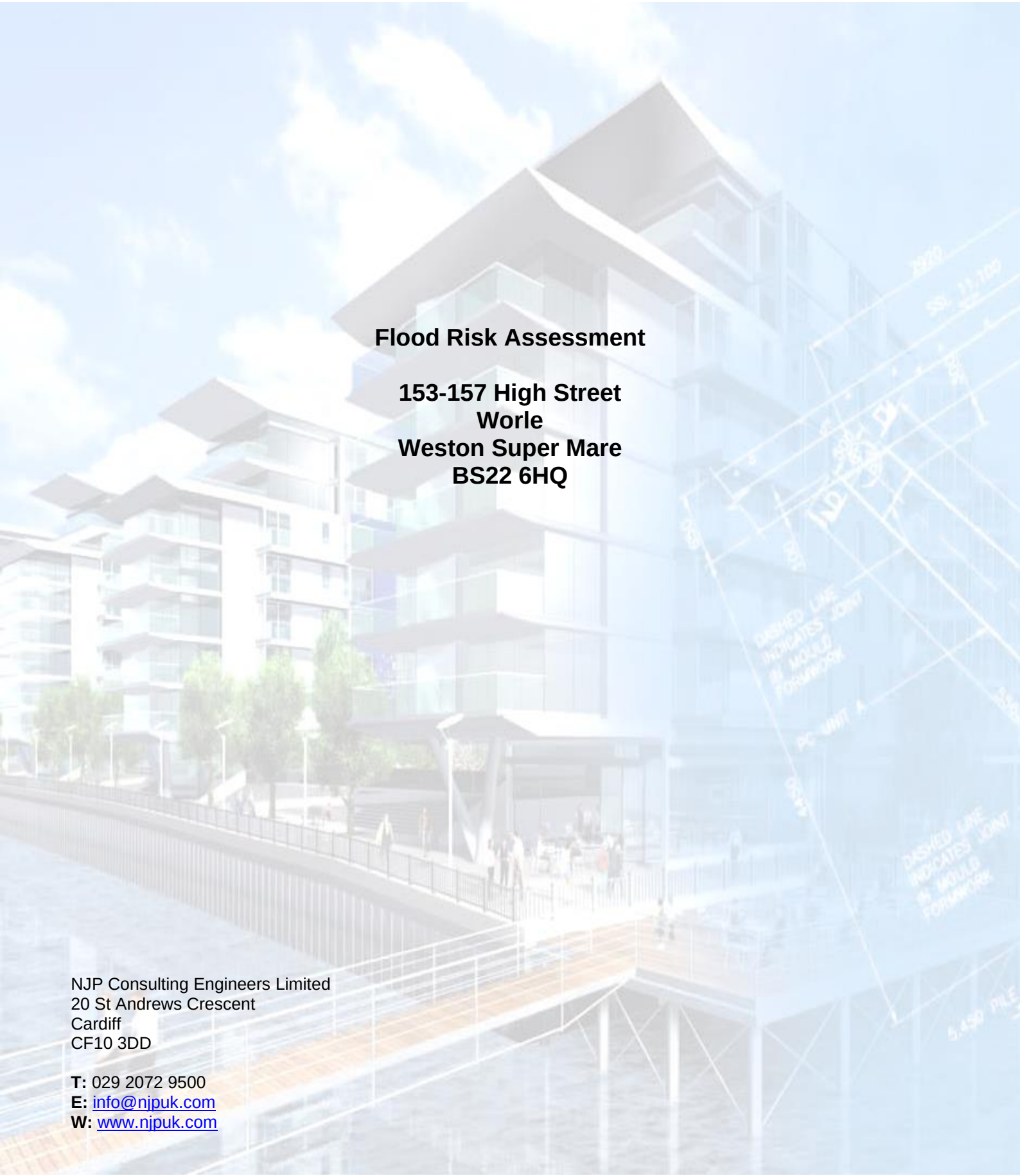

Flood Risk Assessment

153-157 High Street
Worle
Weston Super Mare
BS22 6HQ

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Contents:

Executive Summary

Site name and address: 153-157 High Street, Worle Weston Super Mare BS22 6HQ

Grid Reference: ST 35460 62771

Current Use: Dance school at first floor

Proposed Use: 4 flats at first floor. Ground Floor businesses remains unchanged

Flood Zone: Flood Zone 3

Vulnerability: More Vulnerable

Primary access/egress: Off High Street

Alternative access/egress escape route: Off High Street

Description:
The site is approximately 1016m^2 or 0.0102 hectares and currently occupied by a grocers, an estate agent and charity shop at ground level. The ground floor will not change as a result of the proposed development. The first floor is currently a dance school and accessed via a separate external entrance and staircase. There is car parking to the rear.

1 Introduction

The Flood Consequence Assessment (FCA) relates to the proposed Permitted Development to change the first floor dance school to 4 number 1 bedroom flats, use Class C3. The site lies within the Weston Developments Area as outlined in the Weston Super Mare Level 2 Strategic Flood Risk Assessment and further works: Technical element (WSMSFRA) published July 2010.

The purpose of the FCA is to demonstrate that the development proposal can be accommodated to meet the requirements of North Somerset Council Core Strategy (NSCS) adopted 2017, policy CS3, Environmental impacts and flood risk management, without:

- Worsening flood risk for the area
- Without placing the proposed flats at risk of flooding as national guidance contained within National Planning Policy Framework document (NPFF)

2 Flood Zone Planning Policy Guidance

- North Somerset Council Core Strategy (NSCS) adopted 2017, policy CS3, Environmental impacts and flood risk management.
- The Sites and Policies Plan Part 1: Development Management Policies adopted July 2016 policy DM1 is also relevant to the proposal.
- Other material policy guidance is the National Planning Policy Framework (NPPF) 2021 section 14 meeting the challenge of climate change, flooding and coastal change.

The following documents have also been used to inform the FCA.

- EA Flood risk map, Appendix D
- Environment Agency Product 4 data reference 323786-WX-P4, Appendix B
- Topographical Survey 989/5710/1, Appendix C
- Weston Super Mare Level 2 Strategic Flood Risk Assessment and further works: Technical element (WSMSFRA) published July 2010. Various references to sections.

3 Site location and description

The site is located in an urban location off the north side of Worle High Street . (Appendix A refers). High Street is a primary access route and local retail area in Worle and links to Weston Super Mare town centre to the west.
The site has a large level car park to the rear and is bounded by a car park and dwellings fronting Lawrence Road to the east. Residential dwellings to the north an north west and retail units forming High street to the east.

View from High Street

4 Development Proposal

The proposed first floor conversion plan is shown in Appendix F. A topographical survey is provided in Appendix C. The site is generally flat and there are no earthworks proposed that would affect the general site level.

The development proposal is to convert the existing first floor dance school into 4 number 1 bedroom flats with access provided from the ground floor by utilising the existing separate staircase to the side of the units. This staircase has its own front door The ground floor will remain unchanged as mixed commercial units.

The site has a slight fall from the rear car park at approximately 6.68m AOD to High street at approximately 5.90m AOD at the entrance to the car park. The ground floor threshold levels are set at approximately 6.3m AOD and 6.4m AOD at the external staircase.

5 Existing Features

Nearby watercourses

The tidal River Severn Estuary is approximately 3.0km west of the site. The River Banwell is a largely artificial channel located approximately 1.7 km to the north east of the site and flows in a north easterly direction ultimately discharging into the Severn Estuary through New Bow Sluice, a tidal defence structure constructed in 1990. West Mendip Internal Drainage Board (IDB) control and maintain the sluice and surrounding rhyne system.

Existing Flood defences

A Strategic Flood Risk Assessment (SFRA) has been prepared for North Somerset Council July 2010 Final report and Weston Super Mare Level 2 Strategic Flood Risk Assessment and further works: Technical element . The information provided within the SFRA is used in part to inform this FCA. The SFRA confirms tidal flood defences have been constructed along much of the coastline adjacent to Weston Super Mare. The defences comprise natural structures and a sea wall that generally provide protection from the 1 in 200 year return period tidal event.

Existing Drainage

Wessex Water asset records (Appendix F) show adopted 150mm diameter foul sewer to the rear and drive connecting into a 225mm diameter foul sewer in High street. A 225mm diameter surface water sewer to the rear and drive connects into a 225mm diameter surface water sewer in High street.

6 Assessing Flood Consequence.

The flood zone map from the EA in Appendix D shows the site is within Defended Flood Zone 3, which benefits from the sea wall defences along Weston sea front, currently at low risk of flooding except in the event of a failure. Defended Flood Zone 3 is defined as *"land and property in this flood zone would have a high probability flooding without the local defences. These protect the area against a flood from the sea with 0.5% (1:200) chance of happening each year".*

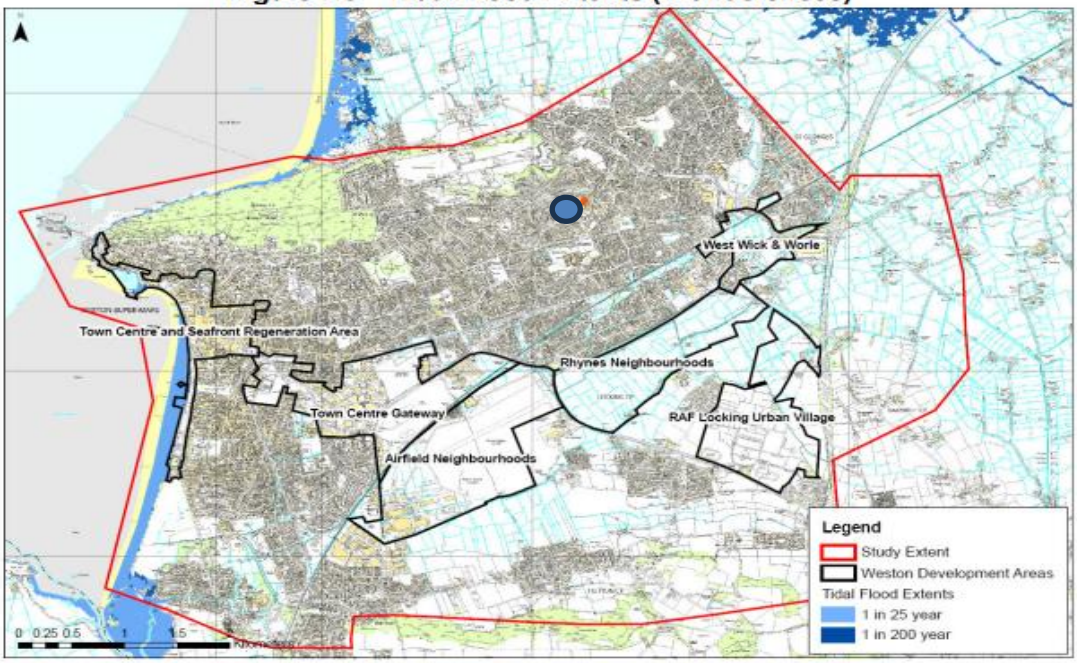
The flood risk vulnerability as classified by NPPF Annex 3, is, *more vulnerable*, for the first floor proposed residential conversion. It should be remembered that the proposal is to convert the first floor of an established high street commercial building and that the ground floor commercial units are classified as *less vulnerable*.

According to the Environment Agency (EA) the flood risk in the area is tidal and the site is some 3.0km inland from the coastal defences. Information from the EA (Appendix B) provides tabulated data from their 2020 Woodspring Bay modelling, giving the annual exceedance probability (AEP), and confirms that no flooding is predicted in any defended event in the area. In the event that the defences are breached or significantly overtopped, the predicted flood level is estimated to be 6.40m AOD in the current day 1 in 200 year event with climate change 2118 added. The existing property front door threshold at the staircase is 6.40m AOD and the High Street frontage averages 6.0m AOD.

Tidal

WSMSFRA Section 4.2.1 *shows the extent of tidal flooding, taking defences into account, at present, and in the future in 2086 and 2126 as a result of climate change. In 2086 the model outputs show that there is no flooding from Weston seafront. In 2126 flooding occurs as the still tide level of 9.39mAOD* **(Table 2.1WSMSFRA)** *is above the height of the seawall provided by the current scheme (9.07mAOD). However the seawall has been designed so that an additional 0.5m can be added which will take the wall up to 9.57mOD, enough to prevent still water inundating the area by 2126. Flooding will still occur as a result of wave overtopping but this is designed to be managed through adequate surface drainage design within the seawall and promenade design to prevent flooding extending into the urban area*.

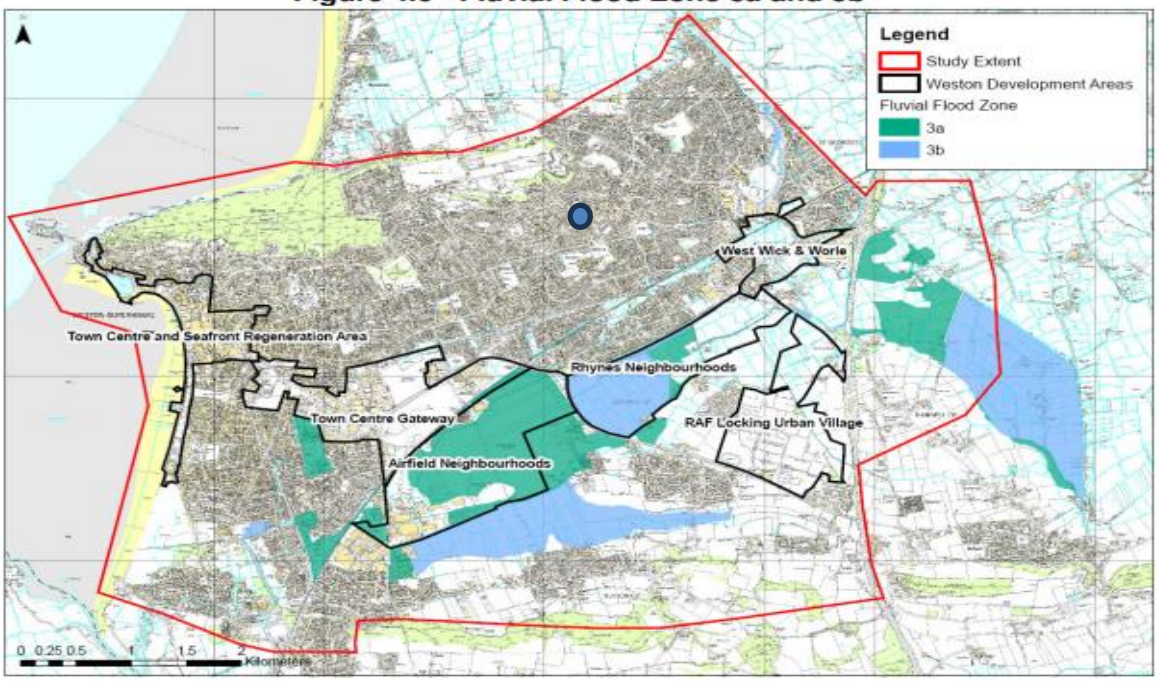
Figure 4.5 – Tidal Flood Extents (with defences)



WSMSFRA Section 4.2 Assessment of Flood probability and hazard. *Figure 4.5 shows that with the new seawall at Weston in place, along with the other existing defences, the whole of the tidal Flood Zone 3 within the study area is classed as an Area Benefitting from Defences (ABD) and therefore for the current situation there is no residual risk.*

Fluvial flood zone 3a and 3b

Figure 4.6 - Fluvial Flood Zone 3a and 3b



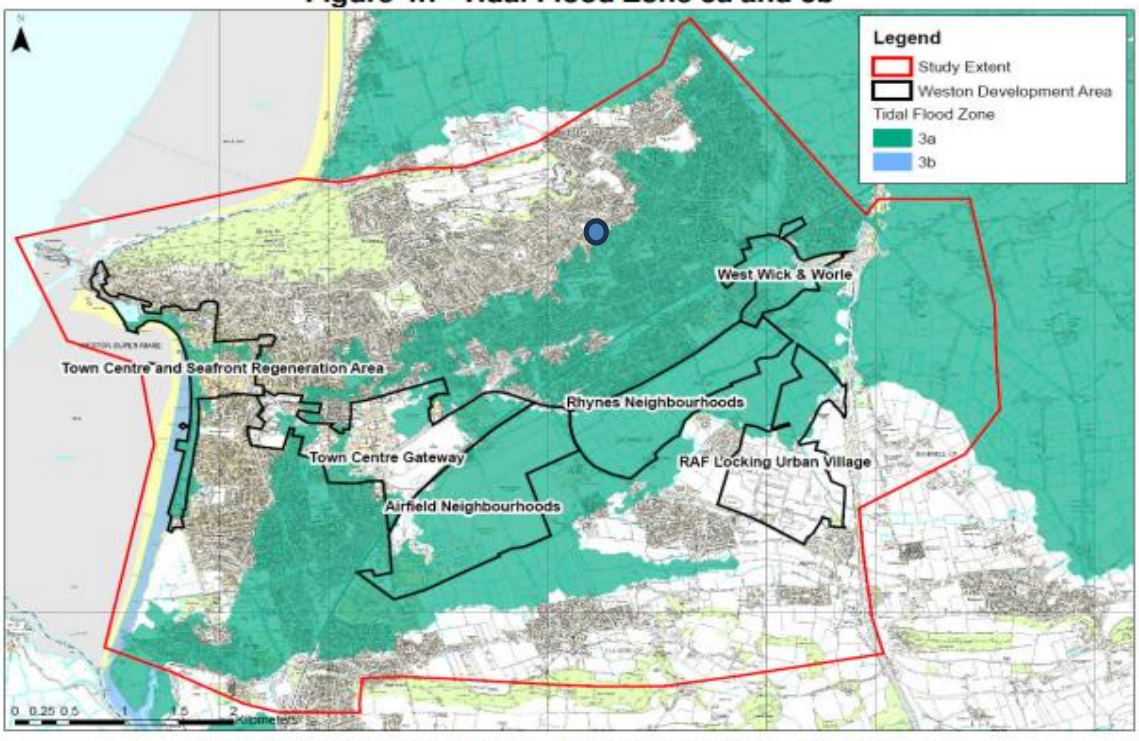
Fluvial modelling includes tide locking based on a 1 in 1 year tidal event.

Figure 4.6 indicates that most of the Weston Development Area is outside of fluvial Flood Zone 3. WSMSFRA Section 4.2.2 states that *the extents of the fluvial flood zones 3a and 3 b were discussed and agreed with NSC(North Somerset Council) and the Environment Agency who has specialist knowledge and understanding of the flow routes within the study area.*

Tidal flood zone 3a and 3b

Figure 4.7 shows that due to the presence of defences along the Weston area coastline, where the tidal Flood Zone 3 extends across the study area it is almost all classed as tidal Flood Zone 3a.

Figure 4.7- Tidal Flood Zone 3a and 3b



WSMSFRA Section 4.2.2 then goes on to state: *Therefore if development is proposed within the areas of tidal (or fluvial) Flood Zone 3a it will need to meet the criteria of the Exception Test by demonstrating that 'the*

development provides wider sustainability benefits to the community that outweigh flood risk', 'the development is on developable previously-developed land or, if not on previously developed land, that there are no reasonable alternative sites on developable previously-developed land' and that 'an FRA must demonstrate that the development will be safe, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall'.
When considering the above there is no risk of flooding to the flats living area which are sited on the first floor and the flats are within previously developed land so would comply with the Exception Test.
Therefore hazards for emergency services in the event of a flood should now be the only consideration. It is worth noting that the site is at the edge of the defended land and water velocities in the area would be low.

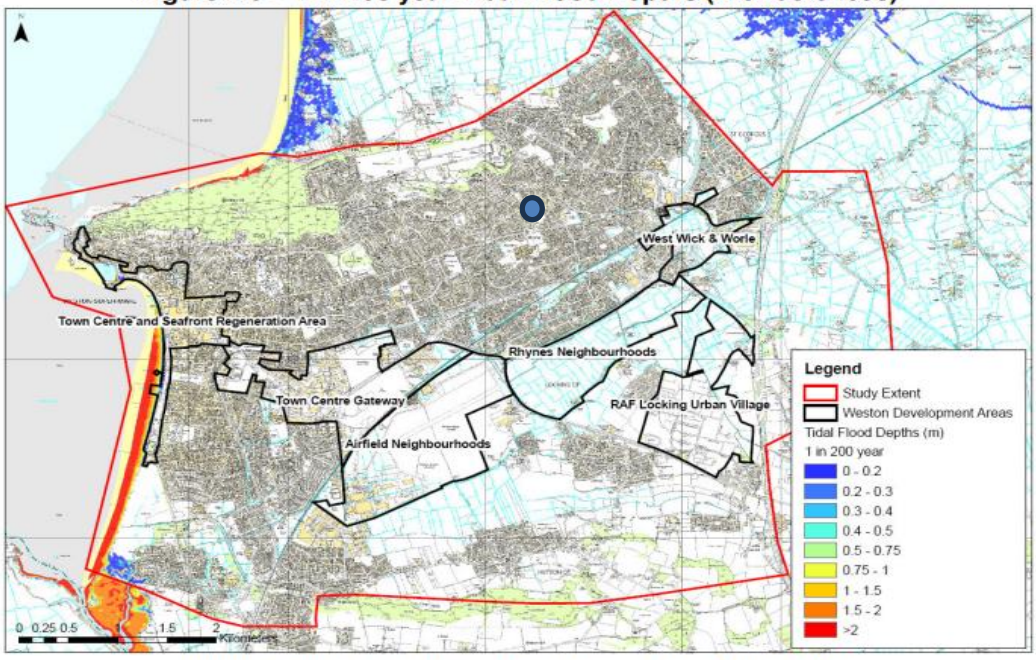
WSMSFRA section 4.2.3 Flood depth. Flood depths have been assessed 'with defences' to represent the current situation Flood depth hazards are defined as:

- No flooding, route remains dry – No Danger
- Low flood depth < 0.3m – Very low hazard
- Moderate flood depth between 0.3 and 0.6m – Danger for some – includes children, the elderly and the infirm
- High flood depth between 0.6 and 2m – Danger for most – includes the general Public
- Extremely high flood depth > 2m – Danger for all - includes emergency services

Tidal

WSMSFRA states: that Tidal flooding at the 1 in 200 year event is limited in the study area and does not affect the Weston Development Areas. The most extensive area of tidal flooding in the study area occurs at Uphill is mostly less than 0.2m. Figure 4.9 refers.

Figure 4.9 – 1 in 200 year Tidal Flood Depths (with defences)



Fluvial

WSMSFRA states: *Figure 4.8 shows that fluvial flood depths at the 1 in 100 year event are generally low to moderate. East of the M5 average flood depths are low at less than 0.3m. This is also the case in the Rhynes Neighbourhoods with the exception of the SE border where depths are recorded to increase to 0.5-0.75m. Flooding in the Airfields Neighbourhoods 9V0839 -33- July 2010 Final Report: Level 2 SFRA Copyright © 2010 North Somerset Council is also anticipated to be less than 0.3m except along the Uphill Great Rhyne in the north of the area where maximum depths are in the order of 0.5-0.75m. The most significant flood depths are along the southern border of the Airfields Neighbourhoods associated with the Cross Rhyne where flood depths of 1-1.5m are observed.*

It can be seen from Figure 4.9above that the site is unaffected by tidal flood depths and therefore no hazards are identified.

Levels summary

Location	Level
Front door threshold level	6.40m AOD
First Floor level habitable rooms	10.00mAOD
EA Flood Data ref 323786-WX-P4 (Appendix B) Defended	
1 in 200 year	Does not reach site
1 in 200 year with CC 2068 added	Does not reach site
1 in 200 year with CC 2018 added	6.40m AOD
EA Flood Data ref 323786-WX-P4 (Appendix B) Undefended	
1 in 200 year	
1 in 200 year with CC 2068 added	6.82m AOD
1 in 200 year with CC 2018 added	7.25m AOD

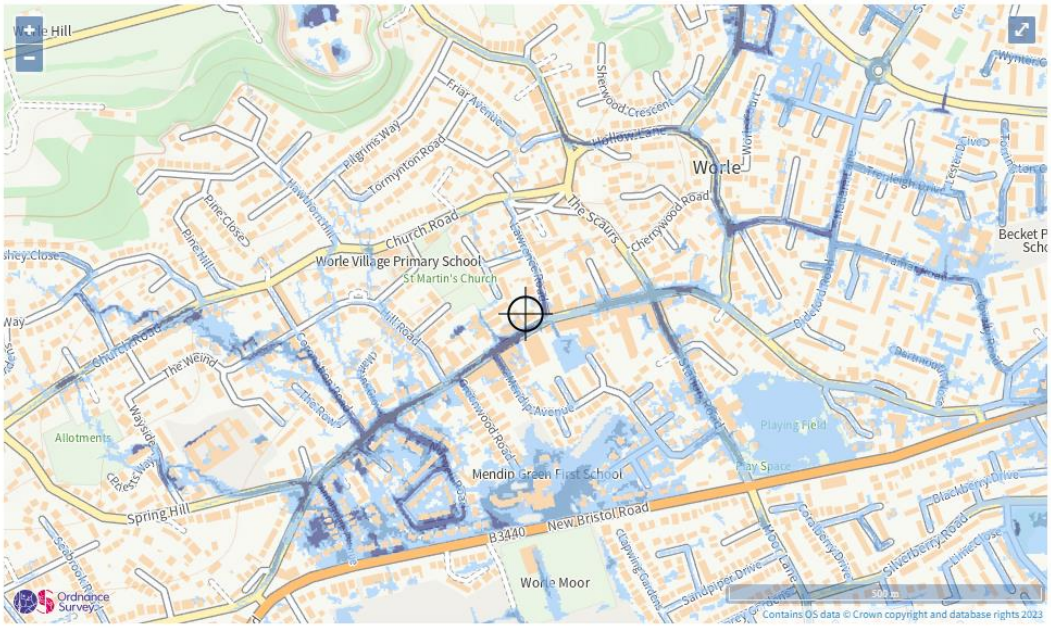
8 Flooding from other sources

1. Flooding from ditches or rhynes

A review of OS mapping indicate no ditches or rhynes are present in the site vicinity.

2. Flooding from Surface Water

EA Surface water flood map indicates the site is at very low risk of surface water flooding with medium to High in High Street carriageway.



Extent of flooding from surface water

High Medium Low Very low Location you selected

3. Flooding from Groundwater

The level 1 SFRA for NSC does not indicate that any areas near the site to be at risk of groundwater flooding.

4. Flooding from sewers

Public foul and surface water sewers are within the site car park and High Street. Should the sewers surcharge levels indicate that flows would be toward High Street and then south west away from the building.

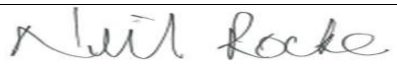
5. Flooding from reservoirs

NRW maps show no risk of flooding from reservoirs.

9 Conclusions

1. The site is located within Defended Flood Zone 3 and is not at risk of flooding if sea defences are maintained and raised as proposed. The development is at first floor and the hazard risk for emergency services is Very Low Hazard <0.3m.
2. Does not put third party land at risk of flooding as a result of the proposals.
3. The development provides the following:
   - fulfils the governments push towards redeveloping brown field previously developed sites and not pushing built development into the countryside.
   - provides quality flats in a very sustainable area close to all amenities, shops, parks, schools, employment.
   - provides much needed housing to meet the national and local government targets.
   - provides high quality homes that will be highly energy efficient.
   - makes excellent use of the space to provide 4 flats all of a good size and over and above the national technical space standards.

Document Production Record

Issue Number 1.	Name	Signature
Prepared	R Nelson	
Checked	AN Rocke	
Approved	AN Rocke	

Document Revision Record

Issue Number	Date	Revision Details
V1.0	6th October 2023	First issue
V1.1	12th March 2024	Second issue

APPENDIX A

APPENDIX B

APPENDIX C

APPENDIX D

APPENDIX E

APPENDIX F