



Flood Consequence Assessment for Planning

Prepared for:

Taranjit Kaur Tal

January 2023

Our reference:

92405-Sami-TalbotRd

Location:

Port Talbot And Afan Womens Aid Commercial Buildings

Talbot Road

Port Talbot

SA13 1DY



Document Issue Record

Project:	Flood Consequence Assessment for Planning
Client:	Taranjit Kaur Tal
Location:	Port Talbot And Afan Womens Aid Commercial Buildings, Talbot Road, Port Talbot, SA13 1DY
Application:	Proposed change of use from vacant offices to flats on the first and second floor
Our reference:	92405-Sami-TalbotRd
Version:	v1.0 310123
Lead Consultant:	Mrs Emma Jeffery
Authorisation:	Mr Edward Bouët

This report (including any enclosures and attachments) has been prepared for the exclusive use and benefit of the commissioning party and solely for the purpose for which it is provided. Unless we provide express prior written consent, no part of this report should be reproduced, distributed or communicated to any third party. We do not accept any liability if this report is used for an alternative purpose from which it is intended, nor to any third party in respect of this report. Any data and information provided by third parties and referred to herein has not been checked or verified by us unless otherwise expressly stated within this report. This report was checked and approved on the date it was issued and is therefore valid on this date. Understanding, circumstances, regulations and professional standards do change, which could subsequently affect the validity of this report.

Southpoint, Old Brighton Road, Gatwick, West Sussex, RH11 0PR

+44 (0) 1293 214 444

www.unda.co.uk

Key Facts

Flood Risk Posed:

- Flood Zone C1 as defined by Natural Resource Wales (NRW).
- Proposed change of use from vacant offices to flats on the first and second floor
- “Less vulnerable development” development on the ground floor, and “Highly vulnerable development” on the above floors.
- The site itself is shown to be predominantly outside of area of Low, Medium and High risk of flooding from surface water and small watercourses.
- Risk of groundwater and sewer surcharge flooding would appear to be low.
- The site is shown to be entirely outside of the modelled 1:200 year and 1:1000 year tidal flood extents provided for 2116. As such, the site is not considered to be at significant risk from tidal flooding.
- The site is shown to be entirely outside of the present day 1:100 year extent, but partially within the modelled 1:100 year plus climate change and 1:1000 year extents.
- For the present day 1:1000 year scenario the maximum flood depth on site is shown to be 0.51m.
- For the 1:100 year event, with allowance for climate change, the maximum flood depth on site is 0.12m.

Flood Risk Management:

- All residential uses are at first floor level and above, which is 3.30m above ground floor level. Therefore, all residential uses are entirely flood free for the present day 1:1000 year event, and 1:100 year event with allowance for climate change. No habitable residential uses will be located at ground floor level.
- Safe escape as per TAN15 can be provided.
- Flood proofing of the building will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

Introduction

Unda Consulting Limited have been appointed Taranjit Kaur Tal (hereinafter referred to as “the applicant”) to undertake a Site Specific Flood Consequence Assessment (FCA) for Planning at Port Talbot And Afan Womens Aid Commercial Buildings, Talbot Road, Port Talbot, SA13 1DY. (hereinafter referred to as “the site”). The FCA has been undertaken in accordance with Technical Advice Note 15 (TAN 15) and the associated technical guidance.

The site appears to be located within Flood Zone C1 as defined by Natural Resource Wales (NRW) on their Development Advice Map. Under Technical Advice Note 15 (TAN 15), a FCA is required if a proposed development:

- includes building or engineering works in Flood Zone C1 or C2;
- includes building or engineering works on land classified as having critical drainage problem;
- changes the use of land or buildings in a location at risk of flooding from rivers or the sea, or with critical drainage problems;
- changes the use of land or buildings in a way that increases the flood vulnerability of the development where it may be subject to other sources of flooding;
- is in Flood Zone B, but larger than 1 hectare.

Given that the proposed application site is located in Flood Zone C1 (Risk of flooding from rivers or the sea, served by significant flood defence infrastructure, including flood defences), and includes building works, the applicant is required to submit a FCA under TAN 15. The assessment should demonstrate to the Local Planning Authority (LPA) and NRW 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 potential users.

The objectives of a FCA to support a planning application are to establish:

- whether the 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.

Existing Situation

Site Usage:

The site comprises of an existing building, which is used for commercial units on the ground floor, and office space on the above floors.



Figure 1: Aerial view of the site and immediate surrounding area (Source: Google Earth)

Topography:

Environment Agency LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The EA's LIDAR data archive contains digital elevation data derived from surveys carried out by the EA's specialist remote sensing team. Accurate elevation data is available for over 70% of England. The LiDAR technique records an elevation accurate to +0.3m every 2m. This dataset is derived from a combination of the full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LIDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital Terrain Model (DTM) produced by removing objects from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.

1m horizontal resolution LiDAR topographic data shows topographic levels on site to range between approximately 7.70mAOD and 8.05mAOD. The site slopes generally down from northeast to southwest.

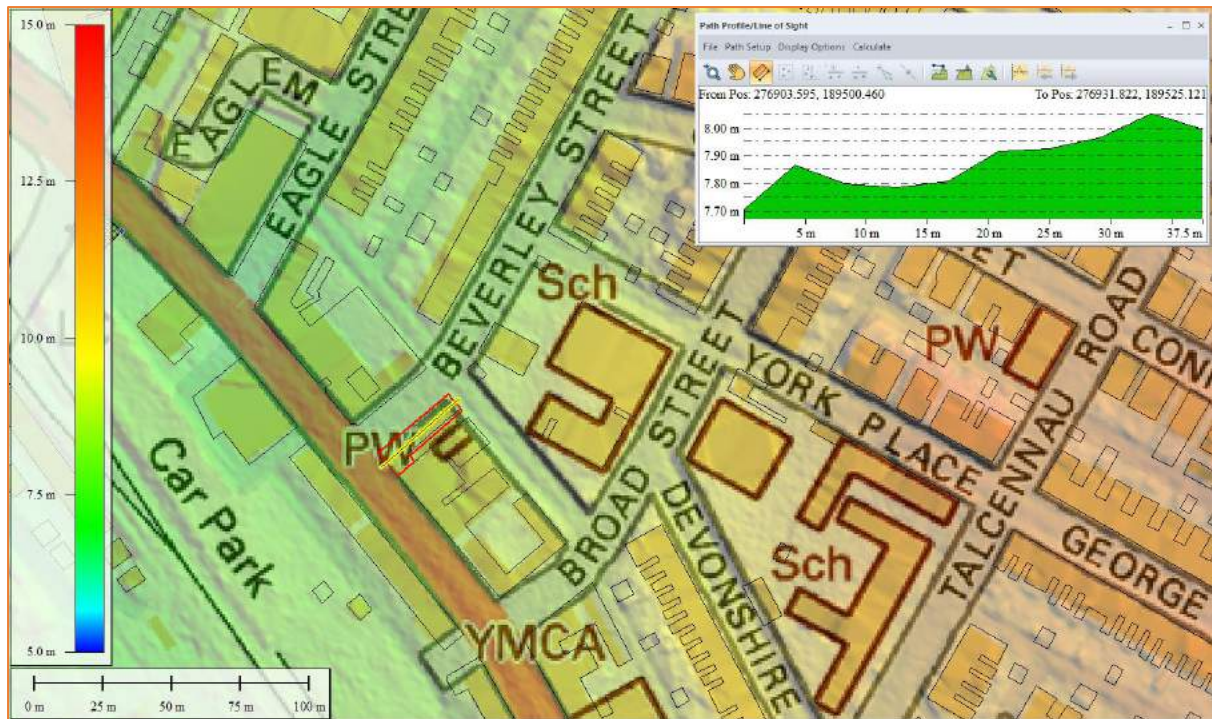


Figure 2: EA 1m LIDAR DTM showing topographic levels across the site. Transect (inset) runs from southwest to northeast
(Source: EA LIDAR, OS Mapping)

Proposed Development

The proposed planning application is for the Proposed change of use from vacant offices to flats on the first and second floor.

The description of the proposal is Change of use of office space above ground floor commercial units into 8 Nos 1 bedroom residential flats.

External area at the rear of property will be used for bicycle storage and bin storage.

Proposed site plans can be found in the report Appendix.



Figure 3: Proposed Ground, First and Second Floor Plans (Source: CCS Solutions)

Assessment of Flood Risk

Flood Zones:

Within planning, Flood Zones refer to the probability of river and sea flooding. They are shown on the Natural Resource Wales Development Advice Map, available on Natural Resource Wales' web site.

Description of Zone	Zone Name	Use within the precautionary framework
Considered to be at little or no risk of fluvial or tidal/coastal flooding.	A	Used to indicate that justification test is not applicable and no need to consider flood risk further.
Areas known to have been flooded in the past evidenced by sedimentary deposits.	B	Used as part of a precautionary approach to indicate where site levels should be checked against the extreme (0.1%) flood level. If site levels are greater than the flood levels used to define adjacent extreme flood outline there is no need to consider flood risk further.
Based on Environment Agency extreme flood outline, equal to or greater than 0.1% (river, tidal or coastal)	C	Used to indicate that flooding issues should be considered as an integral part of decision making by the application of the justification test including assessment of consequences.
Areas of the floodplain which are developed and served by significant infrastructure, including flood defences.	C1	Used to indicate that development can take place subject to application of justification test, including acceptability of consequences
Areas of the floodplain without significant flood defence infrastructure.	C2	Used to indicate that only less vulnerable development should be considered subject to application of justification test, including acceptability of consequences. Emergency services and highly vulnerable development should not be considered.

Table 1: Flood Zones

The Flood Zones shown on the Natural Resource Wales Development Advice Map do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

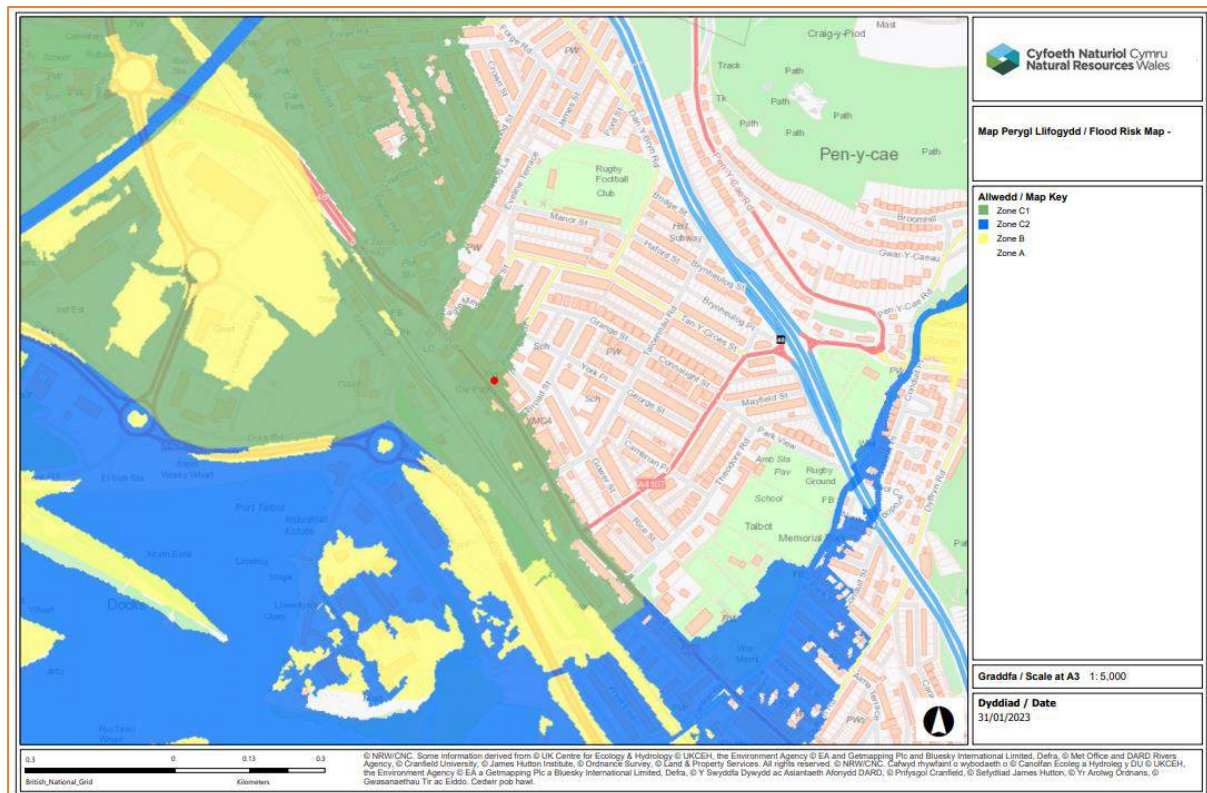


Figure 4: Natural Resource Wales Development Advice Map (Source: NRW)

The site is located within Flood Zone C1 (Risk of flooding from rivers or the sea, served by significant flood defence infrastructure, including flood defences), which means it is defined as land having a 1 in 1000 annual probability of tidal flooding.

The risk would appear to be predominantly fluvial and originate from the River Afan, approximately 700m to the north west of the site at its closest proximity. The Ffrwd Wyllt also flows in a broadly southwesterly direction approximately 620m to the east of the site.

The tidal Swansea Bay is located approximately 2km to the southwest of the site, and the lock-controlled Port Talbot Docks is approximately 300m to the southwest of the site.

Fluvial (River Afan):

The River Afan (Welsh: Afon Afan) is a river in Wales whose valley formed the territory of the medieval Lords of Afan. The Afan Valley encompasses the upper reaches of the river. The valley is traversed by the A4107 road. Settlements in the area include Cwmafan, Pontrhydyfen and Cymmer. The town of Aberavon, whose name in Welsh Aberafan means 'mouth of the Afan', grew up on the banks of the river and was later subsumed by town of Port Talbot.

The Afan rises on the northern slopes of Mynydd Llangeinwyr to the east of Blaengwynfi, and flows in a generally south-westerly direction roughly parallel to the River Neath with which it shares its western watershed.

The river passes the Afan Argoed Country Park in its middle reaches. It converges with the river Pelenna at Pontrhydyfen. From here it turns southward towards Port Talbot.

To aid the construction of the docks at Port Talbot, the river was impounded and a diversion channel built that now forms the lower reaches of this river. There are two weirs in this final tidal reach of the Afan; Greenpark Weir at the upstream tidal limit, which has been reconstructed in 2017 and provides headwaters for the dock feeder

channel that approximately follows the river's original route, and Newbridge Weir, which is the most downstream weir, presents a barrier to fish passage and is in a poor state of repair.

Modelled flood levels and extents:

Modelled flood levels and flood extents have been received from the NRW as part of a flood data request. Modelled flood data has been provided from the Port Talbot Harbourside model (JBA Consulting, 2017).

Natural Resources Wales (NRW) has provided the Port Talbot Harbourside Hydraulic Model, which provides flood risk modelling for the area and takes account of fluvial and tidal sources, and their interaction. The Port Talbot Harbourside PAR Project Report confirms that the modelling takes account of existing flood defences / maintained bank levels, and applies climate change allowances in accordance with latest guidance, i.e. tidal flood risk considered to 2116, and fluvial flows increased by 30%.

The site is shown to be entirely outside of the modelled 1:200 year and 1:1000 year tidal flood extents provided for 2116. As such, the site is not considered to be at significant risk from tidal flooding.

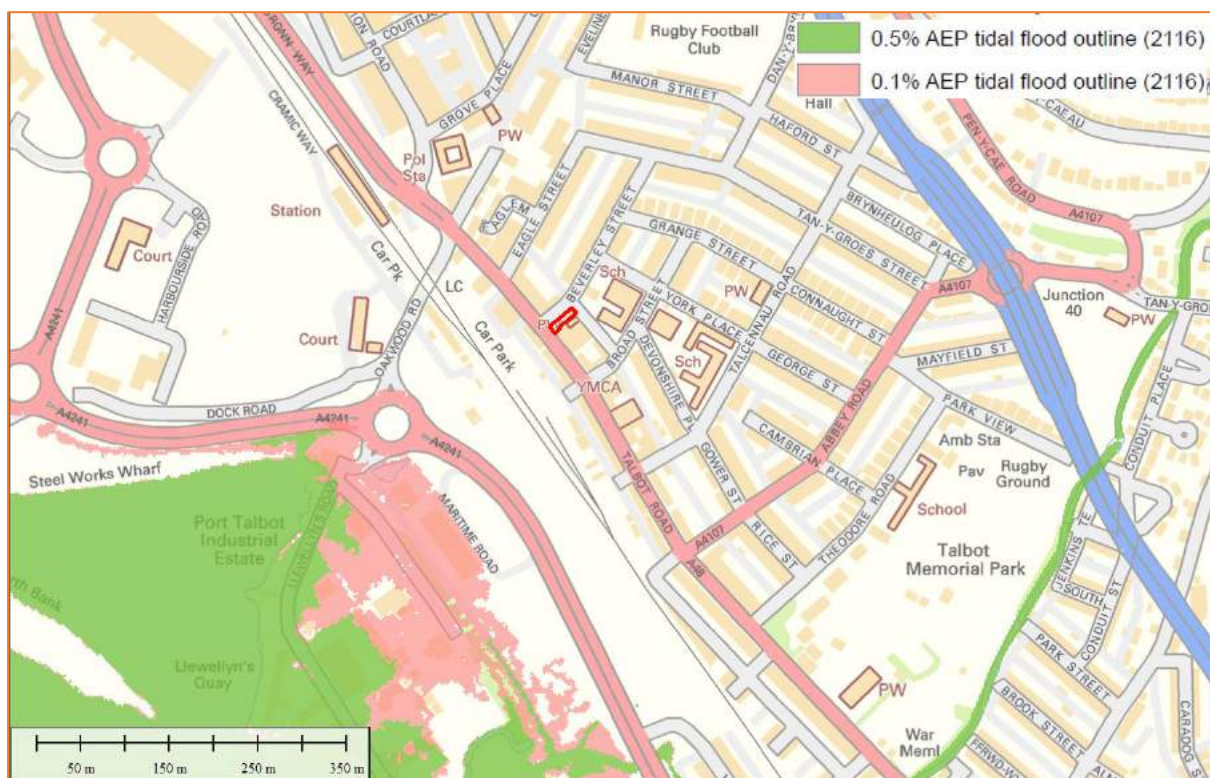


Figure 5: Modelled 1:200 year and 1:1000 year tidal flood extents in 2116 (Source: NRW, OS Mapping)

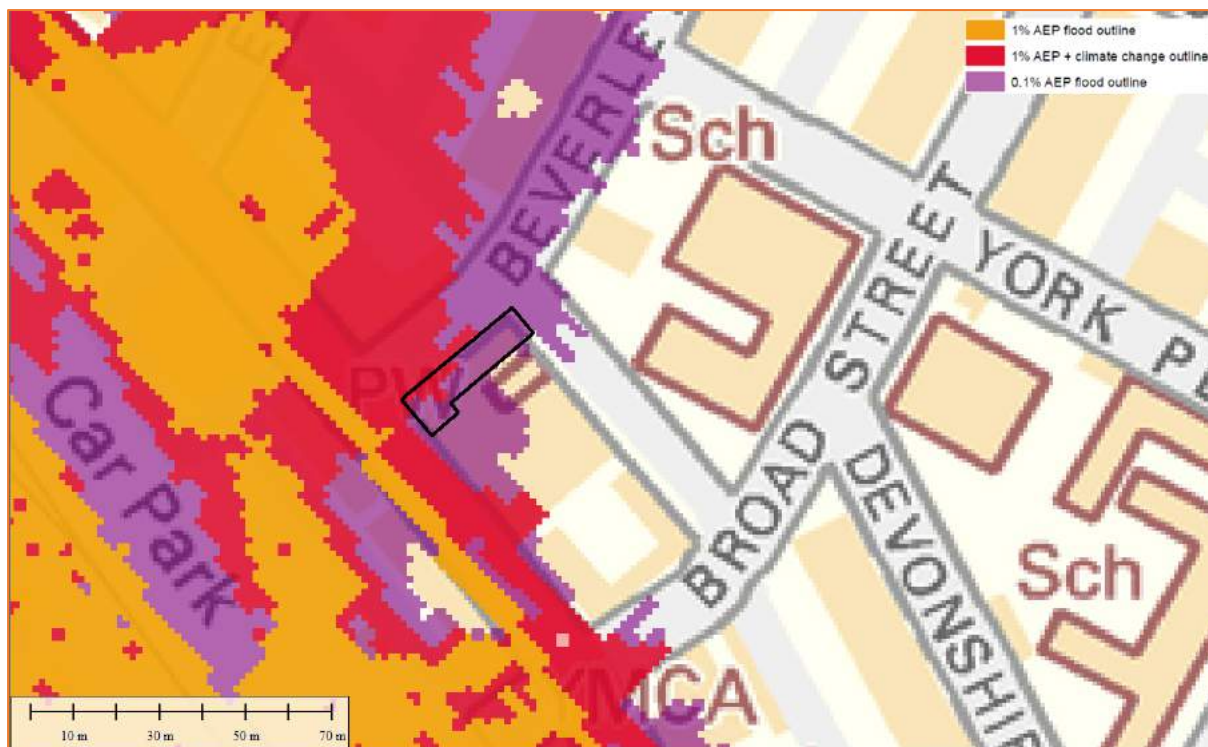


Figure 6: Modelled 1:100 year, 1:100 year + CC and 1:1000 year fluvial flood extents (Source: NRW, OS Mapping)

The site is shown to be entirely outside of the present day 1:100 year extent, but partially within the modelled 1:100 year plus climate change and 1:1000 year extents.

The site lies within the West Wales River Basin District, where the Change Factor / Central Estimate climate change allowance is a 30% increase in fluvial flows. The Port Talbot Harbourside model report states that a 30% increase in fluvial flows is used to represent climate change.

For the present day 1:1000 year scenario the maximum flood depth on site is shown to be 0.51m.

For the 1:100 year event, with allowance for climate change, the maximum flood depth on site is 0.12m.

Flood Hazard	Colour	Hazard to People Classification
Less than 0.75	Green	Very low hazard - Caution
0.75 to 1.25	Yellow	Danger for some - includes children, the elderly and the infirm
1.25 to 2.0	Orange	Danger for most - includes the general public
More than 2.0	Red	Danger for all - includes the emergency services

Table 2: Hazard to People Classification (Source: NRW)

	1:100 year (present day)	1:100 year climate change	1:1000 year (present day)
Maximum flood level (mAOD)	Outside	7.79mAOD	8.17mAOD
Maximum flood depth on site (m)	Outside	0.12m	0.51m
Maximum flood velocity (m/s)	Outside	0.006m/s	0.09m/s
Maximum flood hazard	Outside	Very Low	Very Low to Danger for Most

Tables 3: Modelled flood data (Source: NRW)

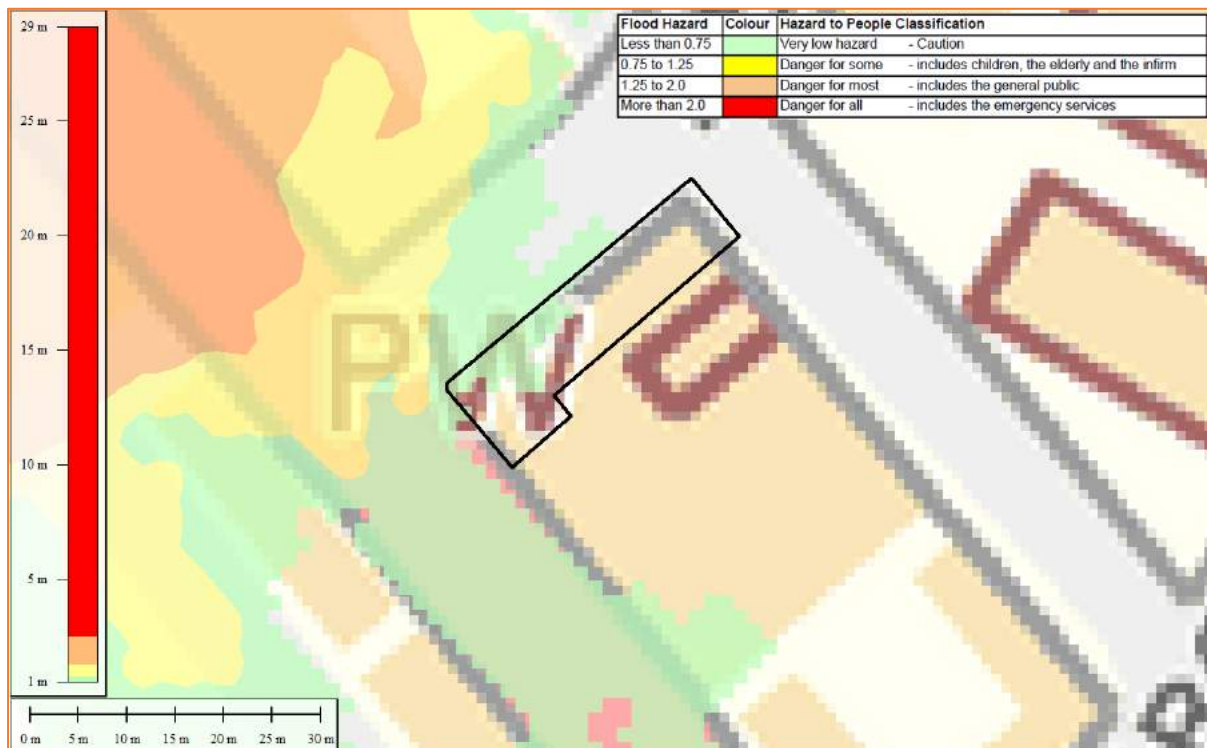


Figure 7: Modelled Flood Hazard for 1:100 year + CC fluvial flood event (Source: NRW, OS Mapping)

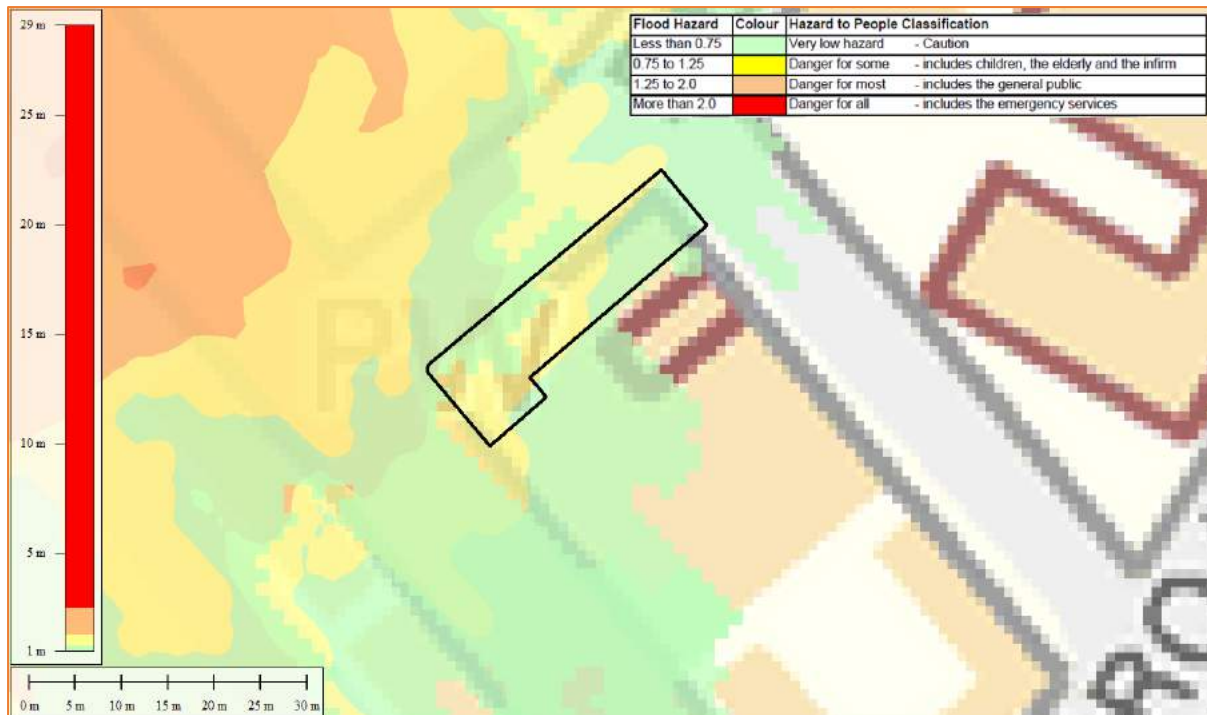


Figure 8: Modelled Flood Hazard for 1:1000 year fluvial flood event (Source: NRW, OS Mapping)

It should be noted that all residential uses – and therefore all habitable rooms are located at first floor level and above – which is entirely above the modelled 1:100 year flood level with allowance for climate change, and the modelled 1:1000 year flood level.

Flood defences:

The site is shown to be within Flood Zone C1- served by significant infrastructure, including flood defences. The flood defences along the River Afan in this reach are flood defence walls and embankments – to the 1:100 year design standard, with a condition rating of 2 - Good.

Historical flood records:

According to NRW they hold no historic flooding information in this area.

Pluvial (Surface Water):

Pluvial (surface water) flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

In 2013 the EA and NRW, working with Lead Local Flood Authorities (LLFAs), produced an updated Flood Map for Surface Water. It is considered to represent a significant improvement on the previous surface water flood maps available, both in terms of method and representation of the risk of flooding. The modelling techniques and data used are considerably improved, and also incorporated locally produced mapping where this is available to represent features best modelled at a local scale.

The Flood Map for Surface Water assesses flooding scenarios as a result of rainfall with the following chance of occurring in any given year (annual probability of flooding is shown in brackets):

- 1:30 (3.3%)
- 1:100 (1%)
- 1:1000 (0.1%)

The mapping below shows the Risk of Flooding from Surface Water and Small Watercourses centred on the site. Please note that NRW do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation.

The Natural Resources Wales Surface Water and Small Watercourses Flood Map suggests that the roads surrounding site lie partially within areas of “Low” risk of flooding from surface water.

The site itself is shown to be outside of areas of Low, Medium and High risk of flooding from surface water and small watercourses.



Figure 9: Extract from Natural Resources Wales Surface Water and Small Watercourses Flood Map (Source: NRW)

Groundwater:

Groundwater flooding occurs as a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.

Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands or river gravels in valley bottoms underlain by less permeable rocks. Groundwater flooding takes longer to dissipate because groundwater moves much more slowly than surface water and will take time to flow away underground.

No information has been provided to suggest that the site is susceptible to groundwater flooding.

Sewer Surcharge:

Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.

All Water Companies have a statutory obligation to maintain a register of properties/areas which have reported records of flooding from the public sewerage system, and this is shown on the DG5 Flood Register. This includes records of flooding from foul sewers, combined sewers and surface water sewers which are deemed to be public and therefore maintained by the Water Company. The DG5 register records of flood incidents resulting in both internal property flooding and external flooding incidents. Once a property is identified on the DG5 register, water companies can typically put funding in place to address the issues and hence enable the property to be removed from the register. It should be noted that flooding from land drainage, highway drainage, rivers/watercourses and private sewers is not recorded within the register.

No information has been provided to suggest that the site is susceptible to sewer surcharge flooding.

Other Sources:

The Natural Resources Wales Risk of Flooding from Reservoirs Map suggests that the site lies within the "Maximum extent of flooding" from reservoir failure. The Natural Resources Wales also advise on their website that reservoir flooding is extremely unlikely. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. These inspections are monitored and enforced by the Natural Resources Wales themselves. The risk to the site from reservoir flooding is therefore minimal and is far lower than that relating to the potential for fluvial flooding to occur.

There do not appear to be any further artificial (man-made) sources of flood risk (such as raised canals) in the vicinity of the site.

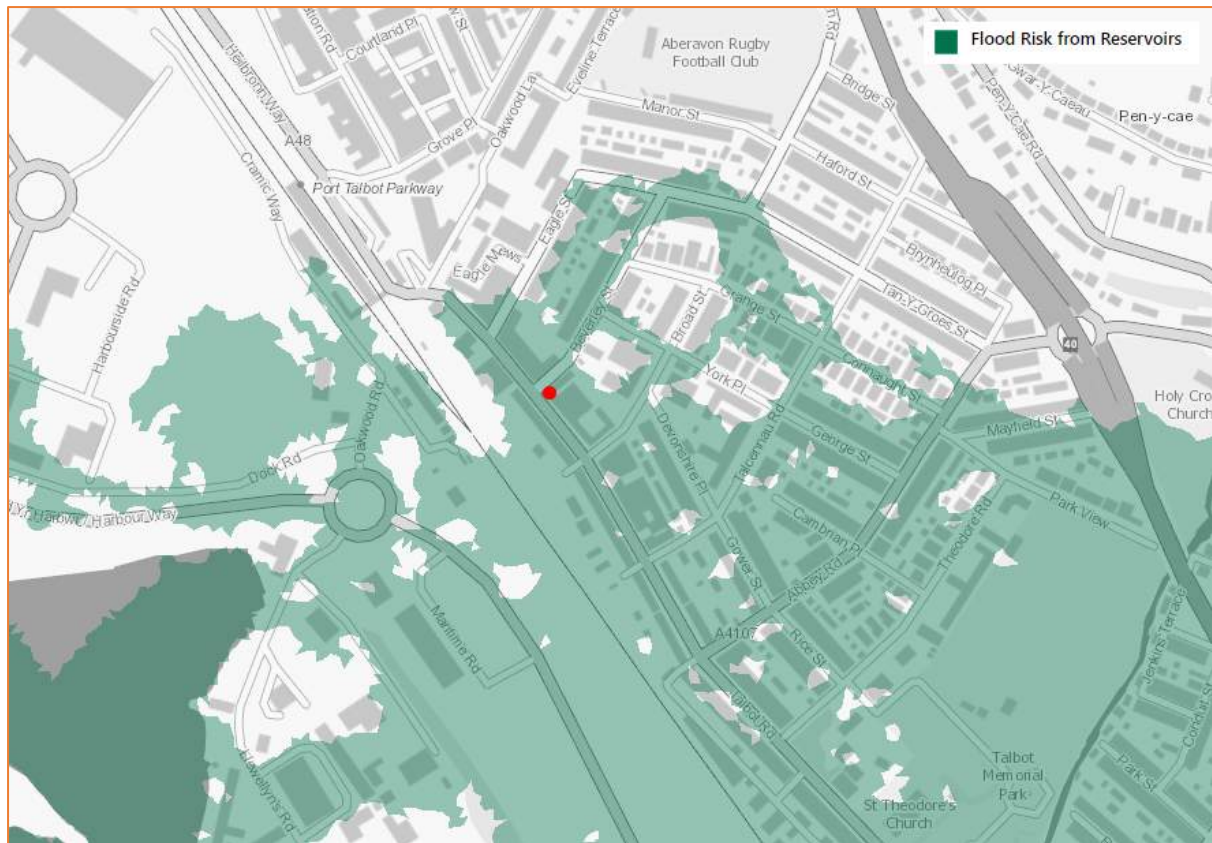


Figure 10: Extract from Natural Resources Wales risk of flooding from reservoirs (Source: NRW)

Flood Risk Management Measures

Vulnerability to flooding:

TAN15 classifies property usage by vulnerability to flooding.

The site comprises of an existing building, which is used for commercial units on the ground floor, and offices on the above floors.

Post development, the site will remain “less vulnerable development” on the ground floor and become “highly vulnerable development” on the above floors, as the application is for the Proposed change of use from vacant offices to flats on the first and second floor.

Particular flooding consequences may not be acceptable for particular types of development. For example, allowing residential development in areas which are subject to high risks of flooding can result in a traumatic impact on people's lives. The precautionary framework identifies the vulnerability of different land uses to flooding, and for this purpose, development has been subdivided into three categories:

Development category	Types
Emergency services	hospitals, ambulance stations, fire stations, police stations, coastguard stations, command centres, emergency depots and buildings used to provide emergency shelter in time of flood
Highly vulnerable development	all residential premises (including hotels and caravan parks), public buildings (e.g. schools, libraries, leisure centres), especially vulnerable industrial development (e.g. power stations, chemical plants, incinerators), and waste disposal sites
Less vulnerable development	general industrial, employment, commercial and retail development, transport and utilities infrastructure, car parks, mineral extraction sites and associated processing facilities, excluding waste disposal sites

Table 4: Vulnerability to flooding categories

The Emergency Services category describes facilities which need to be operational and accessible at all times. Highly vulnerable development describes development where the ability of occupants to decide on whether they wish to accept the risks to life and property associated with flooding, or be able to manage the consequences of such a risk, is limited. It also includes those industrial uses where there would be an attendant risk to the public and the water environment should the site be inundated. Less vulnerable development describes development where the ability of occupants to decide on whether they wish to accept such risks is greater than that in the highly vulnerable category. The vulnerability attributed to a mixed use proposal will be defined by the most vulnerable use.

There are uses which are considered to be exceptions to the general rule, and have not been classified above, because they are required in a fluvial, tidal or coastal location by virtue of their nature. These include boatyards, marinas, essential works required at mooring basins, and development associated with canals.

Physical Design Measures:

In accordance with section A1.14 of TAN15 there is a frequency threshold of flooding below which flooding of development should not be allowed. The following table, taken from TAN15, provides indicative guidance as to what the frequency threshold could be for different types of development in terms of annual probability of occurrence:

Type of development	Threshold frequency	
	Fluvial	Tidal
Residential	1%	0.5%
Commercial / retail	1%	0.5%
Industrial	1%	0.5%
Emergency services	0.1%	0.1%
General infrastructure	1%	0.5%

Table 5: TAN15 Flood frequency thresholds

Tan15 requires the development to be flood free in the 1:100 year event (section A1.14).

The site is shown to be entirely outside of the modelled 1:100 year flood extent at the present day. For the present day 1:1000 year scenario the maximum flood depth on site is shown to be 0.51m.

For the 1:100 year event, with allowance for climate change, the maximum flood depth on site is 0.12m.

It should be noted however that comparison of the modelled 1:100 year plus climate change flood level (7.79mAOD), with topographic site levels (7.70mAOD to 8.05mAOD) shows that the majority of the site is entirely above the design flood level. The small area of approximately 40m² of the site that is shown to be below the flood level however is currently an existing solid building.

All residential uses are at first floor level and above, which is 3.30m above ground floor level. Therefore, all residential uses are entirely flood free for the present day 1:1000 year event, and 1:100 year event with allowance for climate change. No habitable residential uses will be located at ground floor level.

To help protect against flooding during extreme events, the applicant has agreed to implement flood resistant design measures into the development, in consultation with the Local Authority building control department.

These measures can include the following:

- Closed-cell foam used in wall cavities;
- External walls rendered resistant to flooding to first floor level;
- Exterior ventilation outlets, utility points and air bricks fitted with removable waterproof covers;
- Electrical incomer and meter situated at first floor level or above;
- Boilers, control and water storage / immersion installed at first floor level or above;
- Gas meter installed at first floor level or above;
- Plumbing insulation of closed-cell design;
- Non-return valves fitted to all drain and sewer outlets;
- Manhole covers secured;
- Anti-syphon fitted to all toilets;

It is also recommended that flood proof doors are installed for the ground floor entrance doors to the flats (the flats main entrance and the flats rear exit). Demountable flood defence barriers could instead be used to defend ground level doorways and low windows if flood doors are not practical or other planning constraints prevent it.

Safe Escape:

TAN 15 requires a route of safe escape for all site users to be provided from new development in Flood Zone C.

Type of development	Maximum depth of flooding (mm)	Maximum rate of rise of floodwaters (m/hr)	Maximum speed of inundation of flood risk area (hrs)	Maximum velocity of floodwaters (metres/sec)
	Property Access			Property Access
Residential (habitable rooms)	600 600	0.1	4	0.15 0.3
Commercial & Retail	600 600	0.3	2	0.15 0.3
Industrial	1000 1000	0.3	2	0.3 0.45
Emergency Services	450 600	0.1	4	0.15 0.3
General Infrastructure	600 600	0.3	2	0.3 0.3

Table 6: TAN15 Table A1.15

Table A1.15 shows the threshold frequency beyond which proposed development would be expected to flood under extreme conditions (1:1000 year event). For new commercial / retail and residential development a maximum flood depth of 600mm would be the allowance at the property (residential habitable rooms) and for the site access.

The site is shown to be entirely outside of the modelled 1:100 year flood extent at the present day.

All residential uses are at first floor level and above, which is 3.30m above ground floor level. Therefore, all residential uses are entirely flood free for the present day 1:1000 year event, and 1:100 year event with allowance for climate change. No habitable residential uses will be located at ground floor level.

For the 1:100 year event with allowance for climate change, the rear flat exit, and the gated site access onto the unnamed road to the north of the site is shown to be entirely dry for the design flood event. Site users should exit the site to the north via the gated access, to the unnamed road and travel east along this unnamed road and then north along Broad Street. This route is entirely dry for the modelled 1:100 year plus climate change flood event, and is shown to be within a 'Very Low Hazard' area for approximately 20m for the modelled 1:1000 year event, and then entirely dry.

Safe escape as per the definitions in TAN15 can therefore be provided.

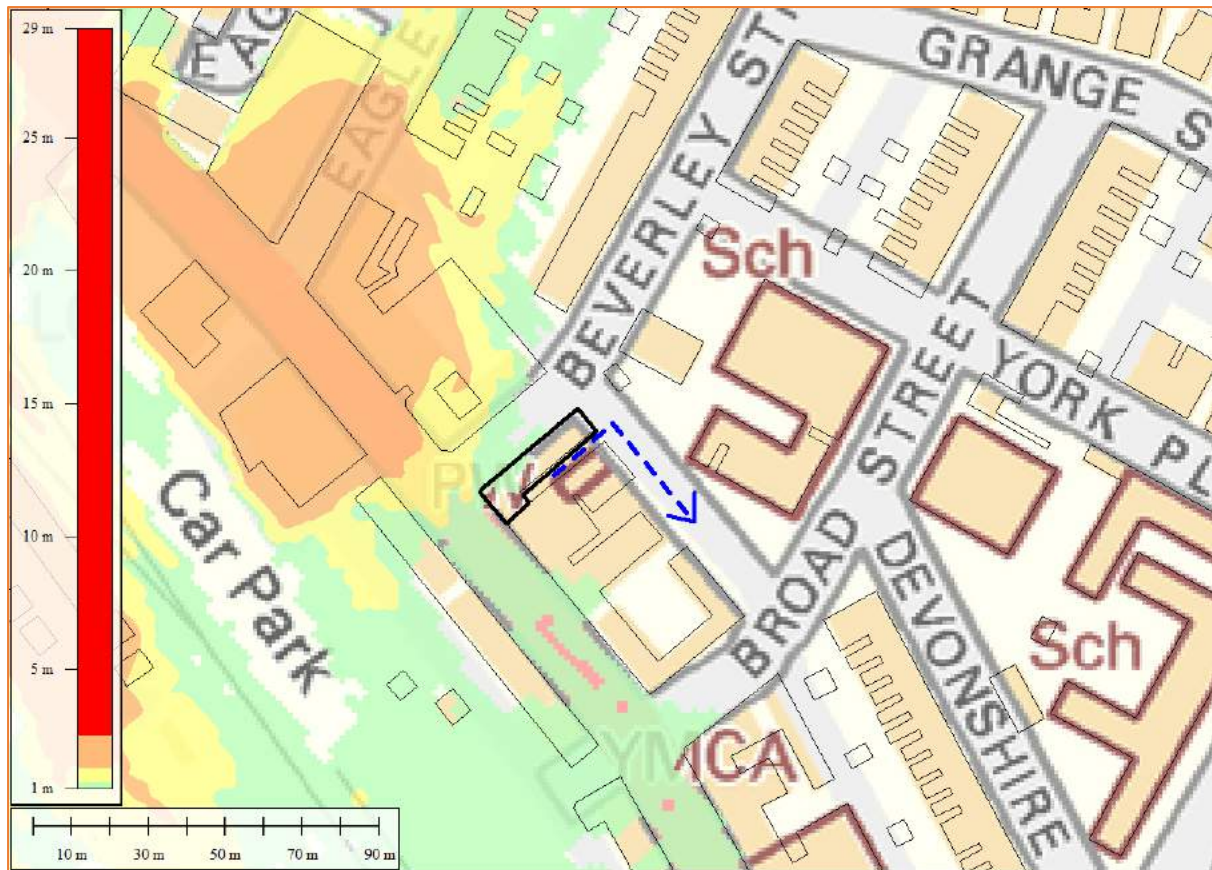


Figure 11: Modelled maximum flood hazard for the 1:100 year flood event with allowance for climate change. Proposed escape route shown by blue dashed line (Source: NRW flood data, OS Mapping)

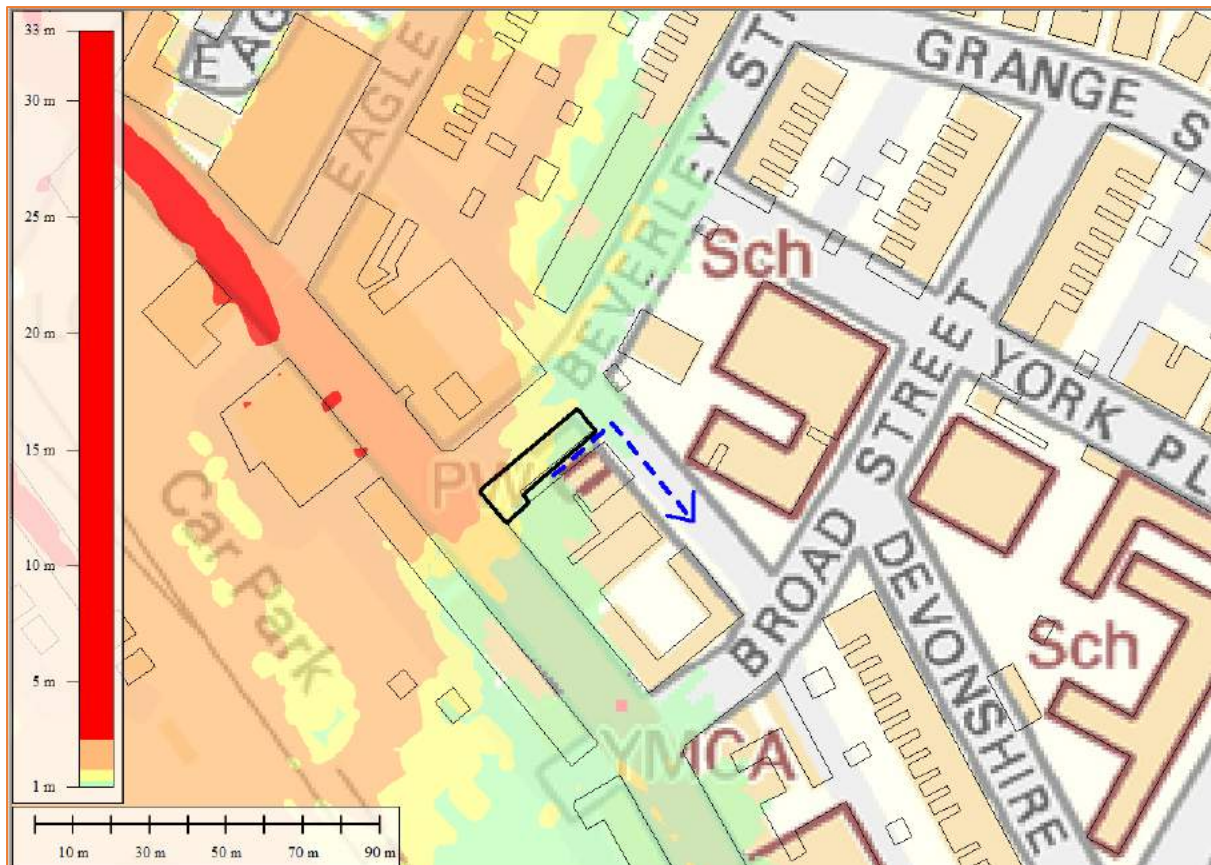


Figure 12: Modelled maximum flood hazard for the 1:1000 year flood event. Proposed escape route shown by blue dashed line (Source: NRW flood data, OS Mapping)

All residential uses are at first floor level and above, which is 3.30m above ground floor level. Therefore, all residential uses are entirely flood free for the present day 1:1000 year event, and 1:100 year event with allowance for climate change. No habitable residential uses will be located at ground floor level.

Owners, occupants and tenants should follow the warning and evacuation procedure detailed in the following section.

Flood Alert/Warnings:

The NRW is responsible for issuing flood warnings. Flood warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary.

Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens.

The applicant has agreed to implement a flood warning and evacuation plan post development, and subscribe to the NRW's flood warning service. The site lies within the River Afan at Port Talbot Flood Warning Area (Quickdial number: 603053).

The site is in a NRW Flood Warning Area. The NRW issue flood warnings to specific areas when flooding is expected. It is recommended that the applicant registers online with the free NRW Floodline Warnings Direct service at

<https://www.fws.environment-agency.gov.uk/app/olr/home?style=NRW&lang=en> to receive flood warnings by phone, text or email.

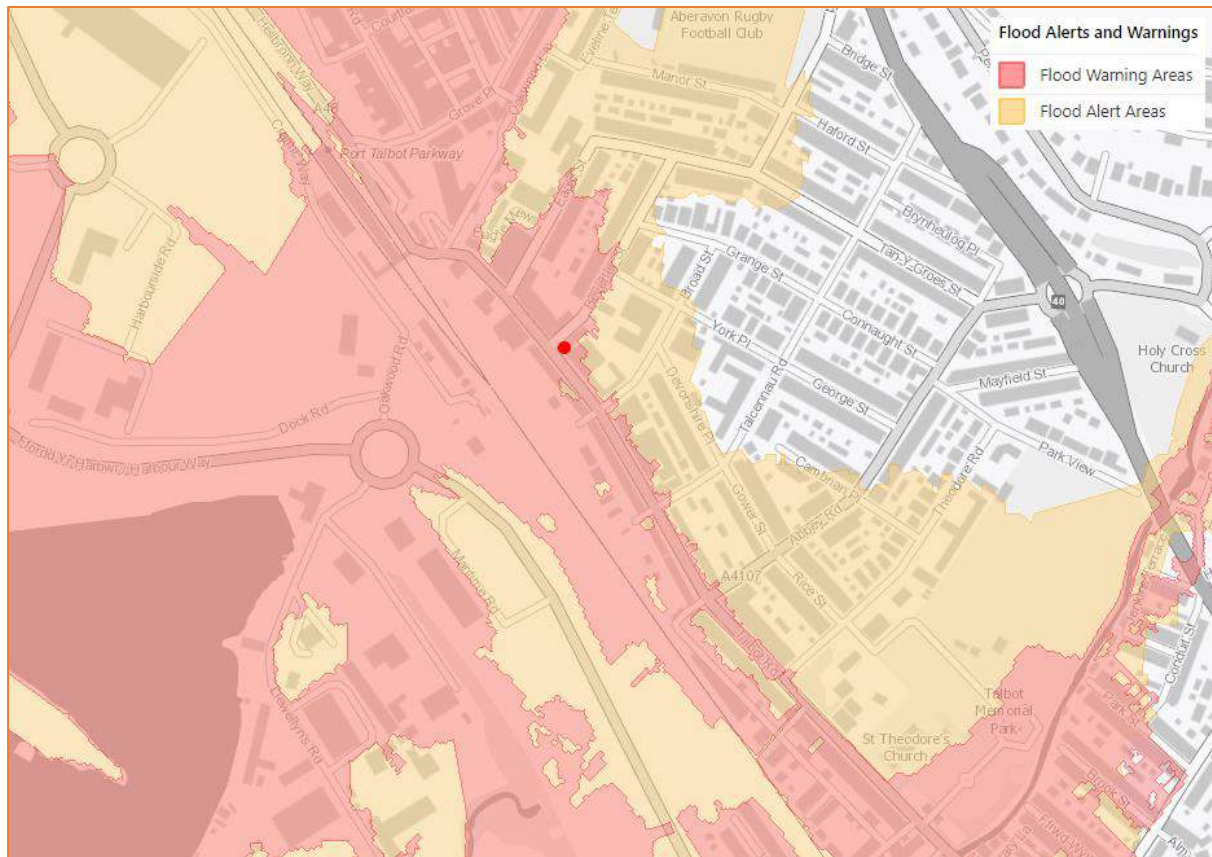


Figure 13: NRW Flood Warning Areas (Source: NRW)

Flood Warning:

The flood warning service has three types of warnings that will help you prepare for flooding and take action:

Flood Warning	Flood Alert	Flood Warning	Severe Flood Warning
			
What it means?	Flooding is possible. Be prepared.	Flooding is expected. Immediate action required.	Severe flooding. Danger to life.
When it's used?	Two hours to two days in advance of flooding.	Half an hour to one day in advance of flooding.	When flooding poses a significant threat to life.
What to do?	Be prepared to act on your flood plan. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast on our website.	Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. Put flood protection equipment in place.	Stay in a safe place with a means of escape. Be ready should you need to evacuate from your home. Co-operate with the emergency services. Call 999 if you are in immediate danger.

Table 7: Flood Warnings

Flood Plan:

It is recommended that the applicant and future owners, occupiers and Landlords of the properties prepare a flood plan to protect life and property during a flood event:

Before a flood:

- Find out if you are at risk of flooding.
- Find out if you can receive flood warnings.
- Prepare and keep a list of all your important contacts to hand or save them on your mobile phone.
- Think about what items you can move now and what you would want to move to safety during a flood such as pets, cars, furniture, and electrical equipment.
- Know how to turn off gas, electricity and water supplies.
- Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.
- Consider buying flood protection products such as flood boards and airbrick covers to help reduce flood water getting into your property.

During a flood:

- Tune into your local radio station on a battery or wind-up radio.
- Fill jugs and saucepans with water.
- Grab your flood kit - if you have prepared one.

- Collect blankets, torch, first aid kit, medication and food.
- Move important documents, personal items, valuables, and lightweight belongings upstairs or to high shelves.
- Raise large items of furniture, or put them in large bags if you have them.
- Move people, outdoor belongings, cars and pets to higher ground.
- Switch off water, gas and electricity at mains when water is about to enter your home. Do not touch sources of electricity when standing in water.
- Fit flood protection products, if you have them, for example flood boards, airbrick covers, sandbags.
- Put plugs in sinks and baths. Weigh them down with a pillowcase or plastic bag filled with soil.
- If you do not have non-return valves fitted, plug water inlet pipes with towels or cloths.
- Move your family and pets upstairs or to a high place with a means of escape.
- Listen to the advice of the emergency service and evacuate if told to do so.
- Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.

After a flood:

- If you have flooded, contact your insurance company as soon as possible.
- Take photographs and videos of your damaged property as a record for your insurance company.
- If you don't have insurance, contact your local authority for information on grants and charities that may help you.
- Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask.
- Have your electrics, central heating and water checked by qualified engineers before switching them back on.

Off-Site Impacts

Floodplain storage:

TAN15 requires that where development is proposed in undefended areas of floodplain, which lie outside of the functional floodplain, the implications of ground raising operations for flood risk elsewhere needs to be considered. Raising existing ground levels may reduce the capacity of the floodplain to accommodate floodwater and increase the risk of flooding by either increasing the depth of flooding to existing properties at risk or by extending the floodplain to cover properties normally outside of the floodplain. Flood storage capacity can be maintained by lowering ground levels either within the curtilage of the development or elsewhere in the floodplain, in order to maintain at least the same volume of flood storage capacity within the floodplain.

In undefended tidal areas, raising ground levels is unlikely to impact on maximum tidal levels so the provision of compensatory storage should not be necessary.

For development in a defended flood risk area, the impact on residual flood risk to other properties needs to be considered. New development behind flood defences can increase the residual risk of flooding if the flood defences are breached or overtopped by changing the conveyance of the flow paths or by displacing flood water elsewhere. If the potential impact on residual risk is unacceptable then mitigation should be provided.

The proposed development is for the change of use of the first and second floors of the existing building. As such, there will be no increase in built footprint on site post development, and therefore no unacceptable loss of fluvial flood storage on site post development.

Surface Water Drainage Strategy:

From 7 January 2019, all new developments of more than 1 dwelling house or where the construction area is 100m² or more, will require Sustainable Drainage Systems (SuDS) for surface water.

Due to the layout of the proposed development, and as the application is for the change of use of the existing building, there is no need for additional surface water drainage features. The development will not adversely affect the surface water flood risk to the surrounding area.

Conclusion

Unda Consulting Limited have been appointed by Taranjit Kaur Tal to undertake a Site Specific Flood Consequence Assessment (FCA) for Port Talbot And Afan Womens Aid Commercial Buildings, Talbot Road, Port Talbot, SA13 1DY. The FCA has been undertaken in accordance with Technical Advice Note 15 (TAN 15) and the associated technical guidance.

The proposed planning application is for the Proposed change of use from vacant offices to flats on the first and second floor.

The description of the proposal is Change of use of office space above ground floor commercial units into 8 Nos 1 bedroom residential flats.

External area at the rear of property will be used for bicycle storage and bin storage.

The site comprises of an existing building, which is used for commercial units on the ground floor, and office space on the above floors.

Post development, the site will remain "less vulnerable development" on the ground floor and become "highly vulnerable development" on the above floors, as the application is for the Proposed change of use from vacant offices to flats on the first and second floor.

The site is located within Flood Zone C1 (Risk of flooding from rivers or the sea, served by significant flood defence infrastructure, including flood defences), which means it is defined as land having a 1 in 1000 annual probability of tidal flooding.

The risk would appear to be predominantly fluvial and originate from the River Afan, approximately 700m to the north west of the site at its closest proximity. The Ffrwd Wyllt also flows in a broadly southwesterly direction approximately 620m to the east of the site.

The tidal Swansea Bay is located approximately 2km to the southwest of the site, and the lock-controlled Port Talbot Docks is approximately 300m to the southwest of the site.

Modelled flood levels and flood extents have been received from the NRW as part of a flood data request. Modelled flood data has been provided from the Port Talbot Harbourside model (JBA Consulting, 2017).

The site is shown to be entirely outside of the modelled 1:200 year and 1:1000 year tidal flood extents provided for 2116. As such, the site is not considered to be at significant risk from tidal flooding.

The site is shown to be entirely outside of the present day 1:100 year extent, but partially within the modelled 1:100 year plus climate change and 1:1000 year extents.

The site lies within the West Wales River Basin District, where the Change Factor / Central Estimate climate change allowance is a 30% increase in fluvial flows. The Port Talbot Harbourside model report states that a 30% increase in fluvial flows is used to represent climate change.

For the present day 1:1000 year scenario the maximum flood depth on site is shown to be 0.51m.

For the 1:100 year event, with allowance for climate change, the maximum flood depth on site is 0.12m.

It should be noted that all residential uses – and therefore all habitable rooms are located at first floor level and above – which is entirely above the modelled 1:100 year flood level with allowance for climate change, and the modelled 1:1000 year flood level.

All residential uses are at first floor level and above, which is 3.30m above ground floor level. Therefore, all residential uses are entirely flood free for the present day 1:1000 year event, and 1:100 year event with allowance for climate change. No habitable residential uses will be located at ground floor level.

For the 1:100 year event with allowance for climate change, the rear flat exit, and the gated site access onto the unnamed road to the north of the site is shown to be entirely dry for the design flood event. Site users should exit the site to the north via the gated access, to the unnamed road and travel east along this unnamed road and then north along Broad Street. This route is entirely dry for the modelled 1:100 year plus climate change flood event, and is shown to be within a 'Very Low Hazard' area for approximately 20m for the modelled 1:1000 year event, and then entirely dry.

Safe escape as per the definitions in TAN15 can therefore be provided.

The Natural Resources Wales Surface Water and Small Watercourses Flood Map suggests that the roads surrounding site lie partially within areas of "Low" risk of flooding from surface water.

The site itself is shown to be outside of areas of Low, Medium and High risk of flooding from surface water and small watercourses.

Additionally, the risk of flooding posed to the site by groundwater, and sewer surcharge flooding would appear to be low.

From 7 January 2019, all new developments of more than 1 dwelling house or where the construction area is 100m² or more, will require Sustainable Drainage Systems (SuDS) for surface water.

Due to the layout of the proposed development, and as the application is for the change of use of the existing building, there is no need for additional surface water drainage features. The development will not adversely affect the surface water flood risk to the surrounding area.

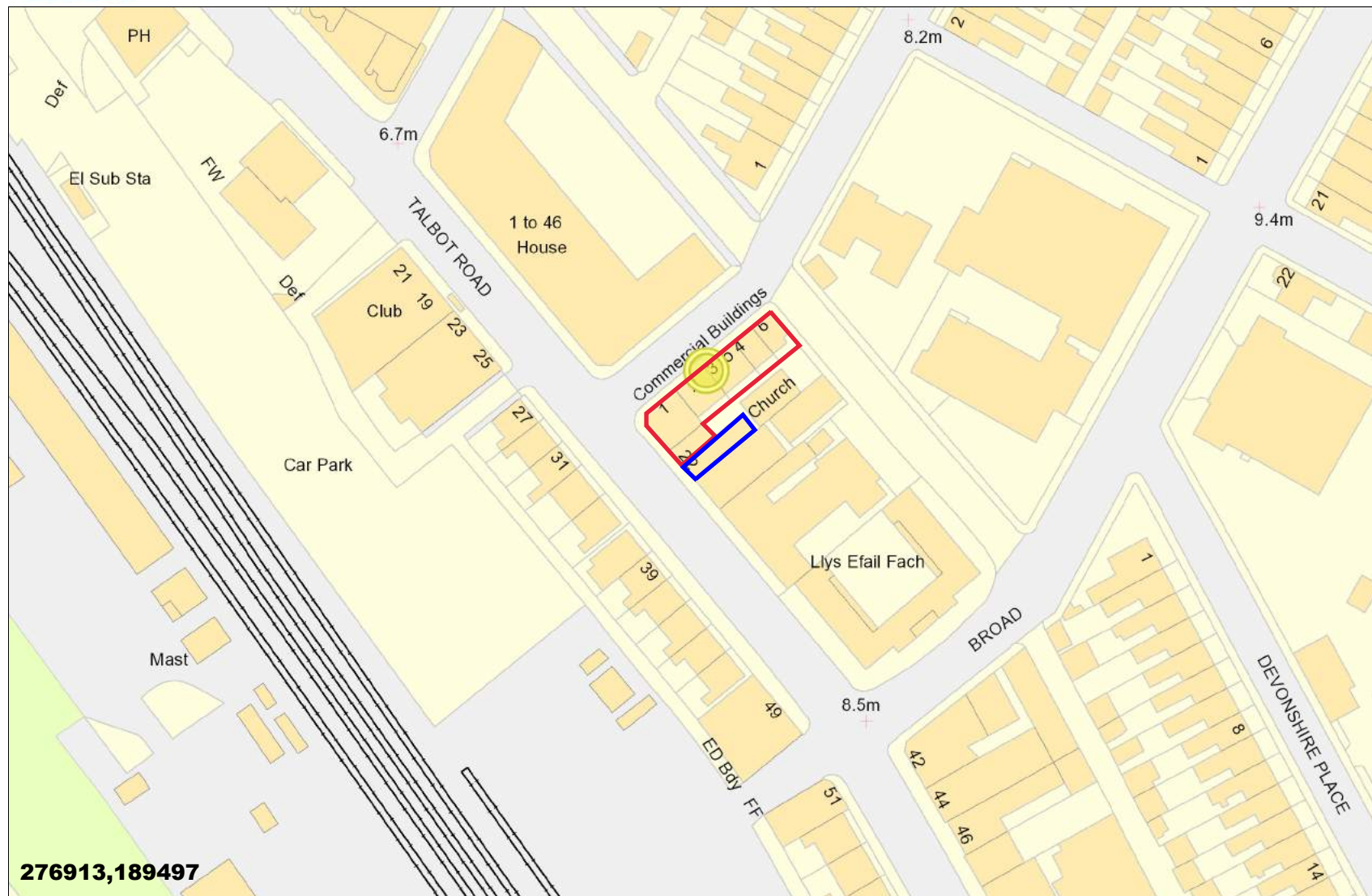
In summary:

- Flood Zone C1 as defined by Natural Resource Wales (NRW).
- Proposed change of use from vacant offices to flats on the first and second floor
- "Less vulnerable development" development on the ground floor, and "Highly vulnerable development" on the above floors.
- The site itself is shown to be predominantly outside of area of Low, Medium and High risk of flooding from surface water and small watercourses.
- Risk of groundwater and sewer surcharge flooding would appear to be low.
- The site is shown to be entirely outside of the modelled 1:200 year and 1:1000 year tidal flood extents provided for 2116. As such, the site is not considered to be at significant risk from tidal flooding.
- The site is shown to be entirely outside of the present day 1:100 year extent, but partially within the modelled 1:100 year plus climate change and 1:1000 year extents.
- For the present day 1:1000 year scenario the maximum flood depth on site is shown to be 0.51m.
- For the 1:100 year event, with allowance for climate change, the maximum flood depth on site is 0.12m.
- All residential uses are at first floor level and above, which is 3.30m above ground floor level. Therefore, all residential uses are entirely flood free for the present day 1:1000 year event, and 1:100 year event with allowance for climate change. No habitable residential uses will be located at ground floor level.
- Safe escape as per TAN15 can be provided.
- Flood proofing of the building will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

Appendix

- Plans and drawings.



276913,189497

LEGEND

Clean Water

-  Sluice Val
-  Air Val, SINGLE
-  Tap
-  Pressure Reducing Valve
-  Meter
-  BULK Meter
-  FH
-  Cap
-  Existing Main
-  NON COMPANY

Sewerage External

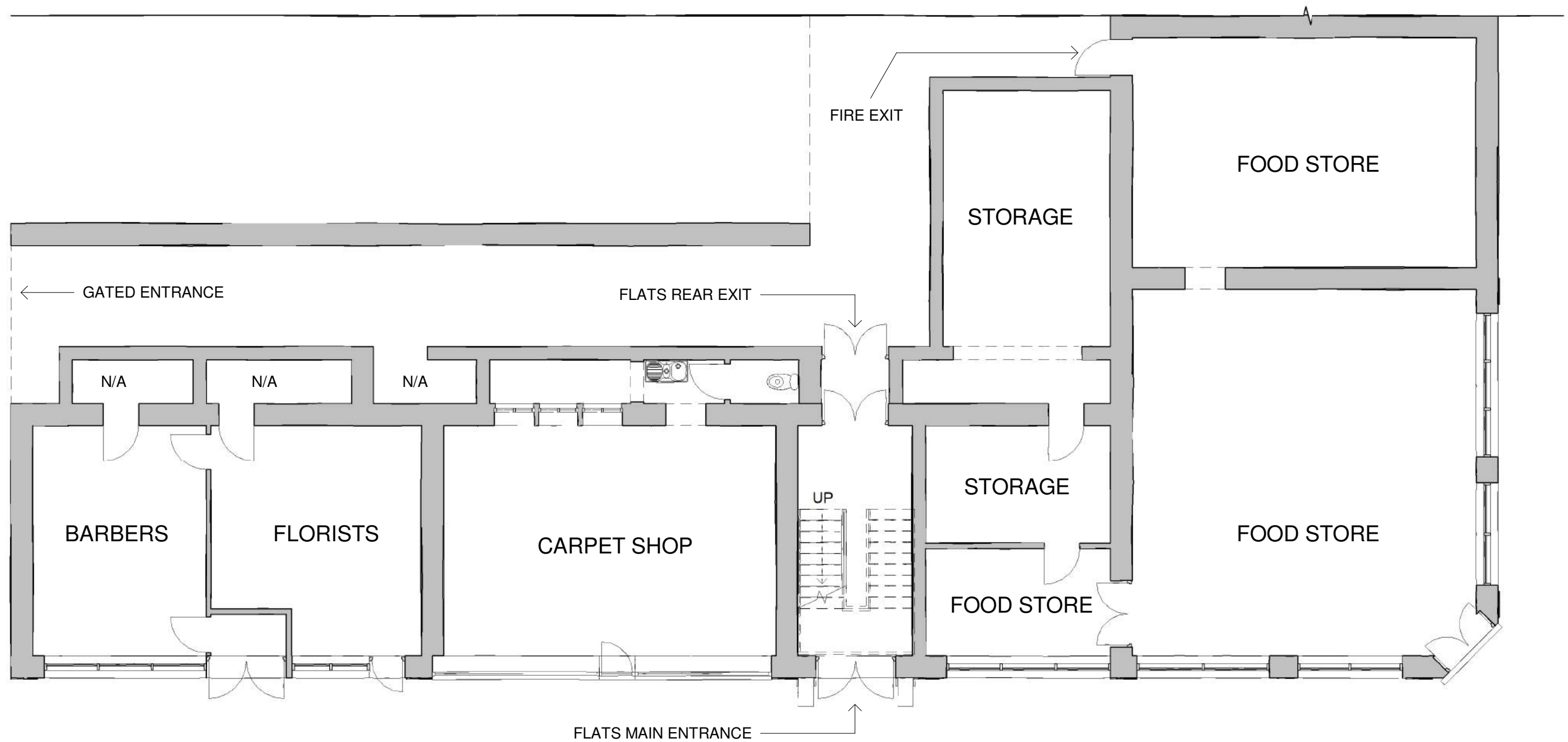
-  Foul
-  Surface Water
-  Combined
-  Rising Main
-  Private
-  Treatment Works
-  Pumping Station
-  Special Purpose
-  Unknown End
-  Change, Combined Overflow
-  Outfall, FOUL
-  Lamp Hole, Foul
-  Private Sewer Transfer
-  Lateral Drain
-  Inspection Chamber

Dwr Cymru Cyfyngedig ('the Company') gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus and any onus of locating the apparatus before carrying out any excavations rests entirely on you. The information which is supplied hereby the company, is done so in accordance with statutory requirements of sections 198 and 199 of the water industry Act 1991 based upon the best information available and in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a drain sewer or disposal main laid before 1 September 1989, or if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the company's right to be compensated for any damage to its apparatus.

**EXACT LOCATION OF
ALL APPARATUS TO
BE DETERMINED ON
SITE**

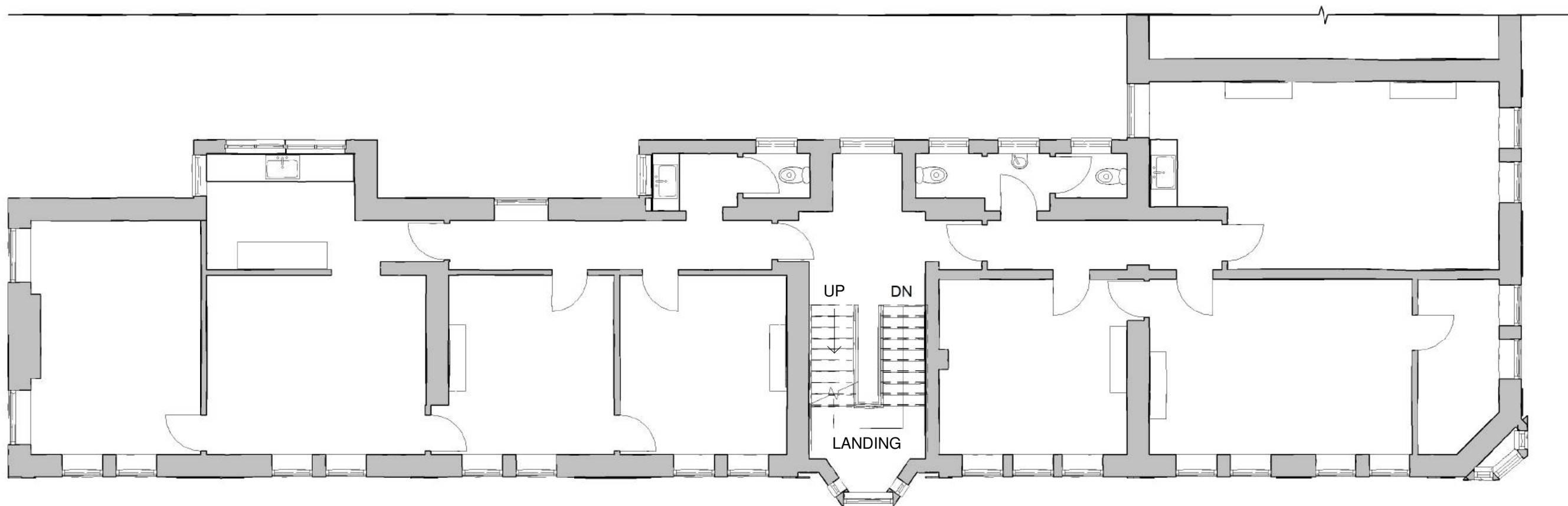
Reproduced from the Ordnance Survey's maps with the permission of the Controller of Her Majesty's Stationary Office. Crown Copyright. Licence No: WU298565.

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be Asbestos Cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation



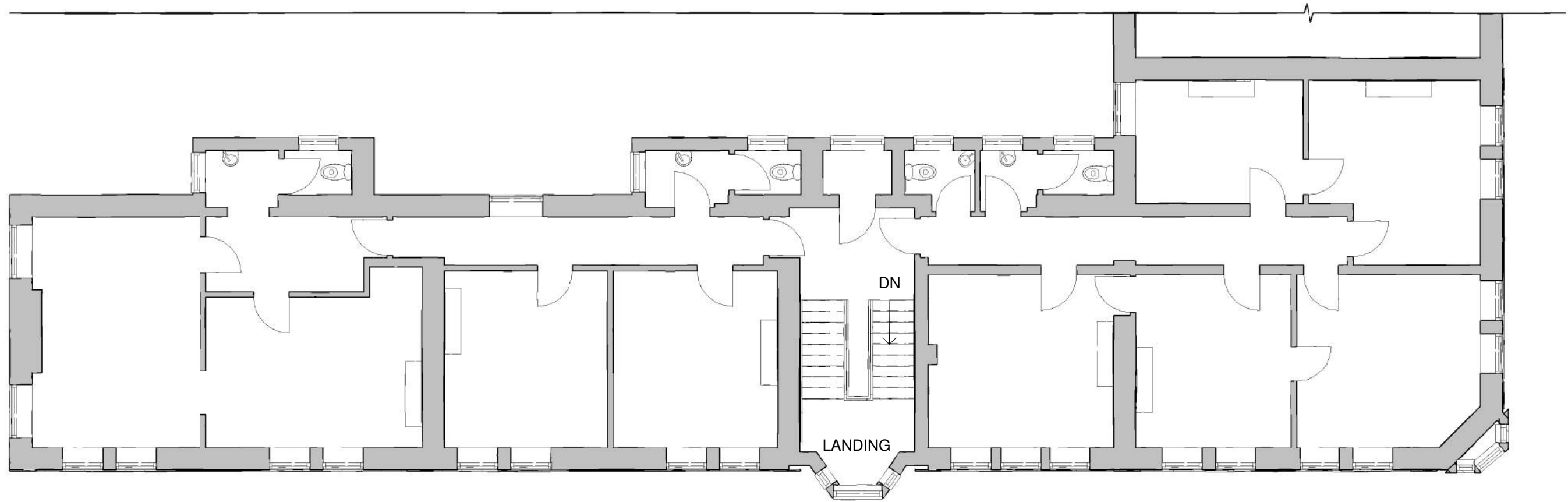
Existing GF
1 : 100

	No.	Description	Date	 www.ccs-solutions.co.uk				PROJECT Commercial Buildings, Beverley St		CLIENT Mr Taranjit Tal			
								Date 26/06/2022	Project number 26062022		Scale (@ A3) 1 : 100		
				CODE	STATUS	SUITABILITY DESCRIPTION	PURPOSE OF ISSUE	SHEET Existing GF		Drawn by CCS	DRWAING NUMBER A301		REV A
										Checked by Client			



Existing 1st F
1 : 100

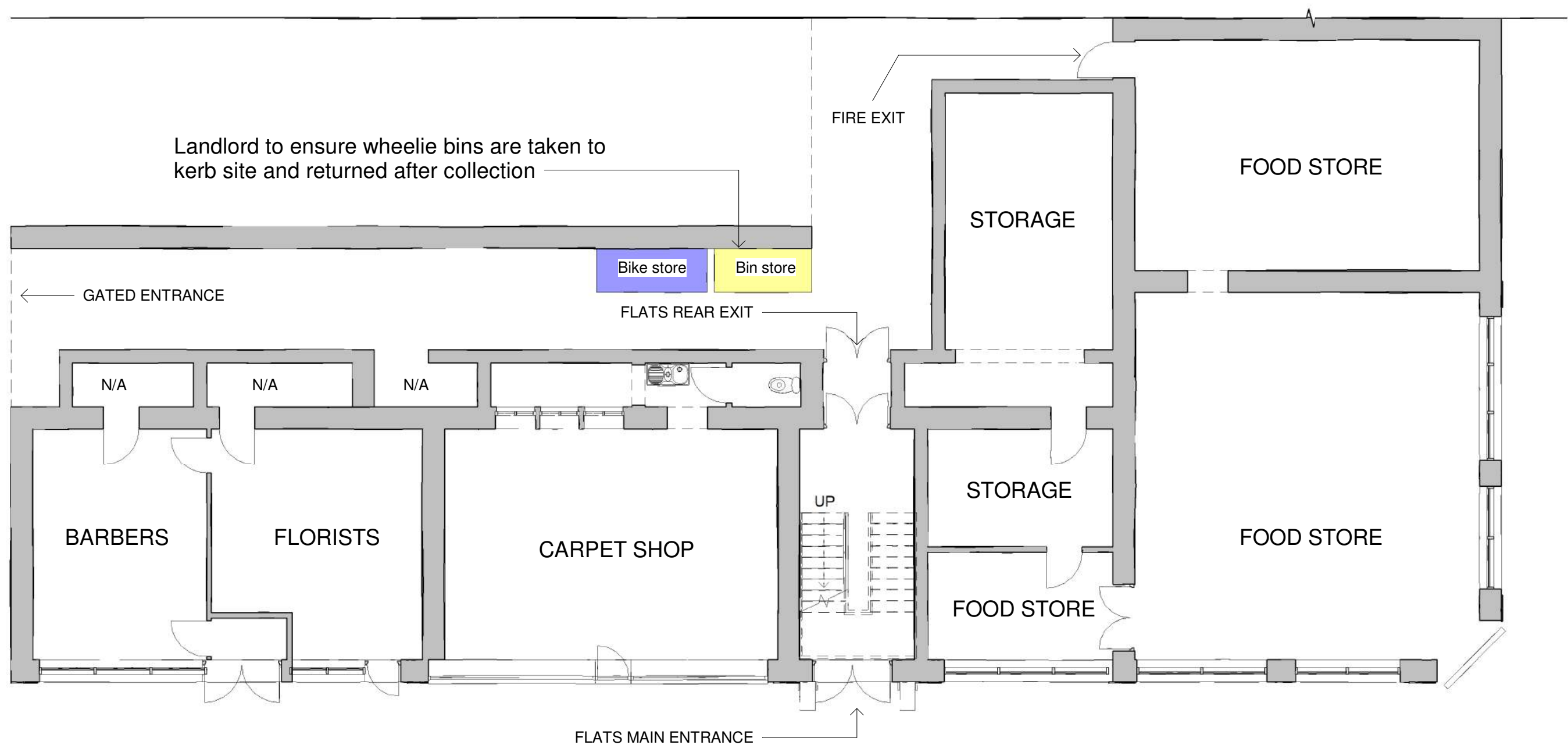
	No.	Description	Date	 www.ccs-solutions.co.uk				PROJECT		CLIENT			
								Commercial Buildings, Beverley St		Mr Taranjit Tal			
				CODE	STATUS	SUITABILITY DESCRIPTION	PURPOSE OF ISSUE	SHEET		Date	Project number	Scale (@ A3)	
								Existing 1st Floor		26/06/2022	26062022	1 : 100	
										Drawn by	DRWAING NUMBER		REV
										CCS	A302		A
								Checked by					
								Client					



Existing 2nd F

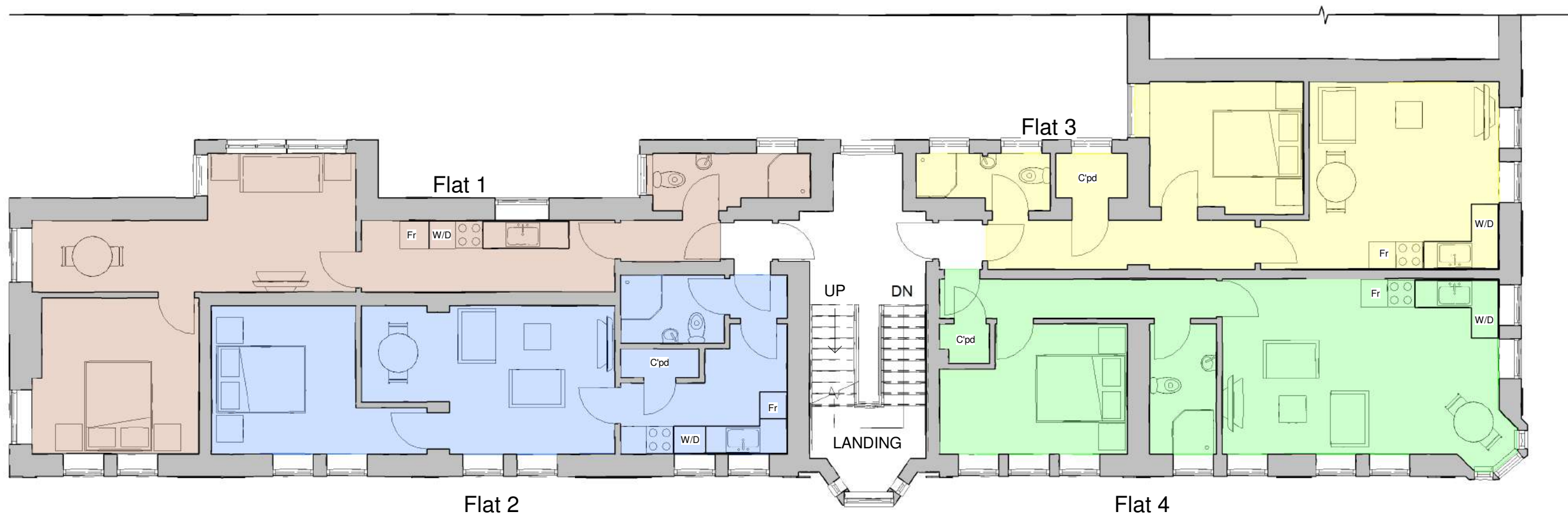
1 : 100

	No.	Description	Date	 www.ccs-solutions.co.uk				PROJECT		CLIENT		
								Commercial Buildings, Beverley St		Mr Taranjit Tal		
				CODE	STATUS	SUITABILITY DESCRIPTION	PURPOSE OF ISSUE	SHEET	Date 26/06/2022	Project number 26062022	Scale (@ A3) 1 : 100	
								Existing 2nd Floor	Drawn by CCS	DRWAING NUMBER		REV
									Checked by Client	A303	A	



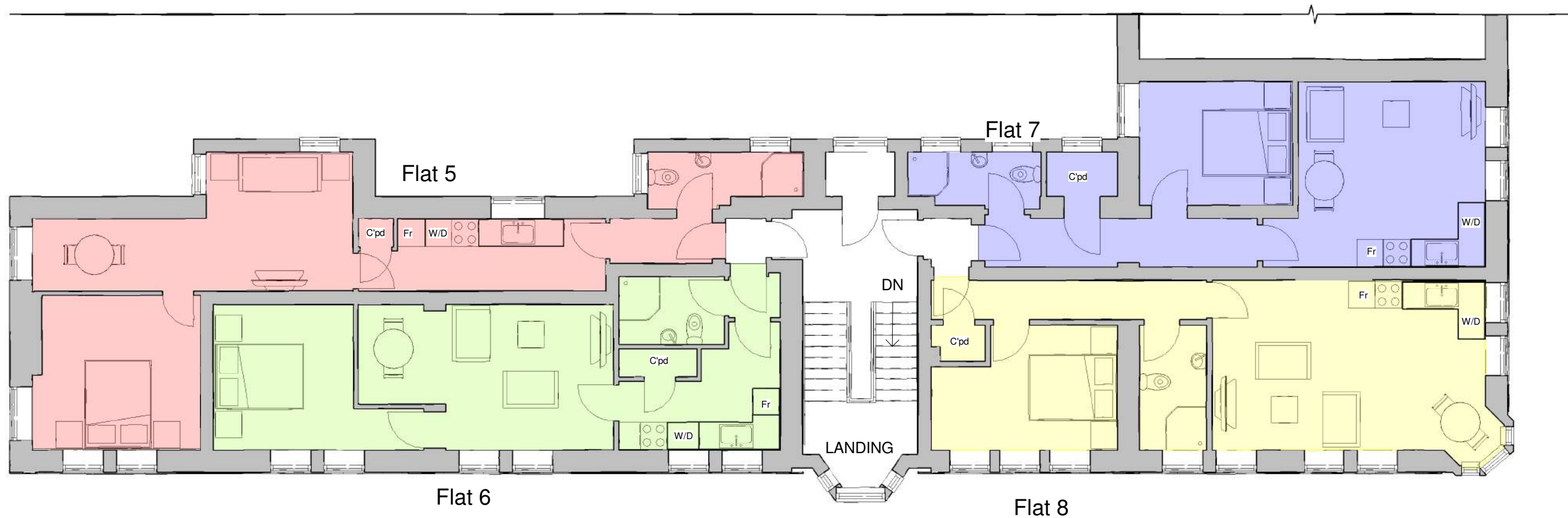
Proposed GF
1 : 100

	No.	Description	Date	 www.ccs-solutions.co.uk				PROJECT		CLIENT			
								Commercial Buildings, Beverley St		Mr Taranjit Tal			
				CODE	STATUS	SUITABILITY DESCRIPTION	PURPOSE OF ISSUE	SHEET	Proposed GF	Date 26/06/2022	Project number 26062022	Scale (@ A3) 1 : 100	
										Drawn by CCS	DRWAING NUMBER		REV
										Checked by Client	A307		A



Proposed 1st F
1 : 100

	No.	Description	Date	 www.ccs-solutions.co.uk				PROJECT		CLIENT																														
								Commercial Buildings, Beverley St		Mr Taranjit Tal																														
				<table><tr><td>CODE</td><td>STATUS</td><td>SUITABILITY DESCRIPTION</td><td>PURPOSE OF ISSUE</td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>	CODE	STATUS	SUITABILITY DESCRIPTION	PURPOSE OF ISSUE																													Date 26/06/2022	Project number 26062022	Scale (@ A3) 1 : 100	
	CODE	STATUS	SUITABILITY DESCRIPTION		PURPOSE OF ISSUE																																			
			Drawn by CCS	DRWAING NUMBER A308		REV A																																		
			Checked by Client																																					
			Proposed 1st Floor																																					



Proposed 2nd F

1 : 100

	No.	Description	Date	 www.ccs-solutions.co.uk				PROJECT		CLIENT		
								Commercial Buildings, Beverley St		Mr Taranjit Tal		
				CODE	STATUS	SUITABILITY DESCRIPTION	PURPOSE OF ISSUE	SHEET		Date 26/06/2022	Project number 26062022	Scale (@ A3) 1 : 100
								Proposed 2nd Floor	Drawn by CCS	DRWAING NUMBER		REV A
									Checked by Client	A309		