

MONSON

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

LAND WEST OF THORNLEA PARK
OLD MEAD ROAD
WICK
WEST SUSSEX

PROPOSED RESIDENTIAL
DEVELOPMENT

FLOOD RISK ASSESSMENT

Issue: E
Date: 7th February 2020
Author: J. Finch
Verified by: L.G. Leslie
Job No: 8880D



Registered No. FS 37634

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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 Old Mead Road, Wick, West Sussex, BN17 7PU. The Site Location Plan can be seen in the Appendices.
- 1.02 This site is situated partly within Flood Zone 3, 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 (2019) 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 22 No. Class C3 Residential Houses which will be situated within the village of Wick, West Sussex. 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. However, the Environment Agency have confirmed that the River Arun has the benefit of defences, catering for a minimum 1 in 75 year event, up to the 1 in 200 year event.

- 2.06 The Strategic Flood Risk Assessment for Arun 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 As the site lies partly within Flood Zone 3 it is necessary to undertake a sequential test for the proposed development. A sequential test requires applicants to show that there are no reasonably available sites in Flood Zones 1 or 2 that could accommodate the proposed development. Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 be considered, applying the Exception test if required.
- 2.08 Attached at Appendix I is a Sequential Test report which confirms that inadequate land is reasonably available within the district to accommodate the district's housing requirement. Where a sequential test shows that it isn't possible to use an alternative site, it is necessary to do another test called the Exception Test. Whilst this is not necessary in this case, for robustness it has been carried out.
- 2.09 The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed satisfactorily, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available.
- 2.10 The two parts to the test require proposed development to show that it will provide wider sustainability benefits to the community that outweigh flood risk, and that it will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall.
- 2.11 If the application of the Sequential Test is not possible to comply with, the exception test must be passed, where a site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall. The following sections demonstrate how this is achieved. The Exception Test also requires the demonstration of the developments wider sustainability benefits to the community which outweigh flood risk.
- 2.12 A Sequential Test carried out by Batchellor Monkhouse dated March 2019 and updated in November 2019 has been prepared to support the FRA and is included in Appendix I.

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	☒
Coastal Flooding	☒
Surface Water Runoff from the Site, Adjacent or Nearby Land	☒
Flooding from Surface Water Sewers	☒
Flooding from Foul Water Sewers	☒
Flooding from Reservoirs	☒
Flooding from Groundwater	☒
Flooding from other Sources	☒

- 3.02 Flood mapping confirms there is a fluvial flood risk to the proposed site. There is a watercourse referred to as the Black Ditch, which poses fluvial risk, however it is difficult to determine between fluvial and tidal flooding from the Flood Maps for Planning or Product 4 information. Due to the site being assessed against the 1 in 200 year event + CC for Coastal Risk, rather than the 1 in 100 year event + CC normally used for fluvial risk, the flood risk assessment should be deemed adequate for both situations.
- 3.03 There is a Coastal Flood Risk identified at this site. Although the analysis within the flood risk assessment ignores the presence of flood defences. The Product 4 information provided by the Environment Agency confirms the design flood for the 1 in 200 year event + Climate Change is set at 2.99mAOD. Ground floor levels shall be set at 1.85mAOD, which will accommodate garage space, entrance hall, WC and garden rooms only. All living and sleeping accommodation will be located on the first and second floors of the new dwellings. This will ensure a comfortable freeboard of at least 1.36m above the modelled flood level based on minimum storey heights of 2.5m. This demonstrates that living areas within the accommodation can remain safe in times of flood.

- 3.04 There are some minor risks identified at this site from Surface Water Flooding according to the long-term flood risk maps. It is proposed that in the development of this site, the levels will be raised to accommodate the design flood and will be engineered in such a way that surface water is managed more effectively on site. These surface water flood maps can be found in the appendices.
- 3.05 There are no public surface water sewer shown on the Southern Water asset maps.
- 3.06 There is an existing foul sewer located in Old Mead Road. Any surcharge of this system would not affect the proposed site. The point of discharge for any foul flows from the proposed development will be at the public foul water sewer located in Old Mead Road to the East. This connection will be made under a S106 agreement with the statutory water undertaker for the area. In accordance with the recent changes to infrastructure charging effective April 1st 2018, the infrastructure charges due for the development will cover the cost of any sewer reinforcement works needed to accommodate the connections and that these connections shall not be refused on the basis of insufficient capacity. The connections of the proposed dwellings will be programmed in consultation with the Statutory Water Undertaker for the area, to ensure infrastructure upgrades can be delivered within the agreed timescales to ensure there is no risk of downstream flooding from the proposed development.
- 3.07 There is no flood risk to this site in relation to reservoirs.
- 3.08 Groundwater in these coastal areas will naturally fluctuate with tidal changes and has been acknowledged in local historical borehole records that the groundwater is very shallow in this area. It is proposed that ground levels are strategically raised to mitigate against the risk of coastal flooding, which will again mitigate against any risk of groundwater emergence. The new proposals will also 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.
- 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 partly within Zone 3 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 Stage 1 and Stage 2 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 3a – High Probability, as there is a 1 in 200 or greater annual probability of coastal flooding in this area (ignoring the presence of flood defences). Although it should also be noted that small areas at the boundary of the site have been designated as Flood Zone 3b, only designated as the probability of exceedance is estimated at a 1 in 20 year fluvial event. This is largely based on a flow exceedance graphic produced by JBA Consulting in the SFRA mapping, but does not reflect a practical use of flood storage in this area, as it only covers the fringes of the North and East site boundary. It should be acknowledged that through developing the design in conjunction with this flood risk assessment, all housing has been situated outside of the zone designated at Zone 3b. Therefore the Planning Authority should be encouraged to treat this application site as sitting wholly in Zone 3a.

5.00 Climate Change

- 5.01 The climate change allowances for developments of this type have been shown below, which have been taken from Table 1 at <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>.

South east	Upper end	25%	50%	105%
Higher central		15%	30%	45%
Central		10%	20%	35%

- 5.02 Although the product 4 data provided for the development does not include modelling data for these climate change allowances, reference to the 1 in 1000 (0.1% AEP) event has been acknowledged and compared against.

6.00 Detailed Development Proposals

- 6.01 The development proposal consists of 22 No. Class C3 Residential Houses which will be situated within the village of Wick, West Sussex. The Development Proposals may be seen in the appendices.
- 6.02 Ground levels will need to be carefully engineered to provide flood compensatory storage for the loss of storage within the footprints of the buildings. The drainage strategy plan in the appendices indicate a volume of around 973m³ can be gained by reducing the ground levels from existing by 0.320m across the open space area.
- 6.03 The Road Levels (RL) for the development should be set no higher than existing ground levels. The supporting Infrastructure will be designed around this criteria, ensuring statutory and non-statutory compliance. However, the detailed drainage design will go further, ensuring an additional 150m³ of on-site flood storage to mitigate against periods of potential tide lock.
- 6.04 This FRA and Drainage Strategy has brought the FFL's for the first and second floors to an appropriate level above the design flood for the 1 in 200 year + CC event. This level sits 1.36m above the 1 in 200 year + CC event and 1.84m above the 1 in 1000 year event, therefore demonstrates a robust approach to setting floor levels in this area. The total volume lost in flood storage from the footprint of the buildings is 965.35m³.
- 6.05 This results in a net 7.45m³ gain in flood compensatory storage.
- 6.06 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.
- 6.07 Details and any other relevant information relating to the development proposals can be found in the appendices and details in the architectural submission.

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 EA state that PLP (property level protection) measures can be the most effective in mitigating both the ingress of water to a property and help to minimise damage should water get in.
- 7.03 Manual or automatic covers for air bricks should be installed to prevent ingress of water into the cavity wall.
- 7.04 Full port non-return valves to should be installed in the ground floor toilets to prevent back flow into the property.
- 7.05 Property owners should consider installing external flood resilience doors or portable door barriers.
- 7.06 The proposed dwellings will have all the living and sleeping accommodation at the 1st and 2nd floor levels.
- 7.07 The existing external ground levels are between 1.5mAOD and 2mAOD. The Ground Floor level has been proposed at 1.85mAOD which accommodates garage space, entrance hall, WC and garden rooms only.
- 7.08 The electrical circuitry for the dwellings should also be installed at a minimum of 1.2m above the ground floor slab level to ensure adequate freeboard above the design flood can be achieved.
- 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 owners 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 designed to contain the water in such a way it does not increase flood risk elsewhere, by retaining surface water generated from the impermeable surfacing on site. This may be via a tanked infiltration system integrated in a permeable driveway construction and open SUDs in the open space area.

8.00 Off Site Impacts

- 8.01 There are no foreseen adverse 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 any 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 Old Mead Road, Wick, West Sussex, BN17 7PU. The Site Location Plan can be seen in the Appendices.
- 10.02 This site is situated partly within Flood Zone 3, 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 22 No. Class C3 Residential Houses which will be situated within the village of Wick, West Sussex. 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 partly within Zone 3 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 3a – High Probability, as there is a 1 in 200 or greater annual probability of coastal flooding in this area (ignoring the presence of flood defences). Although it should also be noted that small areas at the boundary of the site have been designated as Flood Zone 3b, only designated as the probability of exceedance is estimated at a 1 in 20 year fluvial event. This is largely based on a flow exceedance graphic produced by JBA Consulting in the SFRA mapping, but does not reflect a practical use of flood storage in this area, as it only covers the fringes of the North and East site boundary. It should be acknowledged that through developing the design in conjunction with this flood risk assessment, all housing has been situated outside of the zone designated at Zone 3b. Therefore the Planning Authority should be encouraged to treat this application site as sitting wholly in Zone 3a.

- 10.07 Ground levels will need to be carefully engineered to provide flood compensatory storage for the loss of storage within the footprints of the buildings. The drainage strategy plan in the appendices indicate a volume of around 973m³ can be gained by reducing the ground levels from existing by 0.320m across the open space area.
- 10.08 The Road Levels (RL) for the development should be set no higher than existing ground levels. The supporting Infrastructure will be designed around this criteria, ensuring statutory and non-statutory compliance. However, the detailed drainage design will go further, ensuring an additional 150m³ of on-site flood storage to mitigate against periods of potential tide lock.
- 10.09 This FRA and Drainage Strategy has brought the FFL's for the first and second floors to an appropriate level above the design flood for the 1 in 200 year + CC event. This level sits 1.36m above the 1 in 200 year + CC event and 1.84m above the 1 in 1000 year event, therefore demonstrates a robust approach to setting floor levels in this area. The total volume lost in flood storage from the footprint of the buildings is 965.35m³. This results in a net 7.45m³ gain in flood compensatory storage.
- 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 any SUDS Systems intended for the application 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

Site Location Plan
Land to West of Thornlea Park, Old Mead Road, Littlehampton



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Appendix B - Flood Maps for Planning

Flood map for planning

Your reference
Old Mead Road

Location (easting/northing)
502161/104266

Created
1 Jan 2019 5:56

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.

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

Old Mead Road

Location (easting/northing)

502161/104266

Scale

1:2500

Created

1 Jan 2019 5:56



Selected point



Flood zone 3



Flood zone 3: areas
benefitting from flood
defences



Flood zone 2



Flood zone 1



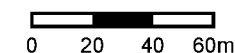
Flood defence



Main river



Flood storage area



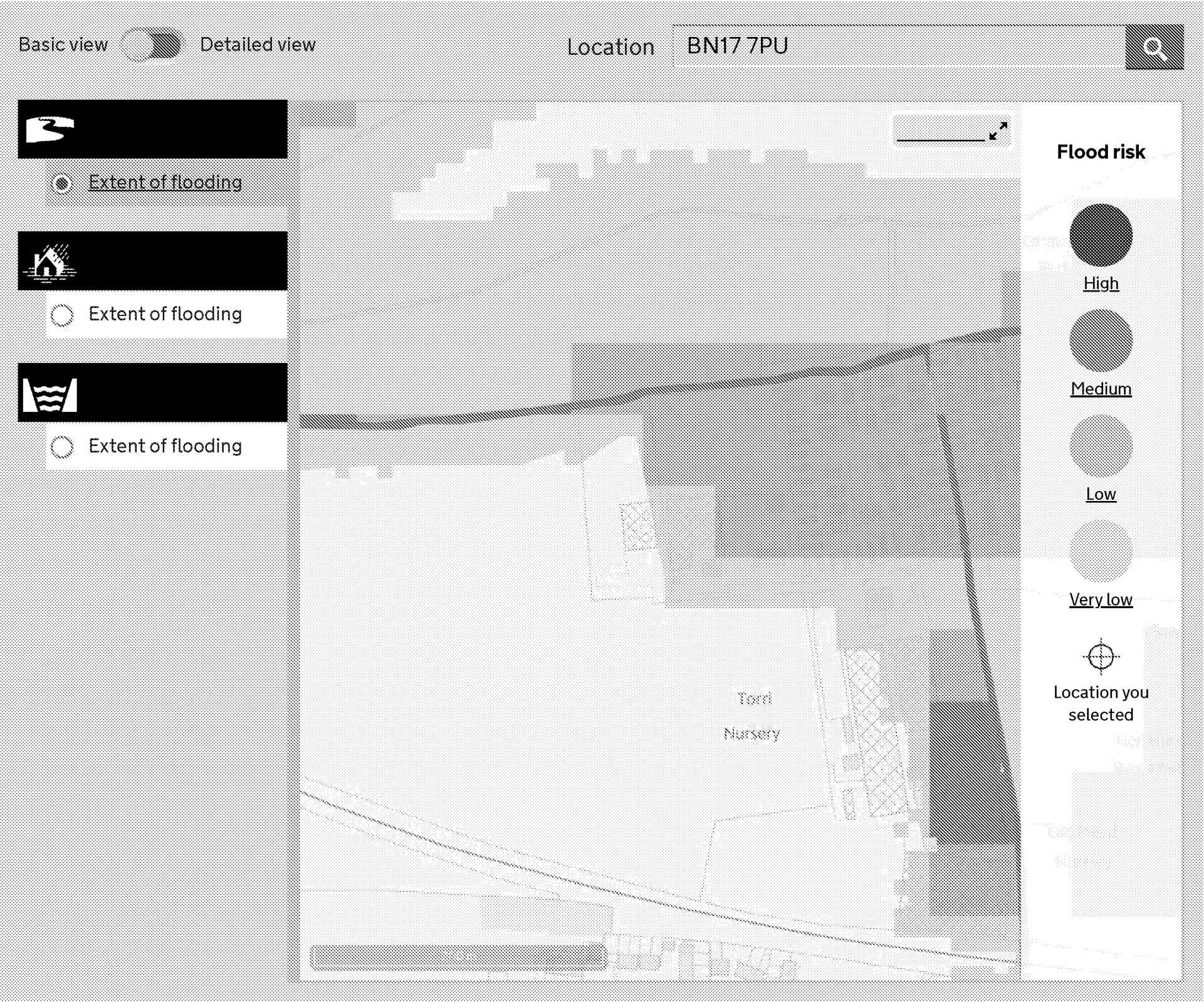
Learn more about flood risk

Select the type of flood risk information you're interested in. The map will then update.

You can [learn more about the ways we describe flood risk](#). Alternatively select a legend item or feature from the map for an explanation of that flood risk.

'Detailed view' shows more technical information.

All information, particularly the likelihood of surface water flooding, is a general indicator of an area’s flood risk. As such it is not suitable for identifying whether an individual property will flood. This service uses computer models to assess an area’s long term flood risk from rivers, the sea, surface water and some groundwater. It does not include flood risk from sources such as blocked drains and burst pipes.



► [Accuracy of surface water flood risk information](#)

[View the flood risk information for another location](#)

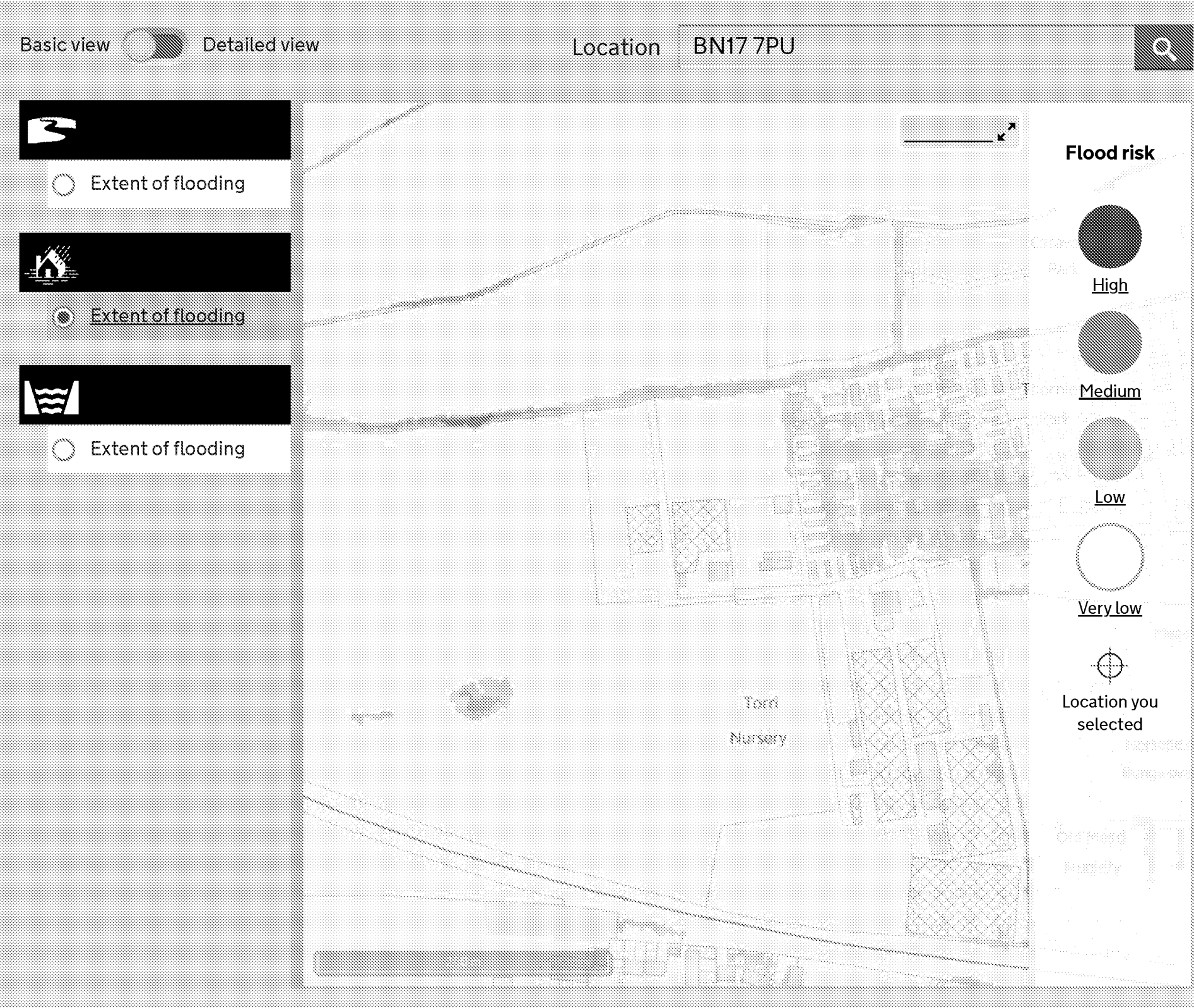
Learn more about flood risk

Select the type of flood risk information you're interested in. The map will then update.

You can [learn more about the ways we describe flood risk](#). Alternatively select a legend item or feature from the map for an explanation of that flood risk.

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► [Accuracy of surface water flood risk information](#)

[View the flood risk information for another location](#)

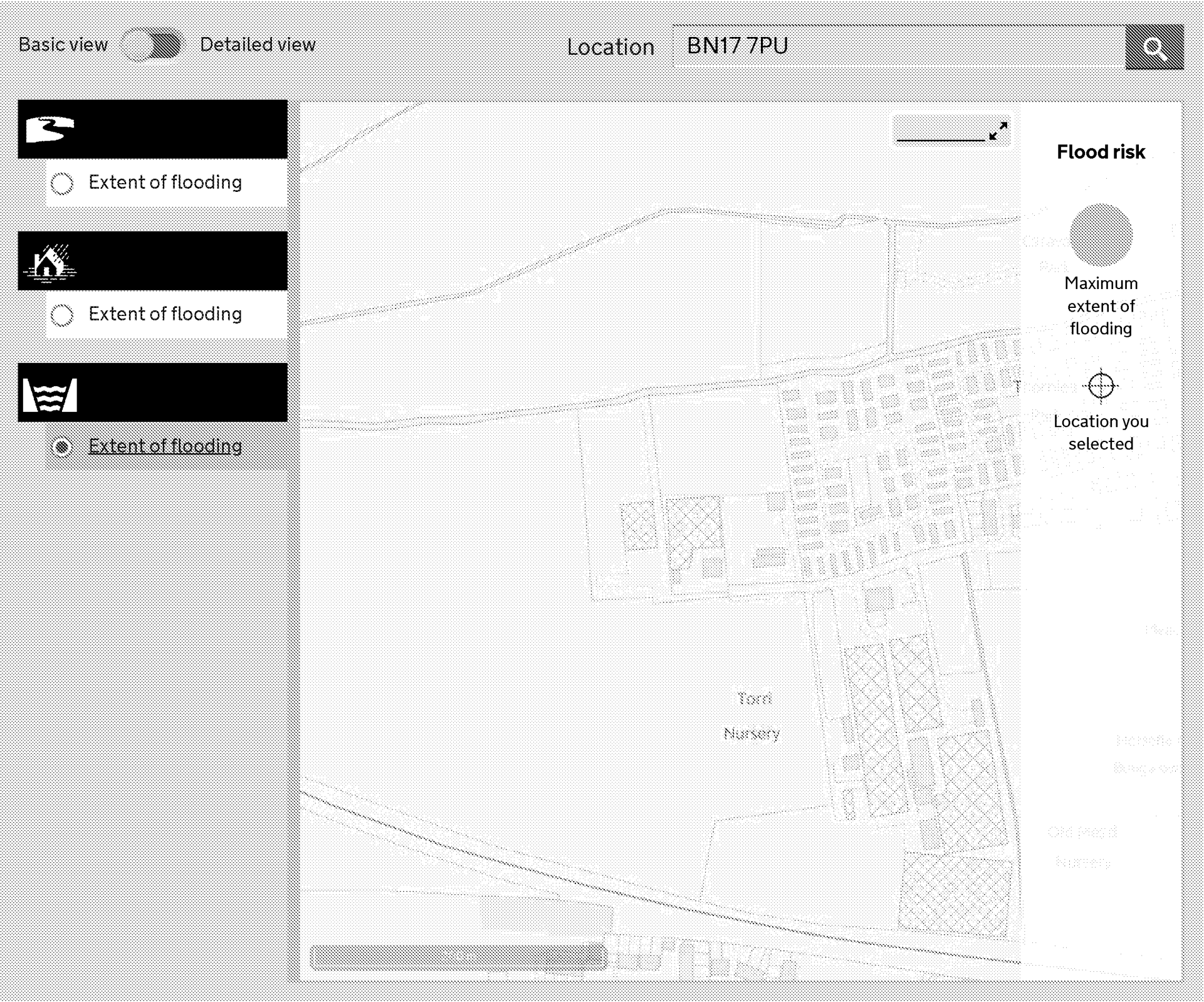
Learn more about flood risk

Select the type of flood risk information you're interested in. The map will then update.

You can [learn more about the ways we describe flood risk](#). Alternatively select a legend item or feature from the map for an explanation of that flood risk.

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► [Accuracy of surface water flood risk information](#)

[View the flood risk information for another location](#)

Appendix C - Environment Agency Product 4 Information

Our ref: SSD103272

Your ref:

Date: 01/11/2018

Dear Jamie Finch,

Enquiry Regarding Product 4 for Flood Risk Assessment for Old Mead Road, Littlehampton, BN17 7PU

Thank you for your enquiry which was received on 15 October 2018.

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 in an area located within Flood Zone 3 as shown on our Flood Map for Planning (Rivers and Sea).

Note - This information relates to the area that the above named property is in and is not specific to the 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

Please note that according to Arun Strategic Flood Risk Assessment (2016) the site is partially within Flood Zone 3b (functional flood plain, defined as the defended case 1 in 20-year annual probability - 5% Annual Exceedance Probability - event).

As stated in Table 1 (Flood Zones) of the Planning Policy Guidance (PPG) to the National Planning Policy Framework (NPPF) this zone comprises land where water has to flow or be stored in times of flood. According to Table 3 (Flood Risk Vulnerability) of the PPG, only Essential Infrastructure and Water Compatible uses are permitted in this zone, and only if the Exception Test has been passed.

Flood Defences

Raised flood embankments on the East bank of the River Arun north of the A259 road bridge offer protection from the River Arun. The standard of protection is estimated between 1in75yr and 1in200yr. There are no raised flood defences on the Black Ditch.

Model Information

The modelled levels and extents provided were taken from the 2010 Lower Tidal River Arun Strategy (LTRAS) ISIS/Infoworks RS model. Only the River Arun itself was covered by the 1D ISIS model in this location. The Black Ditch and Brookfield Ditch

were covered by the 2D Infoworks RS model domain only. A 1D submodel was created for the Black Ditch through Angmering and upstream of Angmering but not downstream. Inflows were estimated for the Black Ditch using FEH.

Flood History

We hold no record of previous flooding events affecting this site. However we are aware of localised historic flooding connected to the adjacent historic rubbish tip at the west of the site.

Please note our records are not comprehensive and may not include all events. I recommend contacting the Lead Local Flood Authority, **West Sussex County Council** or the Local Authority, **Arun District Council** for a more comprehensive flood history check.

Significant Hydraulic Structures

The Black Ditch flows into the River Arun through a triple flapped outfall. Tide-locking can occur on the Black Ditch from this point. Brookfield Ditch flows into the Arun through a single flapped outfall.

FRA advisory text

Name	Product 4
Description	Detailed Flood Risk Assessment Map for Old Mead Road, Littlehampton, BN17 7PU.
Licence	<u>Open Government Licence</u>
Information Warnings	Climate Change allowances for this model only show the superseded 20% increase in river flows. The current allowances should be checked here: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances .
Information Warning - OS background mapping	<i>The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply to this background mapping. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which the Environment Agency makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.</i>
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2018 Ordnance Survey 100024198.

Data Available Online

Many of our flood datasets are available online:

- [Flood Map For Planning \(Flood Zone 2, Flood Zone 3 ,Flood Storage Areas, Flood Defences, Areas Benefiting from Defences\)](#)

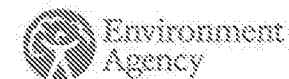
- [Risk of Flooding from Rivers and Sea](#)
- [Historic Flood Map](#)
- [Current Flood Warnings](#)

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely,

Eleonora Pilla
FCRM Officer - West Sussex

Flood Map for Planning (Rivers and Sea) centred BN17 7QA created 08/08/18



Scale 1: 10,000



Flood Map for Planning (Rivers & Sea)

- Sealed Main Rivers
- - - 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.

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Product 4 Flood Risk Data Requested by: Jamie Finch

Site: Old Mead Road, Littlehampton, BN17 7PU

Table 1: Water Levels: Fluvial Undefended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			5%	1%	1% +CC*	0.1%
1	502132	104282	2.16	2.21	2.47	2.90
2	502178	104284	2.16	2.21	2.47	2.90
3	502179	104220	2.16	2.21	2.47	2.90

Table 2: Water Levels: Fluvial Defended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Defended Annual Exceedance Probability			
			5%	1%	1% +CC*	0.1%
1	502588	104392	-	1.57	1.72	2.38
2	502656	104349	-	-	1.72	2.38
3	502702	104399	-	-	1.72	2.38

Table 3: Water Levels: Tidal Undefended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			5%	0.5%	0.5% (2110)	0.1%
1	502588	104392	2.34	2.48	2.99	2.51
2	502656	104349	2.34	2.48	2.99	2.51
3	502702	104399	2.34	2.48	2.99	2.51

Table 4: Water Levels: Tidal Defended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Defended Annual Exceedance Probability			
			5%	0.5%	0.5% (2110)	0.1%
1	502588	104392	-	-	3.13	-
2	502656	104349	-	-	3.13	-
3	502702	104399	-	-	3.13	-

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

Customer services line: 03708 506 506. Email: environment@arundistrictcouncil.gov.uk

www.gov.uk/government/organisations/environment-agency

Table 5: Water Depth: Fluvial Undefended

Node Ref	NGR		Modelled Flood Depths in Metres			
			Undefended Annual Exceedance Probability			
	Eastings	Northings	5%	1%	1% +CC*	0.1%
1	502588	104392	0.61	0.66	0.92	1.35
2	502656	104349	0.54	0.59	0.85	1.28
3	502702	104399	0.50	0.55	0.81	1.24

Table 6: Water Depth: Fluvial Defended

Node Ref	NGR		Modelled Flood Depths in Metres			
			Defended Annual Exceedance Probability			
	Eastings	Northings	5%	1%	1% +CC*	0.1%
1	502588	104392	-	0.03	0.18	0.83
2	502656	104349	-	-	0.11	0.76
3	502702	104399	-	-	0.07	0.72

Table 7: Water Depth: Tidal Undefended

Node Ref	NGR		Modelled Flood Depths in Metres			
			Undefended Annual Exceedance Probability			
	Eastings	Northings	5%	0.5%	0.5% (2110)	0.1%
1	502588	104392	0.79	0.93	1.44	0.95
2	502656	104349	0.72	0.86	1.37	0.89
3	502702	104399	0.68	0.82	1.33	0.84

Table 8: Water Depth: Tidal Defended

Node Ref	NGR		Modelled Flood Depths in Metres			
			Defended Annual Exceedance Probability			
	Eastings	Northings	5%	0.5%	0.5% (2110)	0.1%
1	502588	104392	-	-	1.58	-
2	502656	104349	-	-	1.51	-
3	502702	104399	-	-	1.47	-

All levels taken from: Lower Tidal River Arun Strategy (LTRAS) 2010

Produced on: 01/11/2018

*** 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>.

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.

Customer services line: 03708 506 506. Email: [REDACTED]

www.gov.uk/government/organisations/environment-agency





Environment
Agency

N



Legend

- Main River
- 5% AEP (Defended Fluvial)
- 1% AEP (Defended Fluvial)
- 1% AEP Plus Climate Change (Defended Fluvial)
- 0.1% AEP (Defended Fluvial)

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

Scale: 1:10,000



0 0.225 0.45
Kilometers



Environment
Agency

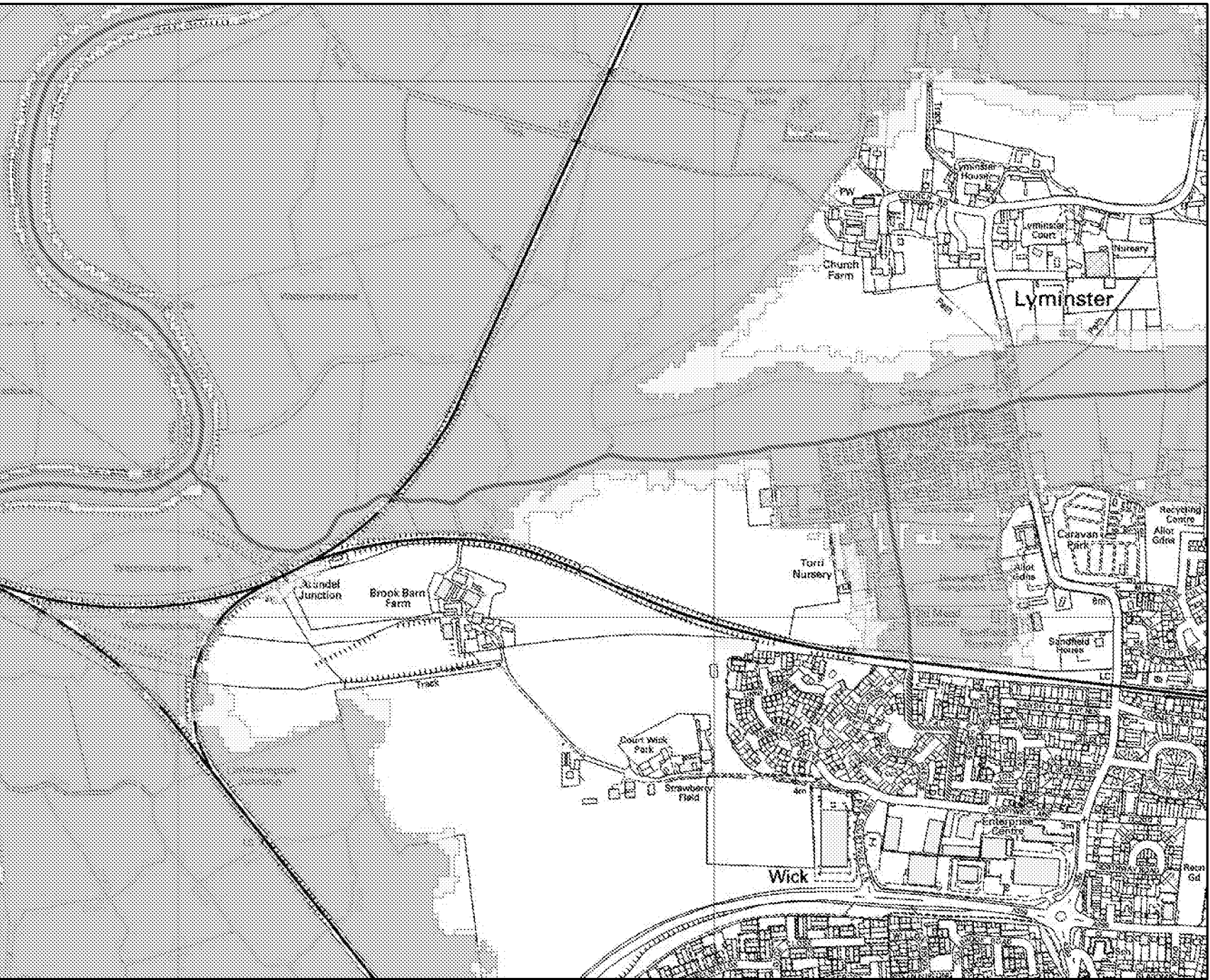
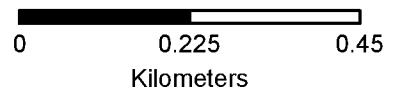


Legend

- Main River
- 5% AEP (Unfunded Fluvial)
- 1% AEP (Unfunded Fluvial)
- 1% AEP Plus Climate Change (Unfunded Fluvial)
- 0.1% AEP (Unfunded Fluvial)

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

Scale: 1:10,000







Environment
Agency

N
▲

Legend

- Main River
- 5% AEP (Defended Tidal)
- 0.5% AEP (Defended Tidal)
- 0.1% AEP (Defended Tidal)
- 0.5% AEP (2110) (Defended Tidal)

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

Scale: 1:10,000

00.2250.45

Kilometers



Environment
Agency

N



Legend

Main River

5% AEP (Undefended Tidal)

0.5% AEP (Undefended Tidal)

0.1% AEP (Undefended Tidal)

0.5% AEP (2110) (Undefended Tidal)

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

Scale: 1:10,000

00.2250.45

Kilometers





Environment
Agency

N



Legend

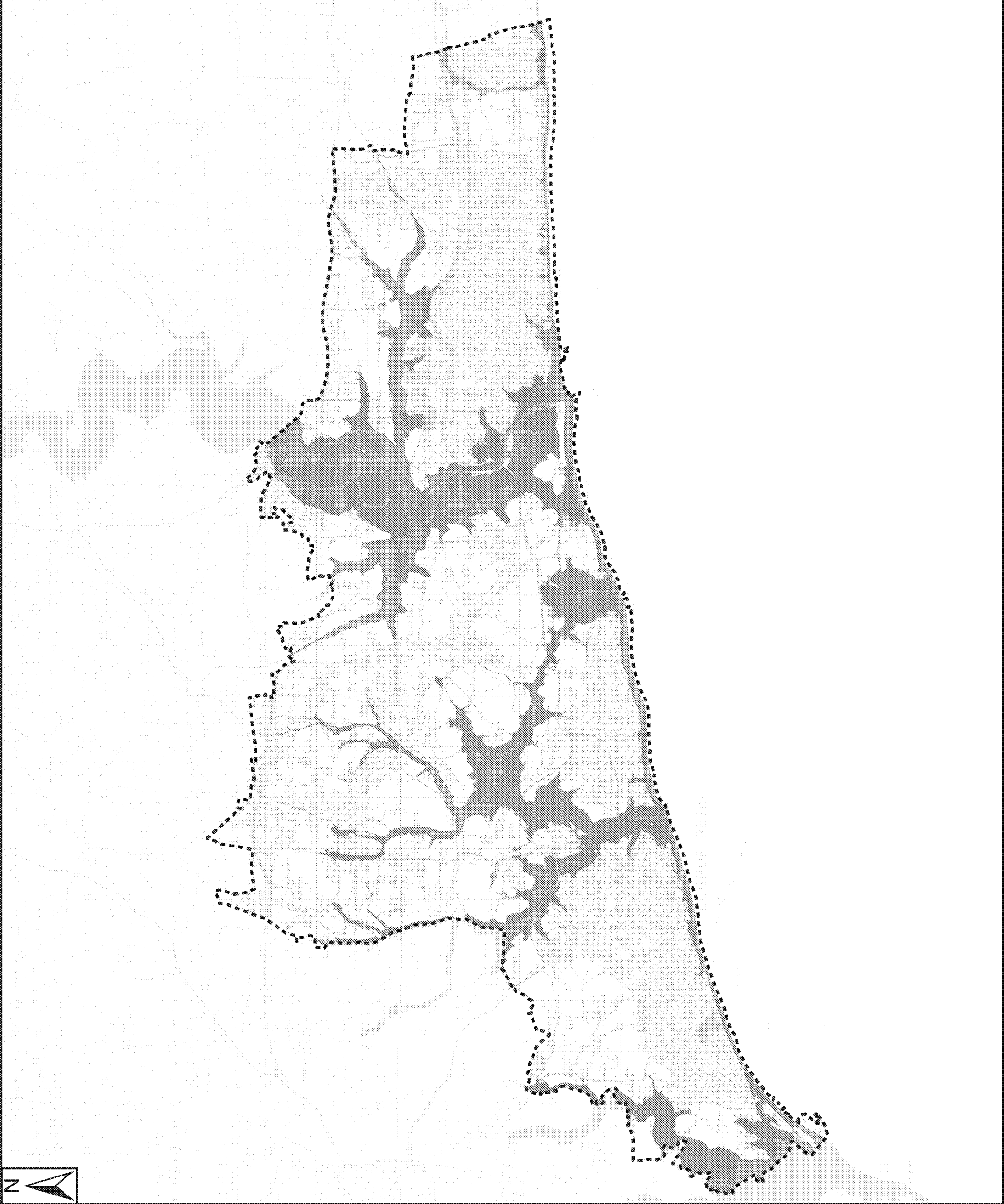
----- Main River

● Node_Points

Scale: 1:2,000

0 0.045 0.09
Kilometers

Appendix D - SFRA Mapping



Notes

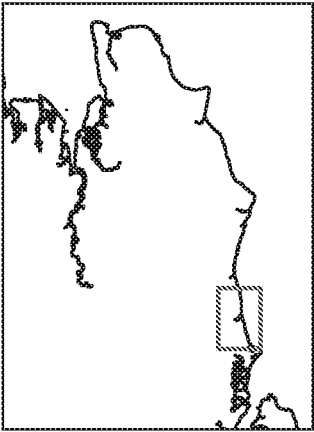
Zone 1: Comprised of land having a less than 1 in 1,000 annual probability of river or sea flooding in any year.

Zone 2: Comprised of land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding or 1 in 200 and 1 in 1,000 annual probability of sea flooding in any year.

Zone 3a: This zone comprises land assessed as having a greater than 1 in 100 annual probability of river flooding or a greater than 1 in 200 annual probability of flooding from sea in any year.

Zone 3b: This zone comprises land where water has to flow or be stored in times of flood (the traditional floodplain). The SFRA identified this Flood Zone as land which would flood with an annual probability of 1 in 20 years, where detailed modelling exists. In the absence of detailed hydraulic model information, a precautionary approach has been adopted with the assumption that the extent of Flood Zone 3b would be equal to Flood Zone 3a. If development is shown to be in Flood Zone 3a, further work should be undertaken as part of a detailed site specific

Key Plan



Legend

- Arun District SFRA boundary
- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

REF	Date	Comments
A	June 2016	-

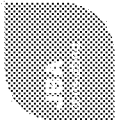


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ARUN DISTRICT COUNCIL

SFRA: APPENDIX C
FLOOD ZONES

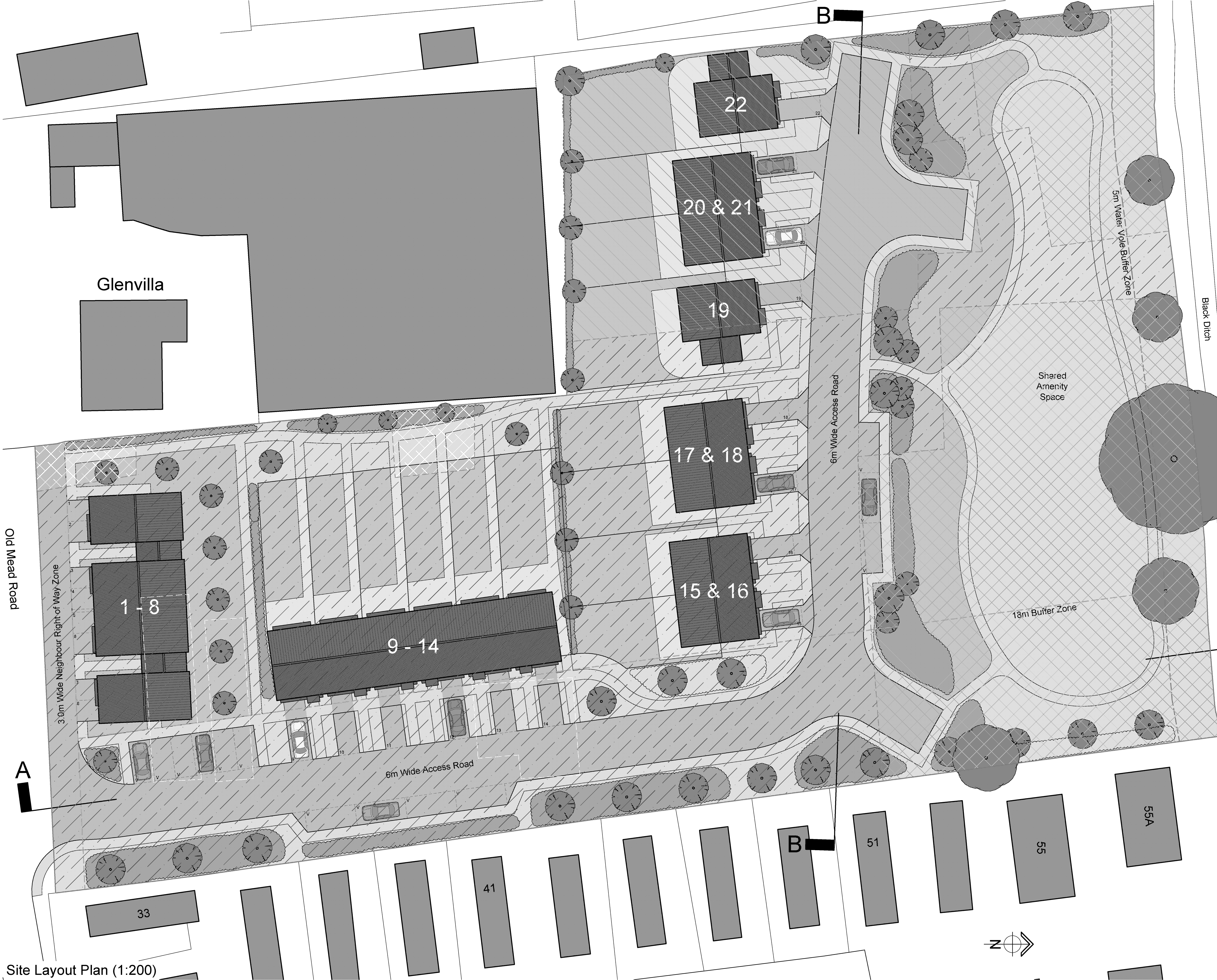
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ARUN
DISTRICT COUNCIL

Appendix E - Topographical Information

Appendix F - Development Proposals



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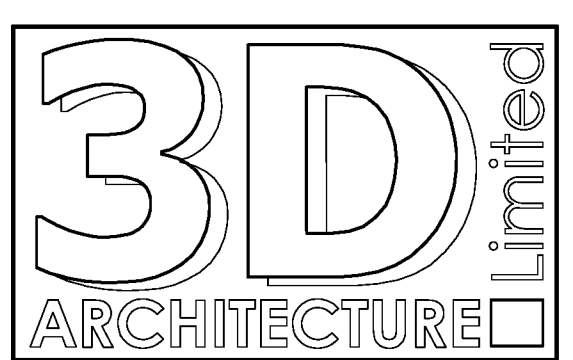
Contractor to CHECK all dimensions & report any discrepancies. All works and materials used are to fully comply with ALL standards as required by the relevant Trade Associations, British Standards, Codes of Practice, Manufacturers Specifications (BBA Certification, etc). All works to be carried out fully in accordance with any Engineer's Calculations, Details, & Instructions, as and where applicable.

Key:

Plots 1 - 8 1 Bed Flats	8 (37%)
Plots 9 - 14 2 Bed Houses	6 (27%)
Plots 15, 16, 17, 18, 20, & 21 3 Bed Houses	6 (27%)
Plots 19 & 22 4 Bed Houses	2 (9%)
	22 (100%)

- Flood Zone 1
- Flood Zone 2
- Flood Zone 3A
- Flood Zone 3B

PLANNING



3-D Architecture Limited
Suite G, Kennett House, The Office Village,
Uckfield, East Sussex, TN22 1SL
Tel: 01825 784455 Fax: 01825 784455
Email: info@3d-architecture.co.uk

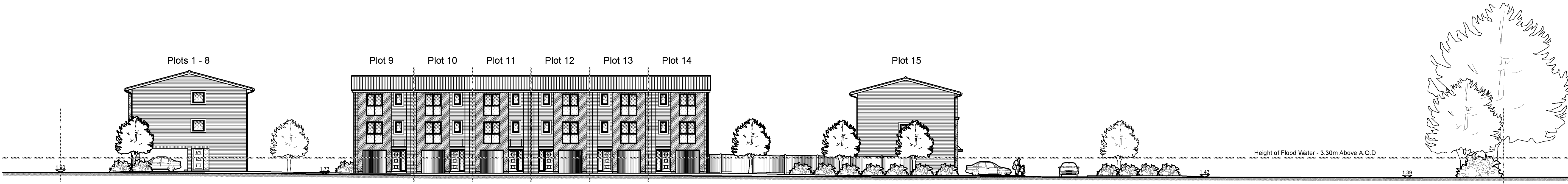
CLIENT
Thomas Alfred Homes

PROJECT
**Land to The West of Thornlea Park
Old Mead Road, Wick,
West Sussex BN17 7PU**

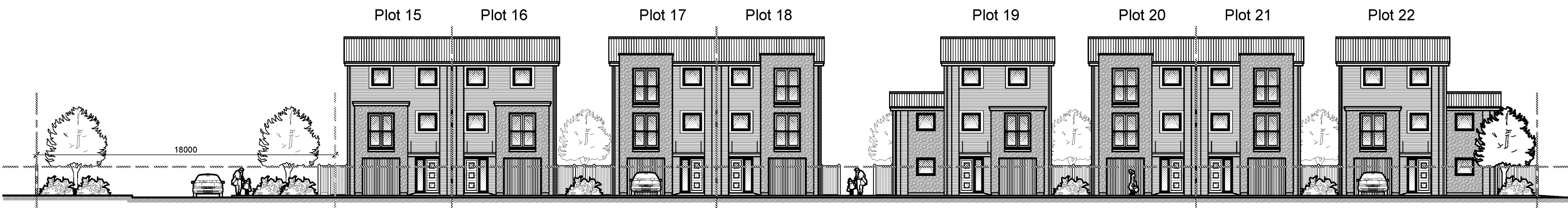
DRAWING TITLE
Proposed Site Layout Plan

SCALE	DATE	DRAWN BY
1:200	December 2019	ANH
DRAWING NO.	REVISION	
2019/124/PL02	-	

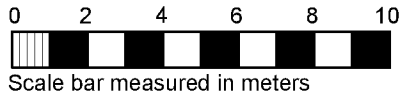
Site Layout Plan (1:200)



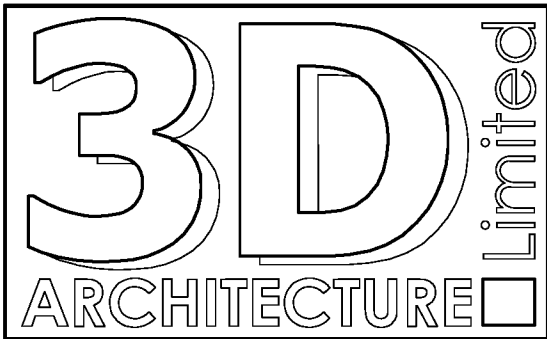
Street Scene A - A



Street Scene B - B



PLANNING



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CLIENT

Thomas Alfred Homes

PROJECT

Land to The West of Thornlea Park
Old Mead Road, Wick,
West Sussex BN17 7PU

DRAWING TITLE

Street Scenes

SCALE	DATE	DRAWN BY
1:100	December 2019	ANH
DRAWING NO.	REVISION	
2019/124/PL08	-	

Appendix G - Drainage Strategy



Appendix H - Calculations

Calculated by: Jamie Finch

Site name: Land West of Thornlea Park

Site location: Littlehampton

Site coordinates

Latitude: 50.82897° N

Longitude: 0.55098° W

This is an estimation of the greenfield runoff rate limits that are needed to meet normal best practice criteria in line with Environment Agency guidance "Preliminary rainfall runoff management for developments", WS-074/A/TR1/1 rev. E (2012) and the SuDS Manual, C753 (Ciria, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Reference: 6511461

Date: 2018-12-31T18:02:56

Methodology	IH124
-------------	-------

Site characteristics

Total site area (ha)	1
----------------------	---

Methodology

Qbar estimation method	Calculate from SPR and SAAR	
SPR estimation method	Calculate from SOIL type	
	Default	Edited
SOIL type	3	3
HOST class	---	---
SPR/SPRHOST	0.37	0.37

Hydrological characteristics

	Default	Edited
SAAR (mm)	740	740
Hydrological region	7	7
Growth curve factor: 1 year	0.85	0.85
Growth curve factor: 30 year	2.3	2.3
Growth curve factor: 100 year	3.19	3.19

Notes:

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consents are usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set in which case blockage work must be addressed by using appropriate drainage elements

(3) Is $SPR/SPRHOST \leq 0.3$?

Greenfield runoff rates

	Default	Edited
Qbar (l/s)	3.07	3.07
1 in 1 year (l/s)	2.61	2.61
1 in 30 years (l/s)	7.05	7.05
1 in 100 years (l/s)	9.78	9.78

Land West of Thornlea Park

Controlled Discharge/Soakage Rate	2.61	l/s
Total Impermeable Area	3199.6	m ²
Runoff Coefficient	1	

Storage Calculations for 1 in 100 year return period					
Storm Duration	Rainfall Intensity mm/h	Area m ²	Peak Flow l/s	Adjusted Peak Flow	Storage Required m ³
15	99.8	3199.6	88.77098	86.16098	77.54488
30	63.8	3199.6	56.74939	54.13939	97.45089
60	40.6	3199.6	36.11325	33.50325	120.6117
120	24.1	3199.6	21.43668	18.82668	135.5521
240	14	3199.6	12.45284	9.842843	141.7369
360	10.3	3199.6	9.161735	6.551735	141.5175
600	6.7	3199.6	5.959575	3.349575	120.5847
1440	3.3	3199.6	2.935313	0.325313	28.10705

Controlled Discharge/Soakage Rate	2.61	l/s
Total Impermeable Area	3199.6	m ²
Runoff Coefficient	1	

Storage Calculations for 1 in 100 year return period + 20% CC					
Storm Duration	Rainfall Intensity mm/h	Area m ²	Peak Flow l/s	Adjusted Peak Flow	Storage Required m ³
15	119.76	3199.6	106.5252	103.9152	93.52366
30	76.56	3199.6	68.09926	65.48926	117.8807
60	48.72	3199.6	43.33589	40.72589	146.6132
120	28.92	3199.6	25.72402	23.11402	166.4209
240	16.8	3199.6	14.94341	12.33341	177.6011
360	12.36	3199.6	10.99408	8.384082	181.0962
600	8.04	3199.6	7.15149	4.54149	163.4936
1440	3.96	3199.6	3.522376	0.912376	78.82926

Controlled Discharge/Soakage Rate	2.61	l/s
Total Impermeable Area	3199.6	m ²
Runoff Coefficient	1	

Storage Calculations for 1 in 100 year return period + 40% CC					
Storm Duration	Rainfall Intensity mm/h	Area m ²	Peak Flow l/s	Adjusted Peak Flow	Storage Required m ³
15	139.72	3199.6	124.2794	121.6694	109.5024
30	89.32	3199.6	79.44914	76.83914	138.3105
60	56.84	3199.6	50.55854	47.94854	172.6148
120	33.74	3199.6	30.01135	27.40135	197.2897
240	19.6	3199.6	17.43398	14.82398	213.4653
360	14.42	3199.6	12.82643	10.21643	220.6749
600	9.38	3199.6	8.343405	5.733405	206.4026
1440	4.62	3199.6	4.109438	1.499438	129.5515

Appendix I - Sequential Test

Batcheller Monkhouse

Land west of Thornlea Park
Old Mead Road
Littlehampton

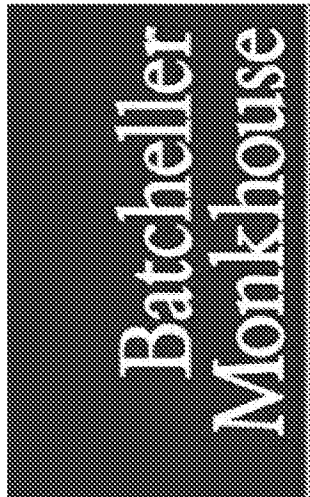
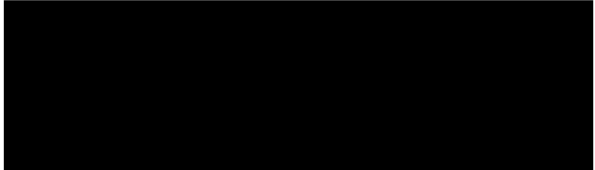
Sequential Test to support Flood Risk Assessment

March 2019
Prepared by Batcheller Monkhouse

PREPARED FOR

Thomas Alfred Homes

PREPARED BY

	OFFICE LOCATION	CLARE BARTLETT MRTPI PIEMA Head of Planning, Partner
	Batcheller Monkhouse 3-5 Swan Court Station Road Pulborough West Sussex, RH20 1RL 	

CONTENTS

1. INTRODUCTION	1
2. BACKGROUND	2
3. SEQUENTIAL TEST	3

1. INTRODUCTION

- 1.1 The NPPF requires development to be directed away from areas at highest risk of flooding. Where development is in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

2. BACKGROUND

- 2.1 The NPPF sets out the aim of the sequential test which is to steer new development to areas with the lowest risk of flooding. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding.
- 2.2 The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding. Paragraph 159 of the NPPF states that if it is not possible for development to be located in zones with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied.
- 2.3 The application site is located within Flood Zone 3. The proposed development, being housing, is classified as a 'more vulnerable' use. Given this, a sequential test is required to be carried out as part of the flood risk assessment process.
- 2.4 The sequential test aims to compare the application site with other sites that could be suitable for accommodating the proposed development that lie within lower flood risk areas.

3 SEQUENTIAL TEST

3.1 The Application Site

3.1.1 The application site is located to the west of Thornlea Park on Old Mead Road in Wick, Littlehampton. The site comprises The Bungalow which is a detached residential property, its garden and former horticultural sheds.

3.1.2 The site was identified as potentially suitable for development by reason of:

- Its location on the edge of an established residential area
- The proximity of the site to bus stops, a main road, schools, shops, healthcare facilities and other services
- A pre-application response from Arun District Council dated 5th July 2017 confirming the principle of housing to be acceptable on the site and that its development would constitute sustainable development
- The assessment of the site as ‘deliverable’ within the 2018 Housing and Economic Land Availability Assessment (an update to this assessment now assesses the site to be ‘not currently developable’ although the difference in the assessment outcomes is not understood).

3.2 The need for housing

3.2.1 The Arun Local Plan identifies a need for 1250 houses to come forward on non-strategic sites which are as yet unidentified.

3.2.2 There is also a shortfall in housing provision within the Arun District of some 209 homes accrued over the last 3 years, as identified in the Housing Delivery Test. The planning authority is therefore required to prepare an action plan to increase housing delivery in the district.

3.2.3 The Government’s objective of significantly boosting the supply of homes is supported by the NPPF. Paragraph 59 states that it is important that a sufficient amount and variety of land is available that can be developed without unnecessary delay.

3.2.4 There is therefore a need for additional sites to come forward within the Arun District beyond existing housing allocations.

3.3 Alternative Sites

3.3.1 The starting point for identifying whether there are any other available sites suitable for accommodating the development is to define the search area. The default search area for sequential testing is the district within which the site is located.

3.3.2 Sources of information for identifying possible reasonably available alternative sites include Local Plan allocations, sites with planning permission and sites submitted for consideration as part of the Housing Land Availability Assessment.

3.3.3 The application site is proposed as a non-strategic site. The Local Plan is reliant on such sites to deliver at least 1250 homes. Such sites are typically expected to accommodate less than 300 dwellings. The assessment of alternative sites therefore excludes Local Plan allocations, sites with planning permission and deliverable HELAA sites which are already accounted for within the Local Plan housing supply figures.

3.3.4 The assessment of alternative sites therefore considers sites assessed as ‘developable’ and ‘not-developable’ within the latest HELAA that are not allocated. The HELAA is the most up to date database of land potentially available for development within the district and is considered to be a reliable source of information on which to base the assessment of genuinely available alternative sites.

3.3.5 Attached at Appendix A is a list of all developable and not-developable sites which formed part of the latest (2018) HELAA assessment undertaken by Arun District Council.

3.3.6 These sites have been assessed for their likelihood of coming forward for development. Whilst many of the not-developable sites feature constraints, in some cases these would not necessarily prevent the site being developed.

3.3.7 Some sites have been assessed as being unlikely to deliver houses in the foreseeable future. The reasons why sites have been discounted include:

- Significant access issues
- Listed building(s) on site

- Open space designation
- Existing business on site
- Active community use on the site
- Landowner has not confirmed the site's availability for development
- Site is strategic in scale (ie capacity of more than 300 dwellings)
- Site is too small (ie capacity of 5 dwellings or less)
- Land that is potentially contaminated

3.3.8 In addition, as the purpose of the current exercise is to identify deliverable sites that lie within lower flood risk areas, sites in flood zones 2 or 3 or with groundwater flooding have also been discounted.

3.3.9 The table contained within Appendix A details the flood zone each site lies within, and any significant constraints reported within the HELAA. Sites highlighted in yellow are those lying solely within lower risk flood zones (ie Flood Zone 1), of a non-strategic scale and with either no significant constraints or with constraints that could be surmountable. These sites could potentially deliver 289 houses (developable sites) and 269 houses (non-developable sites).

3.3.10 This exercise has shown that there are not sufficient sites realistically available and developable to meet the Local Plan's housing requirement on land with a lower flood risk than the application site.

3.3.11 In such a circumstance where it is not possible for the development to be located in zones with a lower probability of flooding, the Exception Test can be applied.

3.3.12 The Flood Risk Assessment which this report accompanies sets out the details of the Exception Test.

Appendix A

Not Currently Developable HELAA Sites

Parish	HELAA Status	Site Size	Site Capacity based on 30dph	Flood Zone	Contamination	Ground Water Flooding	SFRA Rating	Constraints as identified within the HELAA
Aldingbourne	Not Currently Developable	41.31	1239	1	No	Yes		Site has not recently been promoted for development so may not be available
Aldingbourne	Not Currently Developable	1.09	33	1	No	Yes	v1	Site has not recently been promoted for development so may not be available
Aldwick	Not Currently Developable	0.17	5	1	No	No		The site is a car park used to serve shops and local services. The site is also not currently being promoted so may not be available for development.
Aldwick	Not Currently Developable	0.49	15	1	No	No		Site is in multiple ownership and is not currently being promoted for development. Site owner has confirmed the site is not available for development.
Aldwick	Not Currently Developable	1.62	49	1	No	No		Site is currently in use as a residential caravan site so is not currently available for redevelopment.
Aldwick	Not Currently Developable	0.15	5	1	No	No		Garages in multiple ownership. Site is not being promoted and may not be available for development
Aldwick	Not Currently Developable	0.21	6	1	No	No		Any development would potentially affect the setting of the listed building.
Aldwick	Not Currently Developable	0.18	5	1	No	No	v1	Site is important open space constrained by properties fronting onto it.
Aldwick	Not Currently Developable	0.35	11	1	No	No		Planning permission for housing on the site has expired and is no longer available for development.
Aldwick	Not Currently Developable	0.35	1	1	No	No		May be available for just one house.
Aldwick	Not Currently Developable	0.34	10	1	No	No		Site is not being promoted so may not be available for development. House on site is also listed.
Aldwick	Not Currently Developable	0.16	5	1	No	No		Unacceptable loss of important formal open space.
Aldwick	Not Currently Developable	0.39	12	1	No	No		Site lies within an Area of Special Character and is heavily wooded with mature trees. Not considered suitable for development by reason of adverse impact on the setting of the Area of Special Character. The site is also not being promoted for development so may not be available.
Aldwick	Not Currently Developable	0.14	4	1	No	No		Not considered suitable for development by reason of adverse impact on the setting of the Area of Special Character. The site is also not being promoted for development so may not be available.
Aldwick	Not Currently Developable	0.31	9	1	No	No		Not considered suitable for development by reason of adverse impact on the setting of the Area of Special Character. The site is also not being promoted for development so may not be available.

Angmering	Not Currently Developable	1.28	38	1	No	No	v1	Archaeological Notification Area, Existing Open Space, Local Green Space which would prevent development taking place unless de-allocated in the Neighbourhood Plan.
Angmering	Not Currently Developable	1.34	40	1	No	No	v1	Well treed site
Angmering	Not Currently Developable	0.08	2	1	No	Yes		
Angmering	Not Currently Developable	1.3	39	1	No	Yes		
Angmering	Not Currently Developable	1.11	33	1	Potentially	Yes		Part of site is allocated within the Neighbourhood Plan for 66 houses, so is already accounted for within the Local Plan housing figures.
Angmering	Not Currently Developable	64.41	1932	1	No	No		Site is not being promoted so may not be available for development.
Angmering	Not Currently Developable	2.04	61	1	No	No		Access and potential drainage issues. Site also lies within the built up area boundary so could be treated as a windfall site which is already allowed for within the Local Plan housing requirement
Angmering	Not Currently Developable	0.64	19	1	No	No	v1	Not suitable for housing as a station car park and railway good yard
Angmering	Not Currently Developable	1.07	32	1	No	No	v1	The site is not being promoted for housing and may not therefore be available.
Angmering	Not Currently Developable	0.61	18	1	No	No	v1	Archaeological Notification Area. The site is not currently being promoted by the landowner so may not be available for development.
Angmering	Not Currently Developable	0.32	10	1	No	No	v1	Archaeological Notification Area, Conservation Area, Listed Building. The site is not being promoted for the landowner and may not therefore be available for development.
Angmering	Not Currently Developable	0.9	27	1	Potentially	No		
Arundel	Not Currently Developable	6.07	182	3b	No	No		Sensitive site with landscape and flooding constraints.
Arundel	Not Currently Developable	1.28	38	1	No	No		Identified on the Arundel Neighbourhood Plan for installing a flood defence wall on site
Arundel	Not Currently Developable	0.48	14	2, 3a and 3b	No	Yes		TPOs on site
Arundel	Not Currently Developable	1.5	45	1	No	Yes		Access issues and designated as Local Green Space
Arundel	Not Currently Developable	0.17	5	1	No	No	v1	Conservation Area, no alternative allotment sites identified
Arundel	Not Currently Developable	0.59	18	2, 3a and 3b	No	No	v1	Settlement Gap, allotments.
Arundel	Not Currently Developable	0.15	5	2 and 3a	No	No	v1	Not currently available for development
Arundel	Not Currently Developable	0.85	26	2, 3a and 3b	No	Yes		TPOs
Arundel	Not Currently Developable	0.22	7	2 and 3a	No	Yes	v1	Sussex Biodiversity Opportunity Area

Arundel	Not Currently Developable	0.25	8	1	No	Yes		Earth stability as sloped on to the by-pass, access is an issue and ground water emergence zone
Arundel	Not Currently Developable	0.75	22	1	No	No	v1	
Arundel	Not Currently Developable	0.34	10	1	No	Yes		Landowner has confirmed site is not available as it is meant as an extension to the cemetery
Barnham	Not Currently Developable	0.35	11	2 and 3a	No	No	v1	Archaeological Notification Area. Chalk Strems, Parks, Lidsey Treatment Catchment, Existing Open Space, SCA, Local Green Space
Barnham	Not Currently Developable	8.09	243	1	No	No	v1	Lidsey Treatment Catchment and landowner has confirmed site is not available
Barnham	Not Currently Developable	1.86	56	1	No	No		Land forms open space and is a community facility
Barnham	Not Currently Developable	0.88	26	1	No	No		Site would need to be accessed via Hill Lane which is not suitable for traffic
Barnham	Not Currently Developable	1.5	45	1	No	No		Possible protected species
Barnham	Not Currently Developable	6.1	183	1	No	No	Unknown	
Barnham	Not Currently Developable	6.1	183	1	No	No		
Barnham	Not Currently Developable	0.17	5	1	No	No	v1	Site comprises car parking spaces and garages. Site is in multiple ownership and is not currently being promoted so may not be available.
Bersted	Not Currently Developable	1.38	41	1	No	No		
Bersted	Not Currently Developable	0.56	17	1	No	No	v1	Designated open space
Bersted	Not Currently Developable	0.9	27	3b	No	No		Designated open space
Bersted	Not Currently Developable	0.96	29	1	No	No	v1	Listed Building lies within the site
Bersted	Not Currently Developable	1.78	53	1	No	No		Archaeological Notification Area, site contains static caravans
Bersted	Not Currently Developable	7.69	231	1	No	No		Designated open space, part of the site has been used to accommodate the Bognor Regis relief road
Bersted	Not Currently Developable	0.08	2	1	Potentially	No	v1	Site is not currently being promoted for housing so may not be available for development
Bognor Regis	Not Currently Developable	0.28	8	1	No	No	v1	Site is in use for boat storage. Site is not currently being promoted for development so may not be available.
Bognor Regis	Not Currently Developable	0.02	1	1	Potentially	Yes		Site comprises ground floor shops. Site is not currently being promoted by landowners so may not be available for development.
Bognor Regis	Not Currently Developable	0.29	9	1	No	No		Multiple Owners who are not currently promoting the site so may not be available for development
Bognor Regis	Not Currently Developable	0.07	2	1	No	No	v1	Adj to listed building. Site is a car park and is not currently available for development
Bognor Regis	Not Currently Developable	0.11	3	1	No	No	v1	Not currently available for development but may be in the future
Bognor Regis	Not Currently Developable	0.42	13	2 and 3a	No	No	v1	Part of the site is an operational car park
Bognor Regis	Not Currently Developable	0.23	7	1	No	No	v1	The site is not being promoted for housing and may not therefore be available.
Bognor Regis	Not Currently Developable	0.09	3	1	No	No	v1	The site is not being promoted for housing and may not therefore be available.

Bognor Regis	Not Currently Developable	0.44	13	2 and 3a	Potentially	No	v1	The site is not being promoted for housing and may not therefore be available.
Bognor Regis	Not Currently Developable	1.46	44	1	No	No	v1	Allocated for retail use so not available for housing
Bognor Regis	Not Currently Developable	0.21	6	1	No	No	v1	The site is not being promoted for housing and may not therefore be available.
Bognor Regis	Not Currently Developable	0.16	5	1	No	No	v1	Well used car park that is not currently being promoted so may not be available for development
Bognor Regis	Not Currently Developable	0.12	4	1	No	No	v1	Conservation Area and grounds of a listed building
Bognor Regis	Not Currently Developable	0.16	5	1	No	No	v1	The site is not being promoted for housing and may not therefore be available.
Bognor Regis	Not Currently Developable	0.23	7	1	No	No	v1	Setting of listed buildings. Availability of the site is unknown.
Bognor Regis	Not Currently Developable	3.75	113	1	No	No		TPO, sports facilities. The site is not being promoted for development so may not be available.
Climping	Not Currently Developable	71.6	2148	1	No	No	v1	Sussex Biodiversity Opportunity Area, Settlement Gap
Climping	Not Currently Developable	1.06	32	1	No	No	v1	Sussex Biodiversity Opportunity Area, Settlement Gap
Climping	Not Currently Developable	3.08	92	1	No	No	v1	Archaeological Notification Area, Site of Islesham Church and Deserted Medieval Village, Settlement Gap
Climping	Not Currently Developable	7.49	225	2 and 3a	No	No	v1	Settlement gap
Climping	Not Currently Developable	0.25	8	1	No	No	v1	Archaeological Notification Area, Site of Islesham Church and Deserted Medieval Village, Settlement Gap
Climping	Not Currently Developable	1.18	35	1	No	No	v1	Archaeological Notification Area
Climping	Not Currently Developable	2.35	71	1	No	No	v1	Settlement Gap, Listed Building, site currently occupied by an existing business
Climping	Not Currently Developable	0.63	19	2 and 3a	No	No		
East Preston	Not Currently Developable	0.96	29	1	No	Yes		The site is not being promoted for housing and may not therefore be available.
East Preston	Not Currently Developable	1.23	37	1	No	Yes		The site is in multiple ownership and is not being promoted for housing and may not therefore be available.
East Preston	Not Currently Developable	1.2	36	2, 3a and 3b	No	No		
East Preston	Not Currently Developable	1.74	52	1	No	Yes		The site is in multiple ownership and is not being promoted for housing and may not therefore be available.
Eastergate	Not Currently Developable	1.17	35	1	No	Yes		Lidsey Treatment Catchment, Areas of Special Character, landowner confirmed site not available for housing
Eastergate	Not Currently Developable	0.28	8	1	Potentially	Yes		Lidsey Treatment Catchment, TPO, multiple ownership and site not currently being promoted so may not be available.
Eastergate	Not Currently Developable	9.45	284	1	No	Yes		Lidsey Treatment Catchment, Views of the Conservation Area to the South
Eastergate	Not Currently Developable	0.35	11	1	No	Yes		Lidsey Treatment Catchment, forms setting of conservation area and listed buildings
Eastergate	Not Currently Developable	0.35	11	1	No	Yes		Lidsey Treatment Catchment
Eastergate	Not Currently Developable	0.55	17	1	No	Yes		Lidsey Treatment Catchment, Conservation Area, Listed Building
Felpham	Not Currently Developable	0.1	3	1	No	No		The site is in use as a restaurant and flats so may not be available for development

Felpham	Not Currently Developable	58.08	1742	2 & 3a	No	No	V1	Site lies within a Settlement Gap
Felpham	Not Currently Developable	0.62	19	1	No	No		Covered by woodland and of amenity value. The site has not been recently promoted and is not considered to be available for development
Felpham	Not Currently Developable	2.89	87	2 and 3	No	Yes		Local Green Space and heritage designations. Site not recently promoted so may not be available for development.
Felpham	Not Currently Developable	0.16	5	1	No	No		Site is in multiple ownership and is not currently being promoted for development.
Felpham	Not Currently Developable	0.23	7	1	No	No		Site is open space and has TPOs. Landowner has not confirmed the site's availability for development
Felpham	Not Currently Developable	0.18	5	2 and 3	No	No		Asset of Community Value
Felpham	Not Currently Developable	0.15	5	2 and 3	No	Yes		Possible TPO. Site currently under a 10 year lease. The site is not currently being promoted for development so may not be available.
Felpham	Not Currently Developable	0.08	2	2 and 3	No	Yes		Possible TPO. The site is not currently being promoted for development
Felpham	Not Currently Developable	0.15	5	1	No	No	V1	Permission for 9 flats has lapsed. The owner has confirmed the site is not available for development.
Felpham	Not Currently Developable	0.25	8	1	No	No		TPOs on the site which is not currently being promoted for housing so may not be available.
Felpham	Not Currently Developable	0.12	4	1	No	No		Asset of Community Value. The site comprises a pub car park which is not currently being promoted for development so may not be available.
Ferring	Not Currently Developable	0.99	30	1	No	Yes		
Ferring	Not Currently Developable	0.24	1	1	No	Yes	V1	TPO on the site. Owner confirmed site only suitable for one house.
Ferring	Not Currently Developable	0.23	7	1	No	Yes	V1	Listed building and TPO on the site. Owner is not promoting the site so many not be available.
Ferring	Not Currently Developable	0.23	7	1	No	Yes	V1	TPO on the site. Multiple landowners and the site is not considered to be available.
Ferring	Not Currently Developable	0.2	6	1	No	Yes	V1	2 x TPOs on the site. The site is not currently being promoted for development so may not be available.
Ferring	Not Currently Developable	0.3	9	1	No	Yes		Settlement Gap. The site is not being promoted for housing so may not be available.
Ferring	Not Currently Developable	0.15	5	3b	No	No		The site is not being promoted for housing and may not therefore be available.
Ferring	Not Currently Developable	0.2	6	1	No	Yes	V1	The site is not being promoted for housing and may not therefore be available.
Ferring	Not Currently Developable	1.58	47	3b	No	No		Site is a static caravn site and is not being promoted for development so may not be available.
Ferring	Not Currently Developable	0.21	6	1	No	Yes	V1	The site is in multiple ownership and is not being promoted for housing and may not therefore be available.
Ferring	Not Currently Developable	0.66	20	2 and 3	No	Yes	V1	Multiple ownership. No recent promotion and 2 of the owners have confirmed they have no plans to develop their land.
Ferring	Not Currently Developable	0.21	6	1	No	Yes	V1	TPO on the site and it is not being promoted so many not be available for development.
Ferring	Not Currently Developable	0.15	5	1	No	Yes		The site lies within a Settlement Gap and is not being promoted for development.

Ferring	Not Currently Developable	0.16	5	3b	No	No		The site is not being promoted for housing and may not therefore be available.
Ferring	Not Currently Developable	0.16	5	1	No	Yes	V1	The site is not being promoted for housing and may not therefore be available.
Ferring	Not Currently Developable	0.21	6	1	No	Yes	V1	The site is not being promoted for housing and may not therefore be available.
Ferring	Not Currently Developable	0.17	5	1	No	Yes	V1	The site is not being promoted for housing and may not therefore be available.
Ferring	Not Currently Developable	0.46	14	1	No	Yes	V1	The site lies within a Settlement Gap.
Ferring	Not Currently Developable	2.93	88	1	No	Yes		
Ford	Not Currently Developable	0.87	26	1	No	No	V1	May not be available for development.
Kingston	Not Currently Developable	0.38	11	1	No	Yes	V1	The site is not being promoted for housing and may not therefore be available.
Kingston	Not Currently Developable	1.3	39	1	No	Yes		
Kingston	Not Currently Developable	69.26	2078	1	No	Yes	V1	Settlement Gap
Kingston	Not Currently Developable	0.31	9	3b	No	No		The site is not being promoted for housing and may not therefore be available.
Littlehampton	Not Currently Developable	0.79	24	2 and 3a	No			
Littlehampton	Not Currently Developable	0.88	26	2 and 3a	Yes	Yes	V1	Business currently operating from the site
Littlehampton	Not Currently Developable	0.27	8	1	No	Yes	V1	
Littlehampton	Not Currently Developable	0.33	10	2 and 3a	Contaminated Land	No	V1	Industrial unit on the site is currently in use.
Littlehampton	Not Currently Developable	0.09	3	1	No	Yes	V1	Site is located in an Area of Special Character
Littlehampton	Not Currently Developable	0.44	13	2 and 3a	No	No		Site lies within a Coast Risk Area and Ground Water Emergency Zone
Littlehampton	Not Currently Developable	0.09	3	1	No	Yes	V1	TPO on the site. Site in commercial use and unsure of availability for development.
Littlehampton	Not Currently Developable	0.14	4	1	Potentially	Yes	V1	Archaeological Notification Area. Site is in multiple ownerships and is not currently being promoted for development so may not be available.
Lyminster	Not Currently Developable	0.8	24	1	No	Yes		
Lyminster	Not Currently Developable	0.3	9	2 and 3a	No	Yes		
Lyminster	Not Currently Developable	0.8	24	1	Yes	Yes		
Middleton	Not Currently Developable	10.6	318	2 and 3	No	No		The site is owned by a number of landowners and it is not known if the site is available for development.
Middleton	Not Currently Developable	0.27	8	1	No	No	V1	Car park serving recreation ground. The site is not being promoted for development so may not be available.
Middleton	Not Currently Developable	28.8	864	2, 3a and 3b	No	Yes		
Middleton	Not Currently Developable	0.2	6	2 and 3a	No	No	V1	The site is not being promoted for housing and may not therefore be available.
Middleton	Not Currently Developable	0.33	10	1	No	No		The site is not being promoted for housing and may not therefore be available.
Middleton	Not Currently Developable	0.18	5	1	No	No	V1	The site is not being promoted for housing and may not therefore be available.

Pagham	Not Currently Developable	1.79	54	1	No	No	V1	Site currently used as football and cricket pitches. TPO on the site. The site has not recently been promoted so may not be available for development.
Pagham	Not Currently Developable	0.41	12	1	No	No	V1	the site lies in a Biodiversity Opportunity Area and Area of Special Character.. The site is in multiple ownership and is not currently being promoted for development. It may not therefore be availagble.
Pagham	Not Currently Developable	0.33	10	1	No	No	V1	The site is in multiple ownership and is not being promoted for housing and may not therefore be available.
Pagham	Not Currently Developable	0.5	15	1	No	No	V1	Open space
Pagham	Not Currently Developable	0.2	6	1	Yes	No	V1	Open space and not being promoted.
Pagham	Not Currently Developable	0.57	17	2 and 3a	No	No	V1	The site lies within an Area of Special Character and features a TPO. The site is also not available for development.
Pagham	Not Currently Developable	0.31	9	2	No	No	V1	Areas of Special Character, The site is used to store boats and as a car park. The site is not currently being promoted and may not therefore be available for development.
Pagham	Not Currently Developable	0.13	4	1	No	No	V1	Open space and site not being promoted so may not be available for development.
Rustington	Not Currently Developable	0.66	20	1	No	Yes	V1	The site is in multiple ownership and is not being promoted for housing and may not therefore be available.
Rustington	Not Currently Developable	0.08	2	1	No	Yes	V1	Site is occupied by a business.
Rustington	Not Currently Developable	0.39	12	1	No	Yes	V1	The site is a well used car park that serves the main retail area for Rustington.
Rustington	Not Currently Developable	1.5	45	1	No	No	V1	The site comprises well used allotments and is not available for development.
Rustington	Not Currently Developable	0.72	22	1	No	Yes	V1	The site comprises a listed building with a sensitive setting
Rustington	Not Currently Developable	0.51	15	1	No	Yes	V1	The site is in multiple ownership and is not being promoted for housing and may not therefore be available.
Rustington	Not Currently Developable	1.01	30	1	No	Yes	V1	The site is not available for development.
Rustington	Not Currently Developable	0.23	7	1	No	Yes	V1	The site is in multiple ownership and is not being promoted for housing and may not therefore be available.
Walberton	Not Currently Developable	39.8	1194	1	No	No	V1	The site lies in a Settlement Gap. The site's availability for development is not known.
Walberton	Not Currently Developable	0.82	25	1	No	No		Planning permission refused for 5 houses. Access would be through a farm and via a narrow lane.
Walberton	Not Currently Developable	0.39	12	1	No	No	V1	The availability of the site is not known.

Walberton	Not Currently Developable	4.97	149	1	No	No	V1	Lidsey Treatment Catchment, the site's availability for development is not known.
Walberton	Not Currently Developable	0.19	6	1	No	No	V1	Lidsey Treatment Catchment. The site is land locked and is not currently being promoted by all landowners.
Walberton	Not Currently Developable	1.1	33	1	Potentially	No		Possible access issue.
Walberton	Not Currently Developable	2.6	78	1	No	No		The land is subject to a TPO and a house on the site is listed. Other listed buildings are nearby.
Walberton	Not Currently Developable	0.4	12	1	No	Yes		Partly in Conservation Area, within Lidsey Treatment Catchment
Walberton	Not Currently Developable	0.33	10	1	No	No	V1	the site lies in Lidsey Treatment Catchment and is in multiple ownerships. It is currently unavailable for development
Walberton	Not Currently Developable	5.45	164	1	No	Yes		North of the site comprises Ancient Woodland. Site lies in Lidsey Treatment Catchment
Walberton	Not Currently Developable	1.54	46	2 and 3a	No	Yes		The site lies in the Conservation Area and features a TPO.
Walberton	Not Currently Developable	3.09	93	1	No	No	V1	The site lies in Lidsey Treatment Catchment. Availability is unknown.
Westergate	Not Currently Developable	0.8	24	1	No	Yes	No	Lidsey Treatment Catchment
Yapton	Not Currently Developable	0.24	5	1	No	No	V1	The site is located in the Lidsey Treatment Catchment and is constrained by listed buildings a TPO, and Conversation Area. These constraints are likely to reduce capacity to less than 6 dwellings.
Yapton	Not Currently Developable	4.09	123	1	No	Yes		Lidsey Treatment Catchment
Yapton	Not Currently Developable	0.28	8	1	No	No		Lidsey Treatment Catchment. Adjacent to a railway line.
Yapton	Not Currently Developable	1.29	39	1	No	No		The site lies in the Lidsey Treatment Catchment and Archaeological Notification Area. Heritage constraints would prevent development.
Yapton	Not Currently Developable	7.2	216	2 and 3a	No	Yes		Public Right of Way Through the Middle of the Site, Archaeological Notification Area
Yapton	Not Currently Developable	0.56	17	1	No	Yes		
Yapton	Not Currently Developable	3.3	99	1	No	No	V1	
Yapton	Not Currently Developable	1.53	46	1	No	No	V1	

Developable HELAA Sites

HELAA Status	Site Size (hectares)	Site Capacity	Flood Zone	Potential for Contamination	Ground water flood risk	SFRA rating	Constraints
Developable	2.5	78	1	No	No		
Developable	1.6	48	1	No	Yes		
Developable	29	870	1	No	Yes		
Developable	0.38	11	1	No	Yes	V1	
Developable	0.54	16	2 and 3a	No	No		
Developable	0.37	11	1	No	Yes		
Developable	0.4	12	1	Yes	Yes		
Developable	3.18	95	1	No	Yes		
Developable	8.4	269	1	No	Yes		
Developable	6.2	218	1	No	Yes		
Developable	0.17	8	2 and 3A	Yes	No		
Developable	2.42	73	1	No	Yes		
Developable	5.37	161	1 and 2	No	No		
Developable	0.47	14	1, 2 , 3a and 3b	No	Yes		
Developable	1.06	80	1	No	Yes		
Developable	0.95	33	1	No	Yes		
Developable	0.33	20	1	No	No	V1	
Developable	1.26	95	1	No	Yes		
Developable	0.69	21	1	No	No	V1	
Developable	1.53	20	1	No	No	V1	
Developable	0.14	6	1	No	Yes		
Developable	0.19	6	1, 2, and 3a	Yes	Yes		
Developable	0.18	6	1	No	Yes		
Developable	14	294	1	No	No		Site is being promoted for a secondary school, library and health facility and open space.
Developable	1.54	70	1,2 and 3	No	Yes		
Developable	0.2	9	1, 2 and 3a	No	Yes		
Developable	0.35	14	1	No	No		Existing commercial uses on site would need relocating
Developable	0.6	21	1	No	Yes		
Developable	32.2	580	1, 2 and 3a	No	No		
Developable	30.65	552	1, 2 and 3a	No	No		
Developable	3.64	77	1, 2 and 3a	No	No		
Developable	0.18	6	1	No	No		
Developable	4.8	100	1	No	No		Located within a gap in between settlements.
Developable	5.05	97	1	No	Yes		Site may not be available for development
Developable	52	267	1	No	No		
Developable	0.26	9	1	No	No		Site comprises a church which is a community asset.
Developable	0.2	7	1	No	Yes	V1	
Developable	5	105	1	No	No		
Developable	1	24	1	No	Yes		

Developable	0.33	10	1	No	No	V1	
Developable	6.9	124	1	No	No	V1	
Developable	7.4	133	1	No	Yes		
Developable	1.5	36	1	No	No	V1	
Developable	10.8	380	1	No	No		
Developable	7.68	230	1	No	Yes		
Developable	0.54	16	1	No	Yes		
Developable	6.9	226	1, 2 and 3	No	No		