

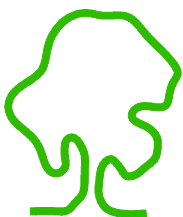
RAINBOW COTTAGE



1 COTTAGE HOMES, TRUSLERS HILL LANE, ALBOURNE,
WEST SUSSEX, BN6 9JL

Flood Risk Assessment

March 2025
(Revised May 2025, July 2025)



eas ltd

Environmental Assessment Services Ltd

REPORT DATA SHEET

Requirement	Data
Report Reference	800/Rainbow Cottage/FRA
Date	March 2025
Client	Lucy Hanson
Report type	Flood Risk Assessment
Revisions	May 2025, July 2025
Prepared by	Xanthe Lyford BSc (Hons)  Signed
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LUCY HANSON

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LUCY HANSON

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Flood Risk Assessment

March 2025 (Revised May 2025, July 2025)

1. INTRODUCTION

- 1.1 Environmental Assessment Services Limited has been instructed to prepare a site-specific Flood Risk Assessment (FRA) in relation to the proposed redevelopment of the existing house at Rainbow Cottage in Truslers Hill Lane, Albourne.
- 1.2 The site lies within an area at risk of surface water flooding and therefore requires a flood risk assessment in support of the planning application.
- 1.3 This FRA is prepared generally in accordance with the Environment Agency's standing advice for carrying out Flood Risk Assessments (available online).
- 1.4 This report has been prepared for the purpose of addressing Local Planning Authority and Environment Agency (EA) concerns in relation to flood risks associated with the proposed redevelopment. It should be appreciated that the potential for flooding at a site depends on many factors, some natural, some man-made and some arising from accident, and that these factors may change substantially over the life of the proposed redevelopment.
- 1.5 The flood risk in this report is based on available information, which is generally catalogued in the report but does not take into account any special risks or requirements of the proposed redevelopment unless we have been specifically informed.

2. EXISTING SITE & PROPOSED REDEVELOPMENT

- 2.1 The site lies within a rural and residential area, located in Truslers Hill Lane, to the west of Albourne, West Sussex. The Ordnance Survey Grid reference for the centre of the site is TQ 24856 17383. The site plan area is approximately 0.3 ha. The site elevation is approximately + 15.4 m OD. See Figure 1 in Appendix A for the site location.
- 2.2 The site currently comprises a semi-detached residential house with a separate garage and workshop/office to the north of the plot. The site is largely laid to lawn with a concrete parking area and access driveway leading to Truslers Hill Lane to the east. See Figure 2 in Appendix A for the site as existing.

- 2.3 It is proposed to redevelop the site by the construction of a single-storey side extension to the north and a two-storey front extension to the east. See Figure 3 in Appendix A for proposed development plans.
- 2.4 According to the BGS Geological Survey (available online), the site lies on Cretaceous Weald Clay Formation - Mudstone. The DEFRA MAGIC site describes the soil at the site as “*Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils*”. The Weald Clay is classified as Unproductive Strata due to its low permeability. It is in an unproductive groundwater vulnerability area and is not in a groundwater protection zone.
- 2.5 The site was visited on 20 March 2025.

3. HISTORY OF FLOODING

- 3.1 Representations to Regulation 19 (Submission Draft) Mid Sussex District Plan 2021 - 2039 (Albourne Parish Council Feb 2024) provides a history of flooding within the area. It states:

“Multiple Albourne residents noted regular flooding surrounding the brook and Truslers Hill Lane”.

See Appendix B for a map of the areas anecdotally flooded within Albourne.

- 3.2 Mid Sussex District Council SFRA dated June 2015 states:

"Numerous records of historical flooding exist in and around Sayers Common predominantly due to poor surface water drainage systems,"

- 3.3 According to the client the surface water drainage ditch adjacent to the site in Truslers Hill Lane was recently dug out and deepened and the culvert enlarged.

4. FLOOD RISK

- 4.1 The EA's Flood Map for Planning shows that the site lies within Flood Zone 1 (Low risk of fluvial flooding, less than 0.1% chance of flooding in any year - Annual Exceedance Probability or AEP). The site is shown to be at Medium-High risk of surface water flooding (up to and exceeding 3.3% per year). Flooding from groundwater or reservoirs is considered unlikely at the site. The Environment Agency released updated flood risk mapping following the new National Flood Risk Assessment (NaFRA2) in early 2025. The updated mapping uses new and improved methods to assess flood risk. See Appendix B for the EA's flood risk maps. The closest watercourse is a tributary of the River Arun to the north of the site on the opposite side of Henfield Road flowing north away from the site.

- 4.2 The EA were originally contacted in March 2025 regarding their flood data for the area (Product 4), there was no available data or modelling for the site. See Appendix C for the Product 4 email.
- 4.3 The Mid Sussex District Council's Flood Risk and Drainage Planning Team have provided an additional surface water flood map labelled 1 in 30 years flood extent. It doesn't concur with the 1 in 30 years map from the Environment Agency's Flood Maps for Planning but appears more similar to the long-term flood risk 2040-2060 Surface Water flood map from the site. The maps from the site were viewed on the 1st May 2025. The most up to date maps from the EA's site, and the map provided by Mid Sussex Council Flood Risk and Drainage team with the proposed development plans overlaid, can be seen in Appendix B and an enlargement below.



- 4.4 From the overlaid and enlarged plans above and the maps in Appendix B it can be seen that the development is not at High Risk of flooding from surface water but at Medium Risk or below. Mid Sussex District Council's Flood Risk and Drainage Team (in line with advice from West Sussex Lead Local Flood Authority) utilise the table below when considering flood risk.

Table from Mid Sussex Councils Drainage Team

<i>Annual exceedance</i>	<i>Flood Zone</i>	<i>Surface Water Flood Risk</i>
<i>Greater than 3.3% (>1:30-year)</i>	<i>3b</i>	<i>High</i>
<i>Between 1% and 3.3% (1:100-year and 1:30-year)</i>	<i>3a</i>	<i>Medium</i>
<i>Between 0.1% and 1% (1:1,000-year and 1:100-year)</i>	<i>2</i>	<i>Low</i>
<i>Less than 0.1% (<1:1,000-year)</i>	<i>1</i>	<i>Very Low</i>

- 4.5 The proposed extensions lie within an area of Medium Risk of surface water flooding but adjacent to an area of High Risk of surface water flooding. Therefore, suitable flood resilient measures will need to be considered in the design of the development.

- 4.6 Other organizations have and are undertaking flood risk assessments within the wider area. Albourne lies within an area covered in the Mid Sussex District Council's Strategic Flood Risk Assessment level 2 (SFRA, 2024).

4.7 Alternative Sources of Flooding

- 4.3.1 It is important to note that flooding is not due simply to river flooding. The Flood Zones (and consequently the application of the Sequential Test to guide development towards areas of lowest risk) are based solely upon the risk of river (or sea) flooding. It is essential therefore that other potential sources of flood risk, including culvert blockage, sewer flooding and surface water flooding are taken into account.
- 4.3.2 An assessment of alternative sources of flooding has also been made from a review of Mid Sussex District Council's Strategic Flood Risk Assessment (SFRA, 2024), Environment Agency (EA) online mapping and the Environment Agency's Flood maps for planning.

4.4 Surface Water Flooding

- 4.4.1 The geology of the catchment area (Weald Clay Formation) typically comprises variable-poor permeability, the soil type being impermeable mudstone which gives rise to rapid river responses during rainfall events. It is possible for culverts and drainage ditches to become blocked and/or inundated with water (due to heavy rain) which may cause localised flooding. Surface water flooding has historically occurred within Albourne and the surrounding area. The Representations to Regulation 19 (Submission Draft) Mid Sussex District Plan 2021 – 2039 (Albourne Parish Council) states:

“The ground is clay, therefore, rainwater cannot drain through the ground, which leads to it pooling in fields. According to the flyer response, this then floods roads and homes around the B2116, Henfield Road, Reeds Lane, Truslers Hill Lane, Cutlers Brook, Twineham Lane, London Road, Meadow View, High Cross and Church Lane.”

- 4.4.2 The EA's Flood Maps for Planning show part of the proposed extension to be at Medium Risk (between 1% and 3.3% chance per year) of surface water flooding but surrounded by an area of High Risk (>3.3% chance per year), especially the north and east of the site where the driveway joins Truslers Hill Lane and the rear garden area. For the purposes of this assessment, the site is therefore assumed to be at Medium-High risk of surface water flooding (up to and exceeding 3.3% chance per year). This is considered to be an equivalent to Flood Zone 3. The owners of the site stated that the drainage ditch in the lane has been recently dug out to alleviate the surface water flooding and the culvert adjacent to the site entrance has been enlarged. See Figure 4 in Appendix A for pictures of the drainage ditch and culvert. See Appendix B for the EA surface water flood and the 'long-term' risk flood maps.

- 4.4.3 Surface water risk should be considered in terms of the proportion of the site at risk in this case the higher level of flood risk is expected to lie largely to the north and east of the site in the garden areas and along the access driveway.

4.5 Sewer Flooding

There is no public sewer in the adjacent roads and no history of sewer flooding at the site.

4.6 Groundwater Flooding

The EA's flood data website states that flooding from groundwater is unlikely in this area. The site is not in a groundwater vulnerability area or within a groundwater protection zone. We are not aware of any historical groundwater flooding at the site.

4.7 Reservoir Flooding

We are not aware of any artificial waterbodies within the wider area (such as reservoirs) that may pose a potential threat of flooding to the site. The EA's flood data website states that flooding from reservoirs is unlikely in this area.

4.8 Climate Change

- 4.8.1 The frequency and intensity of rainfall events may increase in the future as a result of climate change. Higher intensity rainfall is likely to increase the risk of fluvial, surface water and groundwater flooding at and within the vicinity of the site.
- 4.8.2 The most recent climate change guidance at the time of the Level 1 SFRA was published by the Environment Agency on 19 February 2016 and last updated in July 2020. This guidance supports the NPPF and must be considered in all new developments and planning applications. The guidance includes climate change predictions of anticipated change for peak river flow and peak rainfall intensity.
- 4.8.3 In this case, the proposed development site lies within Flood Zone 1, Low risk of fluvial flooding, but with a Medium-High risk of surface water flooding (up to and exceeding 3.3% chance per year). Results from detailed modelling were used to define the Upper End and Higher Central climate change allowances for the River Adur and its tributaries. Results mostly show a trend of only a small increase in the area of land at risk from a 1% AEP (Flood Zone 3a) event in the future compared to the current extent. This would indicate that the site will remain in Flood Zone 1 and with Medium - High Risk of surface water flooding for the lifespan of the proposed redevelopment.
- 4.8.4 The EA's Flood Maps for Planning site gives long-term predictions for Surface water flooding in the form of projected flood levels for 2040-2060. These can be seen in Appendix B alongside a map provided by Mid Sussex District Council Flooding and Drainage team with the proposed development plans overlaid.

4.8.5 The Adur Catchment Flood Management Plan states:

“There is currently a relatively low risk from river flooding in this subarea, however a combination of surface water flooding, urban drainage problems and under capacity of local streams causes localised areas of combined fluvial and urban flooding.”

- 4.8.6 Surface water risk should be considered in terms of the proportion of the site at risk in the 30-year, 100-year or 1,000-year return period events, whether the risk is due to isolated minor ponding or deeper pooling of water, or whether the risk is due to a wider overland flow route. In this case the water is expected to lie largely around the boundaries of the site and the area of the driveway and front and rear gardens to the north and east. The EA’s flood maps for planning website shows the modelled maps for the predicted future surface water flood events taking climate change into account (See Appendix B). There is minimal increase in the 1 in 30-year and 1 in 100-year events with the 1 in 1000-year showing a marked increase in the area flooded. As such, the risk to the property from surface water flooding is not expected to increase significantly within the lifetime of the development (100 years). The property and its residents are not expected to be directly impacted by flood waters and, as the proposed development does not have any ground floor bedrooms, the risk to the occupiers remains minimal.

5. PLANNING STATUS WITH RESPECT TO FLOODING

- 5.1 The extent to which information relating to flood risk required at a site is presently based on the level of ‘Flood Risk’ at the proposed development site (i.e. how likely an area is to flood), and the ‘vulnerability’ of the proposed development/future site users to flooding. The proposed extension is adjacent to an area of High Risk from surface water flooding. As it is a residential development it is considered to be ‘more vulnerable’.
- 5.2 It is considered that the Sequential Test is satisfied, as the development is extending an existing residential building with no ground-floor bedrooms in the proposed design. The site lies within Flood Zone 1 and residential development is classified as “more vulnerable”. More vulnerable development is deemed to be appropriate for Flood Zones 1 and 2 under current guidance. There is no need to apply the Exception Test.
- 5.3 The risk to property and future site users from fluvial flood waters is considered in the following sections of the report, together with an assessment of the likely impact of the proposed redevelopment on flood risk elsewhere. Where appropriate, recommendations to reduce the flood risk have been given.

6. RISKS TO PROPERTY

- 6.1 As established, the site lies within Flood Zone 1 (Low risk from fluvial sources) and at High Risk of surface water flooding.
- 6.2 The site is relatively flat, with a slight incline towards Truslers Hill lane to the east. The direction of flow in the surrounding ditches and watercourses (northwards towards the tributary of the River Adur, as seen at the time of visit) suggests that surface runoff would flow east towards the drainage ditch in the lane, then flow northwards before joining the tributary. There is a long-term risk from surface water flooding, the site is in an area of Medium-High risk of surface water flooding (up to and exceeding 3.3% chance per year). However, the EA's flood maps for planning site states that the site is and will remain at very low risk of surface water flooding at depths of 20 cm, 30 cm and 60 cm in the 2040-2060 scenario.
- 6.3 The redevelopment of the site is considered likely to slightly increase the impermeable area of the site as the area to be developed at the front is currently laid to lawn. The area to be developed at the side is already non-permeable paving. This could be reduced by the use of permeable paving in the paths and paved areas across the site, installing a rain garden and rainwater harvesting with water butts on drainpipe downpipes to be used for garden irrigation.
- 6.4 As residential developments are considered 'more vulnerable' it is recommended that the finished ground floor level of the building is elevated at least 0.3 m above the existing ground level in order to provide some level of resilience and protection to property from any potential flooding. It would appear that the existing floor level probably meets this requirement. However, it may not be practicable to vary from the existing floor level to avoid an internal step. It is also recommended that the electrical sockets are raised to a level of 0.3 m above floor level and the construction to be of flood resistant materials.
- 6.5 Measures that could be incorporated into the design to reduce the amount of time the building could be left unusable should an extreme flood event occur include resilient measures that aim at avoiding structural damage by:
- Using materials with low permeability to at least 0.3 m (300 mm) above floor level.
 - Making it easy for water to drain away after flooding.
 - Making sure there is access to all spaces to enable drying and cleaning.
 - Raised levels of electrical sockets on the ground floor.
 - Installing flood resistant furniture in the ground floor rooms.
- 6.6 Materials and detailing for new dwellings should comply with good practice for flood resilient structures, as set out in '*Improving Flood Performance of New Buildings; Flood Resilient Construction*', CIRIA May 2007.

7. RISKS TO OCCUPIERS

- 7.1 Factors affecting the likely risks to users from flooding include (but are not limited to) the predicted flood depth, velocity of flood waters, rate of onset of flooding and the duration of flooding. Other factors affecting the risk to future site users include the vulnerability of future site users.
- 7.2 From what is presently known, site users are considered to be at a Low risk (less than 0.1% chance of flooding from rivers). However, the EA's Flood Maps for Planning show the site to be at Medium-High risk of surface water flooding in places (up to and exceeding 3.3% chance per year), most notably adjacent to the proposed extension. The residence does not have any history of flooding, and the surface flood waters at the site are not considered likely to encroach on the boundaries of the building. The areas shown to be at higher risk of flooding lie to the north and east of the site in the front and rear gardens and driveway connecting to Truslers Hill Lane. There are no bedrooms in the proposed extensions.
- 7.3 As such, should an extreme flood event occur in which the area of Truslers Hill Lane experienced surface water flooding, the residents would remain safe within the house. The property and its residents are not expected to be directly impacted by the flood waters and, as the proposed development does not have any ground floor bedrooms, the potential for risk to the occupiers remains at a minimum. Should the residents need to leave the property they would have to head south or along Truslers Hill Lane through waters up to 0.3 m deep to reach dry land. (See flood maps Appendix B).

8. LIKELY IMPACT ON FLOOD RISK ELSEWHERE

- 8.1 The proposed redevelopment of the site is considered to have some potential to increase flood risk elsewhere as one of the areas to be developed (the front portion) is currently laid to lawn (the other being already paved hard standing) and the proposed work will increase the impermeable area.
- 8.2 The proposed development involves the construction of a single-storey side extension to the north and a two-storey front extension to the east. Approximate increase in surface area 17 m². See Appendix A Figure 3 for the proposed development.
- 8.3 It is assumed that the surface water from the proposed extensions is to be drained into a soakaway or attenuation storage with a controlled flow discharge into the ditch to the east/rear of the site in Truslers Hill Lane and flowing north towards the River Adur tributary. At the time of our visit the drainage ditch to the east was approximately 0.8 m deep and had some flow in it. The ditch had recently been deepened and the culvert at the site enlarged to mitigate any flood risk from surface waters. See Figure 4 in Appendix A for photographs of the existing drainage ditch and culvert.

- 8.4 It can safely be assumed that the very minor increase in flood risk downstream (approximately 17 m²) by the construction of the extension can be mitigated in part by the digging out and improving of the drainage ditch already undertaken by the homeowner, and in part by the SuDS measures incorporated into the design, i.e. the use permeable paving in the driveway. Water butts could be added to the drainpipe downpipes to be used for garden irrigation.

9. SUMMARY & RECOMMENDATIONS

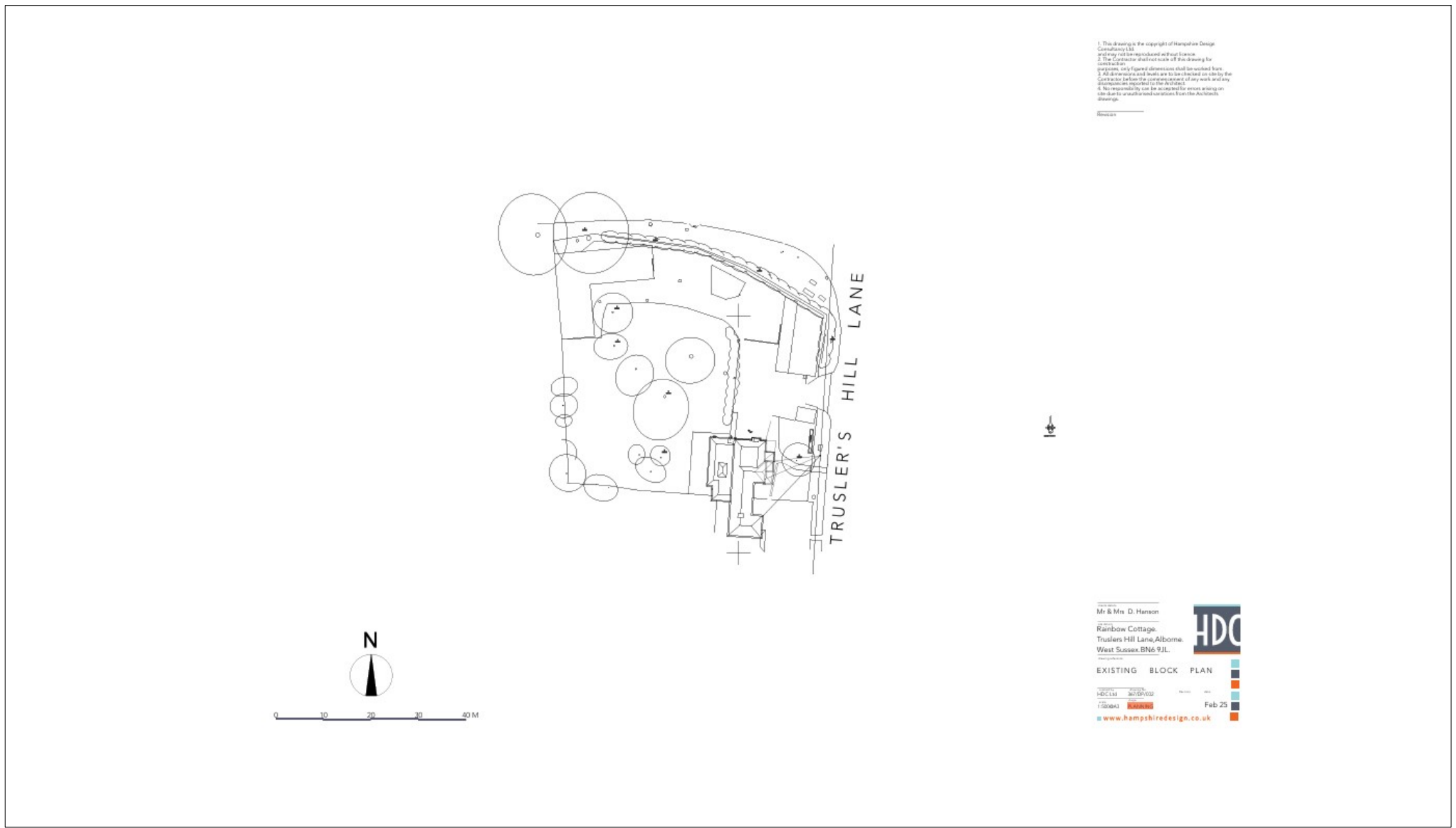
- 9.1 The site currently comprises a semi-detached residential house with a separate garage and workshop to the north of the plot. The site is largely laid to lawn with a concrete parking area and access driveway leading to Truslers Hill Lane to the east. It is proposed to redevelop the site by the construction of a single-storey side extension to the north and a two-storey front extension to the east. See Appendix A Figure 3 for the proposed development.
- 9.2 The site lies within Flood Zone 1 (Low risk of flooding from fluvial sources, less than 0.1 % chance of flooding in any year) and a Medium-High risk of flooding from surface water (up to and exceeding 3.3% chance per year). The area of the development is at Medium Risk of surface water flooding (between 1% and 3.3% chance per year) but adjacent to areas of High Risk (>3.3% chance per year). The risk of flooding arises from the potential for flash flooding after extreme rainfall due to the impermeability of the Weald Clay soil and the overspilling of the drainage ditches. The areas of the site at risk from surface waters lie to the north and east in the garden areas and the driveway to Truslers Hill Lane. According to the owners, the drainage ditch had recently been deepened and the culvert enlarged (seen at the time of our visit) in order to alleviate the risk of surface water flooding to the site. See Appendix B for the latest Flood Risk maps from the EA's site and a map provided by Mid Sussex District Council for 1 in 30 Surface water with the proposed development plans overlaid (showing the development to be lying in a Medium Risk area of surface water flooding but adjacent to a High Risk area).
- 9.3 A site-specific Flood Risk Assessment has been prepared in order make an assessment of the likely risk of flooding at the site from all (foreseeable) sources of flooding, and to make an assessment of the likely risk posed to property and site users, and the likely impact on flood risk elsewhere as a result of the proposed development of the site. This assessment also includes, where appropriate, recommendations to reduce the risk and improve existing drainage at the site.
- 9.4 The site lies in Flood Zone 1, is presently developed for residential use with other residential buildings adjacent to the site. As the development is only an extension of the existing building, and there are no ground-floor bedrooms in the proposal, it would therefore be safe to assume that the Sequential Test is satisfied and there would be no need to apply for the Exception Test.

- 9.5 The redevelopment of the site will increase the areas of impermeable surfacing within the site as one of the areas to be developed is currently laid to lawn. The use of permeable paving in the paths and paved areas would reduce the surface water runoff.
- 9.6 Measures to protect the structure of the building, and to reduce the time period that the property is unusable following an extreme flood event, should also be incorporated into the design of the proposed extensions as a precautionary approach, to include raised floor level (if practicable), raised electrical sockets and construction finishes to be of flood resistant materials up to a level of 0.3 m above floor level (see paragraph 6.5).
- 9.7 In conclusion, the risk of flooding of the existing and proposed extended building would appear to be low. The proposed redevelopment of the site should not significantly impact flood risk elsewhere.

☆☆☆☆☆☆

APPENDIX A :

- Figure 1 : Site Location
- Figure 2 : Site as Existing
- Figure 3 : Proposed Plans
- Figure 4 : Photographs



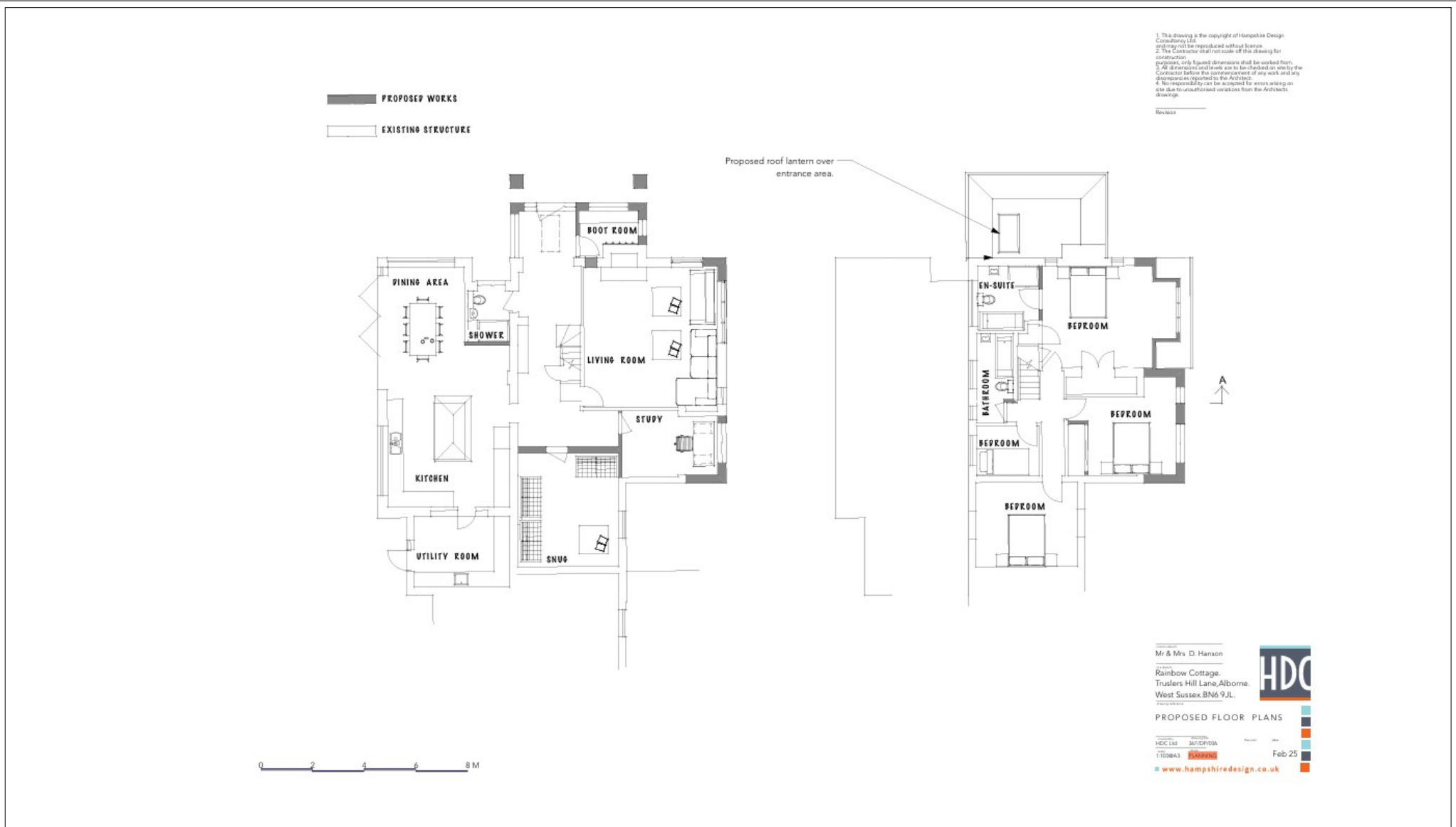
Rainbow Cottage

1 Cottage Homes, Truslers Hill Lane, Albourne,
West Sussex, BN6 9JL

Figure 2: Site As Existing

Scale as shown

March 2025



Rainbow Cottage
1 Cottage Homes, Truslers Hill Lane, Albourne,
West Sussex, BN6 9JL
Figure 3: Proposed Development

Scale as shown

March 2025

Figure 4: Photographs

Front elevation



Side elevation



Parking area showing surface water strip drains



Drainage Ditch to the near/west side of Truslers Hill Lane



Culvert in Truslers Hill Lane



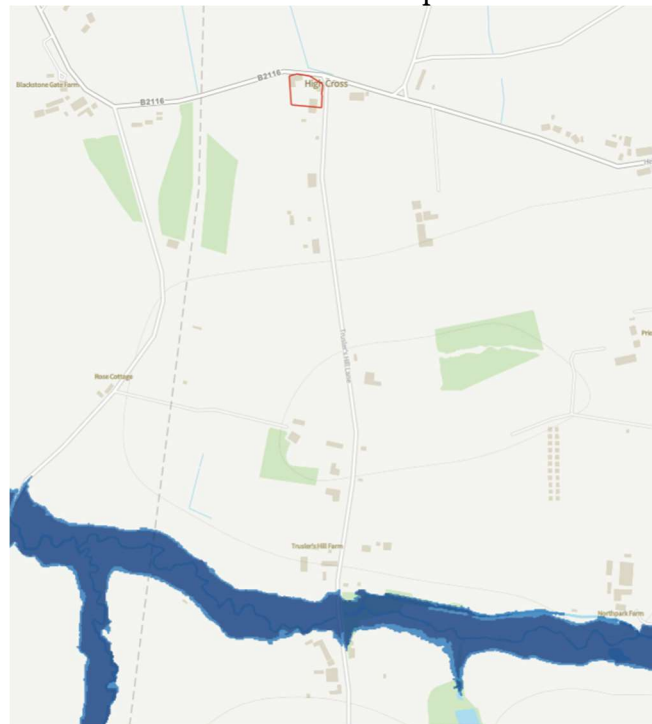
Drainage Ditch to the far/east side of Truslers Hill Lane



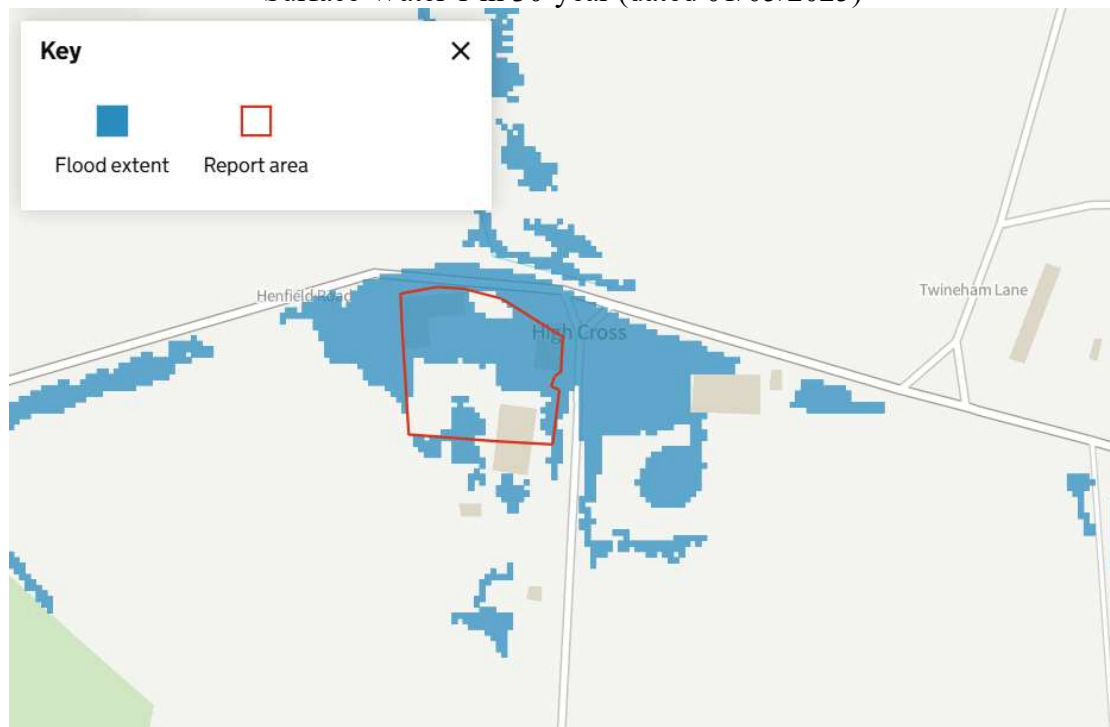
APPENDIX B:

ENVIRONMENT AGENCY FLOOD MAPS

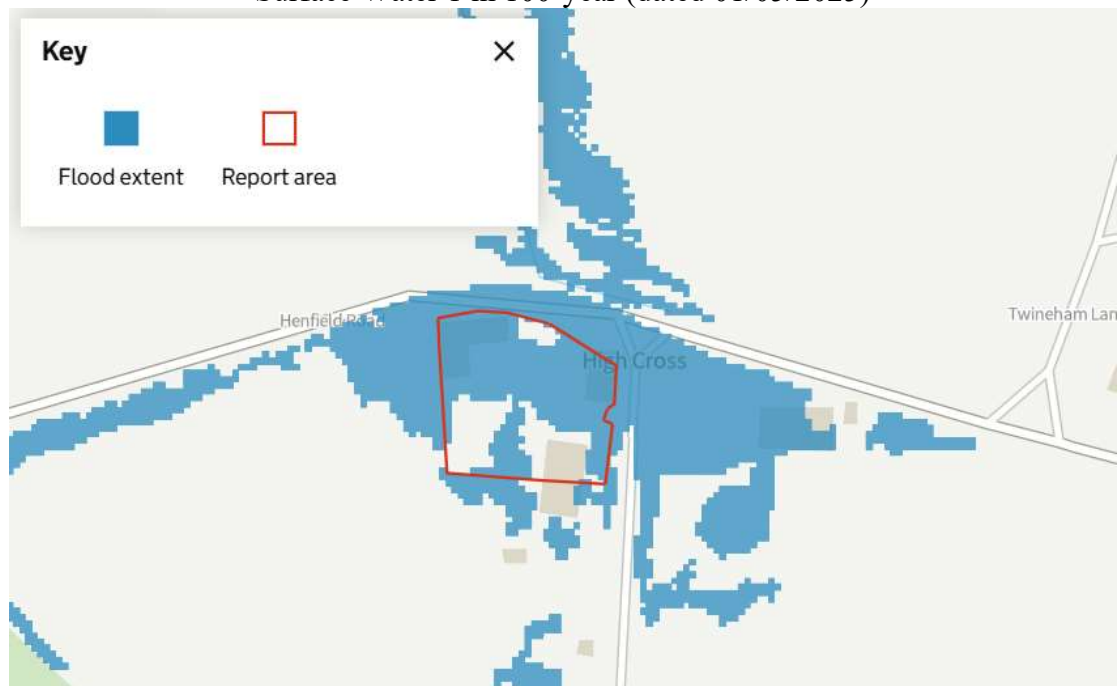
Flood zone map



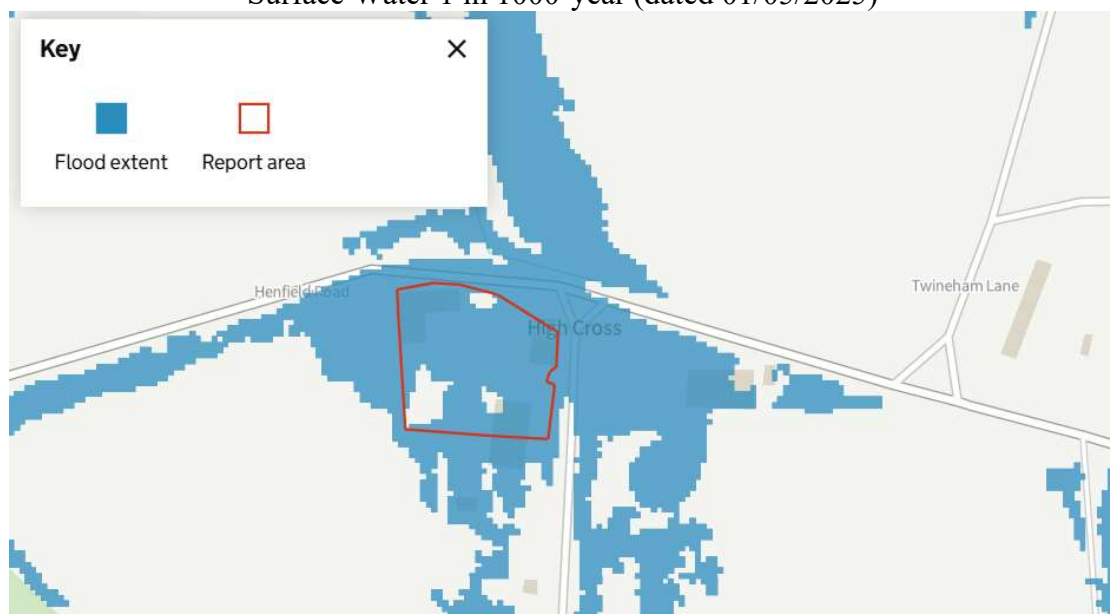
Surface Water 1 in 30-year (dated 01/05/2025)



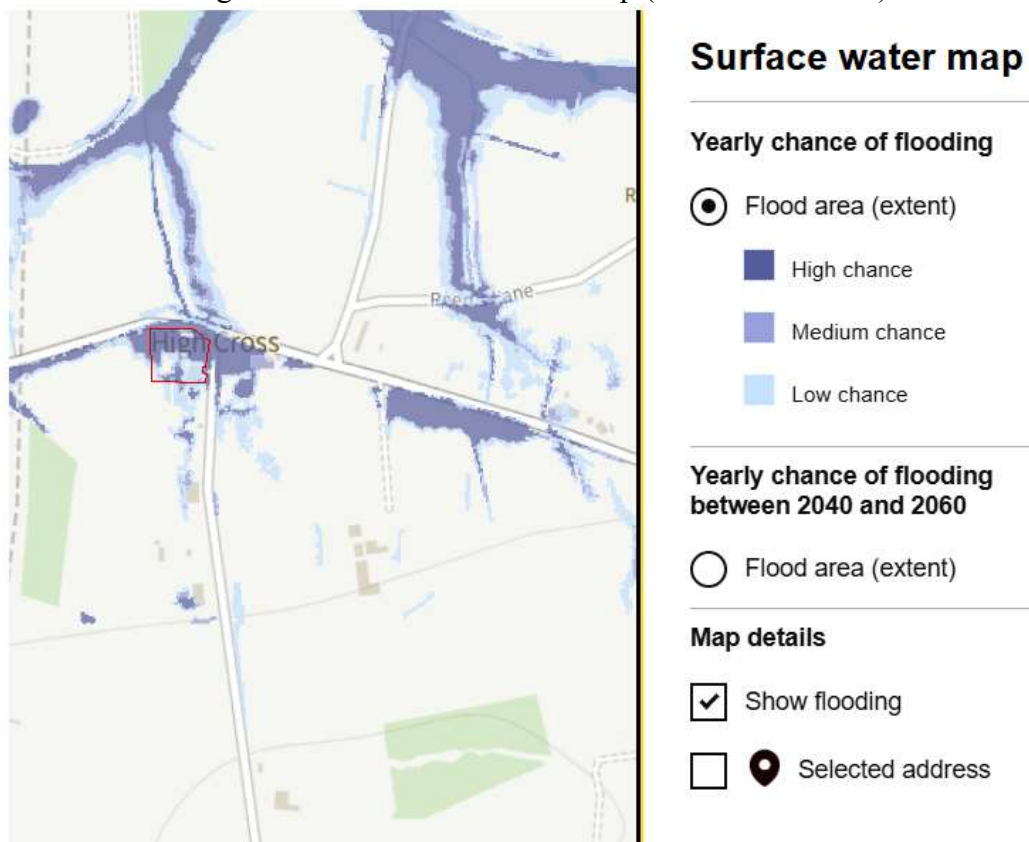
Surface Water 1 in 100-year (dated 01/05/2025)



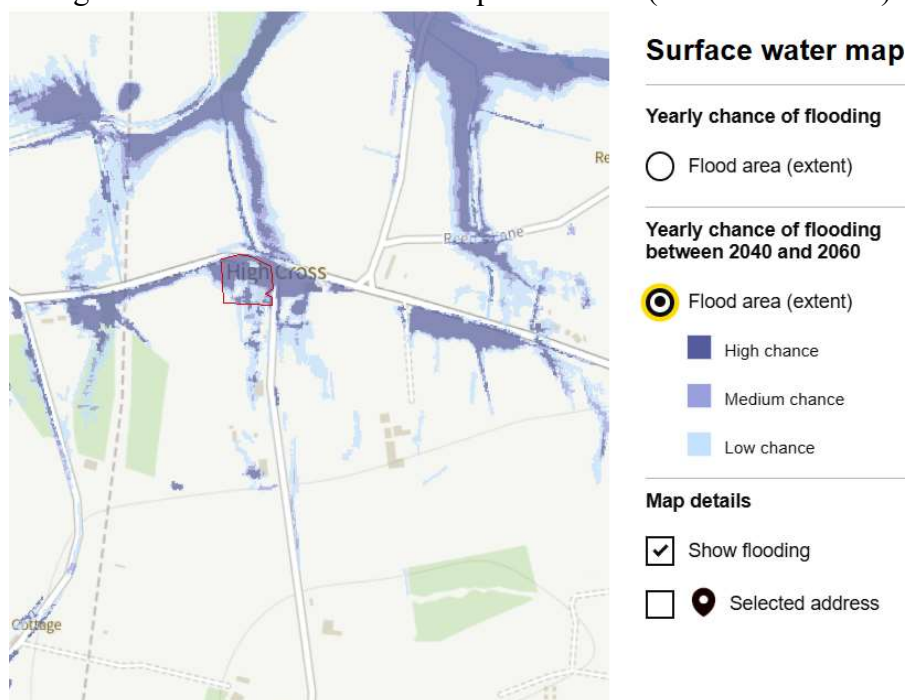
Surface Water 1 in 1000-year (dated 01/05/2025)



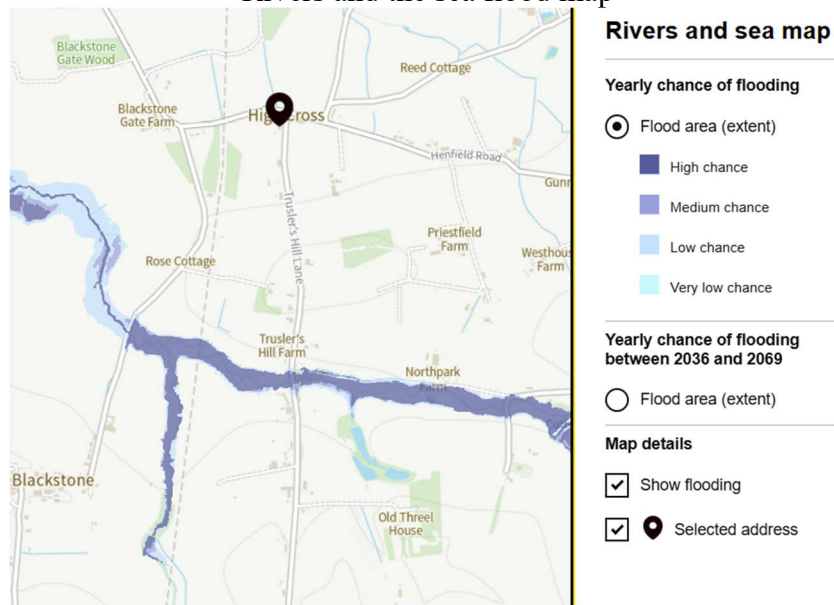
Long-Term Surface water flood map (dated 01/05/2025)



Long-Term Surface water flood map 2040-2060 (dated 01/05/2025)



Rivers and the sea flood map



Historic Flooding Map Albourne

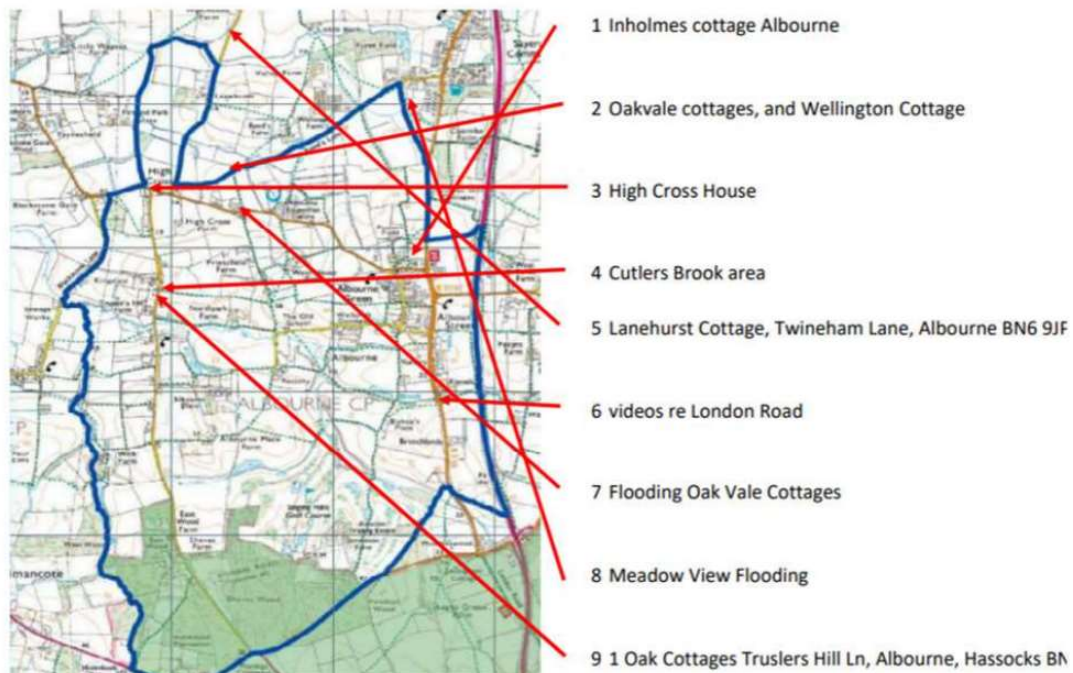


Figure 9: Locations of Flooding in Albourne

(Map taken from Representations to Regulation 19 Mid Sussex District Plan 2021 - 2039 - Albourne Parish Council Feb 2024)

Surface Water Flood Map Provided by Mid Sussex District Council with the proposed development overlaid



APPENDIX C: EA PRODUCT 4 EMAIL

GOV.UK

Dear Xanthe Lyford,

Thank you for ordering flood risk data.

Location searched for:bn6 9jl.

Location data requested for: 524840,117389 easting and northing coordinates.

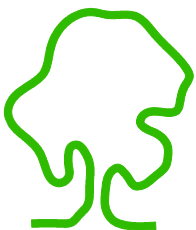
We do not have any flood risk data for this location.

However, flooding may have happened here in the past, as our records are not comprehensive.

Why do we not have data for this location?

We do not hold any detailed flood modelling data for your site, as it is not within 150 metres of an area at risk of flooding from rivers or the sea.

We do not hold records of historical flood events from rivers or the sea affecting the area local to this site.



eas ltd

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