



Flood Consequence Assessment for Planning

Prepared for:

Shine Cymru Life Skills Services Ltd

April 2022

Our reference:

91691-Singleton-TheOaks

Location:

The Oaks

Ty R Eglwys

Cwmavon

Port Talbot, SA12 9BD



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Document Issue Record

Project: Flood Consequence Assessment for Planning

Client: Shine Cymru Life Skills Services Ltd

Location: The Oaks, Ty R Eglwys, Cwmavon, Port Talbot, SA12 9BD

Application: Change of use of residential dwelling into respite home for young adults with learning disabilities

Our reference: 91691-Singleton-TheOaks

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Key Facts

Flood Risk Posed:

- Flood Zone C2 and Flood Zone B as defined by Natural Resource Wales (NRW).
- Fluvial flood risk from the River Avan approximately 98m to the southeast of the site outline boundary.
- The site is shown to be entirely outside of the modelled 1:100 year flood extent, both at the present day and with an allowance for climate change.
- The modelled 1:1000 year flood extent is shown to surround the site, but the majority of the site (and the residential building on site) is shown to be outside of the 1:1000 year extent.
- Maximum depth of flooding of 0.15m for the modelled 1:1000 year event.
- Risk of pluvial flooding would appear to be “low” to “high”.
- Risk of groundwater and sewer surcharge flooding would appear to be low.

Flood Risk Management:

- Proposal is for the change of use of the existing building on site.
- No increase in flood risk vulnerability post development.
- “Highly vulnerable” development throughout (existing and proposed).
- Flood proofing of the building will be incorporated as appropriate.
- Internal access will be maintained from the ground floor to the first floor for the lifetime of the development.
- 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 by Shine Cymru Life Skills Services Ltd (hereinafter referred to as “the applicant”) to undertake a Site-Specific Flood Consequence Assessment (FCA) for Planning at The Oaks, Ty R Eglwys, Cwmavon, Port Talbot, SA12 9BD (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 C2 and Flood Zone B 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 C2: (Areas without significant flood defence infrastructure) and Flood Zone B: (Areas known to have flooded in the past) and includes the redevelopment of land or buildings, 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 existing site comprises of a detached 5 bedroom residential property.

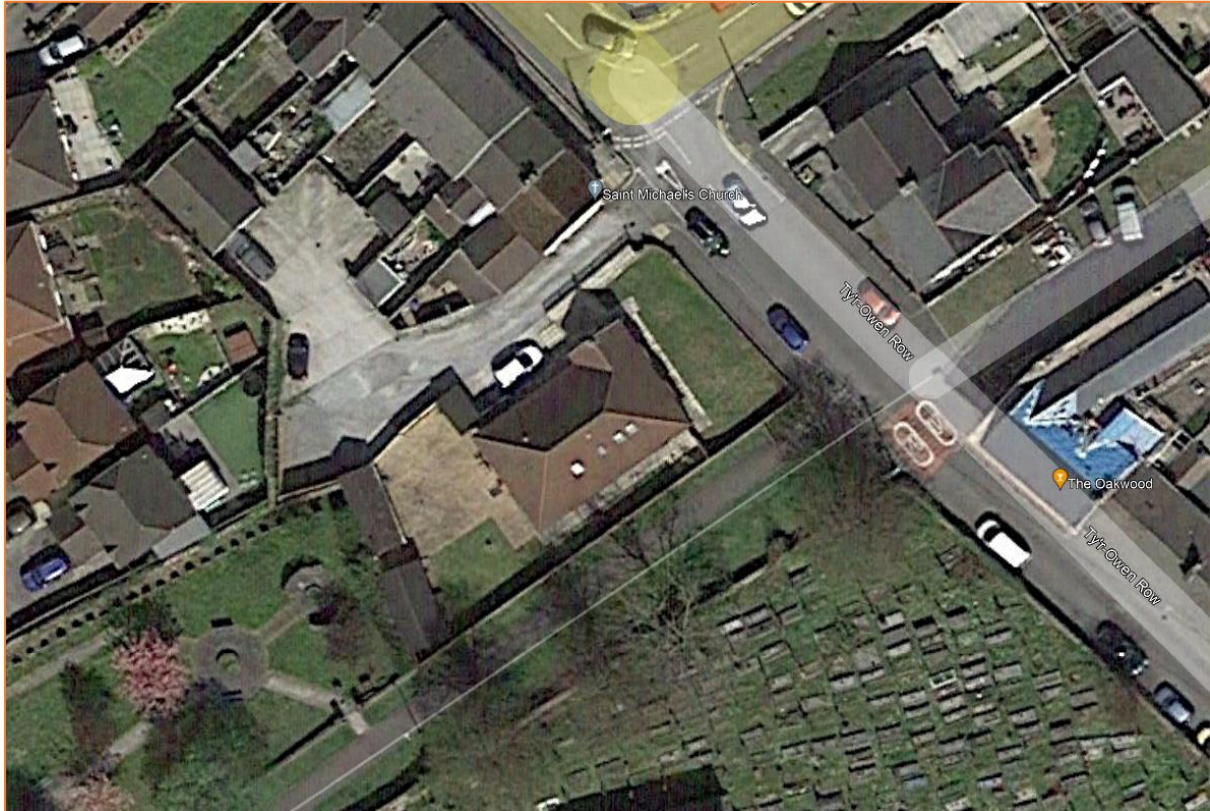


Figure 1: Aerial view of the site and immediate surrounding area (Source: Google Earth)



Figure 2: View of the existing site frontage (Source: Google Streetview)



Figure 3: Existing Site Plan (Source: Shine Cymru Life Skills Services Ltd)

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 our 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 LiDAR remotely sensed digital elevation data suggests that the ground topography in the area of the proposed development ranges from approximately 31.60mAOD to 32.00mAOD.

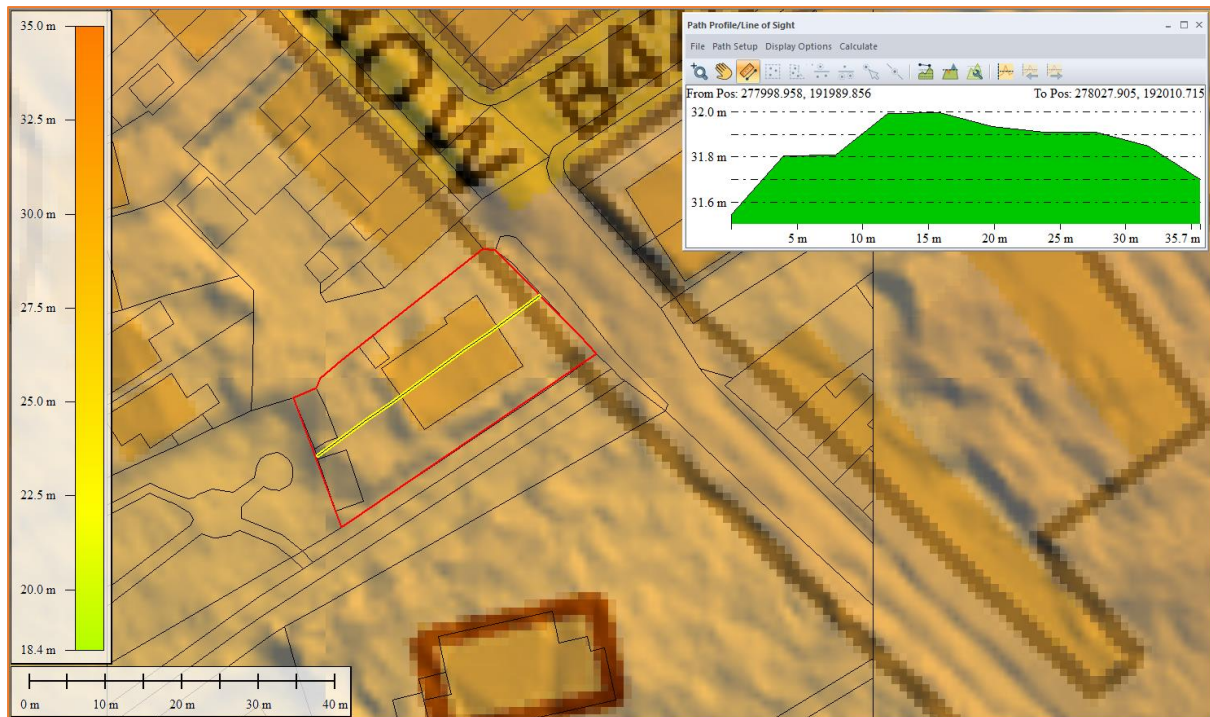


Figure 4: 1m LiDAR DTM showing topographic levels across the site (Source: EA 1m LiDAR, OS Mapping)

Proposed Development

The proposal is for the Change of use of residential dwelling into respite home for young adults with learning disabilities.

Proposed plans are provided in the report Appendix.

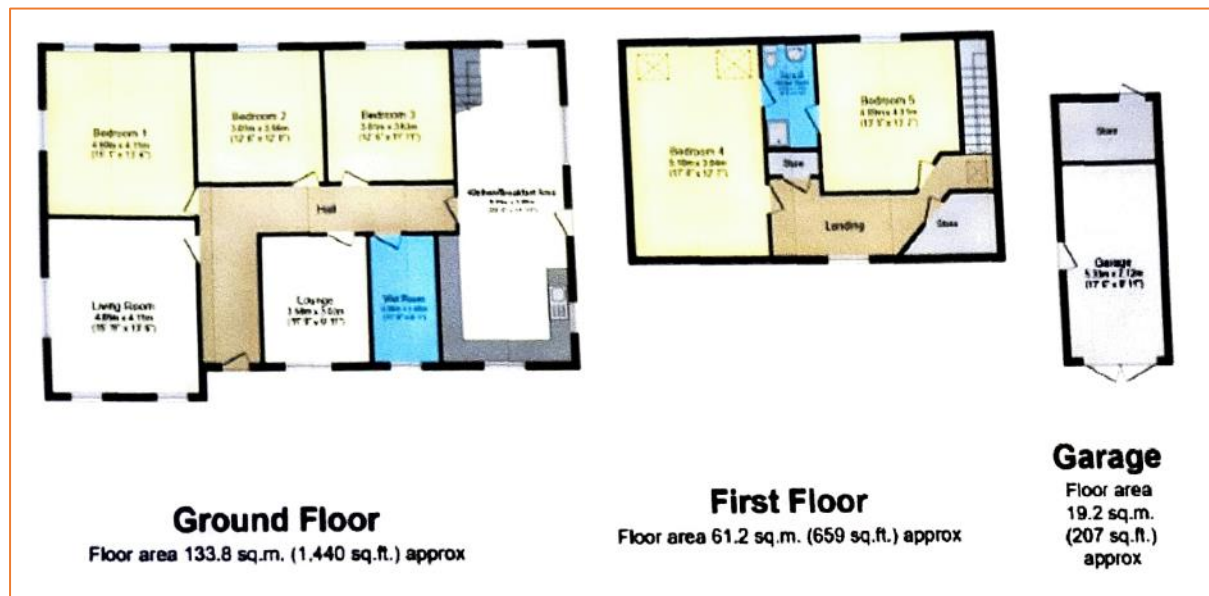


Figure 5: Proposed floor plans (Source: Shine Cymru Life Skills Services Ltd)

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.

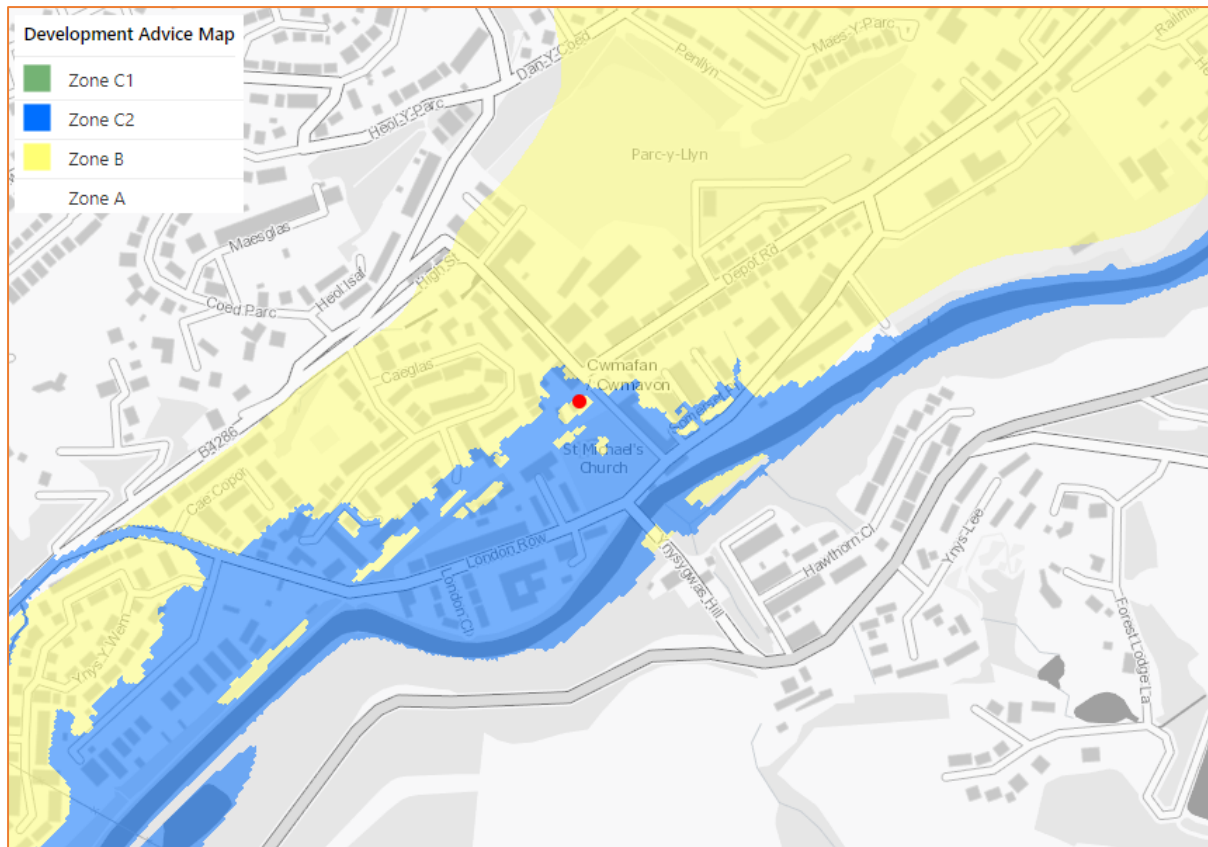


Figure 6: Natural Resource Wales Development Advice Map (Source: NRW)

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.

The site is located partially within Flood Zone C2 (Risk of flooding from rivers or the sea, without significant flood defence infrastructure) and partially within Flood Zone B (Areas known to have flooded in the past). Flood Zone C2 is defined as land having at least a 1 in 1000 annual probability of fluvial flooding.

The risk would appear to be predominantly fluvial and originate from the River Avon approximately 98m to the southeast of the site outline boundary.

Fluvial (River Avon / Afon Afan)

The Afon Afan is approximately 22km long with a catchment of 91km². It runs from the village of Cymmer where it is formed by the converging rivers Corrwg and Gwynfi. The river catchment is a high gradient catchment, with boulders and bedrock being the predominant substrate. It experiences rapid fluctuations in flow depending on the level of local rainfall and the water levels rise and drop very quickly. It follows a generally south westerly course through the steep and forested narrow Afan valley before turning in a southerly direction toward Port Talbot. The river flows under the M4 and A48 in a formal, manmade channel before discharging into the Bristol Channel just past the Docks entrance. The river is tidal as far upstream as Velindre, but a weir exists approximately half a mile downstream at Green Park which aims to prevent tidal inundation through the river channel running through the town of Port Talbot itself. During times of higher than normal tides, such as the Mean High Water Spring tide (MHWS) the weir is overtopped and the tide reaches Velindre, this can cause problems with high fluvial flows within the river as its capacity is reduced (Source: Neath Port Talbot Strategic Flood Consequence Assessment).

Modelled flood levels and extents:

Modelled flood levels and flood extents have been requested from NRW, who has provided modelled flood data from the 1D/2D Estry TUFLOW Port Talbot model that was completed in 2016.

Both fluvial and tidal modelled flood extents have been provided. The site is shown to be entirely outside of all of the tidal flood extents (both at the present day and with an allowance for climate change).

The climate change allowance used for the Port Talbot modelling is an increase in fluvial flows by 30%. The Flood Consequences Assessment: Climate change allowances guidance (September 2021) shows the site to fall within the West Wales river basin district, where the central estimate / change factor is a 30% increase anticipated by the 2080s.

The following flood levels have been extracted for the site:

Scenario	Maximum on site flood level
1:100yr present day	Site outside maximum extent
1:1000yr present day	31.86mAOD
1:100yr climate change	Site outside maximum extent

Table 2: Maximum modelled flood levels

The site is shown to be entirely outside of the modelled 1:100 year flood extent, both at the present day and with an allowance for climate change. The modelled 1:1000 year flood extent is shown to surround the site, but the majority of the site (and the residential building on site) is shown to be outside of the 1:1000 year extent.

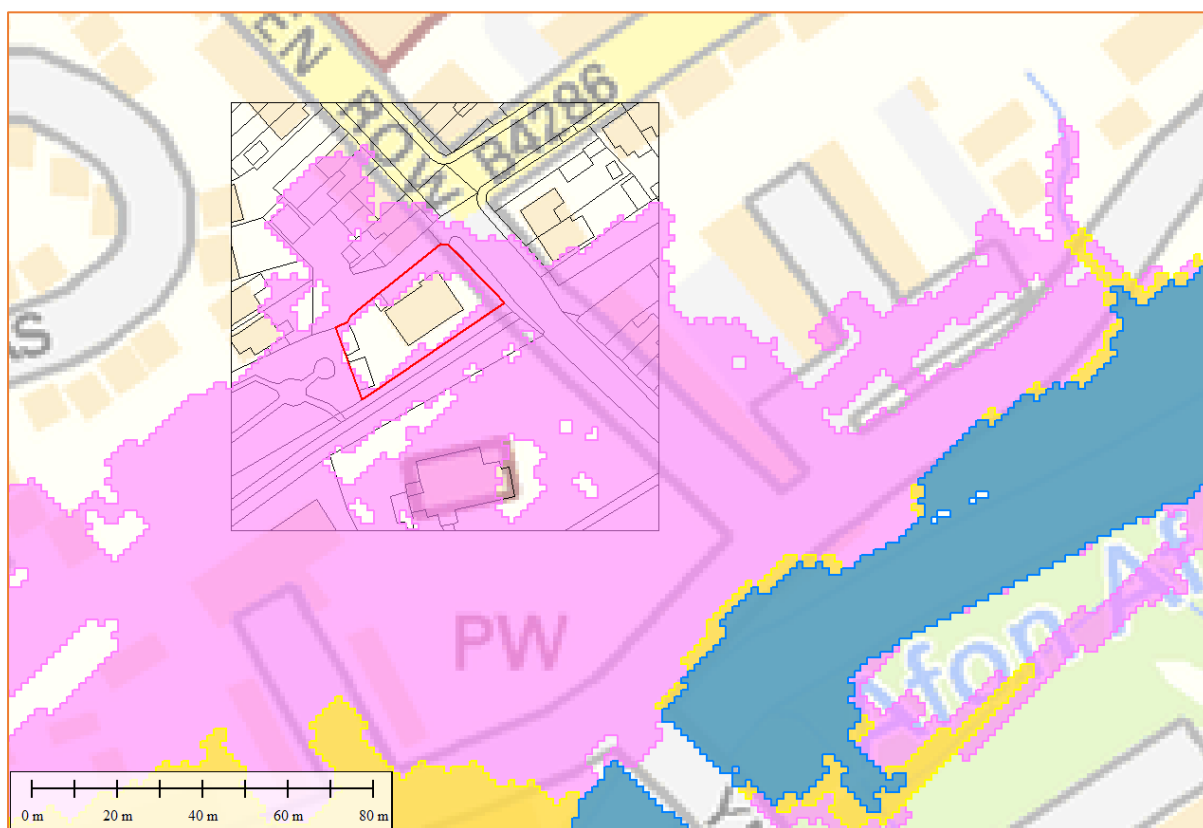


Figure 7: Modelled 1:100 year present day (blue), 1:100 year climate change (yellow) and 1:1000 year present day (pink) flood extents (Source: NRW, OS Mapping)

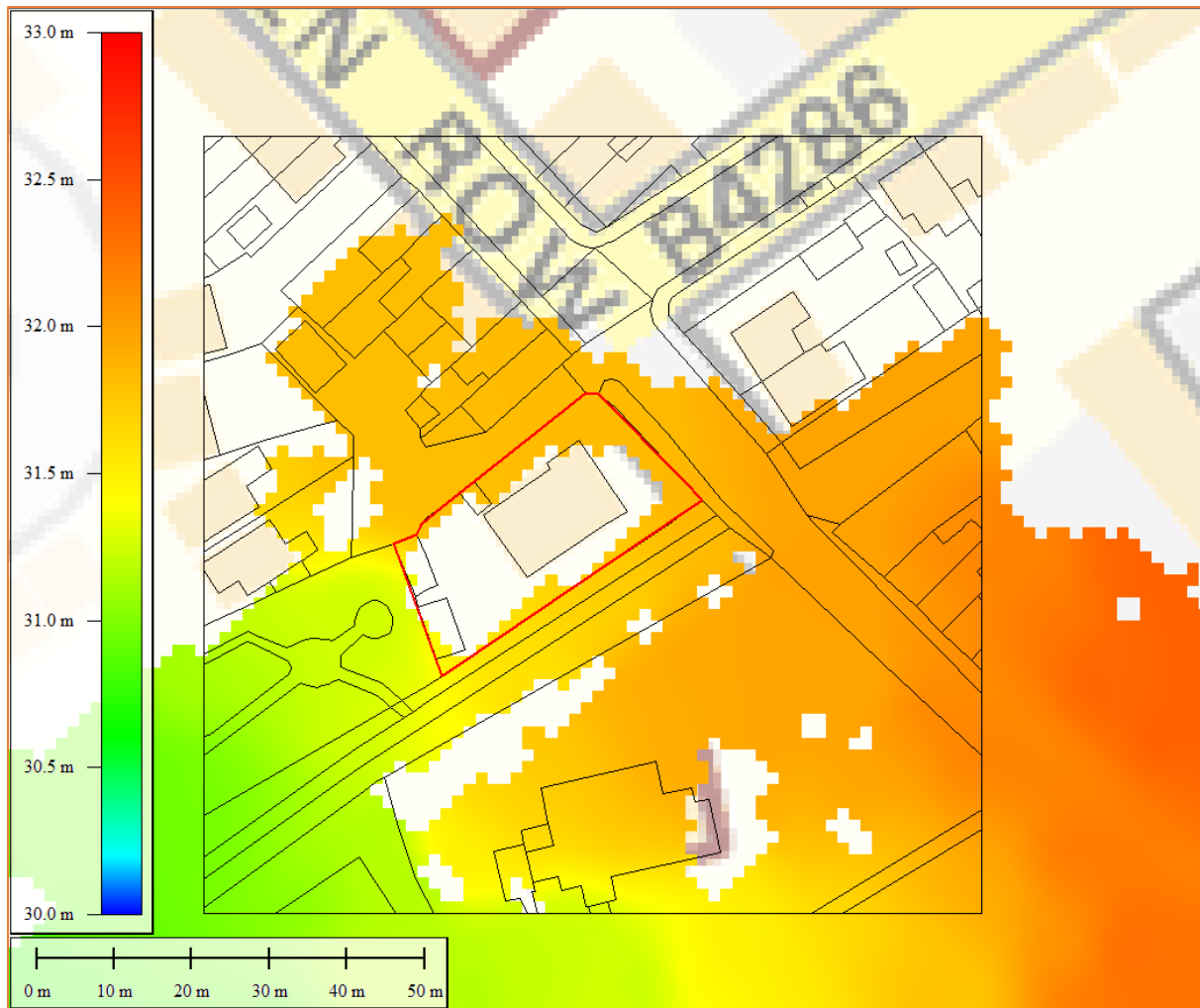


Figure 8: Modelled 1:1000 year present day flood level (Source: NRW, OS Mapping)

The maximum on site modelled 1:1000 year flood level is shown to be 31.86mAOD. The maximum on site modelled flood depth is shown to be 0.15m

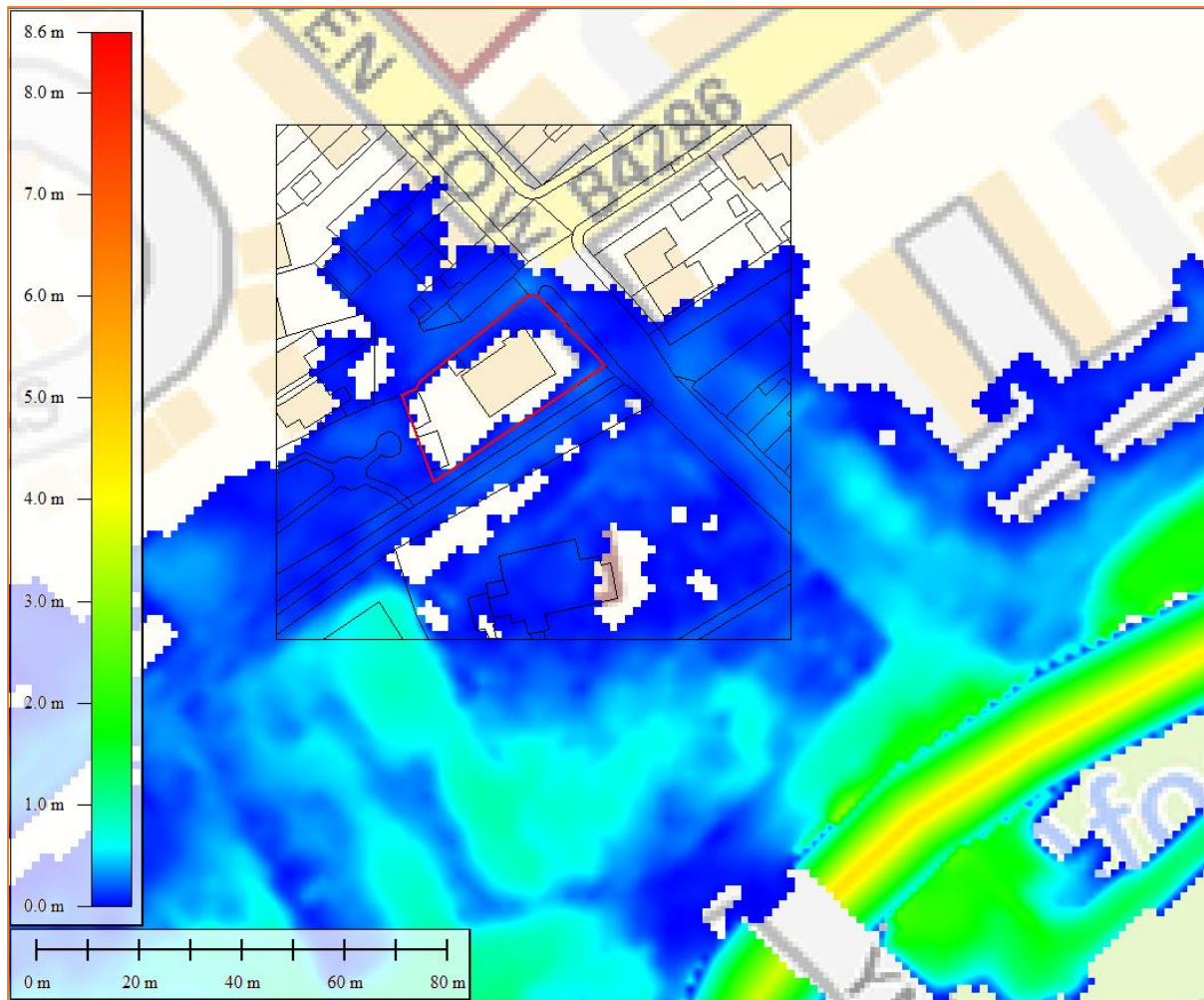


Figure 9: Modelled 1:1000 year flood depths (Source: NRW, OS Mapping)

Flood defences:

No formal flood defences have been identified by NRW that offer protection to the site in this location.

Residual risk (breach or overtopping of flood defences):

Breaching of flood defences can cause rapid inundation of areas behind flood defences as flow in the river channel discharges through the breach. A breach can occur with little or no warning, although they are much more likely to concur with extreme river levels or tides when the stresses on flood defences are highest. Flood water flowing through a breach will normally discharge at a high velocity, rapidly filling up the areas behind the defences, resulting in significant damage to buildings and a high risk of loss of life. Breaches are most likely to occur in soft defences such as earth embankments although poorly maintained hard defences can also be a potential source of breach.

Overtopping of flood defences occurs when water levels exceed the protection level of raised flood defences. The worst case occurs when the fluvial or tidal levels exceed the defence level as this can lead to prolonged flooding. Less severe overtopping can occur when flood levels are below defence levels, but wave action causes cyclic overtopping, with intermittent discharge over the crest level of the defence. Flood defences are commonly designed with a freeboard to provide protection against overtopping from waves. The risk from overtopping due to exceedance of the flood defence level is much more significant than the risk posed by

wave overtopping. Exceedance of the flood defence level can lead to prolonged and rapid flooding with properties immediately behind the defences at highest risk.

No raised flood defences act to defend the site from direct inundation, meaning there is negligible residual risk from breach and overtopping of flood defences.

Historical flood events:

NRW have provided no records of historical flooding having affected the area in the past.

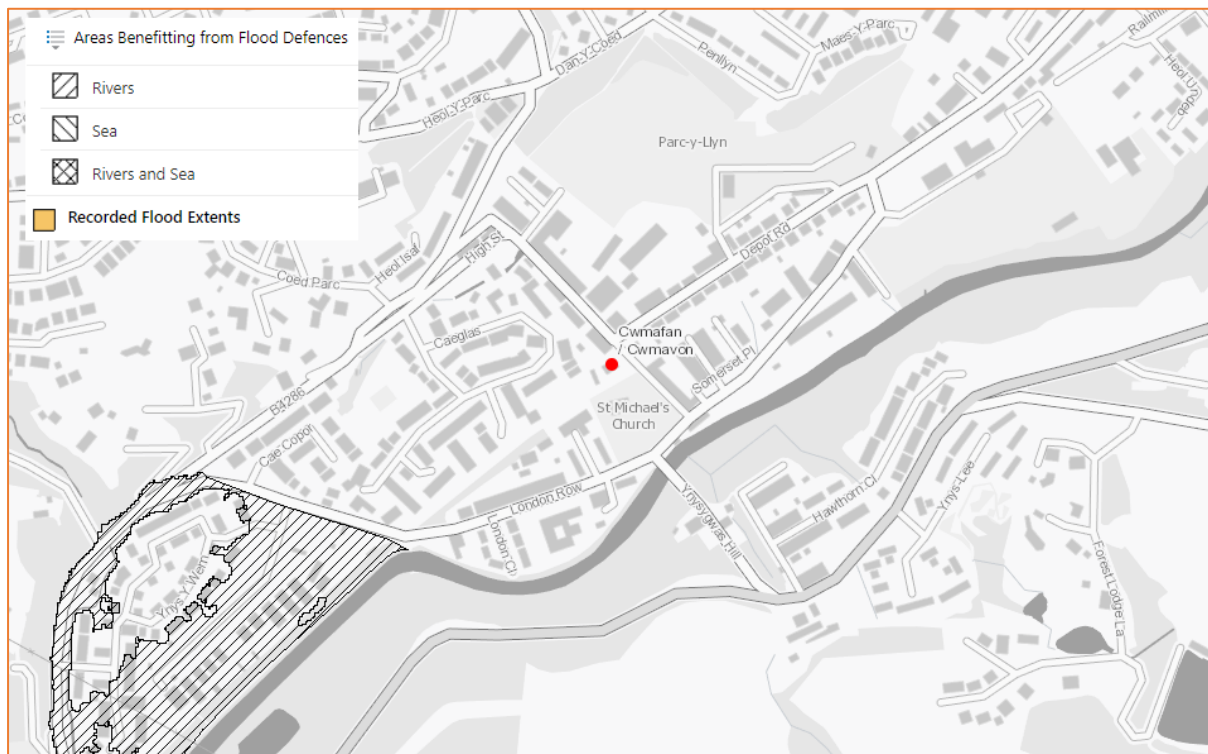


Figure 10: Recorded flood extents map (Source: NRW)

Pluvial (Surface Water & Small Watercourses):

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 and 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 Flood Risk from Surface Water & 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 Flood Risk from Surface Water & Small Watercourses suggests that the site lies within an area of “Low” to “High” risk of flooding from surface water.



Figure 11: Extract from Natural Resources Wales Flood Risk from Surface Water & Small Watercourses showing surface water extents (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.

According to the 'Neath Port Talbot SFCA there are no specific areas of historical groundwater flooding within the study area.

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 outside 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.

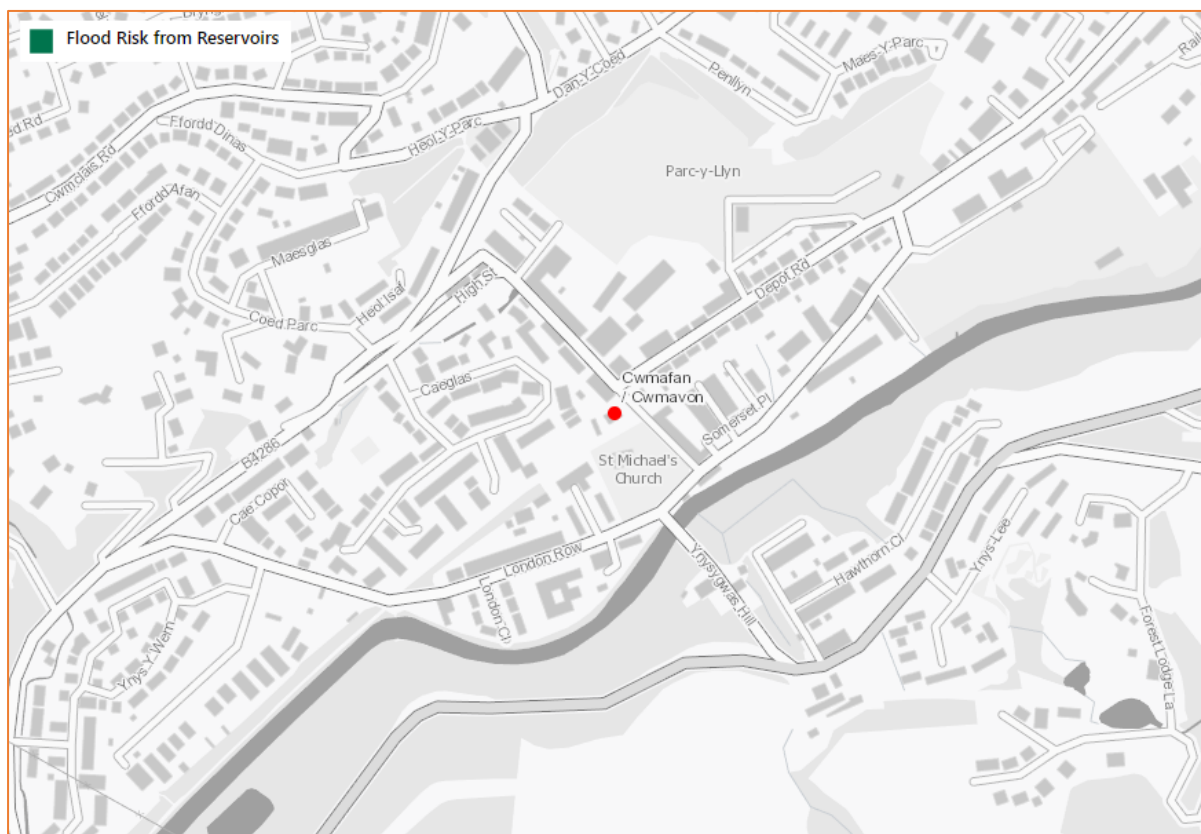


Figure 12: Extract from Natural Resources Wales Flood Risk from Reservoirs Map (Source: NRW)

Flood Risk Management Measures

Vulnerability to flooding:

TAN15 classifies property usage by vulnerability to flooding.

The existing site is a 5-bedroom residential house, which is classified as “Highly vulnerable” under TAN15.

Post development, the site will remain a “*Highly vulnerable development*” throughout, as the application is for the change of use of the existing house to a Respite home for young adults with learning disabilities.

The proposed respite home would support 5 service users at a time, and there would be no increase in the number of bedrooms post development. The proposal will stay as a single unit, and will not increase the vulnerability classification of the site.

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 3: 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 4: TAN15 Flood frequency thresholds

The site is shown to be entirely outside of the modelled 1:100 year flood extent, both at the present day and with an allowance for climate change.

The maximum depth of flooding shown on site for the modelled 1:1000 year event is shown to be 0.15m.

The proposal does not increase the vulnerability classification of the site (the site will remain “Highly Vulnerable”), and there will be no introduction of additional or separate units. The proposal is for the change of use of the existing dwelling, and as such there will be no change to the number or location of bedrooms.

It is not possible to raise floor levels as part of the change of use, however betterment will be provided by the use of flood resistant / resilient materials and design features, and the implementation of flood warning and evacuation procedures. Internal access will also be maintained

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

These measures can include the following:

- Waterproof screed used on floors;
- Closed-cell foam used in wall cavities;
- Waterproof ground floor internal render;
- External walls rendered resistant to flooding to first floor level;
- Exterior ventilation outlets, utility points and air bricks fitted with removable waterproof covers;
- Ground floor electrical main ring run from first floor level; and on separately switched circuit from first floor;
- 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;
- Raised wiring and power outlets at least 600mm above finished ground floor level;
- 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;
- Built-in furniture units of solid, water resistant material;
- Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided at ground floor level.

It is recommended that a flood proof door should be installed for external ground floor level doors, or demountable flood defence barrier to defend lower ground level doorways and low windows if flood doors are not practical or other planning constraints prevent it.

Safe Escape:

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 5: TAN15

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 residential development a maximum flood depth of 600mm would be allowed at the property and for the site access.

The maximum flood depth for the modelled 1:1000 year event is shown to be 0.15m.

NRW have also provided flood hazard data for the modelled 1:1000 year event. The maximum degree of flood hazard is shown to be "Very Low" on site and along Ty'r Owen Row. After approximately 7m, the proposed escape route is shown to be entirely outside of the 1:1000 year flood extent.

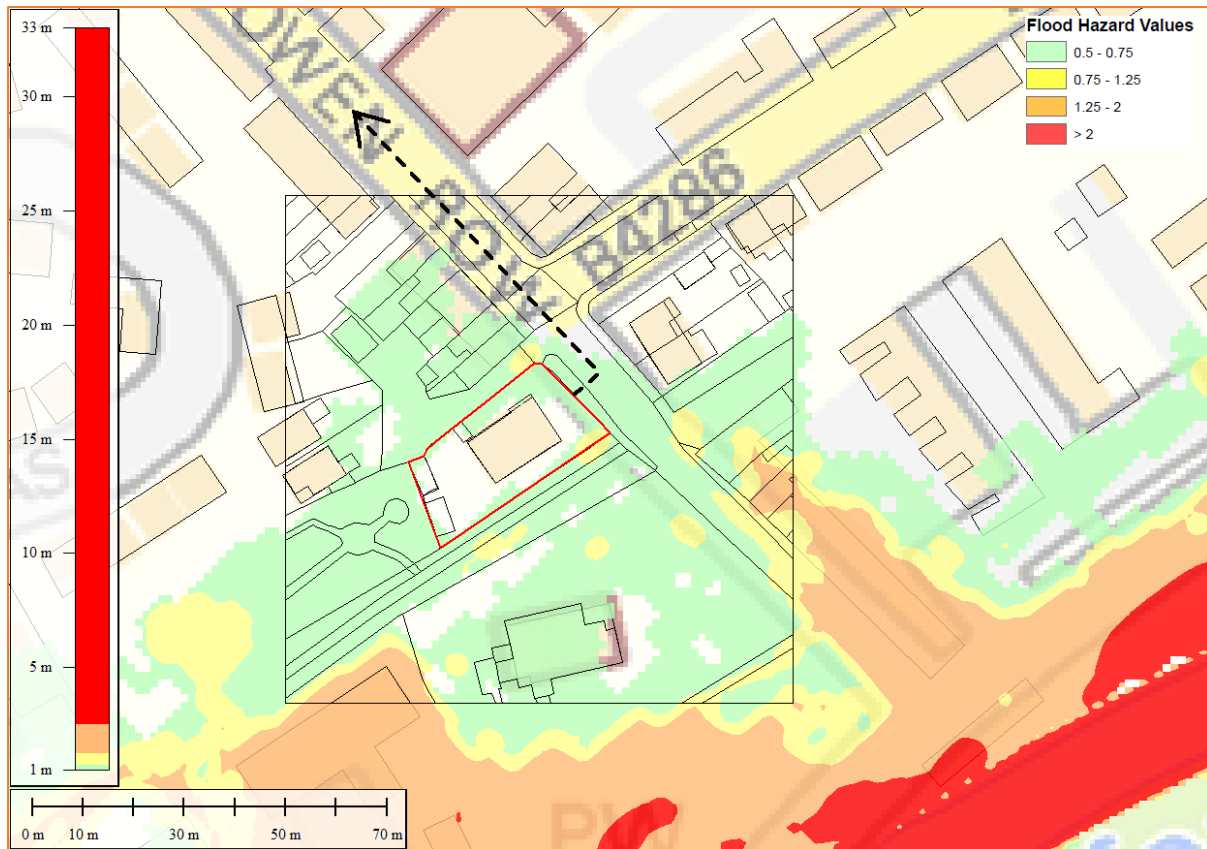


Figure 13: Modelled 1:1000 year flood hazard. Proposed safe escape route shown by black-dashed line (Source: NRW, OS Mapping)

Safe escape will be provided by a formal flood warning and evacuation plan, which will be prepared in liaison with the Emergency Planners and tied in with the existing Emergency Plans for the area.

Internal access will be maintained from the ground floor to the first floor of the building for the lifetime of the development, thereby providing safe refuge above modelled flood levels.

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 falls within the Flood Warning Area: River Afan at Port Talbot (Quickdial number: 603053).

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.

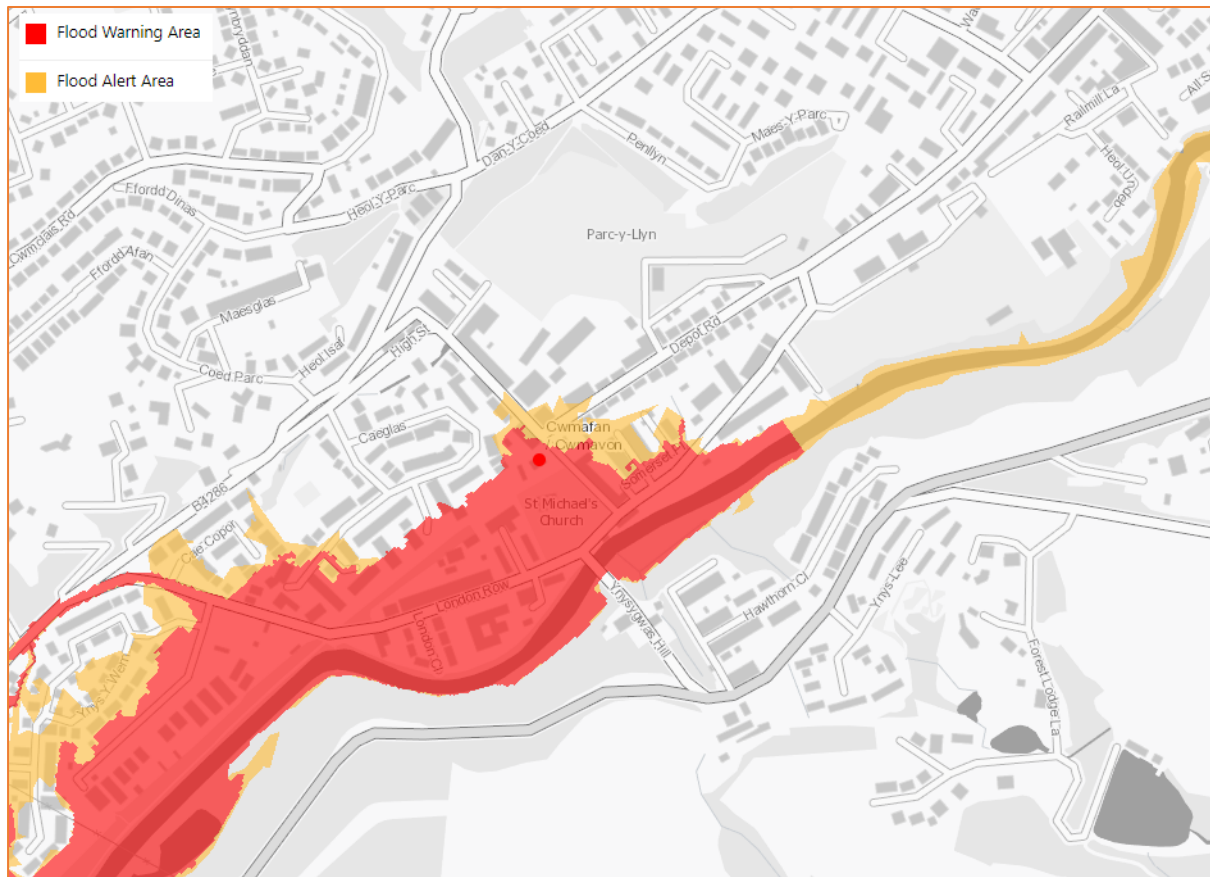


Figure 14: NRW Flood Warning and Flood Alert Areas (Source: NRW)

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 6: Flood Warnings

Flood Plan:

It is recommended that the applicant and future owners, occupiers and Landlords of the property 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 site is shown to be entirely outside of the modelled 1:100 year flood extent with allowance for climate change. The proposal is for the change of use of the existing building. As such, there will be no unacceptable loss of flood storage 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.

The proposal is for the change of use of the existing building.

Conclusion

Unda Consulting Limited have been appointed by Shine Cymru Life Skills Services Ltd (hereinafter referred to as “the applicant”) to undertake a Site-Specific Flood Consequence Assessment (FCA) for Planning at The Oaks, Ty R Eglwys, Cwmavon, Port Talbot, SA12 9BD (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 existing site is a 5-bedroom residential house, which is classified as “Highly vulnerable” under TAN15.

Post development, the site will remain a “Highly vulnerable development” throughout, as the application is for the change of use of the existing house to a Respite home for young adults with learning disabilities.

The proposed respite home would support 5 service users at a time, and there would be no increase in the number of bedrooms post development. The proposal will stay as a single unit, and will not increase the vulnerability classification of the site.

The site is located partially within Flood Zone C2 (Risk of flooding from rivers or the sea, without significant flood defence infrastructure) and partially within Flood Zone B (Areas known to have flooded in the past). Flood Zone C2 is defined as land having at least a 1 in 1000 annual probability of fluvial flooding.

The risk would appear to be predominantly fluvial and originate from the River Avan approximately 98m to the southeast of the site outline boundary.

Modelled flood levels and flood extents have been requested from NRW, who has provided modelled flood data from the 1D/2D Estuary TUFLOW Port Talbot model that was completed in 2016.

The site is shown to be entirely outside of the modelled 1:100 year flood extent, both at the present day and with an allowance for climate change. The modelled 1:1000 year flood extent is shown to surround the site, but the majority of the site (and the residential building on site) is shown to be outside of the 1:1000 year extent.

The maximum on site modelled 1:1000 year flood level is shown to be 31.86mAOD. The maximum on site modelled flood depth is shown to be 0.15m

No formal flood defences have been identified by NRW that offer protection to the site in this location.

NRW have provided no records of historical flooding having affected the area in the past.

The Natural Resources Wales Flood Risk from Surface Water & Small Watercourses suggests that the site lies within an area of “Low” to “High” risk of flooding from surface water.

The site is shown to be outside the maximum extent of flooding from reservoirs.

According to the ‘Neath Port Talbot SFCA there are no specific areas of historical groundwater flooding within the study area.

Safe escape will be provided by a formal flood warning and evacuation plan, which will be prepared in liaison with the Emergency Planners and tied in with the existing Emergency Plans for the area.

Internal access will be maintained from the ground floor to the first floor of the building for the lifetime of the development, thereby providing safe refuge above modelled flood levels.

In summary:

- Flood Zone C2 and Flood Zone B as defined by Natural Resource Wales (NRW).
- Fluvial flood risk from the River Avan approximately 98m to the southeast of the site outline boundary.

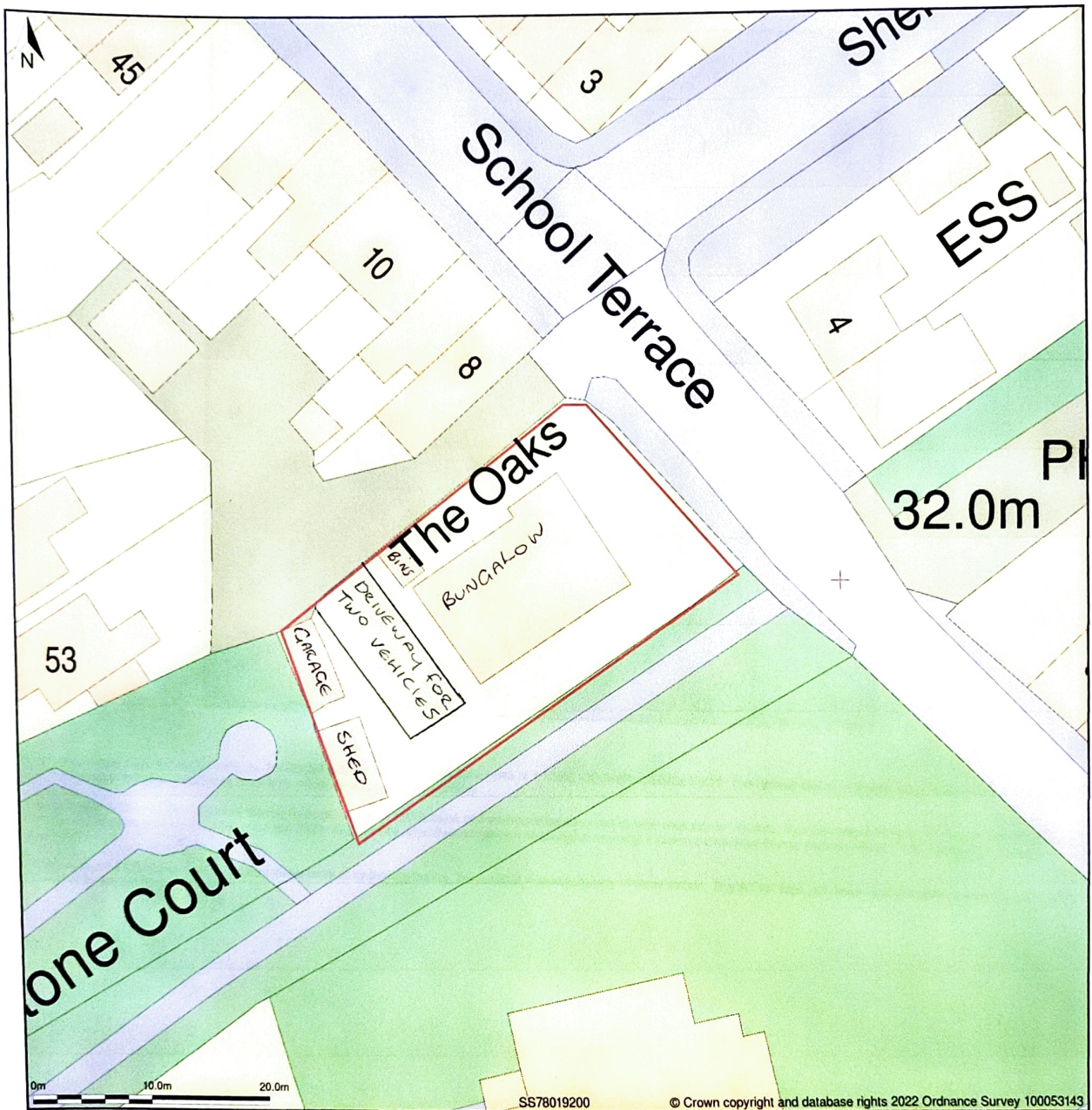
- The site is shown to be entirely outside of the modelled 1:100 year flood extent, both at the present day and with an allowance for climate change.
- The modelled 1:1000 year flood extent is shown to surround the site, but the majority of the site (and the residential building on site) is shown to be outside of the 1:1000 year extent.
- Maximum depth of flooding of 0.15m for the modelled 1:1000 year event.
- Risk of pluvial flooding would appear to be “low” to “high”.
- Risk of groundwater and sewer surcharge flooding would appear to be low.
- Proposal is for the change of use of the existing building on site.
- No increase in flood risk vulnerability post development.
- “Highly vulnerable” development throughout (existing and proposed).
- Flood proofing of the building will be incorporated as appropriate.
- Internal access will be maintained from the ground floor to the first floor for the lifetime of the development.
- 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

- Existing and Proposed Plans.
- Email from NRW regarding modelled flood data.

The Oaks, Ty r Eglwys, Ty r Owen Row, Cwmavon, Neath Port Talbot, SA12 9BD

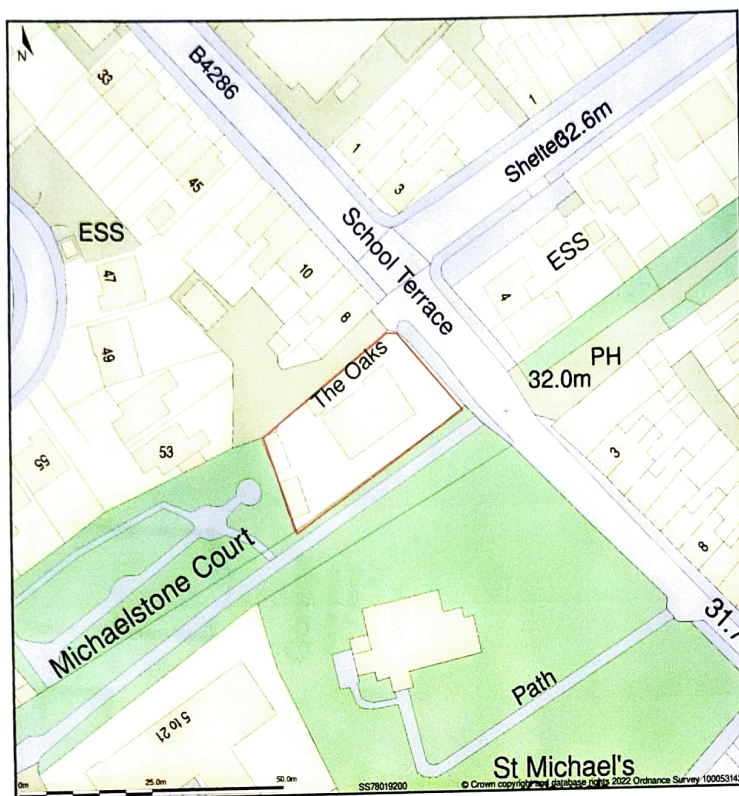


Block Plan shows area bounded by: 277973.97, 191958.05 278063.97, 192048.05 (at a scale of 1:500), OSGridRef: SS78019200. The representation of a road, track or path is no evidence of a right of way. The representation of features as lines is no evidence of a property boundary.

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The Oaks, Ty r Eglwys, Ty r Owen Row, Cwmavon, Neath Port Talbot, SA12 9BD



Location Plan shows area bounded by: 277948.25, 191932.34 278089.68, 192073.76 (at a scale of 1:1250), OSGridRef: SS78019200. The representation of a road, track or path is no evidence of a right of way. The representation of features as lines is no evidence of a property boundary.

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PROPOSED PLAN - NO CHANGES



Ground Floor

Floor area 133.8 sq.m. (1,440 sq.ft.) approx



First Floor

Floor area 61.2 sq.m. (659 sq.ft.) approx



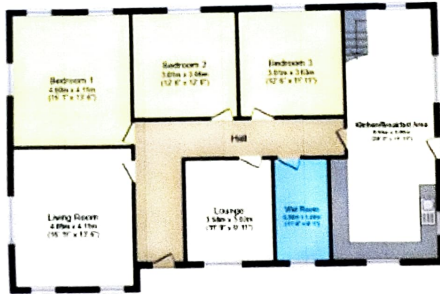
Garage

Floor area
19.2 sq.m.
(207 sq.ft.)
approx

Total floor area 214.2 sq.m. (2,306 sq.ft.) approx

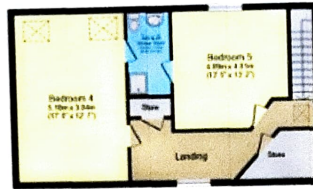
This floor plan is for illustration purposes only and may not be representative of the property. The position and size of doors, windows and other features are approximate. Unauthorised reproduction prohibited. © Copyright 2018

CURRENT PLAN



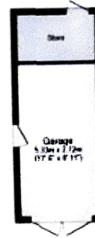
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Garage

Floor area
19.2 sq.m.
(207 sq.ft.)
approx

Total floor area 214.2 sq.m. (2,306 sq.ft.) approx

This floor plan is for illustration purposes only and does not represent the actual property. The position and size of doors, windows and other features are approximate. Measurements are approximate. © Copyright 2014

Emma Jeffery

From: Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>
Sent: 01 April 2022 09:44
To: Antony Rousou
Subject: AT123134a P5, 6 & 7 data request -The Oaks, Ty R Eglwys, Cwmavon, Port Talbot, SA12 9BD

Dear Mr Rousou,

Further to my recent email to you concerning the above site and as requested, please find links below to download the data taken from our 1D/2D Estry TUFLOW Port Talbot model that was completed in 2016.

Due to the age of the model the data may be out of date, therefore you will need to determine if it would still be suitable for informing a Flood Consequence Assessment, (FCA).

Model Reports

<https://cyfoethnaturiolcymru.sharefile.eu/d-s7d6fcebcafc343ec814a978d031b3a5d>

Model Results

<https://cyfoethnaturiolcymru.sharefile.eu/d-sf573fc8b880b497bb748ead1d6f0a79b>

<https://cyfoethnaturiolcymru.sharefile.eu/d-sd79e1cbfb399475c86cfd7344fa7b868>

<https://cyfoethnaturiolcymru.sharefile.eu/d-s3c78307f0ea44aaebe2cd2af29b1401c>

Product 7 is available subject to payment of fee and licencing.

Please note that you will require 7-Zip, to unpack the data.

Please find a link to our Open Government Licence (OGL) here -

<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Please also include the attribution statement: "Contains Natural Resources Wales information © Natural Resources Wales and database right. All rights reserved."

I trust that this is of use to you.

Yn gywir / Yours sincerely,

Michelle Lewis

Cyfoeth Naturiol Cymru / Natural Resources Wales

Ffôn/ Phone: 03000 653577

Symudol / Mobile: 07917243096

Office Location Llys Afon, Hwlfordd / Office Location River Court, Haverfordwest

Cwsmer, Cyfarthrebu a Masnach - Customer, Communications and Commercial

Oriau gwaith arferol/Normal working hours – Mon-Fri, 9 to 5

Yn falch o arwain y ffordd at ddyfodol gwell i Gymru trwy reoli'r amgylchedd ac adnoddau naturiol yn gynaliadwy.

Proud to be leading the way to a better future for Wales by managing the environment and natural resources sustainably.

cyfoethnaturiol.cymru / naturalresources.wales

[Twitter](#) | [Facebook](#) | [LinkedIn](#) | [Instagram](#)

From: Data Distribution

Sent: 24 March 2022 16:30

To: 'Antony Rousou' <antony.rousou@unda.co.uk>

Subject: RE: NRW Product 4, 5, 6 & 7 data request -The Oaks, Ty R Eglwys, Cwmavon, Port Talbot, SA12 9BD (Our ref:91691)

Dear Mr Rousou,

Thank you for your email concerning the above.

However we do not produce product 4s. Please see the attached documentation for further information on this.

We can provide if the data is available, a product 5 which is the flood model report which is free of charge. Also a product 6 if available, which is the flood model raw output data which is also free of charge. You would need the appropriate software to analyse the results, more information on this is in the attached. We could also provide product 7 which is the full flood model for a fee of £180.00 inclusive of VAT.

Please also accept this as an acknowledgement that your request has been received.

It can take up to [20 working days](#) to supply data that is not available [online](#), therefore if you have any queries on your data request, please [contact us](#).

For further information on what you can expect from us, please visit our website:

[Natural Resources Wales / Contact us](#) or call the Customer Hub on 0300 065 3000 (open 9am-5pm, Monday to Friday).

We will therefore be in touch in due course and provide if available, products 5 & 6 and advise on product 7.

Yn gywir / Yours sincerely,

Michelle Lewis

Cyfoeth Naturiol Cymru / Natural Resources Wales

Ffôn/ Phone: 03000 653577

Symudol / Mobile: 07917243096

Office Location Llys Afon, Hwlfordd / Office Location River Court, Haverfordwest

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cyfoethnaturiol.cymru / naturalresources.wales

[Twitter](#) | [Facebook](#) | [LinkedIn](#) | [Instagram](#)

From: Antony Rousou <antony.rousou@unda.co.uk>

Sent: 24 March 2022 15:22

To: Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>; Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>

Subject: NRW Product 4, 5, 6 & 7 data request -The Oaks, Ty R Eglwys, Cwmavon, Port Talbot, SA12 9BD (Our ref:91691)

Dear Sir/Madam,

I would like to request a "Products 4, 5, 6 & 7" flood data package for the following site, for use within a Flood Risk Assessment for planning;

- The Oaks, Ty R Eglwys, Cwmavon, Port Talbot, SA12 9BD
- Please acknowledge receipt of this email and provide the NRW logged reference number for this site by email.
- Please quote our reference **on all correspondence** (including emails and Product 4 data): Our ref: 91691
- Please email the Basic Model Report to antony.rousou@unda.co.uk
- Please ensure that the data covers the entire application area (as indicated with a red line).



Please do not hesitate to ask if you have any questions.

Kind regards,

Antony Rousou, GradCIWEM | Flood Risk and Drainage Consultant



Unda Consulting Limited

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E: antony.rousou@unda.co.uk

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LinkedIn: <https://uk.linkedin.com/company/unda-consulting-ltd>

Facebook: <https://www.facebook.com/undaconsulting>

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