WATER NEUTRALITY STATEMENT FOR THE PROPOSED CONVERSION OF AN EXISTING TIMBER FRAMED BARN TO A DWELLING & RETROSPECTIVE APPLICATION FOR STORE AND STABLES AT THISTLEWORTH FARM, WORTHING ROAD, DIAL POST.

Planning Reference: DC/20/0653
H2Ogeo Reference: 20240125P1
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Executive Summary

H2Ogeo provided this Water Neutrality Statement to accompany a planning application for the conversion of a barn to a three-bedroom residential property at The Sussex Barn, Thistleworth Farm, Dial Post, West Sussex, RH13 8NR.

The Water Neutrality Statement demonstrates that the proposed development with water efficient fixtures and fittings achieves water neutrality.

Fixtures and fittings on site must comply with Performance Level 3 of BREEAM or better.

With mitigation in place the proposed development will not contribute to an existing adverse effect upon the integrity of the internationally designated Arun Valley Special Area of Conservation, Special Protection Area and Ramsar sites by way of increased water abstraction.

1 Introduction

Natural England cannot, with certainty, conclude that the Sussex North Water Supply Zone, that includes water supply from a groundwater abstraction, is not having an adverse effect on the integrity of:

- Arun Valley Special Area Conservation (SAC);
- Arun Valley Special Protection Area (SPA); and
- Arun Valley Ramsar Site.

Natural England have advised that developments within this zone must not add to this impact.

The Local Planning Authority (LPA) have requested a Water Neutrality Statement is provided to accompany planning applications to demonstrate that the proposed development does not increase the rate of water abstraction for drinking water supplies above existing levels.

1.1 Scope of Work

H2Ogeo was contacted by the Client and requested to provide a proposal for a Water Neutrality Statement to support the planning application submitted to Horsham District Council (HDC) Local Planning Authority (LPA).

The Water Neutrality Statement aims to demonstrate that the development will not *contribute to an existing adverse effect upon the integrity of the internationally designated Arun Valley Special Area of Conservation, Special Protection Area and Ramsar sites by way of increased water abstraction.*

The proposal was accepted and the Water Neutrality Statement is presented in this report.

A Statement of Limitations is presented at the start of this report.

1.2 Background

This Water Neutrality Statement (WNS) has been provided to support the planning application (DC/20/0653) for the conversion of an existing timber framed barn to a dwelling and retrospective application for store and stables at Thistleworth Farm in Dial Post.

The planning drawings are presented in Annex A showing the proposed development.

1.3 Sussex North Water Resource Zone (WRZ)

Southern Water supplies water to Crawley Borough, Horsham District, the northern part of Chichester District, southern Waverley and the South Downs National Park from its Sussex North Water Resource Zone (WRZ).

Within the WRZ there are a number of water sources, one of which is the groundwater abstraction from the Hardham source, one of a number of groundwater and surface water abstractions around Pulborough[1] presented in Figure 1 along with the proposed site and boundary of the Sussex North WRZ

The Hardham Groundwater abstraction is located approximately 12km west of the site that lies in the south eastern portion of the WRZ.

[1] https://www.horsham.gov.uk/__data/assets/pdf_file/0019/104482/EYP-JBAU-XX-XX-RP-EN-0001-A1-C03-Water_Neutrality_Assessment_Part_A.pdf

2 Site Location and Setting

The site address is The Sussex Barn, Thistleworth Farm, Dial Post, West Sussex, RH13 8NR located just west of the A24.

The proposed development is centred on National Grid Reference: TQ15549 18953 (Easting: 515549, Northing: 118953) and presented in Figure 2.

2.1 Existing Site

The existing site consists of the barn, a stable and utility out-house. The applicant, who will be living in the proposed development, is currently living on site in a temporary caravan and has been for the past 3.5 years.

The temporary accommodation consists of a three-bed caravan.

2.1.1 Existing Fixtures and Fittings

It is understood that this Water Neutrality Statement cannot take into account the mains water currently being consumed by the temporary caravan living arrangements. Therefore water from the utility out-house has been modelled to understand the existing consumption on site.

The following fixtures and fittings have been modelled and are presented in Figure 3:

Table 1 Existing Fixtures and Fittings

Fixture Fitting	***Utility Out-House***
WC	1
Utility Tap	1
Shower	1
Washing Machine	1
Dishwasher	1

2.2 Proposed Development

The proposed development under DC/20/0653 (Horsham District Council) is for the conversion of a timber-framed barn to a residential dwelling. The new dwelling will consist of a kitchen/dining room, lounge, bathroom and utility room on the ground floor. The first floor will consists of three bedrooms , one with an ensuite bathroom and the rest of the space will remain open plan.

The finished development will consist of:

- One three bed residential dwelling;
- One utility room;
- Kitchen Diner;
- Lounge;
- Family bathroom; and
- One bathroom ensuite.

2.2.1 Proposed Fixtures & Fittings

The layout of the proposed building is presented in Annex A and the mains water consuming fixtures and fittings summarised in the table below:

Table 2 Proposed Mains Water Fixtures & Fittings

Fixture	***Three-Bed Residential Dwelling***
WC (dual flush)	2
Taps (excluding kitchen/utility room taps)	2
Shower	2
Bath	1
Kitchen/Utility room sink taps	2
Washing Machine	1
Dishwasher	1

3 Baseline Water Consumption

There are no site-specific bills for the existing site and the site is not metered. The existing water consumption used by the utility out-house has been modelled using Part G and the results are summarised below and the calculator in Annex B.

The following section outlines the existing baseline water consumption for the site.

3.1 Existing Demand

Consumption of the utility out-house, based on the Part G Water Calculator = 124.5 Litres/Person/Day.

The Part G Calculator makes allowance for an outside water consumption, there is no outside tap associated with the out-house therefore 5 litres/day has been removed from the consumption figure.

There are currently five people living on site in temporary accommodation therefore, the daily consumption from the utility out-house is 622.50Litres/Day (5x124.5 Litres/Person/Day).

A more conservative approach to deriving population figures has been taken assuming a modelled population on site of 2.47 people. This is based on data extrapolated from the 2011 census for a three-bedroom property (Temporary Accommodation).

Using this approach the existing consumption equals: 307.52 Litres/Day (2.47x124.5 Litres/Person/Day).

3.2 Proposed Demand

The proposed demand has been modelled using the Part G Calculator assuming efficiencies equivalent to Performance Level 3 of the BREEAM water efficient consumption levels. It is proposed that all fixtures and fittings installed will meet Performance Level 3 or better.

3.2.1 Population

The population for the proposed development has been extrapolated data from the Horsham District Council 2011 census:

- One three-bed residential property = 2.47 people

3.2.2 Proposed Development Part G Calculations

The fixtures and fittings presented in Table 2 have been modelled with a minimum Performance Level 3 efficiency as laid out in the BREEAM 2018 NC guidance.

The calculator is presented in Annex B and summarised below:

- Three-bed residential property = 84.3 Litres/Peron/Day.

The table below summarises the modelled consumption:

Table 3 Summary of Proposed Mains Water Consumption

Property	Performance Criteria BREEAM	L/P/D	Population	L/Day
Three-Bed Residential Property	PL3	84.3	2.47	208.22

The modelled mains water consumption for the proposed development = 208.22 Litres/Day.

4 Mitigation

To achieve water neutrality, mitigation measures through using efficient fixtures and fittings, results in a lower modelled consumption than currently used on the existing site.

As part of the proposed development the utility out-house will be superseded by the new property.

Table 4 Water Neutrality Achieved

Existing Baseline (Litres/Day)	Proposed Development (Litres/Day)	Difference (Litres/Day)	Water Neutrality Achieved
307.52	208.22	+99.29	YES

5 Conclusion

The proposed development, with installation of water efficient fixtures and fittings, will be Water Neutral. The existing baseline water consumption on site = 307.52 Litres/Day

The proposed water consumption will be = 208.22 Litres/Day

This Water Neutrality Statement demonstrates that the proposed development will not contribute to an existing adverse effect upon the integrity of the internationally designated Arun Valley Special Area of Conservation, Special Protection Area and Ramsar sites by way of increased water abstraction.

6 Figures

Figure 1 Sussex North WRZ

Figure 2 Site Location

Figure 3 Photos Existing Utility Room

Figure 1 Sussex North WRZ



Figure 2 Site Location

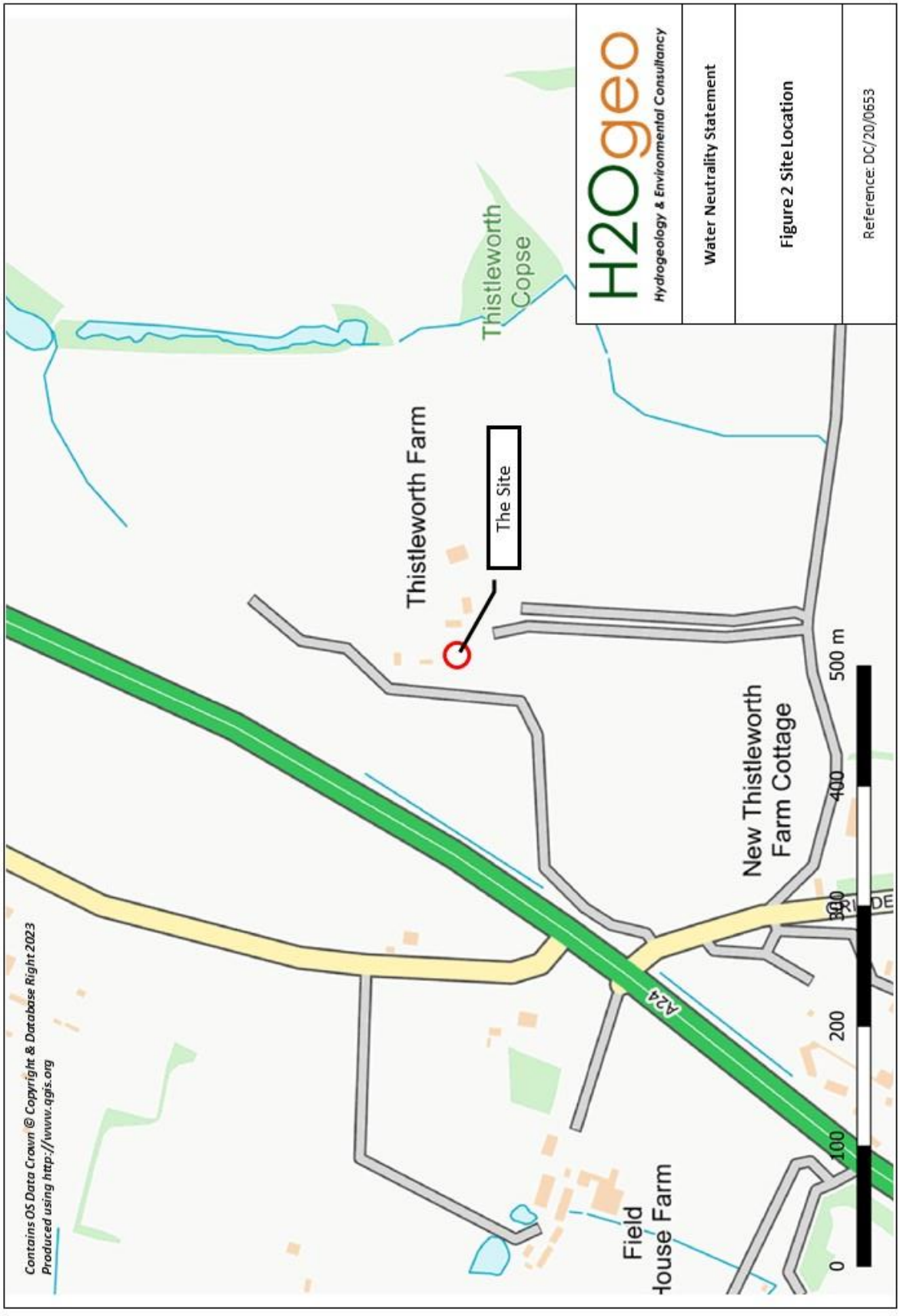


Figure 3 Photos Existing Utility Room

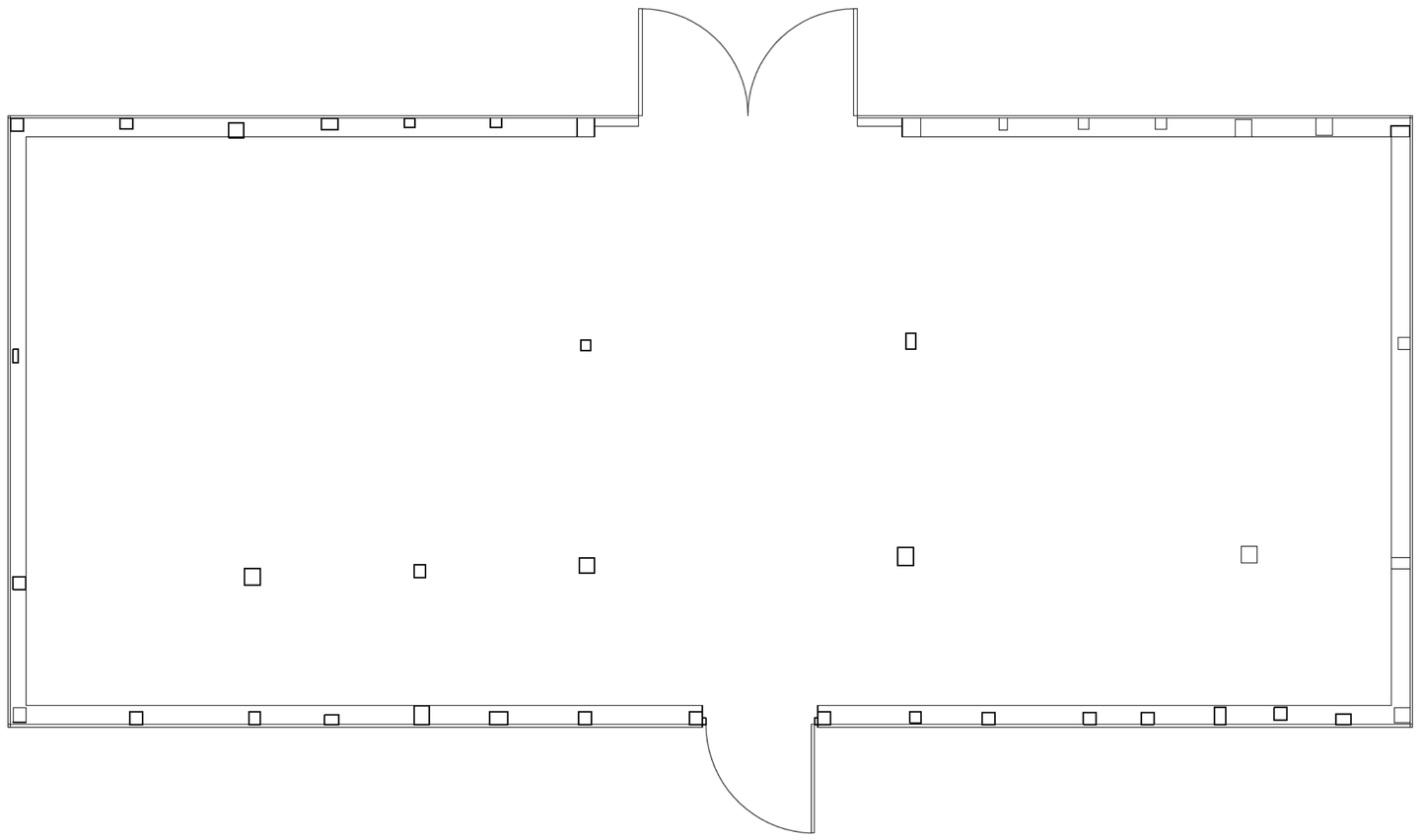


7 Annexes

Annex A - Planning Drawings

Annex B – Part G Calculations

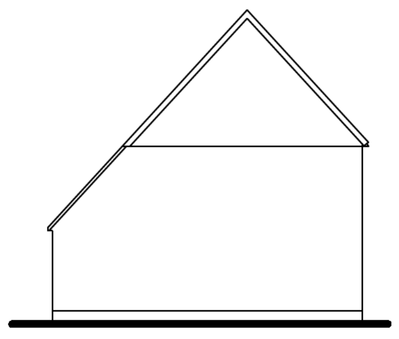
Annex A - Planning Drawings



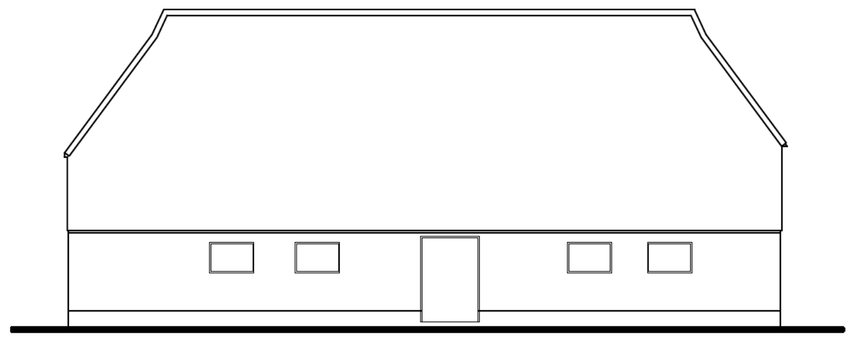
Existing Ground Floor Plan



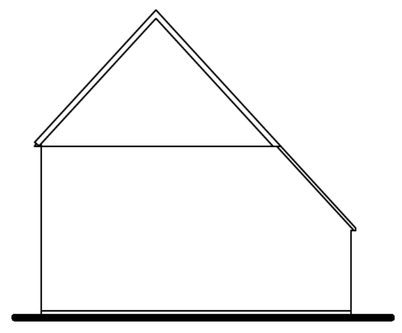
SCALE 1:50



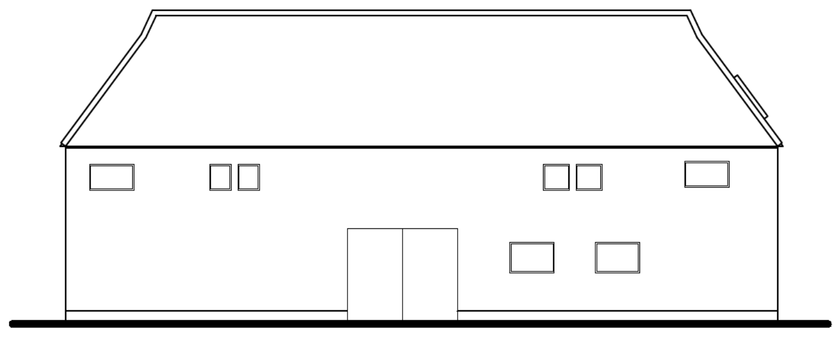
Existing Side (East) Elevation



Existing Front (South) Elevation



Existing Side (West) Elevation



Existing Rear (North) Elevation



SCALE 1:100

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Rev.	Date:	Revision Description:

Client: Mr & Mrs G Brown

Address: Thistleworth Farm
Worthing Road
Dial Post, West Sussex
RH13 8NR

Project: Conversion of timber frame barn as a dwelling and erection of stables and a store

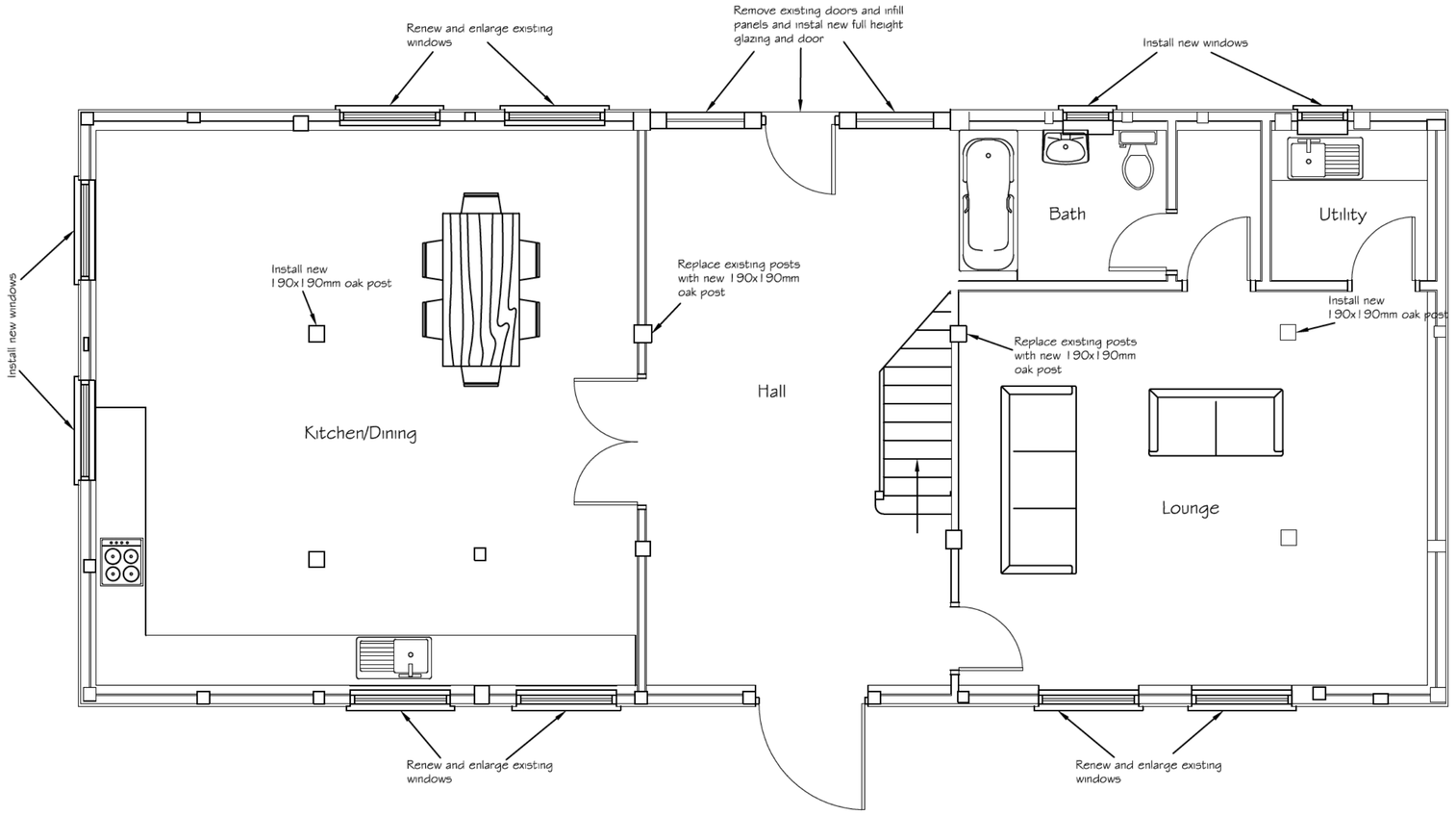
Scale: 1:50 1:100
Paper Size A1

Date: July 2019

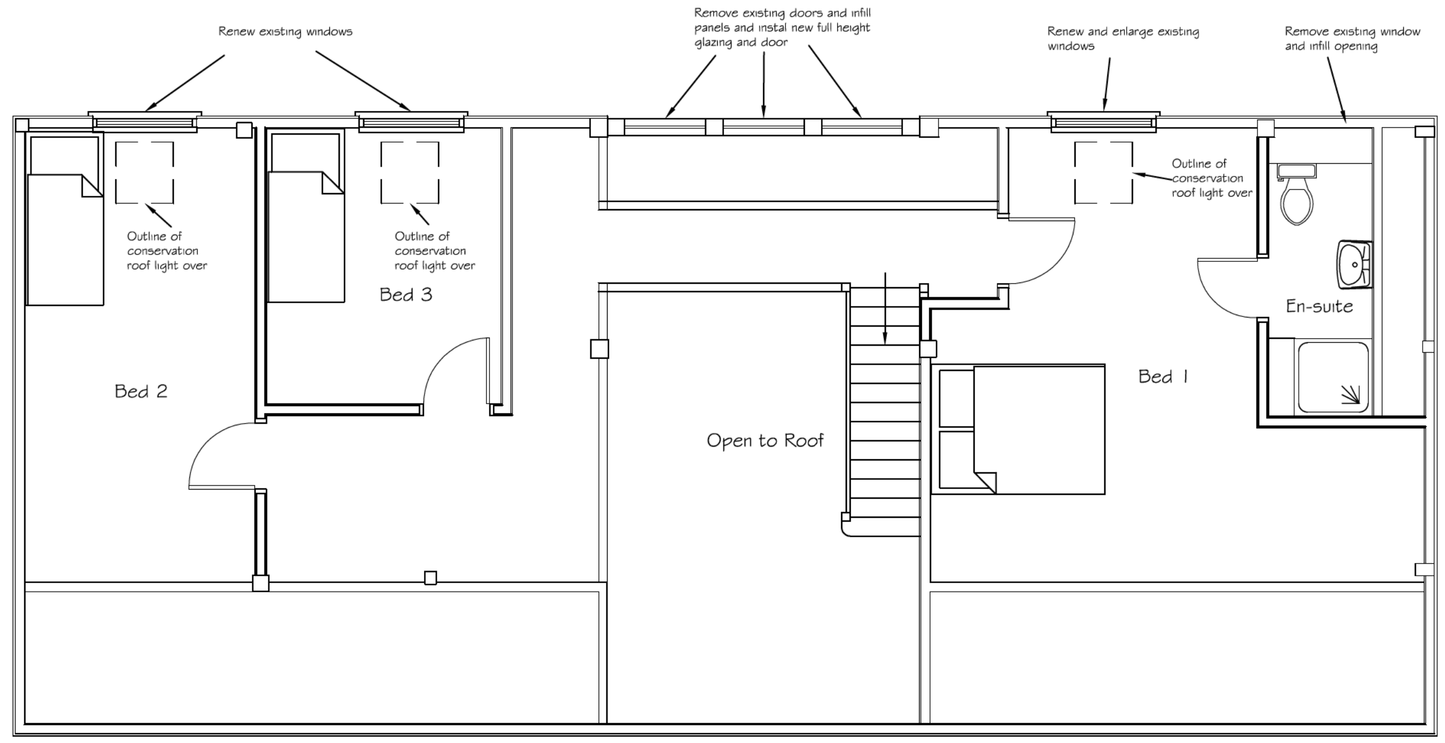
Drawing No: 19/1371/01

Drawn By: AWR

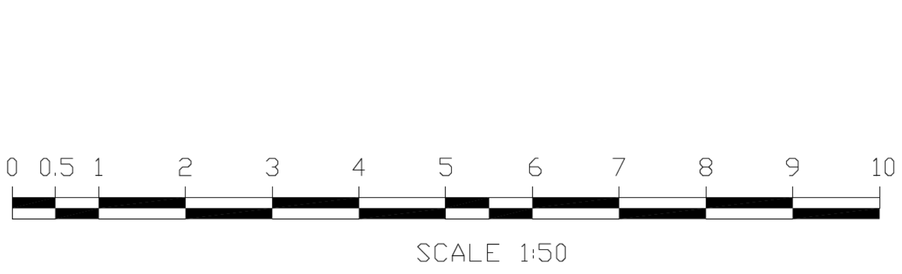
Revision:



Proposed Ground Floor Plan



Proposed First Floor Plan

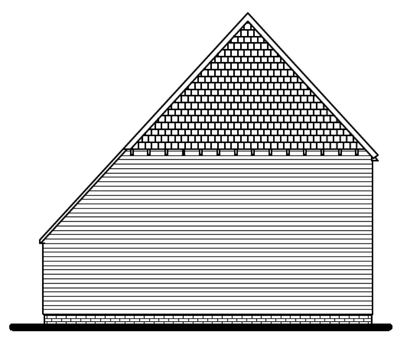


Roof to be existing tiles with additional similar tiles if necessary

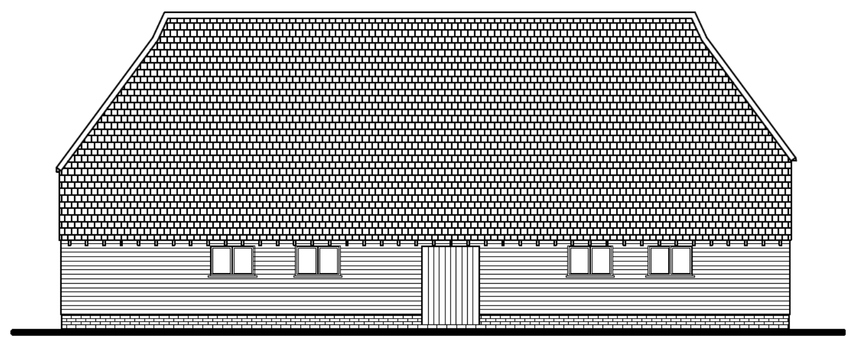
Cladding to be oak cladding

Brick walls to be as existing.

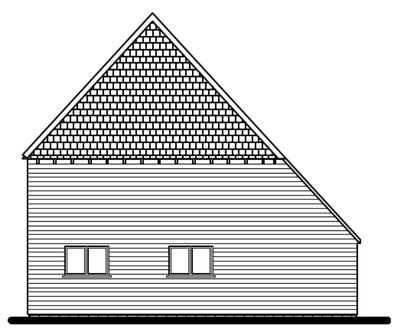
Doors and windows to be timber



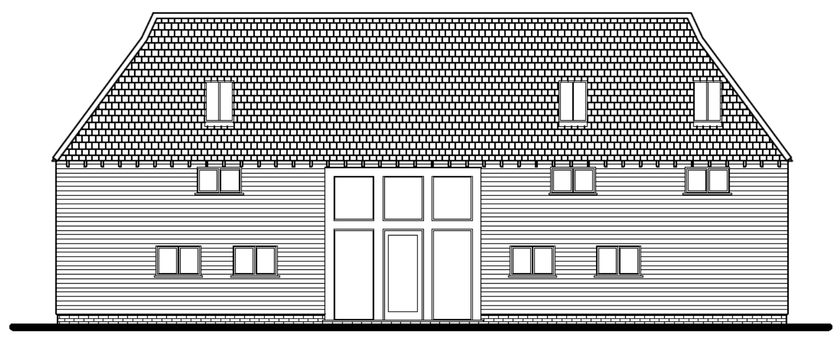
Proposed Side (East) Elevation



Proposed Front (South) Elevation



Proposed Side (West) Elevation



Proposed Rear (North) Elevation



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Drawing No: 19/1371/02

Drawn By: AWR

Revision:

Annex B – Part G Calculator

Existing Consumption – Utility Out-House

Water Calculator | WC | Taps (Other) | Taps (Kitchen/Utility) | Baths | Dishwashers | Washing Machines | Showers | H2O softeners | Greywater | Rainwater

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)	6.00	4.42	0.00	26.52
WC (dual flush)	Full flush Volume (litres)		1.46	0.00	0
	Part flush Volume (litres)		2.96	0.00	0
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)		1.58	1.58	0
Bath (where shower also present)	Capacity to overflow(litres)		0.11	0.00	0
Shower (where bath also present)	Flow Rate(litres / minute)		4.37	0.00	0
Bath Only	Capacity to overflow(litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)	12.00	5.60	0.00	67.20
Kitchen/Utility room sink taps	Flow rate (litres/minute)	10.00	0.44	10.36	14.76
Washing Machine	(Litres/kg dry load)	11.25	2.1	0.00	23.63
Dishwasher	(Litres/place setting)	1.31	3.6	0.00	4.72
Waste disposal unit	(Litres/use)	☐ Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
	(5)	Total Calculated use (litres/person/day) =SUM(column 4)			136.83
	(6)	Contribution from greywater (litres/person/day)			0
	(7)	Contribution from rainwater (litres/person/day)			0
	(8)	Normalisation factor			0.91
	(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)			124.52
	(10)	External water use			5.0
	(11)	Total water consumption (Building Regulation 17.K) =(9)+(10)(litres/person/day)			129.5

Click here to fill in details before printing:

Proposed Consumption - Three-Bed Property

Water Calculator | WC | Taps (Other) | Taps (Kitchen/Utility) | Baths | Dishwashers | Washing Machines | Showers | H2O softeners | Greywater | Rainwater

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)	1.24	1.46	0.00	1.81
	Part flush Volume (litres)	2.51	2.96	0.00	7.43
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow(litres)	140.00	0.11	0.00	15.40
Shower (where bath also present)	Flow Rate(litres / minute)	6.00	4.37	0.00	26.22
Bath Only	Capacity to overflow(litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	6.00	0.44	10.36	13.00
Washing Machine	(Litres/kg dry load)	5.00	2.1	0.00	10.50
Dishwasher	(Litres/place setting)	0.92	3.6	0.00	3.31
Waste disposal unit	(Litres/use)	☐ Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
	(5)	Total Calculated use (litres/person/day) =SUM(column 4)			87.15
	(6)	Contribution from greywater (litres/person/day)			0
	(7)	Contribution from rainwater (litres/person/day)			0
	(8)	Normalisation factor			0.91
	(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)			79.31
	(10)	External water use			5.0
	(11)	Total water consumption (Building Regulation 17.K) =(9)+(10)(litres/person/day)			84.3

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