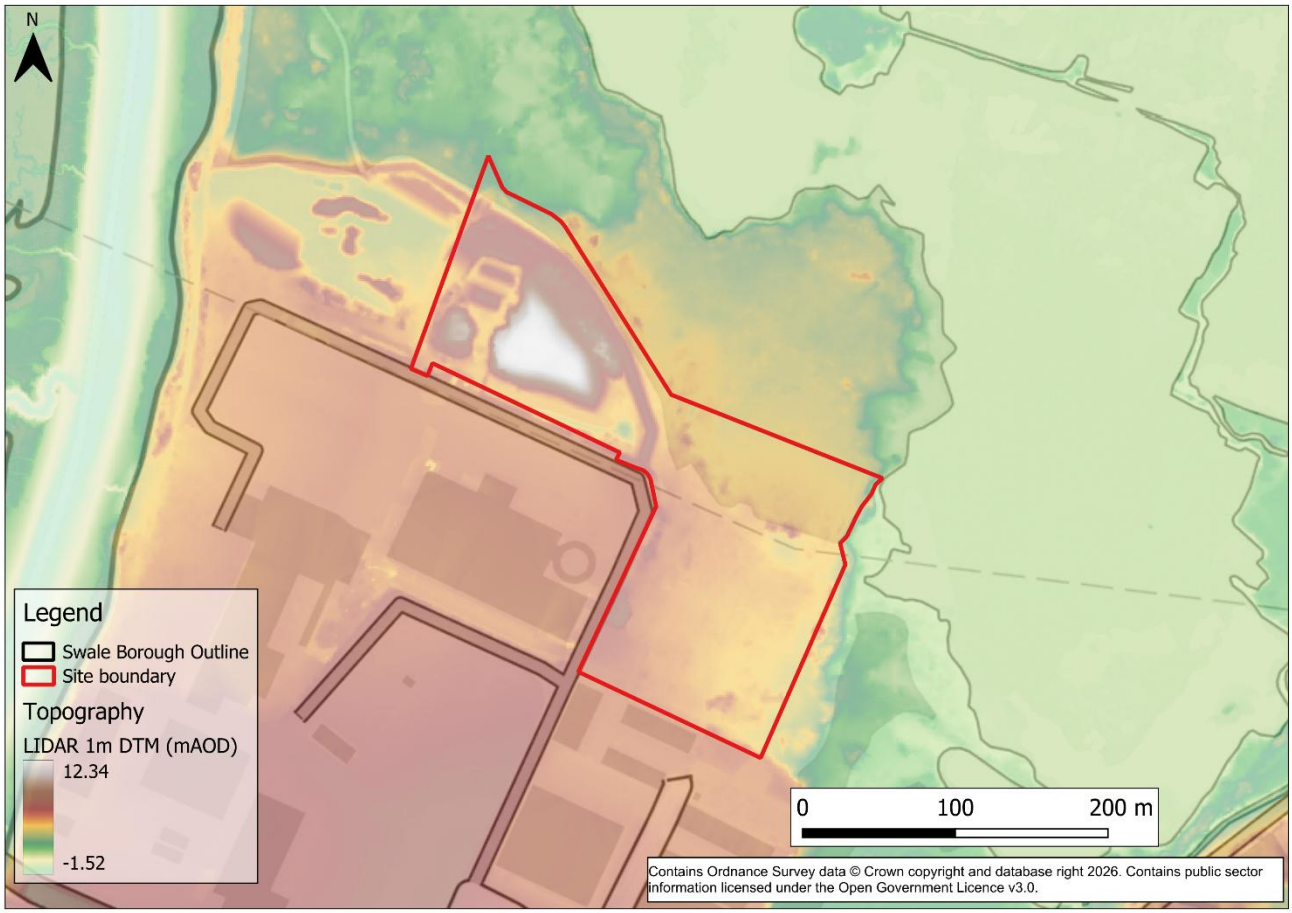


Figure 1-1: Topography of the site.

1.3 Geology and soils

Geology at the site consists of:

- Bedrock - Lambeth Group consisting of sand, silt and clay.
- Superficial - The eastern area of the site is underlain by Alluvium deposits consisting of clay, silt, sand and peat.

Soils at the site consist of:

- Freely draining slightly acid loamy soils in the majority of the site. The eastern area has loamy and clayey soils of coastal flats with naturally high groundwater levels

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

The Swale, a statutory Main River, flows approximately 200m west of the site and the sea is 730m northeast. There are also large lakes, ponds and wetlands situated adjacent to the eastern boundary as well as to the northeast and southeast. The topography suggests that the surface water may drain to the lakes to the east. A North Kent Marshes Water Level Management Board watercourse (ID: 75) flows approximately 300m east of the site.

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

2.2 Flood Zones

2.2.1 Available data

The EA'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 flood defence infrastructure.

The 3.3% AEP (1 in 30-year) defended extent from the North Kent Coastal model (2024) has been used to determine Flood Zone 3b in this area.

2.2.2 Description of risk to the site

A small proportion of the eastern and northwestern areas are within Flood Zone 3b. Flood Zones 2 and 3a cover 12% and 76% of the site respectively, covering the majority of the site due to the close proximity to the sea and the local ground levels. The flood source at the entire site is the sea, therefore the site is at high risk of tidal flooding.

Table 2-1: Existing fluvial and tidal flood risk based on EA FMfP and Flood Zone 3b

Flood Zone 1 (%)	Flood Zone 2 (%)	Flood Zone 3a (%)	Flood Zone 3b (%)
11	12	76	1

2.3 Fluvial present day defended risk

The main source of flood risk from The Swale is tidal and no detailed fluvial modelling is readily available for this watercourse. The nearby WLMB watercourse to the east also does not have a detailed fluvial model readily available. However, the tidal risk is dominant at the site so detailed fluvial modelling is unlikely to make a difference to the risk.

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

The defended 3.3% AEP (1 in 30-year) event covers a small proportion of the eastern and northwestern areas. The defended 0.5% AEP (1 in 200-year) event covers 66% of the site, predominantly in the east, centre, north and northwestern areas while the defended 0.1% AEP (1 in 1000-year) event inundates the majority of the site apart from in the southwest and in small areas in the northwest.

Table 2-2: Existing tidal flood risk based on the North Kent Coast model*

<0.1% AEP (1 in 1000-year) (%)	0.1% AEP (1 in 1000-year) (%)	0.5% AEP (1 in 200-year) (%)	3.3% AEP (1 in 30-year) (%)
18	82	66	1

** The percentage of tidal extents quoted show the percentage of the site at risk from that particular event, including the percentage of the site at flood risk at a higher risk zone (e.g., 0.5% AEP (1 in 200-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 tidal flooding.*

2.5 Surface water present day risk

2.5.1 Available data

The EA'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 during the 3.3% AEP (1 in 30-year) or the 1% AEP (1 in 100-year) events, but 1% of the site is impacted during the 0.1% AEP (1 in 1000-year) event. This is predicted in isolated areas within the western and eastern parts of the site, where localised low-lying ground is present. The predicted maximum flood depth is between 0.15m and 0.30m.

Table 2-3: 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* (%)	99	1	0	0
Maximum depth (m)	N/A	0.15-0.30	N/A	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% AEP (1 in 30-year) 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' scenarios within the EA's Reservoir Flood Maps.

2.7 Groundwater

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

This assessment does not negate the requirement for an appropriate assessment of the groundwater regime at the site-specific 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 EA's Historic Flood Map, the eastern area of the site flooded in 1978 due to overtopping of the sea defences.

The Kent County Council (Lead Local Flood Authority) 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. According to Kent County Council's recorded flood incident records, the site is within an area that has had zero incidents.

According to Southern Water's Sewer Incident Report Form (SIRF), there have been 17 sewer flood incidents in the ME10 3 postcode area since 2015.

3 Climate change

Increased storm intensities due to climate change may increase the extent, depth, velocity, hazard, and frequency of tidal, fluvial 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 EA's 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

Present day Flood Zone 2 is included in Table 3-1 as a comparison to the Flood Zones plus climate change dataset. Flood Zone 2 covers the majority of the site bar the southwestern area and a patch in the northwest, while the Flood Zones plus climate change extent inundates the entire site due to the close proximity to the sea and local ground levels.

Table 3-1: Flood Zone 2 compared to Flood Zones plus climate change

Event	Flood Zones	Flood Zones plus climate change
Percentage of site at risk (%)	89	100

3.2 Fluvial

As discussed in Section 2.3, the nearby watercourses have not been modelled. However, the tidal risk is dominant at the site so detailed fluvial modelling is unlikely to make a difference to the risk.

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 2100 event has been assessed in this site summary sheet due to the likely lifetime of development (75-years) for employment sites.

3.3.2 Description of risk to the site

During the defended 0.5% AEP (1 in 200-year) 2100 Upper End event, the area of the site at risk increases compared to the 0.5% AEP (1 in 200-year) present day event, especially within the centre and south of the site. The climate change event covers nearly the entire site except patches in the southwest and west. The maximum depth is significant at 3.97m and the most severe hazard classification at the site is danger for all, predicted in the northwestern and eastern corners.

Table 3-2: Tidal flood risk to the site in the defended 0.5% AEP (1 in 200-year) 2100 Upper End climate change event.

Event	0.5% AEP (1 in 200-year) 2100 UE
Percentage of site at risk (%)	92
Maximum depth (m)	3.97
Maximum velocity (m/s)	0.82
Maximum hazard classification	3.55 - Danger for all - Extreme Danger

3.4 Surface water

3.4.1 Available data

The EA'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 for this dataset.

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

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 from 0% coverage to

1%. The flooding is predicted in the west and eastern areas where localised areas of low elevation are present. The maximum flood depth predicted is shallow at between 0.15m and 0.30m in both areas.

Table 3-3: 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) plus climate change extents.

Event	1% AEP	1% AEP plus 40% CC
Percentage of site at risk (%)	0	1
Maximum depth (m)	N/A	0.15-0.30

4 Flood risk management infrastructure

4.1 Defences

The EA's AIMS (Asset Information Management System) dataset shows there is engineered high ground to the west along The Swale with a standard of protection of a 1 in 1000-year event, as well as embankments to the southwest and northwest along The Swale with standards of protection of 1 in 100-year, all of which have a condition rating (rated where 1 is good and 5 is bad) of 3. Approximately 350m to the east, natural high ground is situated along a drainage ditch, but this does not classify as a formal flood defence.

4.2 MEAS Hold the Line Benefit Area

The Medway Estuary and Swale flood and coastal risk management Strategy (MEAS) sets out the EA'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 Hold the Line Benefit Area.

4.3 Residual risk

There is a residual risk of a breach of the flood defences along The Swale to the west which could cause tidal flooding to the site.

There is breach modelling available for the North Kent Coast model for the 0.5% AEP (1 in 200-year) 2075 Upper End event which shows the site would be at risk of flooding. However, for this site, as the proposed land use is employment development, the 2100 0.5% AEP (1 in 200-year) flood event should be assessed within a breach model as part of a detailed Flood Risk Assessment.

5 Coastal Change Management Area

The site is located within the Coastal Change Management Area (CCMA). This has been defined by the North Kent Coast model 2125 Upper End defended 3.3% AEP (1 in 30-year) flood extent zone.

The Local Plan's CCMA policy is set out under Policy C6. Development for employment will only be appropriate subject to the criteria defined in Policy C6.

A Coastal Change Vulnerability Assessment will need to accompany any planning application for the site. However, as the site is at risk of inundation only, this could largely be satisfied by the submission of a Flood Risk Assessment.

The implications of the site being located within the CCMA can be found within Appendix J of the Level 1 SFRA and Policy C6 of the Local Plan.

6 Emergency planning

6.1 Flood warnings and alerts

The site is located in the Environment Agency's "Coast from Kemsley to Seasalter Flood Warning Area" and the Isle of "Sheppey and coast from Kemsley to Seasalter 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 and the 0.5% AEP (1 in 200-year) plus climate change tidal event. Site layout and design should address the requirements for safe access and escape 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 Current and potential access to the site

Currently, access to and from the site is via the unnamed road off Swale Way, that makes up the southwestern boundary of the site, or via the unnamed road off Swale Way to the south of the site.

6.2.2 Fluvial

There is flood free access and escape via both routes during all fluvial events when travelling from the east or south but travelling from the west, part of Swale Way is within Flood Zone 3b which may inhibit safe access and escape. However, the nearby watercourses are currently unmodelled for fluvial risk, therefore their potential impact on flood risk to the access and escape routes is unknown. The site-specific FRA should investigate potential risk.

6.2.3 Tidal

During the 0.5% AEP (1 in 200-year) plus 2100 Upper End tidal event, there is significant flooding predicted within the site where access and escape routes are likely to be. The flood depths predicted are between 0.50m and 1m in these areas with a hazard classification of danger for most. Therefore, safe access and escape is not predicted to be possible via either route.

6.2.4 Surface water

There is surface water flooding predicted in the 1% AEP (1 in 100-year) plus 40% climate change event along the road to the south of the site as well as the unnamed road off Swale Way. However, the predicted flood depth remains shallow at between 0.15m and 0.30m, so vehicles should have safe access and escape via these routes.

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 at the FRA stage.
- British Geological Survey (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 at the FRA stage. 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 and national and local SuDS guidance.
- 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 may 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 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.
- Consideration should be given to the existing condition of receiving waterbodies for 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 waterbodies.
- 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 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 which 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

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 employment development as "Less vulnerable".

The Exception Test is not required for this site because it is Less vulnerable. However, development will not be permitted in the area within Flood Zone 3b.

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:

- in Flood Zones 2 or 3 see flood map for planning
- within Flood Zone 3b
- within Flood Zone 1 with a site area of 1 hectare or more
- within 'Flood Zones plus Climate Change', showing it is at increased risk of flooding from rivers or sea in future - see flood map for planning
- 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

- Due to being located within the CCMA, planning applications will be subject to the criteria defined in Policy C6 of the Local Plan.
- A sequential approach should be applied within the site, locating development in the areas of lowest flood risk where possible. While tidal flood risk affects a significant proportion of the site, the layout should also take account of current and future fluvial and surface water flood risk. Development should be steered outside areas within Flood Zone 3b.
- Where ground raising or flood defences are proposed as part of a development surface water flow paths should be avoided to prevent detriment elsewhere. If

flow paths cannot be avoided then site-specific hydraulic modelling will be needed to demonstrate that there is no impact on flood risk elsewhere.

- The residual risk at the site should be assessed including for breach modelling for the 2100 0.5% AEP (1 in 200-year) tidal event.
- Assuming the site can be made safe from tidal flooding and development can be undertaken in line with the requirements of Policy C6 of the Local Plan:
    - Development should avoid surface water flow paths 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.
    - 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.
    - Developers should consider utilising the on-site drainage ditch as a green corridor or as a location for SuDS.
    - 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 and fluvial and 0.5% AEP (1 in 200-year) tidal events 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

A small proportion of the eastern area is within Flood Zone 3b. According to the FMfP, Flood Zones 2 and 3a cover the majority of the site, with the exception of the southwest and western corner.

There is engineered high ground to the west along The Swale, and embankments to the southwest and northwest along the same Main River.

Based on current available information, the site is not shown to be at risk during the present day or future fluvial flood events, but tidal risk is likely to be the dominant source of flooding at the site.

The North Kent Coast model records that the defended 3.3% AEP (1 in 30-year) event covers a small area in the east and northwest of the site while the defended 0.5% AEP (1 in 200-year) and 0.1% AEP (1 in 1,000-year) events cover 66% and 82% of the site respectively. During the 0.5% AEP plus climate change event, nearly the entire site is covered, with the exception of some small areas in the southwest and west.

In terms of surface water flooding, the site is not predicted to be at risk during the 3.3% AEP (1 in 30-year) or the 1% AEP (1 in 100-year) events. But 1% of the site is impacted during the 0.1% AEP (1 in 1000-year) event. This is predicted in isolated areas within the western and eastern parts of the site. Flooding in the 1% AEP (1 in 100-year) plus 40% climate change event is predicted to cover 1% of the site in the same areas.

According to the Environment Agency's Historic Flood Map, the eastern area of the site flooded in 1978 due to overtopping of the sea defences.

There have been 17 sewer flood incidents in the ME10 3 postcode area since 2015 according to Southern Water's SIRF dataset.

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

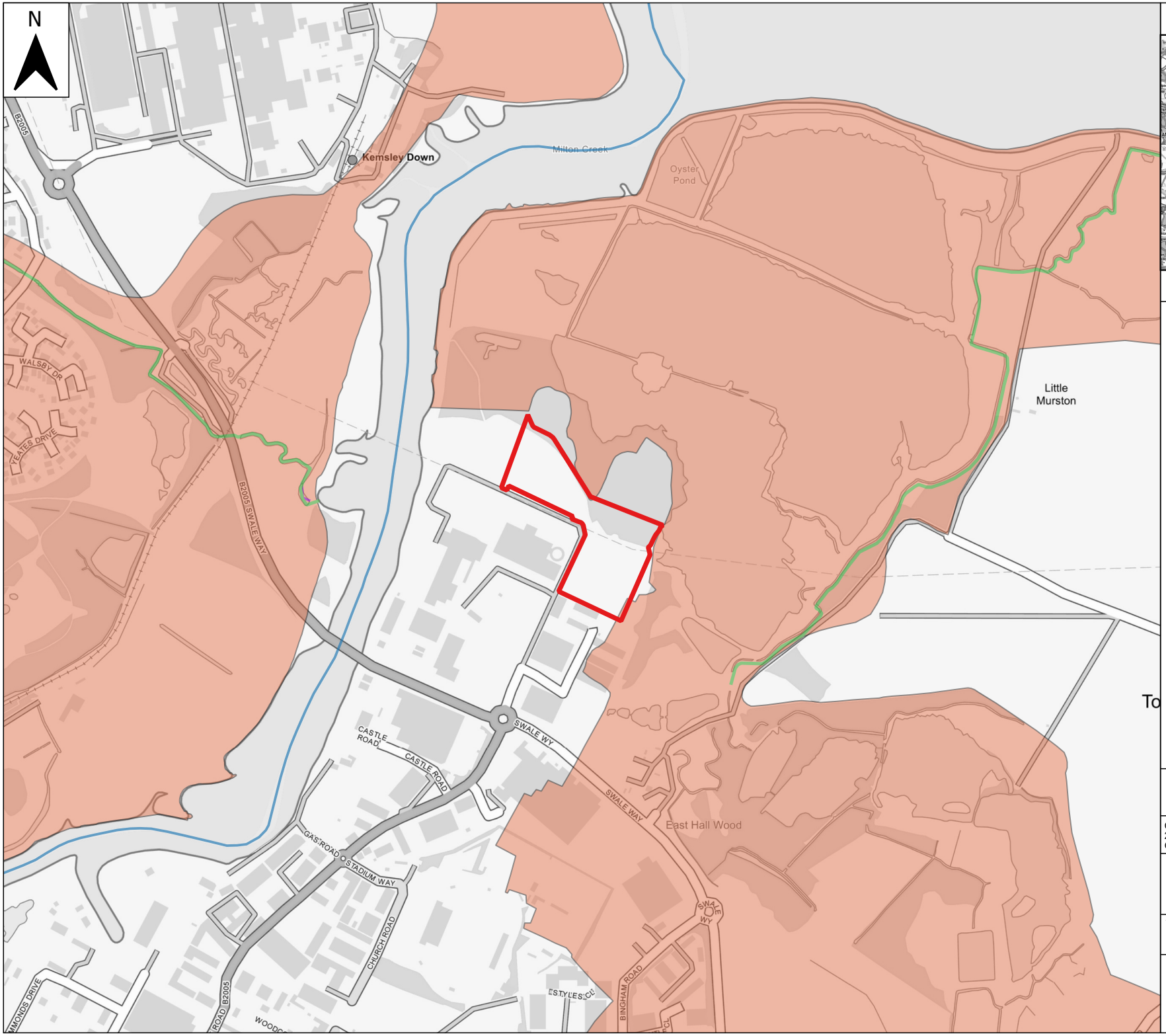
- Due to being located within the CCMA, planning applications will be subject to the criteria defined in Policy C6 of the Local Plan.
- A site-specific Flood Risk Assessment will be required which demonstrates that development can be safely accommodated on the site for its lifetime. A sequential approach should be applied within the site, locating development in the areas of lowest flood risk where possible. Development should be steered outside of the areas within Flood Zone 3b. Where this is not possible, it may mean land raising and/or the construction of private flood defences are required. Where ground raising or flood defences are proposed as part of a development surface water flow paths should be avoided to prevent detriment elsewhere. If flow paths cannot be avoided then site-specific hydraulic modelling will be needed to demonstrate that there is no impact on flood risk elsewhere.
- The residual risk should be assessed and include breach modelling for the 2100 0.5% AEP (1 in 200-year) event.

- Development should be steered outside the areas of surface water and tidal 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 and 0.5% AEP tidal event with an appropriate allowance for climate change, considering depth, velocity, and hazard. Design and access arrangements will need to incorporate mitigation measures, to ensure development and occupants are safe.

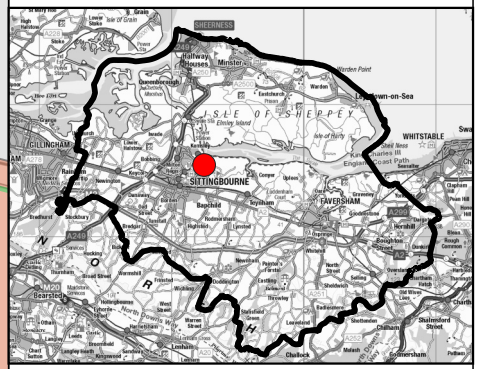
A Sources of information

- 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

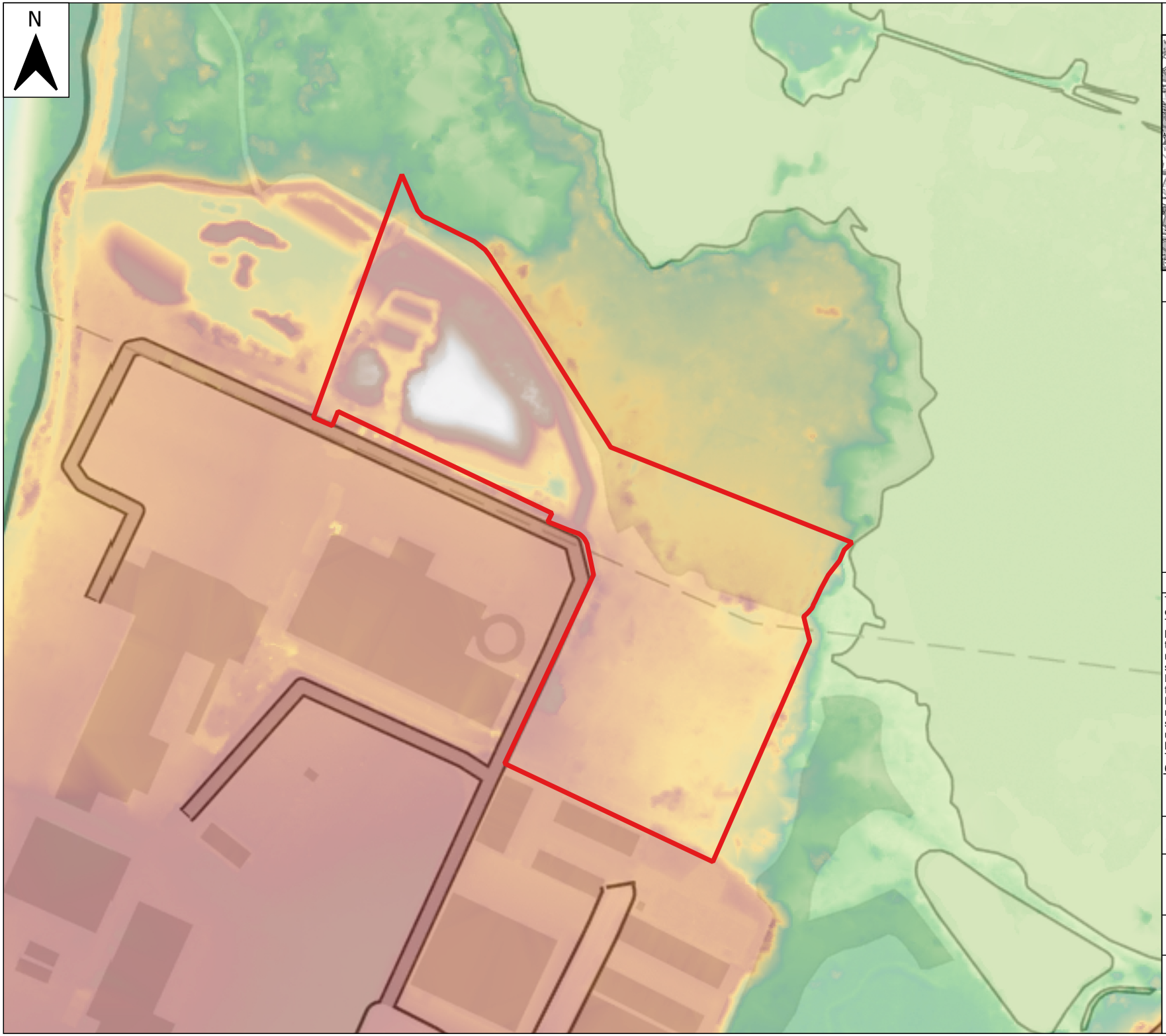
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LEVEL 2 SFRA:
WATERCOURSES - CFS2024-129

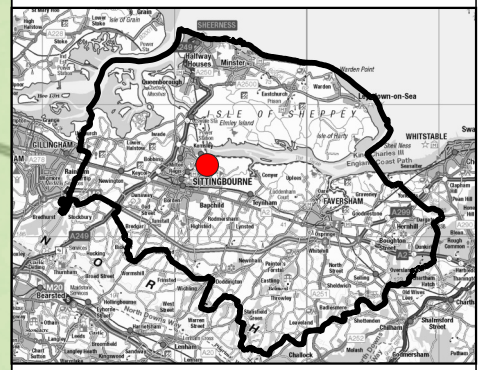
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Location Plan



Legend

Swale Borough Outline

Site boundary

Topography

LIDAR 1m DTM (mAOD)

12.34

-1.52

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 70 140 m

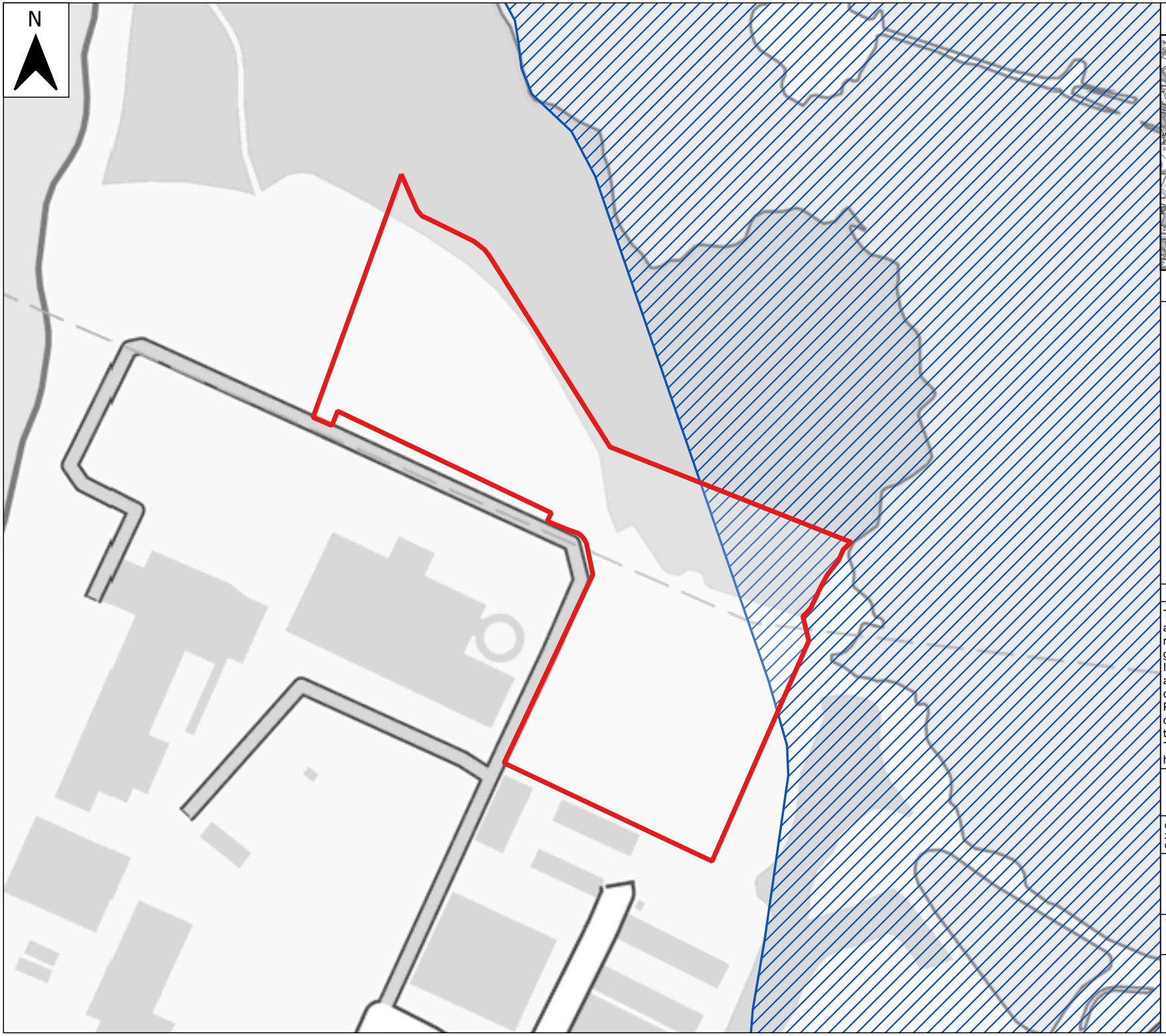
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LEVEL 2 SFRA:
TOPOGRAPHY - CFS2024-129

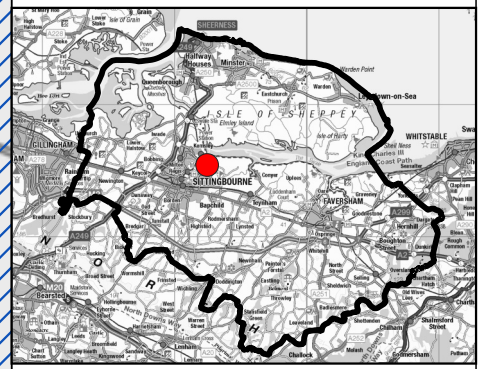
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Location Plan



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.

0 70 140 m

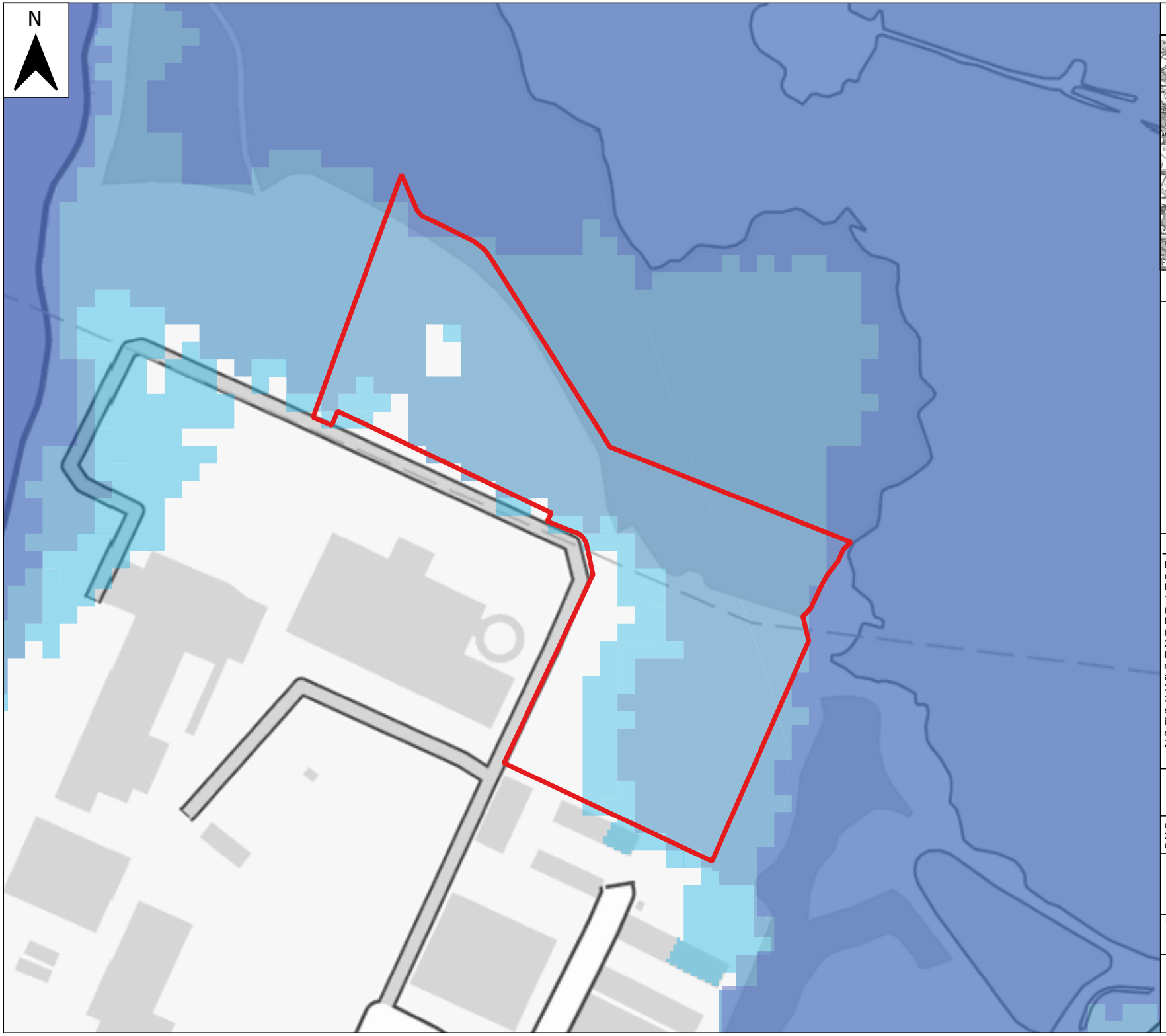
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LEVEL 2 SFRA:
HISTORIC FLOODING - CFS2024-129

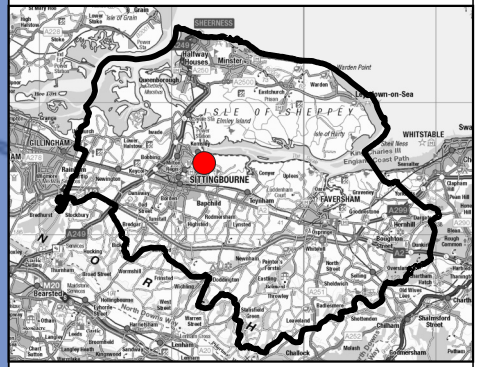
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Location Plan



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.

0 70 140 m

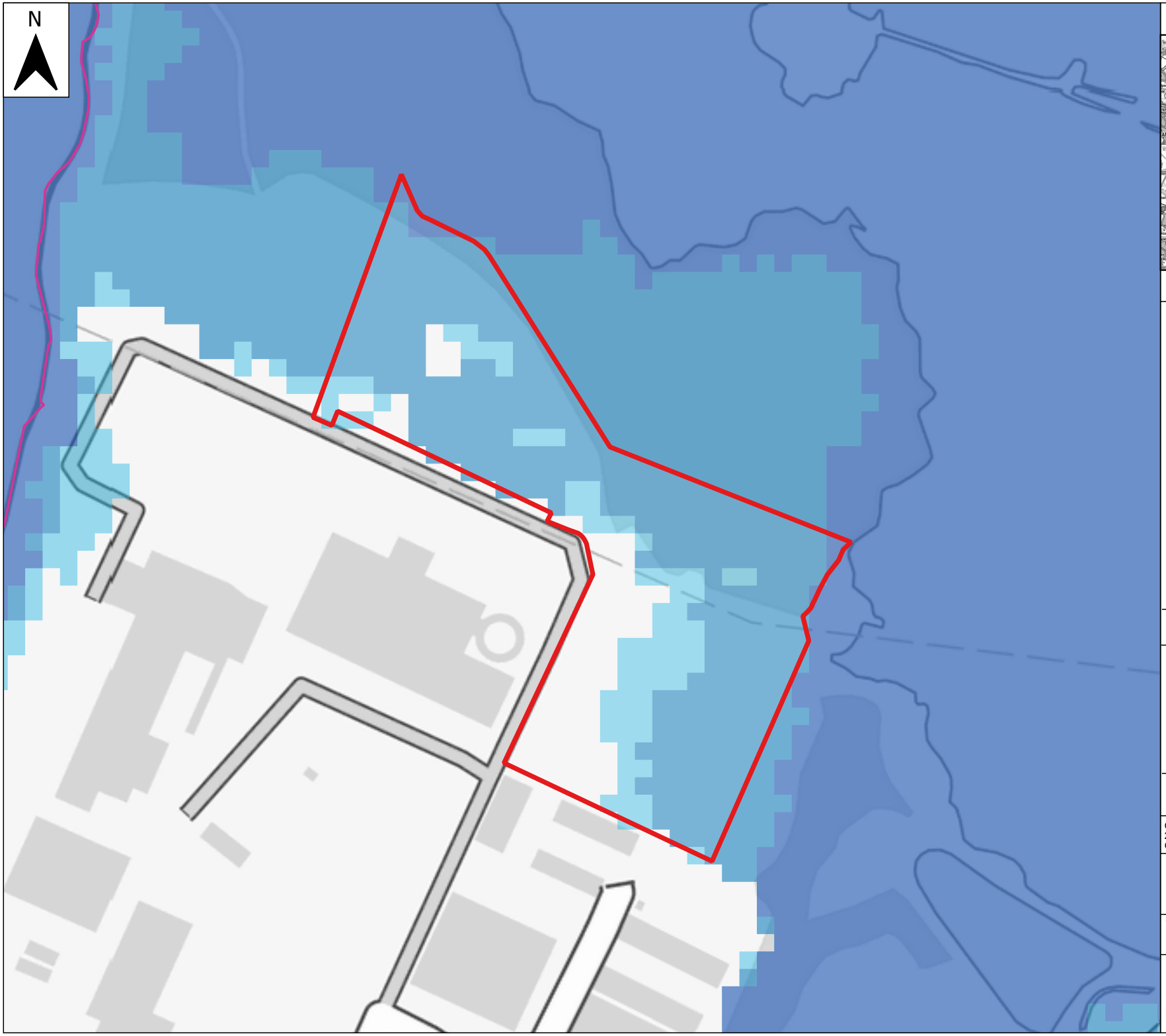
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LEVEL 2 SFRA:
PRESENT DAY FLOOD RISK FROM RIVERS AND SEA (FLOOD ZONES) - CFS2024-129

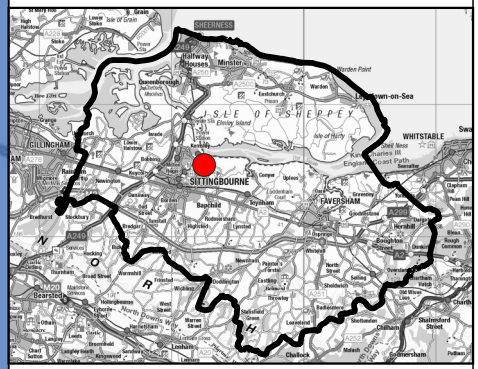
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Location Plan



Legend

- Swale Borough Outline
- Site Boundary
- 3.3% AEP (1 in 30-year)
- 0.5% AEP (1 in 200-year)
- 0.1% AEP (1 in 1000-year)

EA Flood Defence Types

- Engineered High Ground

Notes

Present day extents for the North Kent Coast modelling study shows the tidal and coastal flood risk for the 3.3% AEP (1 in 30-year) defended flood event and 0.5% AEP (1 in 200-year) and 0.1% (1 in 1000-year) defended flood events.

0 70 140 m

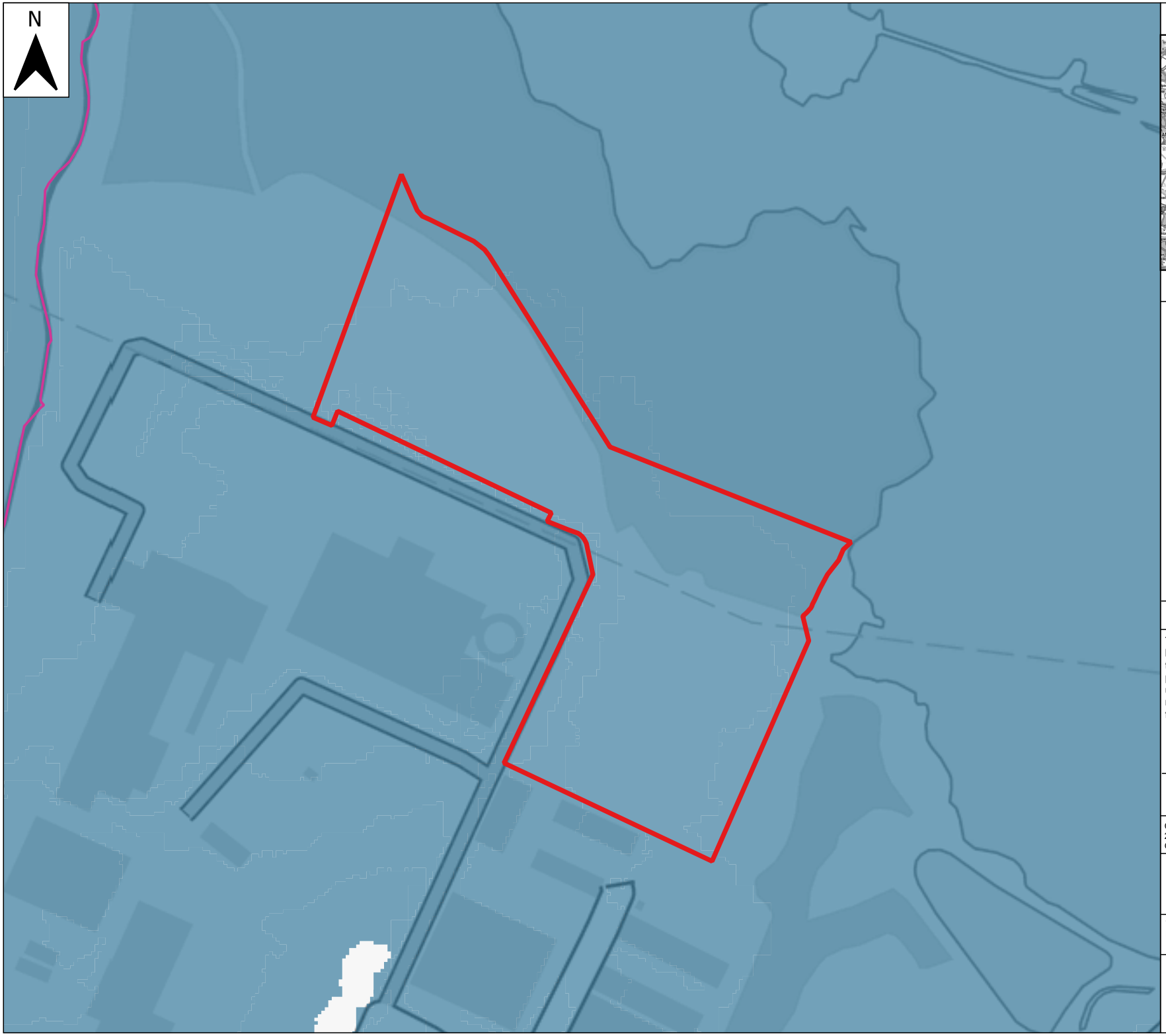
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LEVEL 2 SFRA:
NORTH KENT COAST MODEL - DEFENDED
PRESENT DAY TIDAL EXTENT - CFS2024-129

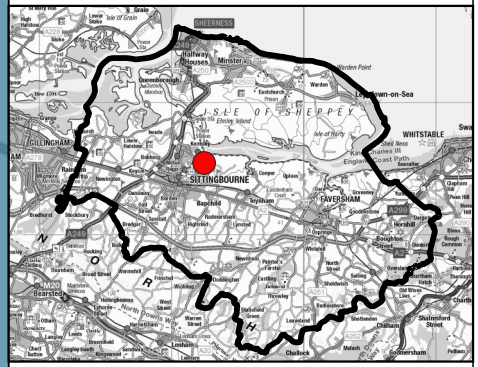
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Location Plan



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-

0 70 140 m

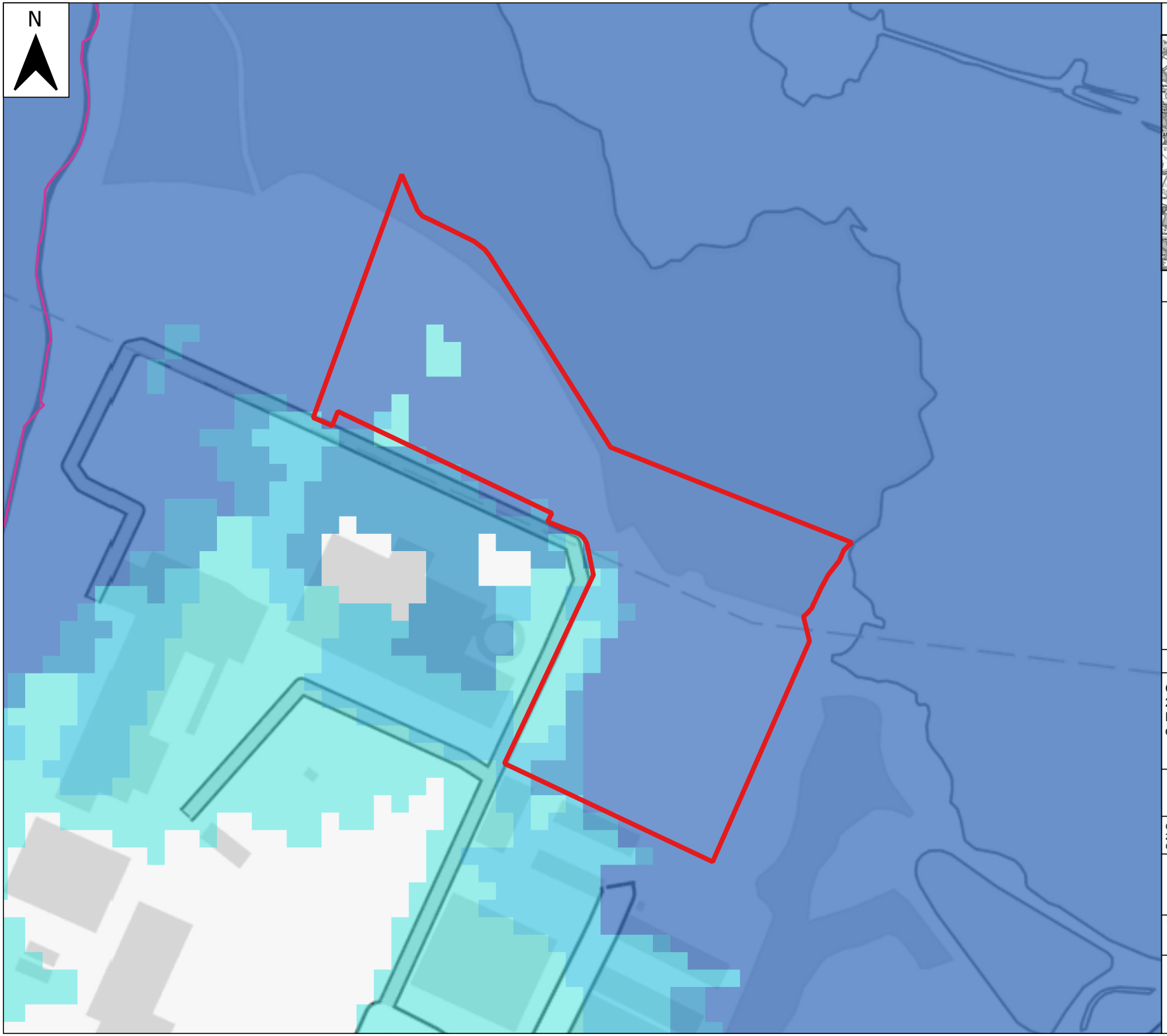
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LEVEL 2 SFRA:
FUTURE FLOOD RISK FROM RIVERS AND SEA - FLOOD MAP FOR PLANNING- CFS2024-129

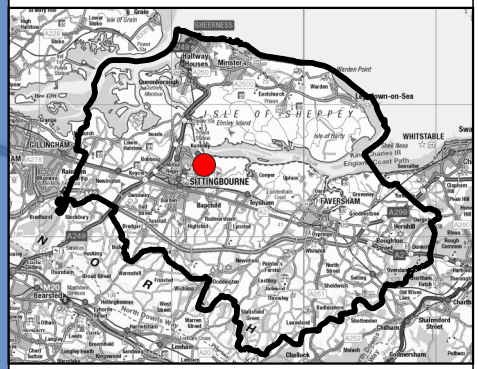
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Location Plan



Legend

- Swale Borough Outline
- Site boundary
- 0.5% AEP (1 in 200-year) 2100 defended (higher central)
- 0.5% AEP (1 in 200-year) 2100 defended (upper end)
- 0.5% AEP (1 in 200-year) 2125 defended (higher central)
- 0.5% AEP (1 in 200-year) 2125 defended (upper end)

EA Flood Defences Types

- Engineered High Ground

Notes

Climate change extents for the 0.5% AEP (1 in 200-year) events with the Higher Central and Upper End estimates (2100 and 2125) are shown. The difference in flood extents are relatively small.

0 70 140 m

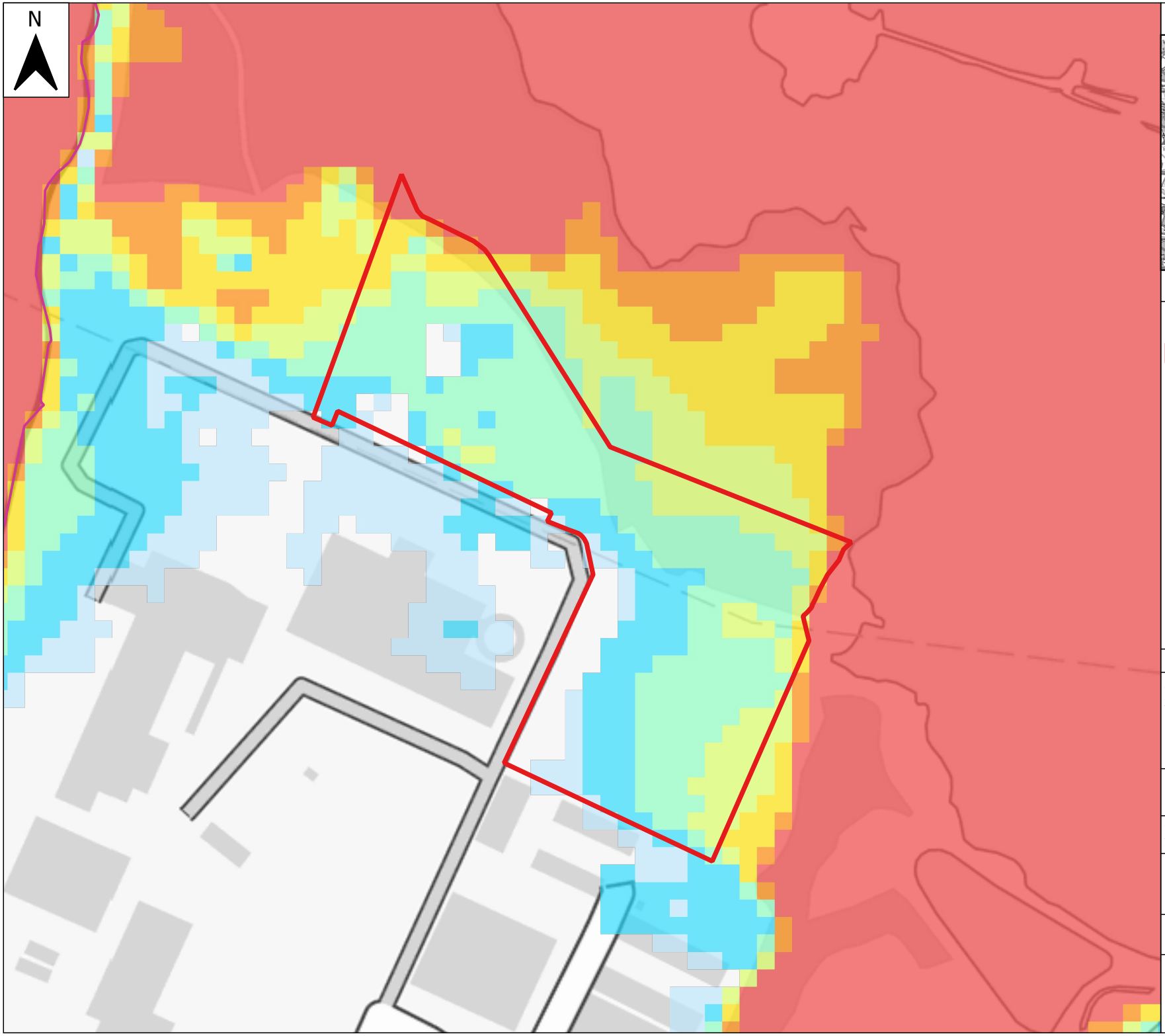
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LEVEL 2 SFRA:
FUTURE FLOOD RISK FROM THE SEA - NORTH KENT COAST MODEL - CFS2024-129

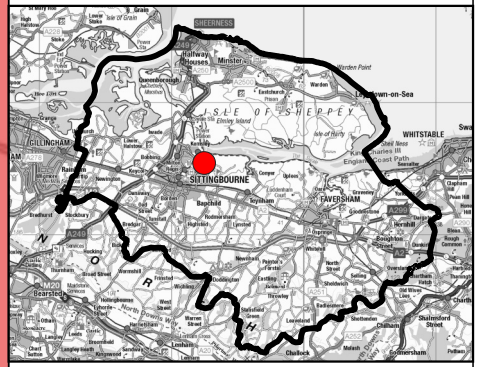
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

North Kent Coast Model - Defended
0.5% AEP (1 in 200-year) 2100 UE depth (m)

- 0.00 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- > 2.50

EA Flood Defences Types
- Engineered High Ground

Notes

Climate change depths for the 0.5% AEP (1 in 200-year) event with the Upper End estimate (2100) is shown.

0 70 140 m

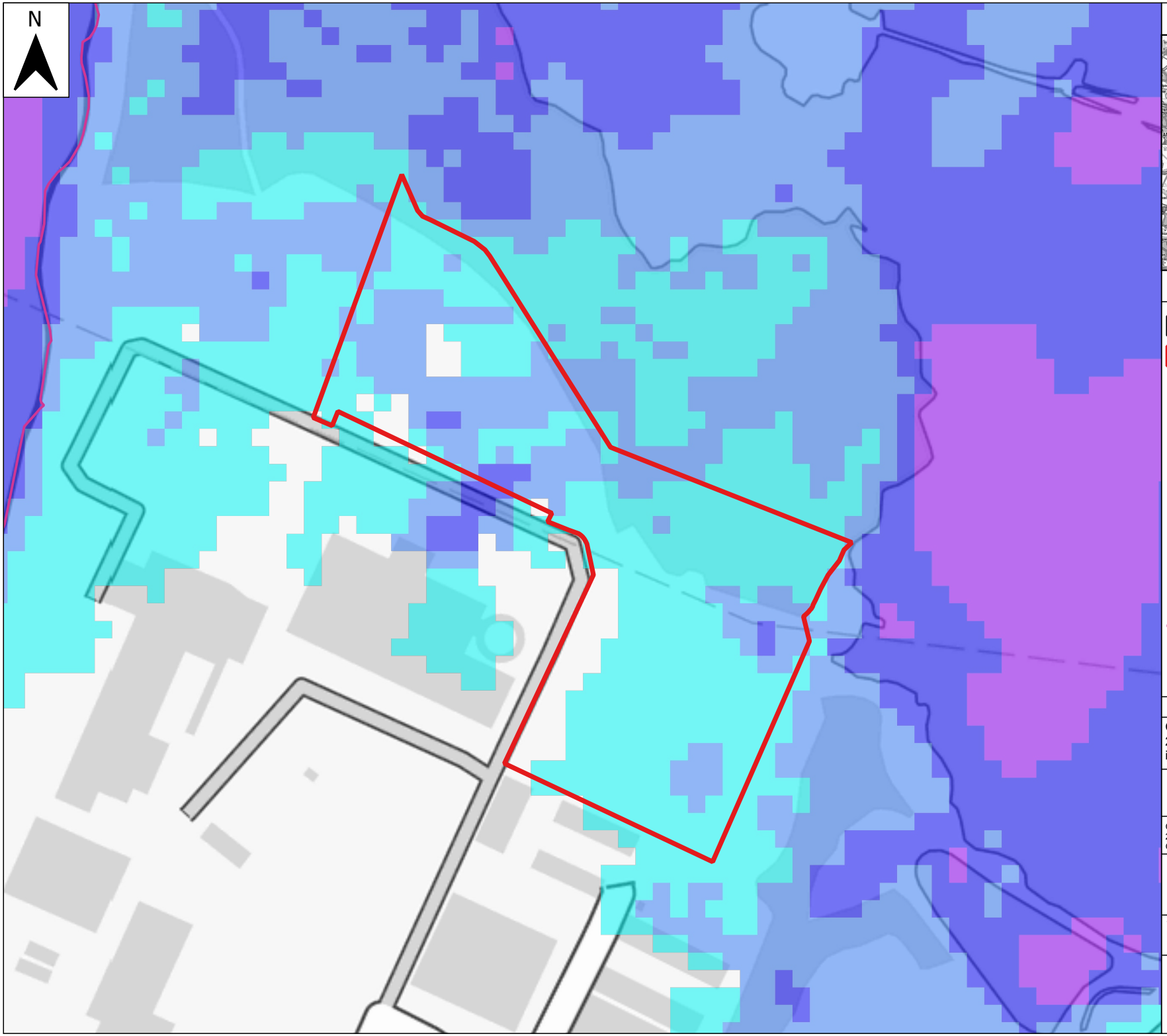
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LEVEL 2 SFRA:
FUTURE FLOOD RISK FROM THE SEA - NORTH KENT COAST MODEL DEPTH - CFS2024-129

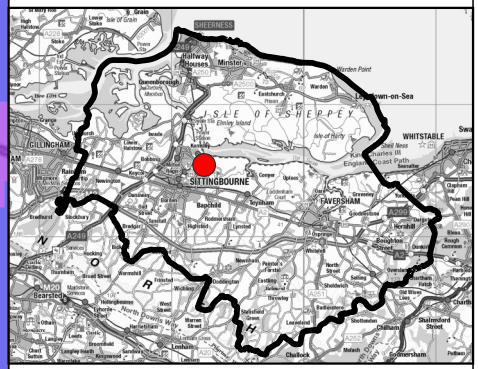
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

North Kent Coast Model - Defended 0.5% AEP (1 in 200-year) 2100 UE Velocity (m/s)

- 0.0 - 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 2.0
- > 2.0

EA Flood Defences Types

- Engineered High Ground

Notes

Climate change velocity for the 0.5% AEP (1 in 200-year) event with the Upper End estimate (2100) is shown.

0 70 140 m

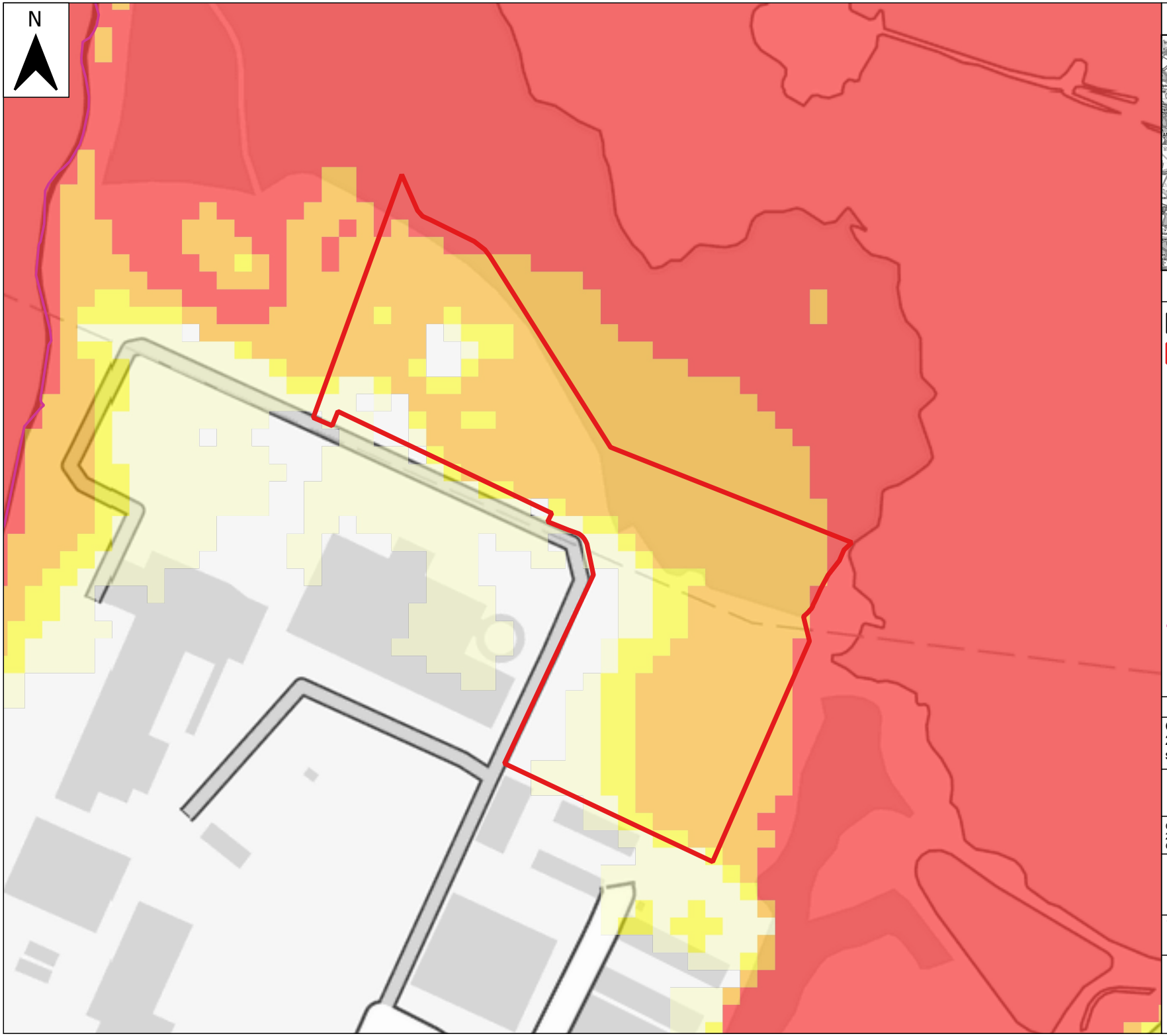
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LEVEL 2 SFRA:
FUTURE FLOOD RISK FROM THE SEA - NORTH KENT COAST MODEL VELOCITY - CFS2024-129

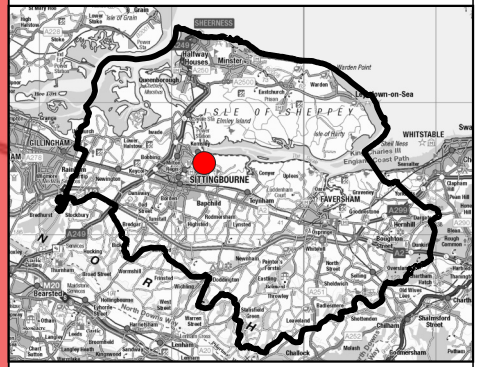
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

North Kent Coast Model - Defended 0.5% AEP (1 in 200-year) 2100 UE hazard classification

- No hazard
- Very low hazard - Caution
- Danger for some
- Danger for most
- Danger for all

EA Flood Defences Types

- Engineered High Ground

Notes

Climate change hazard for the 0.5% AEP (1 in 200-year) event with the Upper End estimate (2100) is shown.

0 70 140 m

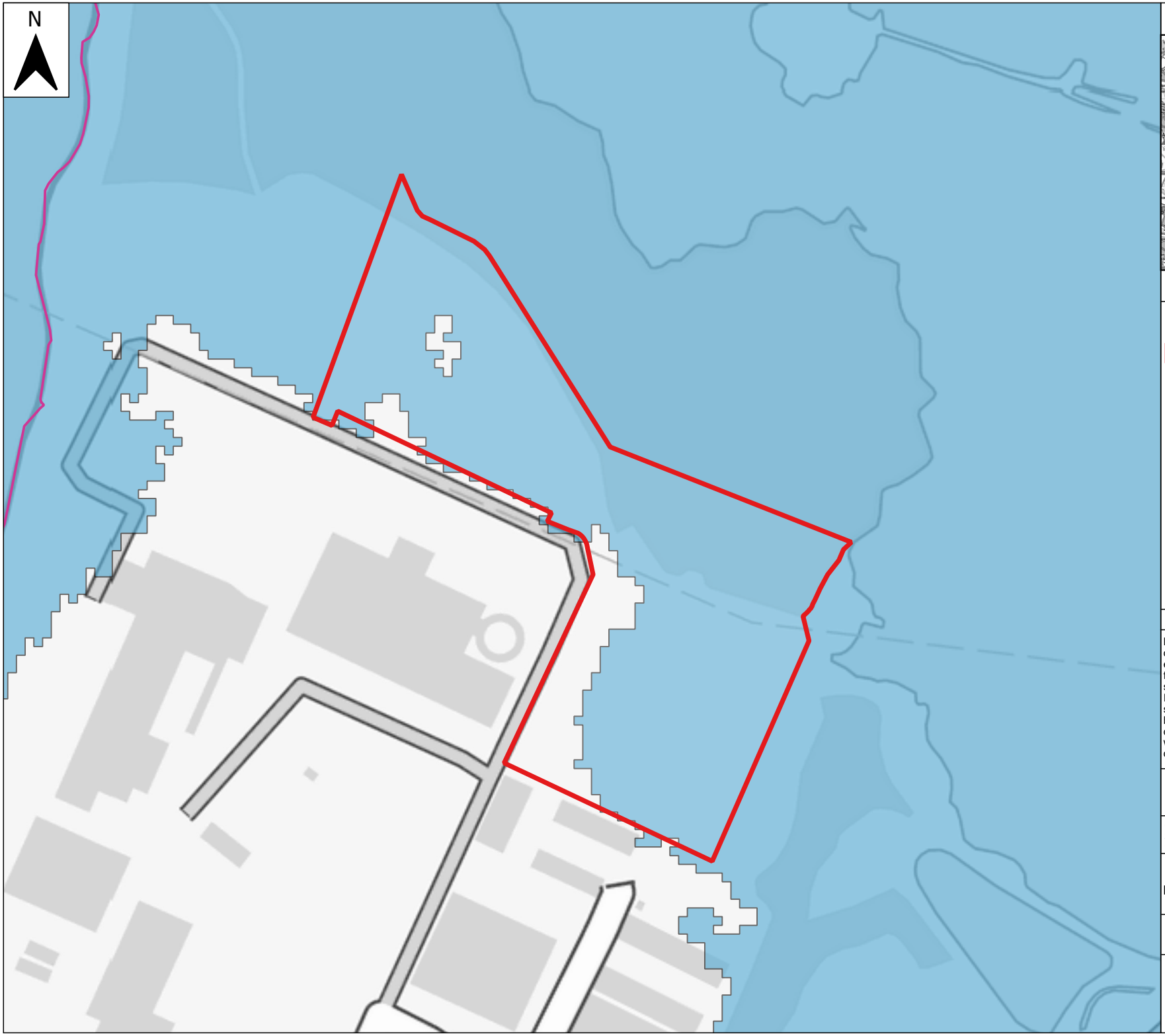
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FUTURE FLOOD RISK FROM THE SEA - NORTH KENT COAST MODEL HAZARD - CFS2024-129

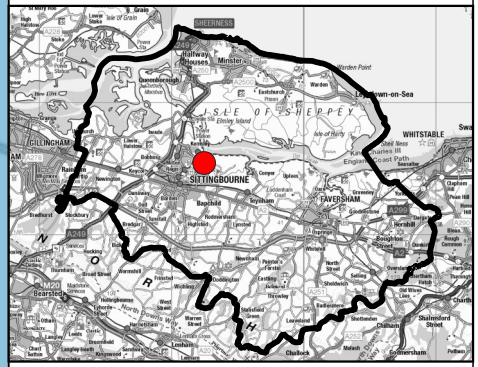
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Location Plan



Legend

- Swale Borough Outline
- Site boundary
- North Kent Coast Model - 0.5% AEP (1 in 200-year) 2075 UE Breach Extent

EA Flood Defences Types

- Engineered High Ground

Notes

Breach modelling is a hydraulic approach used to simulate the failure or overtopping of a flood defence, such as a flood wall or embankment, during a given flood event. It assesses how such a failure would influence flood extents and the potential impacts on surrounding areas.
In the North Kent Coast Model, breach modelling was carried out at several locations. The results presented here relate to all of the breaches, which represent simulated failures of surrounding defences during the climate change 0.5% AEP (1 in 200-year) event with the Upper End estimate (2075), illustrating the predicted extent of flooding under these conditions.

0 70 140 m

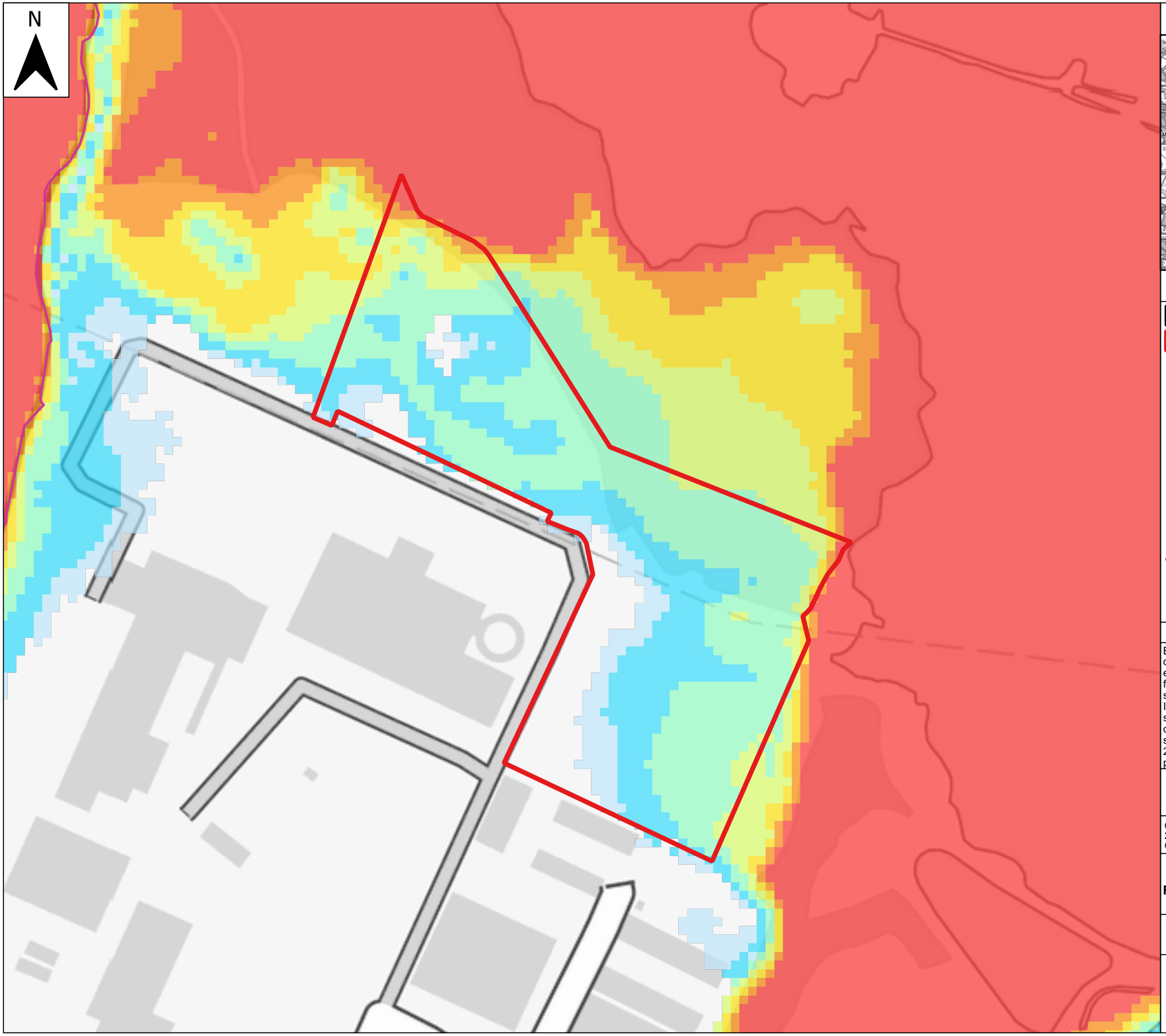
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FUTURE BREACH RISK FROM THE SEA - NORTH KENT COAST MODEL EXTENT - CFS2024-129

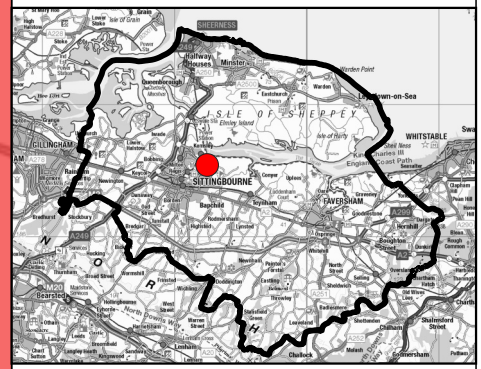
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

North Kent Coast Model - 0.5% AEP (1 in 200-year) 2075 UE Breach Depth (m)

- 0.00 - 0.10
- 0.10 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- > 2.50

EA Flood Defences Types

- Engineered High Ground

Notes

Breach modelling is a hydraulic approach used to simulate the failure or overtopping of a flood defence, such as a flood wall or embankment, during a given flood event. It assesses how such a failure would influence flood extents and the potential impacts on surrounding areas.
In the North Kent Coast Model, breach modelling was carried out at several locations. The results presented here relate to the maximum depth of all the breaches, which represent simulated failures of surrounding defences during the climate change 0.5% AEP (1 in 200-year) event with the Upper End estimate (2075), illustrating the predicted depth of flooding under these conditions.

0 70 140 m

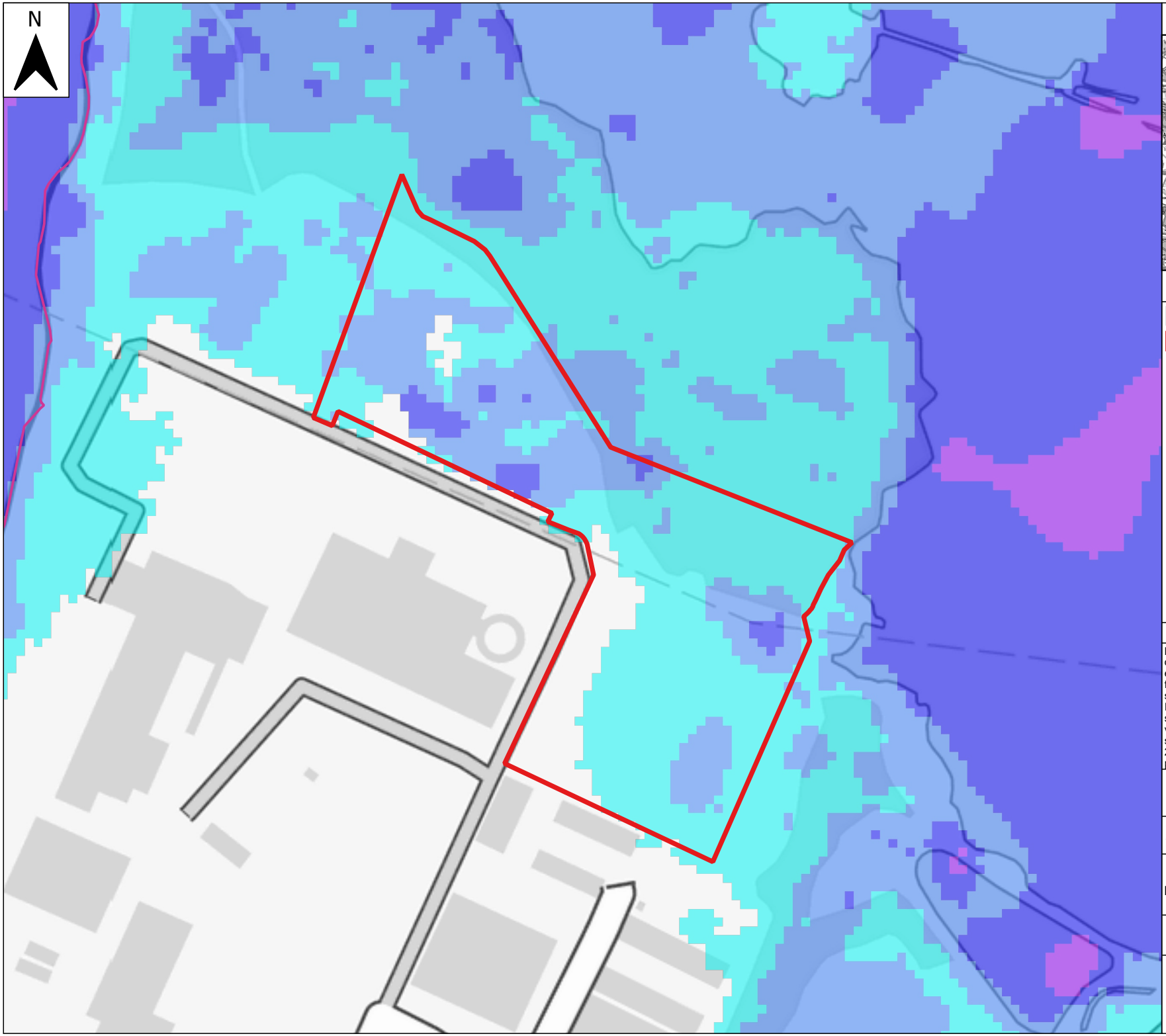
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FUTURE BREACH RISK FROM THE SEA - NORTH KENT COAST MODEL DEPTH - CFS2024-129

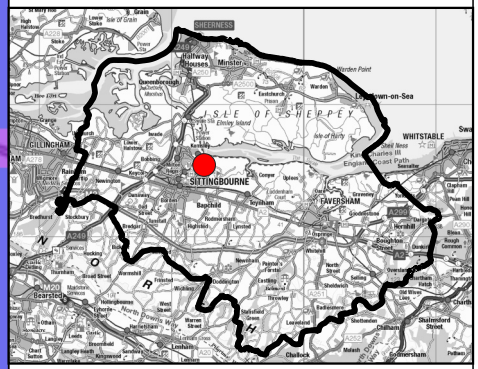
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Location Plan



Legend

Swale Borough Outline

Site boundary

North Kent Coast Model - 0.5% AEP (1 in 200-year) 2075 UE Breach Velocity (m/s)

- 0.0 - 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 2.0
- > 2.0

EA Flood Defences Types

- Engineered High Ground

Notes

Breach modelling is a hydraulic approach used to simulate the failure or overtopping of a flood defence, such as a flood wall or embankment, during a given flood event. It assesses how such a failure would influence flood extents and the potential impacts on surrounding areas.
In the North Kent Coast Model, breach modelling was carried out at several locations. The results presented here relate to the maximum velocity of all the breaches, which represent simulated failures of surrounding defences during the climate change 0.5% AEP (1 in 200-year) event with the Upper End estimate (2075), illustrating the predicted velocity of flooding under these conditions.

0 70 140 m

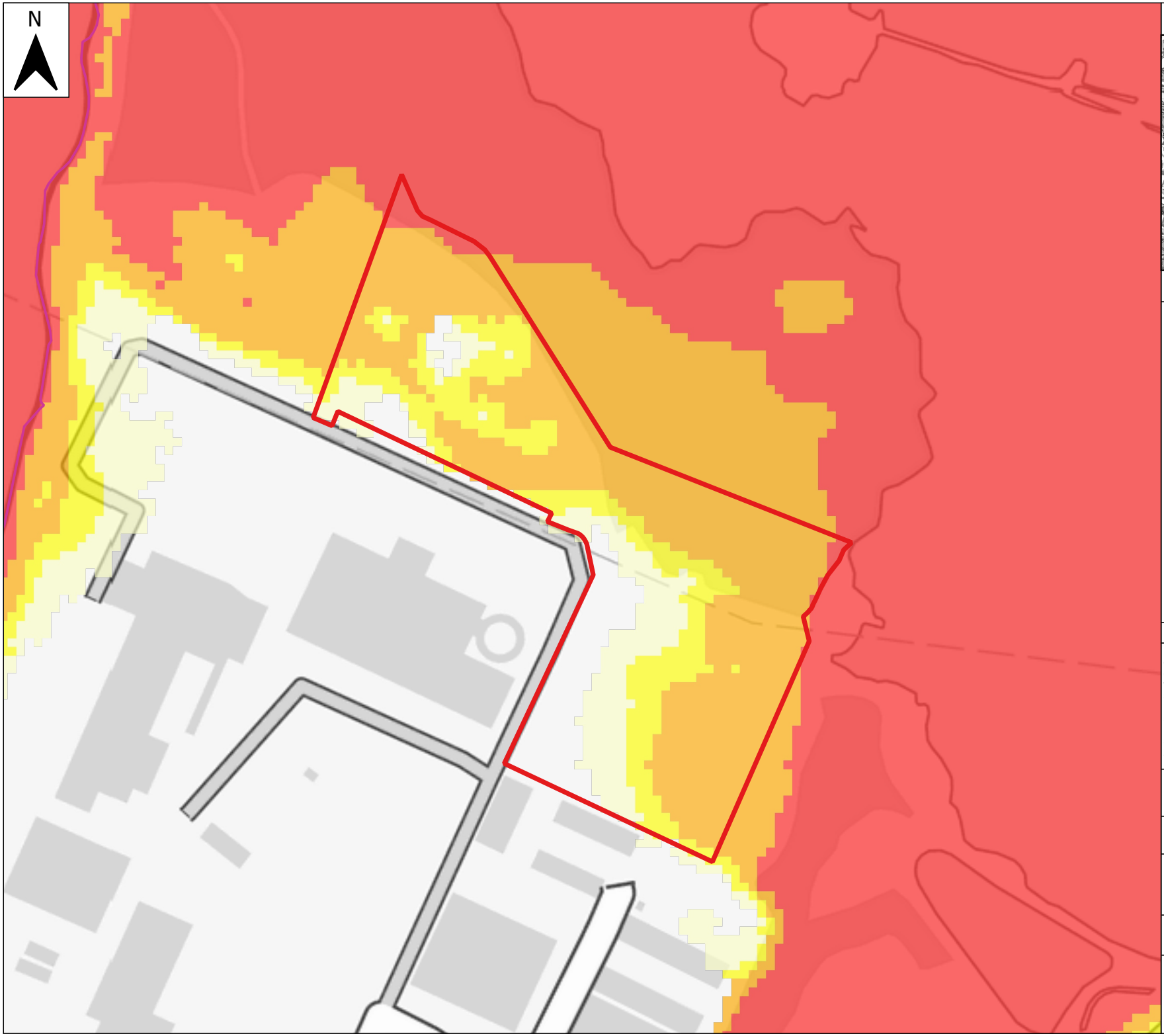
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FUTURE BREACH RISK FROM THE SEA - NORTH KENT COAST MODEL VELOCITY - CFS2024-129

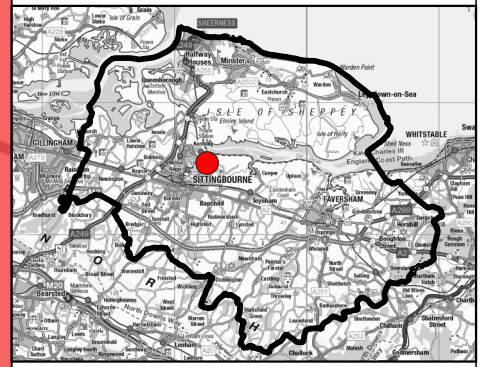
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Location Plan



Legend

- Swale Borough Outline
- Site boundary

North Kent Coast Model - 0.5% AEP (1 in 200-year) 2075 UE Breach Hazard Classification

- No hazard
- Danger for all
- Very low hazard - Caution
- Danger for some
- Danger for most

EA Flood Defences Types

- Engineered High Ground

Notes

Breach modelling is a hydraulic approach used to simulate the failure or overtopping of a flood defence, such as a flood wall or embankment, during a given flood event. It assesses how such a failure would influence flood extents and the potential impacts on surrounding areas.
In the North Kent Coast Model, breach modelling was carried out at several locations. The results presented here relate to the maximum hazard of all the breaches, which represent simulated failures of surrounding defences during the climate change 0.5% AEP (1 in 200-year) event with the Upper End estimate (2075), illustrating the predicted hazard of flooding under these conditions.

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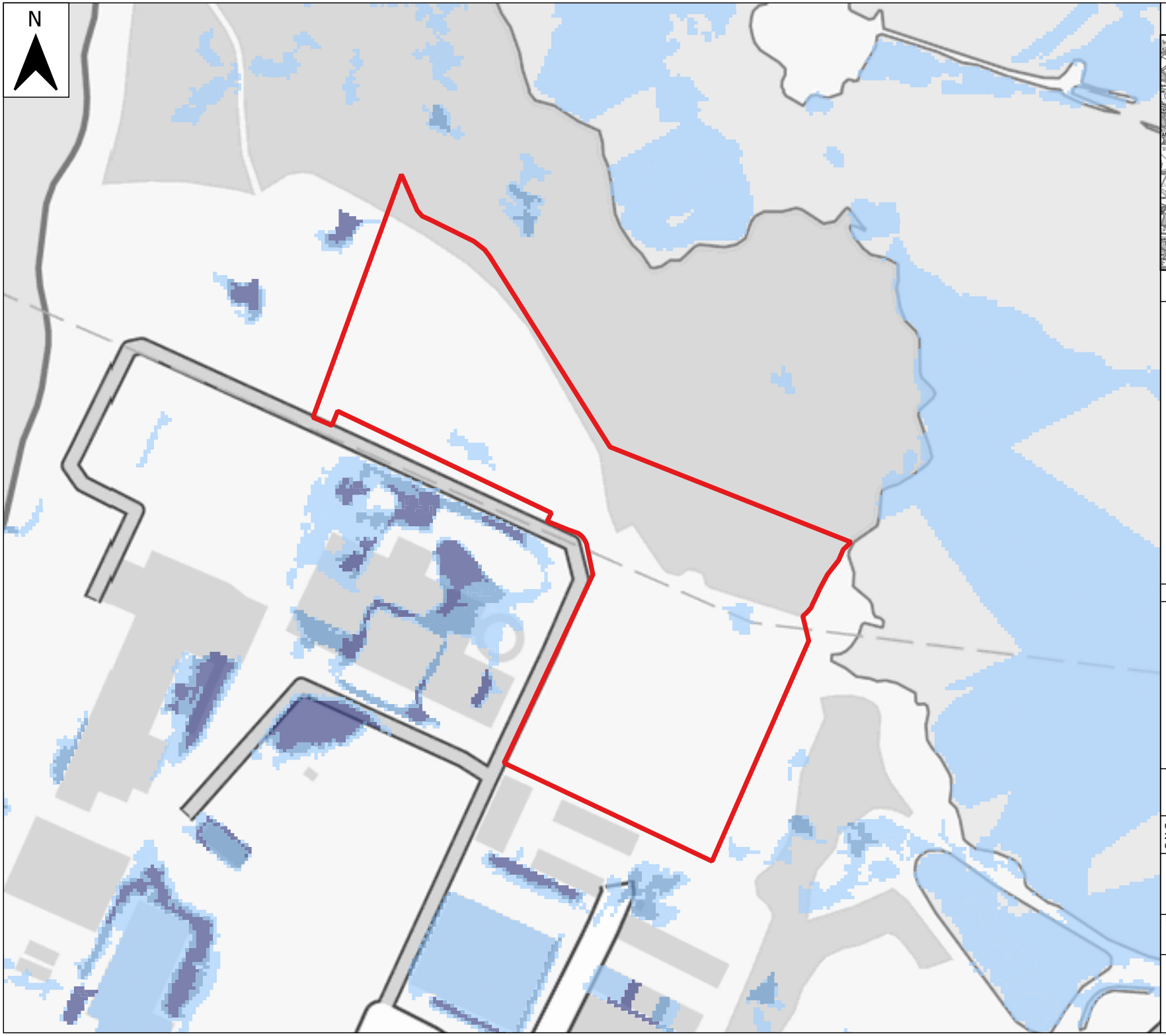
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FUTURE BREACH RISK FROM THE SEA - NORTH KENT COAST MODEL HAZARD - CFS2024-129

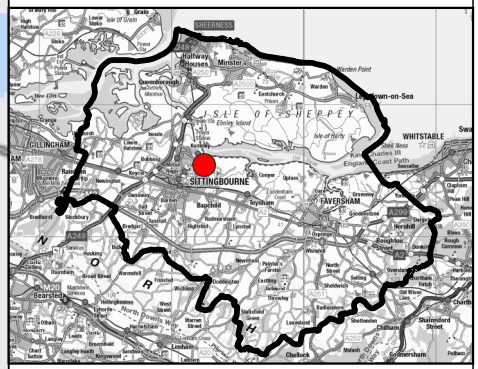
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Location Plan



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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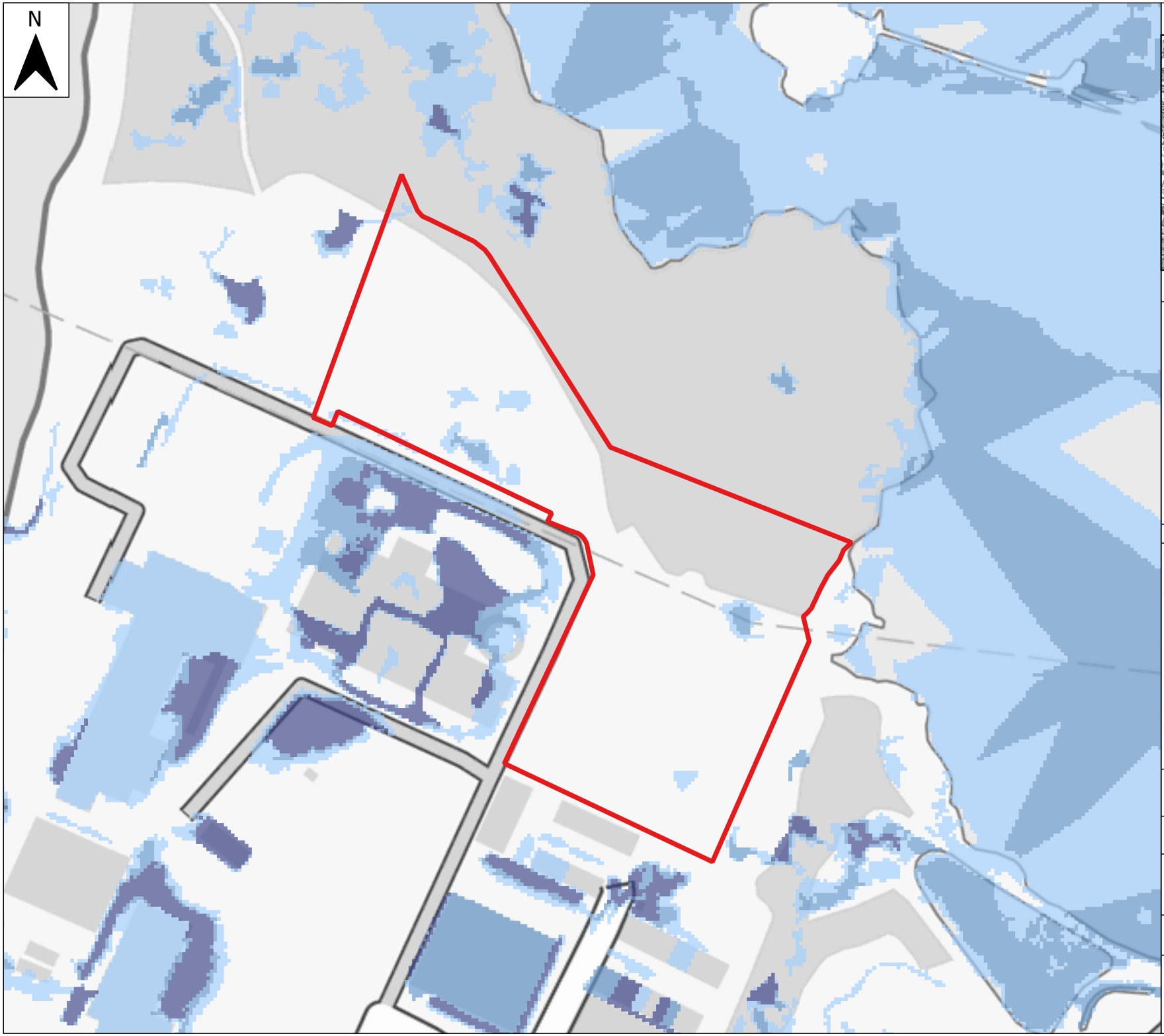
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SURFACE WATER FLOODING - CFS2024-129

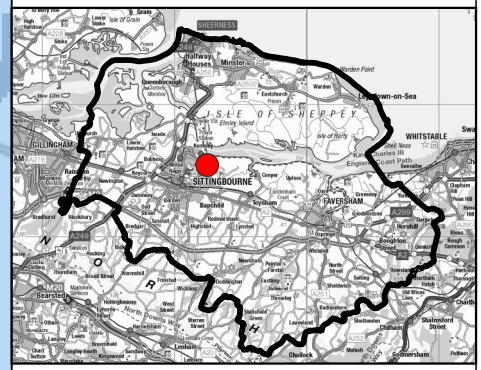
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Location Plan



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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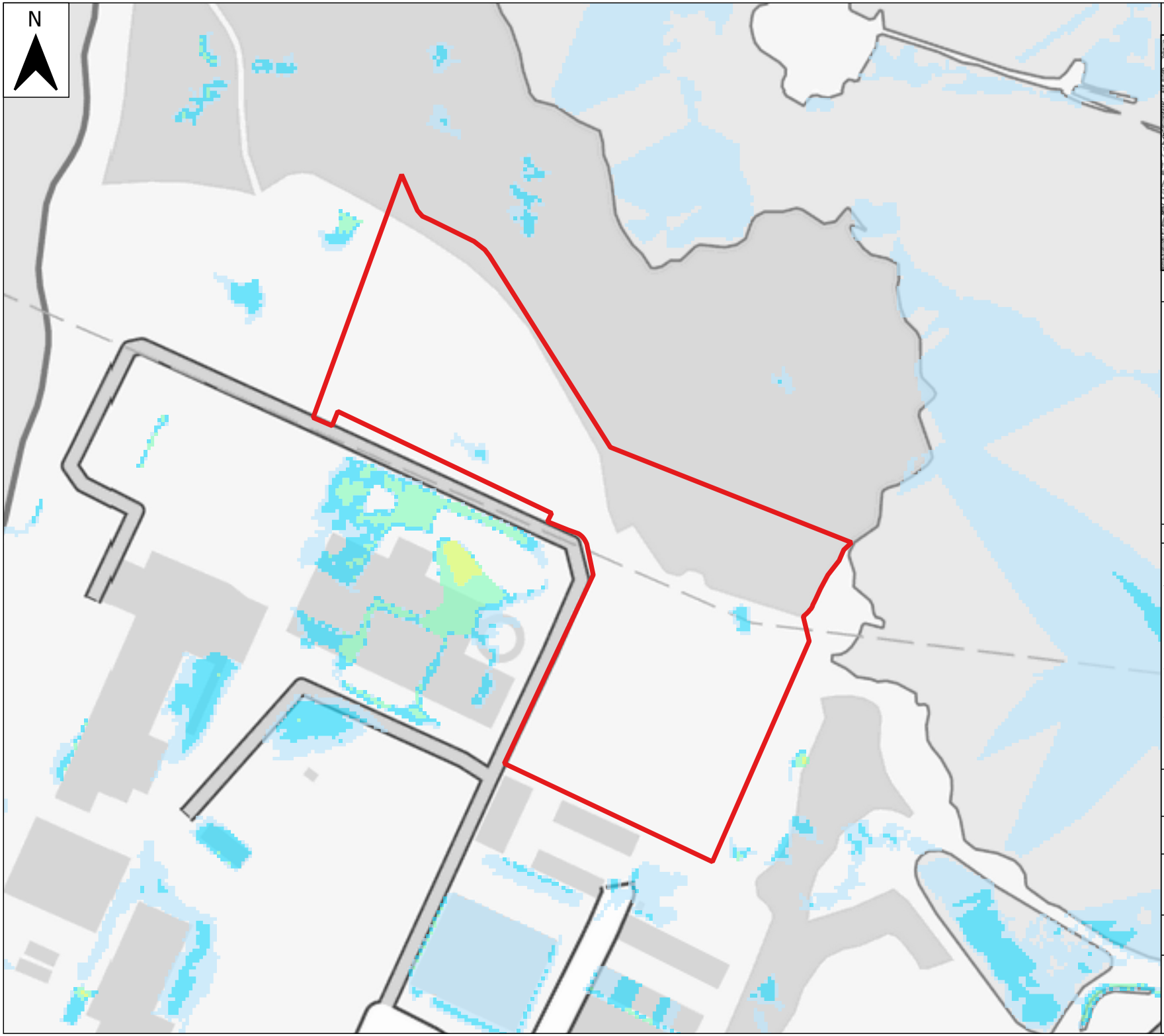
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SURFACE WATER FLOODING PLUS CLIMATE CHANGE - CFS2024-129

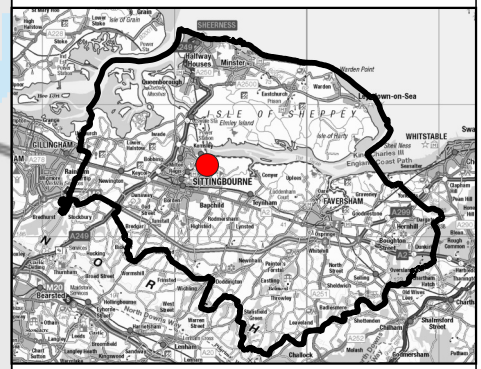
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Location Plan



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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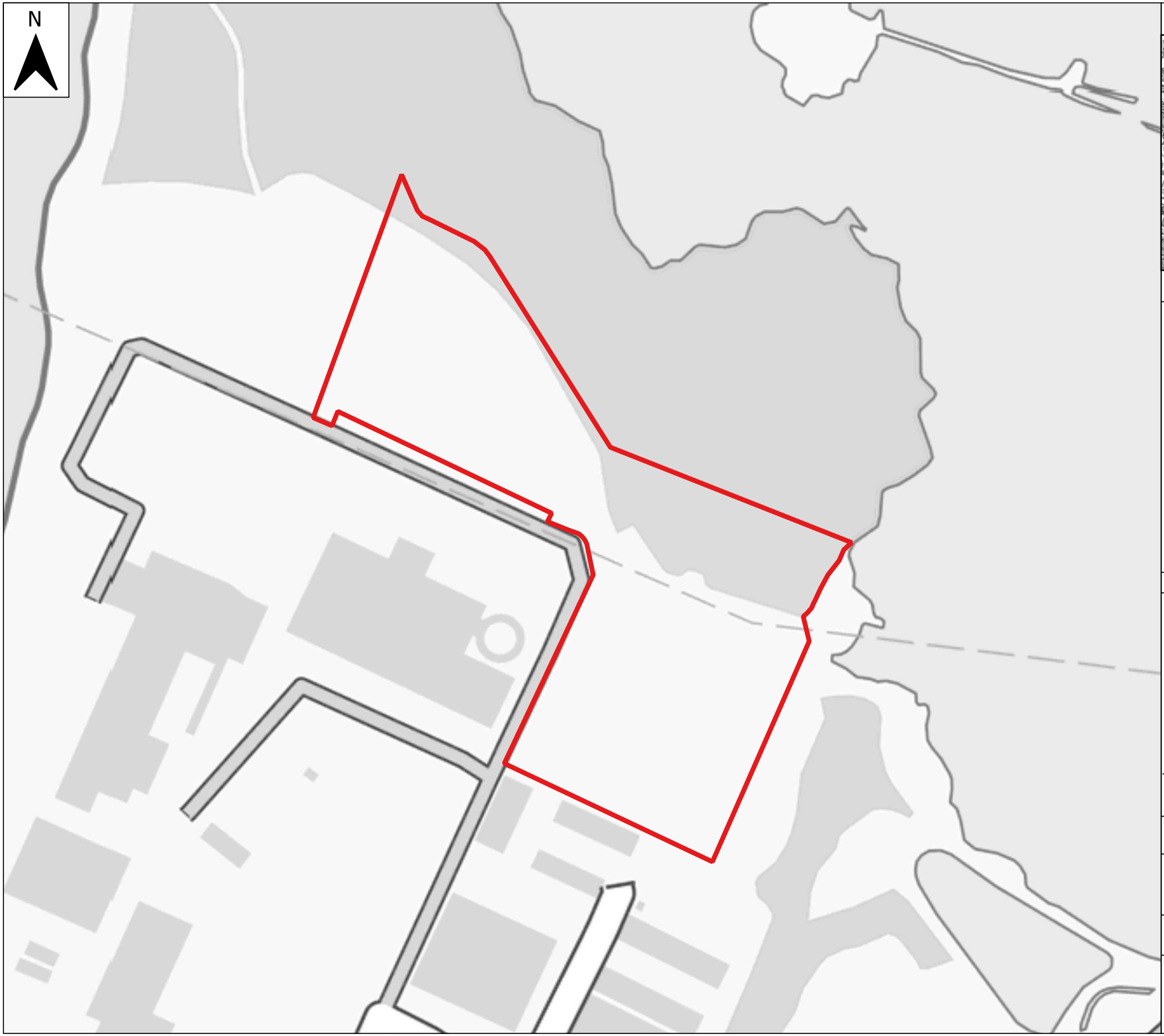
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SURFACE WATER FLOODING PLUS CLIMATE CHANGE DEPTHS - CFS2024-129

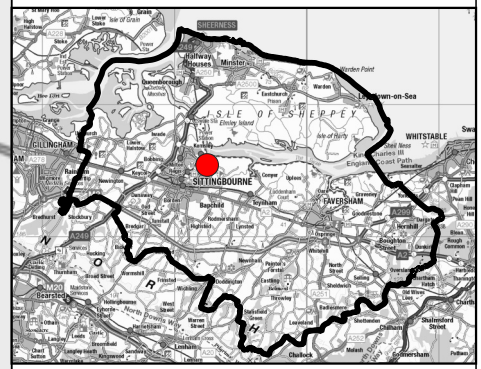
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Location Plan



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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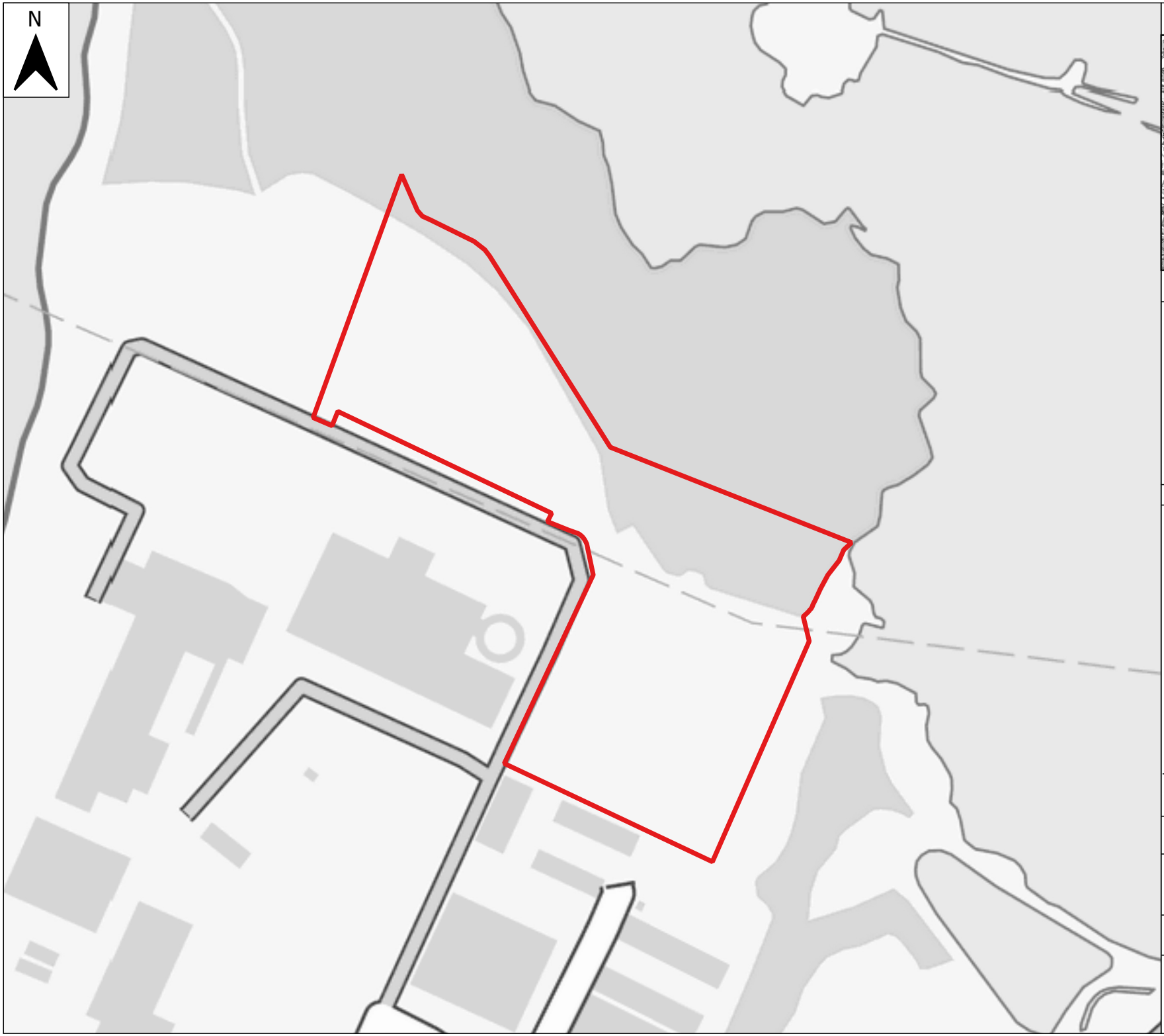
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JBA GROUNDWATER FLOOD MAP - CFS2024-129

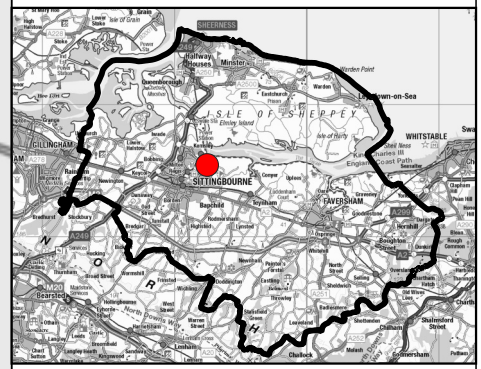
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Location Plan



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.

0 70 140 m

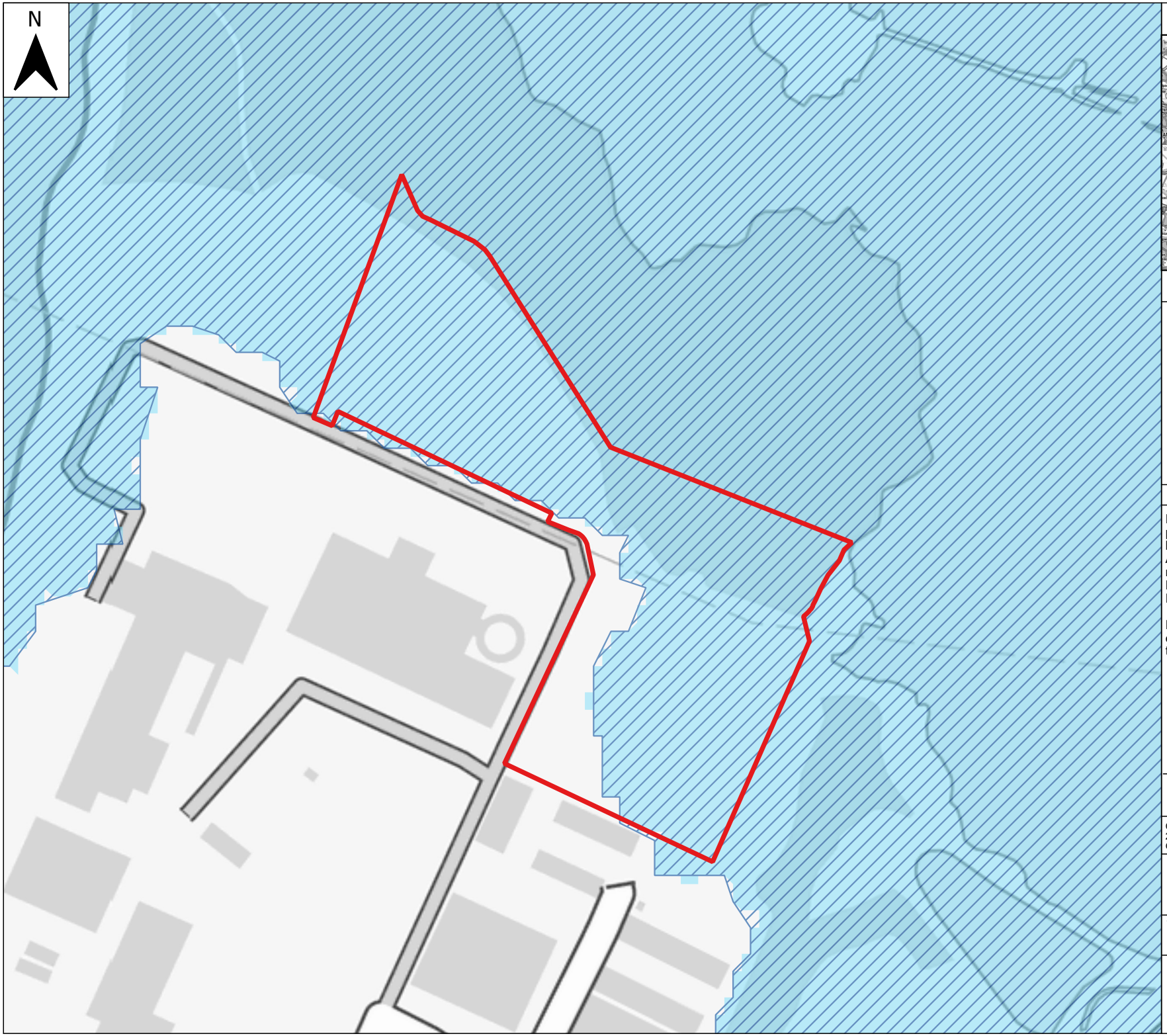
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LEVEL 2 SFRA:
RISK OF FLOODING FROM RESERVOIRS - CFS2024-129

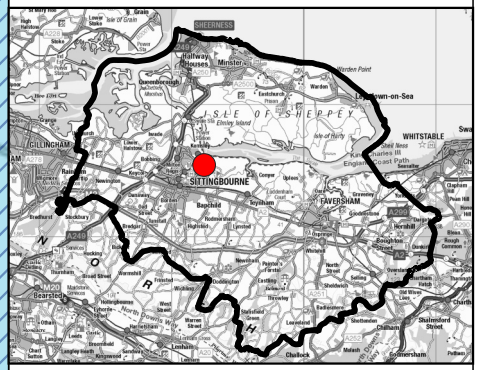
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Location Plan



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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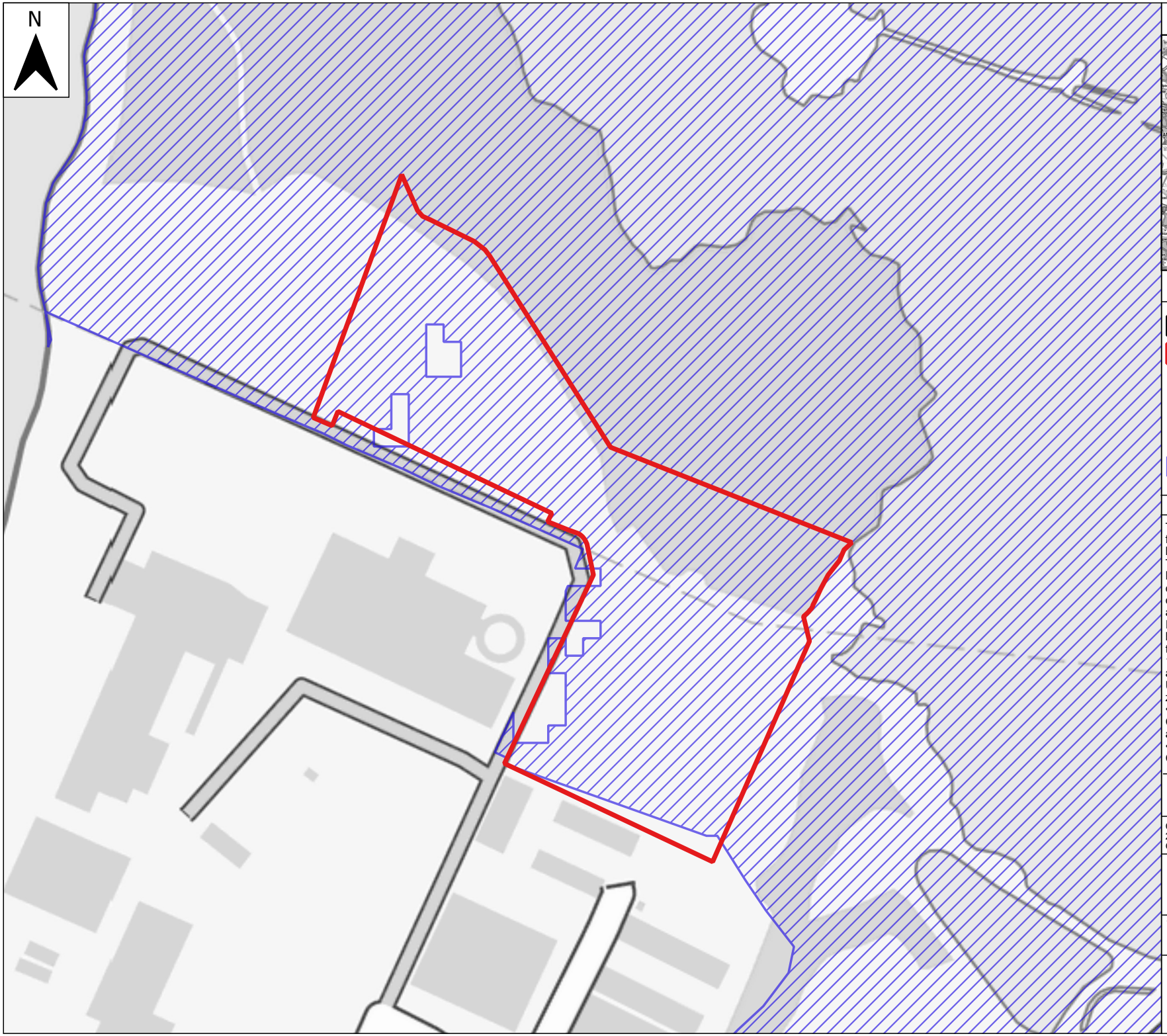
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ENVIRONMENT AGENCY FLOOD WARNINGS AND ALERTS - CFS2024-129

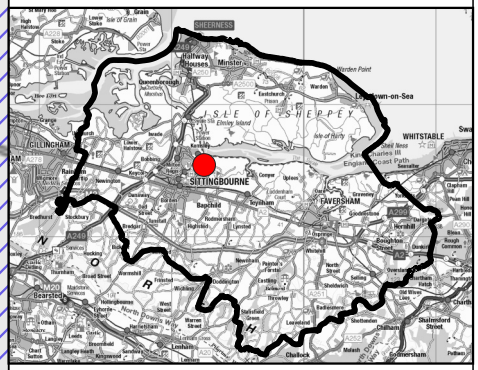
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Location Plan



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).

0 70 140 m

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LEVEL 2 SFRA:
COASTAL CHANGE MANAGEMENT AREAS - CFS2024-129

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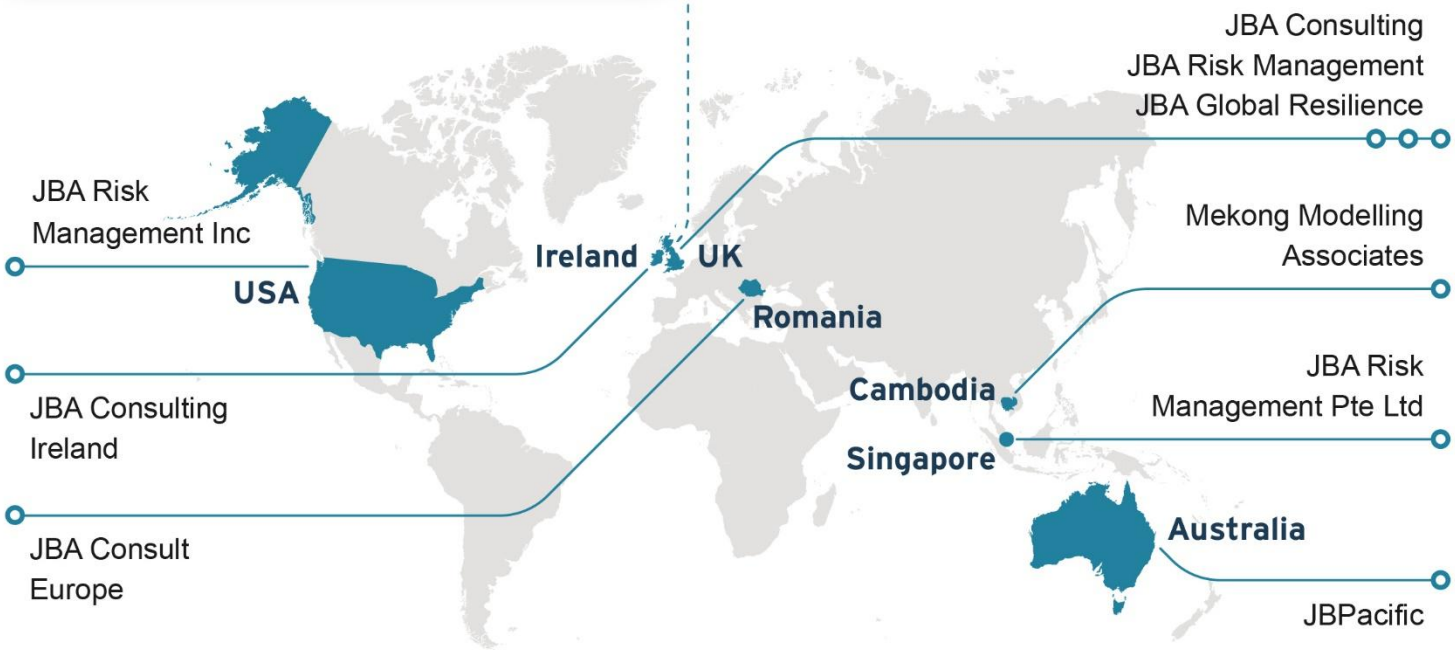
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