

**FLOOD RISK ASSESSMENT
FOR COMMERCIAL DEVELOPMENT AT
SMALL DROVE LANE, WEST PINCHBECK**

FINAL REPORT

ECL1470/GR MERCHANT LTD

DATE MARCH 2025

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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 GR Merchant Ltd in respect of a development that consists of a glasshouse extension at Small Drove Lane, West Pinchbeck.

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

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site is located at EM Cole Farms, Small Drove Lane, West Pinchbeck, Spalding, PE11 3NL. The National Grid Reference of the site is 52038/32545.

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 Small Drove Lane. The site is within the curtilage of a horticultural holding and comprises part of a greenhouse, employee car park, static caravans, storage area and vehicle access. The horticultural site is surrounded by agricultural land. The area of development is approximately 1 hectares.

Environment Agency LIDAR information shows that ground levels within the site are typically between +3.0m OD and +3.3m OD. The carriageway level of Small Drove Lane adjacent to the site is +3.2m OD. The agricultural land to the west of the site ranges from +2.2m OD to +3.0m OD.

The site is in the Black Sluice Internal Drainage Board's (IDB) district. Surface water at the site would naturally drain through soakaway and hence to the riparian network and IDB drain system. Small Drove Lane Drain, an IDB Main Drain, is approximately 200m north of the site.

The online British Geological Survey maps indicate that the site is likely to be underlain by Oxford 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 an extension to a greenhouse. The static caravans will be removed and the employee car park relocated as part of the work. 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 Available Flood Risk Information

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 provide an indication of the risk from the primary sources of flooding. The details provided with these maps are summarised in Table 1. The depth of surface water flooding in Table 1 is the maximum depth that occurs during a low chance (between 0.1% and 1% chance each year) event as the design floods to be considered within a Flood Risk Assessment are within this range.

	Present Day		2050 Epoch	
	Risk of Flooding	Depth (Low chance)	Risk of Flooding	Depth (Low chance)
Rivers and the Sea	Part of the site has a medium chance (between 1% and 3.3% chance each year)	No data available	No data available	No data available
Surface Water	An isolated area of the site has a low risk (between 0.1% and 1% chance each year)	During low risk events depths are up to 0.2m	An isolated area of the site has a low risk (between 0.1% and 1% chance each year)	During low risk events depths are up to 0.2m
Reservoir	The site is at risk when river levels are normal			

Table 1 – Environment Agency Long Term Flood Risk Maps

Table 2 shows the level of residual risk at the site as identified 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 in the 'Low Hazard' area	The site is in the 'Danger for Some' area
Residual Peak Depth Map for the 1% fluvial and 0.5% tidal	The site has a peak flood depth of 0.0m to 0.25m	The site has a peak flood depth of 0.25m to 0.5m

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 general industry and is classified as 'Less 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 'Less Vulnerable' therefore it is not 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

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.

The proposed development is an extension to a greenhouse within an existing horticultural holding. It would not be practicable to undertake the development at an alternative location. The proposal is considered to pass the Sequential Test.

4.0 SITE SPECIFIC FLOOD RISK

4.1 Local Flood Assets

The site is 5.6km west of the River Welland downstream of Spalding. The River Welland tidal defences, which are downstream of the confluence of the Coronation Channel and River Welland, provide protection to the site. The tidal defences are the responsibility of the Environment Agency.

The site is 400m from the River Glen. The risk of flooding at the site is reduced by an embankment on the northern bank of the River Glen. The site is 3.6km from the South Forty Foot Drain. The South Forty Foot Drain is an embanked high-level carrier conveying run off from south Lincolnshire to the River Witham. The risk of flooding at the site is reduced by an embankment on the eastern bank of the South Forty Foot. 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 Black Sluice IDB. There is an IDB maintained watercourse, Small Drove Lane Drain, 200m north of the site. The site and the surrounding land are within the Gosberton catchment and drains in a westerly direction to the Gosberton Pumping Station to discharge to the South Forty Foot Drain which flows into the River Witham at Boston.

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 Black Sluice IDB 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 / low.
Fluvial Flooding	The risk is assessed in Section 4.3.
Tidal Flooding	The site is in excess of 5km from the tidal River Welland and therefore not at risk.
Reservoir Flooding	The risk of a breach is considered in Section 4.6.
Groundwater Flooding	Based upon the local drainage network the risk is low.

Table 3 – Sources of Flooding

4.3 Probability of Flooding

The probability of flooding associated with blockages in the Black Sluice 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 Black Sluice IDB main drains incorporating freeboard. This freeboard provides storage during the exceedance events.

The fluvial defences on the River Glen provide protection against the 1% annual probability (1 in 100 chance each year) event. Flood levels in the Welland Catchment Model show that the 1% annual probability (1 in 100 chance each year) level in the River Glen is +4.46m OD with defence level at +5.50m OD.

The River Welland tidal defences provide protection during the 0.5% annual probability (1 in 200 chance each year) tidal event including climate change.

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.

Flood levels taken from the Welland Catchment Model show that the 1% annual probability (1 in 100 chance each year) with climate change flood level in the River

Glen is +4.76m OD. This represents a 0.30m increase on the present day 1% annual probability level. This increase is less than the freeboard provided by the existing defences and therefore the site is protected from overtopping during the life of the development.

4.6 Residual Risk

There is a residual risk of flooding at the site should a breach occur in the defences. The South East Lincolnshire SFRA includes maps demonstrating the impact of a breach in 2116. The Residual Peak Depth maps within the SFRA indicate the maximum flood depths associated with a breach and overtopping of defences. These show a peak flood depth at the site between 0.25m and 0.5m.

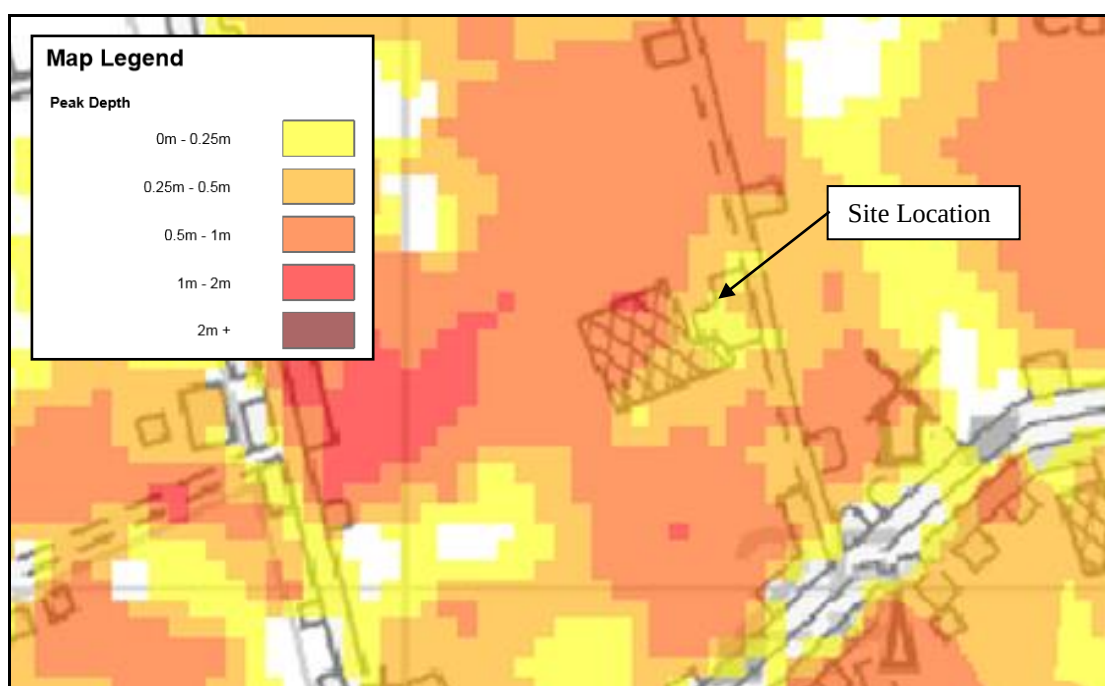


Figure 3 – SFRA 2116 Residual Peak Depth Map during the 1% fluvial and 0.5% tidal Annual Probability Event

5.0 FLOOD RISK MITIGATION

5.1 Summary of Risks

The probability of this development flooding from localised drainage systems is low. Failure of Gosberton Pumping Station could lead to an increase 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 a breach in the defences. The site is at risk during a breach of defences with depths up to 0.5m.

The proposed arrangement increases the impermeable area and therefore has the potential to increase rate of surface water runoff from the site.

5.2 Mitigation Measures

Based upon the information available during the preparation of this flood risk assessment, to mitigate against the risk of a breach, the following flood resilience measures are recommended:

- there is a water entry strategy allowing flood water to enter the greenhouse and drain freely from it;
- the main electrical supply and switchboard are elevated above the flood level;
- the user of the site should register to receive flood warnings from the Environment Agency to reduce the vulnerability of people at the site; and
- the user of the site should identify the actions to be undertaken in the event of receiving a flood warning.

Should there be a failure of Gosberton Pumping Station and conditions were such to put properties and land at risk of flooding, the IDB 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 site will not affect any adjoining properties or increase the flood risk elsewhere.

6.0 CONCLUSIONS

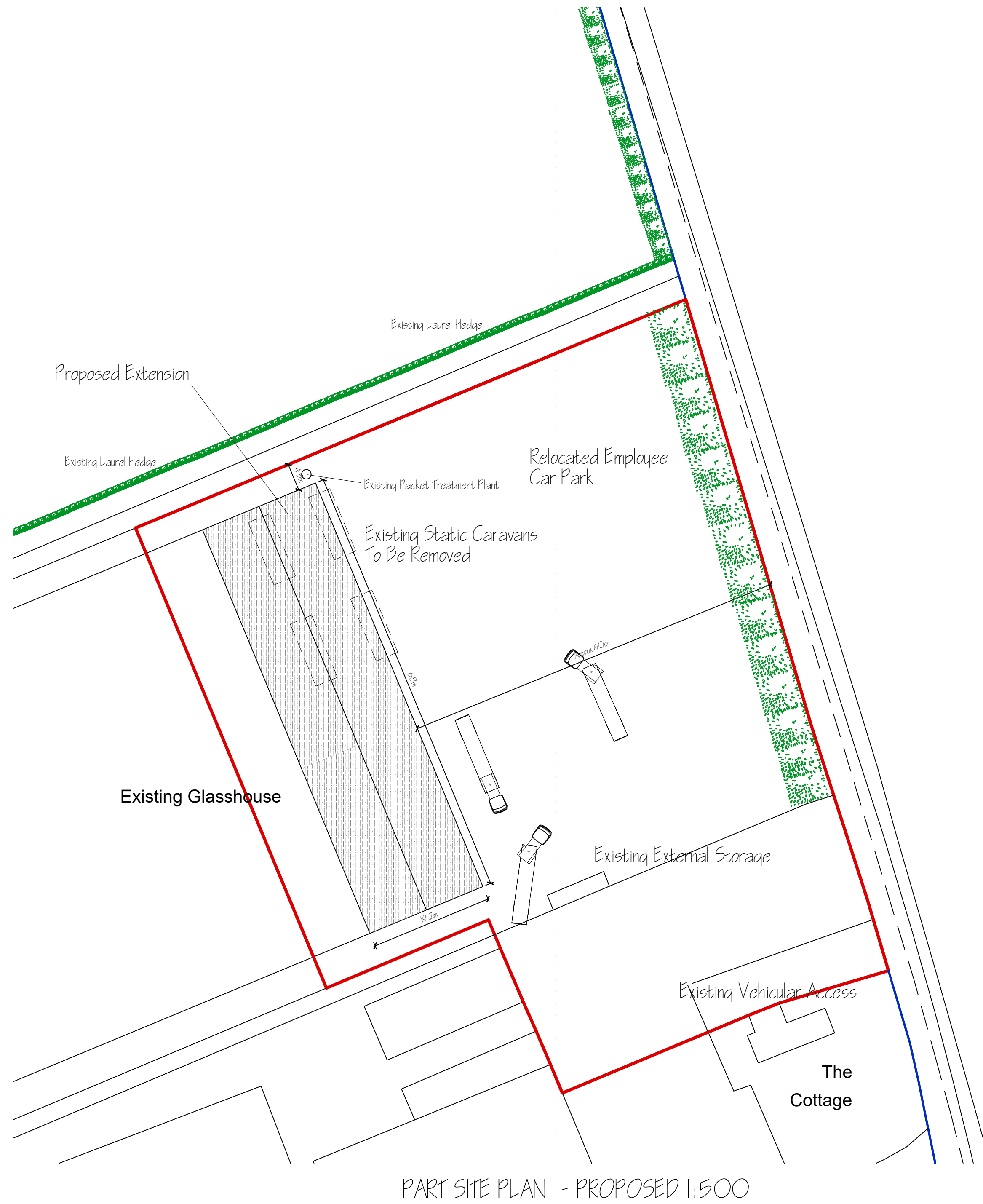
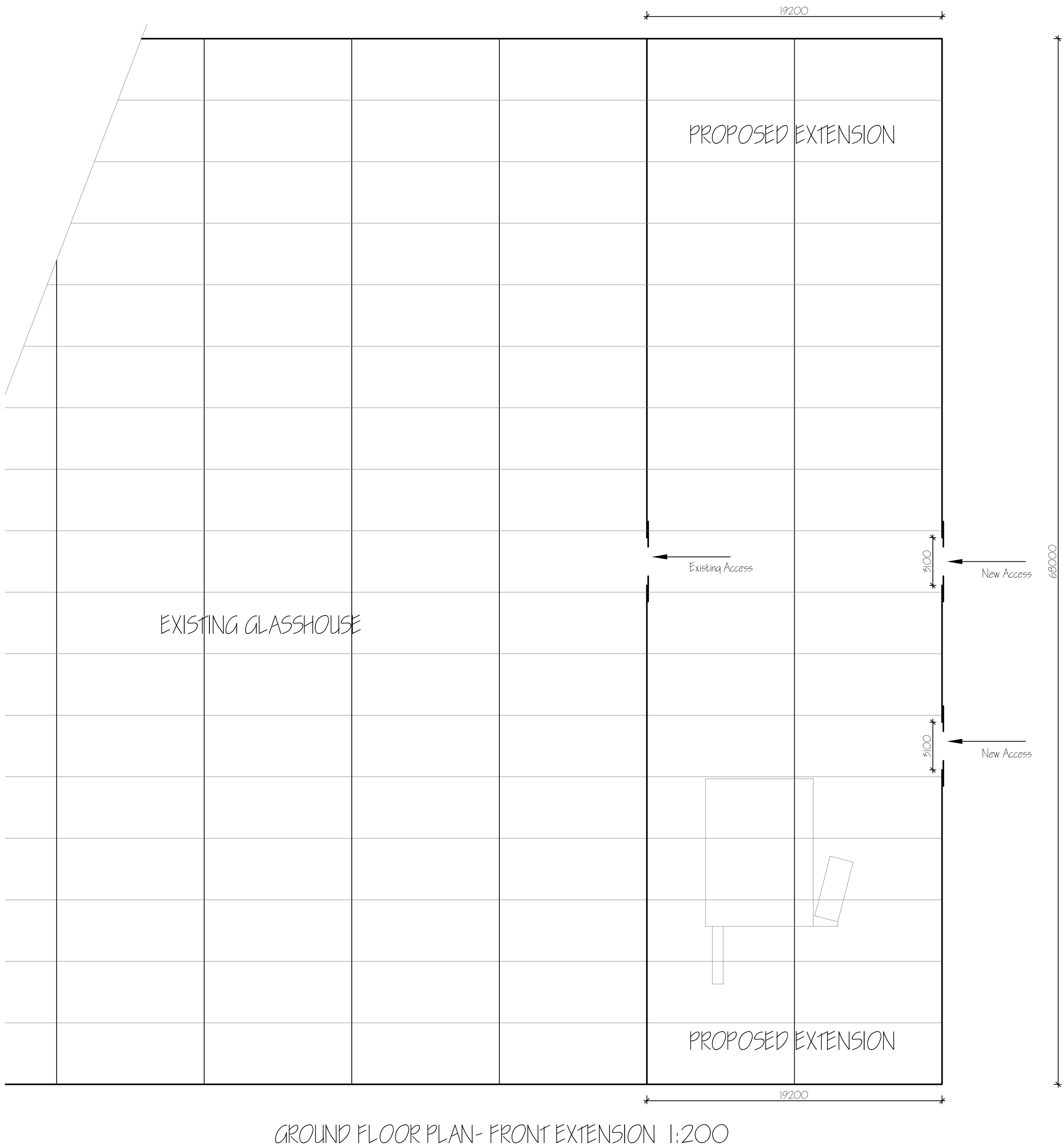
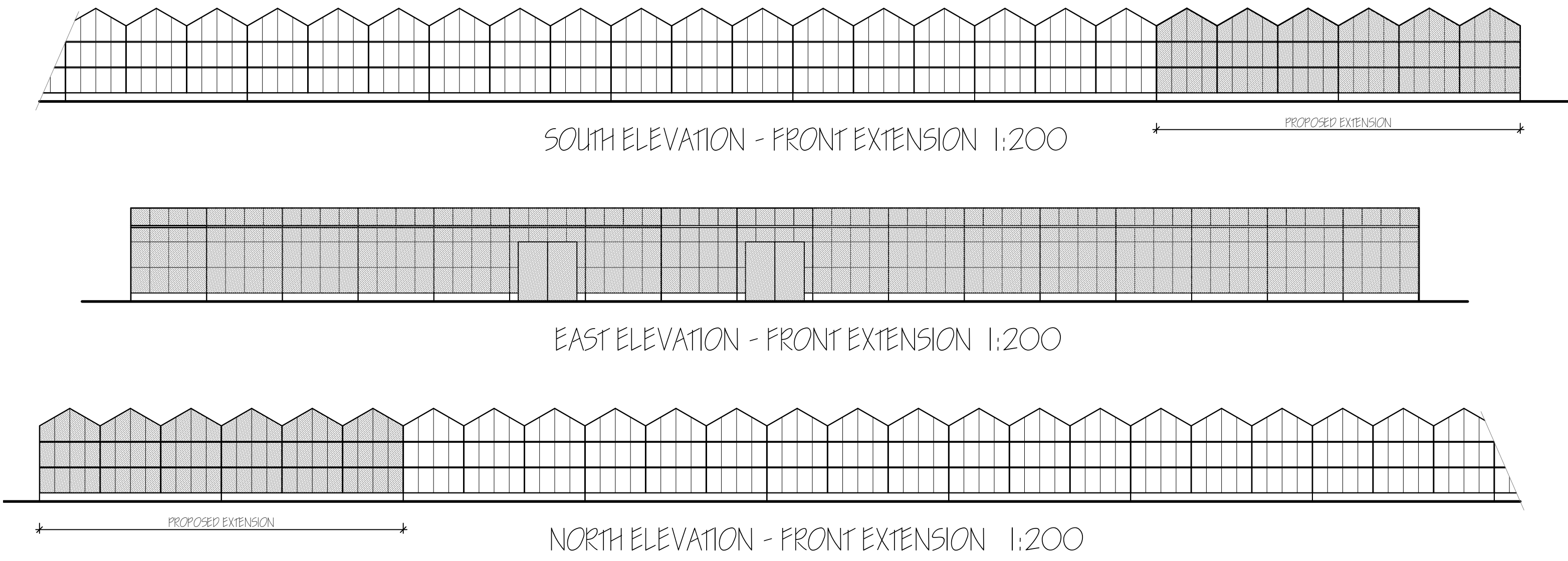
As a result of the assessment, the following conclusions have been reached.

- The development consists of a greenhouse extension at EM Cole Farms, Small Drove Lane, West Pinchbeck.
- 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 partly 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 chance each year) tidal 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 site is at risk during a breach of the defences with flood depths up to 0.5m.
- It is recommended that flood resilience measures are adopted to manage the risk of a breach. These include a water entry strategy, elevating services above the flood level, and reducing vulnerability by receiving flood warnings.
- The development passes the Sequential Test and is therefore suitable for the proposed location.

ATTACHMENT 1

**LOCATION PLAN & SITE PLAN
(DWG 4096-22 06A)**

**FLOOR PLAN, ELEVATIONS & SITE PLAN
(DWG 4096-22 03C)**



C	CLIENT AMENDMENTS	FEB 2026
B	CLIENT AMENDMENTS	FEB 2026
A	CLIENT AMENDMENTS	FEB 2024
ref:	revision	date
G. R. MERCHANT LTD. 		
I.ENG AMICE FWO		
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4 Wrights Mews 12A Park Road, Holbeach, Spalding, Lincs. PE12 7EE Tel: 01406 490800 Fax: 01406 425744 E-Mail: gr.merchant@btconnect.com		
Project	FUTURE EXPANSION SMALL DROVE LANE WEST PINCHBECK SPALDING, Lincs. PE11 3NL	
Client	E M COLE FARMS LTD	
Drawing	GLASSHOUSE EXTENSION PART FLOOR PLAN & ELEVATIONS - PROPOSED PART SITE PLAN - PROPOSED	
Job Ref.	4096-22	Drawing No. 05C
Date	DEC 2022	Drawn SLB
Scales 1:100 & 1:200 (Unless Otherwise Stated)		
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