Gibson **Architecture**

Flood Risk Assessment

19 Alexandra Parade,

Weston-super-Mare,

BS23 1QT

Gibson
Architecture

Contents

Notice

In producing this report, Gibson Architecture (GA) has relied upon information provided by others. The accuracy of this information is not guaranteed by GA.

Whilst all reasonable care has been taken in producing this Flood Risk Assessment, we cannot guarantee that during the lifetime of this development the flood risk may not exceed that stated in this report. We have used the best available data to address the risk of surface water runoff and draw our conclusions. Due to the unpredictable nature of weather generated flooding, our analysis is limited by the accuracy and availability of recorded data. Higher flood risk may arise in future resulting from actions or omissions of third parties. This can include poor maintenance, blockage, storm events in excess of the design standard quoted, inaccuracy or unavailability of data. Flooding beyond that estimated in this report may also occur due to the effects of climate change being more significant than the quoted data.

1. EXECUTIVE SUMMARY

1.1. Gibson Architecture have been appointed to undertake a Flood Risk Assessment (FRA) to accompany a full planning application for:

Conversion of first floor office to residential. Roof extension to form second floor flats.

1.2. This site is located in Flood Zone 1 per the Environment Agency; however, falls in an area identified as being in flood zone 3a when accounting for sea level rise to the year 2125.

1.3. As such requires a site-specific FRA per the National Planning Policy Framework (NPPF, February 2019). This is to assess the vulnerability of the site from all sources of flood for its lifetime, and to identify and measures necessary to mitigate risk to life or property.

1.4. This FRA has been carried out in accordance with the NPPF and the Planning Practice Guidance 'Flood Risk and Coastal Change'. This FRA also incorporates advice and guidance from the Environment Agency (EA), the Strategic Flood Risk Assessment (SFRA) produced by North Somerset Council and CIRIA documents.

1.5. This proposal is for 19 Alexandra Parade which currently comprises a 2-storey, Class E building containing both retail and office uses.

1.6. This site level is around 7.66mAOD per the levels provided by the EA.

1.7. The Environment Agency (EA) map defines this site as being in Flood Zone 1. This is described as:

Land having less than 0.1% annual probability of flooding for river or sea.

1.8. As previously noted, however, the North Somerset Strategic flood risk assessment identified that this site would fall within flood zone 3a by the year 2125.

1.9. Flood mitigation measures may be required to work in conjunction with the local area measures to ensure both the design and construction of the property provides sufficient flood resilience. These measures will be identified in Chapter 5.

1.10. There is minimal risk of tidal flooding to the proposed dwellings due to the finished floor levels sitting comfortably above any modelled flood level.

1.11. Users can sign up to a Flood Warning service operated by the EA. This is a free service that would contact them by phone, email, or text if their property is at risk of flooding. This would allow ample time to prepare the property and vacate prior to a potential flood. We recommend a condition to secure submission and approval of a site evacuation plan prior to occupation of the property.

1.12. Per the below vulnerability table this site will require a sequential test to identify if there are any other sites suitable for this type of development, however these tests are not required for change of use. We have treated this site as being in flood zone 3a for the purpose of this, however it should once again be noted that this is based on a model of the future flood risk with no further flood alleviation works being undertaken by the LLFA.

	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test Required	✓	✓	✓
Zone 3a	Exception Test Required	✗	Exception Test Required	✓	✓
Zone 3b	Exception Test Required	✗	✗	✗	✓

✓ Development is appropriate

✗ Development should not be permitted

2. SITE DESCRIPTION AND LOCATION

2.1. The application site is located on Alexandra Parade (see Figure 1).

2.2. The site currently comprises a retail unit and offices.

2.3. This is a relatively flat site standing at around 7.66mAOD.

2.4. The entirety of the site is developed.

2.5. Access to the units is typically via the south, however there is an alternative entrance to the ground floor via the east.

2.6. There are no nearby watercourses.

2.7. The EA flood map shows the site to be in Flood Zone 1, with the local SFRA identifying the site as Flood Zone 3a due to modelled future flood risk. Due to the presence of significant these flood defences, the site is classed as being at a low risk of flooding from tidal and fluvial sources (see Figure 3).

Figure 1. Site Location Plan

Figure 2. Environment Agency flood map showing flood zones

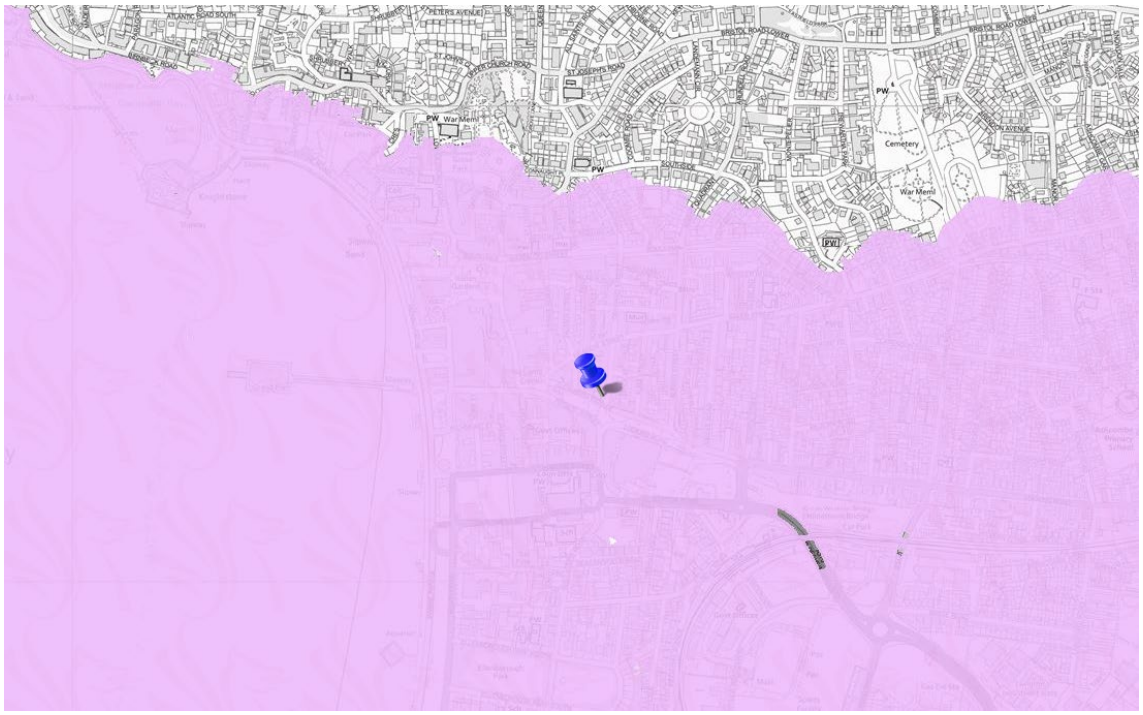

Figure 3. North Somerset Planning Map showing SFRA – FZ3 (sea level rise to 2125)

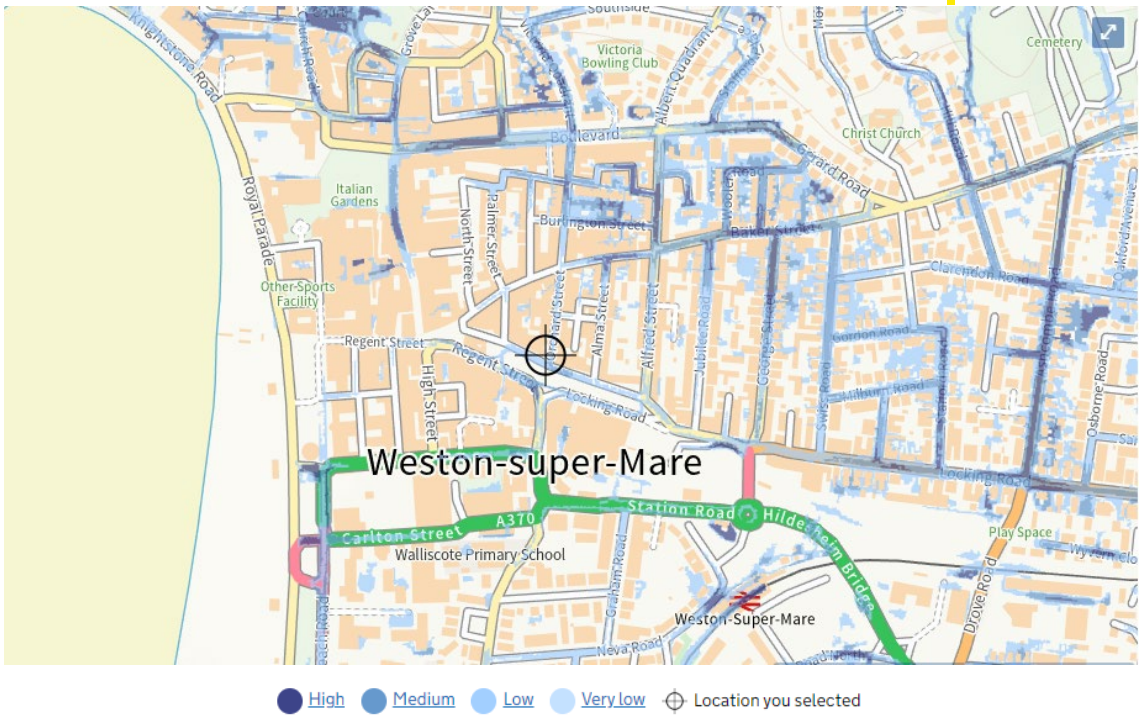

Figure 4. EA Pluvial Flood Risk Map

3. DEVELOPMENT PROPOSAL

3.1. The proposal is described as follows:

Conversion of first floor office to residential. Roof extension to form second floor flats.

3.2. The North Somerset SFRA and Planning Policy Statement 25 (PPS25) state that the design life of a residential development should be considered for 100 years with respect to climate change.

3.3. The footprint of the unit will not change.

4. FLOOD RISK ASSESSMENT

Sources of Flood Risk

4.1. Due to the proximity to the coast, Flood Risk is relatively widespread across North Somerset. The most significant sources of flooding are considered to be fluvial and tidal, although pluvial flooding also poses a risk in certain areas.

Risk Summary

	High	Medium	Low	Very Low
Groundwater				✓
Pluvial				✓
Fluvial				✓
Reservoirs/Canals				✓
Tidal				✓
Sewer				✓

Groundwater

4.2. A ground investigation report was unavailable at the time of writing. The British Geological Survey (BGS) Map shows that superficial deposits of blown sand underlay the site. Mercia Mudstone Group - Mudstone and Halite-stone, forms the bedrock geology (Figure 6).

4.3. The SFRA's 'Areas Susceptible to Groundwater Flooding' map (Figure 5) indicates that there is a 25-50% risk of groundwater flooding in this area. It should also be noted that no recorded instances of groundwater flooding have been uncovered for the site.

4.4. The Level 1 SFRA states that there is limited evidence of potential groundwater flooding within North Somerset.

4.5. Due to the bedrock geology and the SFRA confirming no major risk of groundwater flooding in this area, the risk to the building is considered low. However due to the raised nature of the residential development the risk is very low.

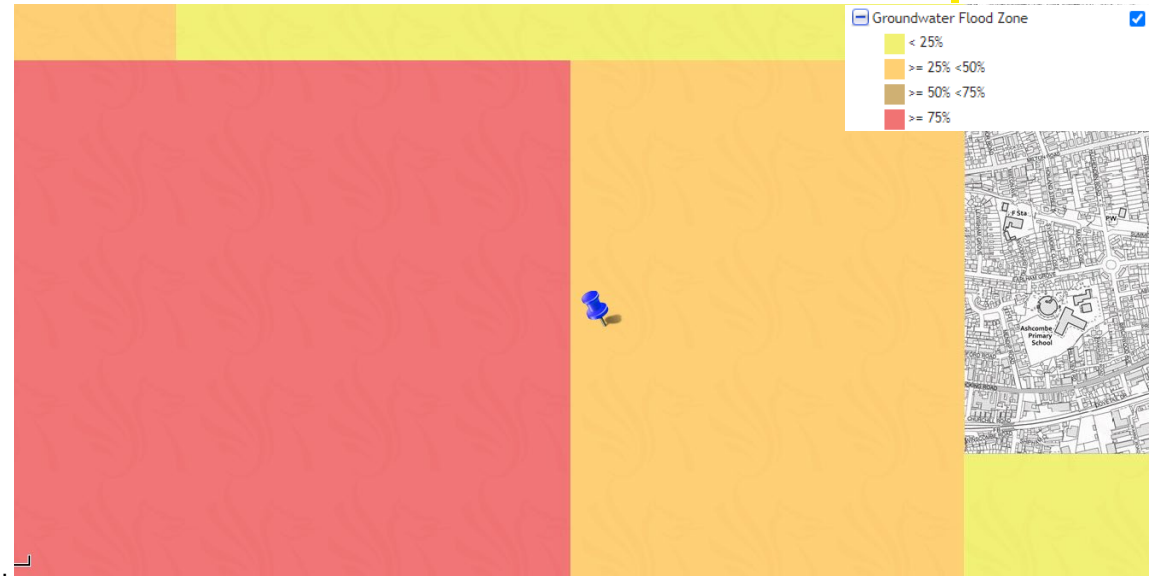

Figure 5. North Somerset Planning Map showing Groundwater Flood Zone extent

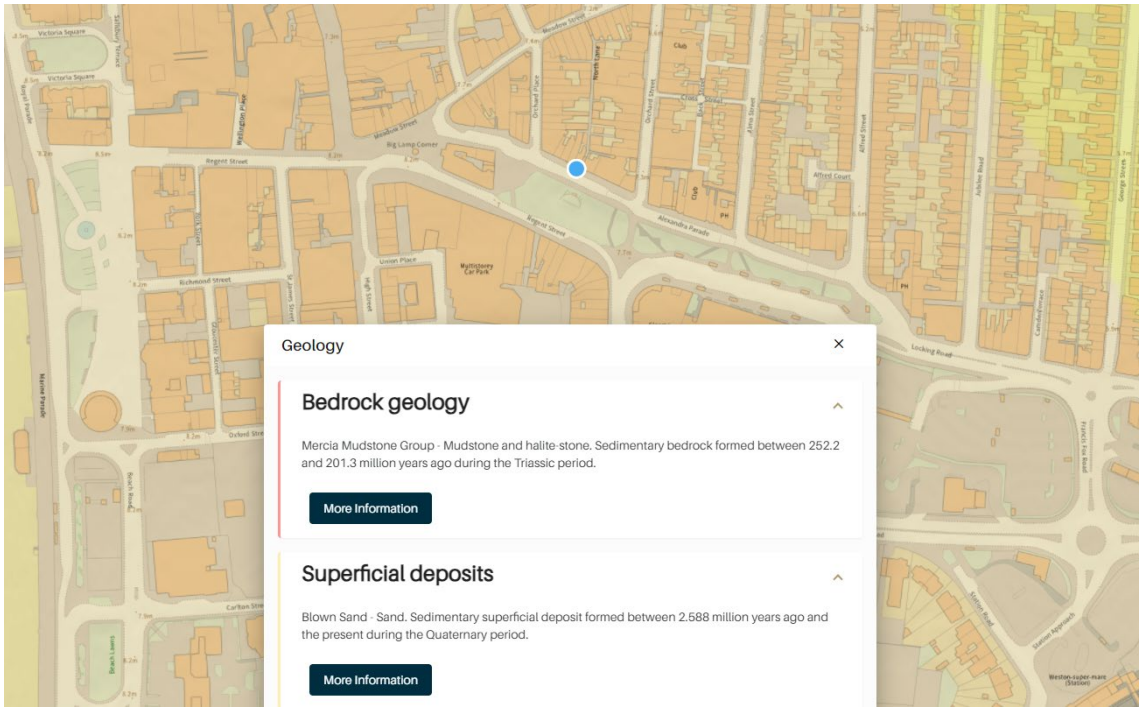

Figure 6. BGS Superficial Deposits and Bedrock Geology Map

Pluvial Runoff

4.6. Surface water flooding occurs when intense rainfall is unable to infiltrate into the ground or overwhelms the drainage system. The surface water runs across the ground causing flooding. This can also be caused by failed dams, burst water mains and any failure in a system storing or transferring water.

4.7. The roads surrounding this site are deemed to be at risk of surface water flooding, with the risk largely being low. There is a small area deemed to be at high risk, however.

4.8. The site is relatively level making extreme runoff unlikely.

4.9. Given the ground make up (Figure 6) infiltration is deemed unlikely, especially considering the area is largely hardscaped, although there are several highway drains in the area per figure 10.

4.10. The footprint of the building is currently circa 85m², which will not change.

4.11. Per the below Surface Water Flood Map (Figure 4) the area is deemed to be at a generally low risk of surface water flooding.

4.12. Per the surface water velocity map (Figure 8) water is not deemed to flow from any of the at-risk areas toward this site.

Figure 7. Environment Agency Map showing modelled flood depths

Figure 8. Surface water velocity map

4.13. The EA surface water flood maps show that the site is at a generally low risk of surface water flooding. The model indicates that the site would flood below 300mm depth (Figure 7) and have a velocity over 0.25 m/s (Figure 8). In accordance with the Flood Hazard Matrix shown in Figure 8 (taken from Level-1 SFRA Table 2.4 and 2.5), this carries a low-moderate hazard rating per the table below.

Hazard rating	Colour	Hazard value	Danger
Low	green	0 – 0.75	**Caution**
Moderate	yellow	0.75 – 1.25	**Danger for Some** (includes children, elderly and the infirm)
Significant	orange	1.25 – 2.5	**Danger for Most** (includes the general public)
Extreme	red	> 2.5	**Danger for All** (includes emergency services)

Velocity (m/s)	Depth (m) 0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.80	1.00	1.50	2.00	2.50
0.00												
0.10												
0.25												
0.50												
1.00												
1.50												
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3.50												
4.00												
4.50												
5.00												

Figure 9. Flood Hazard Matrix from Defra/EA Flood Risk Assessment Guidance for New Development

4.14. Wessex Water drainage maps show foul drainage within the area. This will also serve as surface water drainage. Pluvial runoff from the roof of the building will continue to drain via this method, as the works will not alter the volume of surface water on the site.

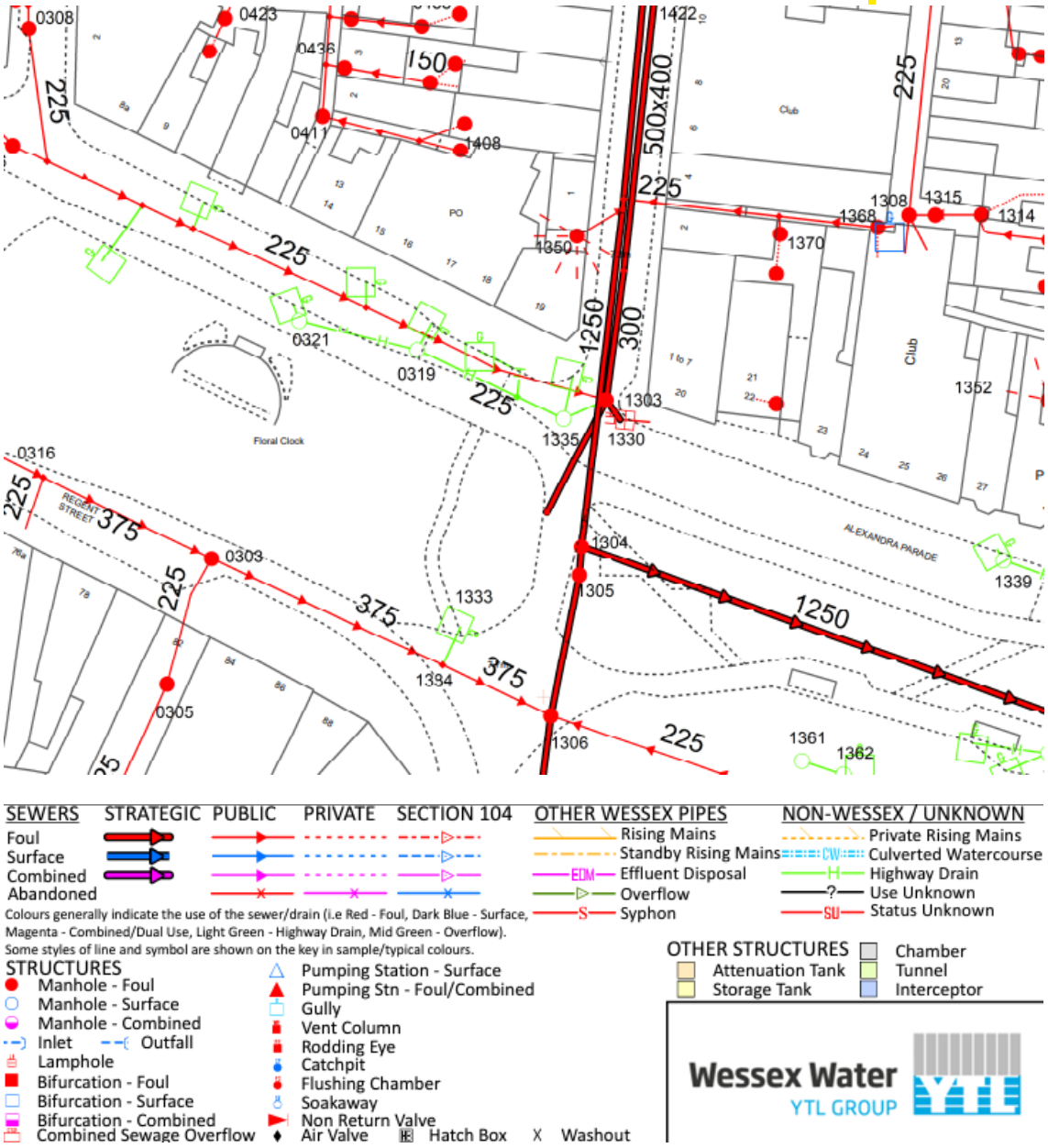

Figure 10. Wessex Water drainage map

4.15. Due to the above information, the pluvial risk to site and the surrounding buildings is deemed low. With the risk to the residential units being negligible.

Reservoirs/Canals

4.16. There are no canals in the vicinity of this site.

4.17. Per figure 11 this site falls outside of an area deemed to be at risk by the EA at times of both normal and high river levels.

4.18. It should also be noted that the risk of an instantaneous, catastrophic breach of a reservoir is extremely unlikely to occur and is modelled on the very worst-case scenario per the EA.

4.19. Furthermore, the Reservoirs Act 1975 states that regular inspection of reservoirs is required to assess the likelihood of failure.

4.20. Assuming inspections are carried out competently per the reservoir owner's obligations, the chance of a breach is considered to be very low, therefore the risk to site should be classified as such.

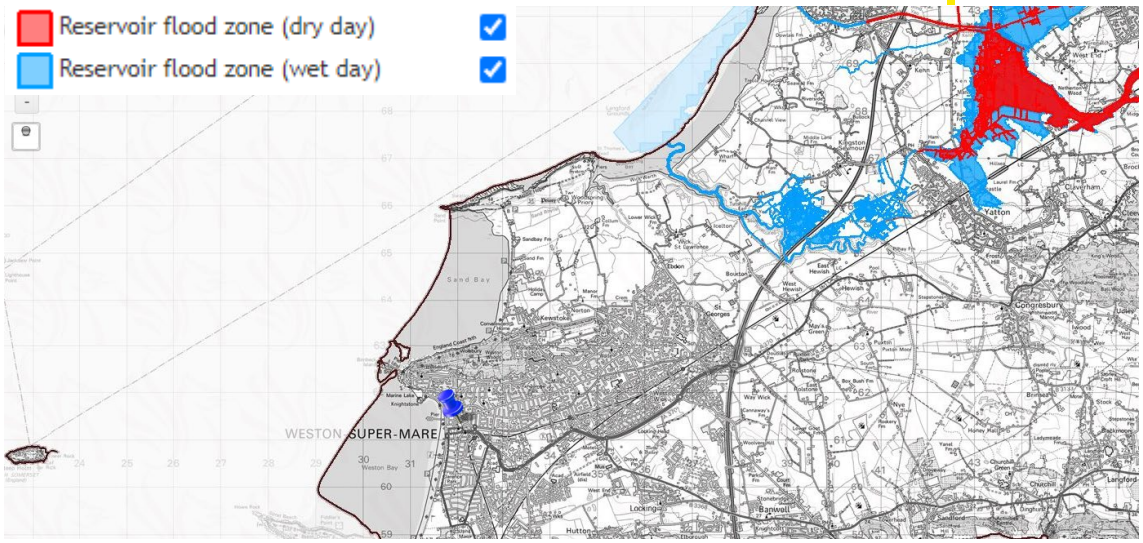

Figure 11. EA extent of reservoir flooding map

Fluvial Flooding

4.21. The Uphill Great Rhyne is located 1.35km to the south-east of this site (Figure 12).

4.22. There is no recorded historical fluvial flooding to this site.

4.23. Per figure 3 the site is deemed to be at low risk of flooding from rivers and the sea per the EA.

4.24. Per the SFRA Fluvial extents map including climate change (Figure 13) this site is not in an area deemed to be at risk of fluvial flooding either now or during the design life of this project.

4.25. Based on the available information this site is deemed to be at very low risk of fluvial flooding both now and for its expected life.

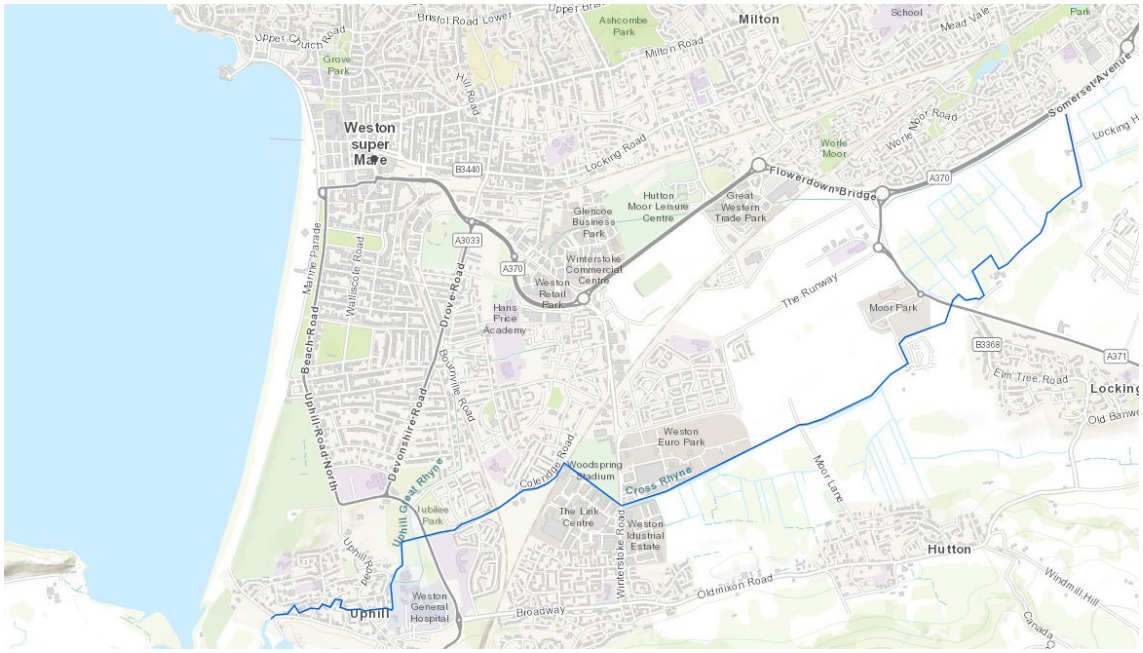

Figure 12. WWF National river map

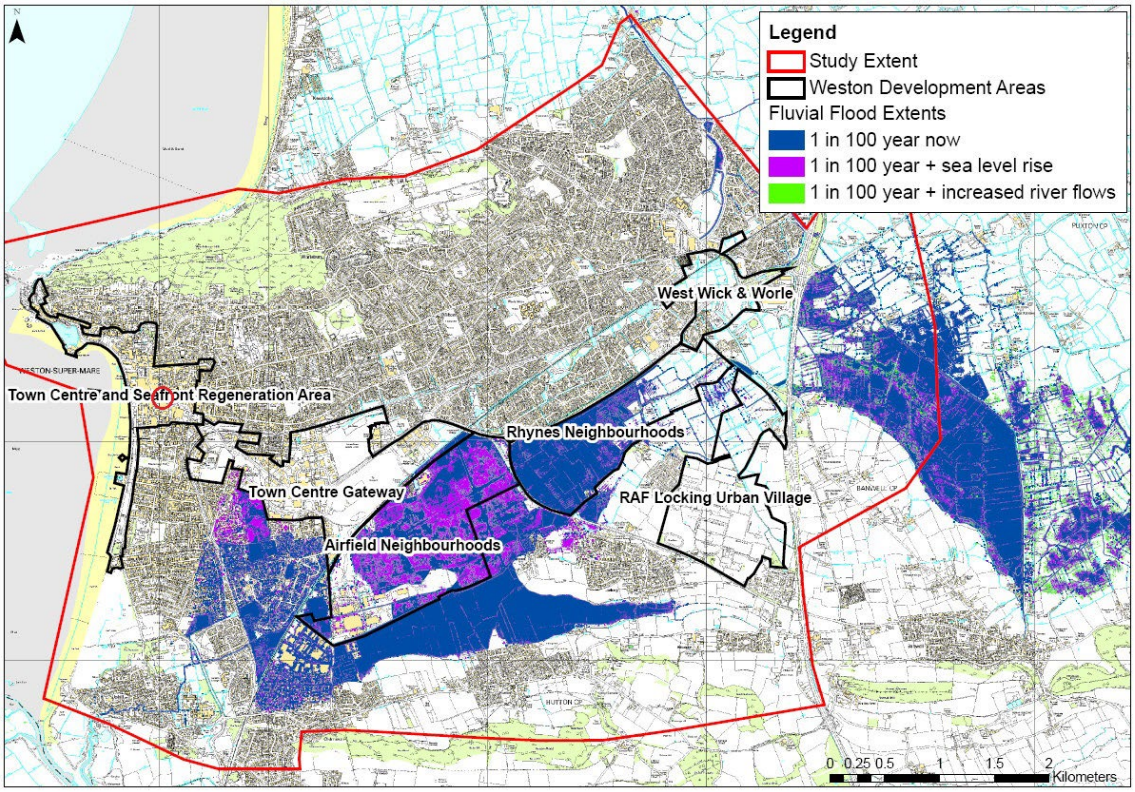

Figure 13. SFRA Fluvial extents map including climate change

Tidal Flooding

4.26. The Bristol Channel is 350m west of the property. This area has been identified by the EA as being at no current risk of tidal flooding. The North Somerset Council Level 2 SFRA states that tidal flooding is "generally negligible across the study area and does not occur within the Weston Development Area at either the 1 in 25 or 1 in 200-year flood events." It also goes on to state that due to the defences the whole of Flood Zone 3 in the area is classed as an Area Benefitting from Defences (ABD) and therefore for the current situation there is no residual risk.

4.27. Per figure 3 this site is deemed by the SFRA to fall within flood zone 3a due to the modelled future flood risk in the year 2125.

4.28. In relation to the tidal flood extents map (year 2125) the level 2 SFRA states:

The modelling shown in Figure 4.17 is with the current defences in place. This includes the new sea wall at its existing level. By 2126 the area shown in green or purple is at residual risk, i.e there is a risk of flooding even with defences in place. There are no longer any areas of ABD. As part of the design of the sea wall an allowance for an additional 0.5m of height was included for. If the defences are raised along the seafront at Weston-super-Mare, as they are designed to be, then this residual risk will be significantly reduced. This scenario has not been modelled for this SFRA but is based on an assessment of the 1 in 200 year still tide level in 2126 compared to the raised defence height.

4.29. This will ensure that tidal flooding remains low risk.

4.30. The Environment Agency has provided the following flood level data to assist this proposal:

Defended

AEP	Maximum depth (in metres)	Maximum level (mAOD)
0.1% (1 in 1000)	0.00	0.00
0.5% (1 in 200)	0.00	0.00
0.5% with CC 2068 added	0.00	0.00
0.5% with CC 2118 added	0.28	7.94
20% (1 in 5)	0.00	0.00

Undefended

AEP	Maximum depth (in metres)	Maximum level (mAOD)
0.1% (1 in 1000)	0.00	0.00
0.5% (1 in 200)	0.00	0.00
0.5% with CC 2068 added	0.00	0.00
0.5% with CC 2118 added	0.28	7.94
20% (1 in 5)	0.00	0.00

4.31. This has given a site level of 7.66mAOD. It also provided a depth of flooding to site of 0m in both a defended and undefended scenario for a 1-in-200 year flood event.

4.32. The effects of climate change were estimated in the 2020 Woodspring Bay modelling.

4.33. The 2118 undefended scenario for this site is currently calculated to be 0.28m at the site.

4.34. The fact that both the defended and undefended figure read the same suggests that this would be as a result of overtopping on the sea wall. Which, as noted above, is expected to be raised in the future.

4.35. The information provided in the SFRA with regards to a breach of tidal defence is insufficient to draw conclusions about specific sites, so the FD2320 simple breach assessment method will be used.

Distance from breach (m)	Head above floodplain (m)						
	0.5	1	2	3	4	5	6
100							
250							
500							
1000							
1500							
2000							
2500							
3000							
3500							
4000							
4500							
5000							

Key:
- Danger for some
- Danger for most
- Danger for all

Figure 14. FD2320 Breach Assessment Table

4.36. When the figures are rounded to present a worst-case scenario (0.5m head and 250m distance), the table returns a result of 'danger for some', which is children, the elderly and the infirm. Although the risk is likely less than this, as this rounding has a significant impact.

4.37. The residential units have a finished floor level of 3.445m above ground level. This means the finished floor of the first-floor dwellings will sit 3.165m above the 'undefended 0.5% with CC 2118 added' flood level.

4.38. Given the above, the risk of tidal flooding to the site is deemed to be very low, with the risk to the residential units being negligible.

4.39. The use of the ground floor will not be changing, and the flood risk will not increase.

Historic Flooding

4.40. There is no history of the site having been flooded per figure 15.

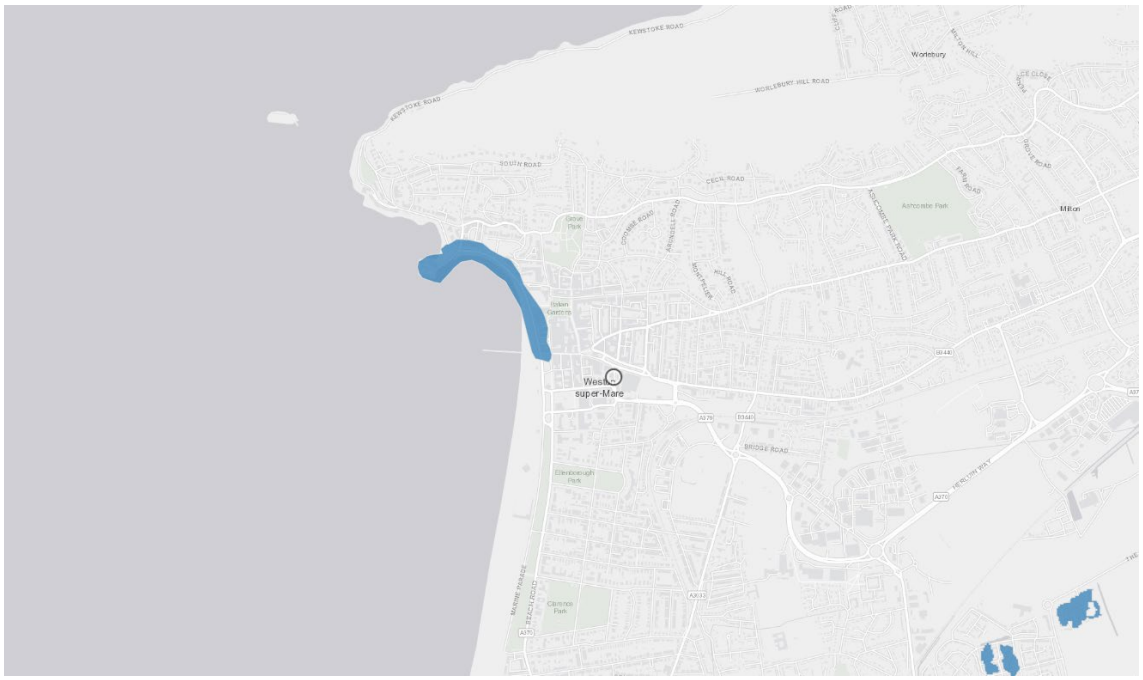

Figure 15. Historic flooding map showing extent of historic flooding

Sewer Flooding

4.41. We were unable to uncover any historical sewer flooding in the area. This has subsequently been confirmed by Wessex Water.

5. SITE SPECIFIC FLOOD RISK ASSESSMENT

5.1. The NPPF requires that new developments must not have an adverse effect on flood risk to third parties and mist have a means of safe access/egress during flood conditions.

Mitigation

5.2. The SFRA highlights how development can increase surface water runoff causing flooding.

5.3. The footprint of the existing buildings will not increase, so surface water can continue to discharge via its current means.

5.4. The ground floor will be retained in its current use/form. All residential uses will be first floor and above. The dwellings will be safe from any and all flood risk due to this.

5.5. The risk of tidal flooding currently would only be as a result of overtopping or breach of the sea defences. These residential units sit conformably above all modelled tidal flood levels, so offer no risk from tidal flooding.

5.6. Consideration should be given to whether gas meters are likely to be affected by an extreme flood event. Where possible meters should be raised above the expected flood level (165mm above internal finished floor level). Valves and drain points should be considered to enable the purge of the supply pipes in the event of a flood.

5.7. Closed cell insulation should be considered for internal pipework. Access for maintenance and cleaning should be considered in the event of a flood.

5.8. The use of SUDs, such as water butts introduced to downpipes would provide additional mitigation of the flood risk.

5.9. Telephone and broadband supplier should be consulted in areas where there is risk of flood. Consideration should be given to incoming lines and control boxes being raised above expected flood levels.

5.10. Implementation of a Flood Warning and Evacuation plan is strongly recommended. Please see below notes:

5.10.1. Residents/tenants responsible for the Flood Plan should be registered to EA flood alerts, as these are important to enable safe flood evacuation of the site.

5.10.2. An evacuation plan should be implemented, advising occupants to stay within the dwellings and await assistance.

5.10.3. The building can be re-occupied once flooding has subsided and/or the EA have permitted re-entry.

5.10.4. A flood kit must be prepared and regularly checked. This should include:

5.10.4.1. Insurance documents

5.10.4.2. A torch with spare batteries

5.10.4.3. A wind up or battery radio

5.10.4.4. Warm, waterproof clothing and blankets

5.10.4.5. A first aid kit and any prescription medication

5.10.4.6. Bottled Water and non-perishable foods

5.10.4.7. Baby food and baby care items

5.11. It is recommended that the property is registered with EA's Flood Warning Service. This is a free warning service. Please see outline of warning system below (Figure 16):

Figure 16. EA Flood Warning System

6. CONCLUSIONS

6.1. This site is shown by the EA to be in flood zone 1 and by the North Somerset SFRA as falling within flood zone 3a due to modelled future risk.

6.2. The site is also identified by the EA as being at low risk of fluvial and tidal flooding, due to the presence of substantial flood defences.

6.3. The flood risk to the ground floor will not change. The dwellings will all be first floor and above – safely outside of any flood risk.

6.4. Flood risk should be minimised using the proposed mitigation measures described in Chapter 5.

6.5. In the unlikely event of flooding there is not deemed to be a risk to life due to the use type of the ground floor unit and the position of the upper units.

6.6. The development does not increase the risk of runoff.

6.7. The FRA has further demonstrated that the proposed development has an acceptable flood risk within the terms and requirements of the NPPF.

7. APPENDICES

A. Correspondence from EA

creating a better place

Environment Agency

Dan Clarke-Hall
Gibson Architecture
dan@gibsonarchitecture.co.uk

Our ref: 332790-WX
Date: 22nd November 2023

Dear Dan Clarke-Hall,

Thank you for your enquiry which was received on 3rd November 2023. We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

Abstract

Name	Product 4
Description	Detailed Flood Risk Assessment Map for **4-9 Alexandra Parade, Weston-super-Mare, BS23 1QT** **NGR: ST3204861413**
Licence	Open Government Licence
Information Warnings	*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.*
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2019 Ordnance Survey 100024198.

Flood Map for Planning
The Flood Map for Planning is now classed as Open Data. It can be downloaded free of charge under an open data licence from the following weblink:
https://data.gov.uk/publisher/environment-agency

If you search for the 'flood map for planning' in the search box the following datasets will be available for you select and download the data:

- Flood Map for Planning (Rivers and the Sea) – Flood Zones 2 and 3
- Flood Map for Planning (Rivers and Sea) – Areas Benefiting from Defences
- Flood Map for Planning (Rivers and Sea) Flood Storage Areas
- Flood Map for Planning – Spatial Flood Defences (without Standard attributes)
- Recorded Flood Outlines
- Historic Flood Map
- Risk of Flooding from Surface Water Extent for:
  - → 3 percent annual chance
  - → 1 percent annual chance
  - → 0.1 percent annual chance

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Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Email: wessexenquiries@environment-agency.gov.uk
www.environment-agency.gov.uk

VAT No: **662 4901 34**

If you have requested this information to help inform a development proposal, then you should also note the detail in the attached advisory text on the use of Environment Agency Information and Further Guidance for FRAs.

Flooding History

We no longer produce pdf copies of the Historic Flood Map. This information is available to search select, and download free of charge as part of the Government's 'open data' as

- Recorded Flood Outlines
- the Historic Flood Map

These are GIS layers and can be downloaded from: https://data.gov.uk/publisher/environment-agency

Please note we cannot guarantee that this is an exhaustive list of all past flood events in this location. All reasonable care has been taken to ensure that the historical flood event data is as accurate as possible. The Environment Agency will update its records if new evidence emerges.

Strategic Flood Risk Assessment (SFRA)

When preparing a FRA to support a development proposal in this location you should refer to North Somerset's Council's SFRA website, which is available via the following link: https://www.n-somerset.gov.uk/my-services/planning-building-control/planning-policy/supplementary-plans-guidance/strategic-flood-risk-assessment.

Planning

If you have questions regarding the planning nature of your enquiry, or require advice on floor levels, please contact our Sustainable Places team on NWX.SP@environment-agency.gov.uk. Please be aware that we now charge for planning advice when consulted on pre-application enquiries. This new approach provides advice to developers in two ways. Firstly, there is the provision of 'free' advice available to everyone where we give a preliminary opinion on a proposed development. This sets out the environmental constraints together with any issues this raises for us. Should you wish us to review in detail any of these issues then we can do this through a chargeable scheme aimed at recovering our costs.

Flood Levels

Coastal/tidal flood levels and depths

The tables below show the maximum modelled tidal flood levels and depths for defended (actual situation) and undefended (natural floodplain) scenarios taken from our 2020 Woodspring Bay modelling. The annual exceedance probability (AEP) is given.

*Please note. We have provided you with climate change data based on National Planning and Policy Framework (NPPF) guidance. We advise that this data is suitable for the use in an FRA, but we also have climate change data based on UK Climate Projections 2009 (UKCP09) if required.

We advise that the extracted level and depth data provided below is suitable for use in an FRA. If you require level and depth data from additional return periods, these .asc grids can be requested as part of a Product 6.

Defended

AEP	Maximum depth (in metres)	Maximum level (mAOD)
0.1% (1 in 1000)	0.00	0.00
0.5% (1 in 200)	0.00	0.00
0.5% with CC 2068 added	0.00	0.00
0.5% with CC 2118 added	0.28	7.94

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Email: wessexenquiries@environment-agency.gov.uk
www.environment-agency.gov.uk
VAT No: 662 4901 34

20% (1 in 5)	0.00	0.00

Undefended

AEP	Maximum depth (in metres)	Maximum level (mAOD)
0.1% (1 in 1000)	0.00	0.00
0.5% (1 in 200)	0.00	0.00
0.5% with CC 2068 added	0.00	0.00
0.5% with CC 2118 added	0.28	7.94
20% (1 in 5)	0.00	0.00

N.B. 0.00 (m or mAOD) indicates the data does not reach the site.
N.B. Levels and depths have been extracted based upon the site boundary plan provided.

If you intend undertaking a FRA for a planning application using climate change flood level information supplied in this letter, you should consider whether it is appropriate in light of a range of potential allowances for fluvial flood flow now advised in curent planning guidance on 'Flood risk assessments: climate change allowances'. The relevant guidance is available at the following website address:
https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

We have included a briefing note that refers to the 2018 Climate Change projections. Our Sustainable places team would be happy to discuss the issues around Climate Change and how this should be used.

Flood Defences
Please find enclosed details of Flood Defences within the vicinity of the site boundary. This information has been taken from our Asset Information Management System database (AIMS).

Please note that flood defences can increase water levels elsewhere e.g., through channels being restricted by defences, or because defences prevent flood water flowing back into the river channel.

Extreme Tide Level (Still Water) Information

IMPORTANT. If you are carrying out a Flood Risk Assessment you should also review the Still Water Tide Level data from the Coastal Flood Boundary Study 2018. You should be mindful that in some locations the predicted Still Water Tide Levels are higher than the locally modelled water levels provided above. When this is the case the higher water levels should be taken into account in your Flood Risk Assessment.

For more information on climate change allowances please see guidance on the Gov.UK website here: Flood risk assessments: climate change allowances - GOV.UK

The updated Still Water Tide Level Data (baseline 2017) from the Coastal Flood Boundary Study 2018 is also available to download from our data.gov.uk site. Please search for 'Coastal Design Sea Levels'.

For your information you can view the Coastal Flood Boundary Study 2018 technical summary report and the user guide below.
https://www.gov.uk/government/publications/coastal-flood-boundary-conditions-for-uk-mainland-and-islands-design-sea-levels

Environmental Permit for Flood Risk Activities
In addition to any other permission(s) that you may have already obtained e.g., planning permission, you may need an environmental permit for flood risk activities (formerly known as Flood Defence Consent prior to 06 April 2016) if you want to do work:

Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Email: wessexenquiries@environment-agency.gov.uk
www.environment-agency.gov.uk
VAT No: **662 4901 34**

- in, under, over or near a main river (including where the river is in a culvert)
- on or near a flood defence on a main river
- in the flood plain of a main river
- on or near a sea defence

For further information and to check whether a permit is required please visit:
https://www.gov.uk/guidance/flood-risk-activities-environmental-permits.

For any further advice, please contact your local Environment Agency Office, at
bridgwater.frap@environment-agency.gov.uk.

Further Information

We advise that you also contact the Flood Risk Department, floodrisk@n-somerset.gov.uk, telephone 01934 888888, at North Somerset Council, Town Hall, Walliscote Grove Road, Weston-super-Mare, BS23 1UJ. For land drainage consents please contact 01275 884 574 or landdrainage@n-somerset.gov.uk as they may be able to provide further advice with respect to localised flooding and drainage issues.

Further details about the Environment Agency information supplied can be found on our website:
https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather

If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency Information for FRAs:
https://www.gov.uk/planning-applications-assessing-flood-risk
https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

We hope you find this information helpful, and it is provided subject to the guidance below, which we strongly recommend you read.

Yours sincerely,

Nicola Jess

Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Email: wessexenquiries@environment-agency.gov.uk

Enc: Use of Environment Agency Information for Flood Risk Assessments (below)
UKCP18 Climate Change Briefing Note
332790-WX Defence Map
332790-WX Defence Data

Customer & Engagement, Wessex
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
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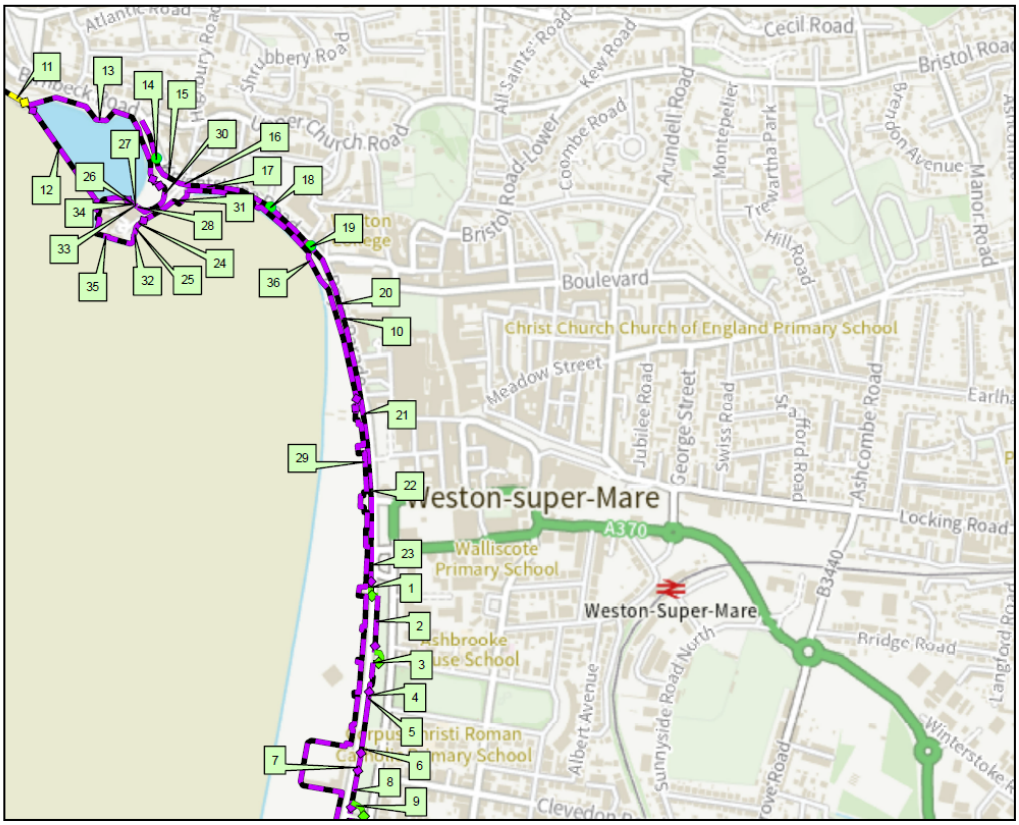
www.environment-agency.gov.uk

VAT No: **662 4901 34**

B. Flood Defence Map and Data

Current Flood Defences centered on NGR ST 32046 61414 Created 08/11/2023 Ref: 332790-WX



Legend

Defences

- Barrier Beach
- Beach
- Bridge Abutment
- Cliff
- Demountable Defence
- Dunes
- Embankment
- Engineered High Ground
- Flood Gate
- Natural High Ground
- Promenade
- Quay
- Spillway
- Wall

This data has been extracted from the Asset Information Management System (AIMS OM) which was created to draw various data sources into one database and has been populated with information of varying quality.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

332790-WX - AIMS data

Product 4 - AIMS Information **332790-WX** **Date:** **08/11/2023**

Map Ref	Asset ID	Asset Type	Right or left bank	Asset Description	Approx length (m)	Actual fluvial downstream crest level (mAOD)	Actual fluvial downstream crest level accuracy	Actual fluvial upstream crest level (mAOD)	Actual fluvial upstream crest level accuracy	Actual fluvial coastal crest level (mAOD)	Actual fluvial coastal crest level accuracy	NGR	Most recent inspection	Overall condition
1	102480	Embankment	Coastal	DNR	32.79	DNR	DNR	DNR	DNR	DNR	DNR	ST31746102	01/08/2023	2 - Good
2	102483	Wall	Coastal	DNR	121.89	DNR	DNR	DNR	DNR	DNR	DNR	ST31756096	01/08/2023	2 - Good
3	102484	Embankment	Coastal	DNR	48.70	DNR	DNR	DNR	DNR	DNR	DNR	ST31766088	01/08/2023	2 - Good
4	102485	Wall	Coastal	DNR	85.71	DNR	DNR	DNR	DNR	DNR	DNR	ST31756083	01/08/2023	2 - Good
5	103935	Wall	Coastal	DNR	19.69	DNR	DNR	DNR	DNR	DNR	DNR	ST31746079	01/08/2023	1 - Very Good
6	103936	Wall	Coastal	DNR	113.01	DNR	DNR	DNR	DNR	DNR	DNR	ST31736072	01/08/2023	2 - Good
7	103937	Wall	Coastal	DNR	38.62	DNR	DNR	DNR	DNR	DNR	DNR	ST31726064	01/08/2023	1 - Very Good
8	174732	Wall	Coastal	DNR	80.35	DNR	DNR	DNR	DNR	DNR	DNR	ST31706057	01/08/2023	2 - Good
9	174896	Embankment	Coastal	DNR	54.25	DNR	DNR	DNR	DNR	DNR	DNR	ST31726056	01/08/2023	2 - Good
10	178912	Wall	Coastal	DNR	1251.62	DNR	DNR	DNR	DNR	9.05	3 - +/- >0.15m to 0.75m vertical accuracy (Typically older (pre 2004) Lidar or Photogrammetry)	ST31586180	01/08/2023	1 - Very Good
11	185226	Natural High Ground	Coastal	Cliff	472.71	DNR	DNR	DNR	DNR	DNR	DNR	ST30866220	23/07/2009	2 - Good
12	185227	Wall	Coastal	Seawall	253.27	DNR	DNR	DNR	DNR	DNR	DNR	ST31086197	12/07/2011	2 - Good
13	185228	Wall	Coastal	DNR	408.20	DNR	DNR	DNR	DNR	7.78	1 - +/- 0.01m to 0.05m vertical accuracy (Typically on site survey)	ST31216205	17/08/2023	2 - Good
14	332727	Flood Gate	DNR	Flood gate no.1	5.00	DNR	DNR	DNR	DNR	DNR	DNR	ST3129861939	01/08/2023	2 - Good
15	332728	Flood Gate	DNR	Flood gate no.2	5.00	DNR	DNR	DNR	DNR	DNR	DNR	ST31316192	01/08/2023	2 - Good
16	332729	Flood Gate	DNR	DNR	5.00	DNR	DNR	DNR	DNR	DNR	DNR	ST31346190	01/08/2023	2 - Good
17	332730	Flood Gate	DNR	DNR	5.00	DNR	DNR	DNR	DNR	DNR	DNR	ST31396190	01/08/2023	2 - Good
18	332731	Flood Gate	DNR	DNR	8.38	DNR	DNR	DNR	DNR	DNR	DNR	ST31536185	01/08/2023	2 - Good
19	332732	Flood Gate	DNR	Flood gate no.6	5.00	DNR	DNR	DNR	DNR	DNR	DNR	ST31616177	01/08/2023	2 - Good
20	333358	Flood Gate	DNR	Flood gate no.7	5.00	7.00	2 - +/- >0.05m to 0.15m vertical accuracy (Typically LIDAR or Photogrammetry)	7.00	2 - +/- >0.05m to 0.15m vertical accuracy (Typically LIDAR or Photogrammetry)	DNR	DNR	ST31676165	01/08/2023	2 - Good
21	333359	Flood Gate	DNR	Flood gate no.8	5.00	DNR	DNR	DNR	DNR	DNR	DNR	ST31736141	01/08/2023	1 - Very Good
22	333360	Flood Gate	DNR	Flood gate no.9	5.00	DNR	DNR	DNR	DNR	DNR	DNR	ST31746124	01/08/2023	1 - Very Good
23	333361	Flood Gate	DNR	Flood gate no.10	5.00	DNR	DNR	DNR	DNR	DNR	DNR	ST3175261143	01/08/2023	2 - Good
24	333449	Flood Gate	Coastal	DNR	1.46	DNR	DNR	DNR	DNR	DNR	DNR	ST31246182	17/08/2023	2 - Good
25	333450	Flood Gate	Coastal	DNR	2.25	DNR	DNR	DNR	DNR	DNR	DNR	ST31236179	17/08/2023	2 - Good
26	333451	Flood Gate	Coastal	DNR	2.02	DNR	DNR	DNR	DNR	DNR	DNR	ST31236186	17/08/2023	2 - Good
27	333452	Flood Gate	Coastal	DNR	2.49	DNR	DNR	DNR	DNR	DNR	DNR	ST31236186	17/08/2023	2 - Good
28	333545	Flood Gate	Coastal	DNR	2.47	DNR	DNR	DNR	DNR	DNR	DNR	ST31246185	17/08/2023	2 - Good

332790-WX - AIMS data

Map Ref	Asset ID	Asset Type	Right or left bank	Asset Description	Approx length (m)	Actual fluvial downstream crest level (mAOD)	Actual fluvial downstream crest level accuracy	Actual fluvial upstream crest level (mAOD)	Actual fluvial upstream crest level accuracy	Actual fluvial coastal crest level (mAOD)	Actual fluvial coastal crest level accuracy	NGR	Most recent inspection	Overall condition
29	78400	Wall	Coastal	DNR	1928.58	DNR	DNR	DNR	DNR	7.59	1 - +/- 0.01m to 0.05m vertical accuracy (Typically on site survey)	ST31716080	01/08/2023	2 - Good
30	78425	Wall	Coastal	DNR	564.87	DNR	DNR	DNR	DNR	7.78	1 - +/- 0.01m to 0.05m vertical accuracy (Typically on site survey)	ST31166184	17/08/2023	2 - Good
31	78425	Wall	Coastal	DNR	564.87	DNR	DNR	DNR	DNR	7.78	1 - +/- 0.01m to 0.05m vertical accuracy (Typically on site survey)	ST31166184	17/08/2023	2 - Good
32	78425	Wall	Coastal	DNR	564.87	DNR	DNR	DNR	DNR	7.78	1 - +/- 0.01m to 0.05m vertical accuracy (Typically on site survey)	ST31166184	17/08/2023	2 - Good
33	78425	Wall	Coastal	DNR	564.87	DNR	DNR	DNR	DNR	7.78	1 - +/- 0.01m to 0.05m vertical accuracy (Typically on site survey)	ST31166184	17/08/2023	2 - Good
34	78425	Wall	Coastal	DNR	564.87	DNR	DNR	DNR	DNR	7.78	1 - +/- 0.01m to 0.05m vertical accuracy (Typically on site survey)	ST31166184	17/08/2023	2 - Good
35	78425	Wall	Coastal	DNR	564.87	DNR	DNR	DNR	DNR	7.78	1 - +/- 0.01m to 0.05m vertical accuracy (Typically on site survey)	ST31166184	17/08/2023	2 - Good
36	81501	Wall	Coastal	DNR	665.44	DNR	DNR	DNR	DNR	7.85	4 - +/- 0.75m or more vertical accuracy	ST31536183	17/08/2023	2 - Good

Notes
* Overall Condition has been taken from the most recent inspection
* Inspections are of a purely visual nature and do not necessarily reflect the true condition of the asset
* Condition: 1 = very good, Condtion 2 = good, Condition 3 = fair, Condition 4 = poor, Condition 5 = very poor
* Crest level accuracy: 1 = ± 0.01 to 0.05m, 2 = ± 0.05 to 0.15m, 3 = ± 0.15 to 0.75m, 4 = ± 0.75 or greater
* DNR = data not recorded