PINS ref:

APP/D0121/W/24/3343144

LPA ref: 23/P/0664/OUT

Town and Country Planning Act 1990 –Section 78

The Town and Country Planning (Development Management Procedure) (England) Order 2015

Town and Country Planning (Inquiries Procedure) (England) Rules 2000

Proposal: Outline planning application for the development of up to 190no. homes (including 50% affordable homes) to include flats and semi-detached, detached and terraced houses with a maximum height of 3 storeys at an average density of no more than 20 dwellings per net acre, 0.13ha of land reserved for Class E uses, allotments, car parking, earthworks to facilitate sustainable drainage systems, orchards, open space comprising circa 70% of the gross area including children's play with a minimum of 1no. LEAP and 2no. LAPS, bio-diversity net gain of a minimum of 20% in habitat units and 40% in hedgerow units, and all other ancillary infrastructure and enabling works with means of access from Shiners Elms for consideration. All other matters (means of access from Chescombe Road, internal access, layout, appearance and landscaping) reserved for subsequent approval.

Site address: Land To North Of Rectory Farm, Chescombe, Road Yatton

Environment Agency

Position Statement

Contents page

1 Background

1.1 This appeal against non-determination of the planning application by the Local Planning Authority (LPA) is to be determined by a Public Inquiry.

1.2 As a statutory consultee to the planning application the Environment Agency notified an objection on the grounds that the application is not in conformity with the National Planning Policy Framework (NPPF) and in particular that:

a) The development proposal increases flood risk to third parties over the lifetime of the development.

1.3 The Environment Agency first objected to this planning application on 10 May 2023 on the grounds that the Flood Risk Assessment (FRA) (Ref: WX/2023/137123/01) submitted with the application was inadequate to assess the flood risk. We also requested to review the hydraulic modelling undertaken for the site.

1.4 Our second objection letter dated 17 April 2024 (Ref: WX/2024/137123/02) maintained our objection to the development proposal.

1.5 We have been working with the appellant to try and overcome our objection. We have attended virtual meetings with the appellant and their consultant. We have also reviewed their hydraulic modelling outputs for the development site and reviewed documentation which was not formally submitted to the LPA. However, to date, we have not been able to remove our flood risk objection.

2 Policy Framework

National Planning Policy Framework (NPPF)

Paragraph 165

Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

Paragraph 167

All plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property

Planning Practice Guidance (PPG)

Paragraph: 002, Reference ID: 7-002-20220825, Revision date: 25 08 2022 *Flood risk and coastal change - GOV.UK (www.gov.uk)*

What is meant by a "design flood"?

This is a flood event of a given annual flood probability, which is generally taken as: river flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year); or tidal flooding with a 0.5% annual probability (1 in 200 chance each year); or surface water flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year), plus an appropriate allowance for climate change.

Paragraph: 003 Reference ID: 7-003-20220825, Revision date: 25 08 2022 *Flood risk and coastal change - GOV.UK (www.gov.uk)*

What are the main steps in assessing flood risk?

The National Planning Policy Framework sets out strict tests to protect people and property from flooding which all local planning authorities are expected to follow. Where these tests are not met, new development should not be allowed. The main steps to be followed in addressing flood risk are set out below, starting with assessing and then avoiding flood risk. The steps are designed to ensure that if there are lower risk sites available, or a proposed development cannot be made safe throughout its lifetime without increasing flood risk elsewhere, it should not be permitted. Measures to avoid, control, manage and mitigate flood risk should also not increase flood risk elsewhere.

Assess flood risk

- Strategic policy-making authorities should undertake a Strategic Flood Risk Assessment;
- Where appropriate, in areas at risk of flooding, developers undertake a site-specific flood risk assessment to accompany applications for planning permission (or prior approval for certain permitted development rights, or Technical Details Consent);
- Assessments of flood risk identify sources of uncertainty and how these are accounted for in a mitigation strategy. Further information on how to do this can be found in Flood risk assessment for planning applications.

Paragraph 004, Reference ID: 7-004-20220825, Revision date: 25 08 2022 *Flood risk and coastal change - GOV.UK (www.gov.uk)*

What process is used in plan or decision-making where flood risk is a consideration?

Where an assessment shows that flood risk is a consideration for a plan or development proposal, the process is set out below:

Avoid

- In plan-making, a sequential approach should be employed. This involves applying the 'Sequential Test' and, if needed, the 'Exception Test'.
- In decision-making, where necessary, planning authorities also apply the Sequential Test and, if needed, the Exception Test, to ensure that flood risk is minimised and appropriately addressed.
- Where the sequential and the exception tests have been applied as necessary and not met, development should not be allowed.
- Substitute lower vulnerability uses for higher vulnerability uses.
- Within sites, using site layout to locate the most vulnerable aspects of development in areas of lowest flood risk, unless there are overriding reasons to prefer a different location. In addition, measures to avoid flood risk vertically can then be taken, by locating the most vulnerable uses on upper storeys, and by raising finished floor and/or ground levels, where appropriate and that such techniques are suitably designed. Such measures should also account for residual flood risks from flood risk management infrastructure.

Control

- Planning authorities and developers can investigate measures to control the risk of flooding affecting the site. Early discussions with relevant flood risk management authorities, reference to Strategic Flood Risk Assessments and any programme of flood and coastal erosion risk management schemes will help to identify such opportunities.

Mitigate

- Use flood resistance and resilience measures to address any residual risks remaining after the use of the avoidance and control measures described above. Passive measures should be prioritised over active measures as they are likely to be more effective and more reliable. See What is flood resistance and resilience?

Manage residual risk

- Consider further management measures to deal with any residual risk remaining after avoidance, control and mitigation have been utilised. Provide safe access and escape routes.
- Consider whether adequate flood warning would be available to people using the development. Residual risks will need to be safely managed to ensure people are not exposed to hazardous flooding. See 'What is needed to ensure safe evacuation and flood response procedures are in place?'.

This approach should be considered early in the design process to ensure that any tensions between different requirements, such as the impact of raised floor levels on access, are designed out wherever possible. Avoidance measures can discourage or exclude certain sections of society, such as the elderly or those with less mobility. Innovative design can

help ensure that communities are safe and sustainable without excluding these sections of society. Where historic buildings are involved, early consultation with Historic England should be undertaken and their guide on flood resilience for historic properties provides additional information. Tensions between flood risk mitigation measures and other planning matters, do not justify unsafe development.

Paragraph: 006 Reference ID: 7-006-20220825 , Revision date: 25 08 2022 *Flood risk and coastal change - GOV.UK (www.gov.uk)*

What is considered to be the lifetime of development when applying policies on flood risk and coastal change?

Residential development can be assumed to have a lifetime of at least 100 years, unless there is specific justification for considering a different period. For example, the time in which flood risk or coastal change is anticipated to affect it, where a development is controlled by a time-limited planning condition. The lifetime of a non-residential development depends on the characteristics of that development but a period of at least 75 years is likely to form a starting point for assessment.

Where development has an anticipated lifetime significantly beyond 100 years such as some major infrastructure projects, or where it would create significant land-use change such as a new settlement or substantial urban extension, it may be appropriate to consider a longer period for the lifetime of development when assessing the potential impacts of climate change on flood risk or coastal change and considering the future prospects for flood and coastal erosion risk management infrastructure. It may also be a consideration when identifying existing development that may not be sustainable in the long term and seeking opportunities for relocation.

Paragraph: 020 Reference ID: 7-020-20220825, Revision date: 25 08 2022 *Flood risk and coastal change - GOV.UK (www.gov.uk)*

What is a site-specific flood risk assessment?

A site-specific flood risk assessment is carried out by (or on behalf of) a developer to assess the flood risk to and from a development site and should accompany a planning application where prescribed in footnote 55 of the National Planning Policy Framework. The assessment should demonstrate to the decision-maker how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its users (see National Planning Policy Framework Annex 3 – Flood Risk Vulnerability.

Developers can use the Environment Agency guidance on flood risk assessments when considering the scope of the assessment.

- The objectives of a site-specific flood risk assessment are to establish:
- whether a proposed development is likely to be affected by current or future flooding from any source;
- whether it will increase flood risk elsewhere;

- whether the measures proposed to deal with these effects and risks are appropriate;
- the evidence for the local planning authority to apply (if necessary) the Sequential Test, and;
- whether the development will be safe and pass the Exception Test, if applicable.

See further information on the detail needed in a flood risk assessment.

Paragraph: 078 Reference ID: 7-078-20220825, Revision date: 25 08 2022 *Flood risk and coastal change - GOV.UK (www.gov.uk)*

Table 1: Flood Zones

Flood Zone	**Definition**
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). 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)

Paragraph 079 Reference ID: 7-079-20220825, Revision date: 25 08 2022 *Flood risk and coastal change - GOV.UK (www.gov.uk)*

Table 2: Flood risk vulnerability and flood zone 'incompatibility'

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

Key:

✓ = Exception test is not required

X = Development should not be permitted

Notes to table 2:

- This table does not show the application of the Sequential Test which should be applied first to guide development to the lowest flood risk areas; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and Exception Tests do not need to be applied to those developments set out in National Planning Policy Framework footnote 56. The Sequential and Exception Tests should be applied to 'major' and 'non major' development;

- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

"†" In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

"*" In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

3 Flood Risk Documents

3.1 Below is a list of the FRAs and Flood Risk Technical Notes ordered chronologically, which relate to the planning application and have been discussed with the Environment Agency and the appellant. Please note that the LPA has not been party to these discussions, nor have all documents been submitted to the Environment Agency for review.

3.2 The initial FRA was received as part of the planning application submission to the Local Planning Authority:

a) Flood Risk Assessment & Hydraulic Modelling Report by Hydrock Consultants Limited (Dated: 24th March 2023, Ref:23257-HYD-XX-XX-RP-FR-0002, Issue: P01)

3.3 The conclusion from the Brookbanks updated FRA was sent to the Environment Agency prior to a meeting between the consultant and the Environment Agency on 14 September 2023. From our records, neither the Brookbanks updated FRA, nor the Brookbanks Technical Note was submitted in full to the Environment Agency for review following this meeting:

a) Technical Note by Brookbanks (Dated: 2nd August 2023, Ref: Land to North of Rectory Farm, Yatton – Flood Risk- Consultation Response, Rev: v2)

b) Flood Risk Assessment by Brookbanks (Dated: 12th September 2023, Ref: 11069_FRA_Rv0)

3.4 The Brookbanks FRA documents have since been superseded by the following Flood Risk Technical Notes by Rappor:

a) Flood Risk Technical Note by Rappor (Dated: January 2024, Ref: 24-0161 – Land to North of Rectory Farm, Yatton.pdf, Rev: 1). Received by the Environment Agency on 05 February 2024.

b) Flood Risk Technical Note by Rappor (Dated: January 2024, Ref: 24-0161 – Land to North of Rectory Farm, Yatton v2.pdf). Received by the Environment Agency on 28 February 2024.

4. Site Location and Flood Risk

4.1 The proposed residential development is located within Flood Zone 3, more specifically, within a constrained tidal flood cell, as it is bounded by the railway line to the North and the Strawberry Line to the West. Flood Zone 3 is an area of High Flood risk according to the Environment Agency's Flood Map for Planning. The site is at both tidal and fluvial flood risk.

4.2 The North Somerset Strategic Flood Risk Assessment (SFRA) classifies the site as Flood Zone 3a.

4.3 The Lead Local Flood Authority (LLFA) and North Somerset Internal Drainage Board (IDB) both have responsibility for surface water drainage in this location.

4.4 The site currently benefits from coastal defences along Woodspring Bay and Kingston Seymour. The coastal defences provide approximately a 200-year standard of protection against tidal flood risk.

5. Ground Raising and Finished Floor Levels (FFLs)

5.1 The consultant's tidal flood risk modelling results show that during the defended 1 in 200 year plus climate change event (year 2118), there will be an increased flood depth to existing properties and the surrounding area post-development. This is due to the land raising required to elevate the development site above the defended 1 in 200 year flood event. It should be noted that the existing properties are already predicted to be subject to flooding during the 200 year plus climate change event.

5.2 The FRA by Hydrock Consultants Limited originally used an undefended 1 in 200 year plus climate change level of 7.88m above Ordnance Datum (AOD) to set ground levels. This is using the Higher Central climate change allowance.

5.3 FFLs were initially set at 8.48mAOD, providing an additional 600mm freeboard.

5.4 The Environment Agency requested the appellant to reduce the amount of land raising from the undefended to the defended 1 in 200 year flood level of 6.28mAOD. This is to reduce off-site flood risk impacts and detriment to existing properties. This flood level is based on the Environment Agency's Woodspring Bay 2020 modelling.

5.5 However, even with the lowered ground level of 6.28mAOD, the hydraulic modelling still shows an additional 17mm of flood risk detriment to existing properties.

5.6 While 17mm is a fairly small amount of additional flood risk to properties already at some risk of flooding in a 1 in 200 event, the NPPF advises that there should be no increase in flood risk off site and the Environment Agency works on the basis that any increase in flood risk is contrary to the NPPF and should not be supported.

5.7 It is accepted that the hydraulic modelling has a tolerance margin which should be taken into account, but we believe that a tolerance of +/- 10mm is the appropriate allowance (see also para 7.4). The 17mm predicted increase in flood risk off site clearly exceeds the modelling tolerance allowance

5.8 The consultant has confirmed that there is no scope to lower land levels further as the surface water drainage network would not function correctly, because it requires a gravity connection.

5.9 Following the reduction in ground raising, FFLs would be set at 6.68mAOD, this provides a 600mm freeboard.

6 Flood Risk Modelling

6.1 The Flood Risk Assessment & Hydraulic Modelling Report by Hydrock Consultants Limited (Dated: 24th March 2023, Ref:23257-HYD-XX-XX-RP-FR-0002, Issue: P01) includes the hydraulic modelling for the development, and the Flood Risk Technical Note by Rappor (Dated: January 2024, Ref: 24-0161 – Land to North of Rectory Farm, Yatton.pdf, Rev: 1), accompanies the hydraulic modelling outputs.

6.2 The consultant has used the Environment Agency's approved Woodspring Bay 2020 modelling to provide the baseline and post development outputs, applying an allowance for climate change. The post development outputs have been altered to account for the presence of culverts under the Strawberry Line, which are not included within the Woodspring Bay 2020 model.

6.3 The post development modelling outputs show that there is an increase of 17mm in flood depths to existing properties during the defended tidal 1 in 200 year plus climate change event. There are also increases in flood depths to surrounding third party land (see Figure 1).

6.4 South of the development site, near to the approved Rectory Farm South development (application 21/P/0236/OUT, allowed on appeal), the flood depths increase to values in excess of 30mm. Although the majority of the approved Rectory Farm South site is within Flood Zone 1, the increase in flood depth may have an impact on the approved development.

6.5 The consultant has stated that the inclusion of the existing culverts beneath the Strawberry Line means that the depth differences to the East will not be representative of the actual flood water displacement post-development. However, the exclusion of these culverts not only would make the model inaccurate to the real world, but the prevention of additional volume being conveyed past the Strawberry Line would very likely result in greater differences in the area immediately surrounding the development site.

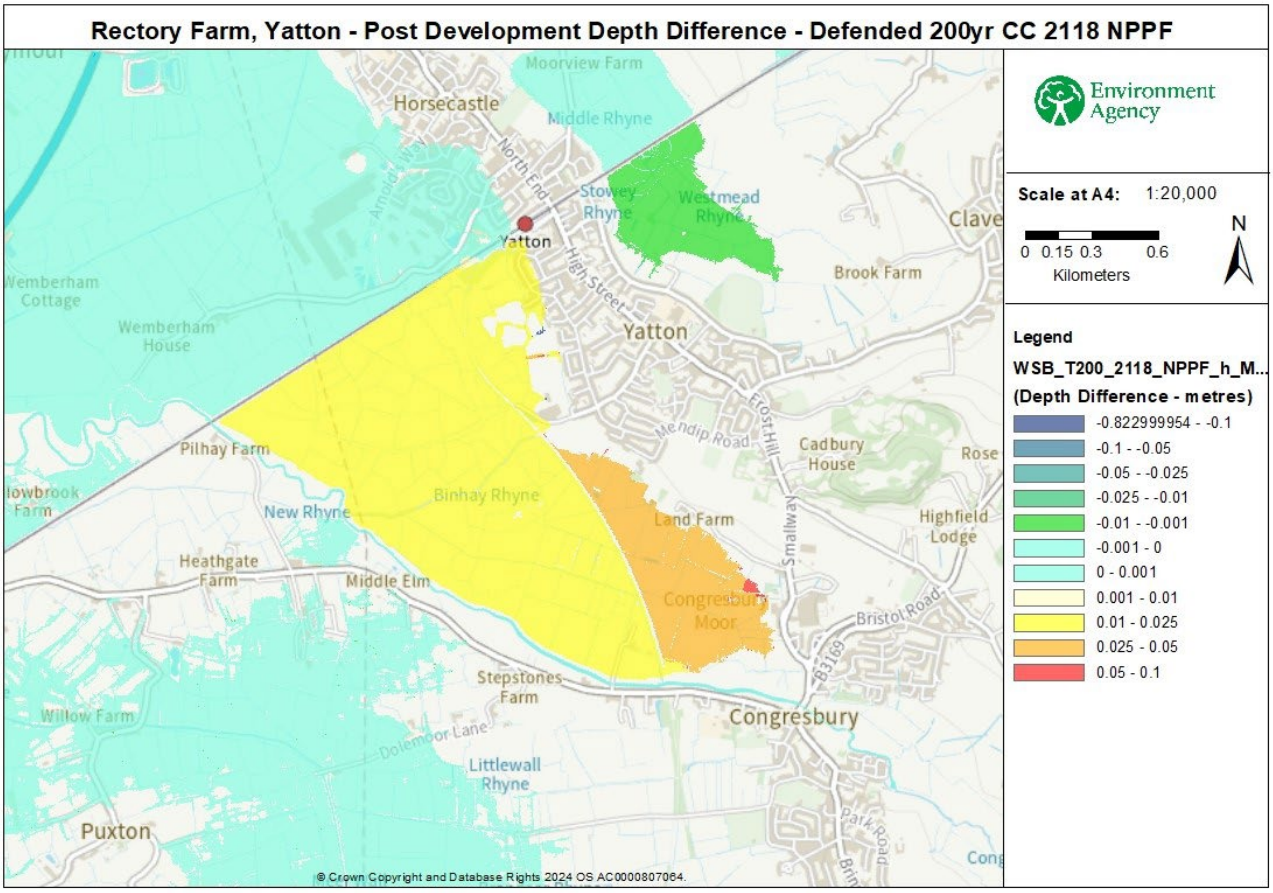

Figure 1. Post-Development depth difference mapping for the defended 0.5% AEP (1in200yr) scenario plus climate change to 2118 (NPPF allowances).

6.6 As the site is in a flood risk area, the Environment Agency's Woodspring Bay 2020 modelling shows that the existing residential properties already flood during the defended tidal 1 in 200 year plus climate change event, without this development being in place. Section 4.13 of the Rappor Technical Note states that existing flood depths vary between 0.4m to 1.3m during the defended 1 in 200 year plus climate change flood event.

6.7 The Environment Agency's Woodspring Bay 2020 modelling is based on current flood defence heights. The flood modelling also assumes that no upgrades will take place to the coastal defences over the lifetime of the development, in accordance with the Government's National Planning Policy Framework (NPPF).

7 Modelling tolerances

7.1 A large part of our discussions with the appellant and their consultant has been about modelling tolerances. The Woodspring Bay 2020 model is a large tidal model. Part of the input data to the tidal model is the Coastal Flood Boundary Dataset (CFB). This dataset predicts peak tidal levels around the coastline for a range of annual exceedance probabilities (AEP), also known as return periods.

7.2 The CFB data itself has its own confidence intervals associated with the data – as shown below in Figure 2. For modelling, we apply the CFB levels (the blue line), but the data comes with upper and lower confidence limits. As the graph shows, uncertainty increases with increasing return periods. Up to about the 20-year event, confidence is very high, with <10cm difference between the range of possible levels, but by the larger events there are >50cm differences between the possible levels.

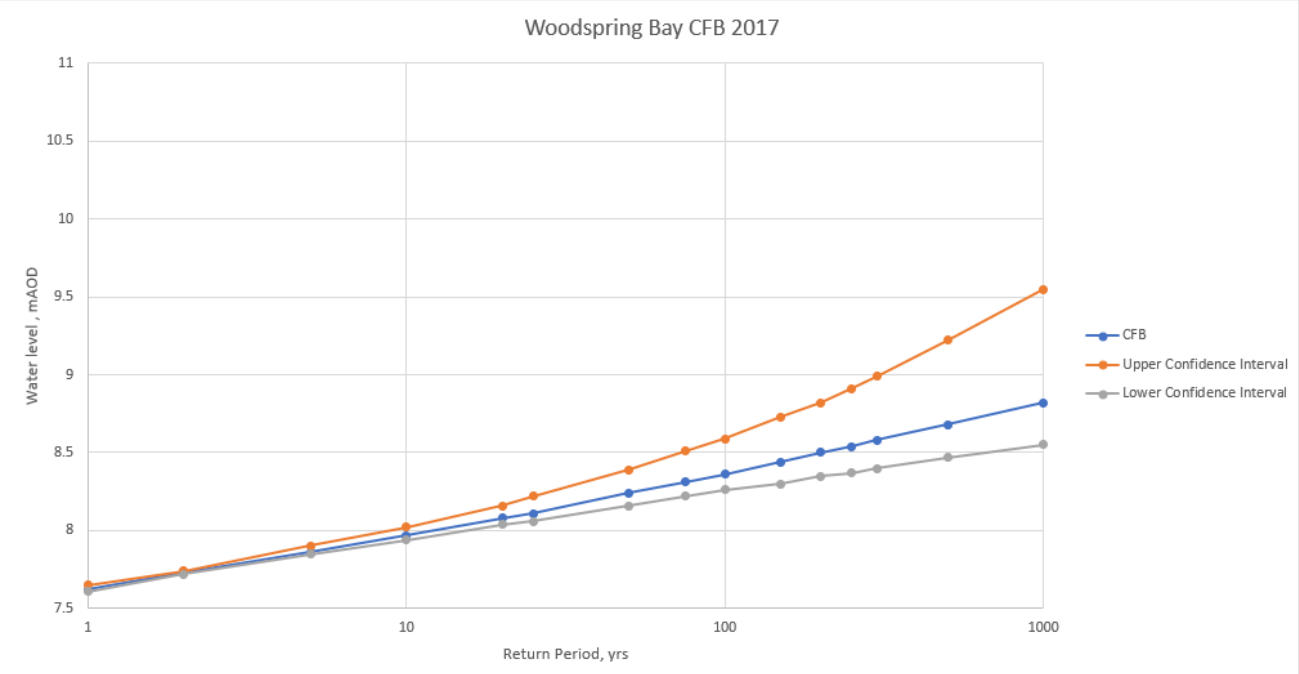

Figure 2. Coastal Flood Boundary Dataset confidence intervals for the Woodspring Bay 2020 model.

7.3 This uncertainty or tolerance relates to the absolute flood levels associated with each return period. When comparing pre- and post-development scenarios, as both use the same input CFB derived data, the inherent uncertainty in the absolute levels has no bearing on the relative difference between the two scenarios. If changes to the hydraulic model (i.e. through representation of ground raising) result in a change in water levels, then this cannot be attributed to the uncertainty in input data as this would apply equally to both scenarios.

7.4 However, we do accept that a tolerance relating to model calculation can potentially apply. The iterative calculation that the model software performs can sometimes give slightly different results dependent on some of the advanced parameters which can affect how many iterations the software performs before it converges on a solution. There is currently no absolute value given in existing guidance on what an acceptable model tolerance is, as this will vary between models and locations. A figure of +/- 10mm is often considered a reasonable “rule-of-thumb” for a calculation tolerance but the uniform application of this value is not supported by any evidence and likely has its origin in the default htol (stage tolerance) value in the Flood Modeller Pro software package.

7.5 The below guidance is stated in our guidance for modelling to support Flood Risk Assessments [Using modelling for flood risk assessments - GOV.UK]

(www.gov.uk)*"You should carry out this analysis using raw results, without including any allowance for model calculation error ('modelling tolerance'). If you identify any change in flood risk as part of the model calculation error, you'll need to provide robust technical analysis and reporting to support this. You must demonstrate that your development will not increase flood risk elsewhere."*

7.6 Considering the depth difference results for this site (see Figure 3), it is notable that throughout the vast majority of the model domain, there is no difference between pre- and post-development flood levels. Significant differences in flood levels only occur in the flood cell in which the development and land raising is located (bounded by the mainline railway embankment). If these differences were due to model calculation error, then it would be expected that these would exist throughout the model domain.

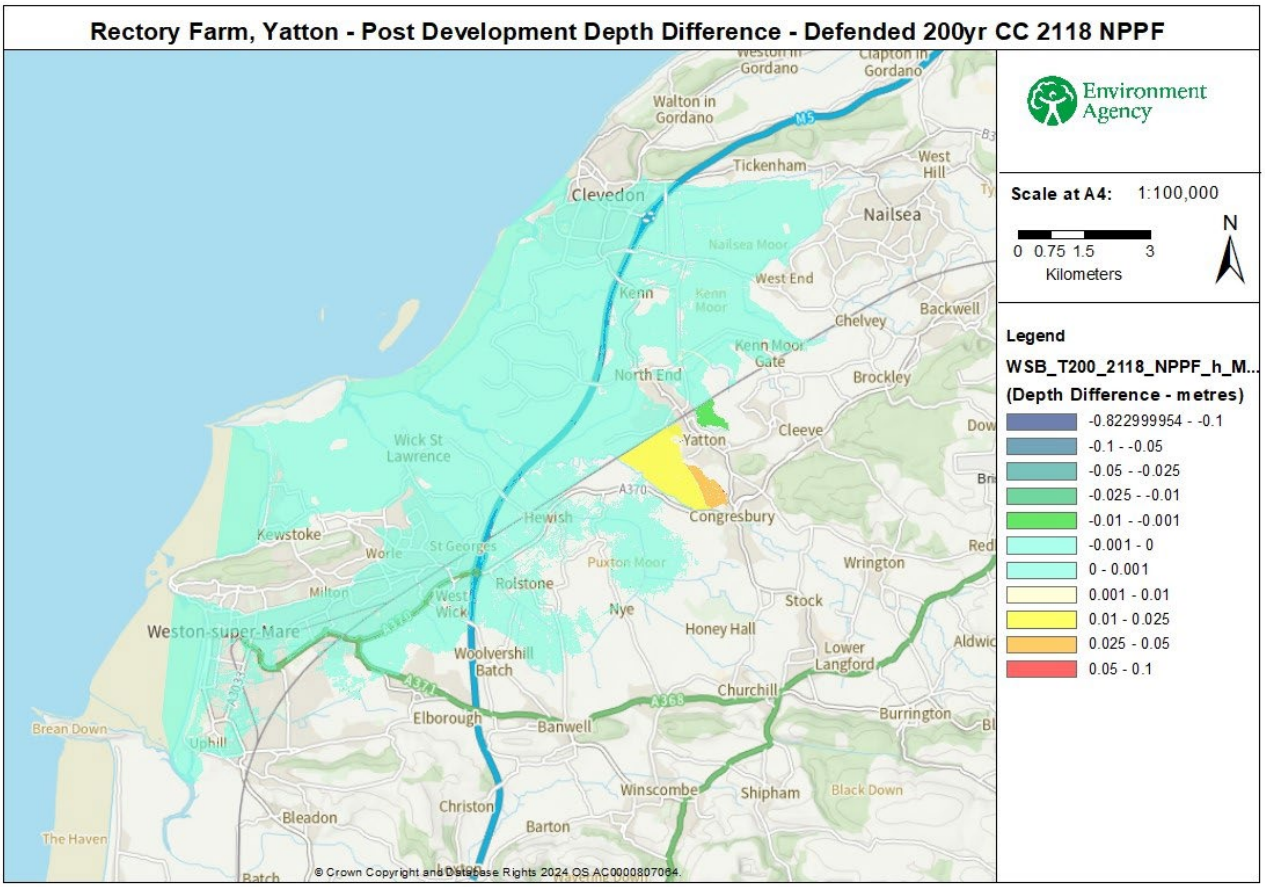

Figure 3. Post-Development depth difference mapping for the defended 0.5% AEP (1in200yr) scenario plus climate change to 2118 (NPPF allowances).

7.7 No evidence has been provided for any mechanism to explain how model calculation error might give rise to the differences seen. It would be expected that land raising within a volumetrically restricted flood cell would cause displacement and off-site increases in flood levels.

8 Access/ Egress and Safe Refuge

8.1 Due to the development proposals set at the defended 1 in 200 year flood event, a residual risk still remains from an undefended tidal 1 in 200 year plus climate change flood event. However, the residential development will be two storey, meaning the dwellings will have a first floor which can act as a safe refuge in times of a flood.

8.2 Our initial objection letter dated 10 May 2023 (Ref: WX/2023/137123/01) stated the following (please note it was written before ground levels were lowered to the defended scenario):

a) *"…an 'undefended' scenario, where extreme still water levels are able to act directly along the coastal frontage inundating the floodplain as indicated by the Flood Zones and representing a worse-case 'residual risk' of flooding to the site. However, with climate change and allowing for the impact of existing defences, the equivalent defended 1 in 200 (0.5%) 2118 scenario in our existing Woodspring Bay Model also results in flooding impacting the site. As a result of the impact of flood defences preventing overtopping for part of the tidal curve, however, the total volume entering the floodplain is less and the impact of floodplain features such as road/rail embankments is greater. Flooding is shown in this event to extend to nearby existing residential properties adjacent to the site."*

8.3 The original Hydrock FRA confirms that flood depths could reach 7.88mAOD during the undefended tidal 1 in 200 year plus climate change flood event. This is 1.6m above FFLs of 6.28m AOD.

8.4 We have not previously provided comments on safe access and egress to and from the development site (for either the defended or undefended flood event), although having considered the issues, we agree with the concerns previously raised by the LLFA.

9 Fluvial Flood Risk

9.1 Although the site is affected by fluvial flood risk, the Environment Agency are satisfied that this has now been adequately addressed and the dominant source of flooding at the site is tidal:

a) Section 3.8 and 3.9 of Flood Risk Technical Note by Rappor (Dated: January 2024, Ref: 24-0161 – Land to North of Rectory Farm, Yatton.pdf, Rev: 1).

10 Sequential Test

10.1 With the site being within tidal Flood Zone 3, the Environment Agency recognises that the Sequential Test is relevant and appropriate, and we support the importance of the Sequential Test being properly carried out. The NPPF makes it clear that the Sequential Test must be passed before site suitability is assessed within an FRA.

10.2 The Environment Agency does not normally comment on the application of the Sequential Test, save to note where it should be carried out and passed for development to be supported.

11 Shoreline Management Plan

11.1 The Shoreline Management Plan (SMP) Policy (KIN1) is currently ‘Managed Realignment’ for the nearest section of coastline at Kingston Seymour. The area to the West of Woodspring Bay (KIN2) is currently ‘No Active Intervention’.

12 Conclusion

12.1 As set out above, the Environment Agency believes that the proposed development would increase flood risk to third party land and existing residential properties over its lifetime. Therefore, this proposed development is not in conformity with the NPPF, and the flood risk is unacceptable. On this basis we maintain our objection to planning permission being granted for the development.

12.2 We also advise that it is important that the Sequential Test is applied and passed before considering detailed flood risk issues.