

Flood Risk Assessment

Land in Binsted, West Sussex

Date	Prepared For	Reference
April 2025	Mr Jack Brundle	73388



Contract

GeoSon Limited were instructed by Mr Jack Brundle by an email dated 26th March 2025 to undertake a Site Specific Flood Risk Assessment to support a proposed planning application for development at Land in Binsted, West Sussex.

Project	Flood Risk Assessment for Planning
Prepared For	Mr Jack Brundle
Location	Land in Binsted, Nr Arundel, West Sussex BN18 0LN
Application	Construction of six holiday lodges (shepherds huts) and a gravel car park on vacant land
Our Reference	73388
Version	1.01
Issue Date	02/04/2025
Issued To	Mr Jack Brundle and Clare Bartlett (Batcheller Monkhouse)
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Purpose

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Introduction

Context

GeoSon Limited have been instructed by Mr Jack Brundle to undertake a Site Specific Flood Risk Assessment (FRA) to support a proposed planning application for development at Land in Binsted, West Sussex.

This FRA has been undertaken in accordance with the revised National Planning Policy Framework (NPPF) December 2024 and the associated Planning Practice Guidance (PPG).

The level of flood risk to and from the site has been determined using third party information including Environment Agency flood data, national government mapping, LiDAR topography data and Local Authority documentation.

National FRA Requirements

In accordance with the National Planning Policy Framework (NPPF), a Flood Risk Assessment is required to accompany a planning application when a development site is:

- located within flood zones 2 or 3 (including minor development and change of use)
- more than 1 hectare (ha) in size
- less than 1 ha in flood zone 1 however includes a change of use in development type to a more vulnerable class (for example from commercial to residential) which could be affected by sources of flooding other than rivers and the sea
- located within an area which has been identified to have critical drainage problems by the Environment Agency

Although the development is located entirely within Flood Zone 1, the site has been identified within an area classified to be at risk of groundwater flooding. As such, Arun District Council have requested that the applicant submits a Flood Risk Assessment to support the development proposals.

The Flood Risk Assessment is required to consider the proposed use of the site and assess the potential flood risk posed to the intended development from multiple sources of flooding including rivers, sea, surface water, groundwater, reservoir failure, sewer surcharge and any other artificial sources.

The Flood Risk Assessment will assess the risk posed from all potential sources of flooding so that site users and third party land will be safe now and for the expected lifetime of the development, taking climate change into account.

Objectives

The objectives of this document are to determine:

- Whether the site is at significant risk of flooding from any source currently or in the future, taking climate change into account
- Whether the development will increase flood risk elsewhere

If the site is identified to be at risk of flooding from any source this FRA will:

- Outline appropriate mitigation measures, compliant with NPPF and PPG, which would be suitable to incorporate within the proposed development to alleviate flood risk on and off site
- Determine whether safe ingress and egress can be achieved and maintained for the lifetime of the development

Site Details

Site Description

The proposed application site is located at Land in Binsted, Binsted Lane, Nr Arundel, West Sussex BN18 0LN.

The site is approximately 6400m² in size and is currently occupied by equestrian land with a field shelter located in the centre north.

The site is accessed via Binsted Lane which runs along the eastern boundary of the application area.

Having reviewed aerial imagery the surrounding area is primarily characterised by agricultural land. A public house is located adjacent north with a farm yard and several residential dwellings located on the opposite side of Binsted Lane to the site.

Site Address	Land in Binsted, Nr Arundel, West Sussex BN18 0LN
Current Use	Equestrian Use
Proposed Use	Glamping Site
OS NGR	SU 98111 06318
County	West Sussex
Local Planning Authority	Arun District Council
Lead Local Flood Authority	West Sussex County Council

Table 1: Site Details

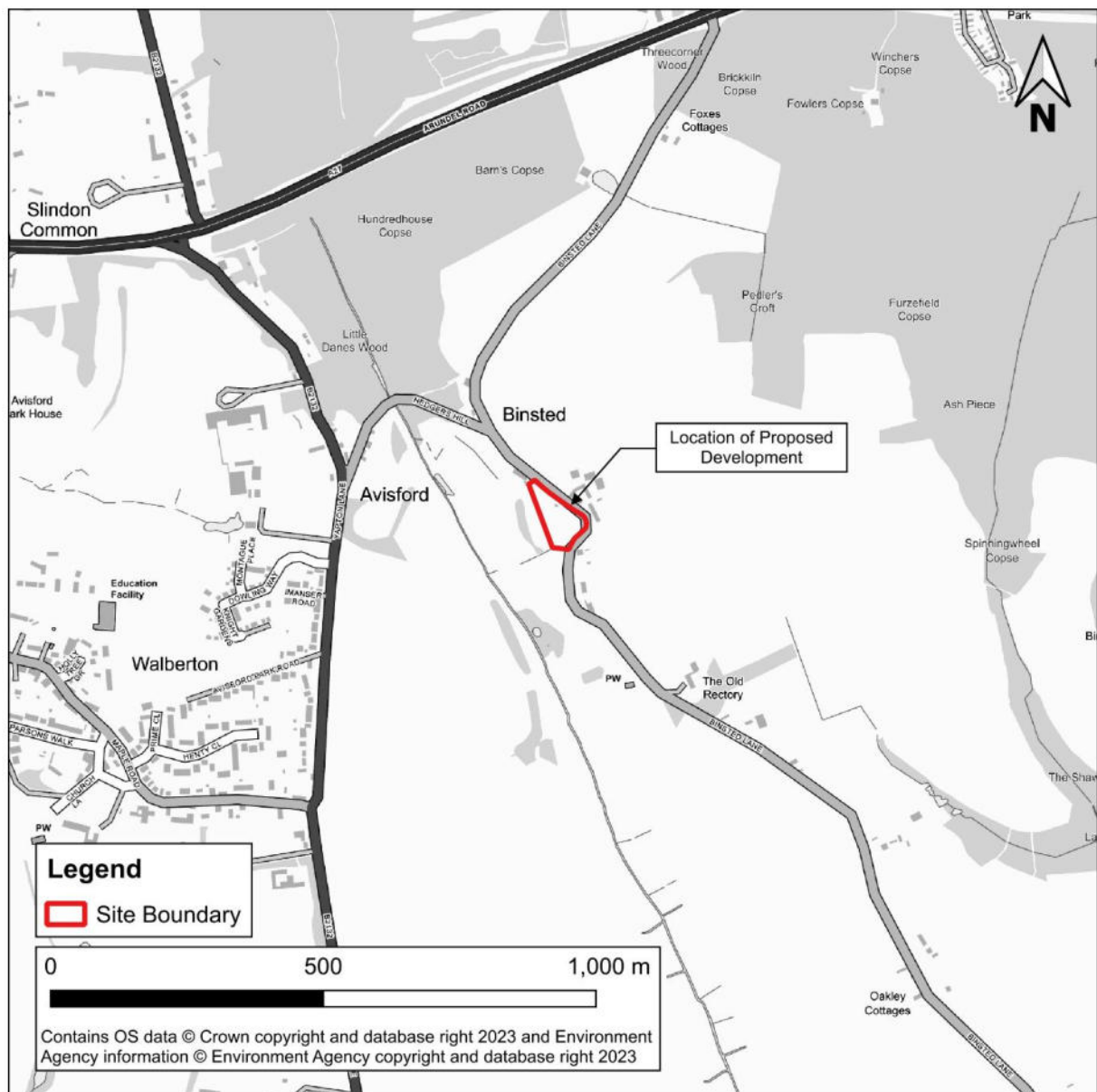


Figure 1: Site Location

Topography

Topographic LiDAR data has been obtained from the Environment Agency to assess the ground elevation profile across the site and within the wider area.

Light Detection and Ranging (LiDAR) is an airborne remote sensing technique, which accurately measures the height of the terrain and surface objects on the ground through the use of a laser, scanner and GPS receiver. The mapping technique measures the distance between the aircraft and the ground to generate precise, three-dimensional information of the terrain and surface objects. Hundreds of thousands of measurements per second are made of the ground, allowing highly detailed surface and terrain models to be generated at different spatial resolutions ranging between 25cm and 2.0 metres.

The LiDAR dataset can be supplied in two forms by the EA:

1. As a Digital Surface Model (DSM), which includes surface objects, such as vehicles, buildings and vegetation, as well as the terrain surface. Or;
2. As a Digital Terrain Model (DTM) produced by removing surface objects such as buildings from the Digital Surface Model through application of bespoke algorithms and manual filtering techniques.

For the purposes of this study the 1.0m resolution Digital Terrain Model has been used.

Environment Agency 1.0m LiDAR data indicates that the site is situated on the side of a hill with land in the immediate surrounding area sloping in a southerly and westerly direction away from the development (refer to Figure 2).

According to EA LiDAR data ground levels within the application boundary have a 2.60m elevation range from 18.50mAOD in the south to 21.10mAOD in the north.

Land adjacent to the section of watercourse 135m west of the application boundary is shown to have an elevation of approximately 5.00mAOD.

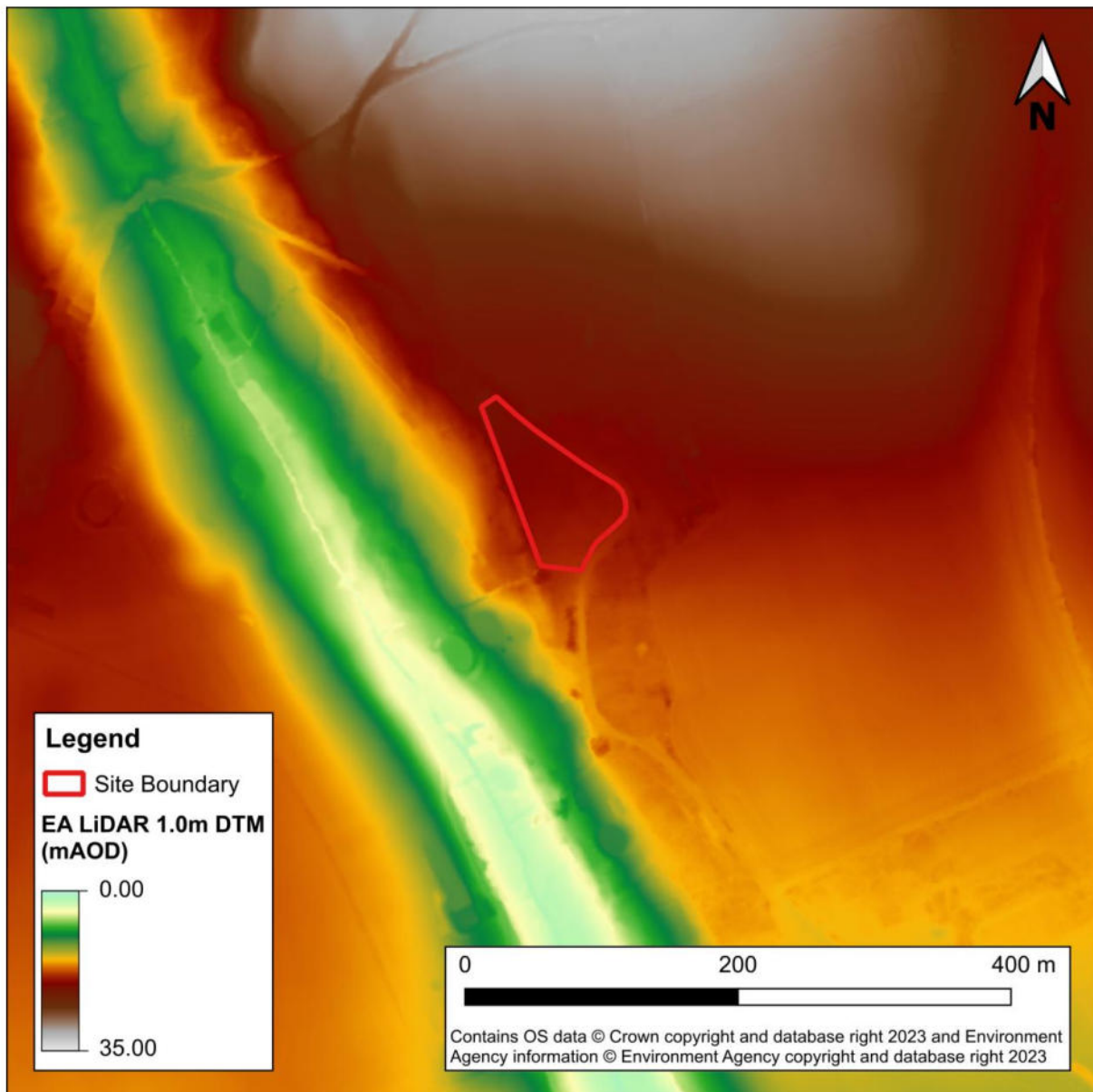


Figure 2: Topography of the Surrounding Area

Geology and Hydrogeology

Review of online British Geological Survey (BGS) records indicate that the site is located upon London Clay Formation (Clay and Silt) bedrock. This geological strata was formed during the Ypresian Age some 47.8 to 56.0 million years ago.

Records state that London Clay Formation is typically characterised by *bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay.*

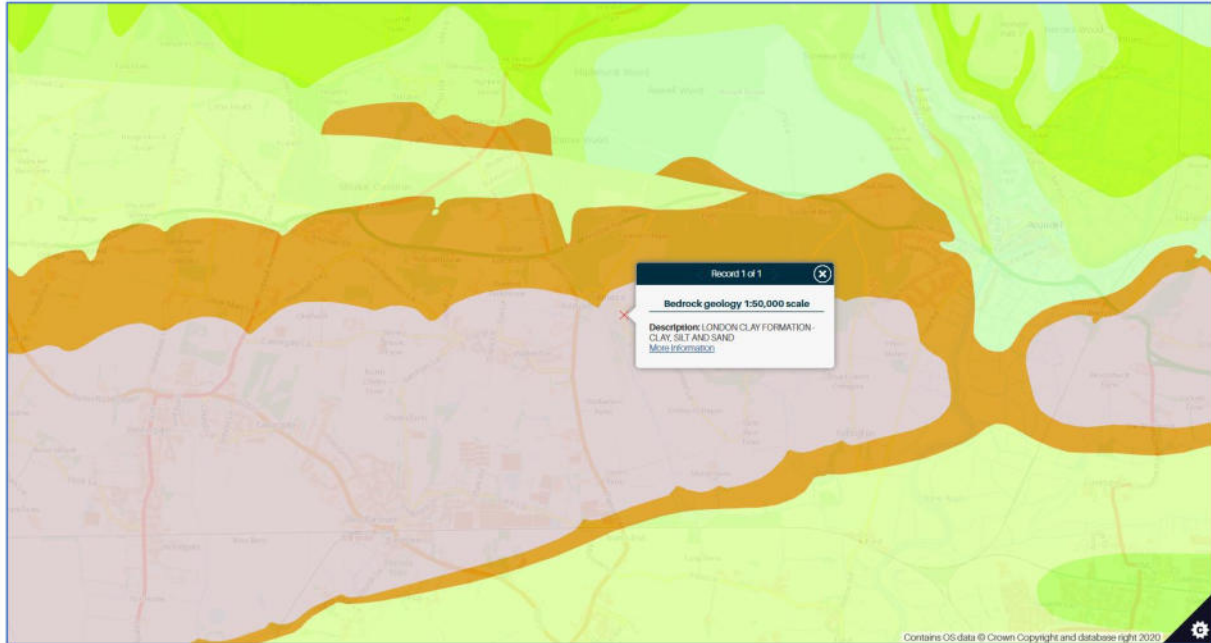


Figure 3: Bedrock Geology Map (Source: British Geological Survey)

According to BGS data the site is also underlain by superficial deposits comprising Head (Gravel, Sand, Silt and Clay).

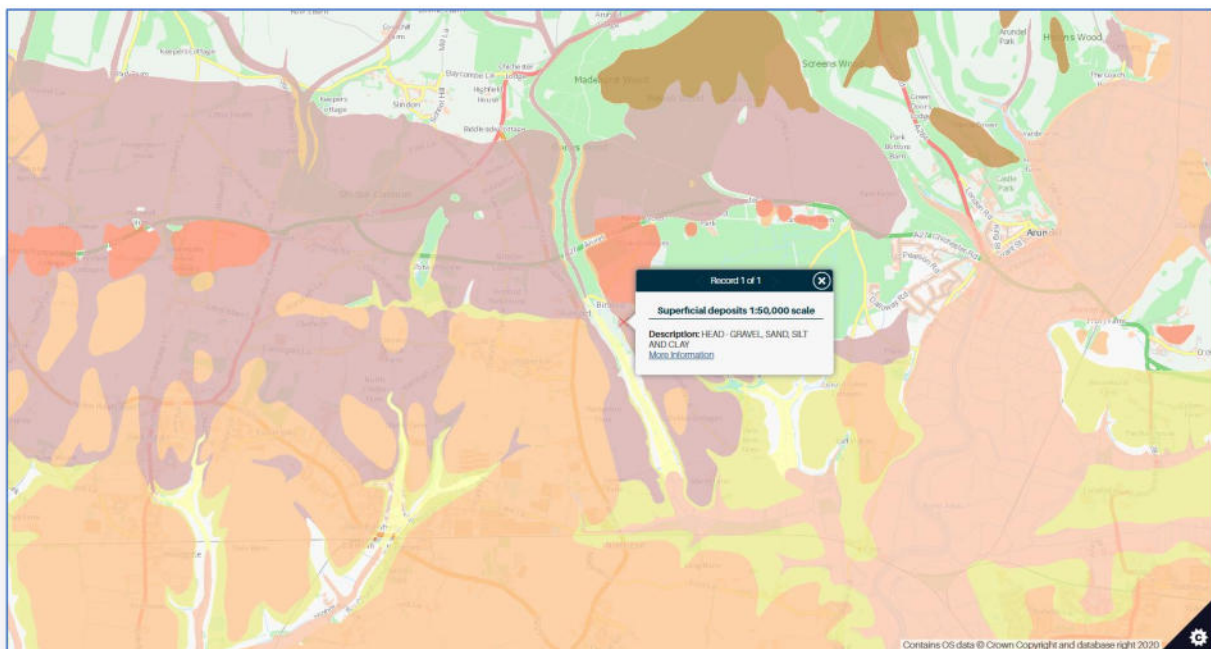


Figure 4: Superficial Deposit Geology Map (Source: British Geological Survey)

Review of Landis Soilscales online viewer suggests that the site is located within an area where the soils are classified as 'Freely draining slightly acid loamy soils'.

According to BGS records a borehole was excavated at the site in October 1981 in relation to Church Farm. Borehole log reference SU90NE42 was undertaken in the north of the application area and reportedly encountered the following geological profile:

LOG			
Geological classification	Lithology	Thickness m	Depth m
Head Gravel	Soil with pebbles	0.9	0.9
	'Very clayey' gravel Gravel: coarse and fine; flint Sand: coarse with fine and medium Fines: silt and clay	0.7	1.6
London Clay	Clay, silty, sandy, mottled brown and grey near top, grey below	3.4	5.0
	Clay, very sandy, glauconitic; rare lignite fragments	2.0	7.0
	Clay, hard, olive brown	1.1	8.1
	Clay, crumbly, grey, mottled brown and red, with glauconite and some lignite fragments	0.1	8.2
Woolwich and Reading Beds	Clay, stiff, mottled purple and grey	0.8+	9.0

Figure 5: Extract from Nearby Borehole Log (Source: British Geological Survey)

It is reported that during the 1981 investigation water was struck at +19.9m; 0.5m below the recorded surface level (refer to Appendix C).

DEFRA 'Magic Maps' indicate that there are no groundwater Source Protection Zones beneath the site. According to DEFRA 'Magic Maps' the closest Source Protection Zone to the development is located approximately 1.80km north west of the application area and is classified as a Zone 3 – Total Catchment Zone.

Nearby Watercourses

Review of aerial imagery indicates that there are no open watercourses within the application boundary. However, several water features have been identified within a 1.0km radius of the red outline boundary, including:

- A field drain adjacent south west, and
- Little Tortington Stream (also referred to as Binsted Rife) 135m west of the application area.

According to OS mapping Binsted Rife is a tributary of the River Arun and is classified as a Main River. As such, the section of watercourse 135m west of the application area is managed by the Environment Agency.

In addition to the Main River detailed above, several other water features including drainage ditches and ponds have been identified within the surrounding area. These are classified as Ordinary Watercourses. Ordinary Watercourses within the vicinity of the development are managed by Lead Local Flood Authority (West Sussex County Council).

The watercourses nearest to the site are shown in Figure 6 (below).

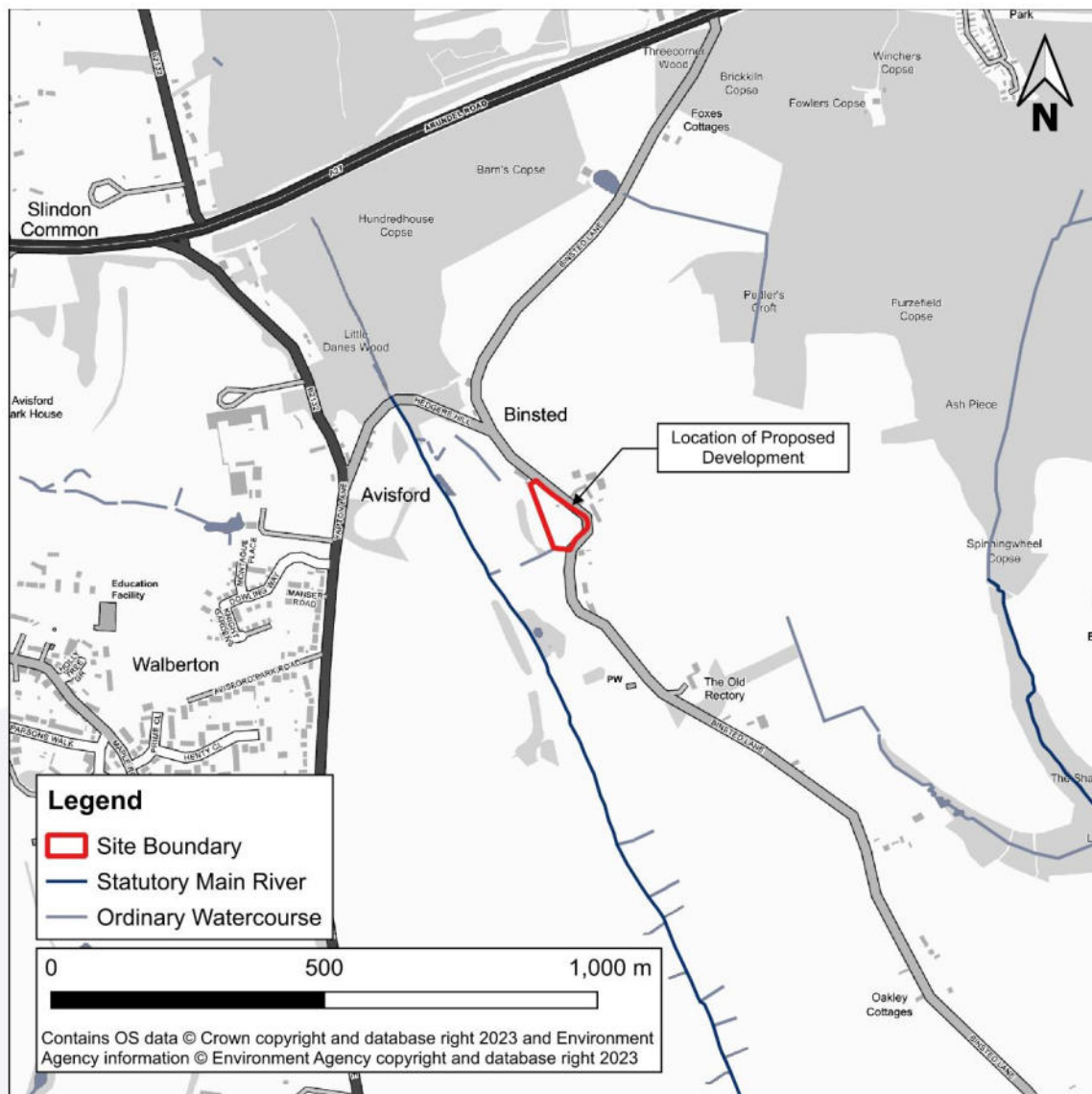


Figure 6: Watercourses Near the Site

Proposed Development

Development Proposals

The proposed planning application relates to Change of Use of the existing field into a glamping site.

The proposals comprise placement of six holiday lodges (shepherds huts) within the site curtilage and construction of a car park.

Based on plans provided by the applicant the new car park will measure approximately 350m² and will be underlain by permeable gravel.

The proposed site layout plan is shown in Figure 7 and Appendix B.



Figure 7: Proposed Layout Plan (Source: Batcheller Monkhouse)

Development Vulnerability Classification

The National Planning Policy Framework classifies land use type in terms of vulnerability to flooding. Annex 3 of the NPPF details the flood risk vulnerability classification for each land use type (refer below).

Essential infrastructure

- Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.
- Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; including electricity generating power stations, grid and primary substations storage; and water treatment works that need to remain operational in times of flood.
- Wind turbines.
- Solar farms.

Highly vulnerable

- Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.
- Emergency dispersal points.
- Basement dwellings.
- Caravans, mobile homes and park homes intended for permanent residential use.
- Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'.)

More vulnerable

- Hospitals
- Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.
- Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.
- Non-residential uses for health services, nurseries and educational establishments.
- Landfill* and sites used for waste management facilities for hazardous waste.
- **Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.**

Less vulnerable

- Police, ambulance and fire stations which are not required to be operational during flooding.
- Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill* and hazardous waste facilities).

- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.
- Car parks.

Water-compatible development

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

Table 2: Flood Risk Vulnerability Classification (Source: NPPF)

The site is currently occupied by equestrian land used for horse grazing. Therefore, in terms of flood risk vulnerability it is considered "Less Vulnerable".

The application proposals relate to creation of a glamping site. As such, according to NPPF guidance the development is classified as "More Vulnerable".

In light of this, it is considered that the vulnerability of the site as a whole will increase as a result of the development.

Sequential and Exception Test Guidance

In accordance with the National Planning Policy Framework, and associated Planning Practice Guidance, the Sequential and Exception Tests should be undertaken to determine the most appropriate location for a development and used to inform the proposed design layout.

The Sequential Test is designed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account.

The Exception Test is undertaken when development in a flood risk area cannot be avoided. The Exception Test comprises of two elements which need to be satisfied before a development can be permitted. It needs to be demonstrated that:

1. A development will provide wider sustainability benefits to the community that outweigh flood risk; and
2. A development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test Required	✓	✓	✓
Zone 3a	Exception Test Required	X	Exception Test Required	✓	✓
Zone 3b	Exception Test Required	X	X	X	✓

Table 3: Flood risk vulnerability and flood zone 'incompatibility' (Source: PPG)

Given the nature of the proposals the development is considered 'More Vulnerable'.

According to Table 3 (above) 'More Vulnerable' development is considered suitable within Flood Zone 1, 2 and 3a (subject to undertaking the Exception Test).

Assessment of Flood Risk

Flood risk is a combination of:

- the probability (likelihood or chance) of a flood event happening; and
- the potential consequences (impact) if an event were to occur.

In accordance with guidance set out in the Flood Risk and Coastal Change section of the PPG, areas at risk of flooding should be considered as those at risk of flooding from any source, now or in the future.

This study uses publicly available data (including EA flood maps and Local Authority documentation) to assess the potential flood risk posed to the intended development from multiple sources of flooding and the risk of flooding elsewhere, as a result of the proposals.

Where flood risks are identified this study outlines appropriate mitigation measures, compliant with NPPF and PPG, which would be suitable to incorporate within the proposed development to manage said flood risk(s).

Document Review

The following Local Authority documents have been reviewed as part of this study:

- Arun District Council Level 1 Strategic Flood Risk Assessment (2016)
- Arun District Council Level 1 and Level 2 Strategic Flood Risk Assessment (2016)
- Arun Strategic Surface Water Management Study (2016)
- Arun and Western Streams Catchment Flood Management Plan (2009)
- West Sussex County Council Preliminary Flood Risk Assessment (2011)
- West Sussex County Council June 2012 Flood Investigation Report
- South Downs National Park Authority – Level 1 Strategic Flood Risk Assessment (2025)
- Walberton Neighbourhood Development Plan 2015 – 2035

Historical Flooding

Historical flood incident information within the area has been assessed based on a review of Arun District Council, West Sussex County Council, South Down's National Park Authority and Walberton Parish Council documentation along with the Environment Agency's Historic Flood Map and an internet search.

Following review of the available data, whilst surface water flooding has been reported along Binsted Lane no information has been provided to suggest that the site itself has ever flooded.

Fluvial (River)

Environment Agency Flood Zones

The Environment Agency has created a set of Flood Zones which show the risk of flooding from rivers and sea in England, for several return period events, ignoring the presence of defences. The Flood Zones are shown on the EA's Flood Map for Planning which forms the basis for assessing flood risk and development suitability under the National Planning Policy Framework.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than a 1 in 1000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1000 annual probability of tidal flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of tidal flooding. (Land shown in dark blue on the Flood Map)
Zone 3b Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. The functional floodplain will normally comprise: • land having a 1 in 30 or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 1 in 1000 annual probability of flooding). Areas of functional floodplain should be identified by local planning authorities within Strategic Flood Risk Assessments, in agreement with the Environment Agency. (Note, Zone 3b is not separately distinguished from Zone 3a on the Flood Map).

Table 4: Flood Zone Definitions (Source: Planning Practice Guidance)

The Flood Map for Planning was updated on the 25th March 2025.

The updated Flood Map for Planning continues to show Flood Zones 1, 2 and 3 for the present day (ignoring the benefits of defences).

However, the Environment Agency's mapping tool now also displays the following information:

- Rivers and sea with defences for the present day and climate change scenarios
- Rivers and sea without defences for the present day and climate change scenarios
- Surface water flood extents for the present day

To the Site

According to the Environment Agency's Flood Map for Planning (refer to Figure 8) the site and surrounding area are located entirely within Flood Zone 1 (Low Probability), defined as land which has less than a 1 in 1000 annual probability of fluvial flooding in any given year.

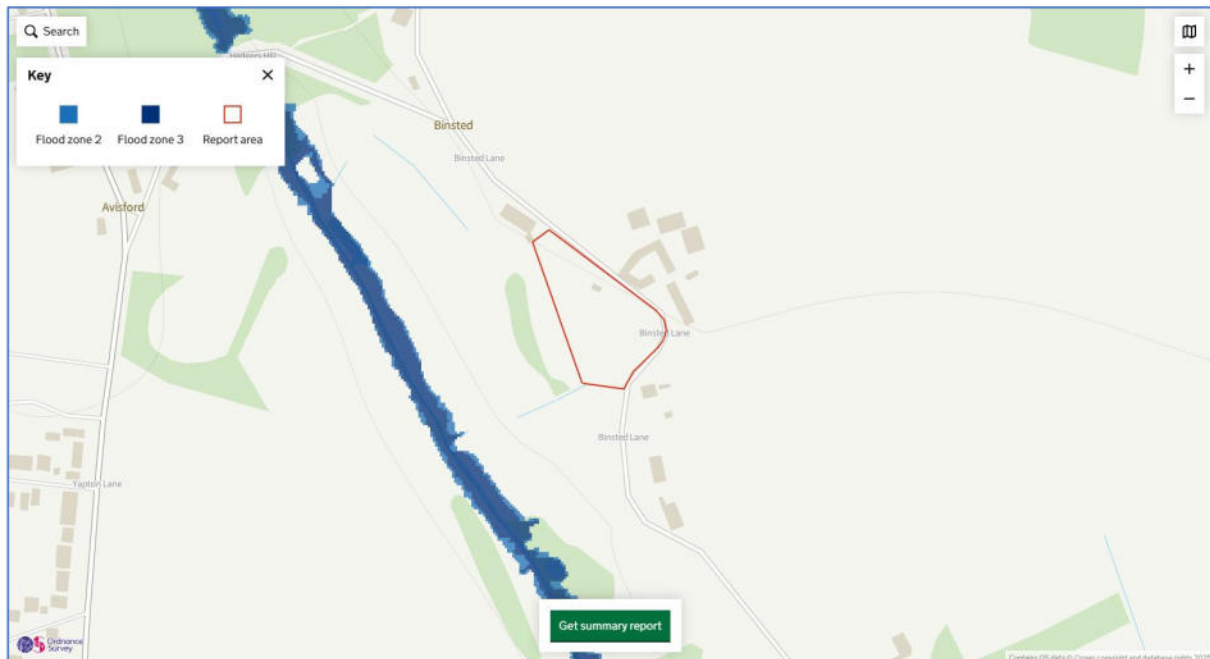


Figure 8: Environment Agency Flood Map for Planning (Source: EA)

Having reviewed the fluvial flood risk in the wider area, the closest Flood Zone 2 and 3 extents to the site are located some 115m west of the development (associated with land adjacent to Little Tortington Stream / Binsted Rife).

Furthermore, based on the location of the Flood Zone extents in relation to the site, and the elevation difference between the Flood Zone extents and the application area (at least 12.50m), any increase in water levels due to climate change are considered unlikely to affect the development.

This is demonstrated by the newly introduced defended and undefended climate change flood extents shown on the Flood Map for Planning.

In light of the above, the risk posed to the site from fluvial flooding is considered to be very low.

From the Site

Given that the site is located entirely within Flood Zone 1, thus outside of any fluvial flood zone extent, the proposed development is not considered to have an impact on the existing floodplain functionality and will not increase the risk of fluvial flooding elsewhere.

Pluvial (Surface Water)

Pluvial flooding occurs as a result of excess overland flow and stormwater ponding. Surface water flooding can happen when water does not have time to soak into the underlying ground or cannot infiltrate at all, for instance because the ground is already fully saturated.

This mechanism of flooding can also arise when the volume of precipitation exceeds the capacity of the drainage system meaning that water is unable to drain away through the sewer network and instead flows overland.

Overland flow will follow the local topography and can therefore pose a risk to both the development and surrounding third party land.

The risk posed to the site from surface water flooding has been assessed using the new National Flood Risk Assessment (NaFRA) 'Risk of Flooding from Surface Water' dataset. The updated Risk of Flooding from Surface Water maps were published on the 28th January 2025 by the Environment Agency and were subsequently integrated into the Flood Map for Planning on 25th March 2025.

The revised mapping is considered to represent a significant improvement on previous iterations of the surface water flood maps, both in terms of method and representation of the risk of flooding.

The NaFRA dataset was created by combining the best available flood models (including locally produced detailed model information and national flood modelling) to generate the probability of flood risk for each 2m grid square of land, with the aim of using the best available flood risk information in any one location.

Considerable improvements have been made when compared to the previous iterations of the RoFSW dataset including a more accurate representation of buildings within the model terrain to better capture the influence of built footprints on flow routes, the correction of misinterpretations in earlier surface water maps that wrongly suggested some buildings would remain dry, and a focus toward assessing flood risk to land rather than individual properties.

The new RoFSW dataset includes details of the annual chance of flooding to a specific depth. The dataset presents the likelihood (categorised as High, Medium or Low) of flooding to reach the following depth increments at a set location in any given year:

- 0.2m
- 0.3m
- 0.6m
- 0.9m
- 1.2m

Risk is displayed as one of the following likelihood categories:

High	An area which has more than 3.3% chance of flooding each year
Medium	An area which has between 1% and 3.3% chance of flooding each year
Low	An area which has between 0.1% and 1% chance of flooding each year
Very Low	An area which has less than a 0.1% chance of flooding each year

The 2025 RoFSW dataset includes modelled outputs for both the present day and climate change scenarios. The newly introduced climate change map shows the predicted impacts of climate change on future flood risk for the 2050's epoch (2040 – 2060) where the central allowances have been used to support short and medium-term decisions informed by the highest flood likelihood projections.

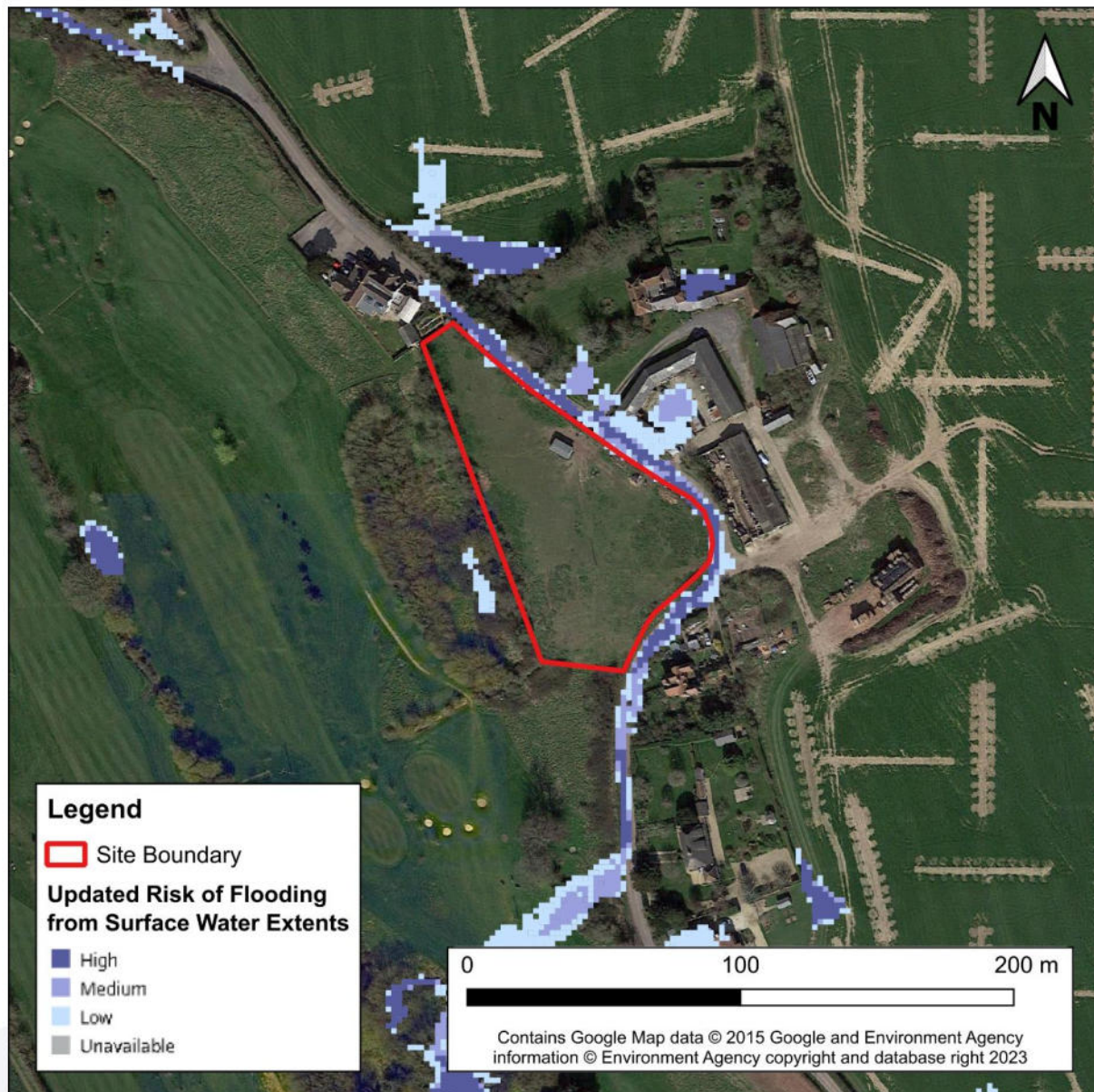


Figure 9: Risk of Flooding from Surface Water Extents (Source: EA)

The EA's Risk of Flooding from Surface Water data (Figure 9) shows that the entire site is located within an area modelled to be at 'Very Low' risk of flooding from surface water.

However, according to EA data, the section of Binsted Lane adjacent east of the application area is modelled to be at 'Medium' and 'High' risk of surface water flooding.

Review of EA's Long Term Flood Risk Map shows that there is the following chance of flood water to reach the following depths along Binsted Lane in any given year:

Depth	Present Day	2050's epoch (2040 – 2060)
20cm ¹	Low Chance	Medium Chance
30cm ²	Very Low Chance	Low Chance
60cm ³	Very Low Chance	Very Low Chance

Notes

1. At 20cm, flood water can get into some homes and buildings, especially if the property has a basement. At this level, water can also damage your car or cause a breakdown.
2. At 30cm, flood water can get into homes and buildings. Water at this level can also move a car, damage roads and cause major traffic disruption.
3. At 60cm, we expect flood water to get into homes and buildings. Water at this level can float most vehicles, including 4x4s.

Flood protection measures are usually effective up to 60cm. You should not try and keep flood water out of buildings if it's over 90cm. Water at this level can cause collapse or permanent structural damage.

Groundwater

Groundwater flooding occurs when the water table rises up from the underlying rocks and emerges at the ground surface or within subsurface infrastructure (such as basements). Low lying areas that are underlain by permeable bedrock, superficial geology and aquifers are particularly susceptible to this form of flooding, especially during the winter months and after periods of heavy, sustained precipitation.

Unlike other mechanisms of flooding, groundwater flooding takes longer to dissipate as the water table needs to lower before any emerged flood water can soak back into the ground. As a result of this, whilst groundwater flooding does not pose a significant risk to life, flood waters can last for many months and can cause considerable damage to property.

Arun District Council Level 1 Strategic Flood Risk Assessment (2016) uses the Environment Agency's Areas Susceptible to Groundwater Flooding (AStGWF) dataset to assess the risk of groundwater flooding across the catchment.

The AStGWF dataset gives an indication of the susceptibility of groundwater flooding throughout the district, based upon 1km grid squares where geological and hydro-geological conditions show that groundwater may emerge. It is important to note that the AStGWF dataset does not show the likelihood of groundwater flooding occurring and does not take account of the chance of flooding from groundwater rebound.

According to the map (refer to the extract shown in Figure 10) the site is located within a grid reference where $\geq 25\%$ $< 50\%$ of the area is susceptible to groundwater flooding.

This risk rating correlates with the information detailed within Walberton Neighbourhood Development Plan which states that several springs are located within the hillside below the Black Horse Pub which discharge water into Binsted Rife.

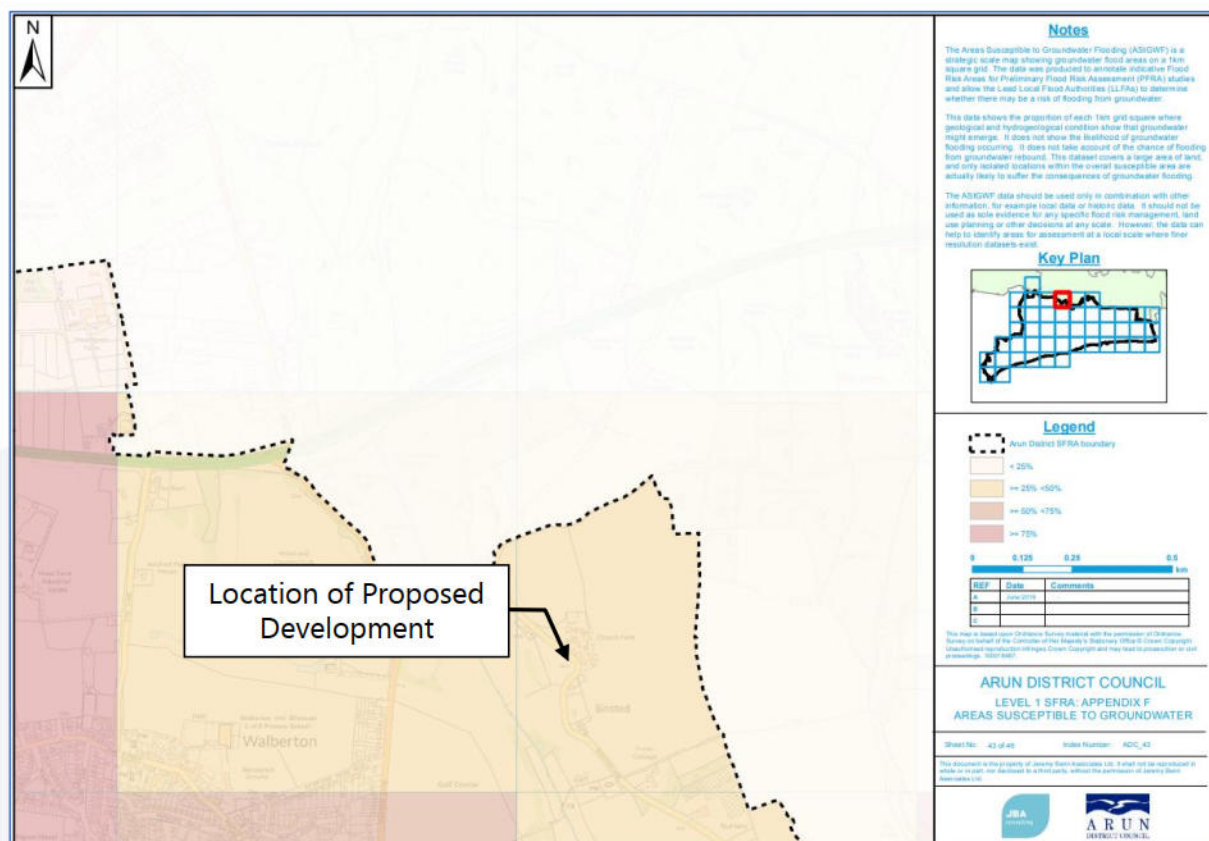


Figure 10: Areas Susceptible of Groundwater Flooding Map (Source: ADC SFRA)

Additionally, a record relating to a borehole undertaken in the north of the application site is available from the British Geological Survey. Review of the borehole log indicates that the groundwater level at the site in October 1981 was located 0.5m below the ground surface level.

The groundwater level recorded in 1981 is considered likely to be representative of the situation at the site in the present day.

No further information has been provided to suggest that the site itself has historically been subject to groundwater flooding.

Sewer Surcharge

Sewer flooding occurs when the volume of water entering a drainage system is greater than the capacity of the sewer network. It is often experienced during periods of heavy rainfall, when a large amount of precipitation falls within a short period of time, and overloads the sewer system capacity causing a surcharge and localised short-term flooding.

Sewer flooding can also occur when the sewerage system is unable to discharge as intended. This is frequently caused by problems such as high water levels within the receiving watercourse, blockages, siltation and structural defects.

Having reviewed Arun District Council's Strategic Flood Risk Assessment and West Sussex County Council's flood risk documentation (including the Local Flood Risk Management Plan), there is no information to suggest that the site has been subject to sewer surcharge flooding.

Additionally, given the site's rural location and current usage it can be confidently assumed that the development is at very low risk of sewer surcharge flooding.

Reservoir

Reservoirs are artificially created lakes, typically formed by building a dam across an existing watercourse to hold water back. Whilst unlikely, flooding from reservoirs can occur as a result of water exceeding the reservoir capacity or structural failure of the dam or bank.

All large reservoirs are regulated under the Reservoirs Act 1975 and undergo regular maintenance to minimise the possibility of reservoir failure. This legislation is enforced by the Environment Agency and requires reservoirs to be routinely inspected and maintained to an appropriate standard. As an enforcement authority the Environment Agency is responsible for some 2,000 reservoirs in England and Wales.

The Environment Agency have produced a flood map which shows where water may go in the unlikely event of a dam or reservoir failure. Two flooding scenarios are shown on the reservoir flood maps:

- A 'dry-day' scenario which shows the predicted flood extents if a dam or reservoir failed when rivers are at normal levels
- A 'wet-day' scenario which shows how much greater the flood extent might be if a downstream river is already experiencing an extreme flood event

Review of the Environment Agency's Risk of Flooding from Reservoirs map indicates that the site is not located within the 'maximum extent of flooding from reservoirs'. As such, the application area is not considered to be susceptible to reservoir failure.

Other Sources

No canals or other artificial infrastructure have been identified within the surrounding area which could pose a risk of flooding to the development.

Flood Risk Management

Development Design

The proposed planning application relates to placement of six holiday lodges (shepherds huts) within the site curtilage and construction of a car park.

The accommodation will comprise of six shepherds huts raised above the existing ground level on wheels. No new built footprint or impermeable surfacing will be created as part of the development proposals.

The applicant intends to construct the car park out of gravel rather than tarmac or block paving.

Construction of the car park with permeable materials such as MOT Type 3 (reduced fines aggregate) with a geogrid will enable surface water runoff to infiltrate into the ground as existing or run off at or below the greenfield runoff rate.

This building technique will mitigate the impact of the development on the permeability of the underlying soils and will lead to a negligible change in the surface water runoff regime when compared to the existing situation.

It is recommended that the car park is designed to slope away from the shepherds huts and Binsted Lane, where possible. This will help mitigate against overland flows being directed towards the holiday accommodation or main road during storm events and will reduce the risk of stormwater ponding at threshold entry points.

Groundwater Flood Risk Mitigation

According to the Environment Agency's Areas Susceptible to Groundwater Flooding (ASStGWF) dataset the site is located within a grid reference where $\geq 25\%$ $< 50\%$ of the area is susceptible to groundwater flooding.

This risk rating correlates with information detailed within Walberton Neighbourhood Development Plan which states that several springs are located within the hillside below the Black Horse Pub.

Additionally, the British Geological Survey hold a record of a borehole undertaken in the north of the application site in October 1981. Review of the borehole log indicates that groundwater was struck at 0.5m below the ground surface.

The groundwater level recorded in the 1981 investigation is considered likely to be representative of the situation at the site in the present day.

As outlined in the previous section, the applicant intends to construct the car park out of gravel. It is recommended that the car park is constructed with a geogrid or a membrane is laid under the gravel layer to minimise the sinking of material into the underlying soils.

Additionally, the six shepherds huts will be elevated at least 300mm above the existing ground level on wheels. Therefore, the holiday accommodation will be raised at least 300mm above the surrounding external ground levels.

Furthermore, the plans show that the surfacing beneath the shepherds huts will remain as is.

Therefore, whilst there is evidence to indicate that the groundwater level in the area is 0.5m below the ground surface level given the construction methods outlined within the application proposals the impact of the development on the underlying groundwater regime is considered to be minimal.

Flood Warnings and Alerts

Whilst the application site is not located within an EA Flood Warning or Alert area, land adjacent to Little Tortington Stream / Binsted Rife does have an associated Flood Alert.

Therefore it is recommended that future owners of the development and senior staff sign up to the Environment Agency's free Targeted Flood Warning Service at <https://www.gov.uk/sign-up-for-flood-warnings>.

Flood Alert	Flood Warning	Severe Flood Warning
		
Flooding is possible. Be prepared	Flooding is expected. Immediate action required	Severe flooding. Danger to life.
• Be prepared to act on your Flood Plan. • Prepare a flood kit. • Monitor local water levels and flood forecasts.	• Move people, pets, valuables and vehicles to a safe place. • Turn off utilities if safe to do so. • Put flood protection equipment in place.	• Stay in a safe place with means of escape. • Be ready to evacuate. • Co-operate with the emergency services.

Table 5: EA Flood Warnings and Flood Alerts

Should a flood alert be issued it is recommended that the site owners and senior staff monitor the situation and advise guests where appropriate. In particular, access to the site via Hedgers Hill should be closely monitored as this road crosses Little Tortington Stream / Binsted Rife and may be flooded during a storm event.

Future site owners and staff should also be advised to monitor weather forecasts by signing up to the Met Office weather warnings.

Whilst considered unlikely, should groundwater emergence occur it is recommended that the glamping site is closed until the water table recedes.

In this instance, staff managing the site should advise guests that the lodges cannot be made available until flood inundation has passed. Any bookings should be cancelled for the period where flooding may occur.

In the event that guests have already checked in and subsequent groundwater emergence has occurred, staff will make arrangements for alternative accommodation at campsites or hotels in the surrounding area.

Safe Access and Egress

The NPPF requires all new residential developments in areas at risk of flooding to demonstrate a route of safe escape for residents and site users which can be maintained for the lifetime of the development.

The proposals relate to creation of a glamping site comprised of six holiday lodges (shepherds huts) and a gravel car park.

The site is shown to be located entirely within Flood Zone 1 and at 'Very Low' risk of surface water flooding. Therefore, a route of safe access and egress is not required.

Conclusions and Recommendations

Conclusions

GeoSon Limited have been instructed by Mr Jack Brundle to undertake a Site Specific Flood Risk Assessment (FRA) to support a proposed planning application for development at Land in Binsted, West Sussex.

This FRA has been undertaken in accordance with the revised National Planning Policy Framework (NPPF) December 2024 and the associated Planning Practice Guidance (PPG).

The proposed application site is located at Land in Binsted, Binsted Lane, Nr Arundel, West Sussex BN18 0LN. The site is approximately 6400m² in size and is currently occupied by equestrian land with a field shelter located in the centre north.

The proposed planning application relates to Change of Use of the existing field into a glamping site. The proposals comprise placement of six holiday lodges (shepherds huts) within the site curtilage and construction of a car park.

Based on plans provided by the applicant the new car park will measure approximately 350m² and will be underlain by permeable gravel.

The site is currently occupied by equestrian land used for horse grazing. Therefore, in terms of flood risk vulnerability it is considered "Less Vulnerable". The application proposals relate to creation of a glamping site. As such, according to NPPF guidance the site as a whole will become classified as "More Vulnerable", post development.

Review of Local Authority documentation along with the Environment Agency's Historic Flood Map and an internet search shows that whilst several flood events have been reported in the surrounding area there is no information to suggest that the site itself has ever been impacted by historical flooding.

According to the EA's Flood Map for Planning the site is located within Flood Zone 1, defined as land which has less than a 1 in 1000 annual probability of fluvial flooding in any given year.

Additionally, the EA's Risk of Flooding from Surface Water data shows that the entire site is located within an area modelled to be at 'Very Low' risk of flooding from surface water.

Arun District Council Level 1 Strategic Flood Risk Assessment (2016) uses the Environment Agency's Areas Susceptible to Groundwater Flooding (AStGWF) dataset to assess the risk of groundwater flooding across the catchment. According to the map the site is located within a grid reference where $\geq 25\%$ <50% of the area is susceptible to groundwater flooding.

This risk rating correlates with information detailed within Walberton Neighbourhood Development Plan which states that several springs are located within the hillside below the Black Horse Pub.

Additionally, the British Geological Survey hold a record of a borehole undertaken in the north of the application site in October 1981. Review of the borehole log indicates that groundwater was struck at 0.5m below the ground surface.

The groundwater level recorded in the 1981 investigation is considered likely to be representative of the situation at the site in the present day.

Despite this, no information has been provided to suggest that the site itself has historically been subject to groundwater flooding.

Having reviewed Arun District Council's Strategic Flood Risk Assessment and West Sussex County Council's flood risk documentation (including the Local Flood Risk Management Plan), there is no information to suggest that the site has been subject to sewer surcharge flooding.

Review of the Environment Agency's Risk of Flooding from Reservoirs map indicates that the site is not located within the 'maximum extent of flooding from reservoirs'. As such, the application area is not considered to be susceptible to reservoir failure.

No canals or other artificial infrastructure have been identified within the surrounding area which could pose a risk of flooding to the development.

Summary and Recommendations

- The proposed planning application relates to placement of six holiday lodges (shepherds huts) within the site curtilage and construction of a car park.
- No new built footprint or impermeable surfacing will be created as part of the development proposals.
- The six shepherds huts will be elevated at least 300mm above the existing ground level on wheels. Therefore, the holiday accommodation will be raised at least 300mm above the surrounding external ground levels.
- The plans show that the surfacing beneath the shepherds huts will remain as is.
- The applicant intends to construct the car park out of gravel rather than tarmac or block paving.
- Construction of the car park with permeable materials such as MOT Type 3 (reduced fines aggregate) with a geogrid will enable surface water runoff to infiltrate into the ground as existing or run off at or below the greenfield runoff rate. This building technique will mitigate the impact of the development on the permeability of the underlying soils and will lead to a negligible change in the surface water runoff regime when compared to the existing situation.
- It is recommended that the car park is designed to slope away from the shepherds huts and Binsted Lane, where possible.
- Whilst there is evidence to indicate that the groundwater level in the area is 0.5m below the ground surface level given the construction methods outlined within the application proposals the impact of the development on the underlying groundwater regime is considered to be minimal.
- The application site is not located within an EA Flood Warning or Alert area. However, land adjacent to Little Tortington Stream / Binsted Rife is situated within a Flood Alert area. Therefore it is recommended that future owners of the development and senior staff sign up to the Environment Agency's free Targeted Flood Warning Service at <https://www.gov.uk/sign-up-for-flood-warnings>.
- Should a flood alert be issued it is recommended that the site owners and senior staff monitor the situation and advise guests where appropriate. In particular, access to the site via Hedgers Hill should be closely monitored as this road crosses Little Tortington Stream / Binsted Rife and may be flooded during a storm event.
- Future site owners and staff should also be advised to monitor weather forecasts by signing up to the Met Office weather warnings.
- Whilst considered unlikely, should groundwater emergence occur it is recommended that the glamping site is closed until the water table recedes.

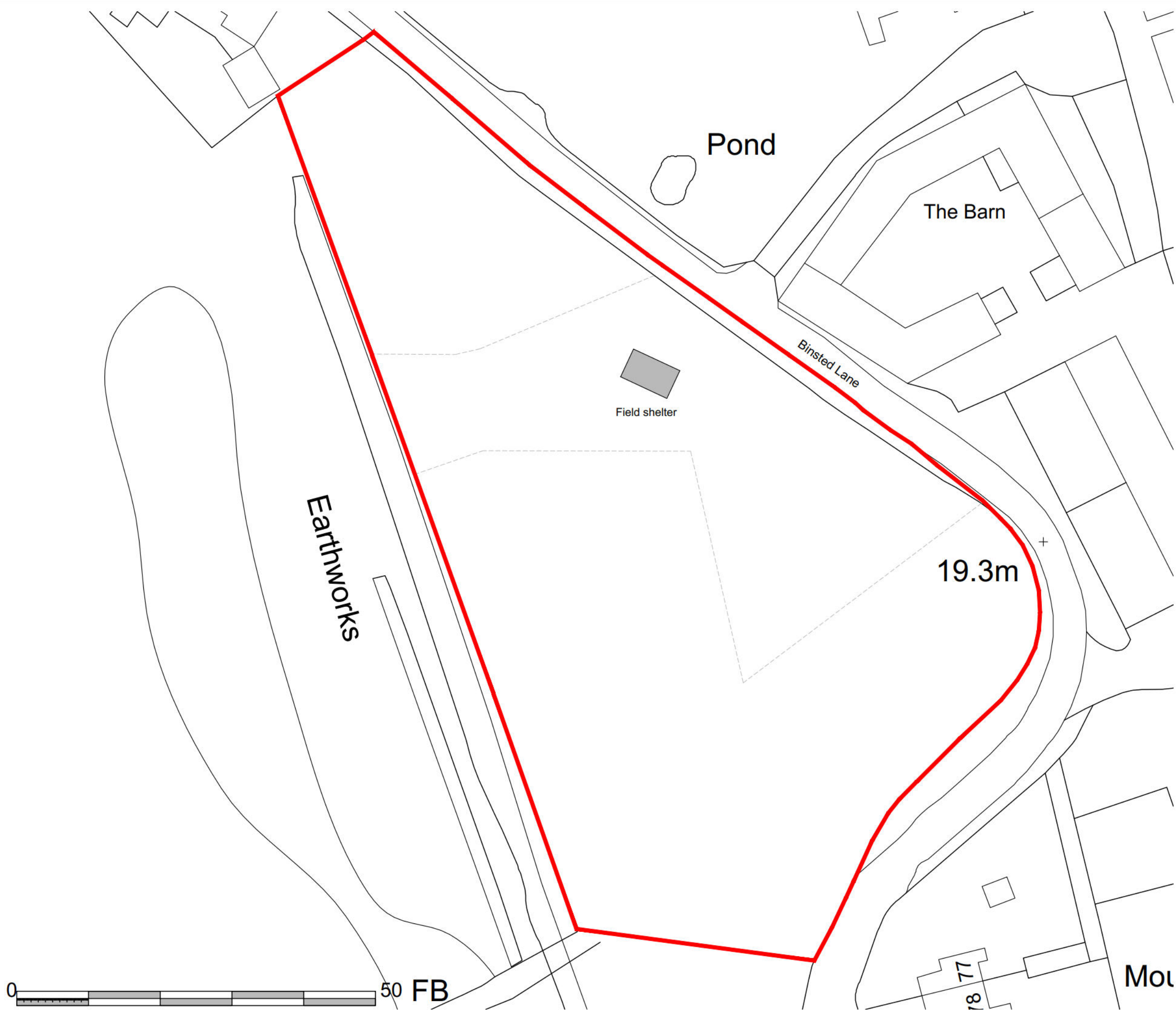
Appendix

- A. Existing Site Plans
- B. Proposed Plans
- C. BGS Borehole Log

Appendix A

This drawing is to be read in conjunction with all other relevant drawings and specifications.
Do not scale from this drawing (Unless for planning purposes). Use figured dimensions only.
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A - Issued for Planning - 21.03.2025

Revision



SIMON HARVEY DESIGNS LTD
2 Greenfield Way,
Storrington,
West Sussex.
RH20 4PY

t: 07833 178649
e: office@simonharveydesigns.com

Client: Binsted Farms Ltd

Project: Proposed glamping site to
field west of Church Farm

Address: Binsted Lane,
Binsted,
Nr Arundel,
West Sussex.
BN18 0LN

Drawing Title: EXISTING SITE BLOCK PLAN

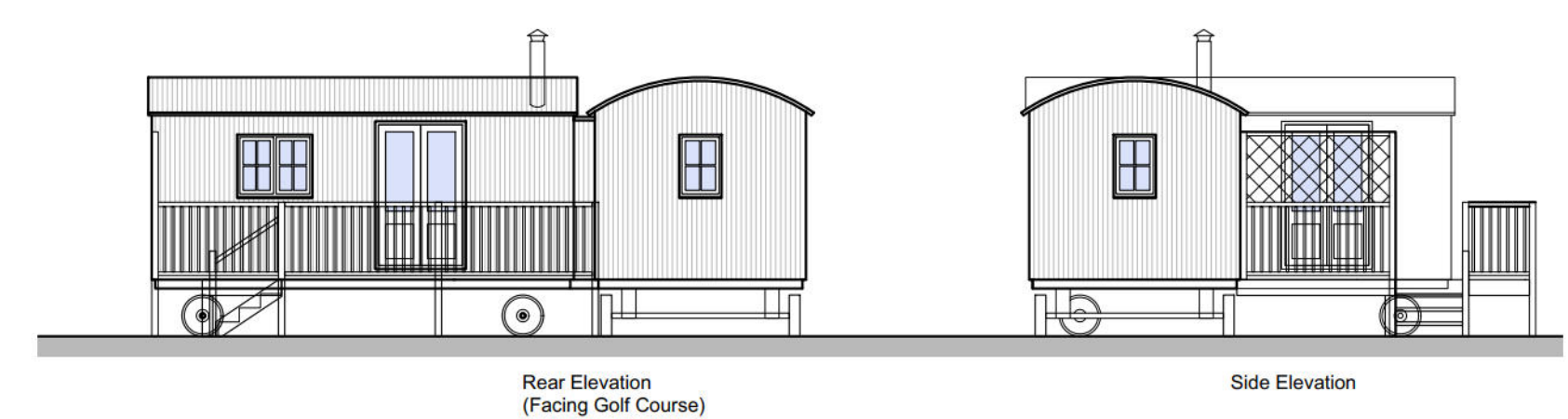
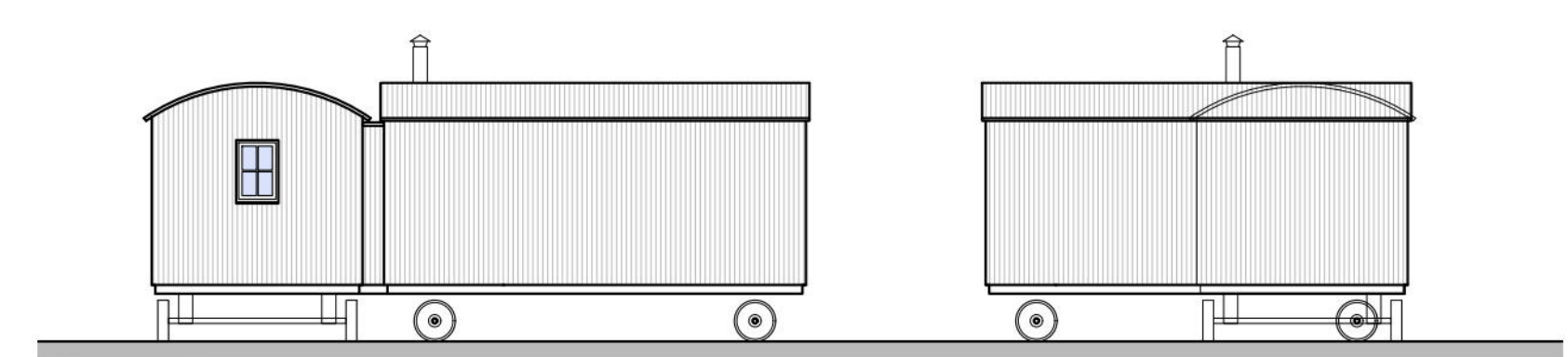
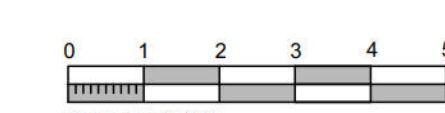
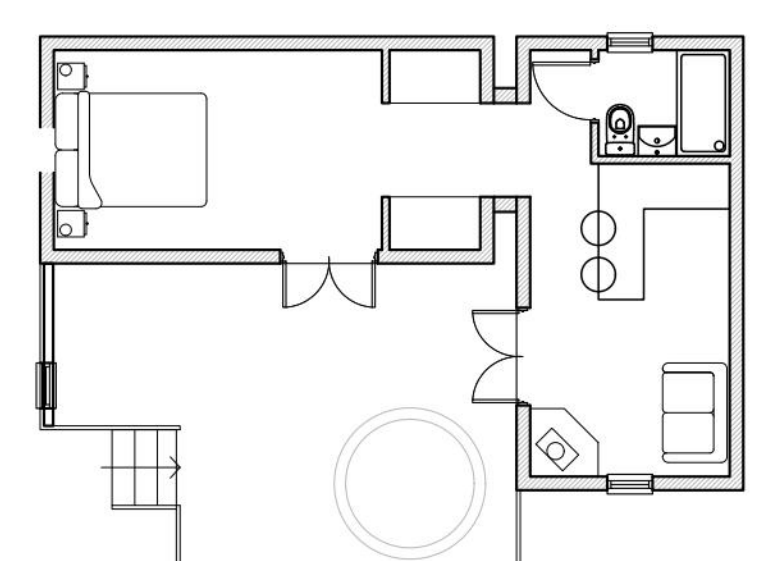
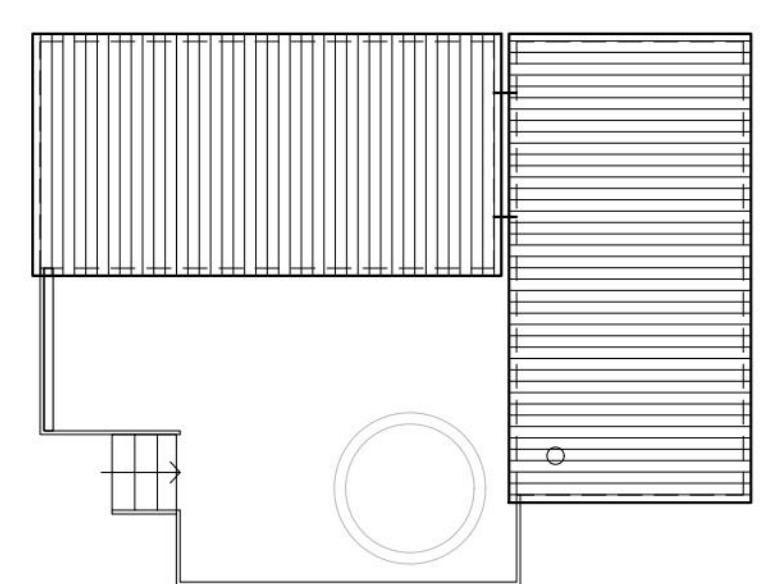
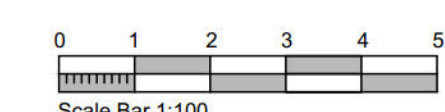
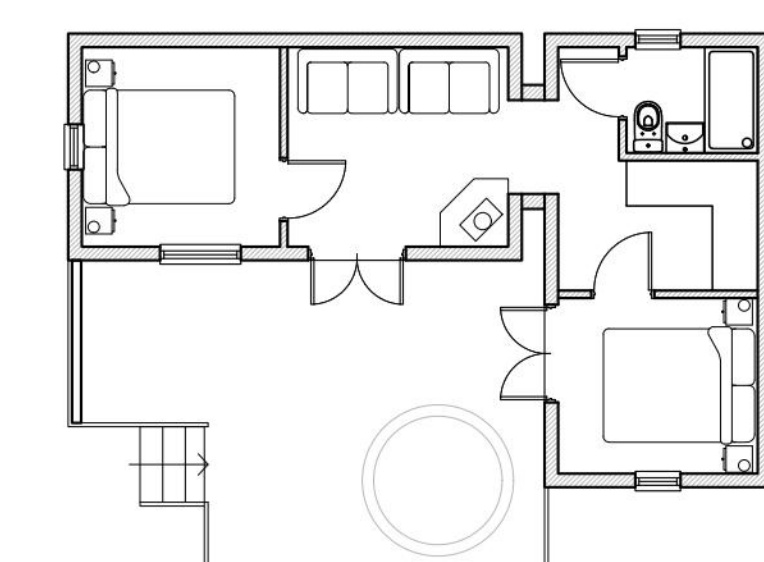
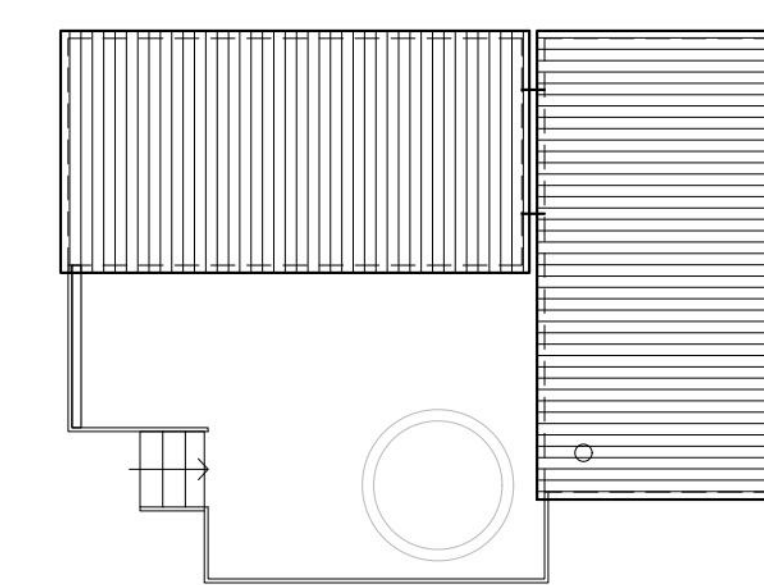
Drawing Number: 148_03

Date: March 2025

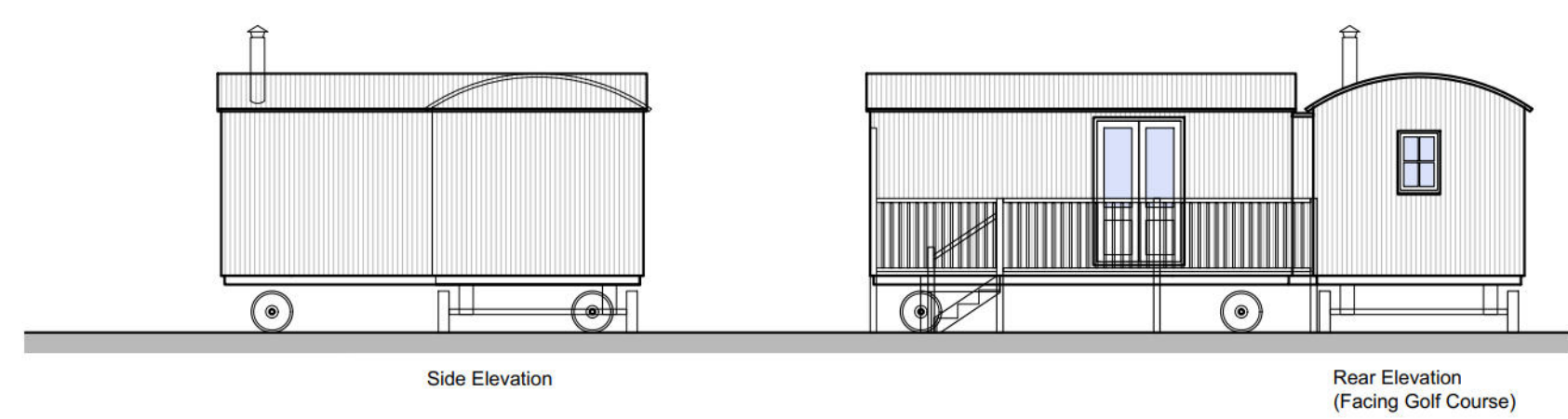
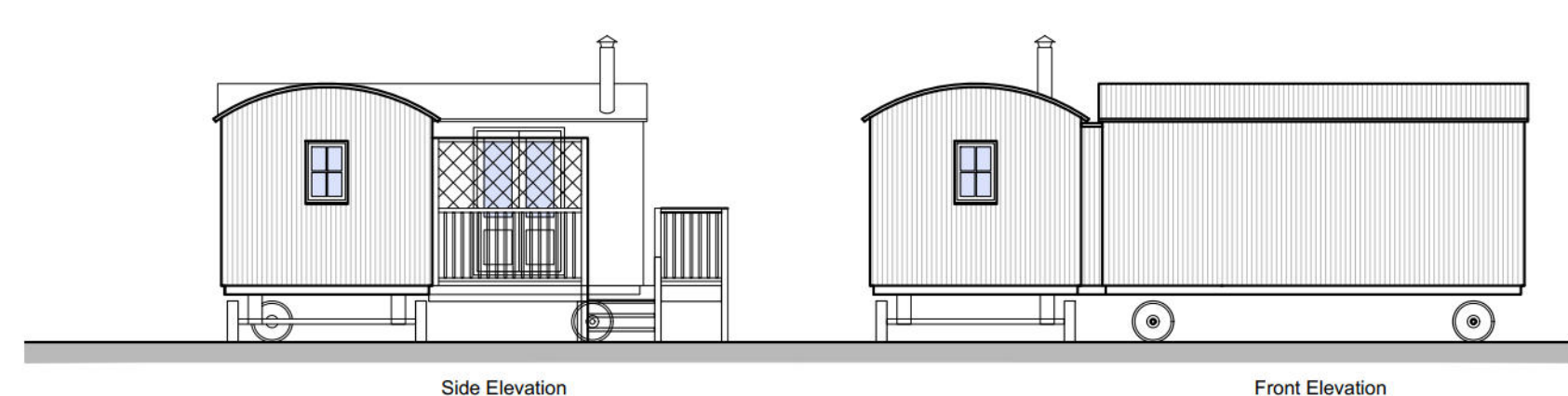
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PLANNING

Appendix B



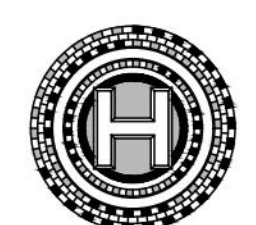
2bed 5 person
Shepherd's Hut
Units, 1, 4 & 5



Units, 2, 3 & 4
1bed 3 person
Shepherd's Hut

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PLANNING

A - Issued for Planning - 21.03.2025	
Revision	
	SIMON HARVEY DESIGNS LTD 2 Greenfield Way, Storrington, West Sussex, BN20 4PY t: 07633 178649 e: office@simonharveydesigns.com
Client: Binstead Farms Ltd	
Project: Proposed glamping site to field west of Church Farm	
Address: Binsted Lane, Binsted, Nr Arundel, West Sussex. BN18 0LN	
Drawing Title: PROPOSED ARRANGEMENT	
Drawing Number: 148_02	
Date: February 2025	
Scale: 1:500 / 1:100 @A1	

Appendix C



SU 90 NE 42 9806 0638

Church Farm, Binstead

Surface level +20.4 m
Water struck at +19.9 m
October 1981

Block G

Waste 1.6 m
Bedrock 7.4 m+

LOG

Geological classification

Lithology

Thickness
m Depth
m

Head Gravel	Soil with pebbles	0.9	0.9
	'Very clayey' gravel Gravel: coarse and fine; flint Sand: coarse with fine and medium Fines: silt and clay	0.7	1.6
London Clay	Clay, silty, sandy, mottled brown and grey near top, grey below	3.4	5.0
	Clay, very sandy, glauconitic; rare lignite fragments	2.0	7.0
	Clay, hard, olive brown	1.1	8.1
	Clay, crumbly, grey, mottled brown and red, with glauconite and some lignite fragments	0.1	8.2
Woolwich and Reading Beds	Clay, stiff, mottled purple and grey	0.8+	9.0

GRADING

Mean for deposit percentages			Depth below surface (m)	Percentages						
Fines	Sand	Gravel		Fines	Sand			Gravel		
				- $\frac{1}{2}$	+ $\frac{1}{2}$ - $\frac{1}{2}$	+ $\frac{1}{2}$ -1	+1 -4	+4 -16	+16 -64	+64 mm
25	29	46	0.9-1.6	25	9	7	13	22	24	0