Gamford Farm, Gamford Lane, Rossett

Foul Drainage - Phosphate Neutrality Assessment

September 2026



Waterco DATRYS

Assessment | Modelling | Design

Project Information	
Project:	Gamford Farm, Gamford Lane, Rossett
Report Title:	Foul Drainage - Phosphate Neutrality Assessment
Client:	Urban Developments and Construction Ltd
Instruction:	The instruction to undertake this Foul Drainage - Phosphate Neutrality Assessment Report was received from Mike Henderson of Calo Construction Services acting on behalf of the Client.
File Ref:	17879-Foul Drainage-Phosphate Neutrality Assessment-01

Approval Record	
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Document History		
Revision	**Date**	**Comment**
01	03/09/2026	First issue

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Introduction

Waterco have been commissioned to prepare a Foul Drainage Phosphate Neutrality Assessment in relation to a proposed residential development at Gamford Farm, Gamford Lane, Rossett, Wrexham, LL12 0EW.

This report should be read in conjunction with the Waterco Drainage Strategy report dated September 2026 (document reference 17879-Drainage Strategy-01).

Site Overview

The site covers an area of approximately 1.48 hectares (ha) and is located at National Grid Reference (NGR): 337795, 357433. A location plan and an aerial image are included in Appendix A.

Online mapping (including Google Maps / Google Streetview imagery, accessed September 2026) shows that the site comprises agricultural land with associated access, farmhouse and outbuildings. The site is bordered by agricultural land to the north, east and west, and Gamford Lane to the south. Access to the site is provided from Gamford Lane.

Local Drainage

Public sewer records have been obtained from Dŵr Cymru Welsh Water (DCWW) and are included as Appendix B. The DCWW sewer records show that there is a 150mm public combined sewer flowing north in Gamford Lane approximately 250m north-west of the site. There is also a 175mm public combined sewer flowing south in Gamford Lane approximately 210m south-east of the site.

Foul flows from the existing farmhouse are served by a septic tank. The location and discharge location of the septic tank is unknown.

Development Proposals

The proposed development is for the erection of a replacement dwelling (farmhouse replacement) and conversion of 4no. outbuildings to 4no. dwellings with associated driveways, an access road and soft landscaping. Proposed development plans are included in Appendix C.

Foul flows from the dwellings will be discharged to either:

a) A private sewage treatment plant with treated effluent discharged to a drainage field, or

b) The 175mm combined sewer located in Gamford Road approximately 210m south-east of the site, which ultimately drains to Lavister Wastewater Treatment Works (WwTW), subject to agreement with DCWW. A pumped solution would be required.

Percolation testing to determine the feasibility of the foul drainage field is due to be undertaken. Discharge to a private sewage treatment plant and associated drainage field is the preference given the significant connection distance to the public combined sewer. However, in absence of the percolation tests results and certainty that a drainage field would be feasible on site (given space constraints), this report is based on 'Option B' discharge to the public sewer.

Phosphate levels for the sewer connection option are defined by the phosphate treatment level in Lavister WwTW (1mg per litre). Phosphate levels in the discharge from a private package treatment plant would be lower (typically between 0.2mg/l and 0.8mg/l for a treatment plant with phosphate stripping technology).

Nutrient Neutrality Assessment

The phosphate load from the proposed development has been estimated using the Welsh Government Nutrient Budget Calculator.

Proposed Phosphate Load

The phosphate load from the proposed development has been estimated based on:

- 5no. units (1no. 3-bedroom, 3no. 4-bedroom and 1no. 5-bedroom).
- A population of 5 per 3-bedroom unit.
- A population of 6 per 4-bedroom unit.
- A population of 7 per 5-bedroom unit.
- A total population of 30 (reduced to 24 with a reduction factor of 0.8 applied in accordance with British Water Flows and Loads guidance).
- A daily flow of 120 litres per person per day (in accordance with the Welsh Government Nutrient Budget Calculator).
- Lavister WwTW which has a phosphorus permitted limit of 1 mg/l.

Based on the above parameters, the total annual phosphate load from the proposed development is estimated to be 1.051kg per year (2,880mg per day).

As part of the proposed development, the existing 5-bedroom farmhouse dwelling will be replaced with a 4-bedroom dwelling, and the existing septic tank will be removed.

Farmhouse Phosphate Load

The phosphate load for the existing farmhouse has been estimated based on:

- A population of 7 (5 bed farmhouse).
- A daily flow of 120 litres per person per day.
- A phosphate quantity of 11.6 mg/l (septic tank default detailed in the Welsh Government Nutrient Budget Calculator Frequently Asked Questions guidance).

Based on the above parameters, the total annual phosphate load from the existing dwelling is 3.556kg per year (9,744mg per day). The existing septic tank is to be removed and foul flows from the replacement dwelling (and 4no. new dwellings) will discharge to Lavister WwTW which has a phosphate permitted limit

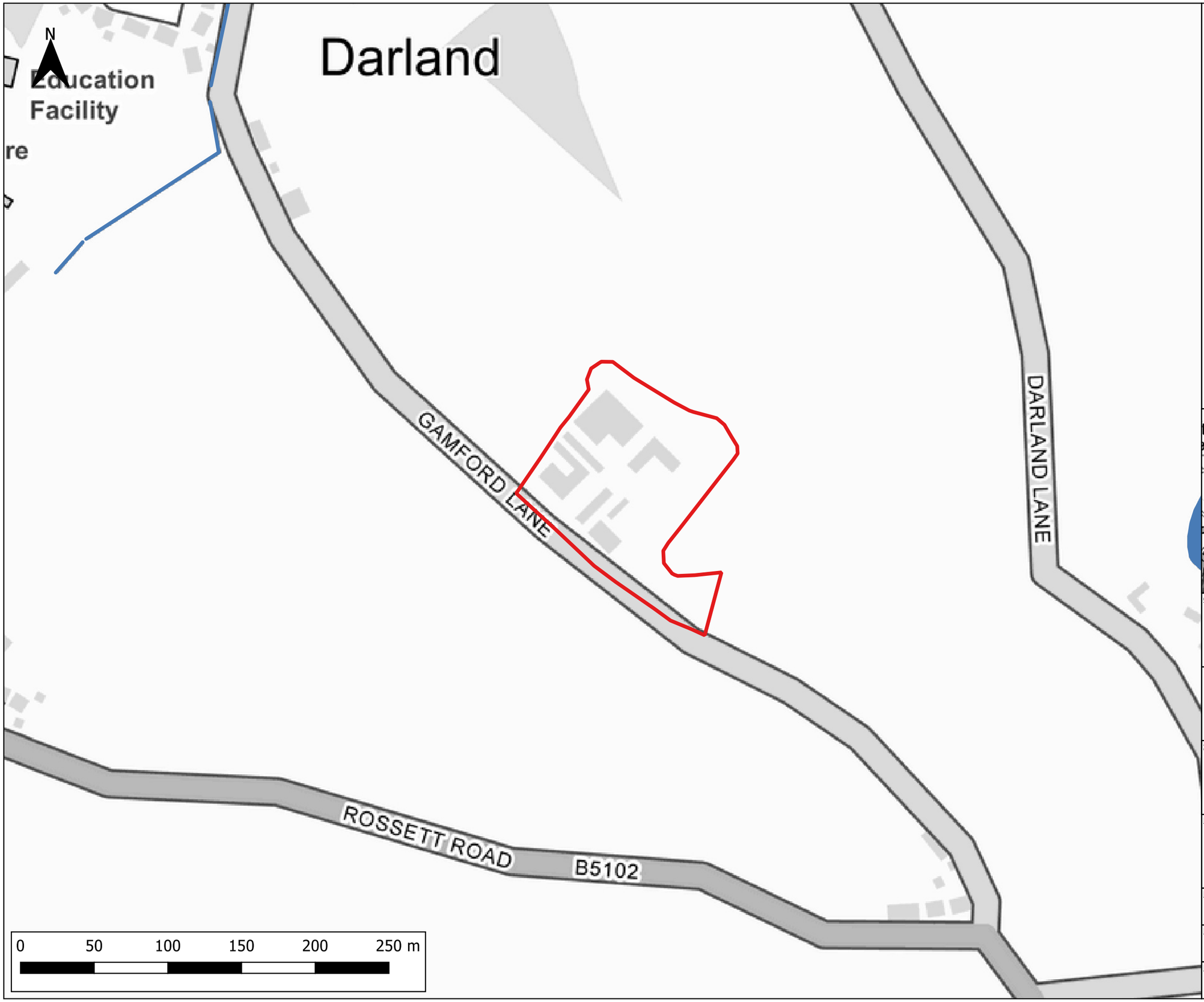
of 1 mg/l. The total annual phosphate load from the proposed development will be 1.05kg per year therefore, the total annual phosphate load reduction from removing the septic tank serving the existing dwelling will be 2.51kg per year. The removal of the septic tank is therefore sufficient to offset the phosphate generated by the proposed development (which will discharge to Lavister WwTW).

Conclusions

Foul flows from the proposed development will discharge to the public foul sewer.

The proposed development can achieve phosphate neutrality as phosphate load is reduced through removal of an existing septic tank. Post development, there will be a 2.51kg annual phosphate reduction. As such, the proposed development will not cause detriment to the River Dee SAC.

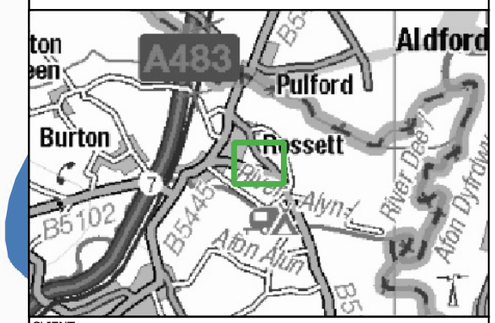
Appendix A Location & Aerial Plan



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Watercourses
- Waterbodies



CLIENT:
Urban Developments and Construction Ltd

waterco DATRYS
www.waterco.co.uk

SCHEME:
Gamford Lane, Rossett

PLOT TITLE:
Location Plan

PLOT STATUS:	DATE:
FINAL	24-08-2026

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JP	AW	AW	1:2500

PLOT NAME:	REVISION:
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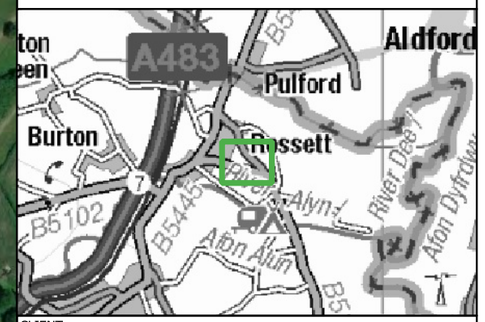
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LEGEND

Site Boundary



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Gamford Lane, Rossett

PLOT TITLE:
Aerial Plan

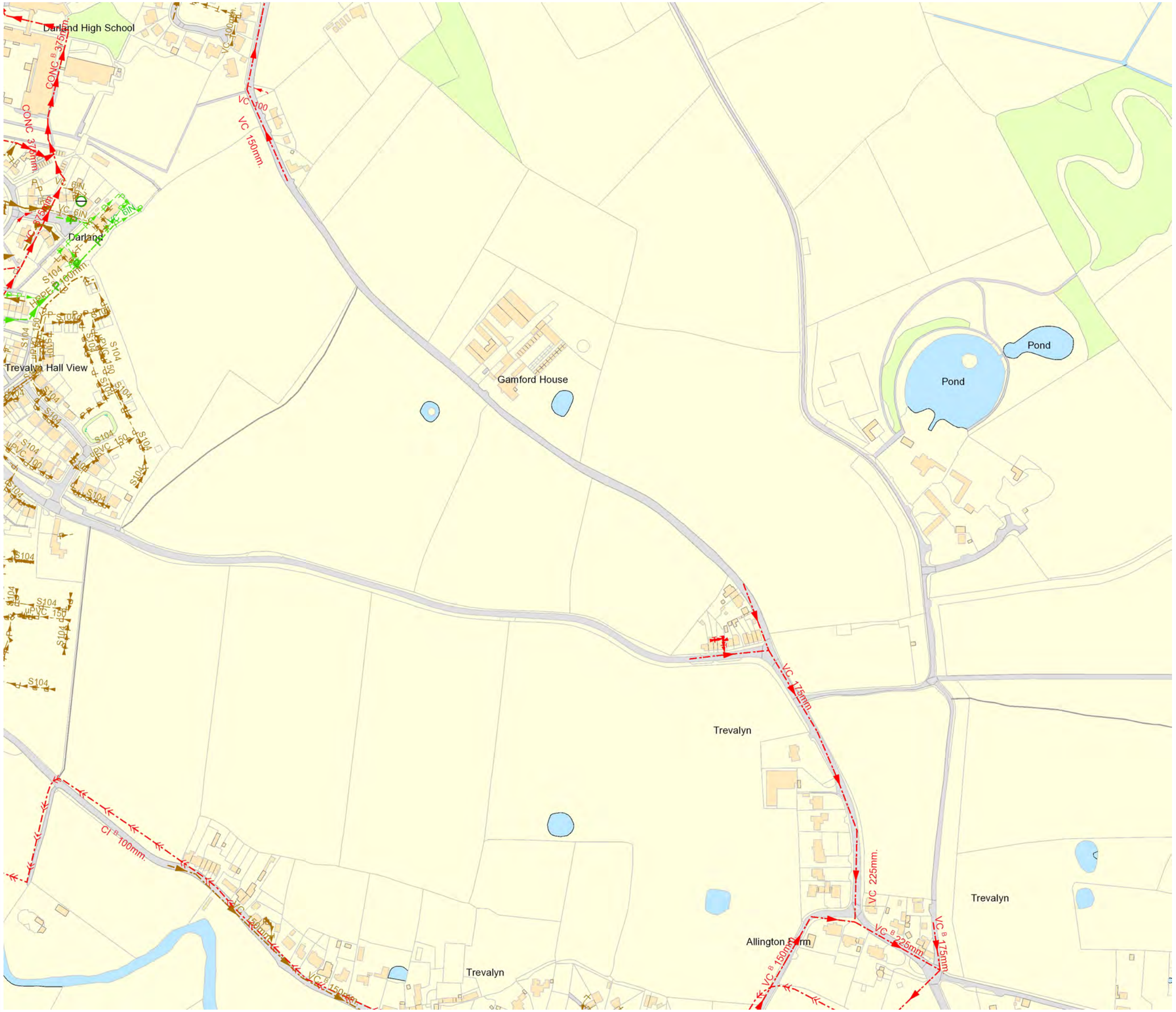
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PLOT NAME:	REVISION:
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Appendix B DCWW Sewer Plan



Dŵr Cymru
Welsh Water

Rossett

N
W E
S

LEGEND(Representative of most common features)

Waste network:

- Foul chamber
- Surface water chamber
- Combined chamber
- Combined sewer overflow
- SPS Special purpose chamber
- Treatment works
- Non Dwr Cymru
- Pumping station
- Outfall
- Lamphole
- Storm Overflow
- Rising main
- Gravity sewer
- Private sewer
- S 104 Private sewer subject to Sect. 104 adoption agreement
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

N.B. Sewer symbol colour indicates the type.
RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former 52d sewers (for indicative purposes only)

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as partof any risk assessment prior to excavation

Dwr Cymru Cyfyngedig ('the Company') gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon In the event of excavations or other works made in the vicinity of the company's apparatus and any onus of locating the apparatus before carrying out any excavations rests entirely on you. The information which is supplied hereby the company, is done so in accordance with statutory requirements of sections 198 and 199 f the water industry Act 1991 based upon the best Information available and in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclosure the existence of a drain sewer or disposal main laid before 1 September 1989, or if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information us entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the company's right to be compensated for any damage to its apparatus.

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE

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Map Ref:	337871.357275
Map Scale	1: 3,500
PrintedBy	Jasmin Gough
PrintedOn	28/08/2026

Appendix C Proposed Development Plans

NORTH

EXISTING BARN RETAINED AND CONVERTED

EXISTING BARN RETAINED AND CONVERTED

UNIT 05

UNIT 04

UNIT 04

EXISTING BARN RETAINED AND CONVERTED

EXISTING DWELLING DEMOLISHED
REPLACEMENT DWELLING
15% LARGER THAN EXISTING

DENOTES OUTLINE OF ORIGINAL APPROVED SCHEME
FOR CONVERSION OF EXISTING BUILDINGS IN 2016

DENOTES AGREED RESIDENTIAL CURTILAGE
2021 LDC APPROVAL

RIBA Chartered Practice

MARK WILLACY
ARCHITECTS

client
MR. NATHAN CUNNINGHAM

job
PROPOSED REPLACEMENT DWELLING
GAMFORD FARM, GAMFORD LANE, ROSSETT

title
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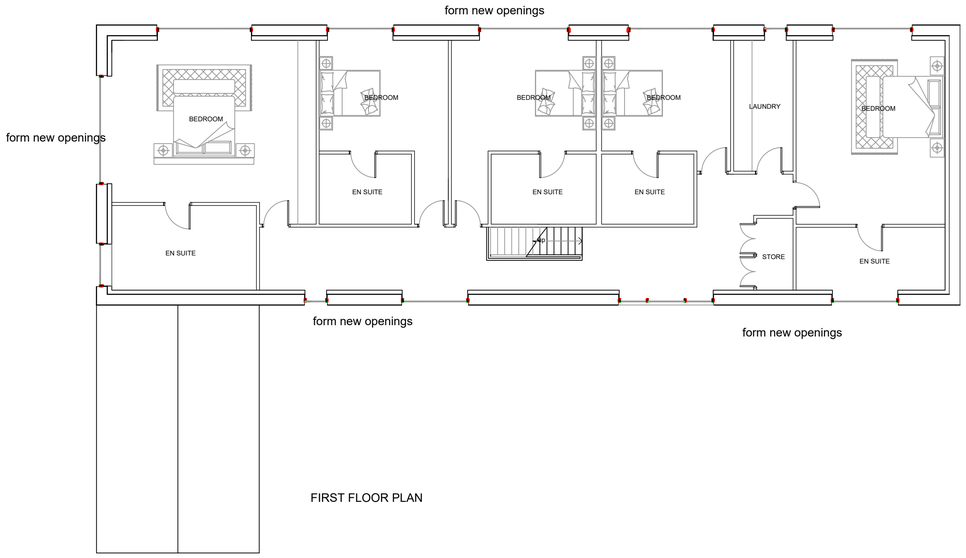
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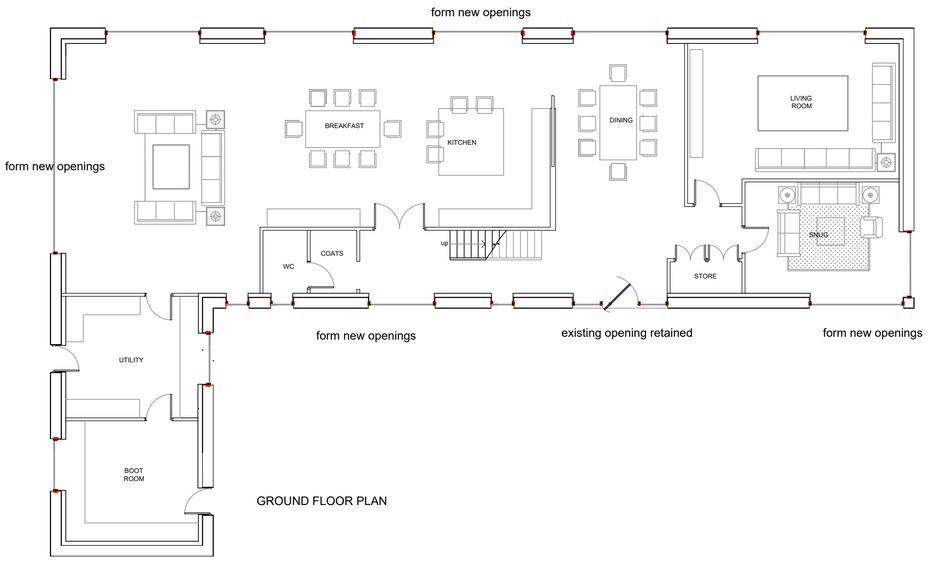
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FIRST FLOOR PLAN



GROUND FLOOR PLAN



ROOF PLAN

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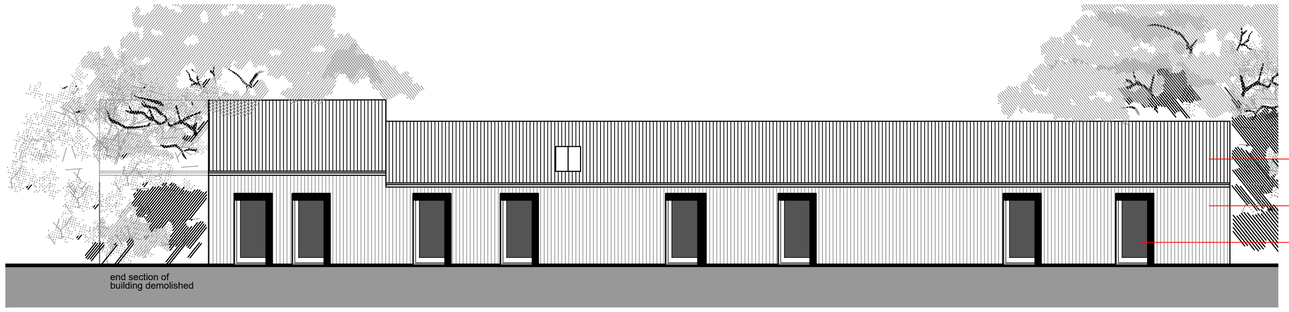
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MR. NATHAN CUNNINGHAM

job
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GAMFORD FARM, GAMFORD LANE, ROSSETT

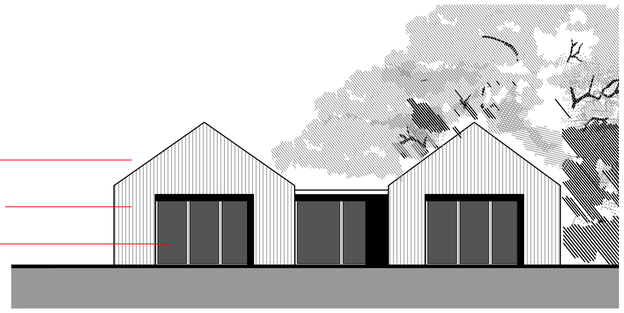
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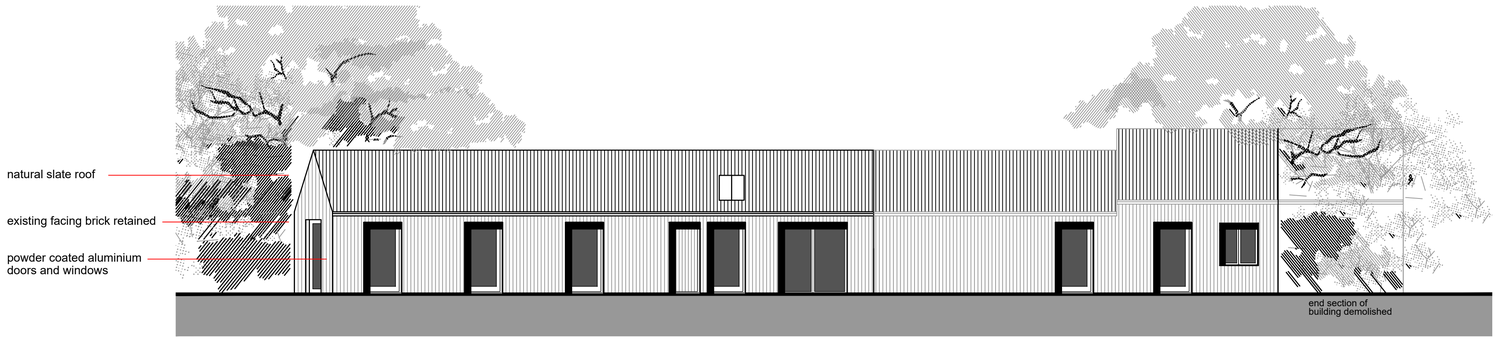
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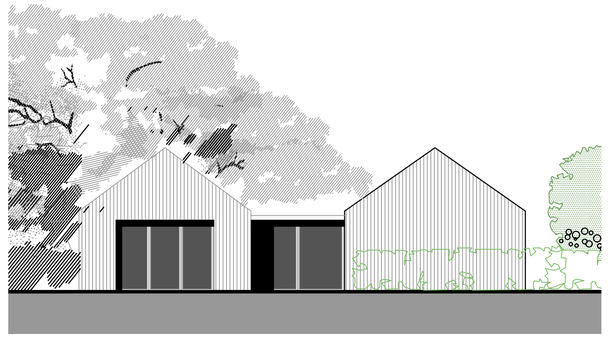
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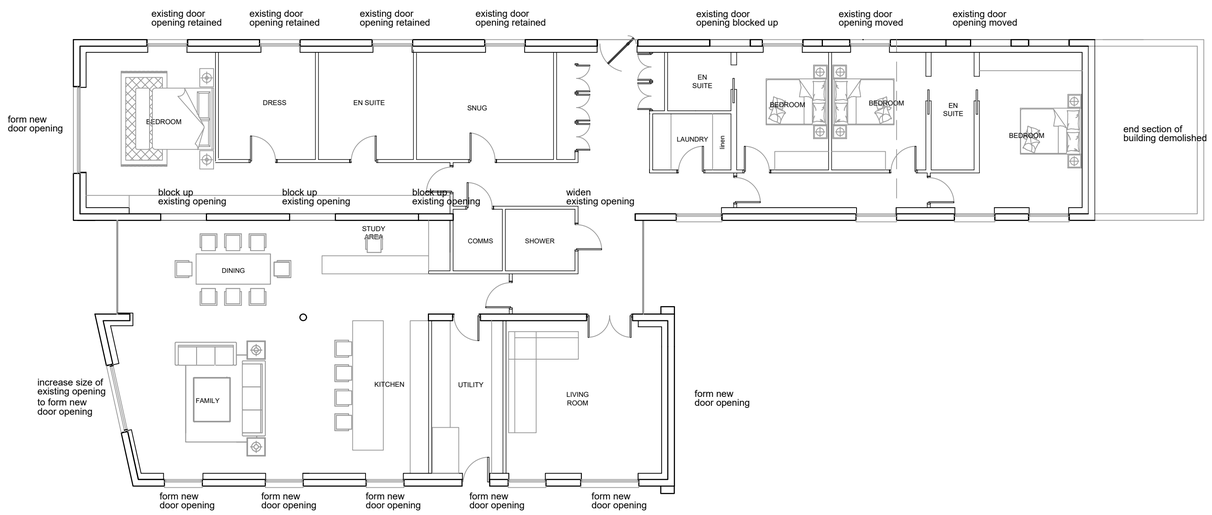
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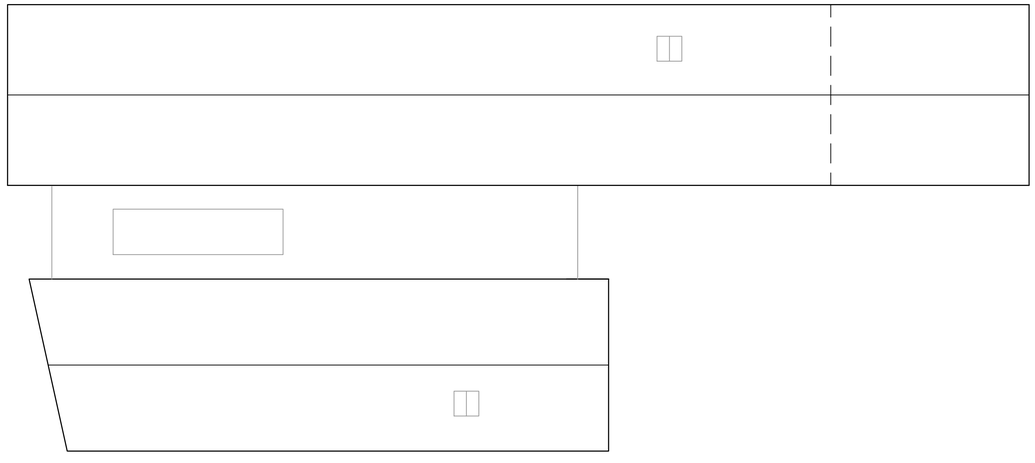
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ELEVATION FACING SOUTH EAST



GROUND FLOOR PLAN



ROOF PLAN

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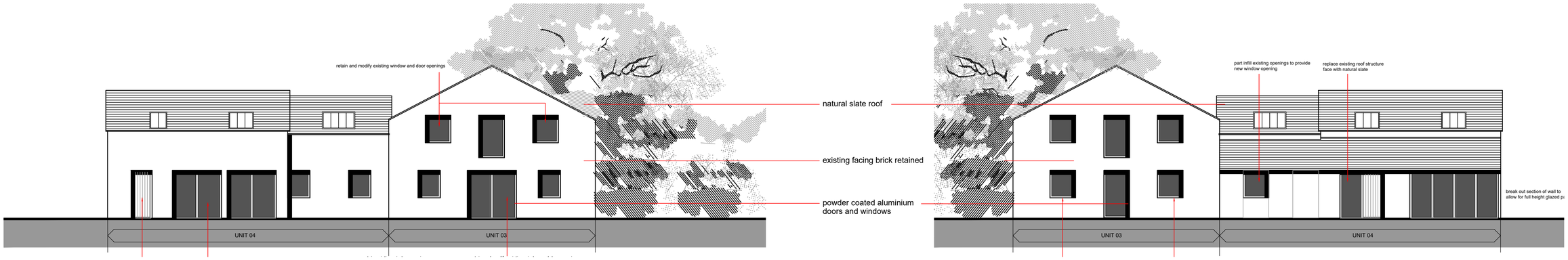
client
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job
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GAMFORD FARM, GAMFORD LANE, ROSSETT

title
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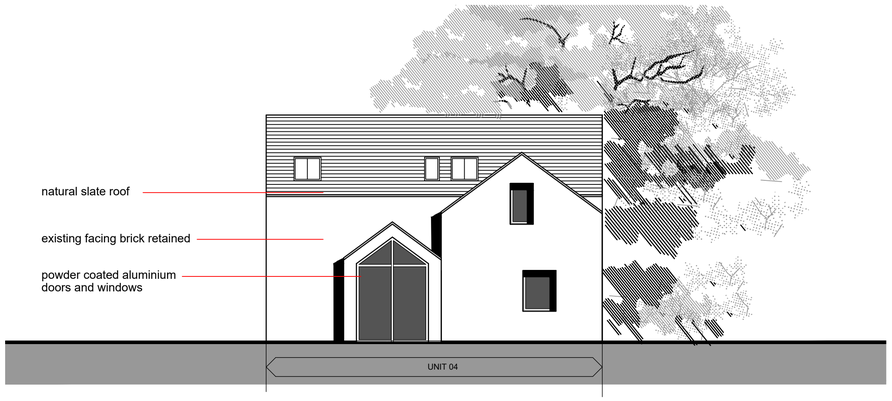
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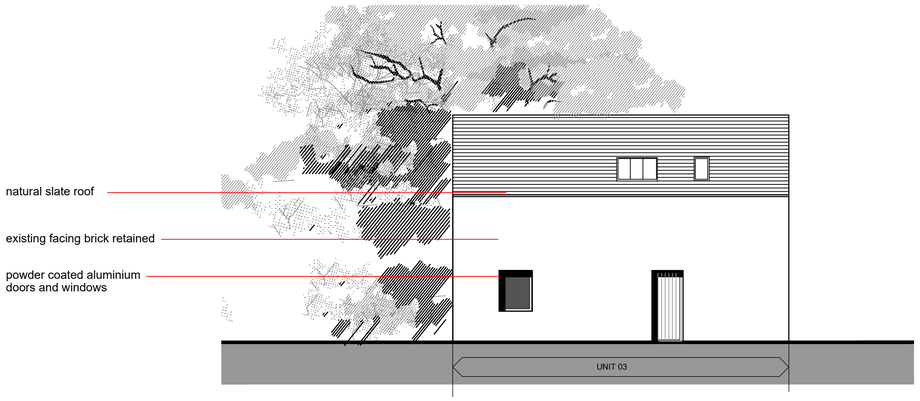


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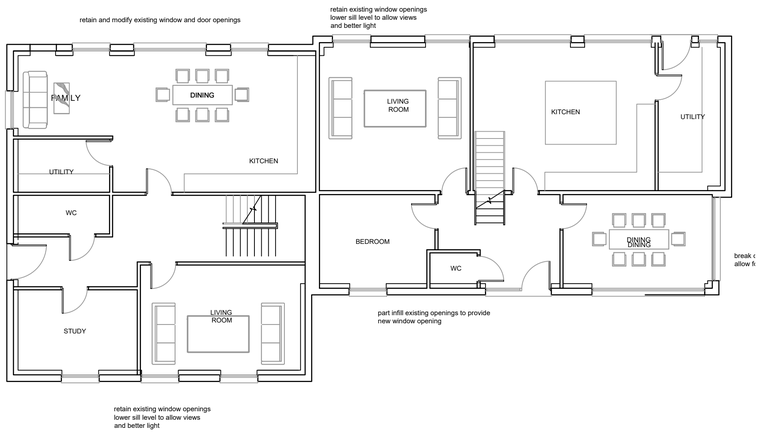
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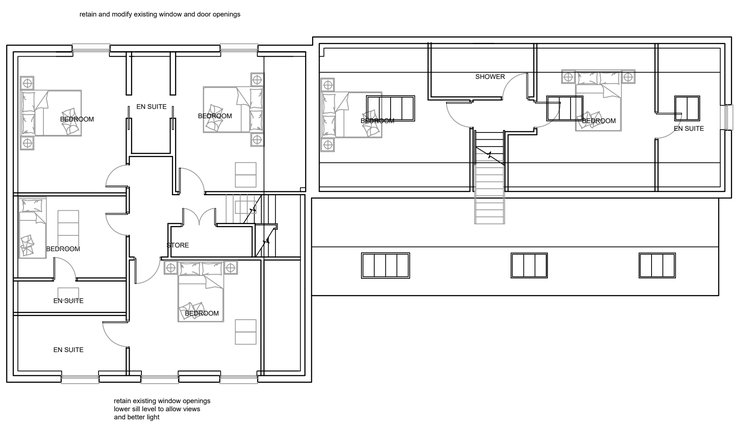
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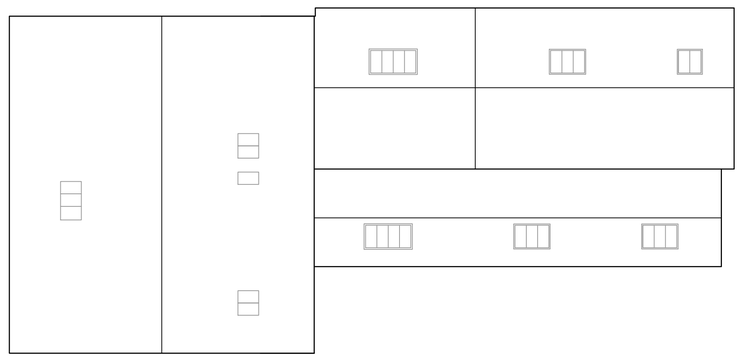
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GROUND FLOOR PLAN



FIRST FLOOR PLAN



ROOF PLAN

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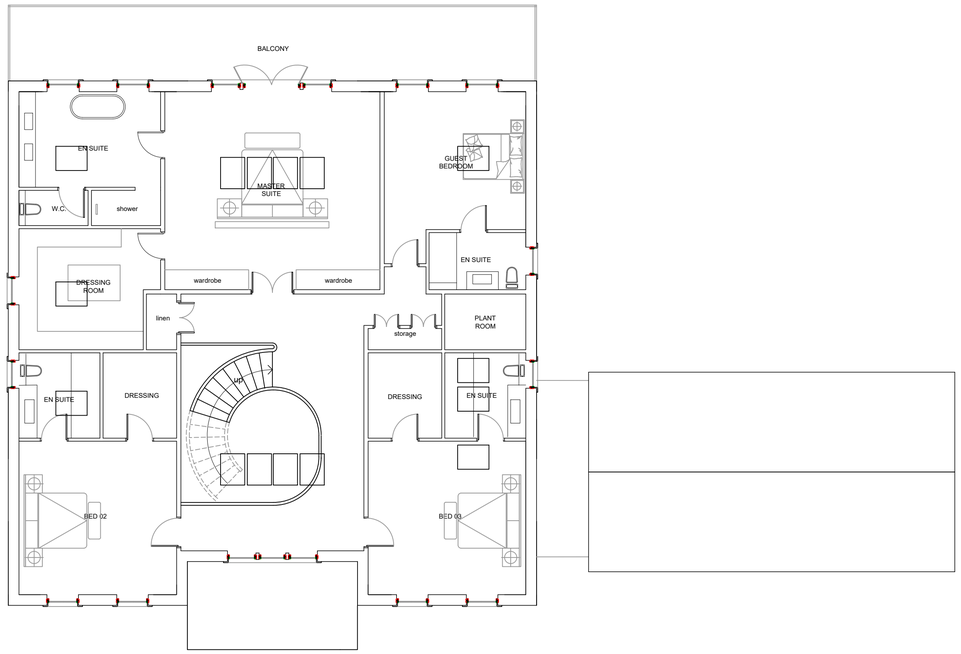
client
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job
PROPOSED REPLACEMENT DWELLING
GAMFORD FARM, GAMFORD LANE, ROSSETT

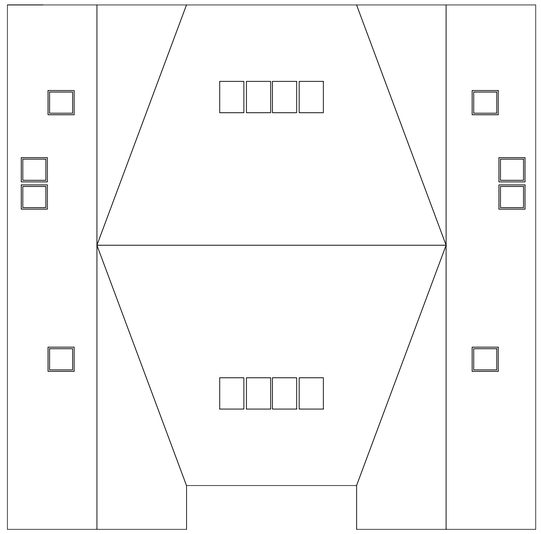
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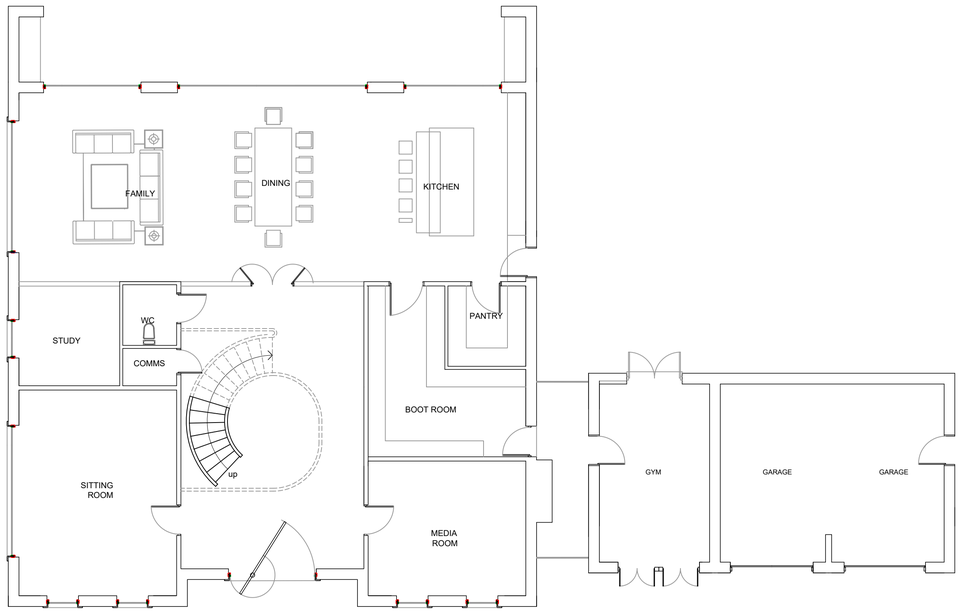
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FIRST FLOOR PLAN



ROOF PLAN



GROUND FLOOR PLAN

0 1 2 3 4 5 6 7 8 9 10 metres

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2. All dimensions are in millimetres and all levels are in metres unless noted otherwise.
3. This drawing is to be read and fully understood before work commences. If in doubt ask.
4. Contractor shall check all dimensions and levels and report any omissions and errors to the Engineer prior to starting of works.
5. This drawing MUST be read in conjunction with all relevant Structural Engineer and Architect drawings & specifications.
6. Contractor shall maintain the immediate construction site in a secure, clean and safe manner.
7. Protection: contractors shall be solely responsible for taking all steps necessary to protect the public from injury and adjacent property damages during construction as required by local codes.
8. Suitable staging platforms should be constructed with adequate guarding/hand railing to facilitate accurate and safe erection

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title
PROPOSED FLOOR PLANS

scale	date	job no.	drawing no.	rev
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