

**FLOOD RISK ASSESSMENT
FOR RESIDENTIAL DEVELOPMENT AT
HURN ROAD, HOLBEACH HURN**

FINAL REPORT

ECL1594/SWANN EDWARDS ARCHITECTURE

DATE JULY 2025

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(Dwg SE-2315 PP1000)

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(Dwg SE-2315 PP1100)

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1.0 INTRODUCTION

This Flood Risk Assessment has been prepared in accordance with National Planning Policy Framework (NPPF) and supporting planning practice guidance (PPG) on Flood Risk and Coastal Change.

In areas at risk of flooding or for sites of 1 hectare or more, developers are required to undertake a site-specific Flood Risk Assessment to accompany an application for planning permission. This Flood Risk Assessment has been produced on behalf of Mr R Runciman in respect of the change of use of an agricultural building to form two dwellings at Hurn Road, Holbeach Hurn, Holbeach.

A planning application for the proposed development is to be submitted by Swann Edwards Architecture.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site is on land south of Hurnhall Farm, Hurn Road, Holbeach Hurn, Holbeach, Spalding, Lincolnshire, PE12 8JF. The National Grid Reference of the site is 53922/32646.

The location of the site is shown in Figure 1.



Figure 1 – Location Plan (© OpenStreetMap contributors)

2.2 Existing Site

The site is on the western side of Hurn Road. The site consists of an agricultural building within Hurn Hall Farm. There is residential development to the north and south of the site and agricultural land to the west. The area of development is approximately 0.04 hectares.

Environment Agency LiDAR data shows that the site is flat with ground levels between +4.1m OD and +4.2m OD. The carriageway of Hurn Road adjacent to the site is +5.7m OD. The agricultural land to the west of the site is typically between +3.2m OD and +3.5m OD.

The site is in the South Holland Internal Drainage Board (IDB) District. Surface water at the site naturally drains through soakaway and hence to the IDB drain system. There is a riparian drain on a field boundary approximately 50m west of the site and an IDB Ordinary Watercourse 400m south east of the site.

The online British Geological Survey maps indicate that the site is likely to be underlain by Amptill Clay Formation - Mudstone. The bedrock is shown to be overlain with superficial deposits of clay and silt.

2.3 Proposed Development

The proposed development consists of two dwellings. The dwellings will be single storey. Details of the proposed development are provided in Attachment 1.

2.4 Local Development Documents

The South East Lincolnshire Local Plan 2011 – 2036, adopted in March 2019, is the Local Plan for the district. Policy 4: Approach to Flood Risk states the requirements for flood risk reduction.

The South East Lincolnshire Level 1 and Level 2 Strategic Flood Risk Assessment (SFRA) was prepared in June 2017.

The Joint Lincolnshire Flood Risk and Drainage Management Strategy has been prepared by Lincolnshire County Council as the Lead Local Flood Authority. The purpose of the Strategy is to increase the safety of people across Lincolnshire by reducing the number of people at risk of flooding, increasing the resilience of local communities, and reducing the impact of flooding.

2.5 Flood Zones

An extract from the Environment Agency Flood Map for Planning is shown in Figure 2. The site is located partly within Flood Zone 3, an area with a high probability of flooding.

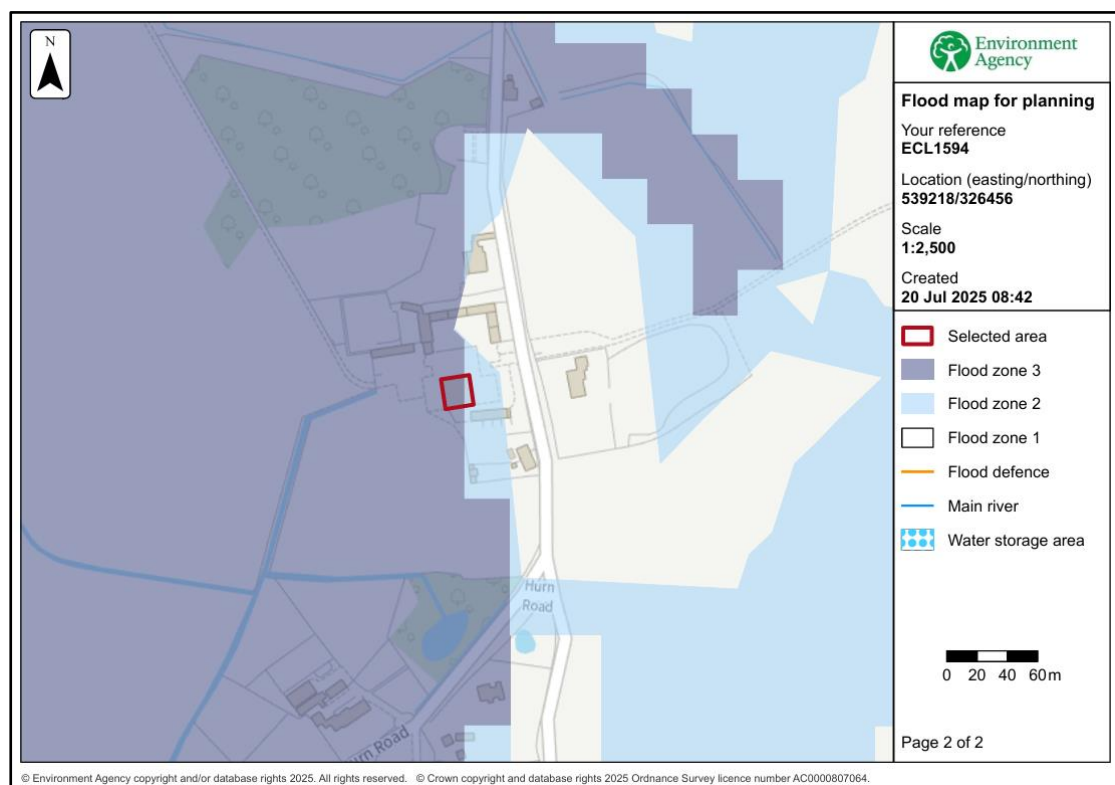


Figure 2 – Environment Agency Flood Map for Planning

The Environment Agency Long Term Flood Risk maps provide an indication of the risk from the primary sources of flooding. The details provided with these maps are summarised in Table 1. The depths of flooding identified is the maximum depth that occurs during a low chance (between 0.1% and 1% chance each year) event.

	Present Day		2050 Epoch	
	Risk of Flooding	Depth (Low chance)	Risk of Flooding	Depth (Low chance)
Rivers and the Sea	The site has a low chance (between 0.1% and 1% chance each year)	No data available	No data available	No data available
Surface Water	The site is outside the area with a low risk (between 0.1% and 1% chance each year)	Not at risk	The site is outside the area with a low risk (between 0.1% and 1% chance each year)	Not at risk
Reservoir	Outside of the area at risk.			

Table 1 – Environment Agency Long Term Flood Risk Maps

Table 2 shows the level of risk at the site within the South East Lincolnshire SFRA.

SFRA Map	Present Day	2116
Residual Flood Hazard Map for the 1% fluvial and 0.5% tidal event	The site is outside the 'Low Hazard' area	The site is outside the 'Low Hazard' area
Residual Peak Depth Map for the 1% fluvial and 0.5% tidal event	The site is outside the area at risk of flooding.	The site is outside the area at risk of flooding.

Table 2 – Flood Risk within SFRA Maps

3.0 FLOOD RISK VULNERABILITY

3.1 The Sequential and Exception Test

The NPPF requires the application of a Sequential Test to ensure that new development is in areas with the lowest probability of flooding.

The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available.

3.2 Vulnerability Classification

Table 2 of the PPG Flood Risk and Coastal Change categorises different types of uses and development according to their vulnerability to flood risk. The proposed development is covered by the description of buildings used for dwellings and is classified as 'More Vulnerable'.

Table 3 of the PPG Flood Risk and Coastal Change sets out Flood Risk Vulnerability and flood zone 'compatibility'. The site is in Flood Zone 3 and the development is 'More Vulnerable' therefore it is necessary to complete the Exception Test.

PPG Flood Risk and Coastal Change defines that the lifetime of the development in terms of flood risk and coastal change is 100 years.

3.3 Application of the Sequential Test and Exception Test

It is for the Local Planning Authority, using the evidence provided and taking advice from the Environment Agency as appropriate, to consider whether an application passes the Sequential Test.

Paragraph 033 of planning practice guidance (PPG) on Flood Risk and Coastal Change states that 'The Sequential Test does not need to be applied for applications for Change of Use (except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site)'.

Paragraph 048 of the PPG states that 'A Change of Use may involve an increase in flood risk if the vulnerability classification of the development is changed. In such cases, the applicant will need to show in their flood risk assessment that future users of the development will not be placed in danger from flood hazards throughout its lifetime.' The mitigation measures proposed in Section 5.2 of this flood risk assessment are such that risks to future users are mitigated.

The Exception Test requires consideration of the wider sustainability benefits of a development and that the development would be safe and residual risks managed.

The Local Plan has a target of a net increase of at least 11,681 dwellings in South Holland over the 25-year local plan period. The Plan considers this new housing is

required to ensure the sustainability of the Local Plan area. The proposed development will contribute to this target.

Section 5 of this Flood Risk Assessment describes the flood mitigation measures and the management of the residual risks, demonstrating that this development will be safe and not increase flood risk elsewhere. The development is considered to pass the Exception Test.

4.0 SITE SPECIFIC FLOOD RISK

4.1 Local Flood Assets

The South Holland IDB district is protected by the Wash tidal defences along the Holbeach Marsh frontage with embankment levels at a minimum of +7.0m OD. The Wash tidal defences are approximately 7.7km from the site.

The River Welland tidal defences are approximately 8.7km to the north west of the site. The tidal defences between Spalding and Fosdyke also have minimum embankment levels of +7.0m OD.

Both defences are the responsibility of the Environment Agency. There is a long-term strategy for the maintenance of the Environment Agency defences which is reviewed and updated periodically.

There is an extensive local drainage network managed by South Holland IDB. There is an IDB Ordinary Watercourse 400m south east of the site. The site and the surrounding land are within the Holbeach River catchment and drains in a northerly direction to discharge to the tidal River Welland at the Holbeach River Outfall Sluice.

During the operation and maintenance of its pumping stations, associated structures, and channel systems, the IDB seeks to maintain a general standard capable of providing flood protection to its district. A routine maintenance programme is in place to ensure that the Boards assets are commensurate with the standard of protection that is sought.

Current maintenance standards of the South Holland Internal Drainage Board and the Environment Agency are generally good.

4.2 Sources of Flooding

A summary of the sources of flooding is provided in Table 3.

Source of Flooding	Level of Risk
Drainage Network Flooding	The risk is assessed in Section 4.3.
Surface Water Flooding	Based upon the EA maps the risk is very low.
Fluvial Flooding	The risk is not at risk of fluvial flooding.
Tidal Flooding	The risk is assessed in Section 4.3, 4.5 and 4.6.
Reservoir Flooding	Based upon the EA maps the site is not at risk of flooding from reservoirs.
Groundwater Flooding	There is no evidence to suggest the site is at risk of groundwater flooding.

Table 3 – Sources of Flooding

4.3 Probability of Flooding

The probability of flooding associated with blockages in the South Holland IDB drainage system is low due to the maintenance standards achieved and managed by the IDB.

Through the operation and maintenance of the pumping stations and the channel system the Board seek to maintain a general standard capable to providing flood protection to agricultural land and developed areas of 1 in 20 years and 1 in 100 years, respectively. The risk associated with flood events that exceed the standard of protection provided is lowered due to the South Holland IDB main drains incorporating freeboard. This freeboard provides storage during the exceedance events.

The site is within an area benefitting from defences. The flood embankments to the Wash and the River Welland tidal defences provide protection during a 0.5% annual probability (1 in 200 chance each year) event. The flood risk from the Wash is lowered further by second line defences and various informal banks constructed during the reclamation of Holbeach Marsh.

4.4 Historic Flooding

During the preparation of this assessment, no evidence was discovered of the site being flooded.

4.5 Climate Change

Climate change is likely to impact the site through increased rainfall intensity and duration affecting the local drainage network and increased tide levels.

The tidal flood level during the 0.5% annual probability (1 in 200 chance each year) event inclusive of climate change to 2115 is estimated to be 7.2m AOD. The minimum defence level of the Wash tidal embankments is 7.0m AOD. During such an event wave and wind action is likely to cause overtopping however this would not affect the site.

4.6 Residual Risk

The South East Lincolnshire SFRA includes maps demonstrating the impact of climate change in 2116. The Residual Peak Depth maps within the SFRA indicate the maximum flood depths associated with a breach of the tidal defences. These show that when climate change allowances are applied to the combination of a 1% annual probability (1 in 100 chance each year) fluvial event and a 0.5% annual probability (1 in 200 chance each year) tidal event the site is not at risk. An extract from the map is shown in Figure 3.

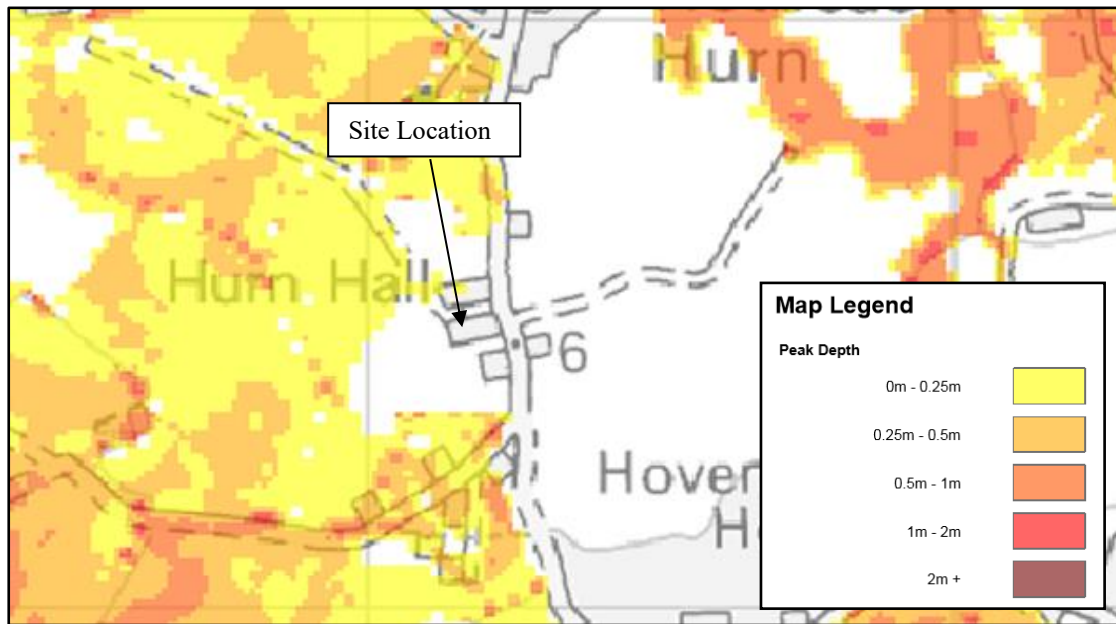


Figure 3 – SFRA 2115 Residual Peak Depth Map during the 1% fluvial and 0.5% tidal Annual Probability Event

The land to the west of the site that is at risk during a breach is at a level lower than +3.5m OD. The site is more than 0.6m higher than these levels. Although the 0.1% annual probability (1 in 1000 chance each year) tidal event would result in an increase in risk, the elevation of the site is such that it would not be at risk.



5.0 FLOOD RISK MITIGATION

5.1 Summary of Risks

The probability of this development flooding from localised drainage systems is low. Failure of Holbeach River Outfall Sluice could lead to an increased level of risk within the IDB catchment.

The probability of the site flooding from any Environment Agency system is less than 0.5% annual probability (1 in 200 chance each year) because of the standards of the existing flood defences. Over time there will be a gradual increase in risk to the site due to climate change. During the design life of the development, it is not anticipated that the site would flood from overtopping of the defences.

There is a residual risk in the area around Holbeach Hurn associated with a breach in the defences. During the 0.1% annual probability (1 in 1000 chance each year) event in 2115 the site is not at risk.

There will be no increase in impermeable area associated with the development so there is no potential that flood risk will be increased elsewhere.

5.2 Mitigation Measures

The site has a low 'actual risk' of flooding. Based upon the information available during the preparation of this flood risk assessment, it is recommended that the finished floor level of the dwellings are not less than 0.3m above surrounding ground level and there is 0.3m of flood resilient (recovery) construction above finished floor level.

The developer should ensure that the eventual occupiers of the dwellings are sufficiently aware of the risk of flooding, and the standard of the existing defences. The Environment Agency operates a flood warning system for properties at risk of flooding to enable householders to protect life or take actions to manage the effect of flooding on property. Floodline Warnings Service is a national system run by the Environment Agency for broadcasting flooding warnings. The occupiers of the dwellings should register to receive flood warnings.

Should there be a failure of Holbeach River Outfall Sluice and conditions were such to put properties and land at risk of flooding, the Internal Drainage Board would take emergency action to maintain the drainage level of service by using temporary pumping equipment.

It is recommended that surface water run-off is managed so that stormwater from the development will not affect any adjoining properties or increase the flood risk elsewhere.

6.0 CONCLUSIONS

As a result of the assessment, the following conclusions have been reached.

- The proposed development consists of the change of use of an agricultural building to form two single storey dwellings on Hurn Road, Holbeach Hurn, Holbeach.
- The site is located within an Internal Drainage Board catchment and through the operation and maintenance of the pumping stations and the channel system the Board seek to maintain a general standard capable to providing flood protection to agricultural land and developed areas of 1 in 20 and 1 in 100 years, respectively.
- The proposed development is in Flood Zone 3. The site is protected during the 1% annual probability (1 in 100 chance each year) fluvial event and 0.5% annual probability (1 in 200) tidal event including climate change by the Wash tidal defences and River Welland defences.
- The site is not at risk during a breach of the defences.
- It is recommended that the finished floor level of the dwellings is not less than 0.3m above surrounding ground level with 0.3m of flood resilient (recovery) construction above finished floor level.
- The development passes the Sequential Test and Exception Test and is therefore suitable for the proposed location.

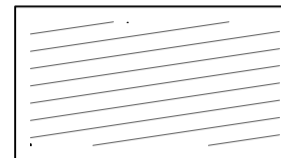
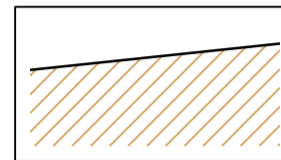
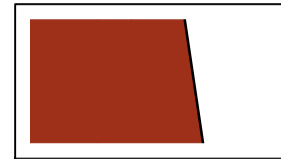
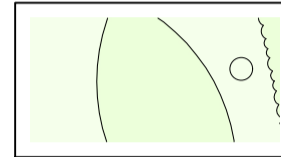
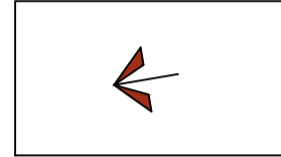
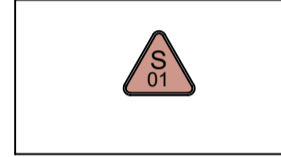
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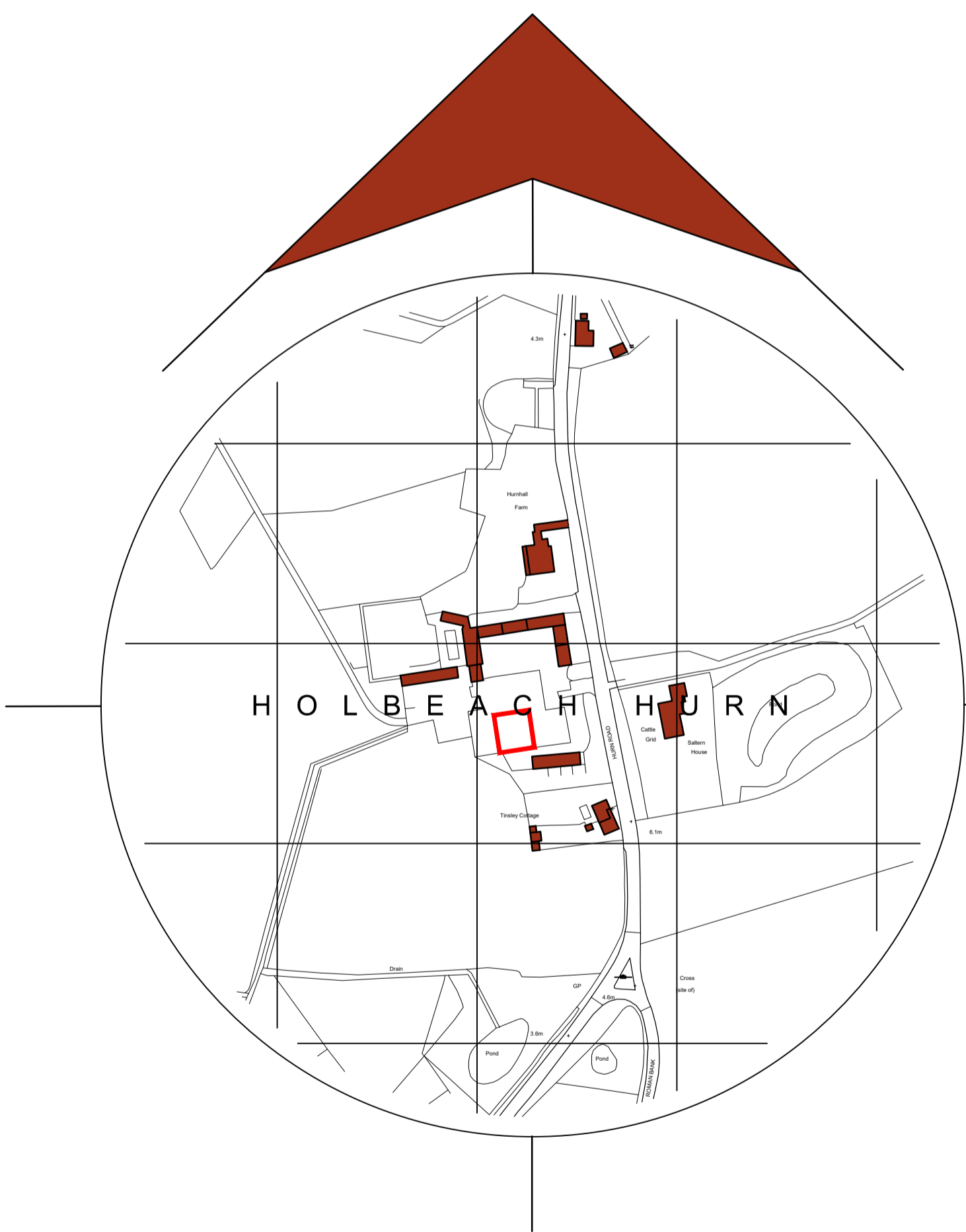
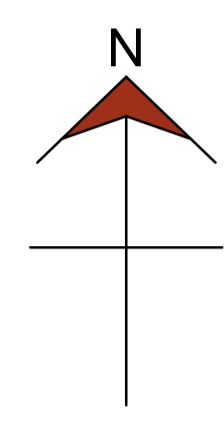
**SITE AND LOCATION PLAN
(DWG SE-2315 PP1000)**

**FLOOR PLANS, ELEVATIONS & SECTION
(DWG SE-2315 PP1100)**

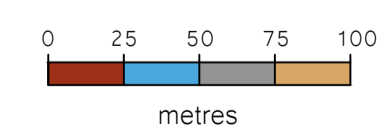
- General Notes
1. All dimensions are shown in 'mm' unless otherwise stated.
 2. The contractor, sub-contractors and suppliers must verify all dimensions on site prior to the commencement of any work.
 3. This drawing is to be read in conjunction with all relevant engineers and specialist sub-contractors drawings and specifications.
 4. Any discrepancies are to be brought to the designers attention.

SITE KEY

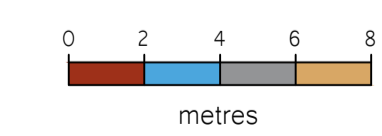
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-  Indicates buildings on site excluded from application
-  Indicates unsurveyed buildings taken from OS map
-  Indicates unsurveyed trees and planting on site
-  Indicates existing site access
-  Indicates risks identified on site



Location Plan
Scale: 1:2500




Site Plan
Scale: 1:200



SITE RISK NOTIFICATION KEY
To be used with reference to the accompanying Project Risk Register

R01	Drainage	R02	Unknown services
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Status
FOR APPROVAL



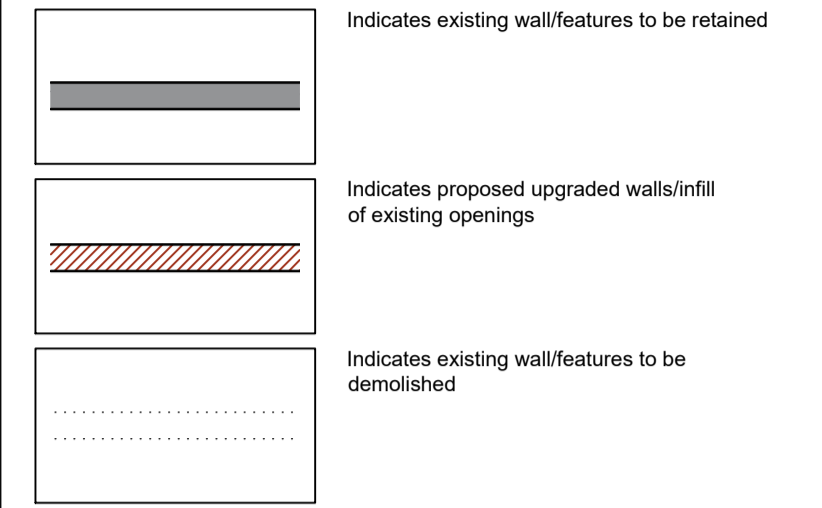
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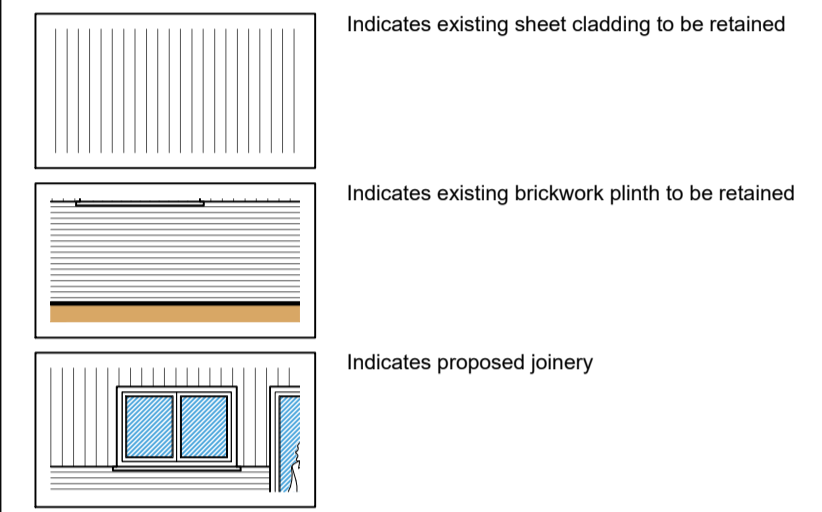
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	Checked by GE	
Drawing Title Planning Drawing Site and Location Plan	Job No. SE-2315	Sheet Size A1
	Dwg No. PP1000	Revision

- General Notes**
1. All dimensions are shown in 'mm' unless otherwise stated.
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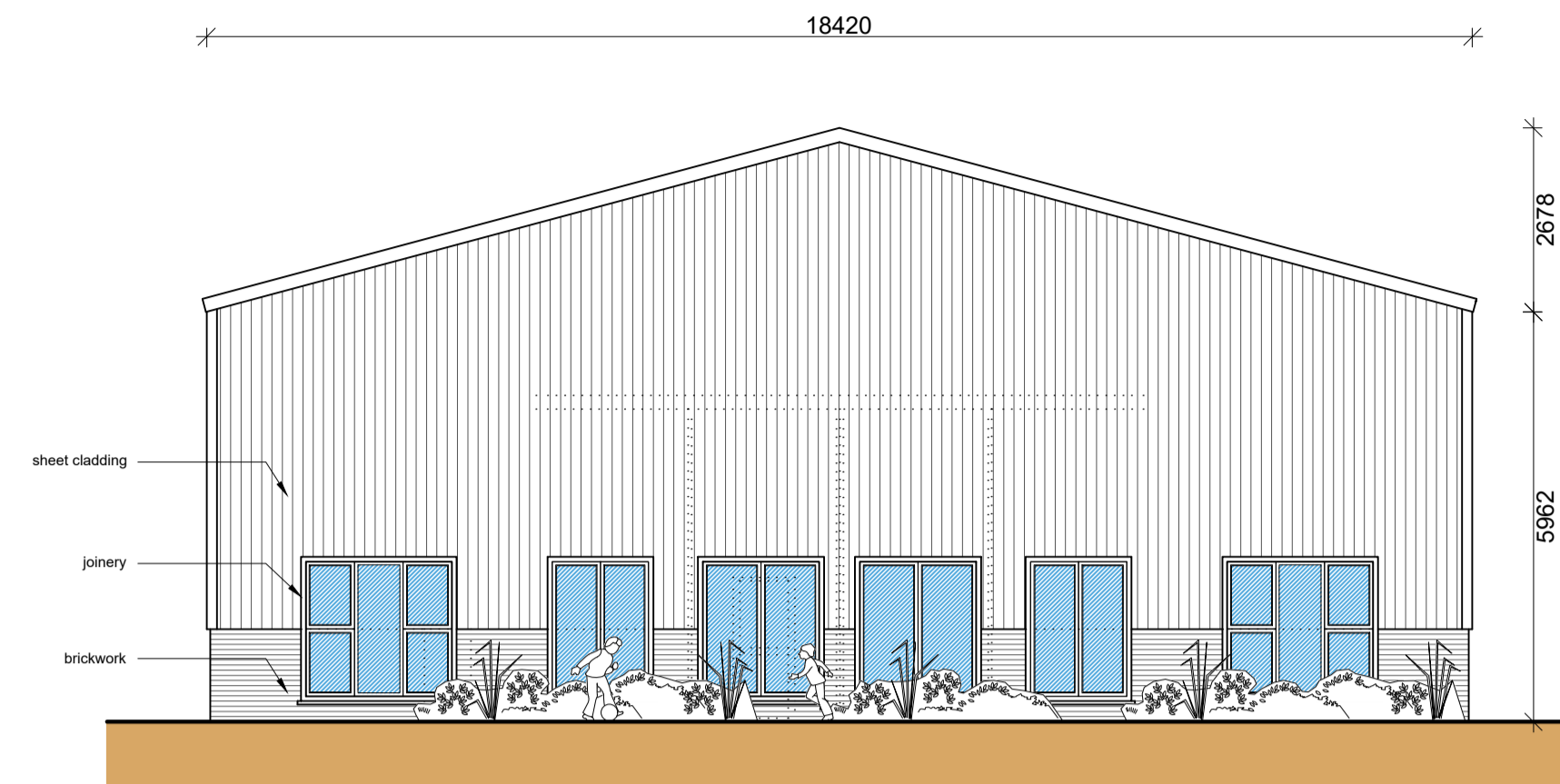
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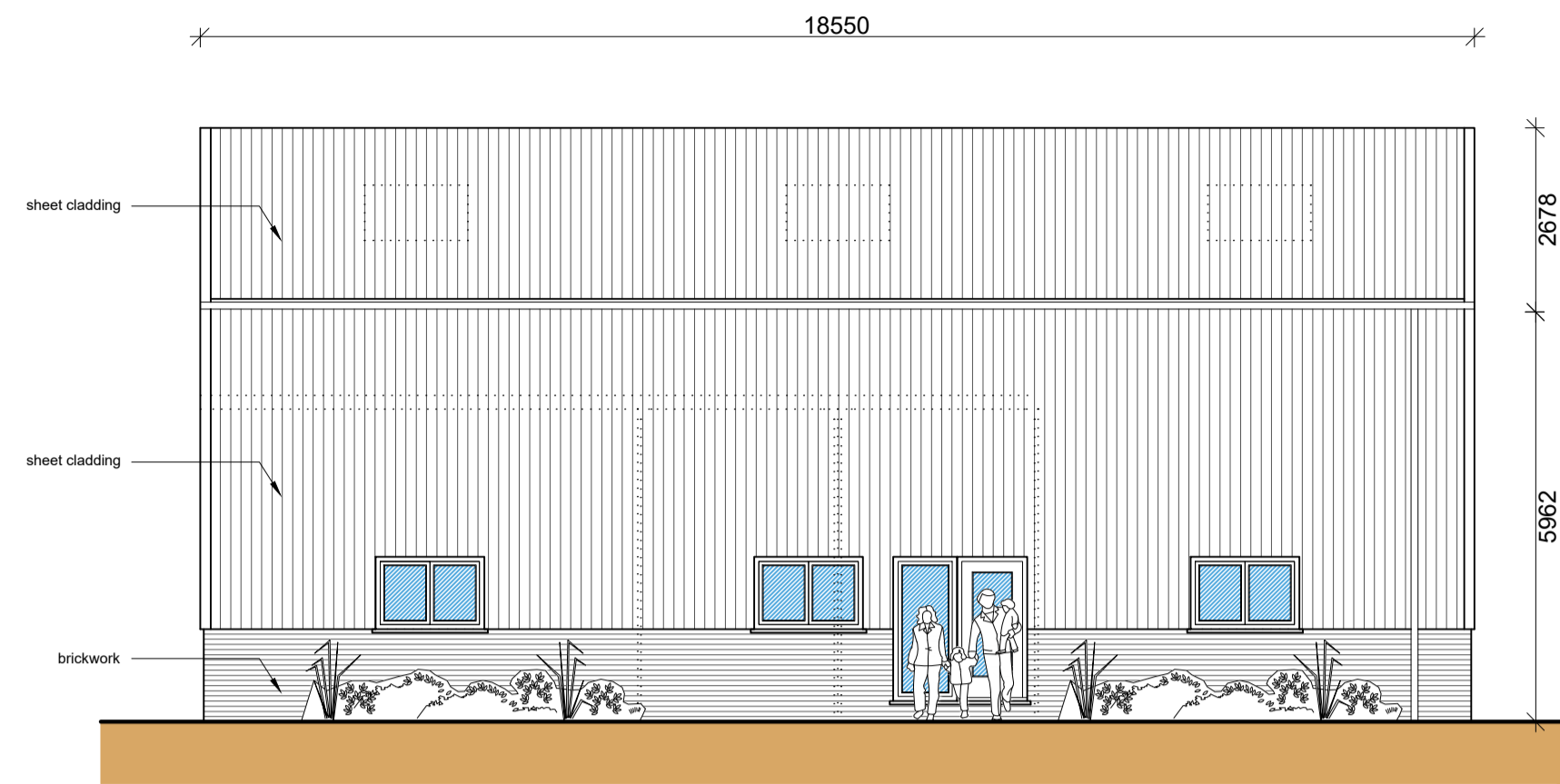
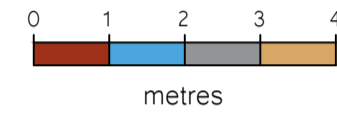
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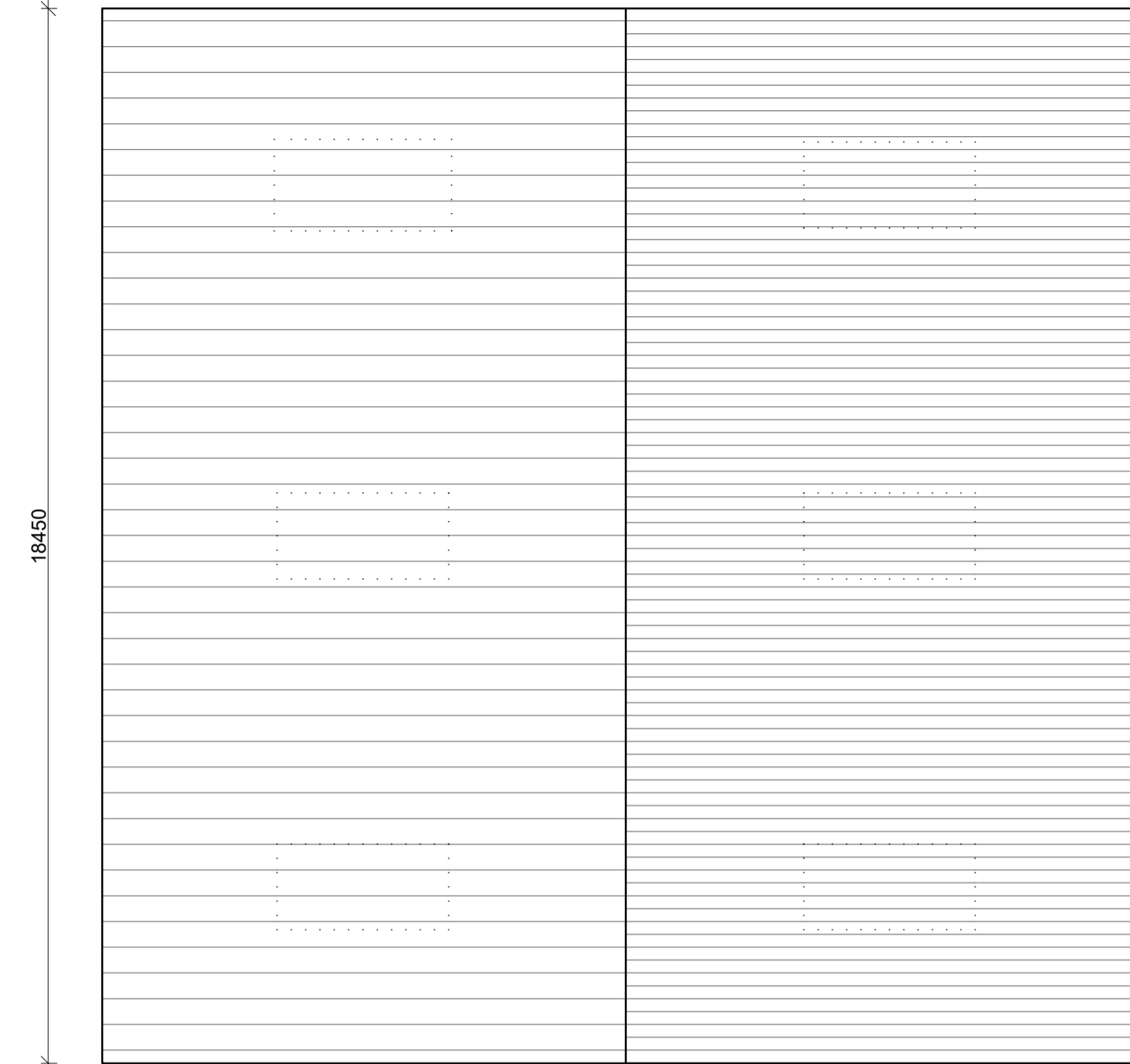
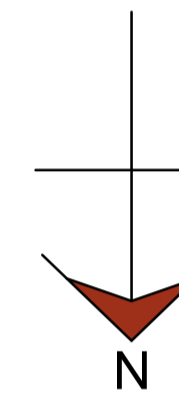
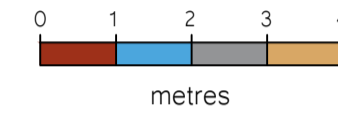
All materials to match existing where infill is required



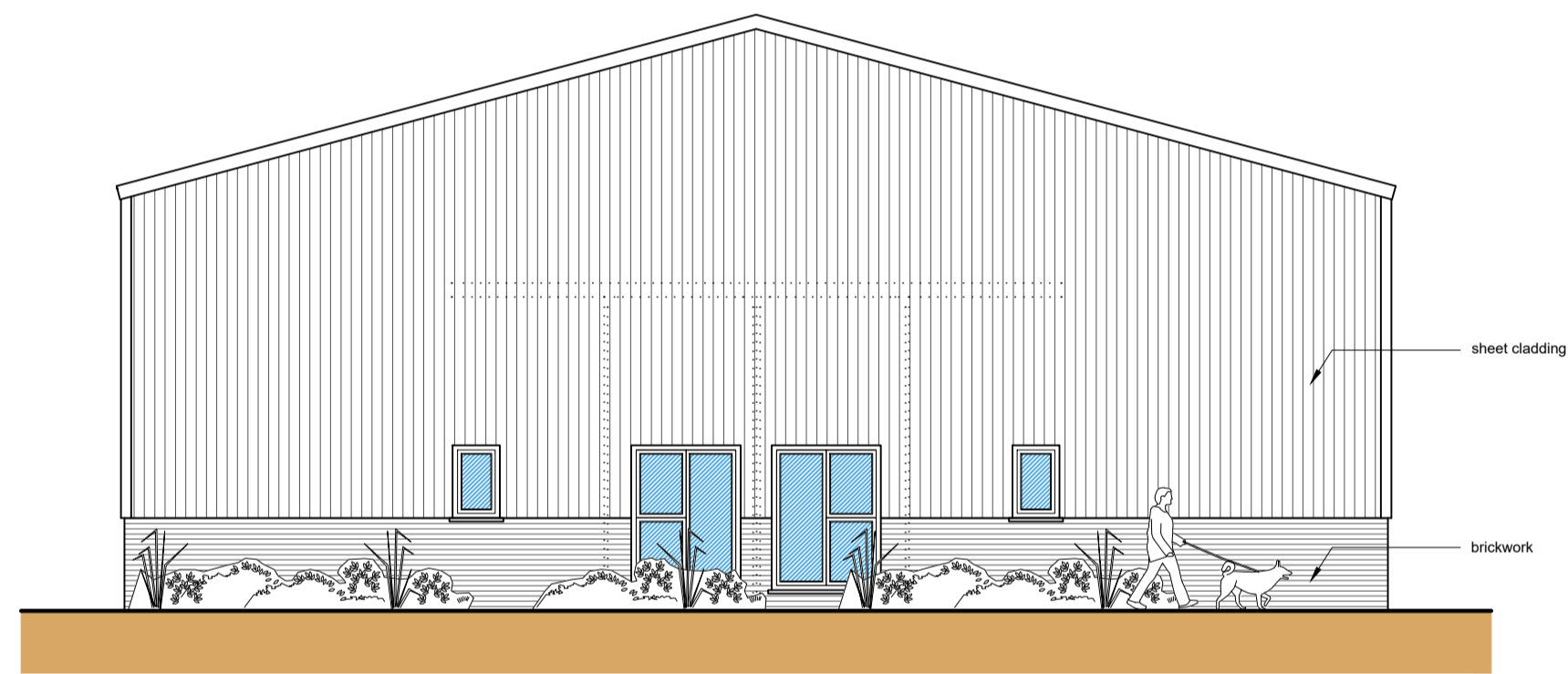
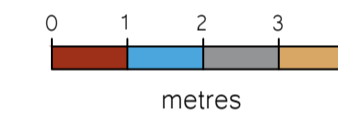
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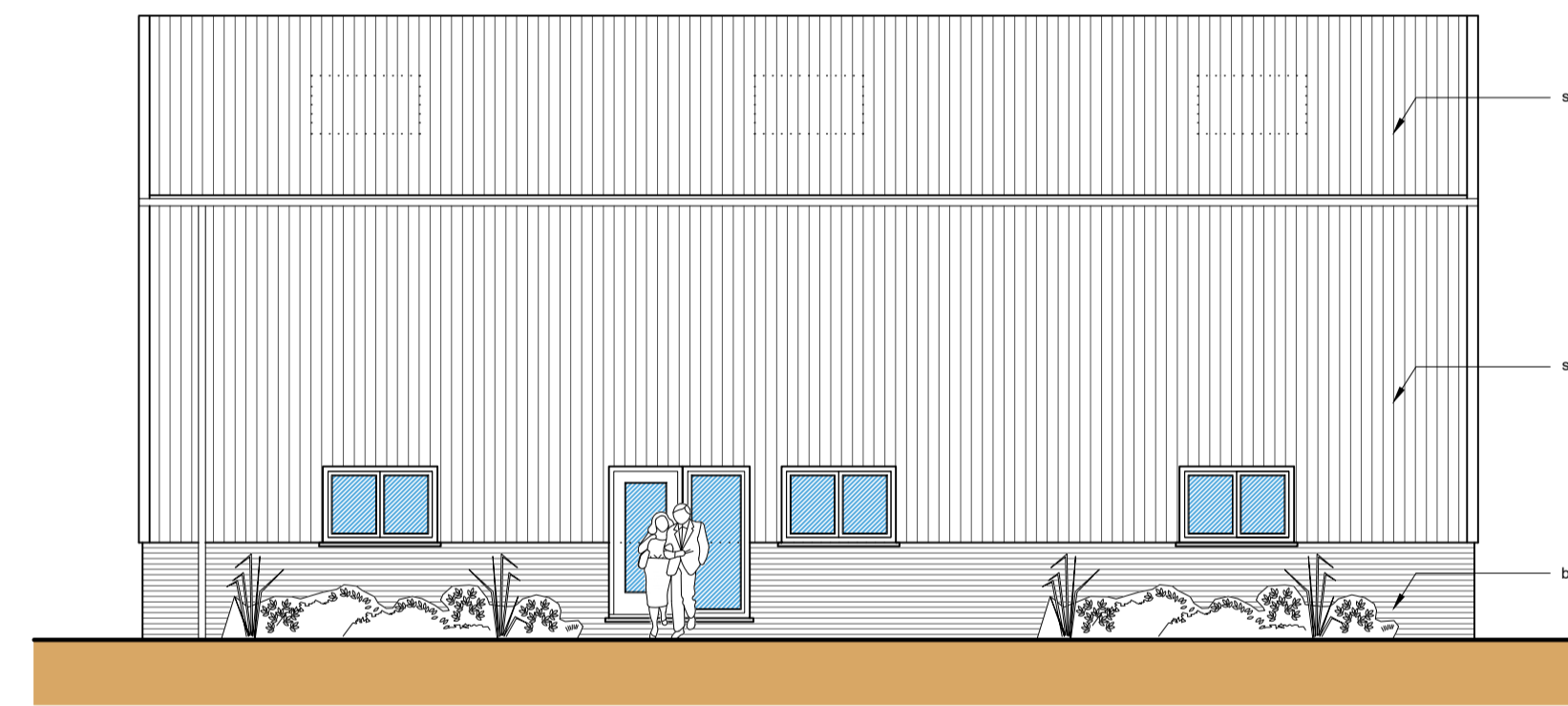
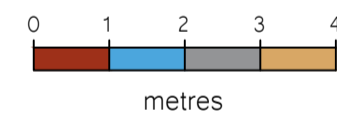
Side Elevation (E)
Scale: 1:100



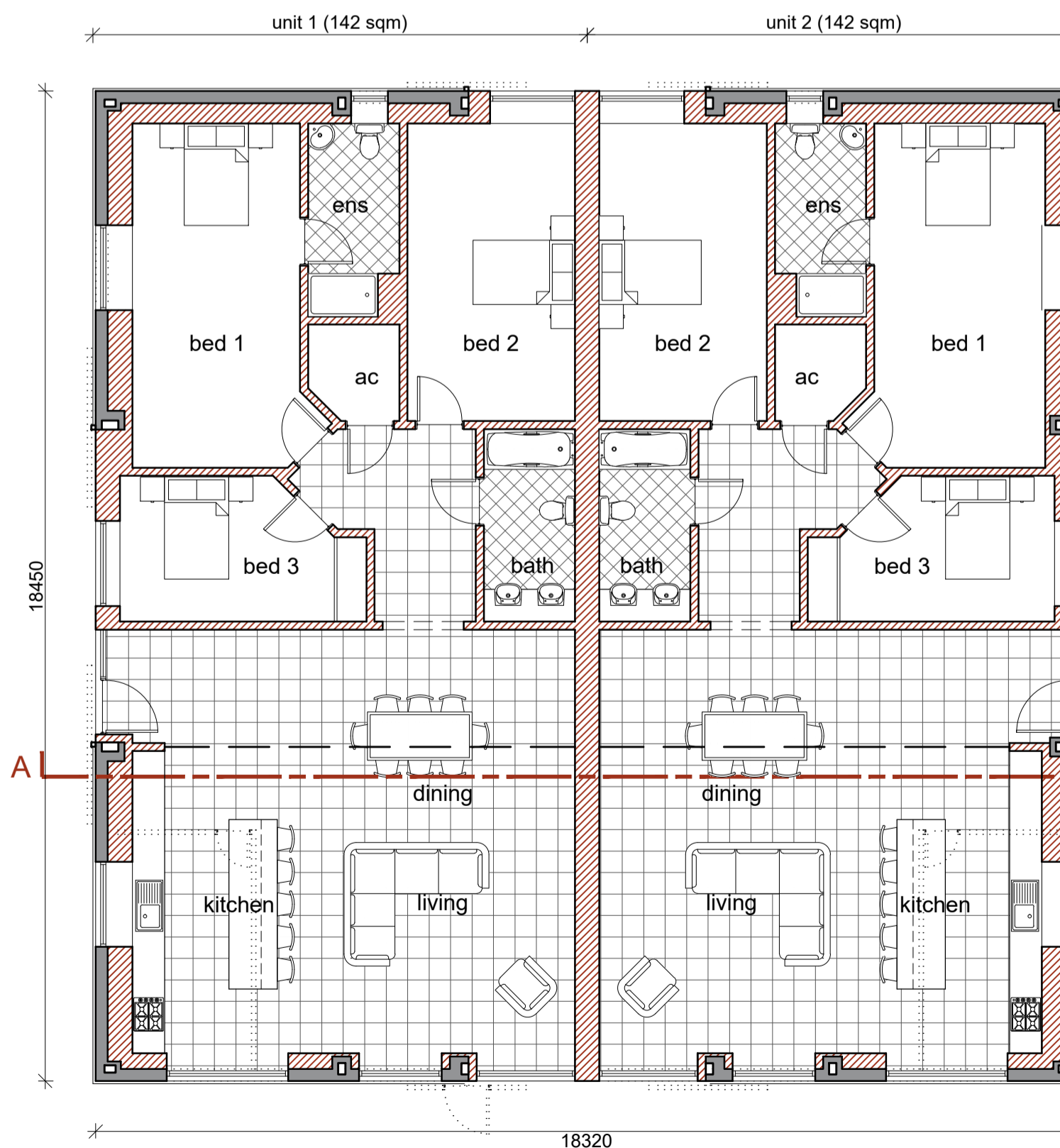
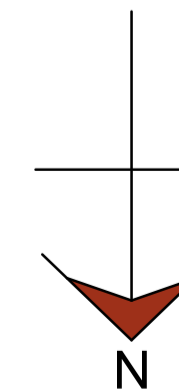
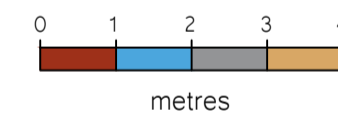
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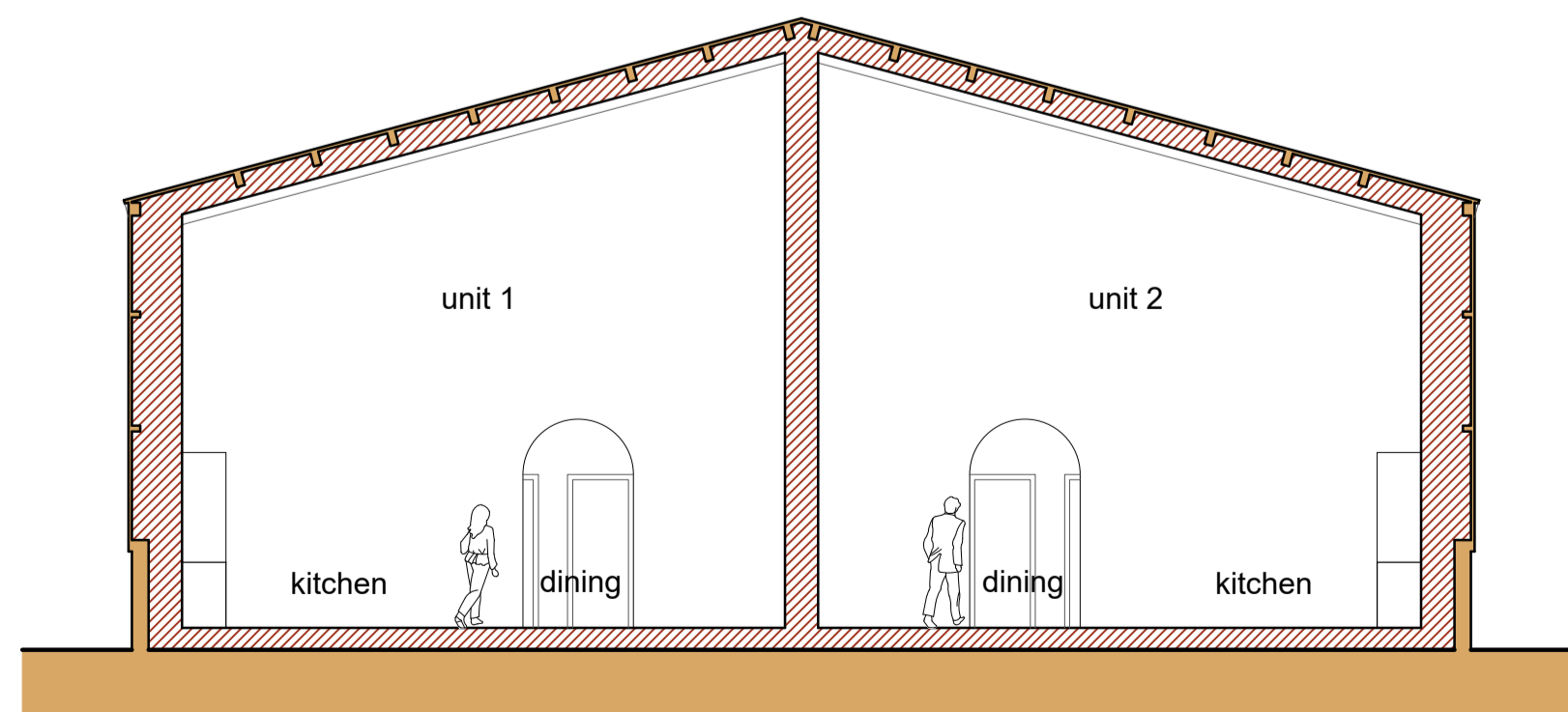
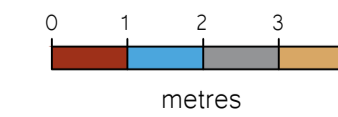
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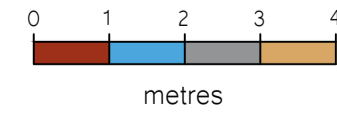
Side Elevation (W)
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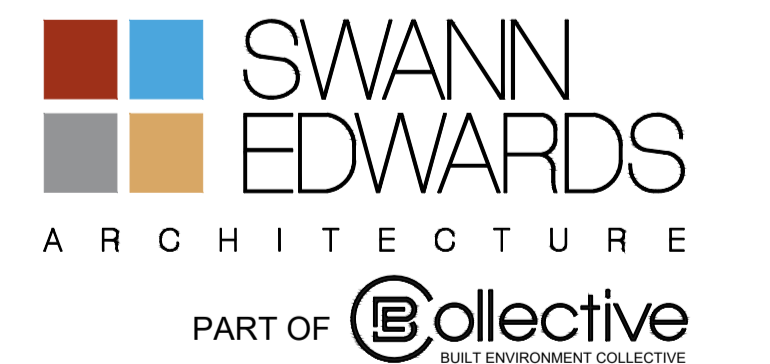
Floor Plan
Scale: 1:100



Section A-A
Scale: 1:100



Status
FOR APPROVAL



Swann Edwards Architecture Limited, Black Barn, Fen Road, Guyhirn, Wisbech, Cambs. PE13 4AA
t 01945 450554 e info@swannedwards.co.uk w www.swannedwards.co.uk

Job Title Proposed Agricultural Building Conversion, Hurn Road, Holbeach Hurn For: Ms R Runciman	Date June 2025	Drawn by GT
Drawing Title Planning Drawing Floor Plans, Roof Plan, Elevations & Section	Job No. SE-2315	Checked by GE
	Dwg No. PP1100	Sheet Size A1
		Revision