Seafield Lodge
Seafield Road, East Preston

Flood Risk Assessment

For

Mr & Mrs Yeandle

motion

Document Control Sheet

Seafield Lodge

Seafield Road, East Preston

Mr & Mrs Yeandle

This document has been issued and amended as follows:

Date	Issue	Prepared by	Approved by
25th March 2025	Final	Laura Jagiela	Phil Allen MCIWEM C.WEM

Motion
84 North Street
Guildford
[redacted]

Contents

Appendices

1.0 Introduction

1.1 This Flood Risk Assessment (FRA) has been produced by motion on behalf of their client, Mr & Mrs Yeandle. It supports the planning application for the demolition of the existing dwelling and the construction of a new dwelling at Seafield Lodge, Seafield Road, East Preston.

1.2 The Environment Agency's (EA's) Flood Map for Planning shows that part of the site is within Tidal Flood Zone 3. Therefore, as per the guidance within the National Planning Policy Framework (NPPF) an FRA should carried out to assess flood risk to the development from all sources.

1.3 The aim of this FRA document is to satisfy the requirements of the LPA, the Lead Local Flood Authority (LLFA) and the EA in relation to the development and flood risk. Specific objectives of this FRA are to:

- Assess the proposed development against the requirements of the National Planning Policy Framework (NPPF).
- Access whether the proposed development has taken appropriate consideration of the risk of flooding from all potential flood sources.
- Detail how the proposed development will be safe with respect to flooding during its lifetime.

1.4 The FRA will also consider whether any measures need to be implemented to mitigate flood risk on the site, should this be deemed necessary by the conclusions of the FRA.

2.0 Site Description

Table 2.1 – Site Summary

Site Name	Seafield Lodge
Location	Seafield Road, East Preston, West Sussex, BN16 1PD
Grid Reference	TQ 07128 01565
Site Area	The red line boundary of the development is 467m² (0.047 ha).
Development Type	Demolition of existing dwelling and construction of new dwelling on the same footprint
Flood Zone	Flood Zone 3
Flood Risk Vulnerability Classification	More Vulnerable
Surface Water Flood Risk	Very Low to Low
Local Water Authority	Southern Water
Local Planning Authority	Arun District Council
Lead Local Flood Authority	Arun District Council

Site Location

2.1 The development site is located at the west end of Seafield Road near the beach access from Sea Road. The site is approximately 60 metres from the seafront and is within a residential area of East Preston village. Please see Appendix A for a site location plan.

2.2 The site currently contains one dwelling with a double garage and driveway.

2.3 The proposed plans are to are to demolish the existing property, which has an extant permission for a residential extension, and to erect a new, modern dwelling on approximately the same footprint. The existing and proposed plans for the site can be seen in Appendix B.

Geology

2.4 The British Geological Survey (BGS) online 1:50,000 Geoindex mapping identifies that the underlying bedrock geology is Lewes Nodular Chalk Formation. This is composed of hard to very hard nodular chalk and hardgrounds with interbedded soft to medium hard chalks (some grainy) and marls.

2.5 The superficial geology is listed as River Terrace Deposits (undifferentiated), which is made up of sand, silt and clay.

Hydrogeology

2.6 Groundwater Source Protection Zones (SPZ's) are defined around groundwater abstraction sources such as wells, boreholes and springs that are used for public drinking water supply.

2.7 SPZ's show the risk of contamination to groundwater from any activities that might cause pollution in the area. The closer the activity to the source of abstraction, the greater the risk. The maps show three main zones; inner – Zone 1; outer – Zone 2; and total catchment – Zone 3.

2.8 Defra's Magic Map was reviewed to see where the site is in relation to the Groundwater SPZ's, and the site is not within any SPZ's.

2.9 Defra's Magic Map application lists the bedrock geology as a 'Principal Aquifer', which has a high level of water storage and transmission and may support water supply and/or river base flow on a strategic scale. The superficial geology is listed as a 'Secondary A Aquifer'.

2.10 The Groundwater Vulnerability Map (England) classification is Medium – High, with Soluble Rock Risk.

Hydrology

2.11 The site is situated on the south coast of England.

2.12 The nearest ordinary watercourse is the Ferring Rife, which is around 2km to the east of the site and flows into the sea.

2.13 The nearest designated Main River is the River Arun, which is around 4.3km to the west of the site and flows into the sea.

3.0 Legislative and Policy Framework

3.1 The Flood and Water Management Act 2010 (FWMA) received Royal Assent on 8th April 2010. The Act was introduced to enforce some of the key proposals set out within UK Government flood and water strategies along with UK Government's response to the Sir Michael Pitt's Review of the summer 2007 floods.

3.2 LLFA's have a responsibility under the FWMA to develop, maintain, apply and monitor the application of a strategy for local flood risk in their area. Local flood risk is defined as flood risk arising from local sources, such as surface water run-off, groundwater and ordinary watercourses (i.e. non-main rivers). The EA plays a role in managing, maintaining and regulating activity around the watercourses designated as Main Rivers.

The Environment Agency Flood Map for Planning

3.3 The EA's Flood Map for Planning gives an indicative prediction of areas at risk of fluvial and tidal flooding. The mapping is an amalgamation of modelled flood outlines and historical flood event outlines.

3.4 The Flood Map is split into 'Flood Zones', which demarcate the extent of flooding from rivers or the sea for different return periods. The Flood Map for Planning shows the extent of the natural floodplain if there were no defences or other man-made structures in place.

3.5 Table 3.1, below, lists the flood zone categories and explains the flood risk probabilities they represent.

Table 3.1 – Flood Zone Categories

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of tidal flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of tidal flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their SFRAs areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map, but may be distinguished in Product 4 information, for example). Following the 2022 update to the NPPF, Flood Zone 3b is considered to be anywhere within the 1 in 30-year flood event outline.

The National Planning Policy Framework

3.6 The NPPF sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. The Planning Practice Guidance (PPG) to the NPPF provides further information on the policies set out in the NPPF. It encourages development to take place in areas of lower flood risk wherever possible and stresses the importance of preventing increases in flood risk off-site to the wider catchment area. This includes ensuring that flood risk is taken into account at all stages of the planning process, avoiding inappropriate development in areas at risk of flooding and directing development away from those areas where risks are the highest.

3.7 A site-specific FRA is required for proposals of 1ha or greater in Flood Zone 1, all proposals for development in Flood Zones 2 and 3, or in an area within Flood Zone 1 that has critical drainage problems (as notified to the local planning authority by the EA).

3.8 The FRA should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.

3.9 Within each Flood Zone, a key factor in determining planning applications for development is the flood risk vulnerability of a development. The PPG to the NPPF categorises different development types according to their vulnerability to flooding. These categories are:

- Essential infrastructure;
- Highly vulnerable development;
- More vulnerable;
- Less vulnerable development; and;
- Water-compatible development.

3.10 The site at Seafield Lodge is considered to be 'more vulnerable' by the NPPF.

3.11 Within the different Flood Zones each of the above development categories are considered appropriate or not permissible. The PPG to the NPPF lists these as:

Flood Zone 1:

- All the development categories listed above are appropriate.

Flood Zone 2:

- Water-compatible, less vulnerable development, more vulnerable development and essential infrastructure is appropriate in this zone.

Flood Zone 3a:

- Water-compatible and less vulnerable development is appropriate in this zone. Highly vulnerable development should not be permitted in this zone.

Flood Zone 3b:

- Only water-compatible development and essential infrastructure that has to be there should be permitted in this zone.

3.12 The above information sets out the basis by which developments must assessed in terms of flood risk. Later in this report, the development at Seafield Lodge will be reviewed against the Flood Zone in which it is located, and an assessment will be made of the appropriateness of the development, as per the advice within the PPG to the NPPF.

4.0 Current Flood Risk

4.1 Flooding can arise from a variety or combination of sources. These may be natural, or artificial and may be affected by climate change. These are discussed, below, in the following two sections and are summarised in Table 6.1, which is in Chapter 6.

Tidal Flooding

4.2 The site is located approximately 60m from the south coast of England.

4.3 The EA's Flood Map for Planning (Appendix C) shows that part of the site, along the northern and eastern boundaries, is within Flood Zone 3 (areas affected by flooding from the sea with a 1 in 200 or greater chance of happening each year). The rest of the site is within Flood Zone 1.

4.4 The existing ground levels of the site are at 6.06 meters Above Ordnance Datum (m AOD) at the highest point and 5.71m AOD at the lowest point. The site levels can be seen in the 'Existing Elevations' drawing within Appendix B. The lowest point is in the southern corner of the site. This is at the garden level and, therefore, the finished floor level (FFL) of the property will be higher than this.

4.5 To understand the tidal flood levels of the site, Flood Risk Assessment Data (also known as Product 4) has been acquired from the EA. The tidal flood levels have been modelled and recorded for 6 nodes across the site. The location of these nodes can be seen in Appendix D. The location of the nodes can be compared against the 'Proposed Site Plan' drawing within Appendix B. It can be seen that Node 6 is in the location of the proposed dwelling. The remaining nodes are within the surrounding garden and driveway.

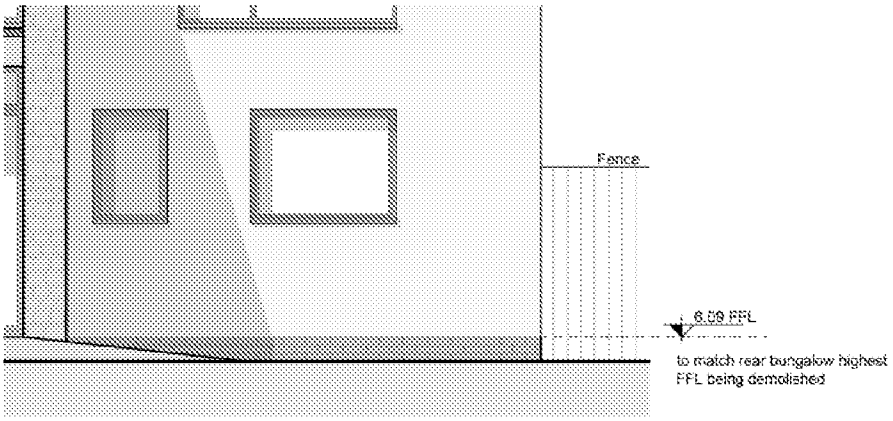
4.6 The EA Product 4 Tidal Flood Levels and Depths can be seen in Appendix E. The EA tidal flood levels are not provided for all node locations, specifically for Nodes 6. This means that there is no flooding modelled in this location because the ground level is higher than predicted flood level. Therefore, this demonstrates that the area of the site where the proposed dwelling will be located is not predicted to be at risk of flooding and, therefore, is in Flood Zone 1. This should be borne in mind when reviewing the outlines of the Flood Map for Planning, which is less accurate than the site-specific topographic information and the modelled flood levels.

4.7 For Nodes 3 and 5, the predicted tidal flood levels for the current 1 in 200-year tidal flood event is 5.78 mAOD and the predicted future year 2115 1:200 tidal event is 5.82 mAOD. Theses nodes are along the southern and southwestern edge of the site where the gardens and landscaping is proposed. The lowest point of the site is 5.71m AOD in the southern corner, around Node 5.

4.8 Looking at the levels of the site in the 'Existing Elevations' drawing in Appendix B, the majority of the levels across the site are at 5.85 mAOD or higher. This means that the majority of the site, including the locations of the existing and proposed dwellings, are above the 2115 1 in 200-year tidal flood level. Additionally, the levels in the location of the access to the site are above the 1 in 200-year tidal flood level, thus safe access and egress can be achieved if the residents wish to leave the property during a flood event.

4.9 From the 'Proposed Elevations' drawing in Appendix B and Figure 4.1 on the next page, it can be seen that the FFL/threshold of the property will be approximately 6.09 mAOD, which is 270mm above the predicted 2115 1 in 200-year tidal event. This means the proposed dwelling is within Flood Zone 1 and at very low risk of tidal flooding. Freeboard does not need to be considered as there can be no wave action where there is no flooding, and there is no uncertainty in the modelling information or the site levels, both of which have been modelled or measured accurately to mAOD.

Figure 4.1: Excerpt from Proposed Elevation Drawing Showing FFL/Threshold Level



4.10 Further to the above and the fact that the majority of the site is within Flood Zone 1, the site is also located within the area benefitting from flood defences in the form of a Sand and Shingle Beach, which is maintained by Arun District Council.

Fluvial Flooding

4.11 The site is not close to a river to be at risk of fluvial flooding.

Flood Risk and Appropriateness of the Proposed Development

4.12 According to the classification in the NPPF the site is considered to be 'more vulnerable'.

4.13 Table 3 of the PPG to the NPPF (see below) states that an Exception Test is required for a 'more vulnerable' development in Flood Zone 3. However, with the current and future tidal flood levels stated above, the ground levels are above the 2115 1 in 200-year tidal flood event and the property will be within Flood Zone 1. Therefore, the property is appropriate in this location. Any parts of the site that are slightly below the 2115 1 in 200-year tidal flood level can be built up to bring them out of this flood risk area and, because this is tidal flood risk, it cannot be considered to remove volume from the floodplain.

Table 3 of the NPPF – Flood Risk Vulnerability and Flood Zone Compatibility

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓ *

Key:

✓ Development is appropriate

✗ Development should not be permitted.

Surface Water Flooding

4.14 Surface water, or pluvial flooding, results from rainfall-generated overland flow, where rainwater has not yet reached a watercourse or sewer and where the local drainage systems become overwhelmed. Pluvial flooding often occurs during short, very intense storms, but can also occur during longer periods of rainfall when the ground is already saturated, or where land has low permeability due to development.

4.15 In these conditions surface water can build up where the topography allows it to converge or pond. Where it gathers it will travel down prevailing gradients. Pluvial flooding then occurs at locations where significant surface water flow paths converge, at localised low points and/or due to overland obstructions. In urban areas pluvial flooding often occurs where the built environment channels overland flow routes (down roads that are bounded by kerbs, for example) or where there are obstacles to the natural overland flow routes. Boundary walls and buildings are often the main causes and, hence, the likelihood of pluvial flooding to impact property and built-up areas.

4.16 Pluvial flooding is exacerbated in many cases by the mistreatment or failure of the below ground infrastructure (including partial or full blockages of gullies and/or within the combined sewers and the accumulation of fats, oils and greases within the sewer networks).

4.17 The EA's Risk of Flooding from Surface Water (RoFSW) map was updated and refined in January 2025. The map uses improvements in data, technology and modelling and includes information and input from LLFAs, where this is available. This New National Model (NNM) for surface water represents a significant improvement over previous national-scale models and, generally speaking, has shown a reduction in overall surface water flood risk (when compared with the previous RoFSW mapping) with more targeted risk areas that tie in better with local land features and overall topography.

4.18 The updated RoFSW mapping includes a present-day risk prediction as well as one for the 2040 – 2060 scenario, i.e., with an inclusion for climate change. Only the 2040 – 2060 scenario maps are included in Appendix F so that current and future surface water flood risk is fully considered.

4.19 The EA's RoFSW maps for Seafield Lodge shows that most of the development is in an area of very low surface water flood risk (less than the 1 in 1,000-year return period). However, there is a very small

area of low to medium surface water flood risk within the carriageways of the surrounding roads. This is along the northern and eastern boundary of the site but not within the site itself and, therefore, the property is not located in this area.

Groundwater Flooding

4.20 There are no flood risk maps for groundwater, as stated by the Environment Agency in their 2011 guidance note 'flooding from groundwater'. Mapping products currently available only show areas where the geological and hydrological conditions may combine to cause groundwater flooding, but they should not be considered as groundwater flood risk maps. They only show susceptibility to groundwater flooding.

4.21 There are several mapping products that depict areas that may be susceptible to groundwater flooding, but they are not comparable in detail to the risk maps developed for fluvial, tidal and surface water, such as those used by practitioners and risk management authorities to support planning decisions. The mapping does not show the likelihood of groundwater flooding occurring and can only be considered as a hazard, but not a risk-based dataset.

4.22 As such, the mapping products can be viewed as indicative at best and should only be used as a prompt to review site-based information to determine whether groundwater is a risk factor that should be considered. Indeed, the Environment Agency state that:

"The susceptibility data should not be used on its own to make planning decisions at any scale and, in particular, should not be used to inform planning decisions at the site scale. The susceptibility data cannot be used on its own to indicate risk of groundwater flooding."

4.23 This FRA will review the groundwater flooding susceptibility mapping available, which has been supplied in the Envirocheck Landmark Flood Studies Report (FSR) and can be seen in Appendix G.

BGS Geological Indicators of Flooding

4.24 The BGS Geological Indicators of Flooding map shows that the site is not in an area with any indicators of groundwater flooding.

BGS Groundwater Flooding Susceptibility

4.25 The BGS Groundwater Flooding Susceptibility map shows that the site is in an area where there is potential for groundwater flooding of property situated below ground level.

Geosmart Information Groundwater Flood Map

4.26 The Geosmart Information Groundwater Flood Map places the site in an area of 'low' risk.

Groundwater Flood Risk Summary

4.27 The site at Seafield Lodge is not in an area with any indicators of groundwater flooding but is in an area where there is potential for groundwater flooding to property situated below ground level. Due to this and being in an area of 'low' risk, it can be seen that the development is at low groundwater flood risk.

Flooding from Infrastructure Failure

4.28 Sewer flooding can occur when the capacity of the infrastructure is exceeded by excessive flows, or because of a reduction in capacity due to collapse, siltation, blockage, or if the downstream system becomes surcharged. This can lead to the sewers flooding onto the surrounding ground via manholes and gullies, which can generate overland flows.

4.29 Typically, sewer systems are constructed to accommodate rainstorms with a 30-year return period or less, depending on their age. Consequently, rainstorm events greater than 1 in 30-years would be expected to result in surcharging of some parts of the sewer system. In fact, due to most gullies being

poorly maintained and often partially blocked with silt, leaves and other debris, their capacity is often estimated to be closer to the 1 in 10-year storm.

4.30 The 2015 Strategic Flood Risk Assessment (SFRA) for Arun District Council shows the historical incidents of flooding detailed by Southern Water in their DG5 registers. These are water-company held registers of properties which have experienced sewer flooding due to hydraulic overload, or properties which are 'at risk' of sewer flooding more frequently than once in 20 years.

4.31 The SFRA states that the 'BN16 1' postcode area, which covers the west area of East Preston where the development site is, had a total of 14 recorded flood incidents.

4.32 14 reported cases of sewer flooding over a whole postcode area shows that there is very low risk of sewer flooding locally. Therefore, the development site cannot be considered to be at risk of sewer flooding or flooding from infrastructure failure because the location of the development is not in area where sewer flooding has occurred before.

Flooding from Artificial Sources

4.33 The EA Long Term Flood Map provides a map showing the maximum potential flood extent should all reservoirs with a capacity of greater than 25,000 cubic metres fail and release the water they hold. This map in the location of Seafield Lodge is in Appendix N.

4.34 The site is shown to not be in an area at risk of reservoir flooding.

4.35 There are no other artificial sources of flooding (such as canals) in the vicinity of the site that could cause flooding.

Historic Flood Risk

4.36 The Envirocheck Landmark FSR includes a Historic Flood Map, and this can be seen in Appendix I. This map shows that the site has no record of flooding in the past. Thus, the Historic Flood Map supports this report's conclusion that the site is at low risk of flooding and that the proposed development is appropriate in this location.

5.0 Future Flood Risk & Climate Change

5.1 The NPPF and the supporting PPG sets out how flood risk should be considered over the lifetime of a development. This requires an increase in flood risk due to climate change to be taken into account. Both peak river flows and rainfall intensity should be assessed.

Peak River Flows

5.2 The NPPF provides guidance on how peak river flows may increase in the future due to climate change, which is dependent on:

- The river catchment the site is in;
- The lifespan of the development (in 'epochs', which are 2020's, 2050's and 2080's); and;
- What level of risk it is currently exposed to.

5.3 Seafield Lodge lies within the 'Arun and Western Streams Management Catchment' but because the site is not at risk of fluvial flooding, increases in future peak river flows do not need to be considered.

Peak Rainfall Intensity

5.4 With climate change it is becoming more common to see rainfall events of higher intensity, particularly in the southeast of England. Increased rainfall intensity affects river levels and drainage systems, with the result being an increase in surface water flooding and sewerage surcharge.

5.5 The NPPF states that for developments with a lifetime of up to 2100, the 'Upper End' climate change allowances should be used and both the 1 in 30-year and 1 in 100-year rainfall events considered. For Seafield Lodge, this means that the anticipated peak rainfall increases due to climate change is 40% for the 1 in 30-year and 45% for the 1 in 100-year rainfall events.

5.6 The proposed development at Seafield Lodge is at low to very low risk of surface water flooding across the site. Therefore, future rainfall events of higher intensity are not anticipated to affect Seafield Lodge.

Future Tidal Flood Levels

5.7 The predicted future year 2115 1:200 tidal event is 5.82 mAOD and the majority of the site's ground levels are above this. The FFL's of the property are also at 6.09 mAOD, so well above the future tidal flood level. Consequently, future tidal flood risk has been assessed and is not of any consequence to the development.

6.0 Summary of Flood Risk

6.1 Historic, current and future flood risk, from all sources, has been reviewed in the context of the proposed development at Seafield Lodge. A summary of these flood risks is summarised in Table 6.1, below.

Table 6.1: Summary of Flood Risk From All Sources

Flood Source	Risk Level				Comment
	High	Medium	Low	Very Low	
Fluvial				X	Not at risk of fluvial flooding.
Tidal			X		Part of the site shown as Flood Zone 3 on EA Flood Map but dwelling located in Flood Zone 1.
Groundwater			X		In an area of 'Low' risk with potential for groundwater flooding of property situated below ground level.
Surface Water			X	X	Small area at 'low' surface water flood risk.
Canals				X	No canals in the local area.
Reservoirs				X	The Reservoir Flood Risk Map shows that there are no reservoirs in the vicinity.
Infrastructure Failure				X	No indication that local drainage infrastructure would cause elevated levels of flood risk.
Increase due to Climate Change				X	Increased peak rainfall intensities are not expected to affect any infrastructure or properties.

7.0 Mitigation - Flood Avoidance, Resistance and Resilience

7.1 Flood risk can be mitigated through taking measures to avoid, resist and be resilient to flooding, should it be necessary to do so.

Avoidance

7.2 Avoidance is carrying out development in line with the sequential test and relocating development to areas of lower flood risk. Because the development is taking place within an existing residential area, is in effectively Tidal Flood Zone 1 and a very low to low surface water flood risk area, it is not necessary to consider avoiding flood risk because the development is appropriate in this location.

Resistance

7.3 Resistance measures can help to prevent water from entering a property. Because the proposed dwelling at Seafield Lodge is at low risk of tidal flooding and is at very low to low risk of surface water flood risk, it is not necessary to consider incorporating flood resistance measures as part of the ground floor of the proposed dwelling.

Resilience

7.4 Resilience measures do not stop water from entering a property; they acknowledge that there may be floodwater ingress and aim to minimise the impact in terms of cost and disruption immediately after a flood event.

7.5 Seafield Lodge is at low risk of tidal flooding and, therefore, flood resilience measures are not necessary. However, the development may want to incorporate flood resilience measures such as water-resistant floor and wall finishes as a precautionary measure.

Flood Warning and Evacuation Plans

7.6 Notwithstanding the fact that the site and the FFL's of the proposed dwelling is above the 1 in 200-year tidal flood level, now and in the future, it is imperative that people do not get 'caught out' by any flooding in the area and become stranded within the building due to flood waters cutting off any safe access and egress.

7.7 It is suggested that the property owner should develop their own Flood Warning and Evacuation Plan (FWEP). The FWEP should be accessible and understood by all occupants of the building and should:

- Highlight how flooding can occur;
- Outline the flood warning process, including how to receive alerts and understand the different flood warning codes;
- Give recommendations on how to take action in a flood event and what mechanisms need to be in place to ensure that they can happen safely and efficiently;
- Establish robust procedures to move occupants to a place of refuge, including establishing a safe evacuation route that takes them to a place of safety, dry higher ground.
- Make recommendations for things that can be done to ensure a swift recovery from flooding;
- Establish clear procedures for the implementation and maintenance of the FWEP.

7.8 As a minimum, occupants should sign up to the Environment Agency's flood warning service (the Floodline number is 0345 988 1188 and online information can be found at https://www.gov.uk/sign-up-for-flood-warnings)

7.9 Occupants should also know the location of cut-off points for gas, electricity and water, where they exist. Ideally, these should be marked on a floor map that should be stored with the FWEP.

7.10 The buildings and contents insurance policies need to reflect that the property is close to an area of tidal flood risk.

8.0 Summary and Conclusion

8.1 This Flood Risk Assessment (FRA) has been produced by Motion on behalf of their client, Mr & Mrs Yeandle. It supports the planning application for the demolition of the existing dwelling and the construction of a new dwelling at Seafield Lodge, Seafield Road.

8.2 The EA's Flood Map for Planning (Appendix C) shows that part of the site, along the north and east edges, is within Flood Zone 3 (areas affected by flooding from the sea with a 1 in 200 or greater chance of happening each year). The rest of the site is within Flood Zone 1. To investigate tidal flood risk further, Product 4 flood data was reviewed for the site, which included modelled tidal flood levels, and this was compared to topographic site levels.

8.3 Where the proposed dwelling is to be located, no flooding is predicted. The 2115 1 in 200-year tidal flood level is 5.82 mAOD and the majority of the site is at 5.85 maOD or higher, with the FFL of the proposed dwelling being at 6.09 maOD, thus above the future design tidal flood event. The lowest point of the site is 5.71m AOD in the south corner of the site where no dwellings are proposed, and these levels can be raised if necessary. The review of the tidal flood risk means that the proposed dwelling is within Flood Zone 1 and the fact that the majority of the site's levels are above the 2115 1 in 200-year tidal flood event means that residents can achieve safe access and egress during a flood event.

8.4 The site is not in proximity of river and thus Seafield Lodge cannot be considered at risk of fluvial flooding.

8.5 According to the classification in the NPPF the site is considered to be 'more vulnerable'. Table 3 of the PPG to the NPPF states that a sequential and exception Test is required for a 'more vulnerable' development in Flood Zone 3. The detailed review of the modelled tidal flood levels and site levels has shown that the site is actually within Flood Zone 1 and, therefore, the sequential and exception tests are not appropriate in this location.

8.6 The EA's Risk of Flooding from Surface Water (RoFSW) maps for Seafield Lodge shows that most of the development is in an area of very low surface water flood risk (less than the 1 in 1,000-year return period). However, there is a very small area of low surface water flood risk (areas of between the 1 in 100-year return period and the 1 in 1,000-year return period) with estimated flood depths of up to 300mm. This is along the northern edge of the site at the existing access to the site and therefore the dwelling will not be located in this area.

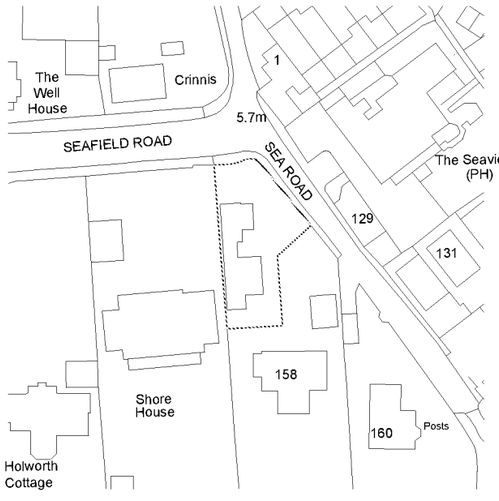
8.7 Seafield Lodge is shown to not be in an area of reservoir flooding. There are no other artificial sources of flooding (such as canals) in the vicinity of the site that could cause flooding.

8.8 The dwelling at Seafield Lodge may want to consider incorporating some flood resilience measures in the finishes. It is suggested that the property owner should develop their own FWEP. As a minimum, occupants should sign up to the EA's flood warning service.

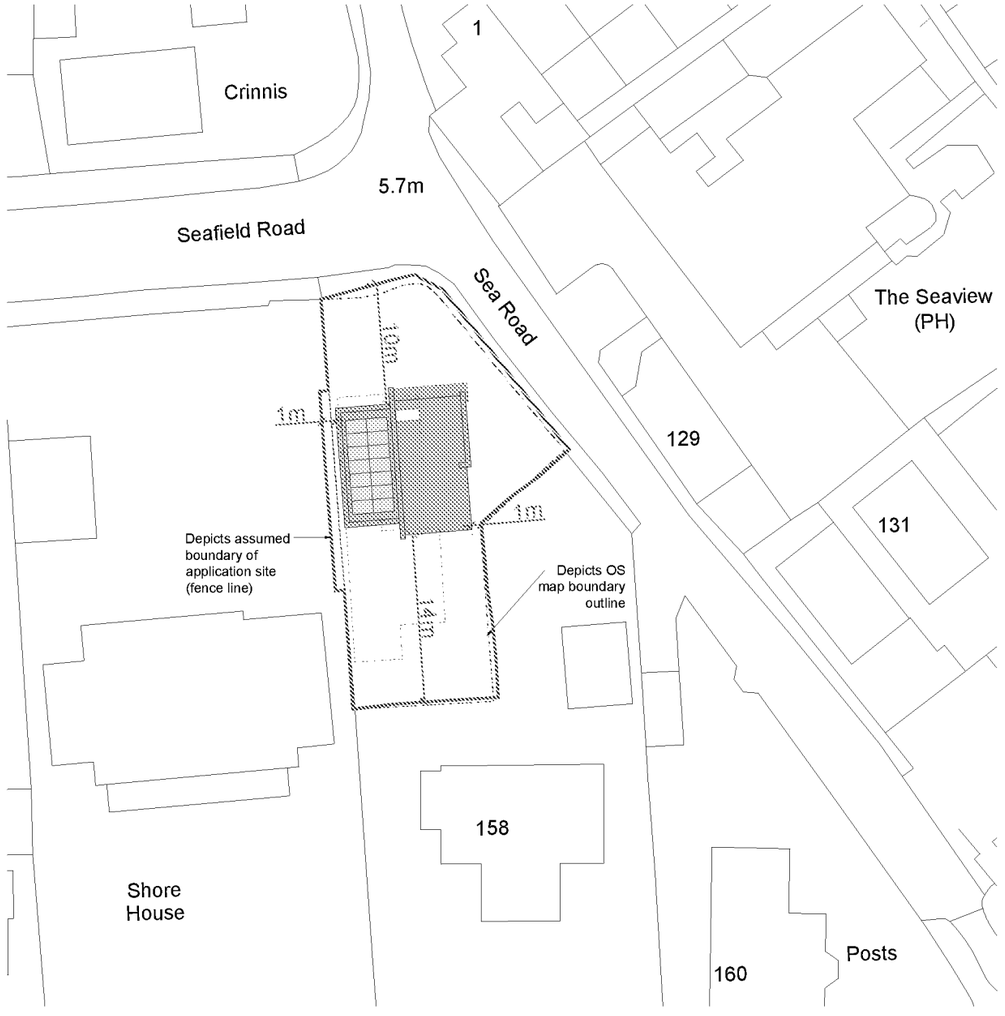
8.9 In conclusion, the current flood risks at Seafield Lodge do not preclude the proposed development, which is appropriate in this location.

Appendix A

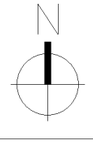
Site Location Plan

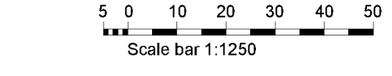


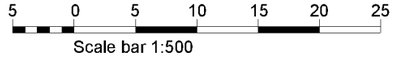
Location Plan
1:1250



Block Plan
1:500







Notes:

Red line - depicts boundary of application site.
Grey dashed line - depicts existing building to be demolished.

Revisions:

FULLER
ARCHITECTS
11 The Parade, Willowhayne Crescent,
East Preston, West Sussex BN16 1NE
tel: 01903 774754
email: info@fuller-architects.co.uk
www.fuller-architects.co.uk

Job Title
Seafield Lodge, East Preston

Client
Mr L. & Mrs G Yeandle

Drawing Name
Location (Existing)
and Block Plan (Proposed)

Drawing Status
Planning

Drawn by BF Date Mar 25

Checked by LW Date Mar 25

Drawing Scale
1:1250, 1:500 at A3

Drawing No 240069/ 04

Revision

Appendix B

Existing and Proposed Site Plans

Ground Floor Plan
Existing
1:50

First Floor Plan
Existing
1:50

N

1 0 5 10

Scale bar 1:100

Revisions:

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ARCHITECTS
11 The Parade, Willowhayne Crescent,
East Preston, West Sussex BN16 1NS
tel 01903 774754
email: info@fuller-architects.co.uk
www.fuller-architects.co.uk

Job Title
Seafield Lodge, East Preston

Client
Mr L. & Mrs G Yeandle

Drawing Name
Ground Floor Plan -
Existing

Drawing Status
Planning

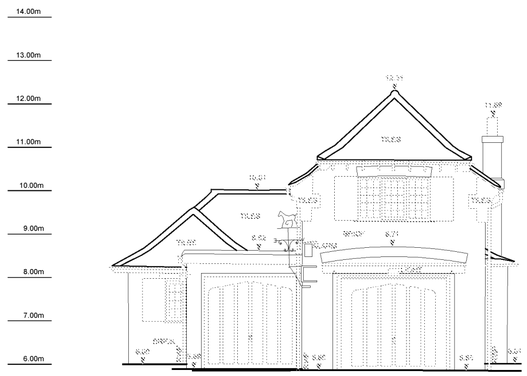
Drawn by BF Date Mar 25

Checked by LW Date Mar 25

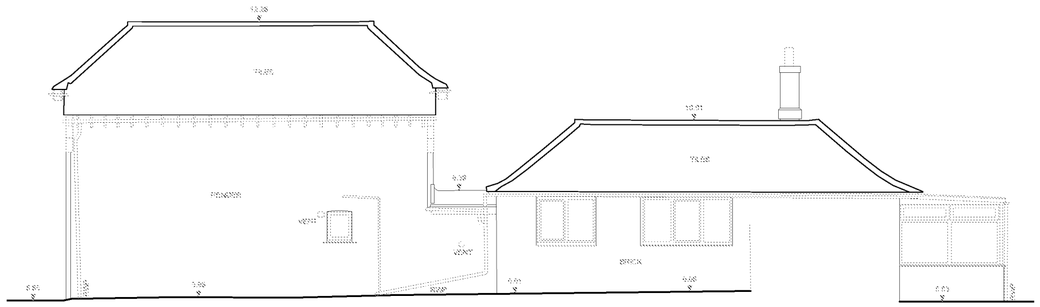
Drawing Scale
1:100 at A1

Drawing No
240069/ 01

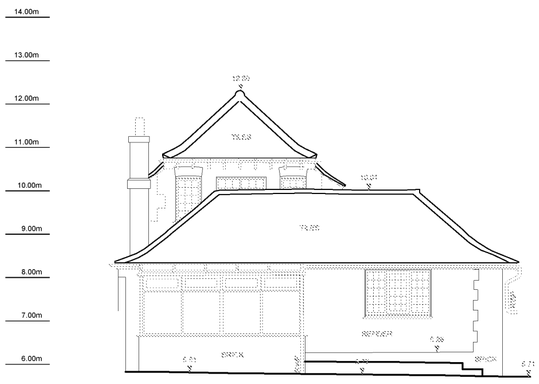
Revision



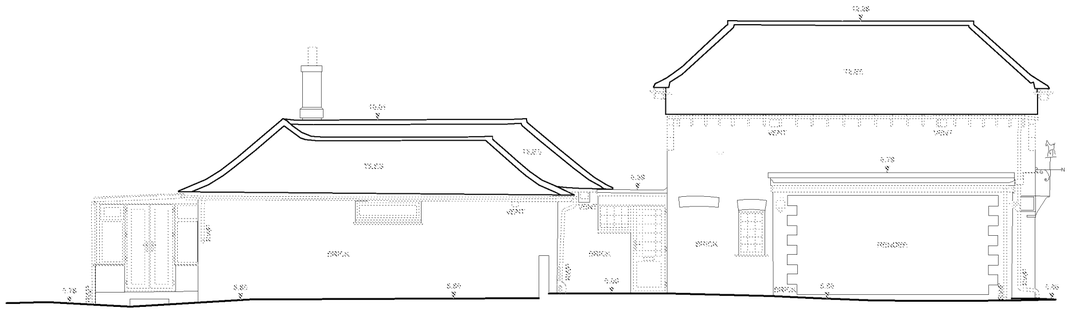
North Elevation (Front)



West Elevation (Side)



South Elevation (Rear)



East Elevation (Side)

Existing Elevations 1:100

1 0 5 10

Scale bar 1:100

Revisions:

FULLER
ARCHITECTS

11 The Parade, Willowhayne Crescent,
East Preston, West Sussex BN16 1NS

tel: 01903 774754

email: info@fuller-architects.co.uk
www.fuller-architects.co.uk

Job Title

Seafield Lodge, East Preston

Client

Mr L. & Mrs G Yeandle

Drawing Name

Elevations -
Existing

Drawing Status

Planning

Drawn by BF Date Mar 25

Checked by LW Date Mar 25

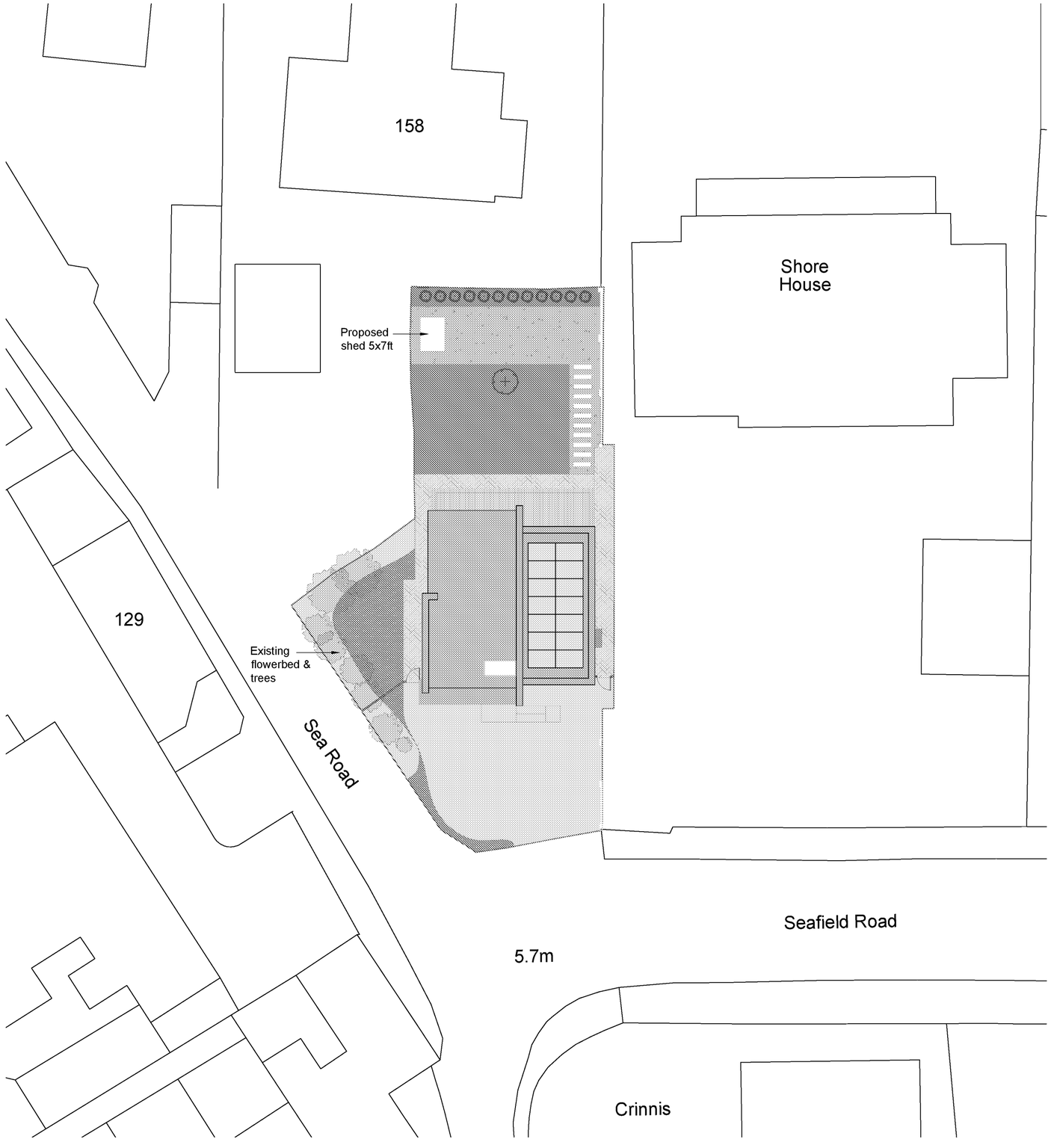
Drawing Scale

1:100 at A2

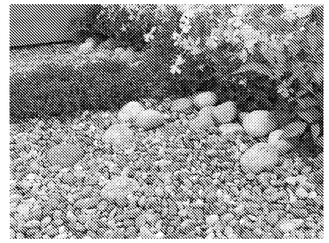
Drawing No

240069/ 02

Revision

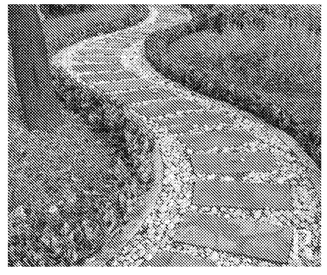


Proposed Site Plan
1: 200



Garden Pebbles

Outdoor paving (Herringbone)



Railroad tie stepping stone

Driveway

N

1 0 5 10 15

Scale bar 1:200

Key:

- Bin store
- Gravel
- Driveway
- Lawn
- Existing flowerbed/lawn
- Raised Decking Smoked Oak
- Outdoor paving
- Railroad tie stepping stone
- Hedging

Revisions:

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ARCHITECTS
11 The Parade, Willowhayne Crescent,
East Preston, West Sussex BN16 1NS
tel: 01903 774754
email: info@fuller-architects.co.uk
www.fuller-architects.co.uk

Job Title
Seafield Lodge, East Preston

Client
Mr L. & Mrs G Yeandle

Drawing Name
Site Plan - Proposed

Drawing Status
Planning

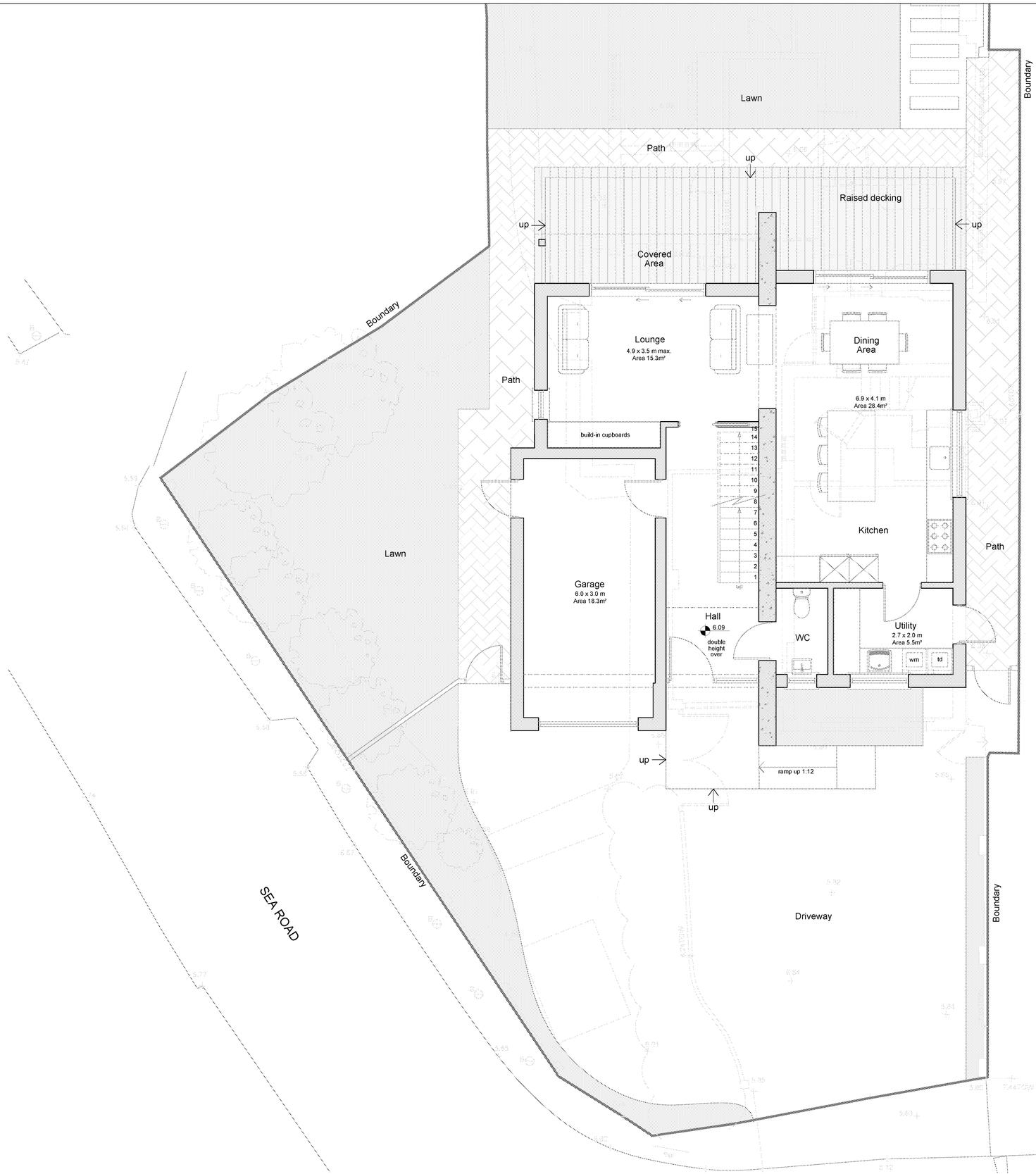
Drawn by BF Date Mar 25

Checked by LW Date Mar 25

Drawing Scale
1:200 at A2

Drawing No
240069/ 05

Revision



Ground Floor Plan
1:50

1 0 5 10
Scale bar 1:50

Notes:

Revisions:

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East Preston, West Sussex BN16 1NS
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www.fuller-architects.co.uk

Job Title
Seafield Lodge, East Preston

Client
Mr L. & Mrs G Yeandle

Drawing Name
Ground Floor Plan -
Proposed

Drawing Status
Planning

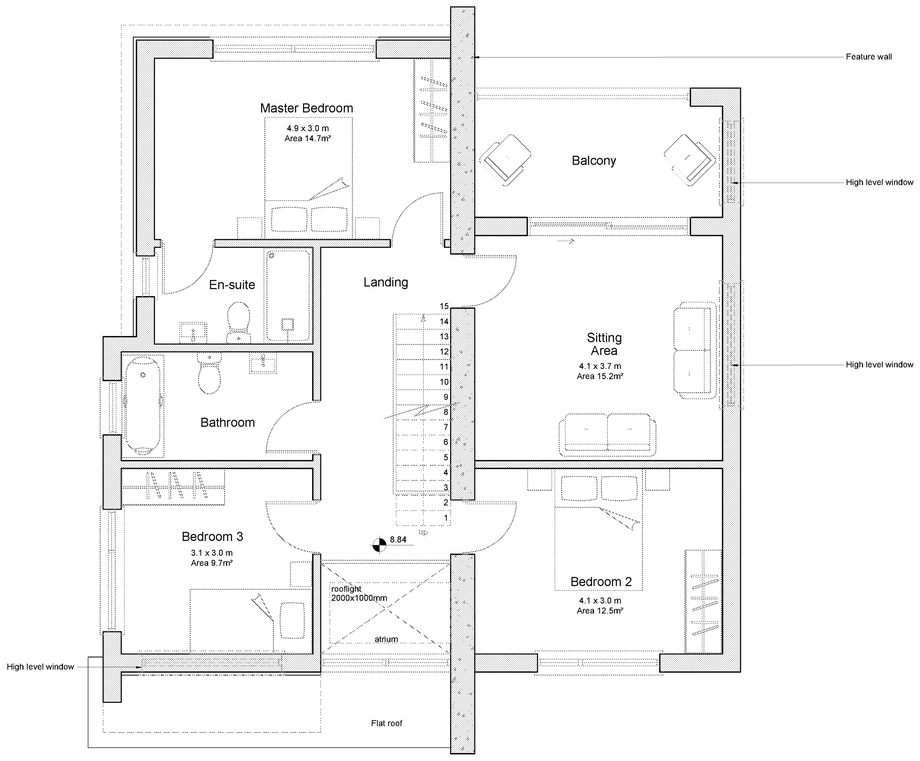
Drawn by BF Date Mar 25

Checked by LW Date Mar 25

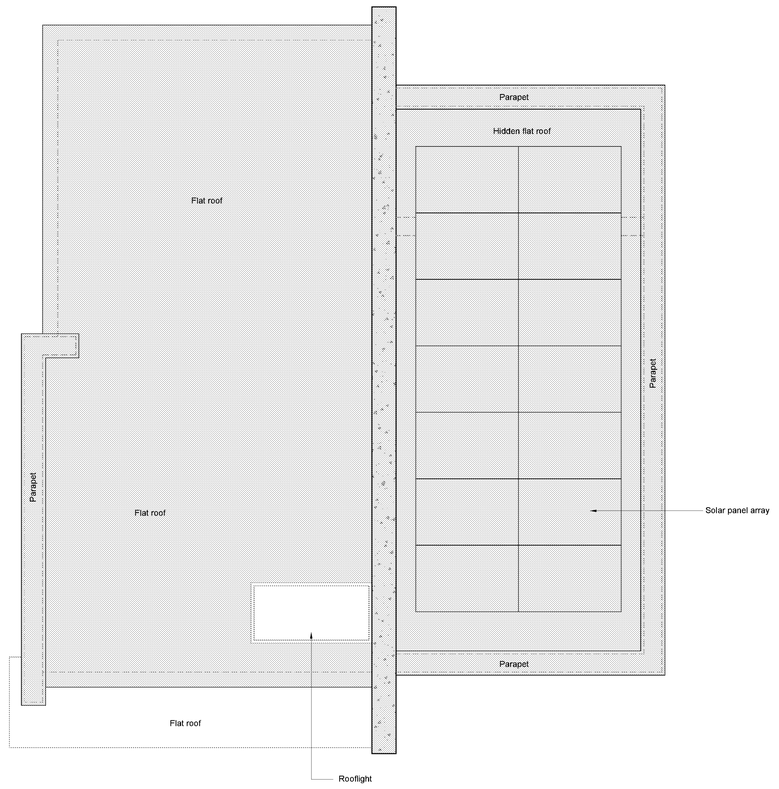
Drawing Scale
1:50 at A1

Drawing No
240069/ 06

Revision



First Floor Plan
1:50



Roof Plan
1:50

N

1 0 5 10
Scale bar 1:50

Revisions:

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ARCHITECTS
11 The Parade, Willowhayne Crescent,
East Preston, West Sussex BN16 1NS
tel 01903 774754
email: info@fuller-architects.co.uk
www.fuller-architects.co.uk

Job Title
Seafield Lodge, East Preston

Client
Mr L. & Mrs G Yeandle

Drawing Name
First Floor and Roof Plans - Proposed

Drawing Status
Planning

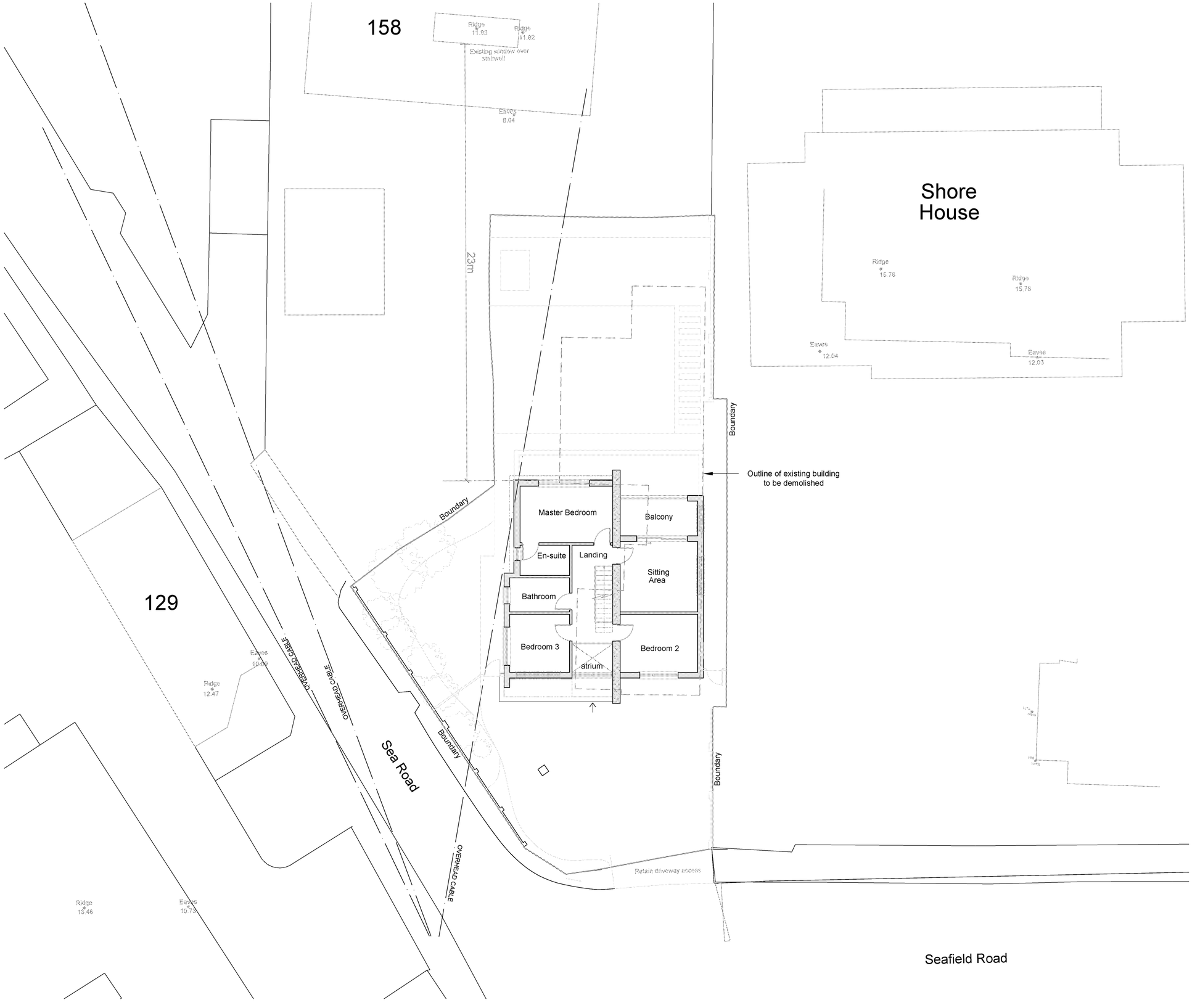
Drawn by BF Date Mar 25

Checked by LW Date Mar 25

Drawing Scale
1:50 at A1

Drawing No
240069/ 07

Revision



First Floor Plan with context
1:100

Notes:

Red dashed lines - depict outline of existing building.

Revisions:

FULLER
ARCHITECTS
11 The Parade, Willowhayne Crescent,
East Preston, West Sussex BN16 1NS
tel: 01903 774754
email: info@fuller-architects.co.uk
www.fuller-architects.co.uk

Job Title
Seafield Lodge, East Preston

Client
Mr L. & Mrs G Yeandle

Drawing Name
First Floor with context - Proposed

Drawing Status
Planning

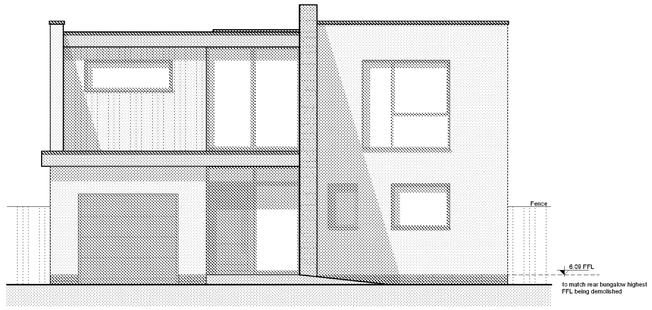
Drawn by BF Date Mar 25

Checked by LW Date Mar 25

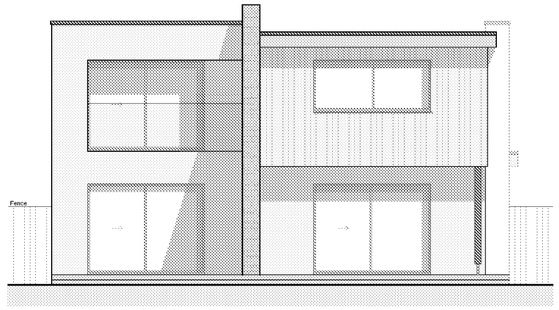
Drawing Scale
1:100 at A1

Drawing No 240069/ 08

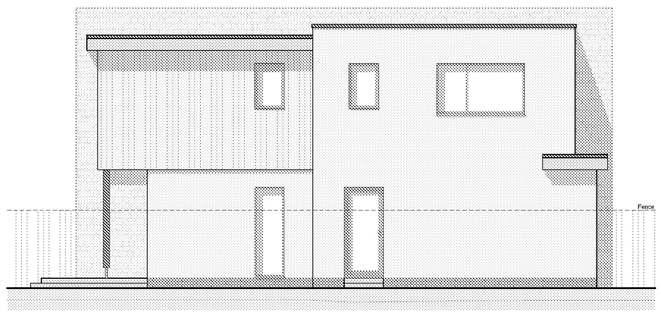
Revision



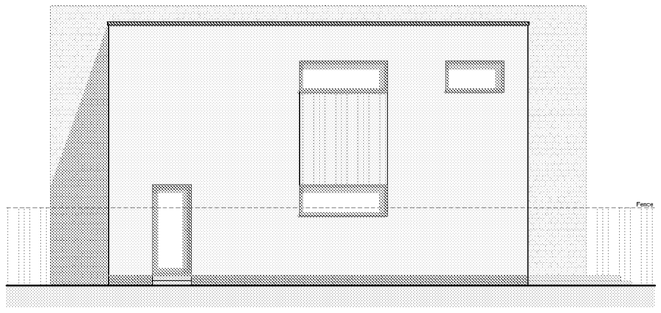
Front Elevation (North)
1:100



Rear Elevation (South)
1:100



Side Elevation (East)
1:100



Side Elevation (West)
1:100

1 0 5 10
Scale bar 1:100

Materials Schedule

Walls - Smooth render (Lutece colour off-white) and Composite timber cladding (Millboard Limed Oak Shadow Line+).

Feature wall - Stone cladding slips.

Windows - Double glazed aluminium in grey.

Doors - Double glazed aluminium in grey.

Copping - Powder coated aluminium in grey.

Rainwater - Powder coated aluminium in grey.

Balcony - Glass balustrade.

Roof - EDPM.

Revisions:

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ARCHITECTS
11 The Parade, Willowhayne Crescent,
East Preston, West Sussex BN16 1NS
tel: 01903 774754
email: info@fuller-architects.co.uk
www.fuller-architects.co.uk

Job Title
Seafield Lodge, East Preston

Client
Mr L. & Mrs G Yeandle

Drawing Name
Elevations - Proposed

Drawing Status
Planning

Drawn by BF Date Mar 25

Checked by LW Date Mar 25

Drawing Scale
1:100 at A2

Drawing No
240069/ 09

Revision

Appendix C

Environment Agency Flood Map for Planning

Flood map for planning

Your reference	Location (easting/northing)	Created
<Unspecified>	**507129/101562**	**15 Nov 2023 9:34**

Your selected location is in flood zone 3, an area with a high probability of flooding.

This means:

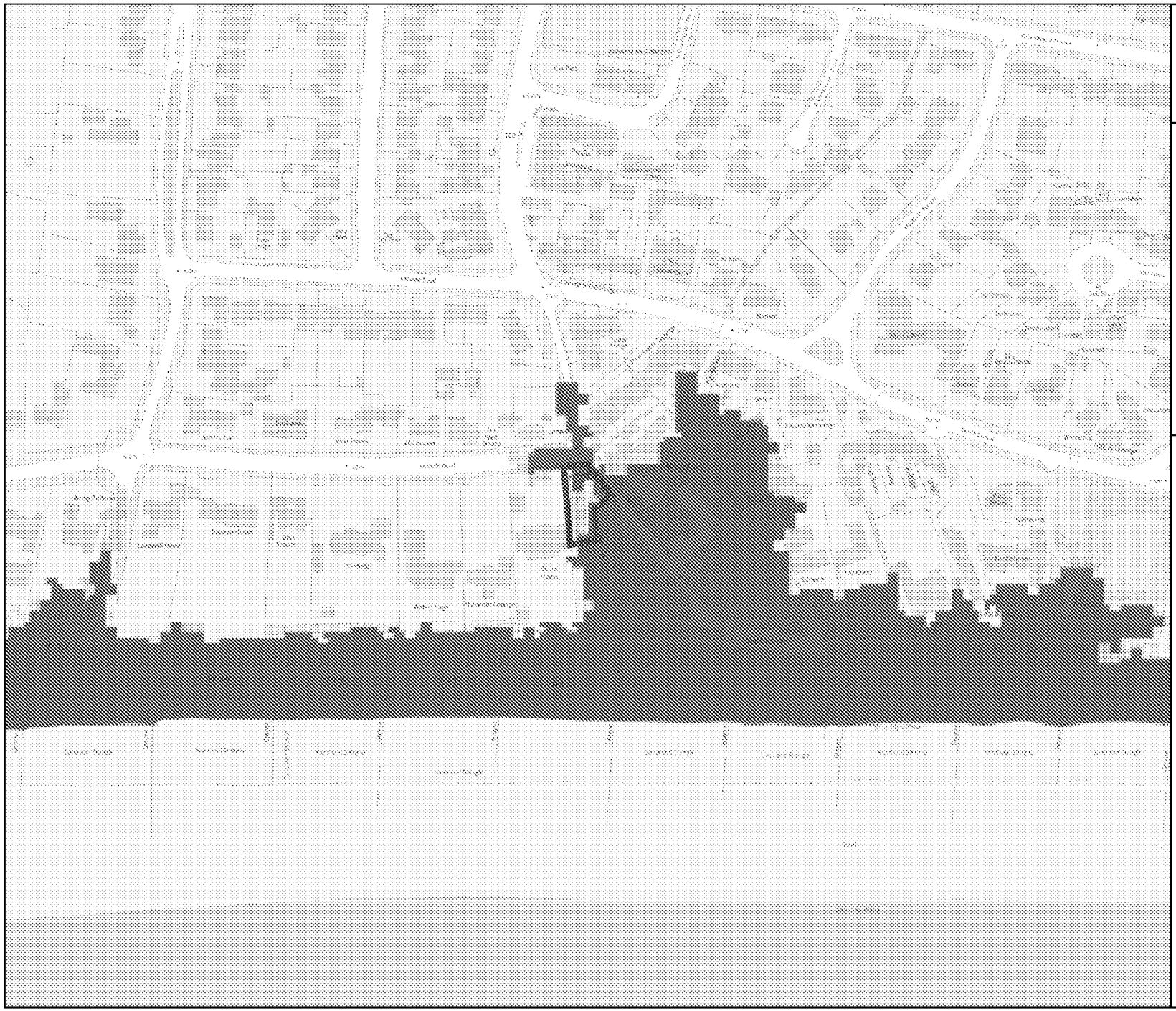
- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

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.

ARUN DISTRICT COUNCIL EP/33/25/PL



Environment Agency

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
507129/101562

Scale
1:2500

Created
15 Nov 2023 9:34

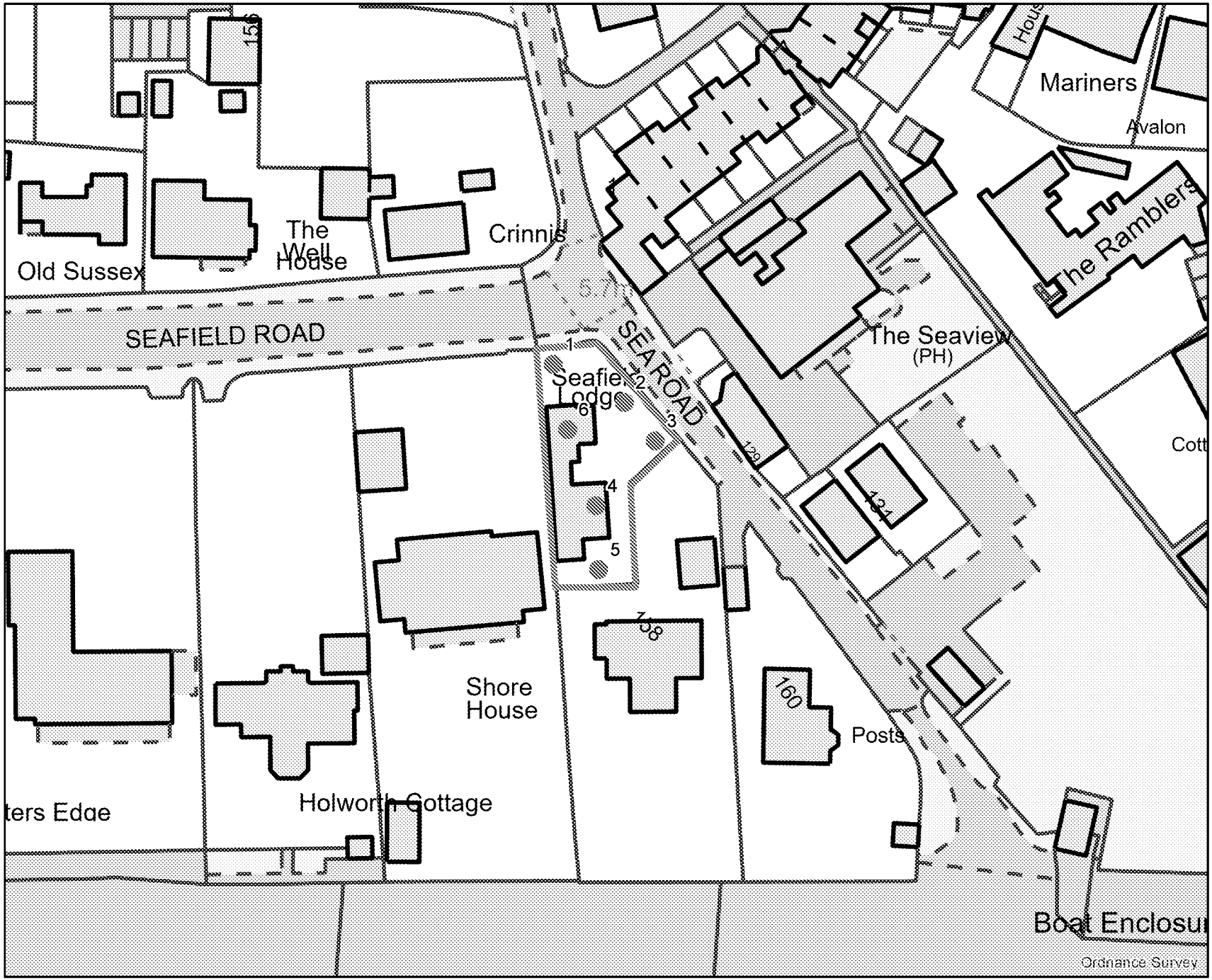
- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m

Appendix D

Environment Agency Site Nodes Map

FRA Site Boundary & Node Points. Centred BN16 1NA. Created 06/12/2023.



Environment Agency

N

Legend

Site Nodes

Site Boundary

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:750

0 0.015 0.03
Kilometers

ARUN DISTRICT COUNCIL FR/33/25/PL

Appendix E

Environment Agency Tidal Flood Levels and Depths

Product 4 Flood Risk Data Requested by: Laura Jagiela

Site: Seafield Lodge, Seafield Road, East Preston, Littlehampton, West Sussex,

BN16 1NA

Table 1: Water Levels: Tidal Undefended

	NGR		Modelled Flood Levels in Metres AOD Undefended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)**	0.5% (2115)**	0.1%
1	507121	101577	-	-	-	-
2	507131	101571	-	-	-	-
3	507135	101566	-	-	-	-
4	507127	101577	-	-	-	-
5	507127	101548	-	-	-	-
6	507123	101568	-	-	-	-

Table 2: Water Levels: Tidal Defended

	NGR		Modelled Flood Levels in Metres AOD Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)**	0.5% (2115)**	0.1%
1	507121	101577	-	5.82	5.82	-
2	507131	101571	-	-	-	-
3	507135	101566	5.78	5.82	5.82	5.80
4	507127	101577	-	-	-	-
5	507127	101548	5.78	5.82	5.82	5.80
6	507123	101568	-	-	-	-

[redacted]

Table 3: Water Depths: Tidal Undefended

	NGR		Modelled Flood Depths in Metres Undefended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)**	0.5% (2115)**	0.1%
1	507121	101577	-	-	-	-
2	507131	101571	-	-	-	-
3	507135	101566	-	-	-	-
4	507127	101577	-	-	-	-
5	507127	101548	-	-	-	-
6	507123	101568	-	-	-	-

Table 4: Water Depths: Tidal Defended

	NGR		Modelled Flood Depths in Metres Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)**	0.5% (2115)**	0.1%
1	507121	101577	-	0.02	0.02	-
2	507131	101571	-	-	-	-
3	507135	101566	0.11	0.15	0.14	0.12
4	507127	101577	-	-	-	-
5	507127	101548	0.05	0.08	0.07	0.06
6	507123	101568	-	-	-	-

All levels taken from: Arun Coast 2012 Model completed by JBA Consulting.

Produced on: 06/12/2023

*** Climate Change allowances for this model only show the superseded 20% increase in flows. The current allowances should be checked here: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.**

**** The flood risk data provided is based on existing EA hydraulic models for existing 0.5% annual probability events with an allowance for climate change. Please note the climate change allowances provided are not up to date. These were updated on 17 December 2019.**
You should refer to 'Flood risk assessments: climate change allowances' for the most up to date allowances. You will need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.

There is no additional information or health warnings for these levels/depths or the model from which they have been produced.

Office Address: Guildbourne House, Chatsworth Road, Worthing BN11 1LD.

[redacted]

Appendix F

Risk of Flooding from Surface Water (RoFSW) Map

Surface Water Flood Risk – Yearly chance of Flooding

Surface water map

Yearly chance of flooding

- (●) Flood area (extent)
  - High chance
  - Medium chance
  - Low chance

Yearly chance of flooding between 2040 and 2060

- ( ) Flood area (extent)

Map details

- [x] Show flooding
- [ ] Selected address

Surface Water Flood Risk – Yearly chance of Flooding between 2040 and 2060

Surface water map

Yearly chance of flooding

- ○ Flood area (extent)

Yearly chance of flooding between 2040 and 2060

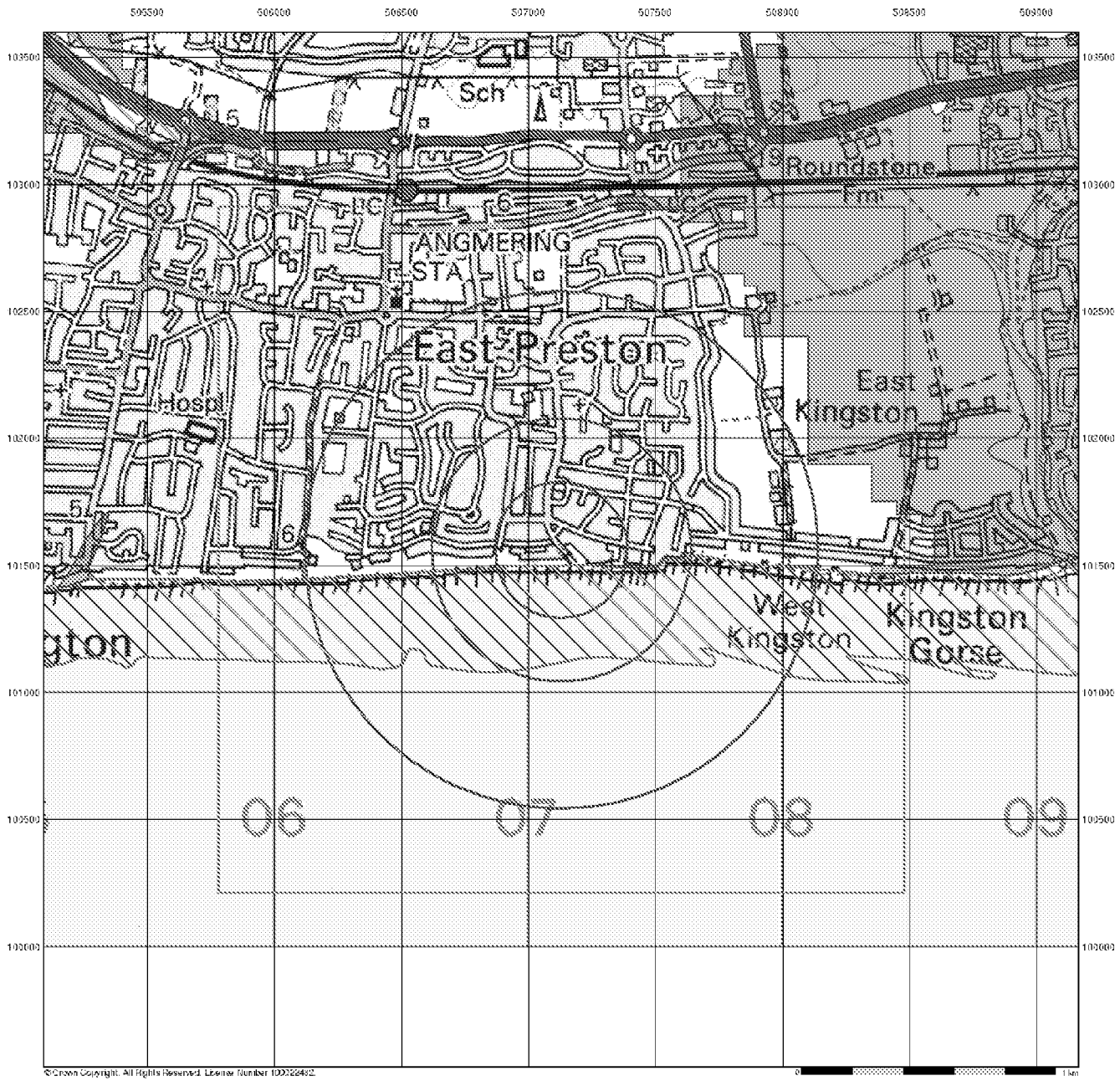
- ◉ Flood area (extent)
  - High chance
  - Medium chance
  - Low chance

Map details

- ☑ Show flooding
- ☐ Selected address

Appendix G

Groundwater Flooding Susceptibility Mapping



motion

BGS Flood Data (1:50,000)

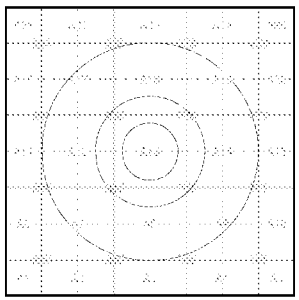
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

BGS Geological Indicators of Flooding

- Coastal
- Inland
- Bodies of Water

BGS Flood Data Map - Slice A



N

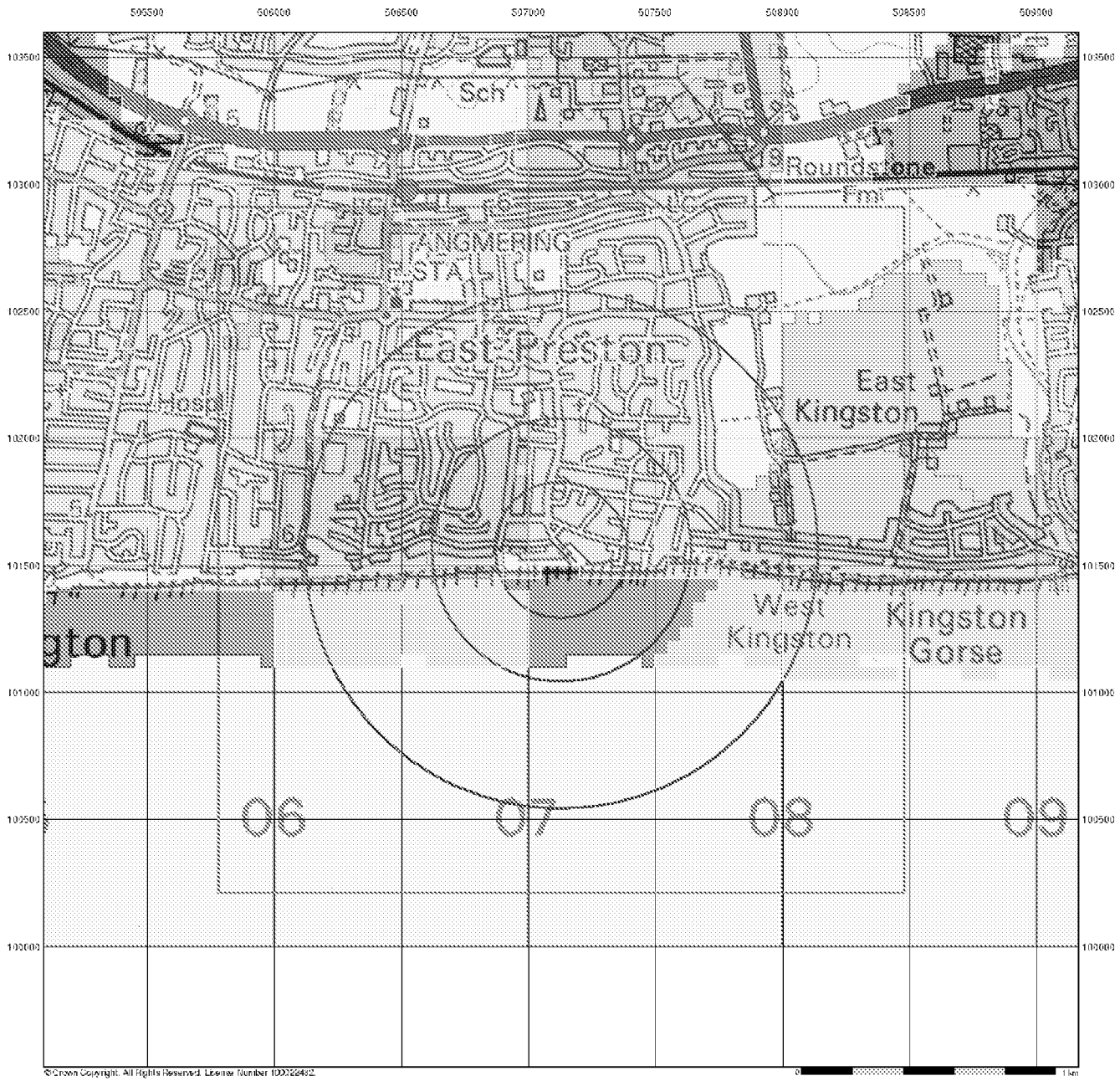
Order Details

Order Number:	328710698_1_1
Customer Ref:	1ecepr/2311040 - LJ
National Grid Reference:	507130, 101560
Slice:	A
Site Area (Ha):	0.05
Search Buffer (m):	1000

Site Details

Seafield Lodge, Sea Road, East Preston, LITTLEHAMPTON, BN16 1PD

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



motion

BGS Flood Data (1:50,000)

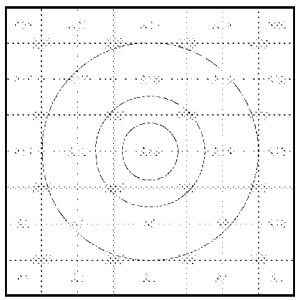
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

BGS Groundwater Flooding Susceptibility

- Potential for Groundwater Flooding to Occur at Surface
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Limited Potential for Groundwater Flooding to Occur

BGS Flood Data Map - Slice A



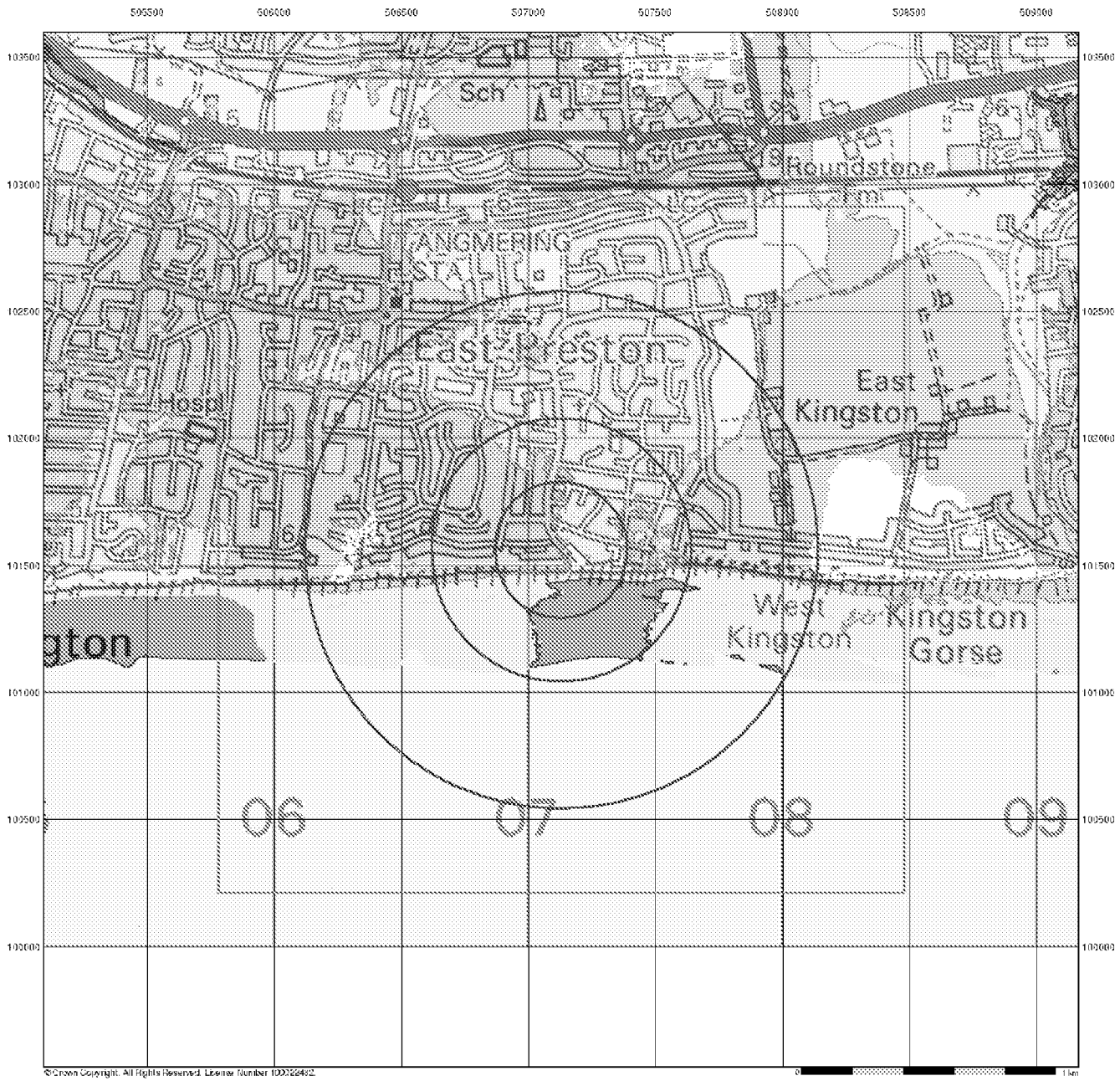
Order Details

Order Number:	328710698_1_1
Customer Ref:	1ecepr/2311040 - LJ
National Grid Reference:	507130, 101560
Slice:	A
Site Area (Ha):	0.05
Search Buffer (m):	1000

Site Details

Seafield Lodge, Sea Road, East Preston, LITTLEHAMPTON, BN16 1PD

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



motion

GeoSmart Information Groundwater Flood Map (1:50,000)

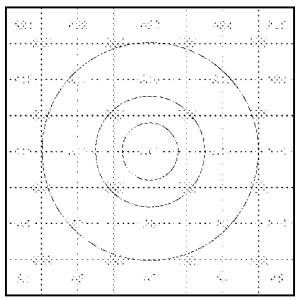
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

GeoSmart Information Groundwater Flooding Risk

- High Risk
- Moderate Risk
- Low Risk
- Negligible Risk

GeoSmart Information Groundwater Flood Map - Slice A



Order Details

Order Number:	328710698_1_1
Customer Ref:	1ecepr/2311040 - LJ
National Grid Reference:	507130, 101560
Slice:	A
Site Area (Ha):	0.05
Search Buffer (m):	1000

Site Details

Seafield Lodge, Sea Road, East Preston, LITTLEHAMPTON, BN16 1PD

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Appendix H

Reservoir Flood Risk Mapping

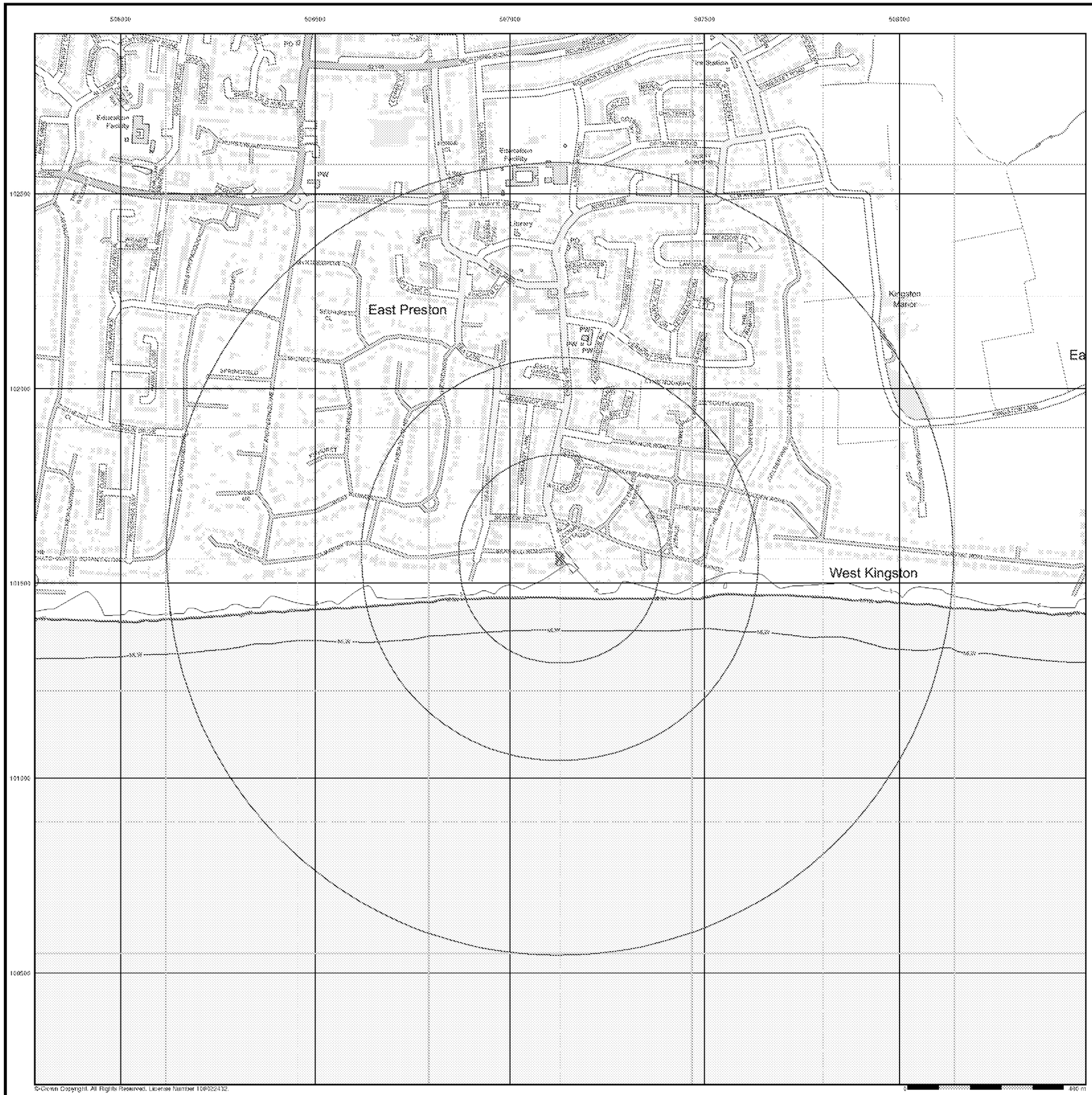
Reservoir Flood Risk

Maximum extent of flooding from reservoirs:

when river levels are normal when there is also flooding from rivers Location you selected

Appendix I

Historic Flood Risk Map



motion

EA/NRW Historic Flood Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID

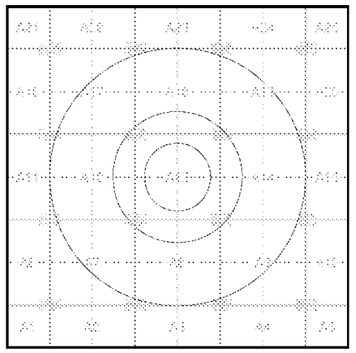
Historic Flood Events Data

- Channel Capacity Exceeded (no raised defences)
- Channel Capacity Exceeded /Surface Water
- Groundwater/High Water Table
- Local Drainage/Surface Water
- Mechanical Failure
- Obstruction/Blockage - Bridge
- Obstruction/Blockage - Channel
- Historical Flood Liabilities
- Obstruction/Blockage - Culvert
- Obstruction/Blockage - Debris Screen
- Operational Failure/ Breach of Defence
- Other
- Overtopping of Defences
- Surface Water
- Unknown

Contours (height is metres)

- Standard Contour
- Master Contour
- Spot Height
- Mean Low Water
- Mean High Water

EA/NRW Historic Flood Map - Slice A



Order Details

Order Number:	328710698_1_1
Customer Ref:	1ecepr/2311040 - LJ
National Grid Reference:	507130, 101560
Slice:	A
Site Area (Ha):	0.05
Search Buffer (m):	1000

Site Details

Seafield Lodge, Sea Road, East Preston, LITTLEHAMPTON, BN16 1PD

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk