

MONSON

Structural Engineering
Roads & Car Parks
Traffic & Flood Risk Assessments
Water & Drainage Engineering
Technical Audits & Assessments

**GLYNDE STATION
STATION ROAD
BEDDINGHAM
LEWES
EAST SUSSEX**

**PROPOSED RESIDENTIAL
DEVELOPMENT**

FLOOD RISK ASSESSMENT

Issue: A
Date: 22nd June 2019
Author: J. Finch
Verified by L.G. Leslie
Job No: 9000F



Registered No. FS 37624

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1.00 Introduction

- 1.01 Monson Engineering have been requested to provide a Flood Risk Assessment for a Residential Development located at Glynde Station, Station Road, Beddingham, Lewes, East Sussex, BN8 6RU. The Site Location Plan can be seen in the Appendices.
- 1.02 This site is situated within Flood Zone 2, and is therefore required to have a flood risk assessment submitted to the local planning authority in support of the planning application to demonstrate its safety in times of flood.
- 1.03 This Flood Risk Assessment will conform to Planning Practice Guidance – Flood Risk & Coastal Change (2016), the National Planning Policy Framework and Technical Guidance in relation to flood risk which was also published in 2018.

2.00 Development Description and Location

2.01 The development proposal consists of 1 no. Class C3 (Residential House) which will be situated just outside the village of Glynde. The Development Proposals may be seen in the appendices.

2.02 The flood risk vulnerability classification for this type of development in this location is considered as More Vulnerable which is defined in Table 2 of the Technical Guidance to the National Planning Policy Framework as seen below:

Table 3: Flood risk vulnerability and flood zone ‘compatibility’

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	*	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	*	*	*

Key: ✓ Development is appropriate.
 * Development should not be permitted.

2.03 As set out in the National Planning Policy Framework, the aim of the Sequential Test is to direct new development to areas with the lowest probability of flooding.

2.04 The starting point to the Sequential Test is the Flood Zones, which can be seen in the Flood Maps for Planning, found in the appendices. The map clearly shows Zones 2 and 3, whereas Zone 1 is the remainder of the land not hatched.

2.05 These flood zones refer to the probability of river and coastal flooding, ignoring the presence of any existing flood defences.

- 2.06 The Strategic Flood Risk Assessment for Lewes District Council refines the information on the probability of flooding and also takes into account other sources of flooding, for example, Highways, and Public Sewers, Groundwater etc.
- 2.07 The proposed development is situated within Zone 2 and is not an allocated site in the local plan, however it is highly unlikely that there are any other sites with this kind of character and setting as the proposed location.
- 2.08 If the Sequential Test cannot be passed, the Exception Test will be required to demonstrate the developments safety in times of flood.

3.00 Definition of the Flood Hazard

3.01 For the preparation of this Flood Risk Assessment it is necessary to consider all of the potential sources of flooding and how this may affect the site. A checklist has been provided below to help identify these areas which can be discussed in greater detail in this section.

Possible Source of Flooding	Applicable to this Site?
Fluvial Flooding from nearby rivers or streams	<input checked="" type="checkbox"/>
Coastal Flooding	<input type="checkbox"/>
Surface Water Runoff from the Site, Adjacent or Nearby Land	<input type="checkbox"/>
Flooding from Surface Water Sewers	<input type="checkbox"/>
Flooding from Foul Water Sewers	<input type="checkbox"/>
Flooding from Reservoirs	<input type="checkbox"/>
Flooding from Groundwater	<input type="checkbox"/>
Flooding from other Sources	<input type="checkbox"/>

3.02 There is a fluvial flood risk to the proposed site, as it is approximately 90m south of the Glynde Reach, however the Environment Agency and the Strategic Flood Risk Assessment have no record of this site ever flooding. The Glynde Reach has both tidal and fluvial areas of the river, however the proposed development is in the fluvial zone of the river. The tidal influence to the Glynde Reach ceases approximately 1,500m downstream of the proposed development.

3.03 There is no coastal flood risk associated with this site, as the tidal influence of the river Ouse and Glynde Reach ceases 1,500m downstream of the proposed site.

3.04 There are no overland surface water flood risks to the site. This is confirmed by the Environment Agency and in their mapping provided.

3.05 There are no surface water sewers in the vicinity of the proposed site.

3.06 There are no recorded flooding incidents according the Strategic Flood Risk Assessment by Lewes District Council.

- 3.07 There is no flood risk to this site in relation to reservoirs.
- 3.08 There are no expected groundwater flood risks associated with this site.
- 3.09 There are no other sources of flooding deemed as a risk to this application site.

4.00 Probability

- 4.01 The proposed development is situated within Zone 2 which can be seen in the Flood Map for Planning, contained in the Appendices.
- 4.02 The District Council for this area have prepared a Strategic Flood Risk Assessment which refines the information provided in relation to flood risk. This is a publicly available document from the council website.
- 4.03 Based on the Information provided in both the Flood Maps for Planning and the Strategic Flood Risk Assessment, the probability of a flood event may be taken as Zone 2 – Medium Probability.

5.00 Climate Change

- 5.01 The climate change allowance for rainfall has been taken as 20% which is the revised upper limit for rainfall in England up to the year 2070. This is based on the current climate change guidance from the Environment Agency published in February 2016, which has been included in the appendices.

6.00 Detailed Development Proposals

- 6.01 The development proposal consists of 1 no. Class C3 (Residential House) which will be situated just outside the village of Glynde. The Development Proposals may be seen in the appendices.
- 6.02 The proposals show the dwelling, which can be set at a slightly higher level than usual, to account for the zone 2 fluvial flood risk. It is suggested that the ground floor level is set at 4.6mAOD, which keeps the house well above any potential overland flow paths.
- 6.03 Details and any other relevant information relating to the development proposals can be found in the appendices.

7.00 Flood Risk Management Measures

- 7.01 In order to effectively manage any site specific flood risk, it may be necessary to introduce mitigation measures to help eliminate or reduce the impact of flooding.
- 7.02 The potential flood risk from off-site surface water flows have been disproven through observation of the photographs showing the land contours, therefore no specific mitigation should be necessary in this respect.
- 7.03 It is unlikely that there will be any risk of surface water flooding post development, however as a safeguard to the properties within the development, the finished floor levels shall be set at a minimum of 150mm above the external ground levels.
- 7.04 Manual or automatic covers for air bricks should be installed to prevent ingress of water into the cavity wall.
- 7.05 Full port non-return valves to should be installed in the ground floor toilets to prevent back flow into the property.
- 7.06 Property owner should consider installing external flood resilience doors or portable door barriers.
- 7.07 The existing external ground levels are between 3.0mAOD and 4.4mAOD. The Ground Floor Slab has been proposed at 4.6mAOD.
- 7.08 The electrical circuitry for the dwellings should also be installed at a minimum of 900mm above the ground floor slab level to ensure adequate freeboard above any potential flood.
- 7.09 The new proposals for the dwellings will comprise concrete suspended ground floors with appropriate voids/vents for any transmission of flood water passing through, or for the purposes of dissipating any groundwater rising, preventing any seepage through the floor slab. These will be detailed in the Architectural working drawings.

- 7.10 Property owner should sign up to the EA's flood line to receive information and flood warnings by email and text. So that safe access and egress can be planned, prior to rising floodwater approaching the property, should it be necessary.
- 7.11 All other possible flood risks relating to the proposed development will be managed by use of Sustainable Urban Drainage Systems (SUDS), which will be explained in greater detail in a Site Specific SUDS Strategy.

8.00 Off Site Impacts

8.01 There are no foreseen impacts to neighbouring properties or the surrounding area in relation to flood risk as a result of the proposed development.

9.00 Residual Risks

9.01 There are no foreseen residual risks relating to the proposed development following the implementation of the flood risk management measures and ongoing maintenance of the SUDS Systems intended for the application site.

10.00 Conclusion

- 10.01 Monson Engineering have been requested to provide a Flood Risk Assessment for a Residential Development located at Glynde Station, Station Road, Beddingham, Lewes, East Sussex, BN8 6RU. The Site Location Plan can be seen in the Appendices
- 10.02 This site is situated within Flood Zone 2, and is therefore required to have a flood risk assessment submitted to the local planning authority in support of the planning application to demonstrate its safety in times of flood.
- 10.03 The development proposal consists of 1 no. Class C3 (Residential House) which will be situated just outside the village of Glynde. The Development Proposals may be seen in the appendices.
- 10.04 The flood risk vulnerability classification for this type of development in this location is considered as More Vulnerable which is defined in Table 2 of the Technical Guidance to the National Planning Policy Framework.
- 10.05 The proposed development is situated within Zone 2 which can be seen in the Flood Map for Planning, contained in the appendices.
- 10.06 Based on the Information provided in both the Flood Maps for Planning and the Strategic Flood Risk Assessment, the probability of a flood event may be taken as Zone 2 – Medium Probability.
- 10.07 There is a fluvial flood risk to the proposed site, as it is approximately 90m south of the Glynde Reach, however the Environment Agency and the Strategic Flood Risk Assessment have no record of this site ever flooding. The Glynde Reach has both tidal and fluvial areas of the river, however the proposed development is in the fluvial zone of the river. The tidal influence to the Glynde Reach ceases approximately 1,500m downstream of the proposed development.
- 10.08 It is unlikely that there will be any risk of surface water flooding post development, however as a safeguard to the properties within the development, the finished floor levels shall be set at a minimum of 150mm above the external ground levels.

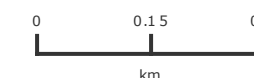
- 10.09 All other possible flood risks relating to the proposed development will be managed by use of Sustainable Urban Drainage Systems (SUDS), which should be explained in greater detail in a Site Specific SUDS Strategy.
- 10.10 There are no foreseen residual risks relating to the proposed development following the implementation of the flood risk management measures and ongoing maintenance of the SUDS Systems for the site.
- 10.11 On the basis of the findings of this report, it is recommended that no objections should be raised to the development proposals on the grounds of flood risk.

Appendix A - Site Location Plan

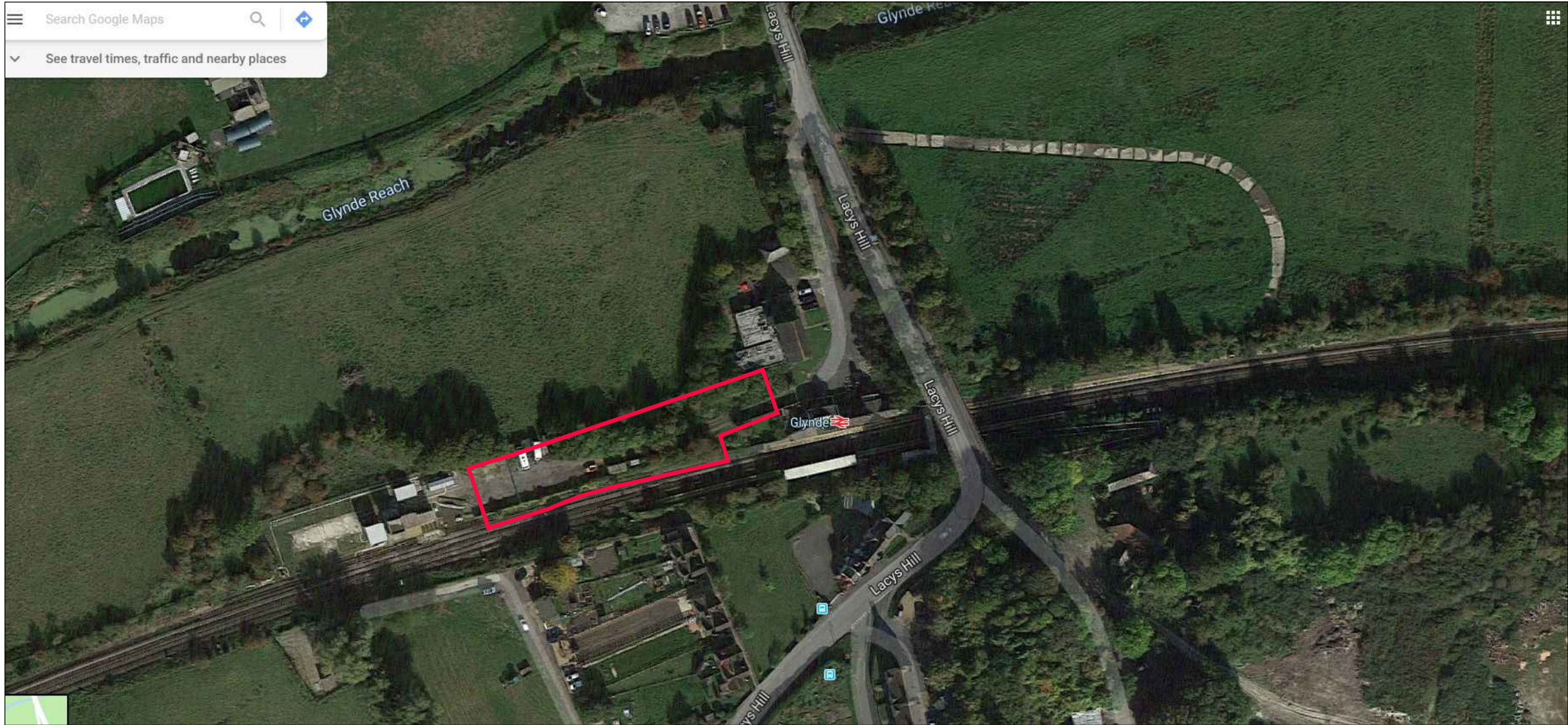


(c) Crown Copyright and database rights 2019. Ordnance Survey 100022861.

Projection = OSGB36
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 ymin = 107900
 xmax = 547300
 ymax = 109600

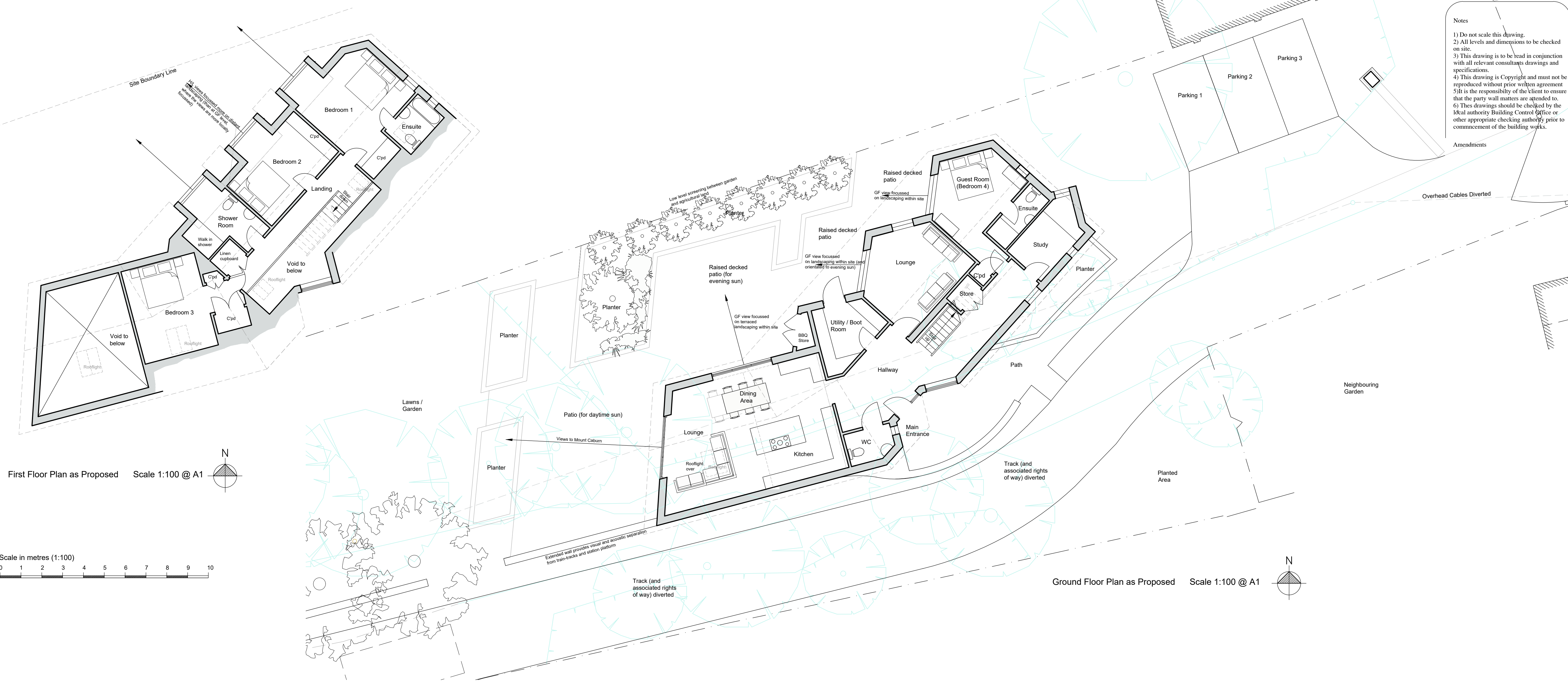


Map produced by MAGIC on 3 June, 2019.
 Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.



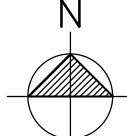
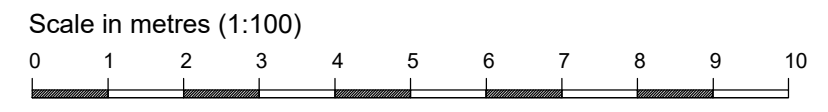
Appendix B - Development Proposals

- Notes
- 1) Do not scale this drawing.
 - 2) All levels and dimensions to be checked on site.
 - 3) This drawing is to be read in conjunction with all relevant consultants drawings and specifications.
 - 4) This drawing is Copyright and must not be reproduced without prior written agreement.
 - 5) It is the responsibility of the client to ensure that the party wall matters are attended to.
 - 6) These drawings should be checked by the local authority Building Control Office or other appropriate checking authority prior to commencement of the building works.

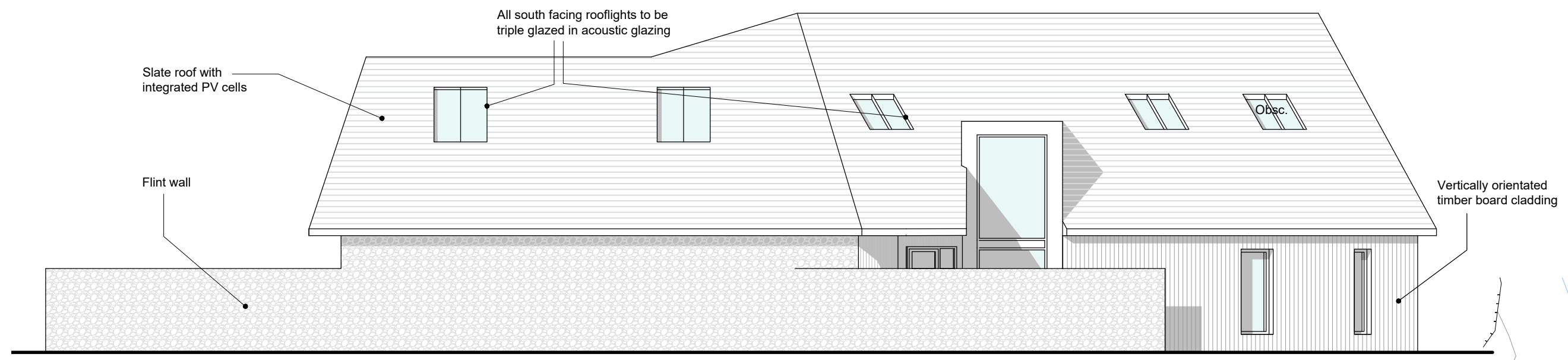


First Floor Plan as Proposed Scale 1:100 @ A1

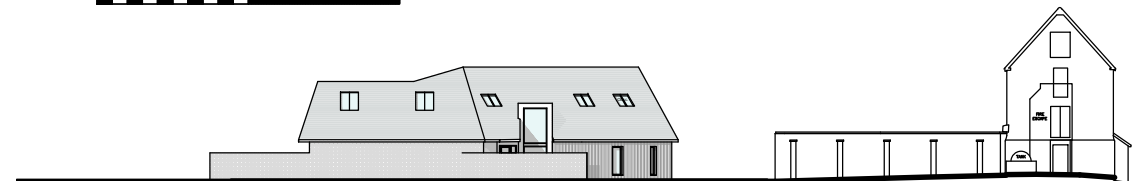
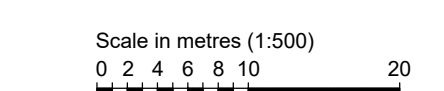
Ground Floor Plan as Proposed Scale 1:100 @ A1



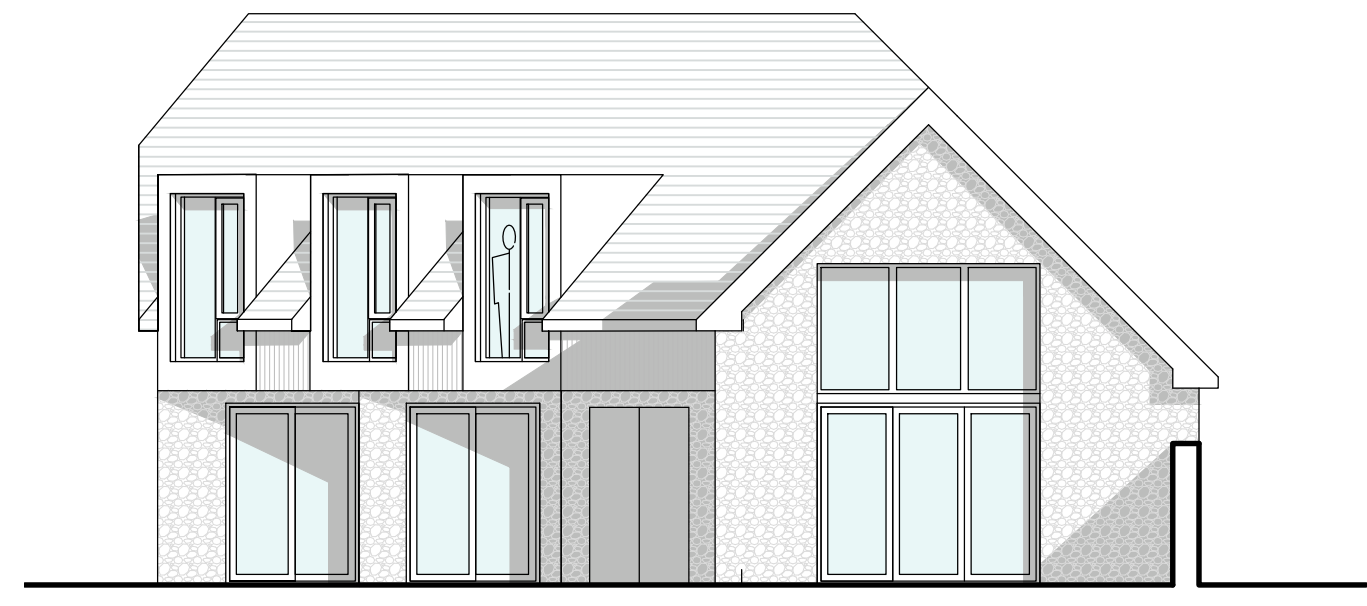
North Elevation as Proposed Scale 1:100 @ A1



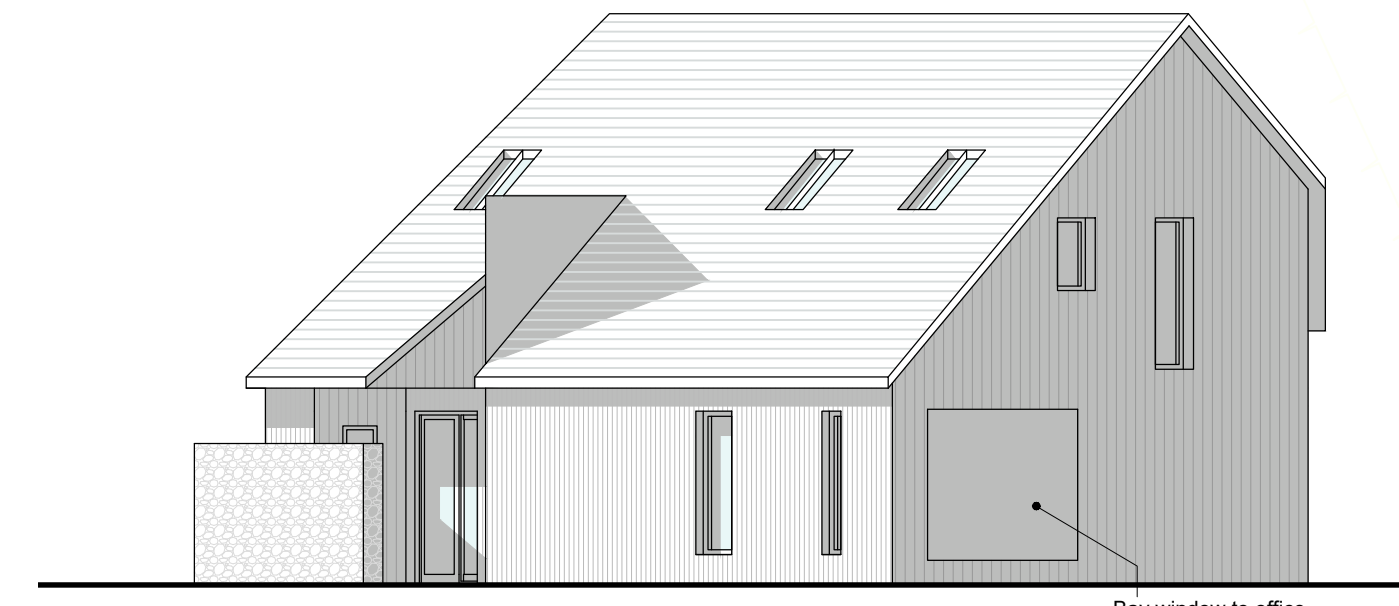
South Elevation as Proposed Scale 1:100 @ A1



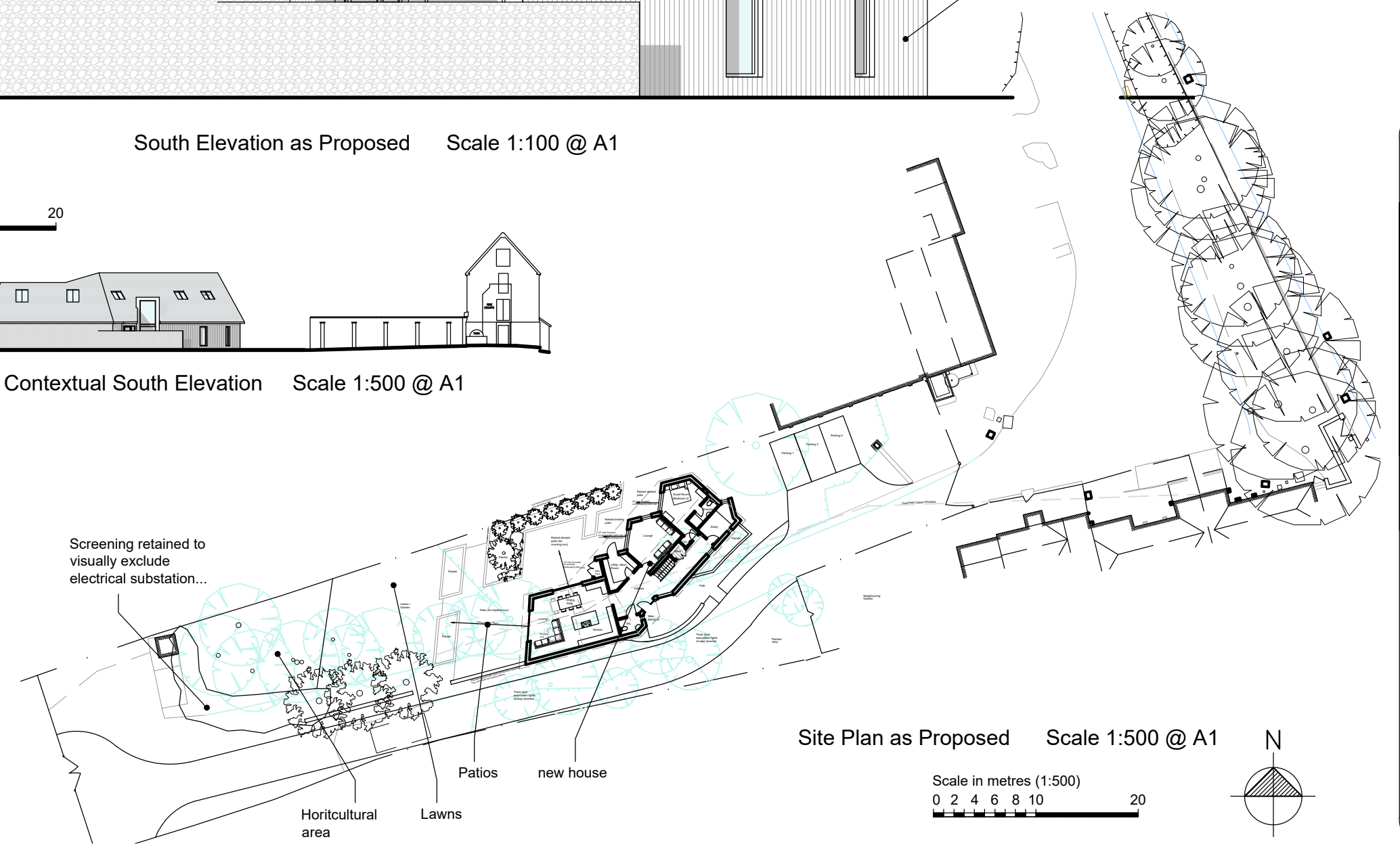
Contextual South Elevation Scale 1:500 @ A1



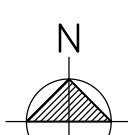
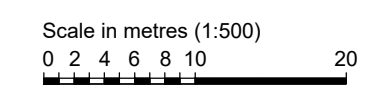
West Elevation as Proposed Scale 1:100 @ A1



East Elevation as Proposed Scale 1:100 @ A1



Site Plan as Proposed Scale 1:500 @ A1



Rev B: Minor internal layout amends
Rev A: South Elevation redesigned

Client	
Site Land Adjacent to Glyde Station	
Job New Dwelling	
Title Sketch Proposals Sheet 2	
Scale 1:100 @ A1	Drawn by JC
Date March 2019	Drawing no. GSNH/03B
LF Architecture Ltd architectural consultants	
Monkyn Pyn, Thornwell Road, Wilmington, East Sussex, BN26 6RL Telephone/Fax: 01323 489767 Mobile: 07973 349724 e-mail: mail@lfarchitecture.co.uk Company no. 512995	

Appendix C - Flood Maps for Planning:-
Fluvial Flood Maps;
Surface Water Flooding;
Flooding from Reservoirs

Flood map for planning

Your reference
Glynde Statio

Location (easting/northing)
545770/108674

Created
3 Jun 2019 7:25

Your selected location is in flood zone 2, an area with a medium probability of flooding.

This means:

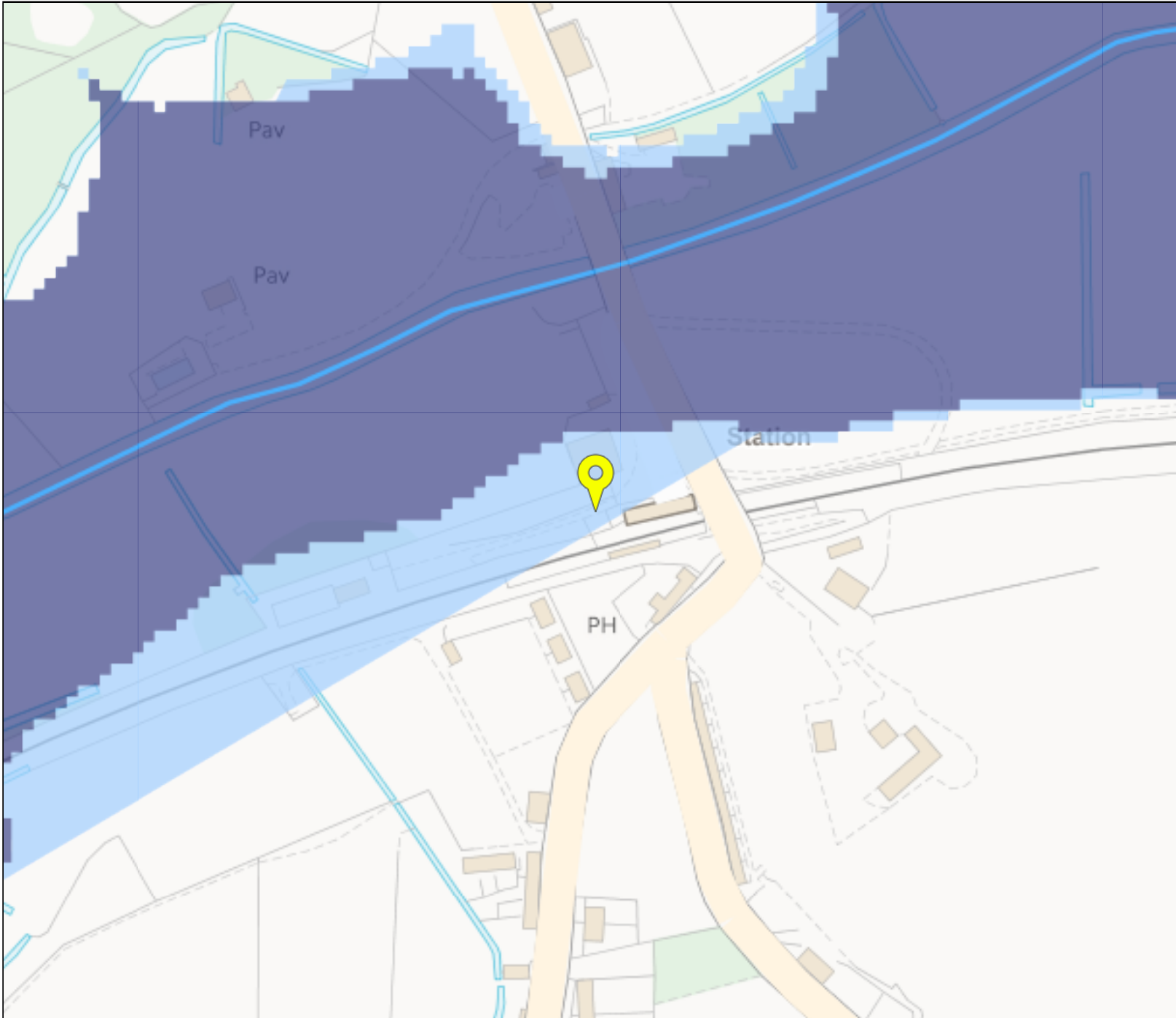
- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

The Open Government Licence sets out the terms and conditions for using government data.
<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>



Flood map for planning

Your reference

Glyde Statio

Location (easting/northing)









545770/108674

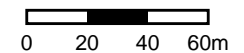
Scale

1:2500

Created

3 Jun 2019 7:25

-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefitting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area

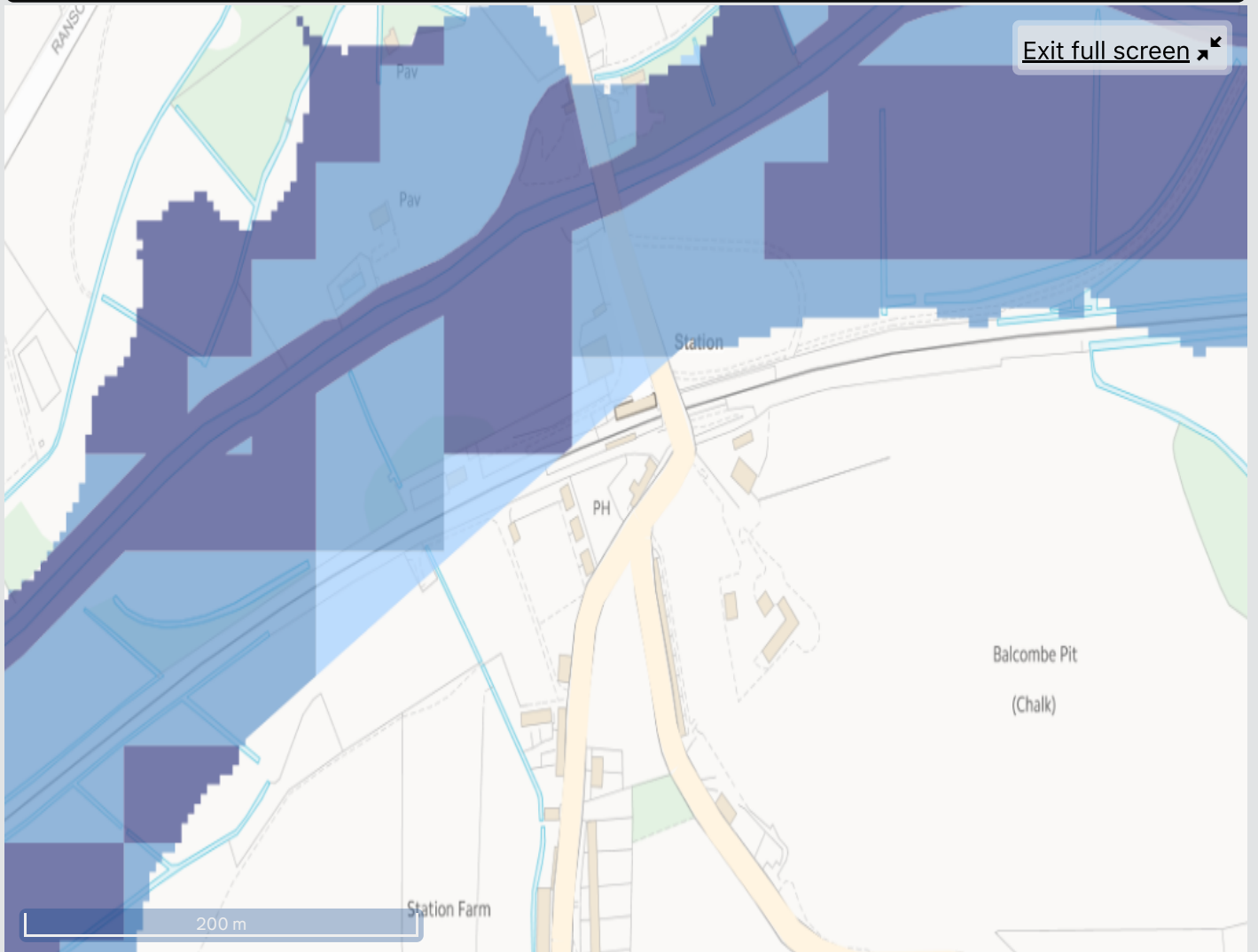


BN8 6RU



Extent of flooding

Exit full screen



Flood risk

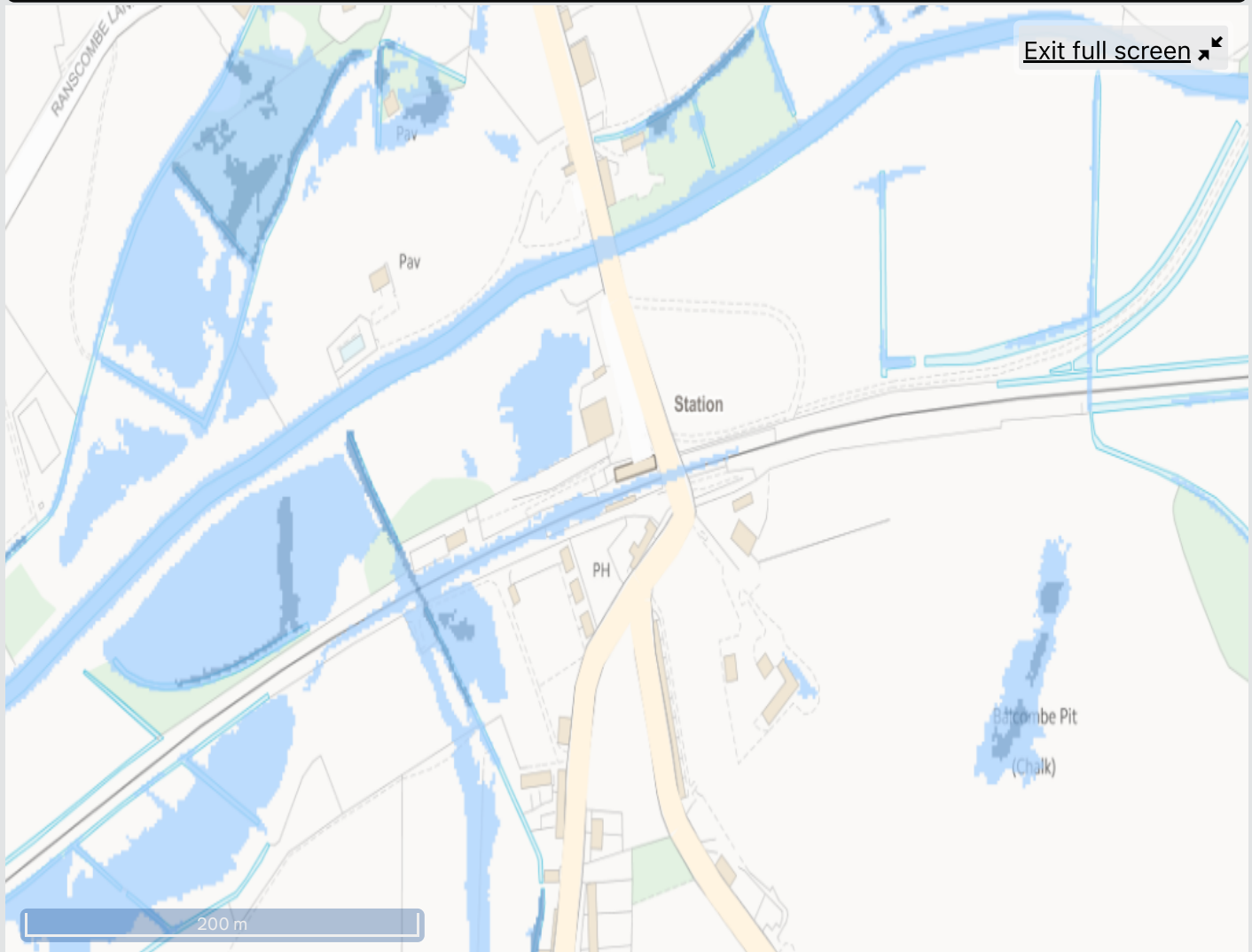
- High
- Medium
- Low
- Very low

Location you selected

BN8 6RU



Extent of flooding



Flood risk

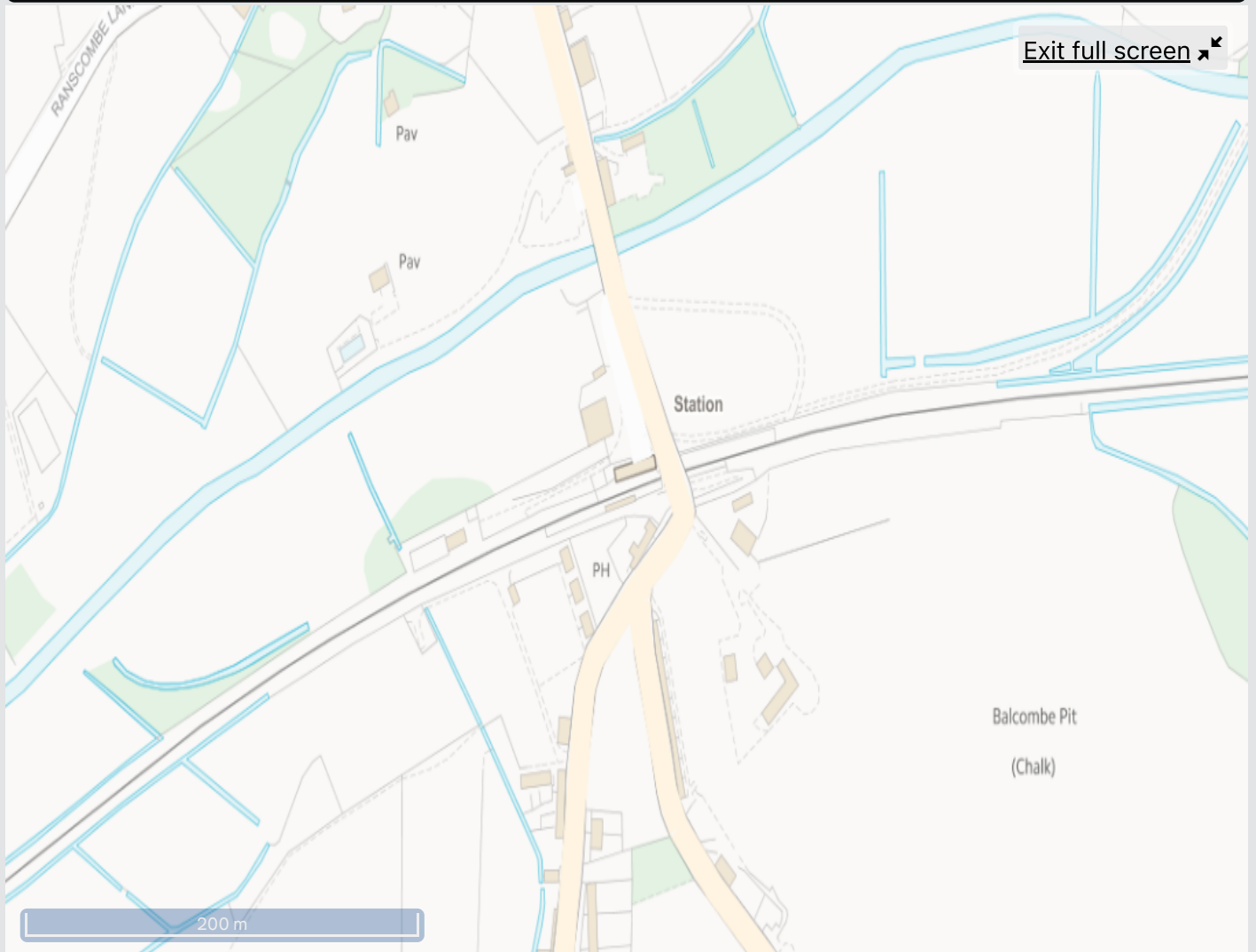
- High
- Medium
- Low
- Very low

Location you selected


BN8 6RU




Extent of flooding



Flood risk

 Maximum extent of flooding

 Location you selected

Appendix D - Environment Agency Information



Jamie Finch,
jamie.finch@roadsandsewers.co.uk

Our ref: SSD129371
Date: 12/06/2019

Dear Jamie,

**Enquiry Regarding Product 4 for Flood Risk Assessment for Glynde Station,
Station Road, Beddingham, Lewes, BN8 6RU**

Thank you for your enquiry which was received on 28 May 2019.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004. The information is attached.

The information on Flood Zones in the area relating to this address is as follows:

The site is within an area located in Flood Zone 2 with areas in Flood Zone 3 bordering the site, as shown on our Flood Map for Planning (Rivers and Sea). Please find attached a copy of the Flood Map for Planning (Rivers and Sea) for the area relating to your address.

The likelihood of flooding from surface water in this area:

This address is predominantly in an area at **very low risk** of surface water flooding and within 20m of the site are areas at **low risk** of surface water flooding. For more information about how surface water flooding is managed in your local area please contact **Lead Local Flood Authority, East Sussex County Council.**

Note - This information relates to the area that the above address is in and is not specific to any property itself as it is influenced by factors such as the height of door steps, air bricks or the height of surrounding walls. We do not have access to this information and is not currently used in our flood modelling.

Flood Zone definitions can be found at www.gov.uk/guidance/flood-risk-and-coastal-change#Table-1-Flood-Zones

Model Information – This area is not covered by detailed flood modelling, it is only covered by the national generalised modelling. In 2004 we completed national generalised modelling to produce catchment scale Flood Zones (using JFLOW modelling techniques), the calculation process produced water depths as a by-product. Since the modelling methods used were developed, tested and reviewed to

produce Flood Zone extents only, we currently have no information on the accuracy of the depth data. Because of these uncertainties JFLOW data is therefore not fit for Flood Risk Assessments.

Flood History - We have no records of flooding in this area. Please note our records are not comprehensive and may not include all events, you can contact Lewes District Council for a more comprehensive flood history check and to enquire whether they hold any relevant information regarding this site.

Flood Warning – This site does not fall within a flood warning area although is partially located within the Lower Ouse Flood Alert Area. We suggest all properties sign up to Flood Warnings Direct wherever possible to receive direct messages whenever flooding is expected that may affect your property. More information is available at: <http://www.environment-agency.gov.uk/homeandleisure/floods/38289.aspx> alternatively call Floodline on: 0345 988 1188

Data Available Online

Many of our flood datasets are available online:

- Flood Map For Planning ([Flood Zone 2](#), [Flood Zone 3](#), [Flood Storage Areas](#), [Flood Defences](#), [Areas Benefiting from Defences](#))
- [Risk of Flooding from Rivers and Sea](#)
- [Historic Flood Map](#)
- [Current Flood Warnings](#)

This information is supplied subject to the notice which can be viewed via the following link <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

We respond to requests for recorded information that we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR).

If you are not satisfied with our response to your request for information you can contact us within 2 calendar months to ask for our decision to be reviewed.

If you have any queries or would like to discuss the content of this letter further please contact PSOEastSussex@environment-agency.gov.uk.

I hope that we have correctly interpreted your request.

Yours sincerely,

Oliver Haydon
FCRM Officer - PSO East Sussex

SSD129371- Flood Map for Planning (Rivers and Sea) - Centred BN8 6RU



Scale 1: 10,000



Flood Map for Planning (Rivers & Sea)

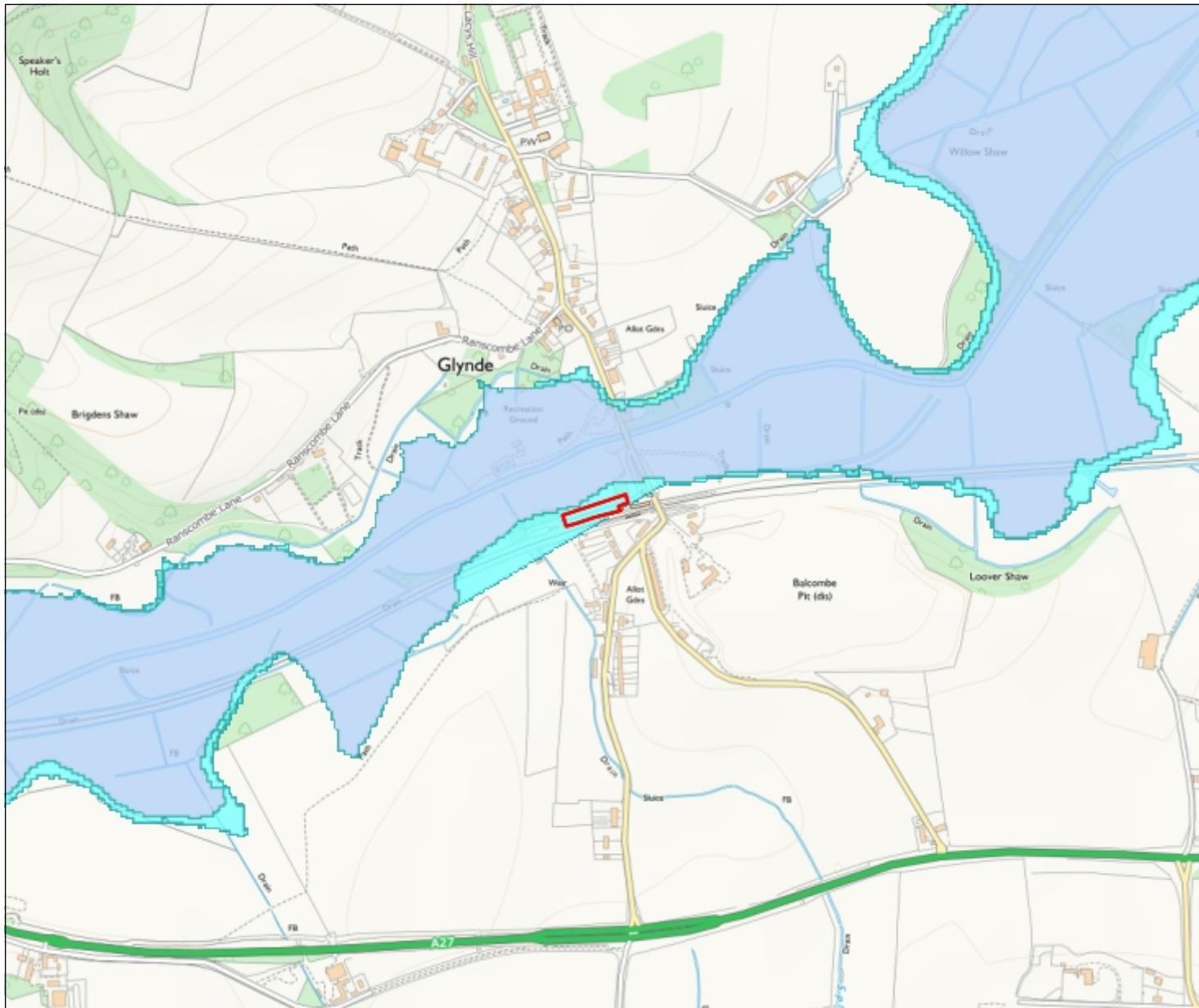
- Defences
- Flood Storage Areas
- Areas benefiting from flood defences
- Flood Zone 3
- Flood Zone 2

Flood Map Areas (assuming no defences)

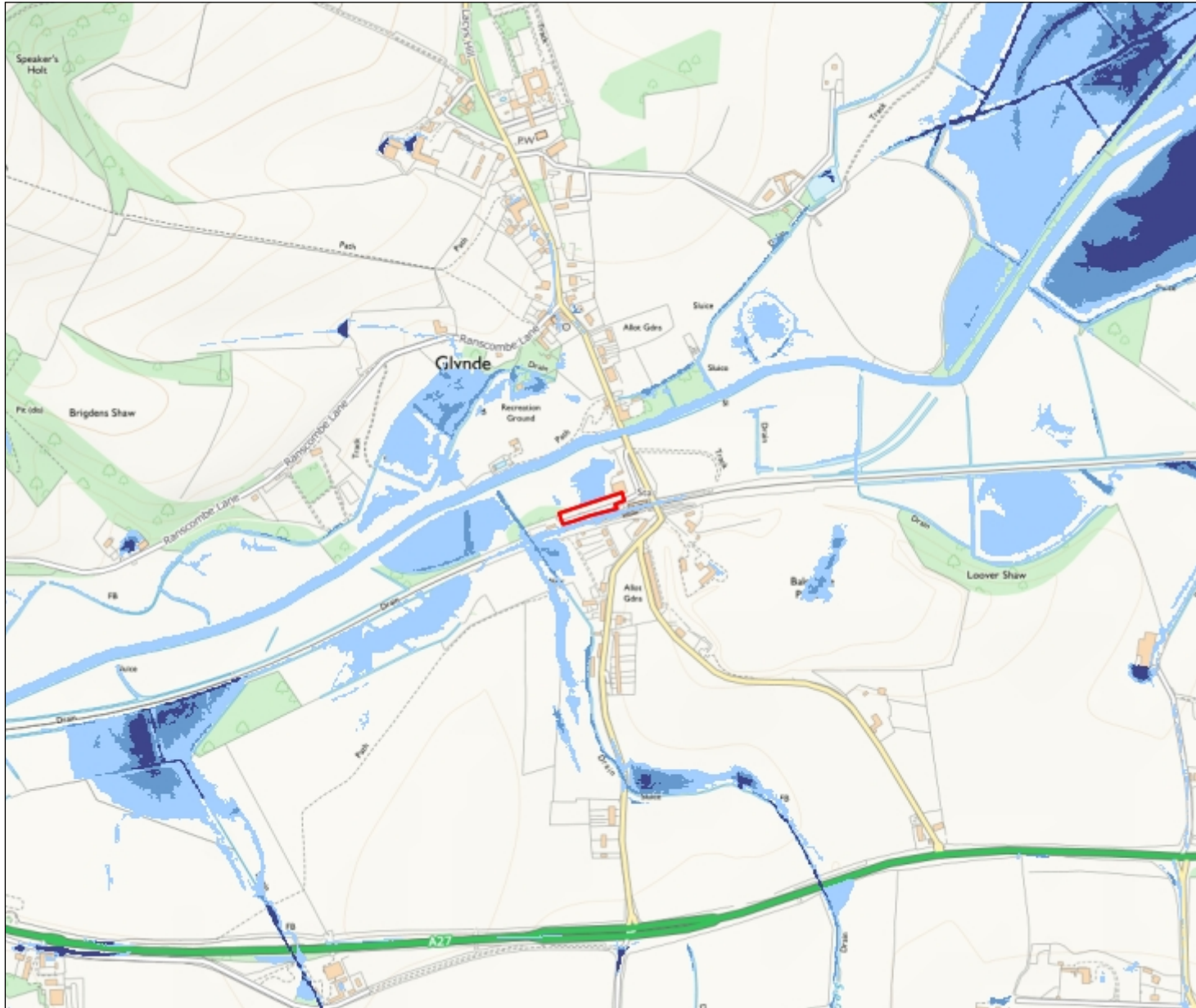
Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.



SSD129371 - Risk of flooding from Surface Water - Centred BN8 6RU



Scale 1:10,000



Likelihood of flooding from Surface Water

- High ($\geq 3.3\%$)
- Medium (3.3% - 1%)
- Low (1% - 0.1%)
- Very Low

Likelihood of flooding from Surface Water

- High:** Greater than or equal to 3.3% (1 in 30) chance in any given year
- Medium:** Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
- Low:** Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance in any given year
- Very Low:** Less than 0.1% (1 in 1,000) chance in any given year

This information is shown on the Risk of Flooding from Surface Water map on our website.

Appendix E - Topographical Survey

