

**FLOOD RISK ASSESSMENT
FOR RESIDENTIAL DEVELOPMENT
AT 280 BRIDGE ROAD, SUTTON BRIDGE**

FINAL REPORT

ECL1175/G R MERCHANT LTD

DATE DECEMBER 2023

ELLINGHAM CONSULTING LTD

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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 G R Merchant Ltd in respect of a development that consists of the alteration and extension of The Anchor Public House, 280 Bridge Road, Sutton Bridge.

A planning application for the proposed development is to be submitted by G R Merchant Ltd.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site is located at the Anchor Inn, 280 Bridge Road, Sutton Bridge, Lincolnshire, PE12 9SH. The National Grid Reference of the site is 54684/32171.

The location of the site is shown in Figure 1.

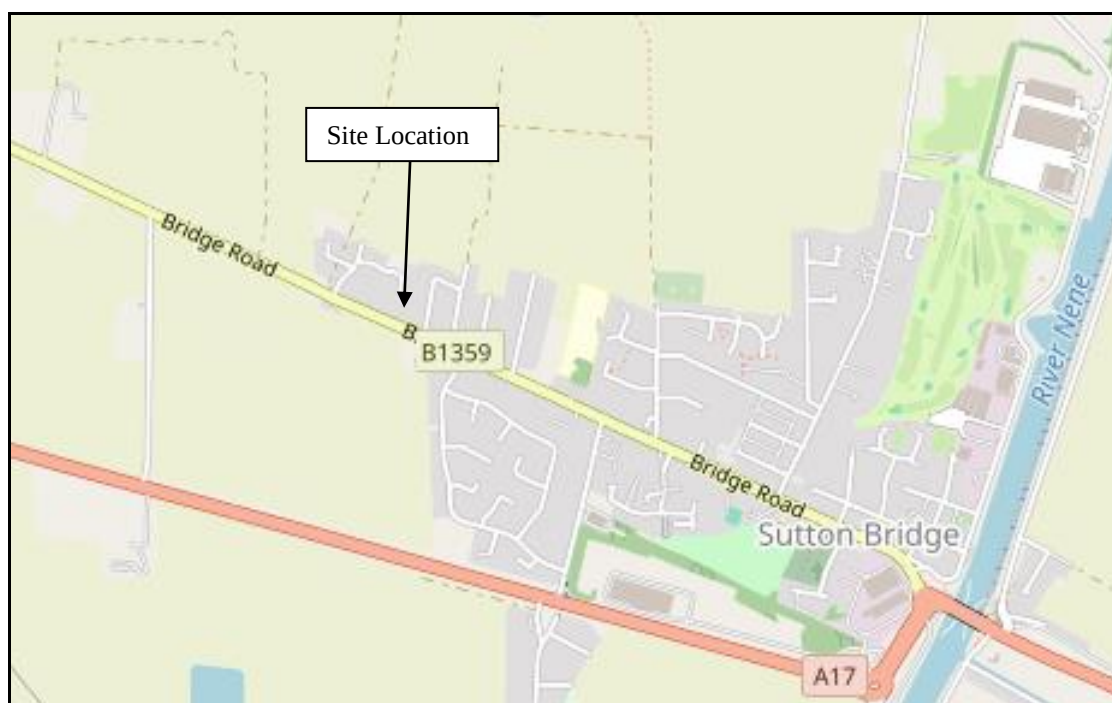


Figure 1 – Location Plan (© OpenStreetMap contributors)

2.2 Existing Site

The site is on the northern side of Bridge Road. The site consists of a public house and the surrounding car park and garden. The area of development is approximately 0.21 hectares.

Environment Agency LiDAR shows that the site is flat with ground levels between +3.8m OD and +4.2m OD. The lowest ground levels are close to the northern boundary of the site. The carriageway level of Bridge Road adjacent to the site is +4.4m 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 an IDB High Priority Watercourse approximately 300m north east of the site.

The online British Geological Survey maps indicate that the site is likely to be underlain by Amphill 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 extension and alteration of The Anchor Public House. The extension is on the north western side of the building and consists of a kitchen on the ground floor and a bedroom on the first floor. Details of the proposals are shown 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 within Flood Zone 3, an area with a high probability of flooding.

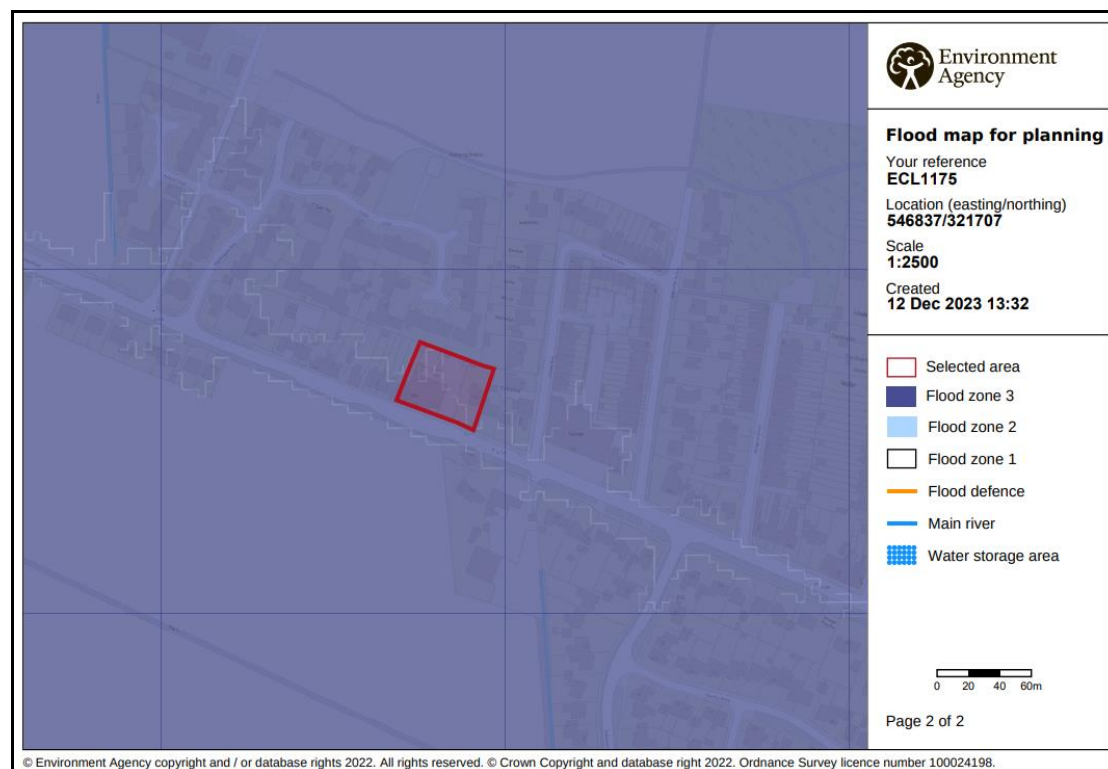


Figure 2 – Environment Agency Flood Map for Planning

The Environment Agency Long Term Flood Risk maps show that:

- the site has a low risk of flooding from rivers or the sea (annual probability between 0.1% and 1%);
- part of the car park has a medium risk (annual probability between 1% and 3.3%) of surface water flooding; and
- the site is not within an area at risk of reservoir flooding.

Table 1 shows the level of risk at the site within the South East Lincolnshire SFRA.

SFRA Map	Present Day	2115
Residual Flood Hazard Map for the 1% fluvial and 0.5% tidal event	The site is outside the 'Low Hazard' area	The site is in the 'Danger for Most' area
Residual Peak Depth Map for the 1% fluvial and 0.5% tidal	The site is outside the area at risk.	The peak flood depth is between 0.5m and 1.0m.

Table 1 – 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 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.

As the development is an extension to an existing residential dwelling the Sequential Test and Exception Test have not been applied.

4.0 SITE SPECIFIC FLOOD RISK

4.1 Local Flood Assets

The site is 1500m west of the tidal River Nene. The site is protected by the River Nene tidal defences through Sutton Bridge. The River Nene is 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 High Priority Watercourse approximately 300m north east of the site. The site and the surrounding land are within the Westmere catchment and discharge to the tidal River Nene at the Westmere Tidal Sluice. The site is 1.8km north of the South Holland Main Drain.

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 2.

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 part of the site has a medium risk.
Fluvial Flooding	The risk is assessed in Section 4.3 & 4.5.
Tidal Flooding	The risk is assessed in Section 4.3, 4.5 & 4.6.
Reservoir Flooding	The site is not at risk of reservoir flooding.
Groundwater Flooding	There is no evidence to suggest the site is at risk of groundwater flooding.

Table 2 – 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. Failure of Westmere Tidal Sluice could lead to an increased level of risk in the IDB catchment.

Through the operation and maintenance of the pumping stations and the channel system the Board seek to maintain a general standard capable of 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 benefits from defences on the River Nene that provide protection during a 0.5% annual probability (1 in 200 chance each year) tidal event and a 1% annual probability (1 in 100 chance each year) fluvial event.

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 flood levels in the River Nene.

The River Nene tidal defences have been designed to include an allowance for climate change. In summary the site is not at risk for the design life of the development (i.e. 100 years).

4.6 Residual Risk

There is a residual risk of flooding at the site should a breach of the tidal defences occur. The South East Lincolnshire SFRA includes maps demonstrating the residual peak depth in 2115. When climate change allowances are applied to the 1% annual probability (1 in 100 chance each year) fluvial event and 0.5% annual probability (1 in 200 chance each year) tidal event the peak depth at the site from a breach is between 0.5m and 1.0m. An extract from this map is shown in Figure 3 below.

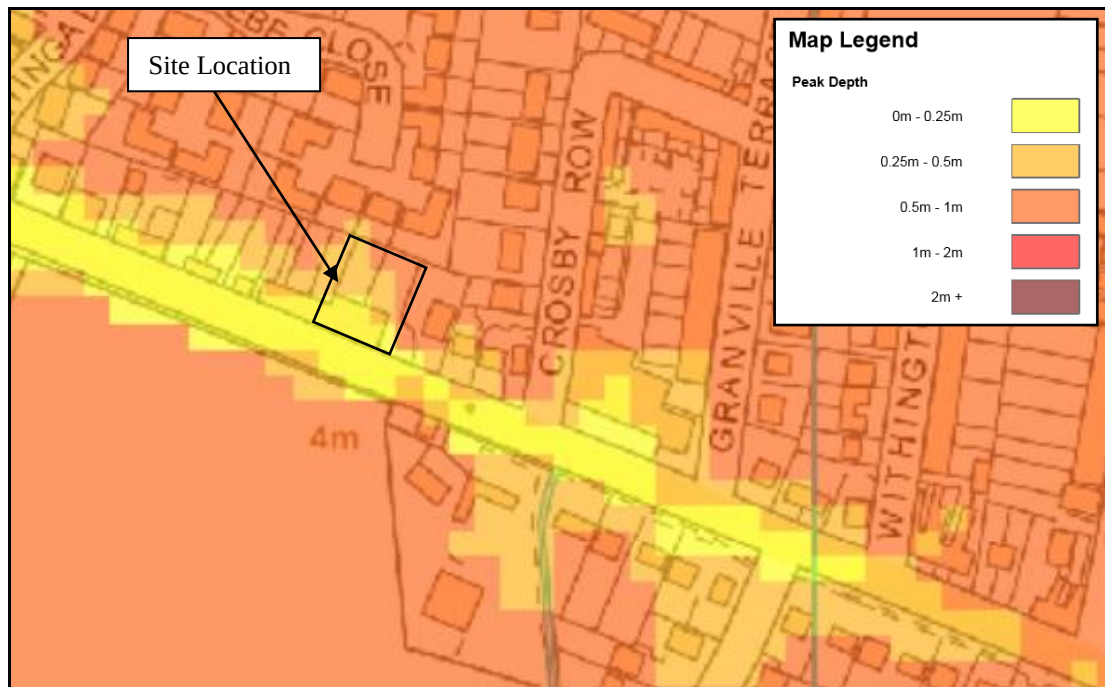


Figure 3 – SFRA 2115 Residual Peak Depth Map

Based upon the Environment Agency LiDAR data and the depth and extent of flooding in Figure 3 the estimated flood level during the 0.5% annual probability (1 in 200 chance each year) tidal event in 2115 is +4.6m OD. This is a depth of 0.4m on the northern side of the building.

5.0 FLOOD RISK MITIGATION

5.1 Summary of Risks

The probability of this development flooding from localised drainage systems is low. Failure of Westmere Tidal Sluice could lead to an increased level of risk at the site.

The probability of the site flooding from any Environment Agency system is less than 1% annual probability (1 in 100 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.

The SFRA considers the residual risk associated with overtopping and a breach in the defences in 2116. The maps show that the peak flood depth at the site is between 0.5m and 1.0m and the flood depth on the northern side of the building is estimated to be 0.4m.

The proposed arrangement increases the impermeable area so there will be an increased volume of surface water. This has the potential to increase flood risk.

5.2 Mitigation Measures

Under PPG on Flood Risk and Coastal Change an extension is defined as a minor development. Guidance states that you should follow the Environment Agency's standing advice if you're carrying out a flood risk assessment for a minor extension (household).

The proposed development is a minor extension, and the proposals are consistent with the Environment Agency's standing advice for minor extensions. The floor level of the extension are no lower than existing floor levels.

It is recommended that the extension considers the use of flood resilient construction which may include water compatible flooring such as tiled floors, the use of horizontal plasterboard, sacrificial or water compatible fittings, and elevated services.

The developer should ensure that the occupier is 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 occupier should register to receive flood warnings.

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 extension and alteration of The Anchor Public House, Bridge Road, Sutton Bridge.
- 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 River Nene tidal defences provide protection during the 0.5% annual probability (1 in 200 chance each year) event. During the design life of the development, including an allowance for climate change, it is not anticipated that there would be flooding at the site.
- The maximum breach depth within the site during the 0.5% annual probability (1 in 200 chance each year) tidal event in 2115 is between 0.5m and 1.0m. The flood depth on the northern side of the building is estimated to be 0.4m.
- The floor level of the extension will match the existing floor levels. The proposed floor levels are no lower than existing floor levels and therefore the development is consistent with the Environment Agency's standing advice for minor extensions.
- The development passes the Sequential Test and Exception Test and is therefore suitable for the proposed location.

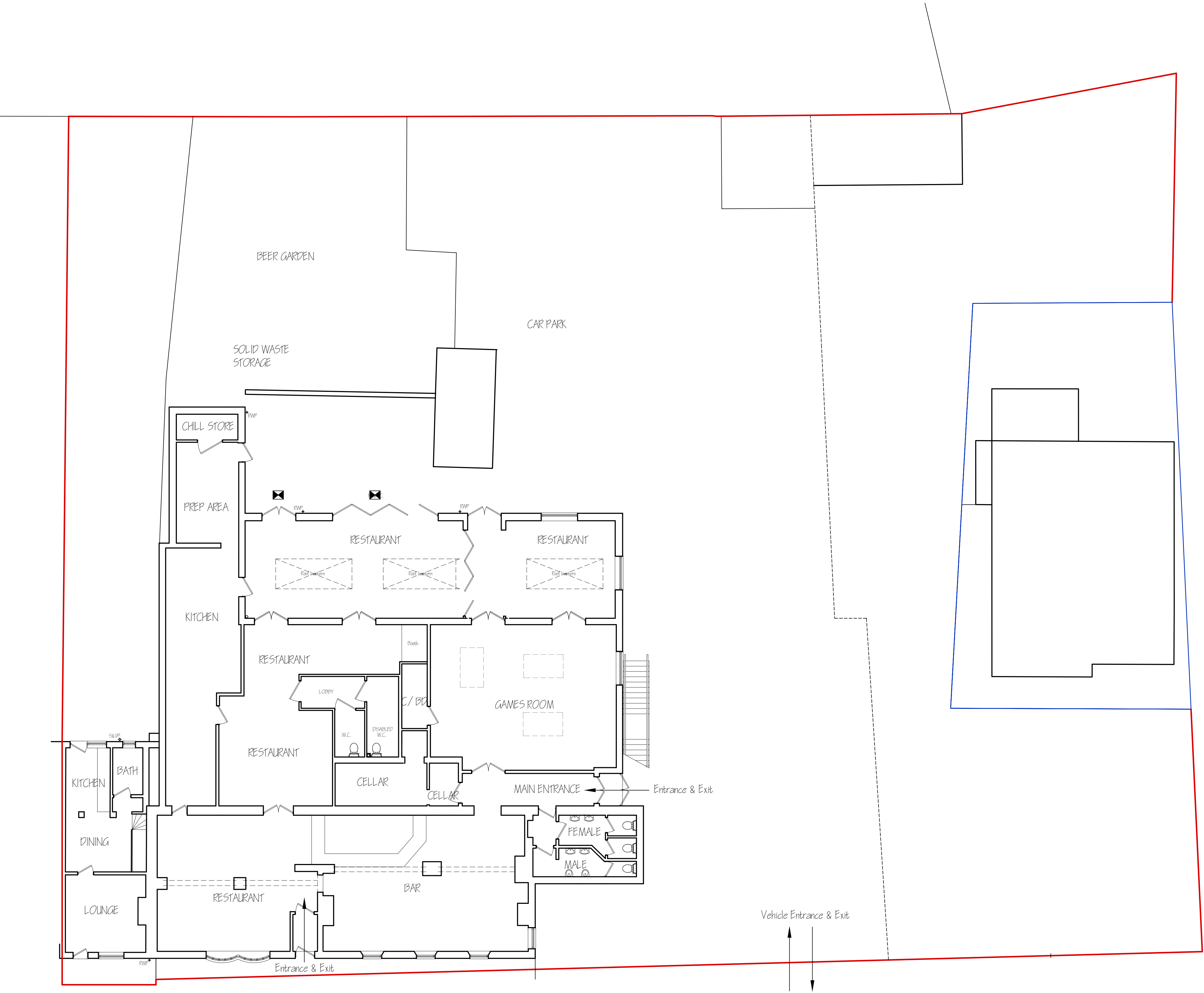
ATTACHMENT 1

Ground Floor Plan Existing (Dwg 4201-23-01)

First Floor Plan Existing (Dwg 4201-23-02)

Ground Floor Plan Proposed (Dwg 4201-23-03B)

First Floor Plan Proposed (Dwg 4201-23-04B)



GROUND FLOOR PLAN



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LOCATION PLAN 1:1250

222432

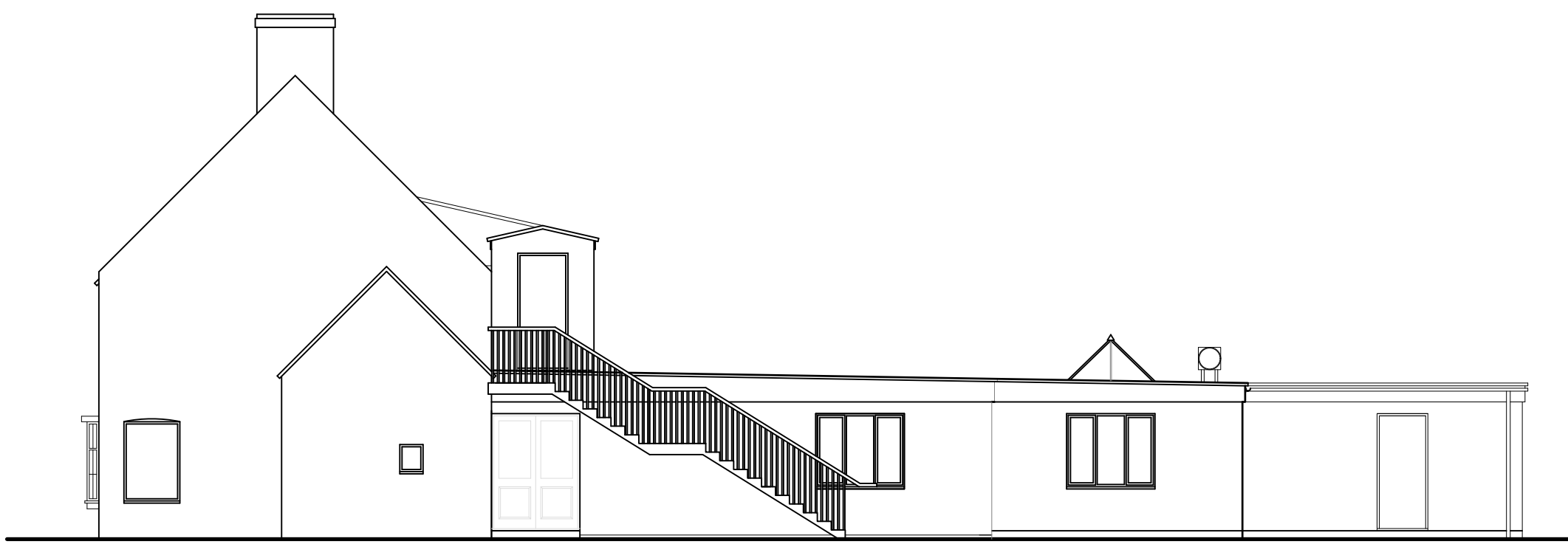
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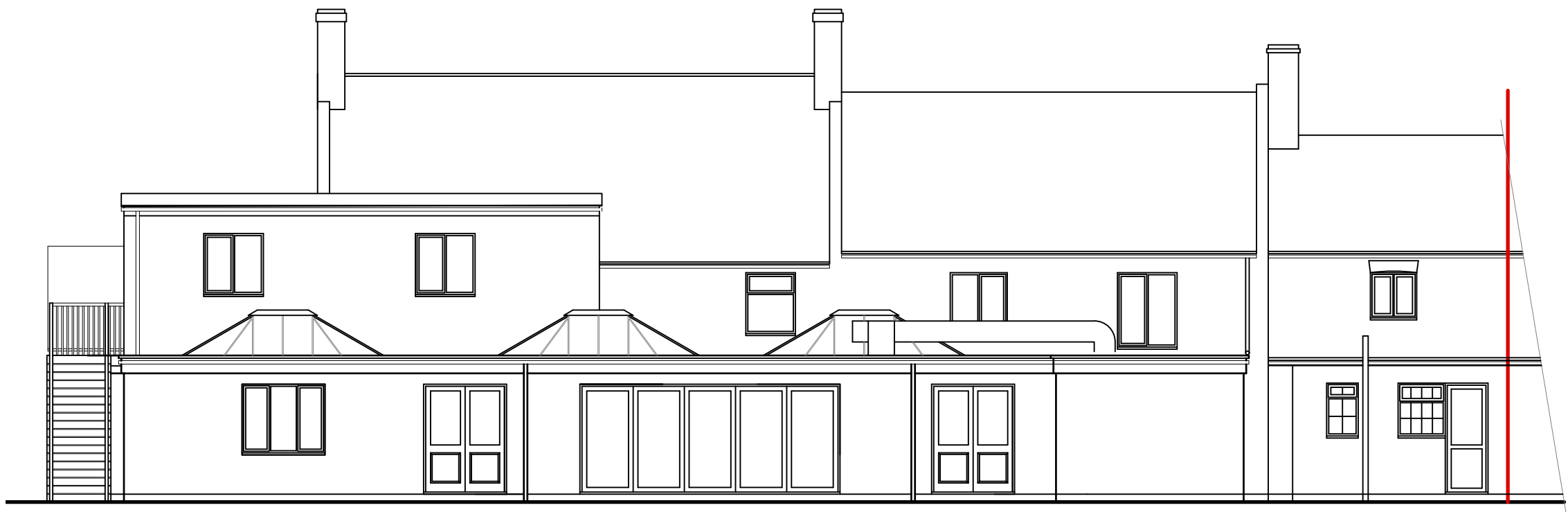
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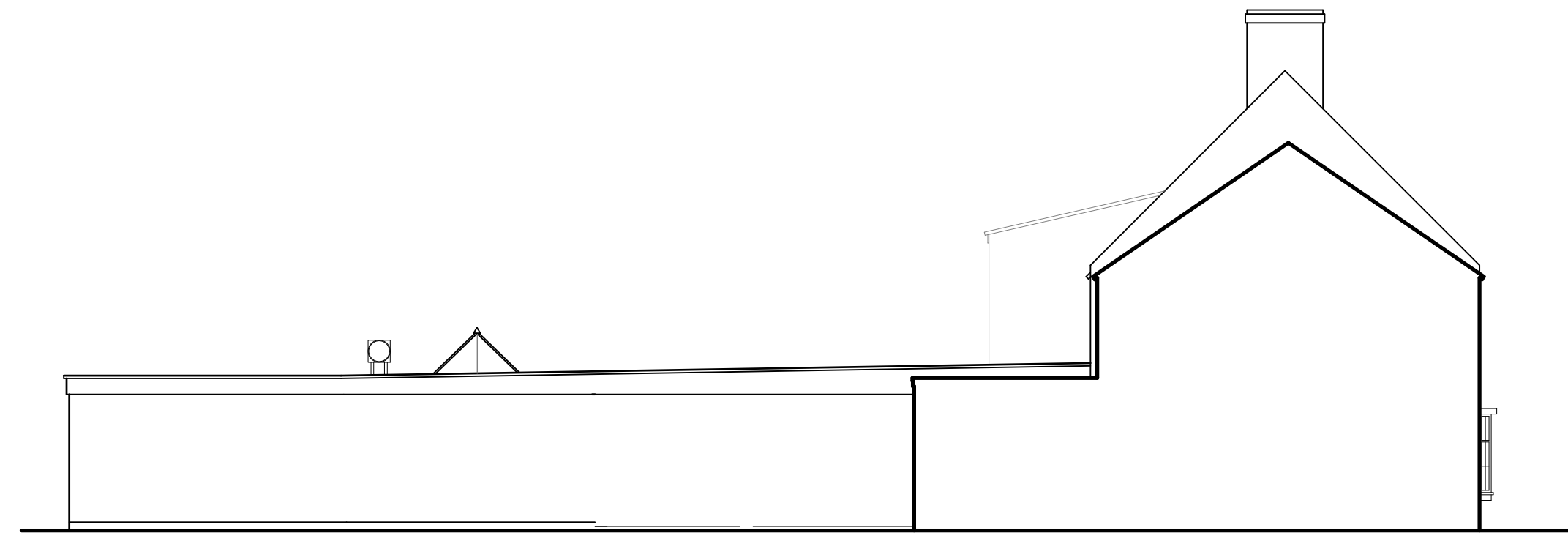
FRONT ELEVATION



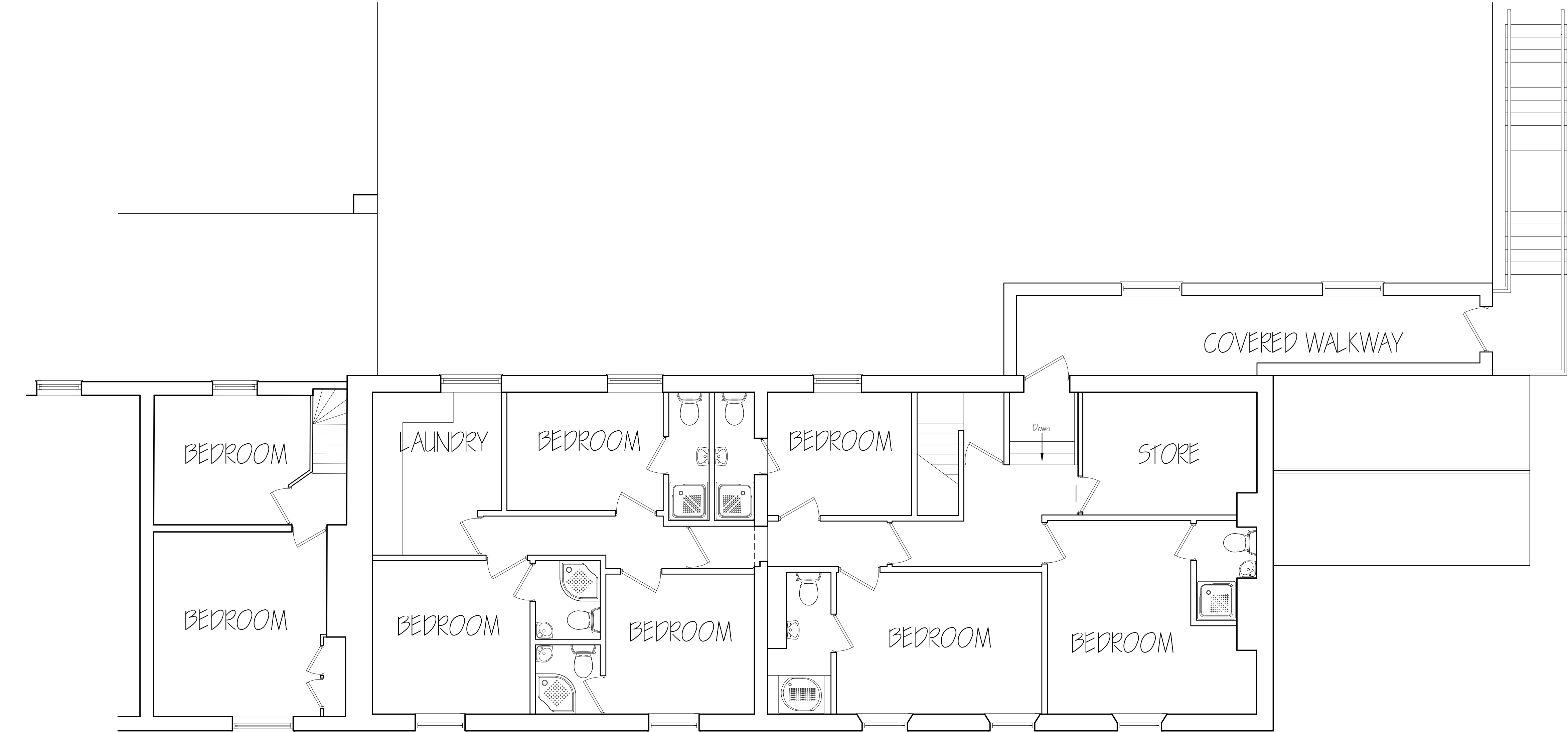
SIDE ELEVATION



REAR ELEVATION



SIDE ELEVATION



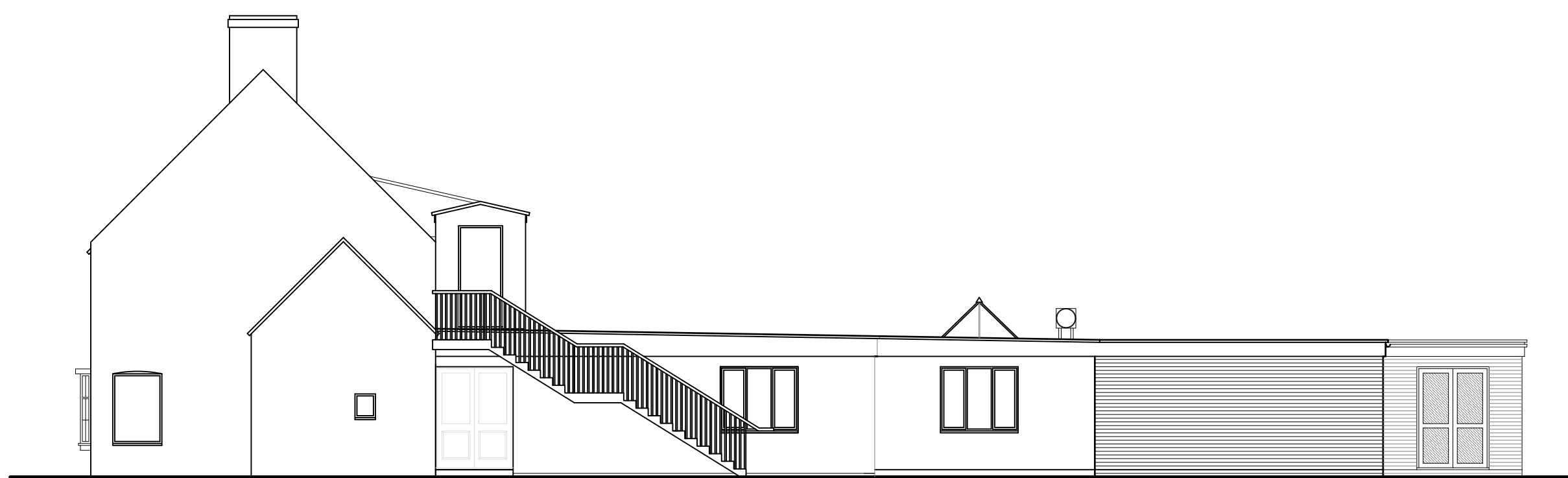
FIRST FLOOR PLAN

ref:	revision	date
G. R. MERCHANT LTD		
ARCHITECTURAL CONSULTANTS		
		
4 Wrights Mews 12A Park Road, Holbeach, Spalding, Lincs. PE12 7EE Tel: 01406 490800 E-Mail: office@grmerchantltd.com Website: www.grmerchantltd.com		
Project		
ALTERATIONS & EXTENSION THE ANCHOR P.H. 280 BRIDGE ROAD, SUTTON BRIDGE SPALDING, Lincs. PE12 9SH		
Client		
MR J HOOK		
Drawing		
FIRST FLOOR PLAN - EXISTING ELEVATIONS - EXISTING		
Job Ref.	Drawing No.	
4201-23	02	
Date	Drawn	
NOVEMBER 2023	SLB	
Scales		
1:50 & 1:100 (Unless Otherwise Stated)		
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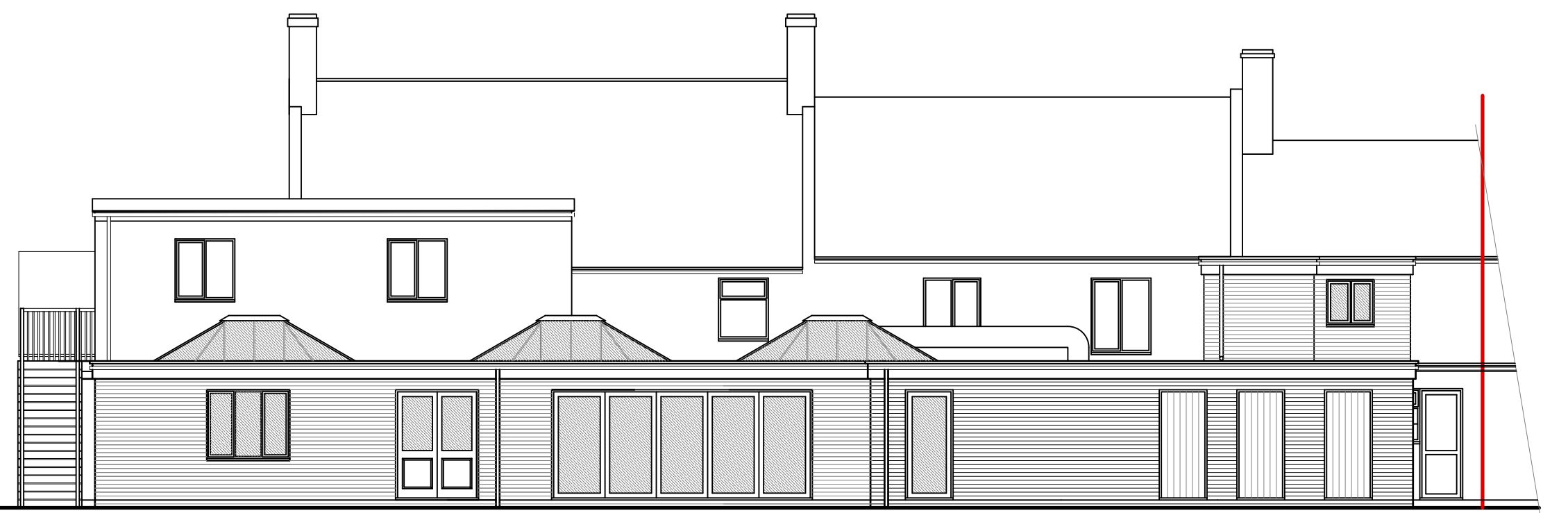
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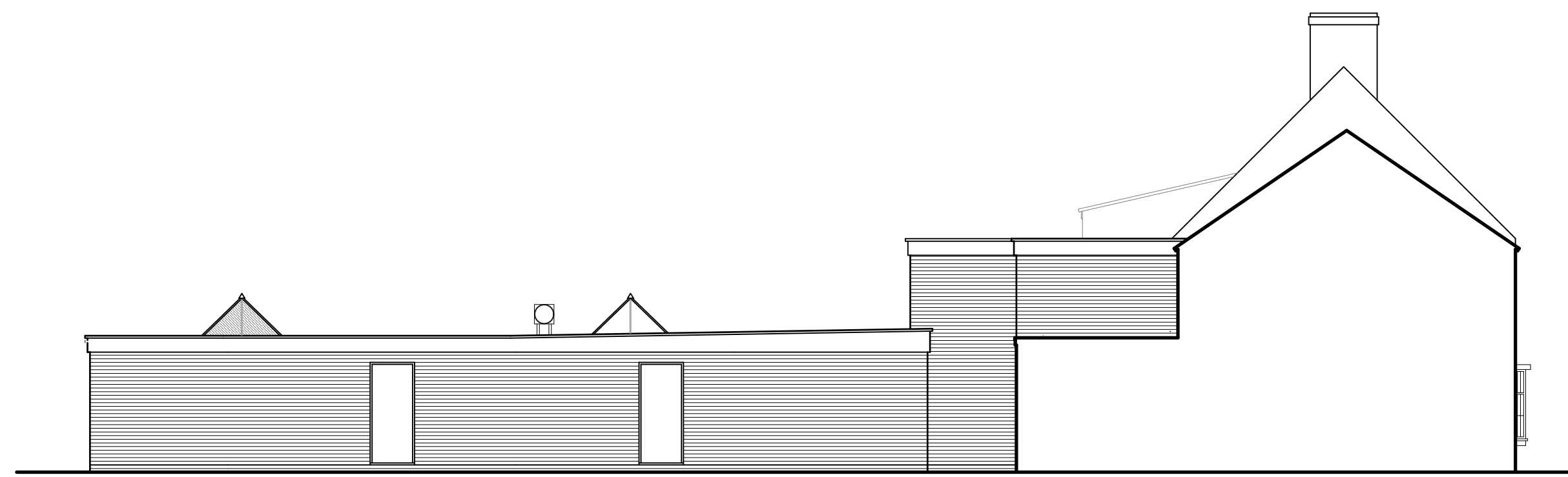
FRONT ELEVATION



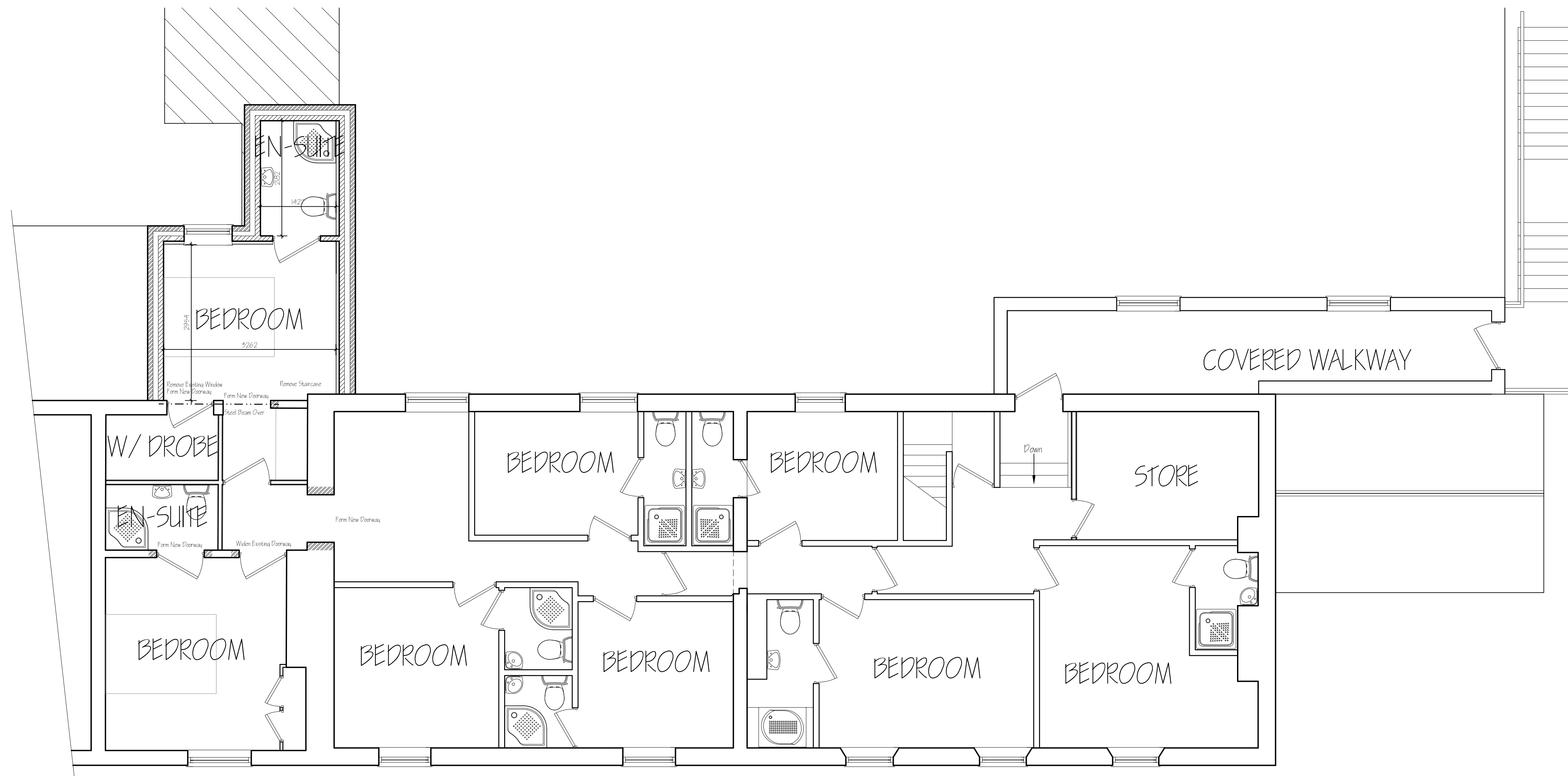
SIDE ELEVATION



REAR ELEVATION



SIDE ELEVATION



FIRST FLOOR PLAN

B	CLIENT AMENDMENTS	NOV 2023
A	CLIENT AMENDMENTS	NOV 2023
ref:	revision	date
<p>G. R. MERCHANT LTD</p> <p>ARCHITECTURAL CONSULTANTS</p> <p>4 Wrights Mews 12A Park Road, Holbeach, Spalding, Lincs. PE12 7EE Tel: 01460 490800 E-Mail: office@grrmerchanttd.com Website: www.grrmerchanttd.com</p> <p></p>		
Project	<p>ALTERATIONS & EXTENSION THE ANCHOR P.H. 280 BRIDGE ROAD, SUITON BRIDGE SPALDING, Lincs. PE12 9SH</p>	
Client	MR J HOOK	
Drawing	<p>FIRST FLOOR PLAN - PROPOSED ELEVATIONS - PROPOSED</p>	
Job Ref.	4201-23	043
Date	NOVEMBER 2023	SLB
Scales	1:50 & 1:100 (Unless Otherwise Stated)	
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