PILNING & SEVERN BEACH NEIGHBOURHOOD PLAN

SEQUENTIAL TEST RELATING TO FLOOD RISK

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INTRODUCTION

1. This document has been prepared in support of the Pilning & Severn Beach Neighbourhood Plan. Its purpose is to demonstrate that those sites identified for development in the neighbourhood plan that are in or contain areas of higher flood risk are appropriate for development in the context of the sequential test relating to flood risk, as required by the National Planning Policy Framework (NPPF) and the Planning Practice Guidance on Flood Risk and Coastal Change.

2. The aim of the sequential test 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.The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.' (NPPF para 174/5)

3. The Neighbourhood Plan seeks to identify suitable sites for various forms of development and has due regard for all constraints including flood risk. As part of the formation of the plan a Housing Needs Assessment was undertaken which identified a requirement for 246 new dwellings and this sequential test should identify the most appropriate sites for this number.

Assessing Flood Risk

4. Flood risk is assessed in terms of zones with specific probability parameters. These zones are set out and defined in Table 1 below

Table 1 – Flood risk 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 sea 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 sea 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 Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Source – Planning Practice Guidance

5. The 'Flood Map' referred to in this table is the Environment Agency's 'Flood Map for Planning'.

6. The Planning Practice Guidance on Flood Risk and Coastal Change attributes flood risk vulnerability status to various types of development in a flood risk vulnerability classification system. The main classes of development are –

   Essential Infrastructure – for transport or utilities infrastructure, such as electricity substations;

   Highly vulnerable – emergency services (police, fire, ambulance stations,) and dwellings with basements etc.;

   More vulnerable – housing, hospitals, care homes, etc Less vulnerable – shops, buildings used for agriculture etc.

   Water-compatible development – outdoor sports and recreation facilities, amenity open space etc.

   The full classification as set out in the Planning Practice Guidance is reproduced at Annex 1.

7. Using the flood zone risk categories and the flood risk vulnerability classification, the Planning Practice Guidance provides a flood risk vulnerability and flood zone compatibility table, which sets out the circumstances in which an exception test is required. The resulting table is reproduced at Table 2.

Table 2 Flood risk vulnerability and flood zone compatibility

Flood Zone Flood-Risk Vulnerability

	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
1	√	√	√	√	√
2	√	Exception test required	√	√	√
3a	Exception test required	X	Exception test required	√	√
3b	Exception test required	X	X	X	√

Key

√ Development is appropriate

X Development should not be permitted.

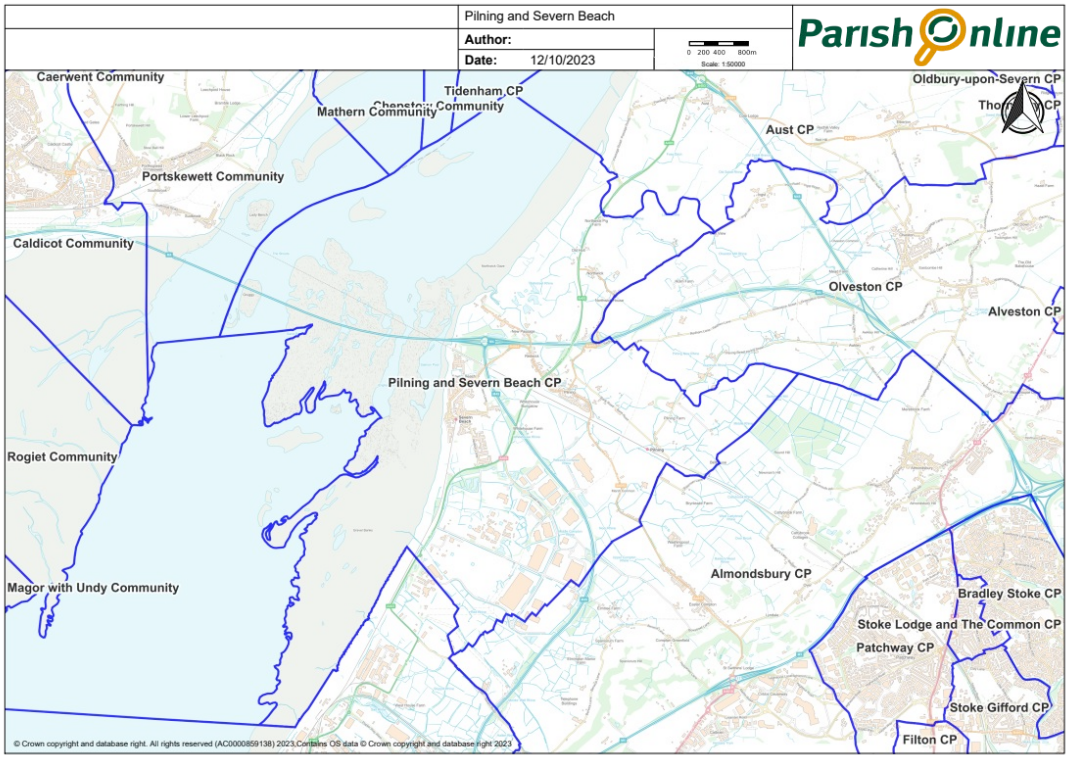
Source – Planning Practice Guidance

CONTEXT

8. The area covered by this sequential test is the Pilning & Severn Beach Parish area, which also forms the designated Neighbourhood Area, as shown at Map 1 below. The reason for this is that the Neighbourhood Plan cannot consider allocation outside the designated area and because the objectives of the plan cannot be met outside the designated area. Accordingly, only available sites within the Neighbourhood Area have been included in the sequential test and this approach has been confirmed as acceptable to and by South Gloucestershire Council.

9. The Neighbourhood Plan seeks to deliver 246 new dwellings and up to 41 units of specialist homes for older people across the Parish. In addition, it seeks to create both visitor and commuter parking at Severn Beach along with retail and hot food takeaway facilities.

Map 1 – Designated Neighbourhood Area

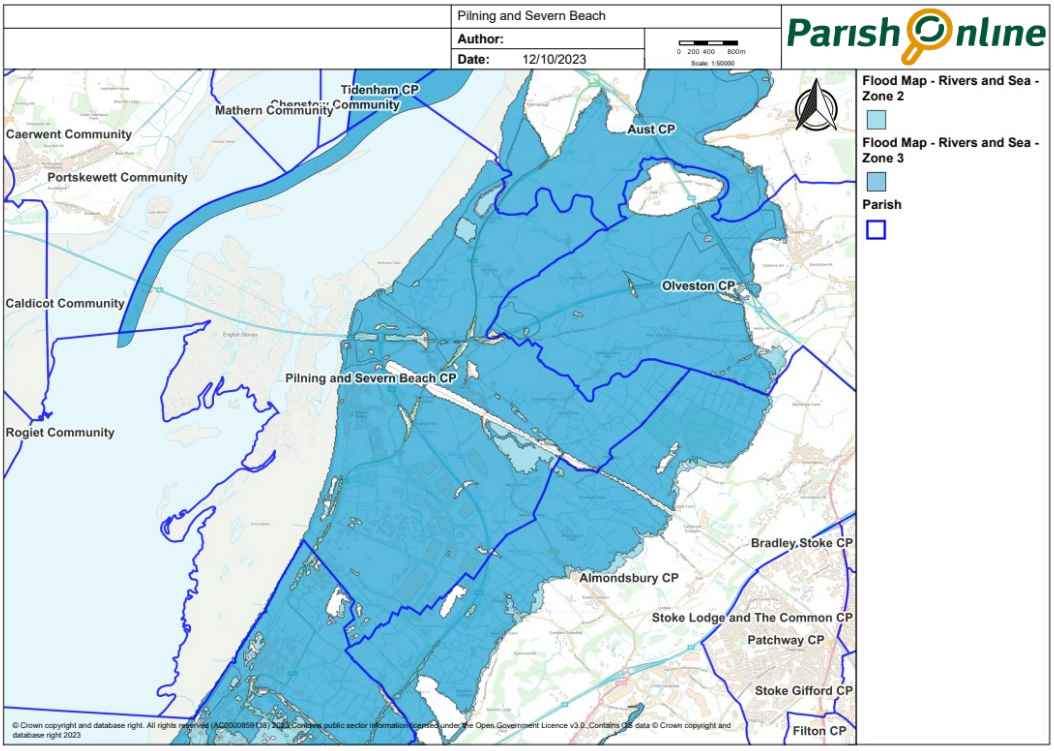


10. The local planning documents of relevance to the Pilning & Severn Beach Neighbourhood Plan are the saved policies of the South Gloucestershire Local Plan Core Strategy (2006) and the emerging Local Plan expected to be adopted in 2026. Also relevant are South Gloucestershire Council's Level 1 Strategic Flood Risk Assessment (2018 and updated in 2022).

11. Pilning & Severn Beach Parish is bounded along its western edge by the Severn Estuary and the entirety of the parish sits on its flood plain. Substantial flood defences protect much of the parish from tidal flooding and a network of drainage channels, known as rhines, act to control surface water and ground water flooding. Tidal flooding is the dominant flood risk for the area and Map 2 shows the extent to which the parish is

dominated by flood zone 3 designation. This designation ignores the presence of the flood defences.

Map 2 – Flood Zones around the Parish of Pilning & Severn Beach



Source – Parish Online

12. As part of the development of its emerging Local Plan, South Gloucestershire Council administered a Call for Sites exercise. This generated 22 sites in the Pilning & Severn Beach Neighbourhood Area. In addition, the Neighbourhood Plan Steering Group undertook a similar exercise which generated a further 11 sites for consideration and the Steering Group also identified potential development sites that had not been brought forward by either of the Call for Sites exercises, assessed their suitability and established whether they may be available. Ultimately, the Steering Group assessed 14 sites in the Neighbourhood Area for their suitability for development, using South Gloucestershire Council's SFRA Level 1 data and site selection methodology.

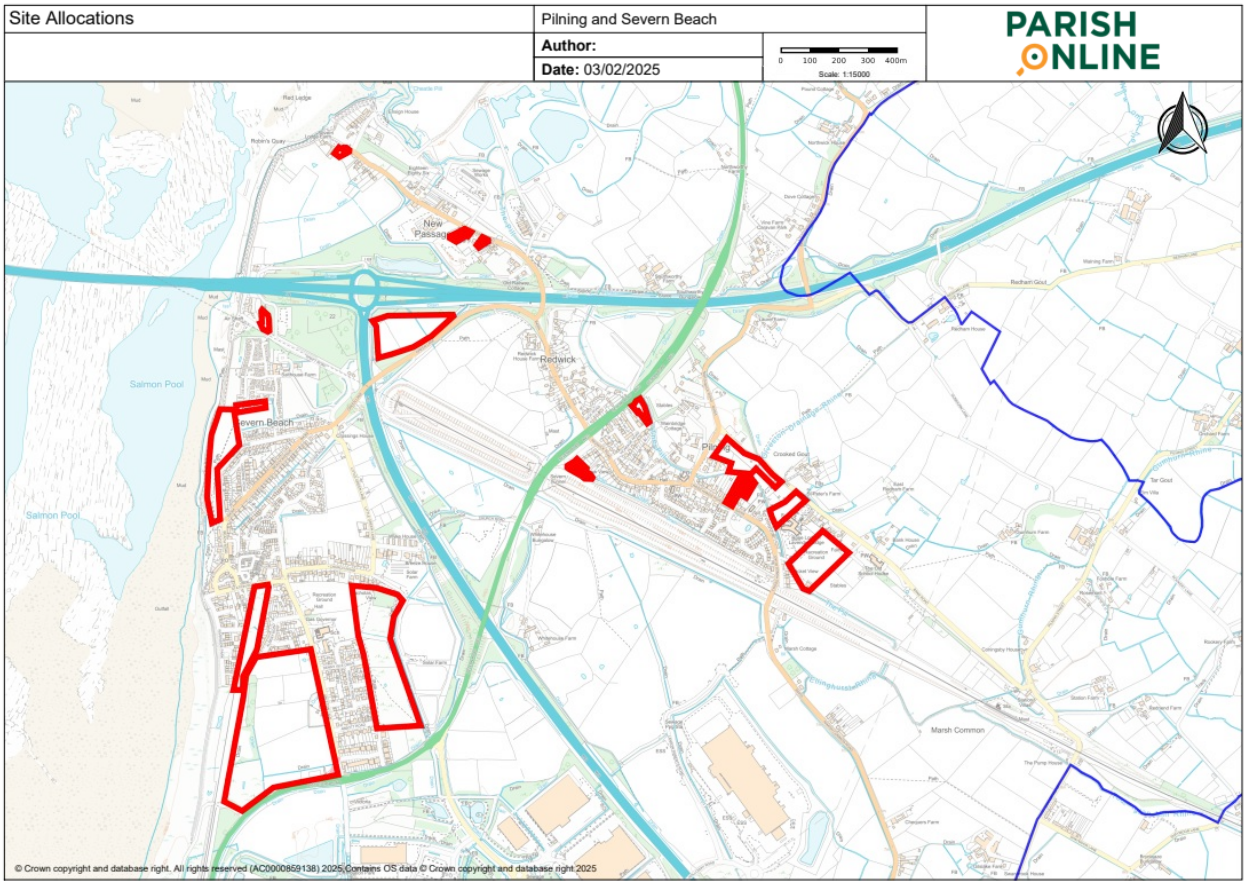
13. In order to fully consider the potential impact of flooding on individual sites the Steering Group not only considered the location of the site but also ascertained the development types proposed by developers, the number of units they proposed to deliver and whether any access to them would be located in the areas of the site with an increased risk of flooding.

14. As part of the Regulation 14 consultation exercise, the Steering Group will also consult the Environment Agency.

15. Prior to undertaking the Sequential Test the Steering Group commissioned AECOM to undertake an assessment of all sites identified via the SGC Call for Sites and the NPSG Call for Sites. Following this assessment sites located in the Green Belt but not within or adjacent to a settlement boundary were screened out of any further consideration as this constraint renders them unsuitable for most forms of development. A summary of AECOM's findings is shown at *Annex 2*.

16. The sites that the sequential test was applied to are set out in Map 3 below.

Map 3 – Sites included in the Sequential Test



SEQUENTIAL TEST ASSESSMENT

17. In carrying out the sequential test the Steering Group recognised the requirement, as far as possible, to direct proposed development uses to Flood Zone 1. There is no naturally occurring flood zone 1 land in the Parish with most being created for and occupied by road or rail infrastructure. There is a small area of flood zone 1 at the junction of Northwick Road and Bank Road, Pilning but this is outside the settlement boundary in the Green Belt and much of this land owes its elevation to landfill activity which will render it difficult to build on. In addition, it is already partially developed and the owners have not suggested that it is available. Given the very limited availability of Flood Zone 1 land, as shown on Map 2 above, it was necessary for the Steering Group to consider the suitability of land in flood zones 2 and 3 and apply the risk matrix shown in table 2 above. The delineation of flood zones on individual sites in South Gloucestershire's sequential test statement was used as the basis for this stage of the test and was checked against the Environment Agency Flood Map for Planning (https://flood-map-for-planning.service.gov.uk).

18. Where sites intersected one or more other flood zones, both risks were identified, and consideration was given to the development suitability of the various areas.

19. Table 1 at appendix A shows the proportion of the flood zones on each site under consideration for allocation from South Gloucestershire Council's level 1 SFRA. For sites

that were not identified as part of South Gloucestershire's Call for Sites but are to be considered here, the Steering Group has ascertained the proportions from the Environment Agency's Flood Map for Planning. Additional flood information for all sites considered was obtained from Environment Agency Product 6 data which was supplied in November 2024 and contains extensive modelling of post ASEA defences. The relevant data for each site is provided below.

20. To ensure conformity with South Gloucestershire Council's Level 1 SFRA the ground water and fluvial flooding risk to these sites has been assessed using the same data sources as listed in the report prepared by JBA. In relation to tidal flooding, all sites have been assessed using the Environment Agency's post ASEA development 2123 modelling as this meets the requirements of the "Design Flood" specified by the NPPF. It offers the best insight into the tidal flood risk having regard for UKCP18 sea level rise predictions and the anticipated efficacy of the flood defences that have just been improved. See Map at Appendix B for details.

21. All sites considered are wholly or partially contained within flood zone 3. As such there are no sites wholly within flood zone 1, no sites wholly within flood zone 2 and no sites contained within both flood zones 1 and 2. Accordingly, the flood zone based assessment methodology used in the South Gloucestershire Level 1 SFRA did not yield a sufficiently clear output to adequately reflect the intention of the sequential test i.e. to steer new development to areas at lower risk of flooding.

22. In order to establish a hierarchy of risk in circumstances where flood zone 3 dominates the area, the Steering Group considered the other metrics available for site comparison. As tidal flood risk dominates in this location, the Steering Group sought to assess flood risk by reference to the NPPF design flood parameters (2123 0.5% AEP defended). This allowed the Steering Group to steer development, especially More Vulnerable types, away from sites that are wholly or substantially flooded during a design flood event in line with the guidance to the NPPF. It was evident from the data that the risk of ground water and surface water flooding is comparatively low, with only small areas susceptible, even in 1 in 1000 year return period events and this metric did not provide any discernible difference in risk between the sites. As such, the 2123 Breach Scenario flood depth was used as a secondary metric to establish which sites were at a higher risk in the event of a flood. This data indicates the depth and extents of flooding in the event of all defences being breached simultaneously in a 0.5%AEP storm situation. Simultaneous breach is highly improbable, but the modelling provides a sound indication of absolute worst case and allows flood risk to be compared beyond design flood level.

23. The sites are thus ranked below by 2123 0.5% AEP flood depth and then by 2123 Breach Scenario 0.5% AEP flood depth.

24. Where the site allocation is intended to provide residential use, the number of units proposed by the developer is detailed. By presenting the sites in order of increasing flood risk, the provision of unit numbers in the sequential test demonstrates whether each site is required to be allocated up to the total number of units required by the Neighbourhood Plan. This ensures that development is directed to the lowest risk sites.

25. Finally, the sequential test identifies whether the National Planning Policy Framework permits the proposed use type in the relevant flood zone, or whether an exception test will be required (see table 2).

Profiles of the Sites identified for potential development

Site ref	SG807
Site address	Land at Pilning Village Hall and Playing Fields, Pilning
Site Area	2.29 Hectares
Proposed Use	Housing
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0.65%
Flood Zone 3a	99.35%
Flood Zone 3b	0%

Notes:
FZ2 data from Level 1 SFRA but is believed to be a LIDAR anomaly as no visible change in height of land where indicated on LIDAR mapping.

Flood Risk Data		
	100yr surface water	0.2%
	1000yr surface water	2.39%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0.0%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding)
	2123 Breach Scenario depth	0.3m

Proposed Allocation	
Number of residential units intended to be delivered on the site:	*30 (estimated as site owner has not provided a scheme proposal at this time).*
Cumulative total residential units assuming number above allocated on this site:	30
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is More Vulnerable and the site is almost entirely flood zone 3a accordingly an Exception Test will need to be passed.

Site ref	SG136
Site address	Land West of St Peter's School, Bank Road, Pilning
Site Area	0.69 Hectares
Proposed Use	Housing
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%
Notes:	

Flood Risk Data		
	100yr surface water	0.0%
	1000yr surface water	1.93%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0.0%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding)
	2123 Breach Scenario depth	0.3m

Proposed Allocation	
Number of residential units intended to be delivered on the site	25
Cumulative total residential units assuming number above allocated on this site:	55
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is More Vulnerable and accordingly an Exception Test will need to be passed.

Site ref	SG808
Site address	Land behind surgery and allotments, Pilning
Site Area	2.11 Hectares
Proposed Use	Housing and Assembly
Site Proportions	
Flood Zone 1	8.39%
Flood Zone 2	0.01%
Flood Zone 3a	91.60%
Flood Zone 3b	0%
Notes:	

Flood Risk Data		
	100yr surface water	0.93%
	1000yr surface water	2.19%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0.0%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding)
	2123 Breach Scenario depth	1.0m

Proposed Allocation	
Number of residential units intended to be delivered on the site:	41. Note that these are residential care and/or extra care type housing to M4(2) or M4(3) standards.
Cumulative total residential units assuming number above allocated on this site:	55
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is a mix of More Vulnerable and Less Vulnerable. The Less Vulnerable uses are acceptable but the More Vulnerable uses will need to pass the Exception Test unless wholly contained within flood zones 1 and 2.

Site ref	NPSG CFS 9/10
Site address	Rear of 21 & 23, Cross Hands Road, Pilning
Site Area	0.6768 Hectares
Proposed Use	Housing
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%
Notes:	

Flood Risk Data		
	100yr surface water	0.0%
	1000yr surface water	0.0%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0.0%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding)
	2123 Breach Scenario depth	0.6m

Proposed Allocation	
Number of residential units intended to be delivered on the site	18
Cumulative total residential units assuming number above allocated on this site:	73
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is More Vulnerable and accordingly an Exception Test will need to be passed.

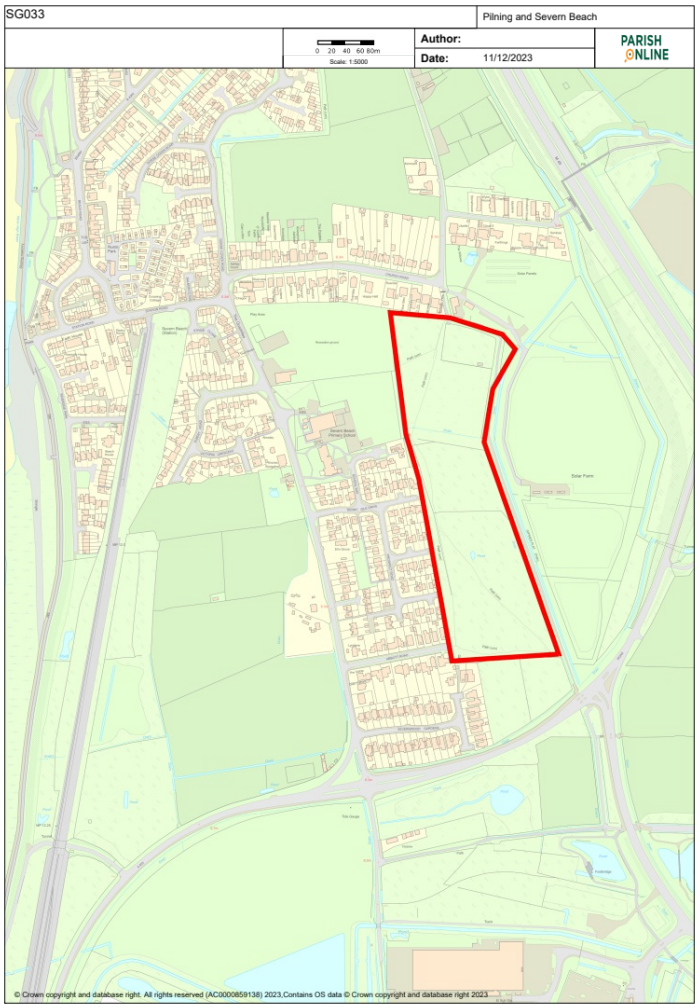
Site ref	NPSG CFS1
Site address	Land at Vicarage Road, Pilning
Site Area	0.2067 Hectares
Proposed Use	Housing
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%
Notes:	

Flood Risk Data		
	100yr surface water	0.0%
	1000yr surface water	0.0%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0.0%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding)
	2123 Breach Scenario depth	1.3m

Proposed Allocation	
Number of residential units intended to be delivered on the site	3
Cumulative total residential units assuming number above allocated on this site:	76
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is More Vulnerable and accordingly an Exception Test will need to be passed.

Site ref	SG033
Site address	Land at Church Road, Severn Beach
Site Area	7.11 Hectares
Proposed Use	Housing
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%

Notes:
2123 0.5% AEP flood data implies two areas of flooding but these are existing drains.



Flood Risk Data		
	100yr surface water	0.02%
	1000yr surface water	2.36%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0.0%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding)
	2123 Breach Scenario depth	2.0m

Proposed Allocation	
Number of residential units intended to be delivered on the site	96
Cumulative total residential units assuming number above allocated on this site:	172
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is More Vulnerable and accordingly an Exception Test will need to be passed.

Site ref	SG778
Site address	Land at Station Road, Severn Beach
Site Area	2.47 Hectares
Proposed Use	Housing
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%

Notes:
2123 0.5% AEP flood data shows a small area of flooding where site abuts gardens of houses on Albert Road – this is an existing drain.

Flood Risk Data		
	100yr surface water	0.0%
	1000yr surface water	1.84%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0.17%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding)
	2123 Breach Scenario depth	2.2m

Proposed Allocation	
Number of residential units intended to be delivered on the site	57
Cumulative total residential units assuming number above allocated on this site:	229
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is More Vulnerable and accordingly an Exception Test will need to be passed.

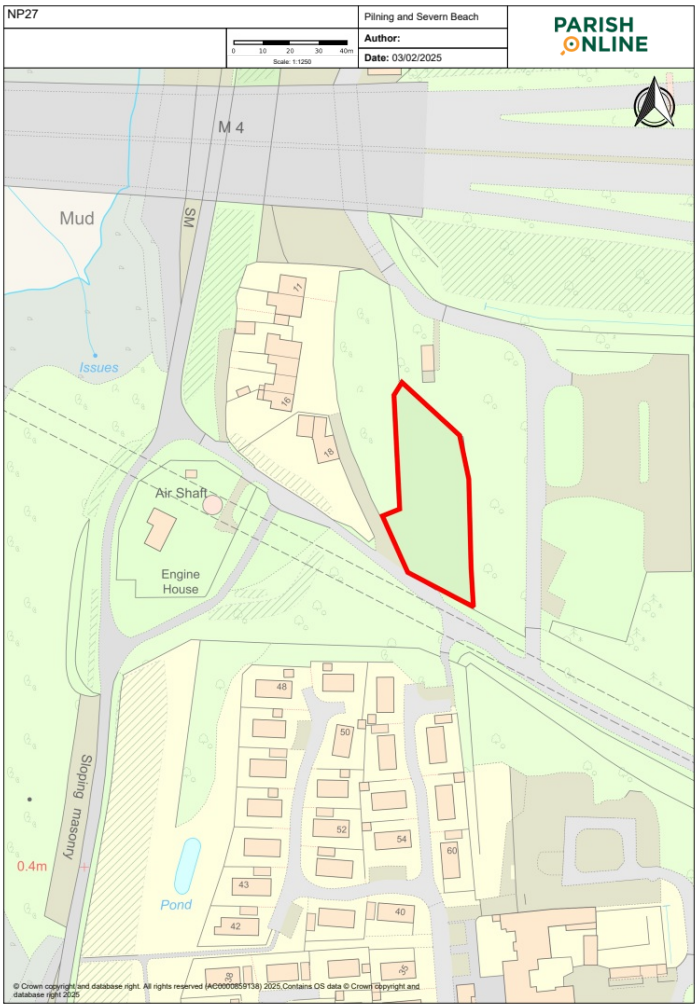
Site ref	SG135
Site address	Land to West of Ableton Lane, Severn Beach
Site Area	9.16 Hectares
Proposed Use	Housing
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%

Notes:
2123 0.5% AEP event shows very small area of flooding in North East corner of site – this appears to be an existing pond which might be enlarged to provide attenuation and on-site BNG.

Flood Risk Data		
	100yr surface water	0.47%
	1000yr surface water	3.93%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0.0%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding) (see Notes)
	2123 Breach Scenario depth	2.3m

Proposed Allocation	
Number of residential units intended to be delivered on the site	75
Cumulative total residential units assuming number above allocated on this site:	304
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is More Vulnerable and accordingly an Exception Test will need to be passed.

Site ref	NP27
Site address	Land at Shaft Road, Severn Beach
Site Area	0.156 Hectares
Proposed Use	Visitor Car Parking
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%
Notes:	

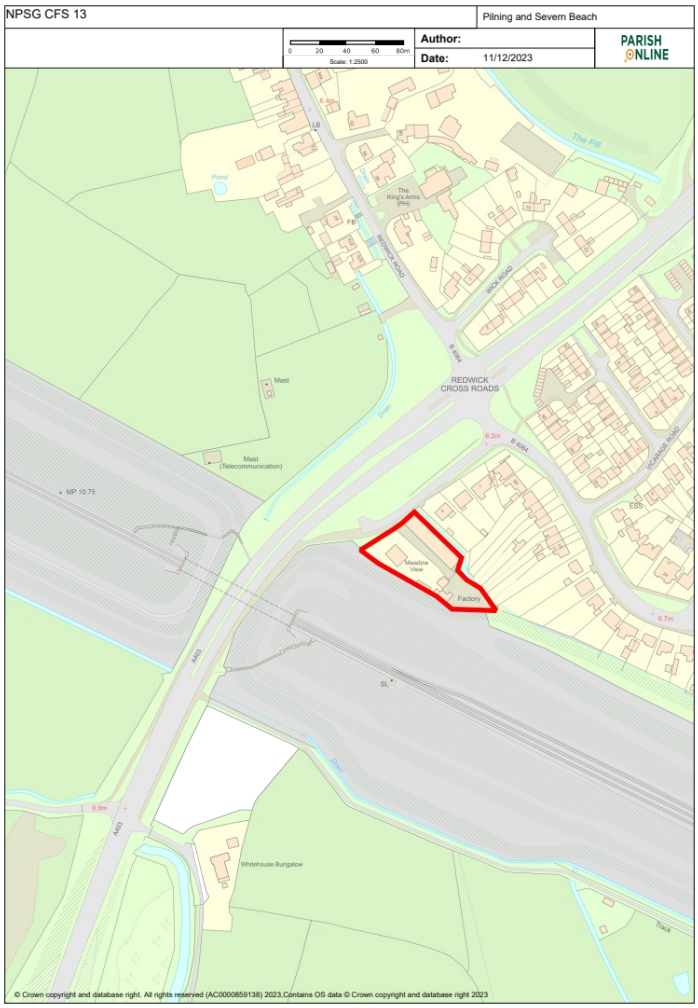


Flood Risk Data		
	100yr surface water	0.0%
	1000yr surface water	0.0%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	2.6%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding)
	2123 Breach Scenario depth	2.5m

Proposed Allocation	
Number of residential units intended to be delivered on the site	0. This site will provide parking for visitors to the King Charles III coastal path.
Cumulative total residential units assuming number above allocated on this site:	N/A The proposed development is car parking for enjoyment of open space.
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	Yes. The proposed use is Less Vulnerable.

Site ref	NPSG CFS13
Site address	Land at Pilning Forge, Whitehouse Lane, Pilning
Site Area	0.28 Hectares
Proposed Use	Housing
Site Proportions	
Flood Zone 1	6.4%
Flood Zone 2	0%
Flood Zone 3a	93.6%
Flood Zone 3b	0%

Notes:
This site includes two small areas of flood zone 1 but it is unlikely that either can accommodate a dwelling. Both are flooded in the breach event.



Flood Risk Data		
	100yr surface water	0.0%
	1000yr surface water	0.0%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding)
	2123 Breach Scenario depth	2.5m

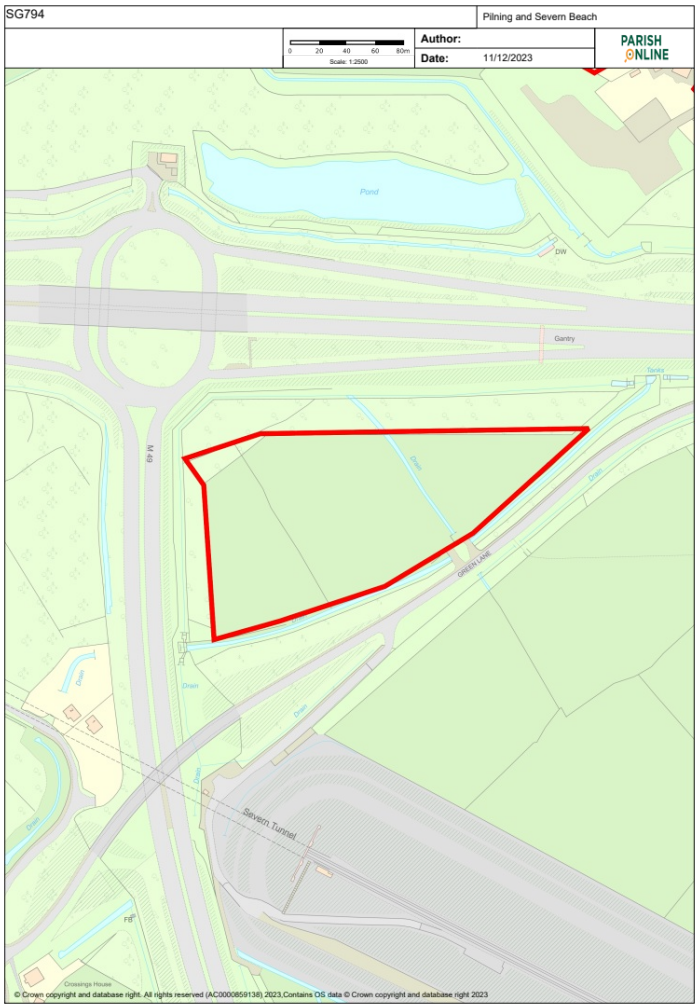
Proposed Allocation	
Number of residential units intended to be delivered on the site	9
Cumulative total residential units assuming number above allocated on this site:	313 – Eliminated by sequential test
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is More Vulnerable and accordingly an Exception Test will need to be passed.

Site ref	NP29
Site address	Land beside the allotments, Severn Beach
Site Area	016 Hectares
Proposed Use	Visitor Car Park
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%
Notes: Extant Leisure Car Park	

Flood Risk Data		
	100yr surface water	0%
	1000yr surface water	0%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	100.0%
	2123 1 in 200 year return (0.5%AEP) depth	0m (no flooding)
	2123 Breach Scenario depth	2.3m

Proposed Allocation	
Number of residential units intended to be delivered on the site	N/A – Visitor Car Park
Cumulative total residential units assuming number above allocated on this site:	N/A – Car park
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The use is believed to be extant but in any event it is acceptable as it is Less Vulnerable.

Site ref	SG794
Site address	Land at Green Lane, Severn Beach
Site Area	2.37 Hectares
Proposed Use	Sport and recreation
Site Proportions	
Flood Zone 1	0.0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%
Notes:	



Flood Risk Data		
	100yr surface water	0.0%
	1000yr surface water	2.15%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0%
	2123 1 in 200 year return (0.5%AEP) depth	0.2m
	2123 Breach Scenario depth	2.3m

Proposed Allocation	
Number of residential units intended to be delivered on the site	0 – proposed for sport facility
Cumulative total residential units assuming number above allocated on this site:	N/A – proposed for sports facility
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	Yes. The proposed use is Less Vulnerable

Site ref	NPSG CFS5
Site address	The Nurseries, Passage Road, New Passage
Site Area	0.0729
Proposed Use	Housing
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%
Notes:	

Flood Risk Data		
	100yr surface water	0.0%
	1000yr surface water	0.0%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0%
	2123 1 in 200 year return (0.5%AEP) depth	0.2m
	2123 Breach Scenario depth	2.3 m

Proposed Allocation	
Number of residential units intended to be delivered on the site	5
Cumulative total residential units assuming number above allocated on this site:	318 - Eliminated by Sequential Test
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is More Vulnerable and accordingly an Exception Test will need to be passed.

Site ref	NP27
Site address	Land adj Severn Lodge Farm
Site Area	0.110
Proposed Use	Car Park
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%
Notes:	

Flood Risk Data		
	100yr surface water	0.0%
	1000yr surface water	0.0%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0%
	2123 1 in 200 year return (0.5%AEP) depth	0.2m
	2123 Breach Scenario depth	2.0m

Proposed Allocation	
Number of residential units intended to be delivered on the site	0. This site will provide parking for visitors to the King Charles III coastal path.
Cumulative total residential units assuming number above allocated on this site:	N/A The proposed development is car parking for enjoyment of open space.
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	Yes. The proposed use is Less Vulnerable.

Site ref	NPCFS3
Site address	2 Woodbine Cottages, New Passage
Site Area	0.176
Proposed Use	Housing
Site Proportions	
Flood Zone 1	0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%
Notes:	

Flood Risk Data		
	100yr surface water	0.0%
	1000yr surface water	0.0%
	Ground water High Risk %	0.0%
	Ground water Moderate Risk %	0.0%
	EA historic flood map (%age of site affected)	0%
	21231 in 200 year return (0.5%AEP) depth	0.4m
	2123 Breach Scenario depth	2.4m

Proposed Allocation	
Number of residential units intended to be delivered on the site	4 (estimate as landowner has not provided detail)
Cumulative total residential units assuming number above allocated on this site:	322 – Eliminated by sequential test.
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	The proposed use is More Vulnerable and accordingly an Exception Test will need to be passed.

Site ref	NP26
Site address	Land at Promenade Gardens, Severn Beach
Site Area	2.12 Hectares
Proposed Use	Visitor Car Parking & Leisure
Site Proportions	
Flood Zone 1	0.0%
Flood Zone 2	0%
Flood Zone 3a	100%
Flood Zone 3b	0%
Notes:	

Flood Risk Data		
	100yr surface water	1.2%
	1000yr surface water	5.1%
	Ground water High Risk %	0%
	Ground water Moderate Risk %	0%
	EA historic flood map (%age of site affected)	100%
	2123 1 in 200 year return (0.5%AEP) depth	0.0 – 0.5m
	2123 Breach Scenario depth	4.1 – 5.9m

Proposed Allocation	
Number of residential units intended to be delivered on the site	0. This site will provide parking for visitors to the King Charles III coastal path.
Cumulative total residential units assuming number above allocated on this site:	N/A – proposed car parking
Can the vulnerability classification of the development (see Annex 1) proposed for the sites (See Table 2) be accommodated safely within the flood zone(s) in which development is proposed or is it a) prohibited or b) only permissible when an exception test has been satisfied?	Yes. The proposed use is Less Vulnerable.

CONCLUSION

26. This Sequential test demonstrates that the proposed development cannot be wholly contained in flood zone 1 or within flood zone 1 and 2 so development in flood zone 3 needs to be considered if the objectives of the Neighbourhood Plan are to be met.

27. As such a high proportion of the parish is in flood zone 3 the usual zone-based assessment provided little differentiation between sites, so it was necessary to identify appropriate alternative metrics to permit a meaningful comparison of flood risk. The sites were assessed and sorted by defended 2123 1 in 200 year return period and then by the breach scenario in the same epoch and probability.

28. The sequential test illustrates that the lowest flood risk sites are in Pilning and that the sites in Severn Beach are subject to a higher risk. Without changes to the Green Belt boundary only three of the Pilning sites are likely to be able to be developed and would provide only 30 residential units. As such, this sequential test supports the assertion that exceptional circumstances exist to permit the removal of the area between the Pill and Bank Road, Pilning from the Green Belt, as it will make sites available at lower risk of flooding whilst allowing the wider objective of the Neighbourhood Plan to be met.

29. The Neighbourhood Plan will seek to alter the green belt boundary and, if successful, this may make a small area of flood zone 1 available for development at the western end of Bank Road on site SG808. No Highly Vulnerable uses are proposed for the Parish, but the Steering Group consider that, of the More Vulnerable forms of development proposed, residential care, extra care and enhanced accessibility homes (M4(2) and M4(3) standard) are likely to be most suited to this low risk location.

30. All sites identified will require exception tests to be passed, save for those that propose water compatible uses, in this case visitor car parks, and Less Vulnerable uses, unless development is contained within flood zone 1 and 2 areas..

31. Site-specific flood risk assessments would be required for each development at the planning application stage and such applications should take account of advice from the Environment Agency in relation to mitigating the impact of climate change on flood risk. Major developments may be expected to contribute to the ongoing maintenance and/or improvement of flood defences.

Annex 1 – Flood Risk Vulnerability Classification

Essential infrastructure

- Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.
- Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood.
- Wind turbines.

Highly vulnerable

- Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.
- Emergency dispersal points.
- Basement dwellings.
- Caravans, mobile homes and park homes intended for permanent residential use.
- Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as ‘Essential Infrastructure’).

More vulnerable

- Hospitals
- Residential institutions such as residential care homes, children’s homes, social services homes, prisons and hostels.
- Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.
- Non–residential uses for health services, nurseries and educational establishments.
- Landfill* and sites used for waste management facilities for hazardous waste.
- Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

Less vulnerable

- Police, ambulance and fire stations which are not required to be operational during flooding.
- Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the ‘more vulnerable’ class; and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill* and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).

- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.

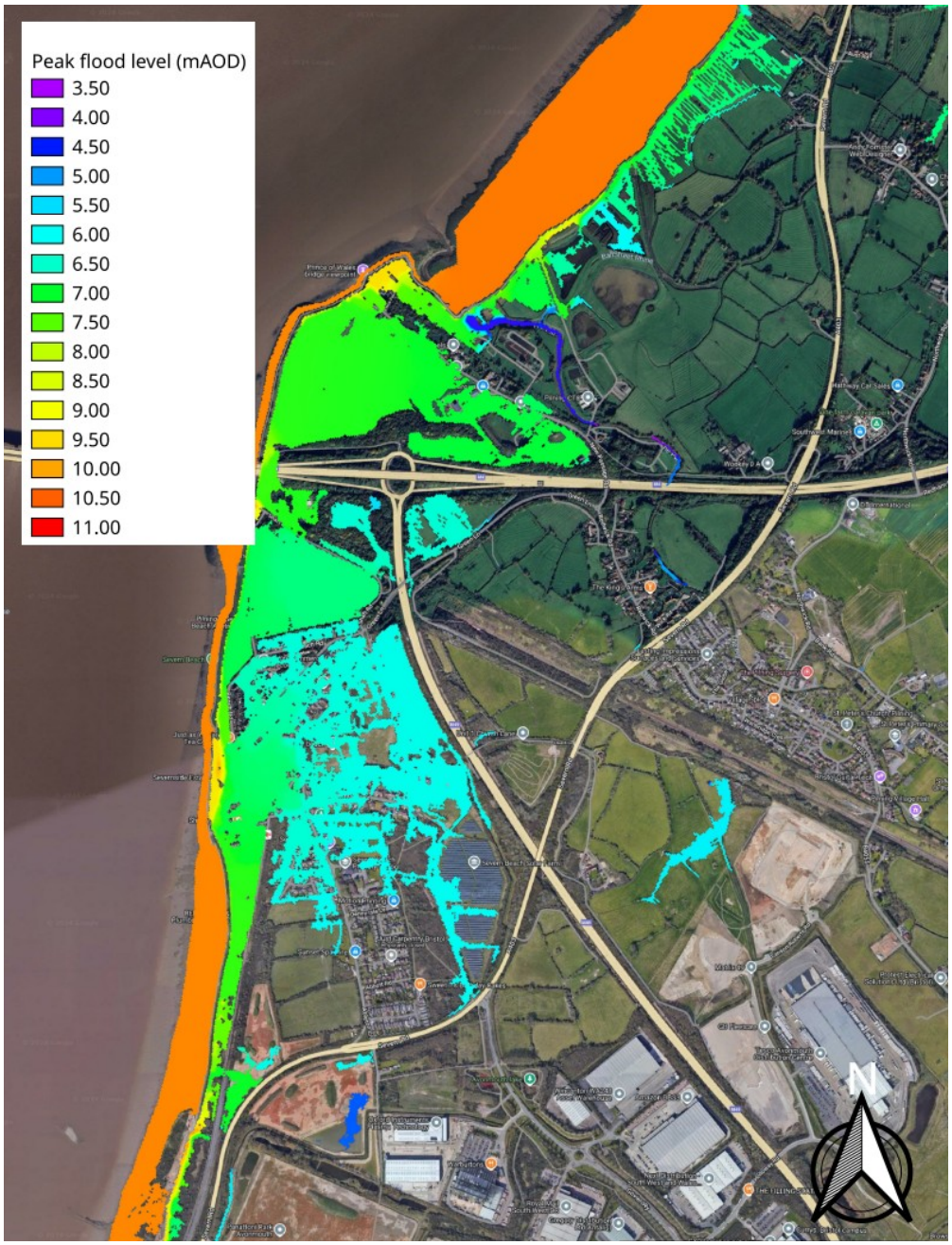
Water-compatible development

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

Appendix A

Site reference	Site Name	Area (ha)	Proportion of site shown to be at risk (%)																
			Flood Zones				Impact of climate change uplifts on flood zones						EA Risk of flooding from surface water			Historic flooding		JBA Groundwater Flood Risk Mapping	
			FZ1	FZ2	FZ3a	FZ3b	Tidal 0.5% AEP 2118 (upper end)	Tidal 0.5% AEP 2118 (higher central)	Fluvial 1% AEP +20% (2050s Higher Central)	Fluvial 1% AEP +30% (2080s Central)	Fluvial 1% AEP +40% (2080s Higher Central)	FZ2 as a proxy for climate change	30 year	100 year	1000 year	EA Historic flood map	Number of recorded flood incidents within 50m (SGC flooding incidents)	High risk - 0.025m	Moderate risk 0.025 - 0.05m
SG033	Land at Church Road, Severn Beach	7.11	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.02%	2.36%	0.00%	2	0.00%	0.00%
SG135	Land to the west of, Ableton Lane, Severn Beach	9.16	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.47%	3.93%	0.00%	3	0.00%	0.00%
SG136	Land at, Bank Road, Pilning	0.69	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	1.93%	0.00%	0	0.00%	0.00%
SG778	Land at Station Road	2.47	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	1.84%	0.17%	1	0.00%	0.00%
SG794	Green Lane, Severn Beach	2.00	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	2.15%	0.00%	0	0.00%	0.00%
SG807	Pilning Village Hall and playing field	2.29	0.00%	0.65%	99.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.02%	2.39%	0.00%	0	0.00%	0.00%
SG808	Bank Road, Pilning BS35 4JG	2.11	8.39%	0.01%	91.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	91.61%	0.29%	0.93%	2.19%	0.00%	0	0.00%	0.00%

Appendix B


Peak flood level (mAOD)
3.50
4.00
4.50
5.00
5.50
6.00
6.50
7.00
7.50
8.00
8.50
9.00
9.50
10.00
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11.00
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