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LAND AT ALMERE FARM, TREVALYN

Initial Flood Consequence Assessment

October 2024

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This document has been produced by Land Studio for Civitas Planning on behalf of Mr Gary Spillard. The contents of the document are intended for submission with a planning application related to a residential development at Amere, Rossett. Land Studio has prepared this report in accordance with the instructions of the above-named client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

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LAND AT ALMERE FARM, TREVALYN: THE SITE



Figure 1 Proposed Site

Land Studio have been appointed by Civitas Planning Ltd on behalf of Mr Gary Spillard to produce an Initial Flood Consequence Assessment in support of a planning application for the siting of a new caravan/park home on the site of an existing property (which has since been removed) on the outskirts of Trevalyn, near Rossett, Wrexham.

This report records the initial results of the Initial Flood Consequence Assessment which has been carried out in accordance with Planning Policy Wales (PPW) and Technical Advice Note (TAN 15).

This report considers the risk of various sources of flooding to the site and the consequent risk of flooding to the downstream receptors (such as people, property, habitats, infrastructure and statutory sites). It also recommends any necessary measures to be taken forward to reduce the impact of flooding on the development itself and to prevent an increase in off-site flooding.

The grid reference for the centre of the development is SJ 40663 56714. The site location and proposed development can be found in Figure 1.

The site is bounded by the (Afon Dyfrdwy) River Dee to the East and agricultural land to the North, South and West. An access track is located to the south of the site from Almere Farm.

In preparation of the report and performance of any other services, Land Studio has relied upon publicly available information, information provided by the client and information provided by third parties. Accordingly, the conclusions reached in this report are valid only to the extent that the information provided was accurate and complete. Land Studio cannot accept liability for the accuracy or otherwise of any information derived from third party sources.

Land at Almere Farm, Trevalyn: **BASELINE REVIEW**

02

LAND AT ALMERE FARM, TREVALYN: RELEVANT PLANNING POLICY & GUIDANCE

The following legislation and planning guidance have been reviewed and considered in preparation of this report and the actions indicated under the mitigation section of this report.

Planning Policy and Guidance

The following legislation, planning guidance and results of initial consultations with the Local Planning Authority has been reviewed in regards to Flood Risk.

Planning Policy Wales (PPW)

Planning Policy Wales (PPW) sets out governments planning policies for Wales and how these are expected to be applied. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning plicy framework for Wales.

TAN 15 provides technical guidance which supplements the policy within PPW and seeks to ensure that flood risk is taken into account at all stages in the planning process and is appropriately addressed and that all developments should reduce, and must not increase, flood risk arising from river and/or coastal flooding on and off the development itself.

Technical Advice Note 15: Development and Flood Risk

TAN 15 sets out a precautionary framework to guide planning decisions in areas at high risk of flooding. The aim of the framework is to direct new developments away from those areas which are at high risk of flooding and where developments are considered in high risk flood areas only those developments which can be justified should be located in such areas.

For “highly vulnerable” development (residential) TAN 15 requires the developer must ensure that future occupiers of the development are aware of the flooding risks and any consequences of these risks.

Where development is still proposed in areas of high risk effective use of flood warnings, escape routes and design to minimise structural damage during any flooding is critical.

The Flood Map for Planning (which will replace the Development Advice Maps) are provided by Natural Resources Wales (NRW) based on Environment Agency’s extreme flood outlines and British Geological Survey drift data. These indicate the level of risk associated fluvial, coastal and surface water on the location of the site and how to assess the consequences of flooding on the site.

Statutory Authority Guidance

The approach for drainage design on the development is outlined in the Welsh Government Sustainable Drainage Systems Standards for Wales (SuDS Standards) and the CIRIA SuDS manual.

These seek to manage the quality and quantity of rainwater runoff close to where it falls and to bring not just drainage design solutions but also amenity benefits to site users and encourage biodiversity.

The SuDS Standards are required on all developments over 100m2 of developable area and must comply with the following objectives within the drainage design strategy.

S1: Surface water runoff destination, S2: Surface water runoff hydraulic control, S3: Water Quality, S4: Amenity; S5: Biodiversity and S6: Construction, Maintenance and Management.

Whilst drainage is not covered in this report any new development will need to ensure good surface water drainage which meets the SuDS Standards to ensure this does not increase flood risk on the development.

Wrexham County Borough Council

Consultation with the Planning Enforcement Officer at Wrexham County Borough Council has been undertaken with the Head of Planning and the case officer in Decemeber 2023 visiting site to agree an approach to the scheme.

It was agreed at this meeting that the only development that would be supported by the local authority is that which meets the definition of a caravan (20m x 6.8m x 3m) within the Caravans Acts.

NRW at this time accepted that due to this being a replacement dwelling and the works detailed later in this report do result in a degree of betterment then the construction of a park lodge/caravan in this location could be acceptable. A Flood Consequence Assessment would be required for submission with a planning application.

Flood Risk Introducion

Flood risk is a combination of the probability and the potential consequence of flooding. Areas at risk of flooding are those at risk of flooding from any source now or in the future.

The key aims of this initial flood consequence assessment is to assess the flood risk to the development, any potential impact of the development on flood risk elsewhere and mitigation that could be included for in the site.

Assessment of Flood Risk

Flood Risk from Rivers (Fluvial and Tidal)

The Natural Resources Wales (NRW) Flood Maps for Planning (FMfP) indicates that the area within the redline boundary is in a Flood Zone 3. This is land that has been assessed as having a combined 1% (1 in 100) chance or greater of flooding from rivers and seas happening in any given year, including an allowance for the effects of climate change.

The closest watercourse is the River Dee which is adjacent to the site.

The extent of the flooding is indicated in blue in Figure 3.

The site is within an area of recorded flooding with the most recent recorded events in November 2000, November 2009 and during Storm Christoph in January 2021.

The site is therefore at a high risk of river and sea flooding.

Flood Defence Locations

The site does not benefit from flood defences however Almere Farm to the south of the development site and the access route to the site has had flood defences built to protect against flooding from rivers and seas.

This is indicated by a dashed redline on Figure 3.

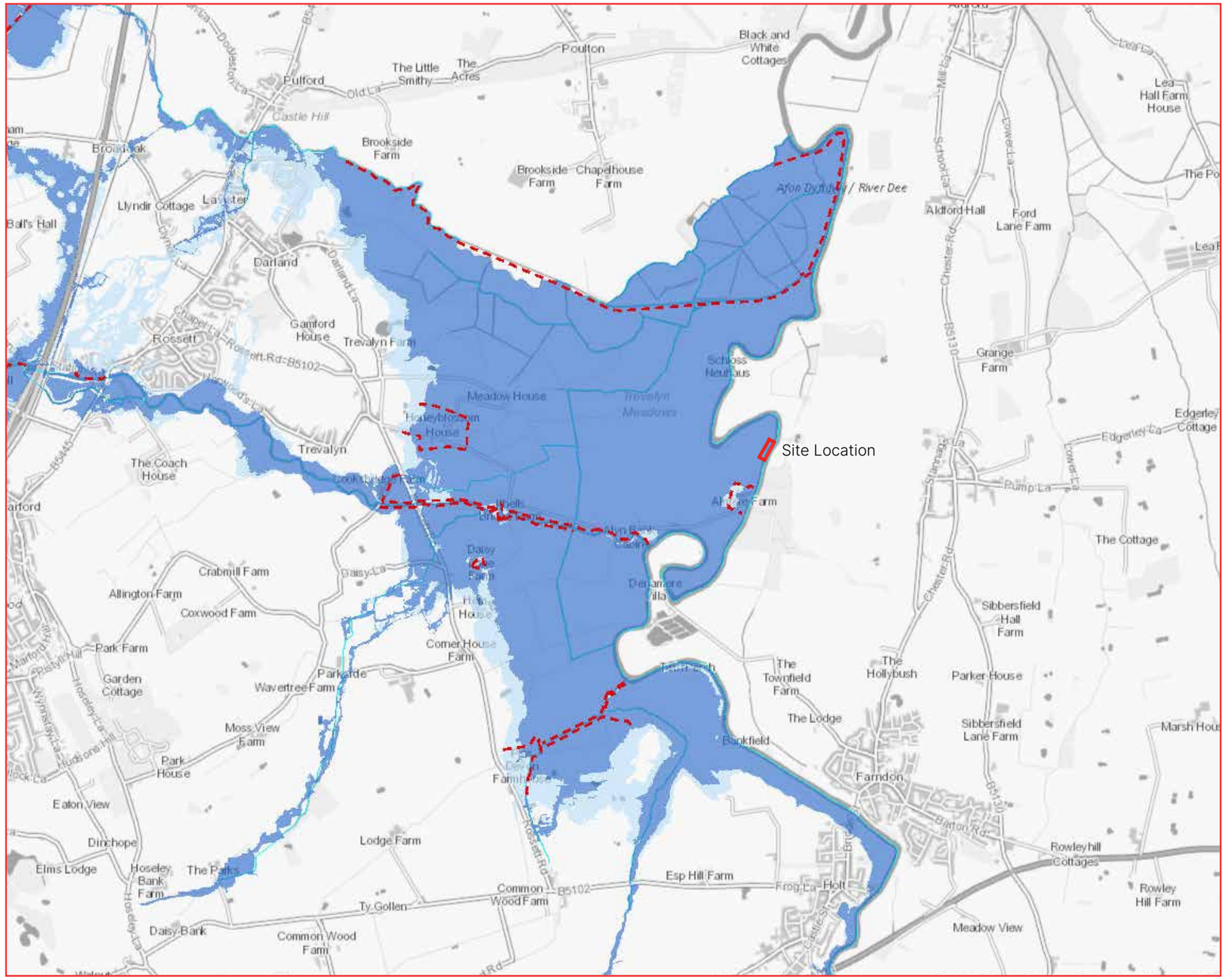


Figure 3 Flood Risk for Planning Map - River and Sea Flooding and Flood Defence Locations

Flood Risk for Surface Water (Pluival)

Overland flow occurs when the infiltration capacity of the ground or capacity of the drainage systems is exceeded in a storm event. This can result in water travelling over land or ponding.

The NRW Flood Maps for Planning indicates there are no areas of surface water flooding within the site.

Therefore the site is at a low risk of surface water flooding.

Flooding from Sewers and Drains

If the capacity of the sewer or private drains are exceeded in an extreme event, or a blockage occurs, surcharging of the drainage network can result in flooding.

There are no known public drainage systems within or close to the site. The private drainage will be minimal due to the nature of the development.

Therefore the site is at a low risk of flooding from sewers and drains.

Flooding from Groundwater

Groundwater flooding occurs as a result of water rising up from the underlying superficial deposits, bedrock or from springs.

The LandSI soilscapes mapping indicates that the groundwater tables are likely to be shallow. No site investigation have been undertaken to confirm actual groundwater levels but it is possible that flooding from groundwater as the river rises occurs.

Therefore the site is at risk from groundwater flooding.

Geological and Topographical Setting

The LandIS soilscapes mapping indicates the site is arable grassland and has freely draining soils (indicated in cream) to clayey floodplain soils (indicated in blue). No infiltration tests have been undertaken.

The topography within the red line boundary has a fall towards the River Dee and is around 10m AOD.

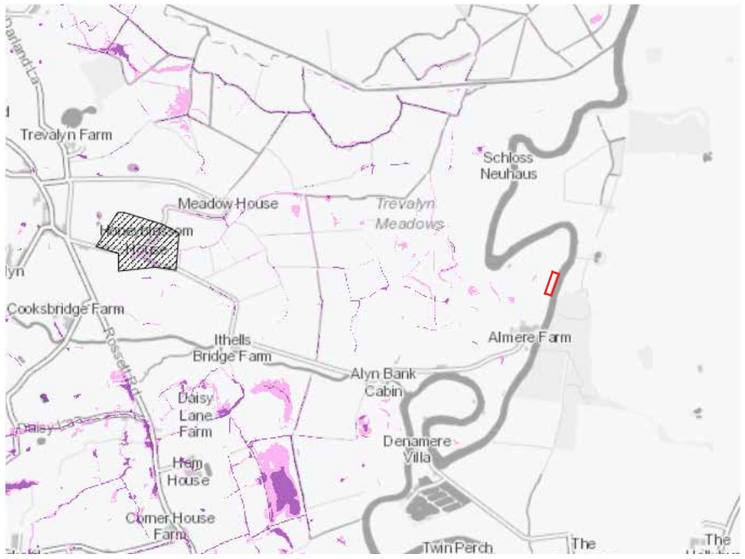


Figure 4 : Extract from Surface Water Flood Maps



Figure 5: Extract from LandSI Soilscape Mapping

Land at Almere Farm, Trevalyn: **ASSESSMENT OF FLOOD RISK**

03

LAND AT ALMERE FARM, TREVALYN: ASSESSMENT AND FLOOD MITIGATION

Assessment of Flood Risk

Location of development

The development is located within Flood Zone 3 land from river and sea flooding. Whilst the aim is to avoid development in flood risk areas this development is a replacement dwelling with temporary occupancy.

The planning authority has been consulted in regards to the development and confirmed that the only development that would be supported by the local authority is that which meets the definition of a caravan within the Caravans Acts.

Displacement of flood plain volume

Where development is justified this assessment can be used to establish whether suitable mitigation measures can be incorporated within the design to ensure that development is as safe as possible and there is:

- minimal risk to life;
- minimal disruption to people living and working in the area,
- minimal potential damage to property;
- minimal impact of the proposed development on flood risk generally and;
- minimal disruption to natural heritage

In accordance with TAN15 guidance, the development should demonstrate that during a flood event the site should

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

The access route to the site is already in situ and therefore there will be no increased obstructions to the flood flows.

As the access is already in-situ, the replacement building similar in size to the original and the proposed new levels around the building to remain as existing there is deemed no increased displacement of flood volume.

To provide a betterment on the existing flood storage the floor level of the caravan/park home will be raised to allow water to free flow beneath the structure. Ideally this would be above the highest likely water level, although access may be difficult into the property to achieve this. Flood depths have been requested from Natural Resources Wales but these have not yet been received.

Safe Access and Egress

An evacuation plan should be put in place for the development. As the route to the property is within the flood zone for some miles. There is a place of safety at Almere Farm which has flood defences in place and whilst these are not managed flood defences by NRW they are flood defences indicated on the the NRW Flood Mapping data

Erection of signage and warning notice to inform people using the property of the evacuation plan and flood warning data. Using the online information available from Natural Resources Wales for Flood Warnings and Alerts at;

https://flood-warning.naturalresources.wales and by signing up to receive flood warnings at;

https://naturalresources.wales/flooding/sign-up-to-receive-flood-warnings/?lang=en

With temporary occupancy the use of the caravan/park home can be restricted to times when flooding is not predicted.

Sustainable Drainage Systems

The footprint of the proposed building will be similar to the existing and therefore no increased area of impermeable surfacing. The use of water butts to the rainwater downpipes will help slow down the flow from any rainwater downpipes and which could then be used for irrigation of any planting.

The use of permeable surfacing to any new hardstanding will ensure drainage is dealt with in the same way as the existing site with infiltration where possible to recharge the ground water. New subbase to any access or parking areas will provide additional storage within the build up.

Other Mitigation Measures

The following mitigation measures in the design of the caravan/park home could also be undertaken to help to recover from a flood where the proposed floor level of the building can not be constructed above the highest flood level.

- The proposed floor construction to be solid where possible in preference to suspended timber with ceramic, stone or concrete based tiles surfaces where possible, rugs should be used instead of carpet for ease of removal and storage in times of flood.
- Proposed wall construction should be water-resistant walling materials with any new plasterboard fixed horizontally rather than vertically or split sheets mid-height with a dado rail to reduce the extent of replacement following a flood.
- All service wiring, switches, sockets, service panels, communications and boilers to be mounted above 0.9m from the ground so as not to be effected following a flood.
- Kitchens should be installed using plastic, solid wood or stainless steel base cupboards and housings in preference to particle board or MDF with mounted appliances above the predicated flood height
- All drains to be fitted with non return valves where possible on main below ground drainage to prevent surcharge of drains into building or on appliances.
- Temporary air brick covers and demountable flood barriers to doorways and windows could be installed for use during a flood event.
- Sealing of all holes with foam or other sealing compound where services pass through external wall construction could be undertaken.

Conclusion

With the agreement on construction of a caravan/park home of temporary use, a similar size to the existing dwelling and the implementation of the mitigation proposed within this report the proposed development will not cause any additional risk of flooding to adjacent landowners or the proposed dwelling.

By raising the proposed floor level above the existing level, and if possible above the highest recorded flood level allowing water to flow beneath will actually provide a betterment on the existing situation.