

## **REPORT OF HANDLING**

<b>Ref No:</b>	19/01031/APP	<b>Officer:</b>	Andrew Miller
<b>Proposal Description/ Address</b>	Erection of dwellinghouse on Site Adjacent To Woodside Farm Kinloss Forres Moray		
<b>Date:</b>	17/12/19	<b>Typist Initials:</b>	FJA

### **RECOMMENDATION**

<b>Approve, without or with condition(s) listed below</b>	<b>N</b>	
<b>Refuse, subject to reason(s) listed below</b>	<b>Y</b>	
<b>Legal Agreement required e.g. S,75</b>	<b>N</b>	
<b>Notification to Scottish Ministers/Historic Scotland</b>	<b>N</b>	
<b>Hearing requirements</b>	<b>Departure</b>	<b>N</b>
	<b>Pre-determination</b>	<b>N</b>

### **CONSULTATIONS**

<b>Consultee</b>	<b>Date Returned</b>	<b>Summary of Response</b>
Moray Flood Risk Management	04/09/19	No objections.
Planning And Development Obligations	09/09/19	Obligations sought towards healthcare (extension at Forres Health Centre, 2 additional dental chairs and reconfiguration of existing pharmacy outlets), and sports and recreation (3G pitch at Forres).
Aberdeenshire Council Archaeology Service	04/09/19	No objections.
Development Plans (Environment)	16/09/19	Application is contrary to policy E9 on the basis the development represents sprawl outwith the settlement boundary. This would detrimentally erode the distinction between the countryside and the settlement of Kinloss. On this basis, the proposal is not considered to be sensitively sited and also fails to meet the requirements of policy IMP1.  There are identified housing sites in Kinloss that can accommodate new housing development.
Environmental Health Manager		No objections following provision of a Noise Impact Assessment, subject to conditions.

Contaminated Land	10/09/19	No objections.
Transportation Manager	10/09/19	No objections subject to conditions in relation to parking and provision of turning area.
Scottish Water	04/09/19	No objections – unable to confirm capacity at Glenlatterach Water Treatment Works and advise pre-development enquiry is undertaken. No public sewers in vicinity of site.

## DEVELOPMENT PLAN POLICY

Policies	Dep	Any Comments (or refer to Observations below)
H7: New Housing in the Open Countryside	Y	MLDP 2015
E9: Settlement Boundaries	Y	MLDP 2015
EP5: Sustainable Urban Drainage Systems	N	MLDP 2015
EP9: Contaminated Land	N	MLDP 2015
EP10: Foul Drainage	N	MLDP 2015
T2: Provision of Access	N	MLDP 2015
T5: Parking Standards	N	MLDP 2015
EP8: Pollution	N	MLDP 2015
IMP1: Developer Requirements	Y	MLDP 2015
IMP3: Developer Obligations	N	MLDP 2015
PP3 Infrastructure & Services	N	Proposed MLDP 2020
DP1 Development Principles	N	Proposed MLDP 2020
DP4 Rural Housing	N	Proposed MLDP 2020
EP6 Settlement Boundaries	N	Proposed MLDP 2020
EP12 Management and Enhancement of the	N	Proposed MLDP 2020
EP13 Foul Drainage	N	Proposed MLDP 2020
EP14 Pollution, Contamination & Hazards.	N	Proposed MLDP 2020

## REPRESENTATIONS

Representations Received	YES
Total number of representations received ONE	
Names/Addresses of parties submitting representations	
Name and address details of parties submitting representations withheld in accordance with the General Data Protection Regulations.	
Summary and Assessment of main issues raised by representations	

**Issue:** Contrary to Local Development Plan as it is out of the settlement boundary of Kinloss and it is important to keep a clear distinction between the settlement and countryside.

**Comments (PO):** This forms the reason for refusal of the application (see observations).

## **OBSERVATIONS – ASSESSMENT OF PROPOSAL**

Section 25 of the 1997 Act as amended requires applications to be determined in accordance with the Development Plan i.e. the adopted Moray Local Development Plan 2015 (MLDP) unless material considerations indicate otherwise. On 18 December 2018, at a special meeting of the Planning and Regulatory Services Committee, the Proposed Moray Local Development Plan 2020 was approved as the "settled view" of the Council and minimal weight will be given to it, with the 2015 MLDP being the primary consideration.

Further consideration of the weight to be attached to the Proposed Plan was considered and agreed at the Planning and Regulatory Services Committee on 29 January 2019, with the Committee agreeing that between June/August 2019 and adoption of the new LDP in mid-2020, the weight to be given to matters set out in the Proposed Plan will vary;

- Where matters set out in the Proposed Plan are subject to unresolved objections which will be considered through Examination, then those matters will continue to be given minimal weight as a material consideration in the development management process.
- Where matters set out in the Proposed Plan are not subject to unresolved objections, they will be given greater weight as a material consideration in the development management process.

The weight to be given will be considered on a case by case basis and will be agreed by the Development Management Manager and the Strategic Planning and Delivery Manager.

On 25 June 2019 the Planning & Regulatory Services Committee agreed to give greater weight to sites within the proposed Plan which are not subject to the Examination process from 1 August 2019. In this case the proposal is not subject to a designated site and as all policies in the proposed Plan are subject to examination they are not a material consideration.

The main planning issues are considered below.

### **Site**

A relatively flat area of agricultural land to the north east of Woodside Farm, Kinloss. The site is bounded by residential properties to the north east, a small area of agricultural ground and further residential properties to the north west, and agricultural land to the south east and south west (Woodside Farm beyond to the south west).

The residential properties fall within the settlement boundary of Kinloss (as defined in the MLDP), which runs along the north east and north west boundaries of the site (excluding the proposed access which is within the settlement boundary). The remainder and majority of the site falls outwith the settlement boundary.

### **Proposal**

Planning permission is sought for the erection of a house. It would be one and a half storey with an integral garage. Gabled roofed, the house would be in a linear arrangement with wings protruding off all elevations bar the south western elevation. The walls would be finished in smooth render and stone work, natural slate to the roof and grey aluminium clad window frames and doors.

The house would be accessed via a new access track leading from the existing access road to Woodside Farm. Surface water would discharge to a surface water soakaway, whilst foul drainage would discharge to septic tank with subsequent drainage to a soakaway.

## **Settlement Boundary**

The settlement boundary of Kinloss incorporates Woodside Farm (recognising its commercial role - shop, café, play area etc.), resulting in an obscure boundary that leaves a strip of land outwith the defined settlement of Kinloss bounded by the settlement boundary on three sides. The site subject to this application falls within part of this area.

Associated policy E9 (Settlement Boundaries) presumes against development immediately outwith settlement boundaries in order to prevent the spread of development and to maintain a clear distinction between settlements and countryside, with no exceptions. The proposed house is clearly in breach of this policy, and representing a spread of development outwith the settlement boundary and into the countryside, diminishing the clear distinction between the two.

The response received from the Strategic Planning and Delivery notes that there are identified housing sites in Kinloss that can accommodate new housing development, with a planning application currently under consideration for 23 plots at R4 Damhead and an approval for 6 houses on R3 Findhorn Road West.

Two supporting statements from the applicant states that the development infills an area between a heavily developed farm yard and farm shop/café and houses, and that there would be limited visibility of the site from public roads. The statements also state that the development should not be considered to set a precedent (given that the applicant controls the land and only wants to build one house), and that the planning service should be careful assessing planning applications as business and people will move away from Moray if the service does not support planning applications.

Ultimately, it is not considered the points raised by the applicant would justify a departure from policy E9. Were this application to be approved, it would be a clear breach of policy, and would be a prime example of precedent to allow development on the edge of Kinloss and other settlements in Moray.

## **Housing in the Countryside (H7)**

As the site is outwith a settlement (per the MLDP), it is considered to comprise housing development in the countryside and thus policy H7 (Housing in the Countryside) is applicable. Policy H7 sets out siting and design requirements to ensure housing development does not adversely impact on the rural character of Moray's Countryside.

With regard to its siting, policy H7 requires new houses to: have at least 50% of its boundaries as long established; not result in an adverse impact on the setting of existing buildings; be sensitively integrated into the countryside; and not result in a build-up of housing that is detrimental to the character of the surrounding area. Policy IMP1 states that any development should be appropriate to the character and amenity of the surrounding area.

Noting the reasoning in relation to policy E9, the proposal is considered to be contrary to policy H7 and IMP1 on the basis the house would adversely impact on the setting of Kinloss and its surrounding countryside. The proposal also fails to provide at least 50% of its boundaries as long established.

The design of the proposed house does comply with policy H7 - its roof pitch, proportions, vertical window openings and material finishes are suitable for the rural nature of the development. Nonetheless this does not overcome the siting issues outlined above.

## **Noise (EP8)**

A Noise Impact Assessment has been provided at the request of the Council's Environmental Health Service in light of the sites location in proximity to Kinloss Barracks and the potential impact of noise from aircraft upon occupants of the house. The NIA (whilst incorrectly making reference to RAF Lossiemouth rather than Kinloss Barracks) found that noise from aircraft using the runway at the Barracks would not have an adverse impact on the occupants of the proposed house, subject to

mitigation measures. The Environmental Health section raised no objections to the proposal, subject to a condition being placed requiring the mitigation measures being implemented. Subject to conditions requiring these measures being implemented, the proposal is considered to comply with policy EP8.

### **Drainage (EP5, EP10)**

Surface water would be treated via a surface water soakaway, in line with the requirements of policy EP5, whilst foul drainage would be treated via a septic tank and soakaway, in line with policy EP10. It is noted Moray Flood Risk Management had no objection to the proposal.

### **Parking and Access (T2, T5)**

Access to the site would be via an existing access to the public road. Subject to conditions as recommended, the proposed access arrangements are considered acceptable and would comply with policy T2. Sufficient parking has also been provided within the curtilage of the site, in line with policy T5. The Transportation Manager has not objected to the proposal.

### **Developer Obligations (IMP3)**

In order to mitigate against any adverse impact a development may have upon existing infrastructure and facilities, policy IMP3 puts in place the provision to seek developer obligations appropriate to reduce, eliminate or compensate for the impact. Following assessment in accordance with the Council's Supplementary Guidance on Developer Obligations, obligations are sought towards healthcare (extension at Forres Health Centre, 2 additional dental chairs and reconfiguration of existing pharmacy outlets), and sports and recreation (3G pitch at Forres). As this application has been recommended for refusal, these obligations were not pursued, however were this application to be approved, then obligations should be sought by means of an appropriate agreement. The applicant has indicated a willingness to pay these obligations.

### **Community Council Comments**

Comments received from Findhorn and Kinloss Community Council are noted in relation to policy E9 (outlined above under Representations).

**Recommendation - Refuse**

## **OTHER MATERIAL CONSIDERATIONS TAKEN INTO ACCOUNT**

None

### **HISTORY**

Reference No.	Description		
04/00021/FUL	Change of use of field for car boot sales (March to October) at Woodside Farm Kinloss Forres Moray IV36 0UA		
	Decision	Permitted	Date Of Decision

### **ADVERT**

Advert Fee paid?	<b>No</b>	
Local Newspaper	Reason for Advert	Date of expiry
Forres Gazette	Departure from development plan No Premises	01/10/19
PINS	Departure from development plan No Premises	01/10/19

<b>DEVELOPER CONTRIBUTIONS (PGU)</b>	
<b>Status</b>	

**DOCUMENTS, ASSESSMENTS etc. \***  
*\* Includes Environmental Statement, Appropriate Assessment, Design Statement, Design and Access Statement, RIA, TA, NIA, FRA etc*

Supporting information submitted with application?	YES	
Summary of main issues raised in each statement/assessment/report		
Document Name:	Drainage Statement	
Main Issues:	Outlines the ground conditions on the site and proposed drainage arrangement.	
Document Name:	Noise Impact Assessment	
Main Issues:	Assesses the impact noise emissions from aircraft operating at nearby Kinloss Barracks will have on the occupants of the proposed house.	
Document Name:	Supporting Statements	
Main Issues:	Two supporting statements provided – both in response to points raised in relation to issues surrounding planning policy.	

**S.75 AGREEMENT**

Application subject to S.75 Agreement		NO
Summary of terms of agreement:		
Location where terms or summary of terms can be inspected:		

**DIRECTION(S) MADE BY SCOTTISH MINISTERS (under DMR2008 Regs)**

Section 30	Relating to EIA		NO
Section 31	Requiring planning authority to provide information and restrict grant of planning permission		NO
Section 32	Requiring planning authority to consider the imposition of planning conditions		NO
Summary of Direction(s)			

Andrew Miller  
 Planning Officer  
 Environmental Services  
 The Moray Council  
 PO Box 6760  
 Elgin  
 IV30 9BX

Tuesday 8<sup>th</sup> October 2019

Our ref: 2102  
 Planning ref: 19/01031/APP

Dear Andrew,

**Erection of Dwellinghouse**

Site adjacent to Woodside Farm, Kinloss, Forres, Moray

**Supporting Statement**

This statement has been prepared in response to the comments received from Development Plans regarding E9 Settlement Boundaries and IMP1 Developer Requirements for application 19/01031/APP.

We strongly feel that the application as submitted seeks to propose a sustainable approach to providing additional accommodation for Mr & Mrs Rhind who currently own, operate and staff a busy, local service in Kinloss. We fully respect the thinking and methodology behind the structure of the Policy E9 Settlement Boundaries, and protecting them, but strongly disagree with the statement that this specific proposal “Erodes the distinction between urban and rural”. The proposal is sited in an area that sensitively and sensibly infills an area of heavily developed farmyard & farm shop/café to the south and the outer edge of small gardened ‘housetype’ properties to the north. The site has been identified on the below site context map.



Fig. 01 | Site Context Map

Kinloss has never been a 'cohesive' settlement and has grown sporadically & limb-like over the years. The proposal allows a gap site to be filled as well as promoting the growth of an asset asset to Kinloss itself. The map below shows the sporadic growth pattern that already exists with multiple cohesive groupings alongside open rural-feel areas.

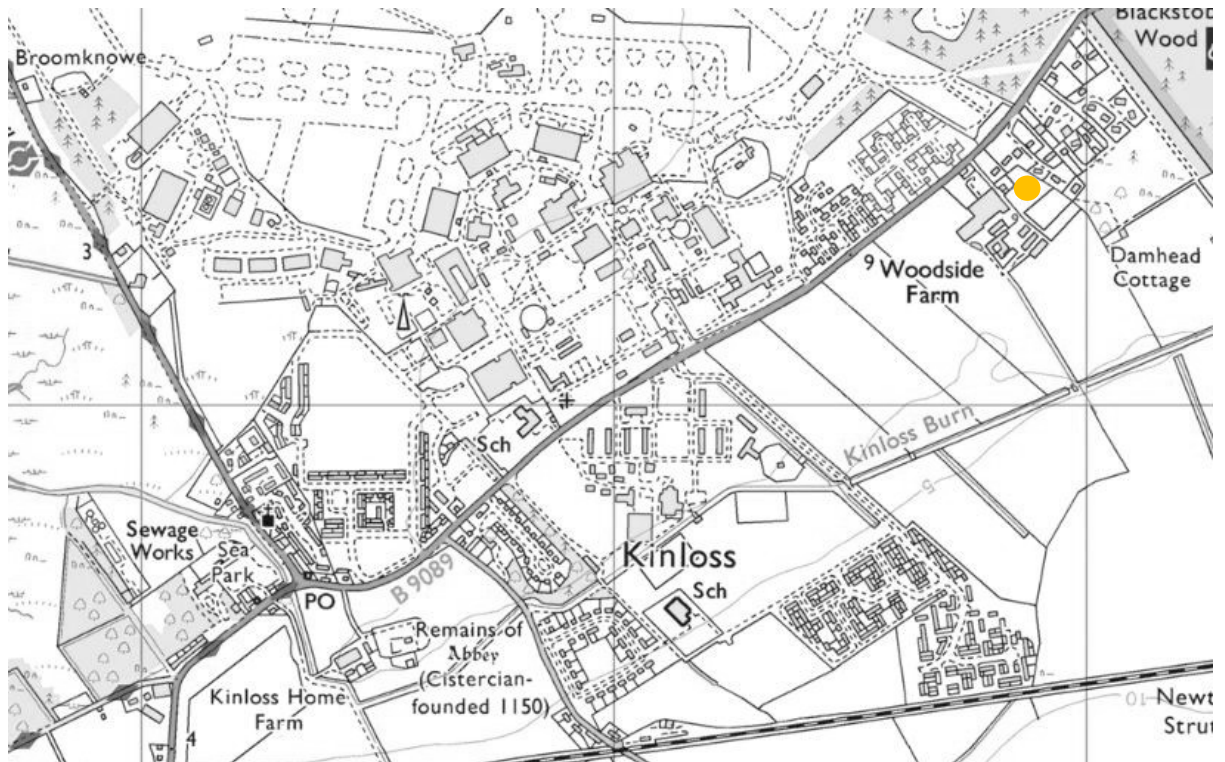


Fig. 02 | Map of Kinloss

The positioning of the house within the already screened site, cannot be seen from the B9089 and therefore will not erode the character of the boundary to the settlement. Travelling North-East on the B9089 you will be faced first with Woodside farm, and travelling South-West on the B9089 you will first be faced with an existing house-type development which is heavily landscaped from the road.



Fig. 03 | Streetview – view towards North-East. Proposed development is well hidden from the B9089.





Fig. 04 | Streetview – view towards South-West. Existing development heavily landscaped.

Therefore, the proposed development will have no damage to the character of the settlement boundary as nobody can visually identify it anyway. The development, as proposed, complies with IMP1 Developer Requirements by appropriately fitting into the surrounding landscape area.

The Kinloss settlement boundary shown in below extract surrounds 50% of the existing established fence line along the North-West & North-West boundary. The proposed house site is a portion of land just outwith the settlement boundary which we believe would be invaluable to the family business for continuing the growth of the farming enterprise.

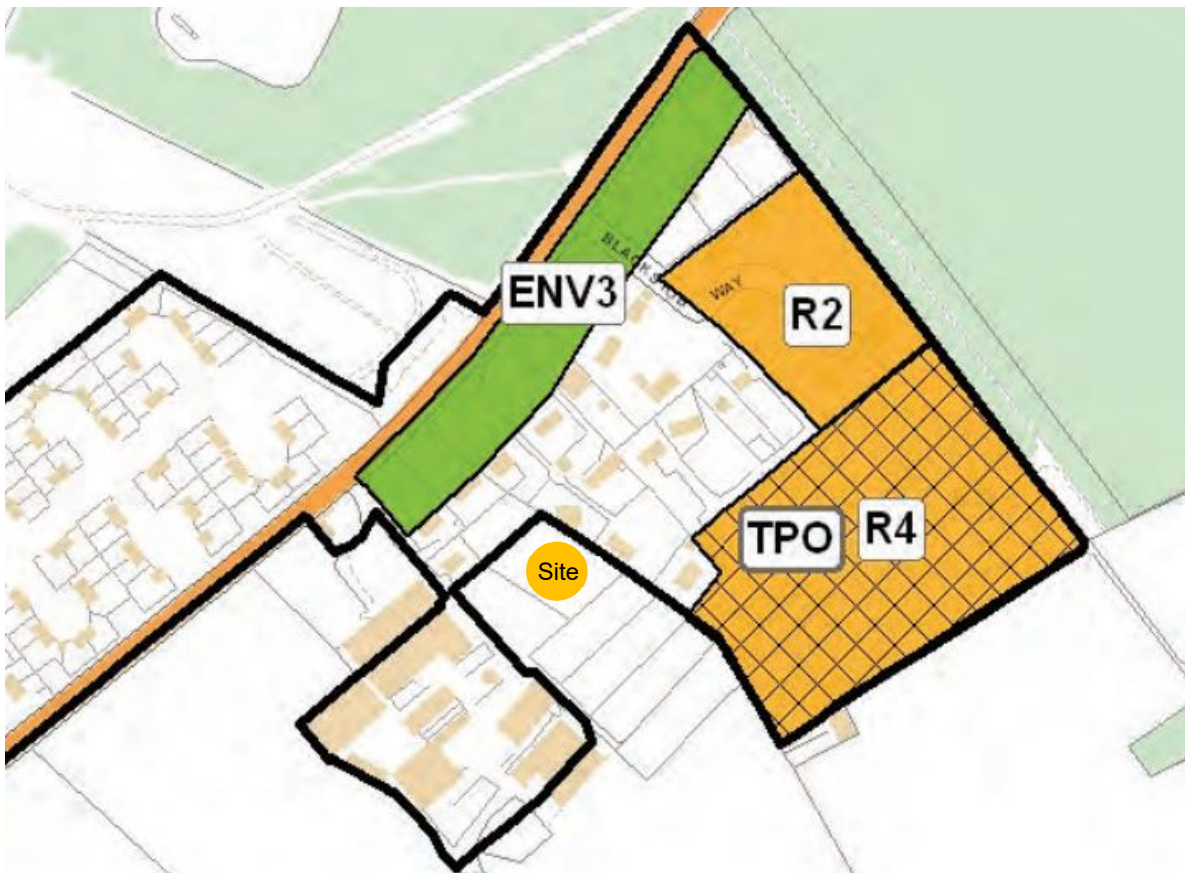


Fig. 05 | Extract from Moray Local Development Plan SETTLEMENTS

We hope that the planning service can support this house site as a departure from their exiting planning policy. The benefits of this proposal, allowing the Rhind family to continue to operate and sustainably grow their popular business, by allowing more family to stay on site, has large social and community benefits, outweighing any opinion of potential impact on the village.

Yours sincerely

John Wink Design



Andrew Miller  
Planning Officer  
Environmental Services  
The Moray Council  
PO Box 6760  
Elgin  
IV30 9BX

Friday 18<sup>th</sup> October 2019

Our ref: 2102  
Planning ref: 19/01031/APP

Dear Andrew,

**Erection of Dwellinghouse**

Site adjacent to Woodside Farm, Kinloss, Forres, Moray

**Supporting Statement A**


Thanks for your below email further to the submission of our supporting statement in response to concerns raised by Development Plans.



Fri 18/10/2019 09:02

Andrew Miller <Andrew.Miller@moray.gov.uk>

RE: 19/01031/APP - Site adj. to Woodside Farm, Kinloss

To  Kathryn Urquhart

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Thank you for the information,

Unfortunately, this does not overcome the issues raised in respect of the matters in relation to the settlement boundary policy and I would have concern that this would lead to further development in this area. On this basis the application will be refused. Your client can request a review of the decision at the Local Review Body.

In respect of the NIA – can you advise if your client wishes for this to be undertaken?

Many Thanks

Andrew

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Unfortunately, we disagree. We feel that our supporting statement does give evidence to overcoming any potential issues the policy team see there being with regards to eroding the character of the settlement boundary. We have shown maps, images and have reported on why we feel our application should be supported as a departure.

You suggest that this proposal may lead to others in the area, however, each application is assessed on it's own merits, therefore the planning service have control over this. We have justified why, in this instance, this proposal should be favoured. Our client owns all of the land in this area and have specifically given good reason for the house being in this location – to help support an already viable and precious business to Kinloss. Our clients have a desire to only build one house for themselves. Any fear of this becoming a precedent should be washed-out by the strength of the social and community benefits of this proposal. The planning service really need to be careful when assessing applications that have such positive outcomes, or businesses and people whom are community minded will simply move away from Moray, if they are not getting any support or encouragement.

With regards to the Noise Impact Assessment, we can confirm we are currently in communication with external consultants who will be undertaking the assessment.

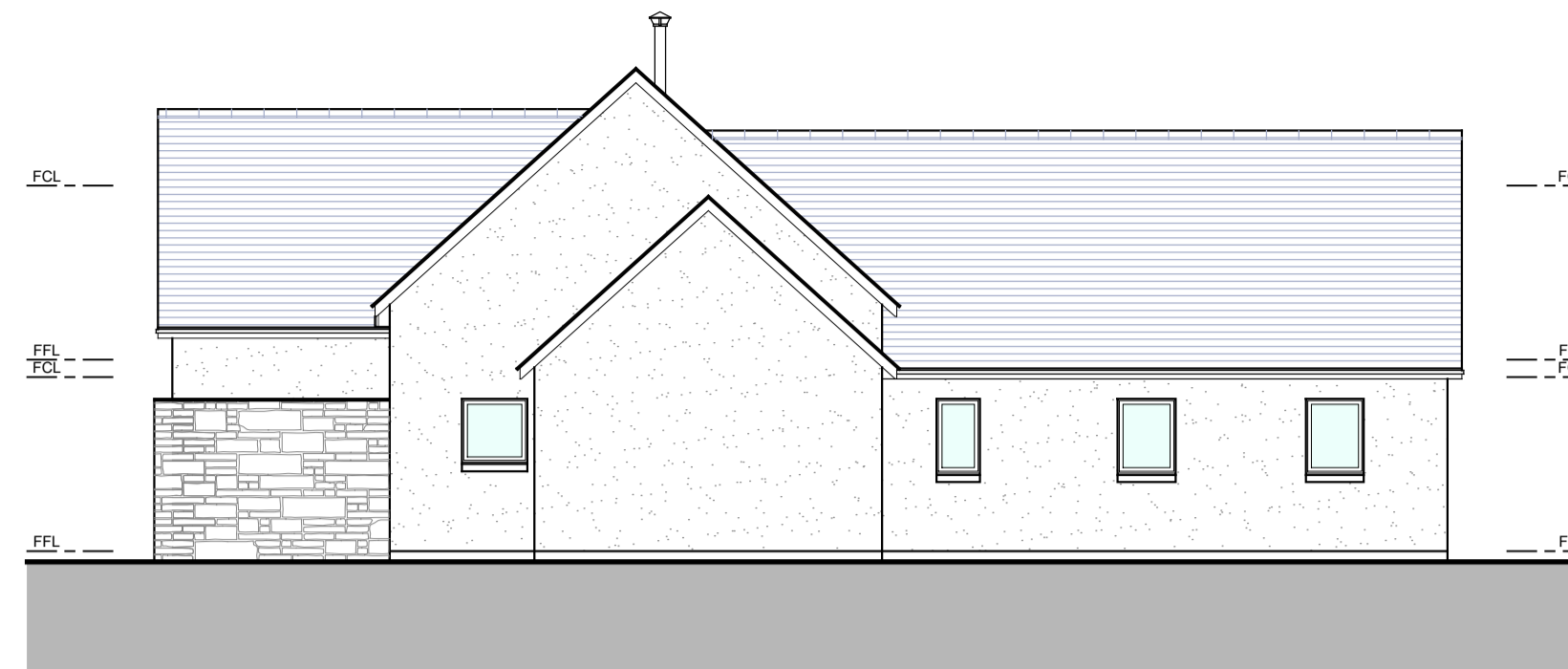
Yours sincerely

John Wink Design



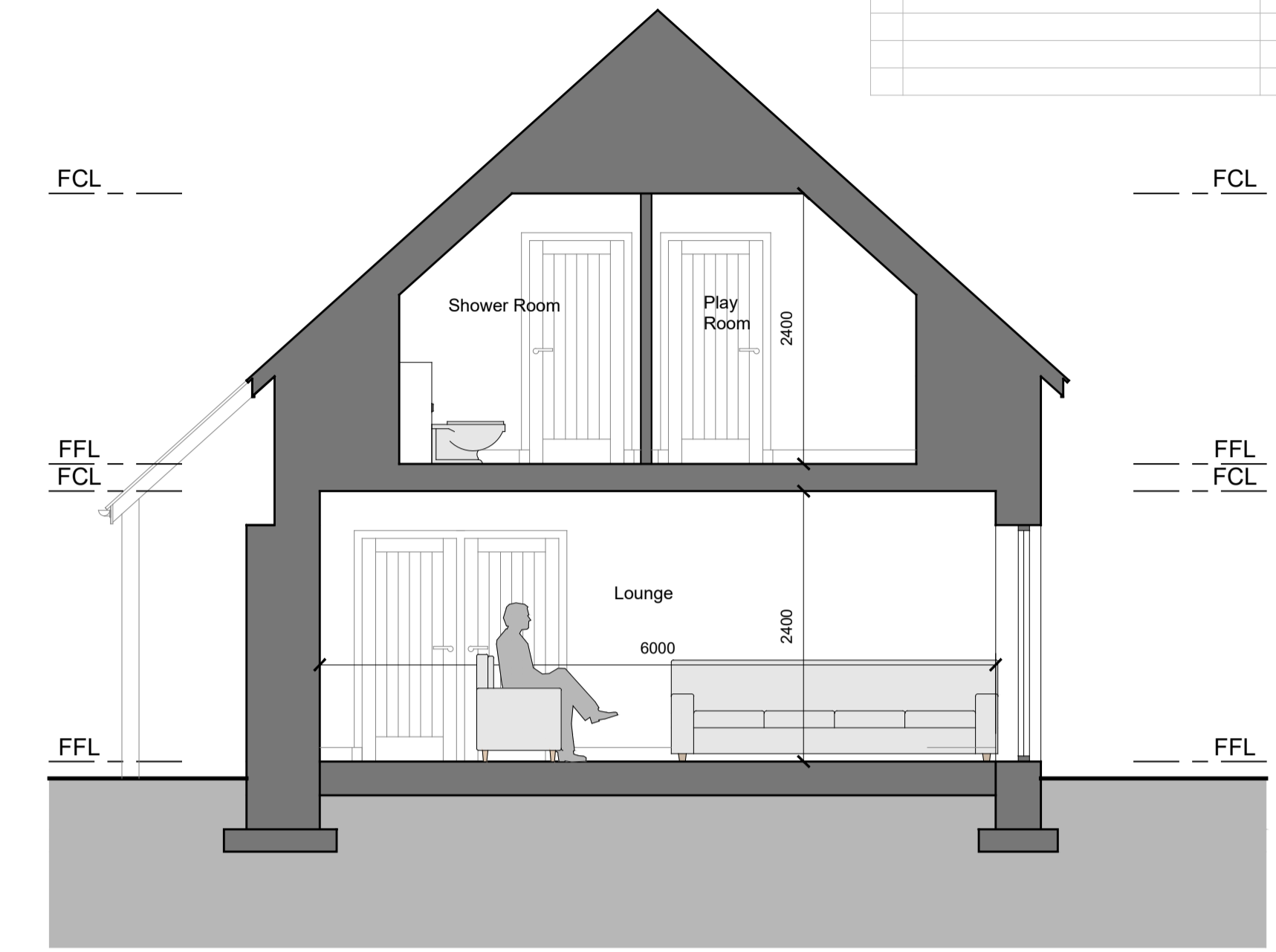


South West Elevation  
Scale 1:100

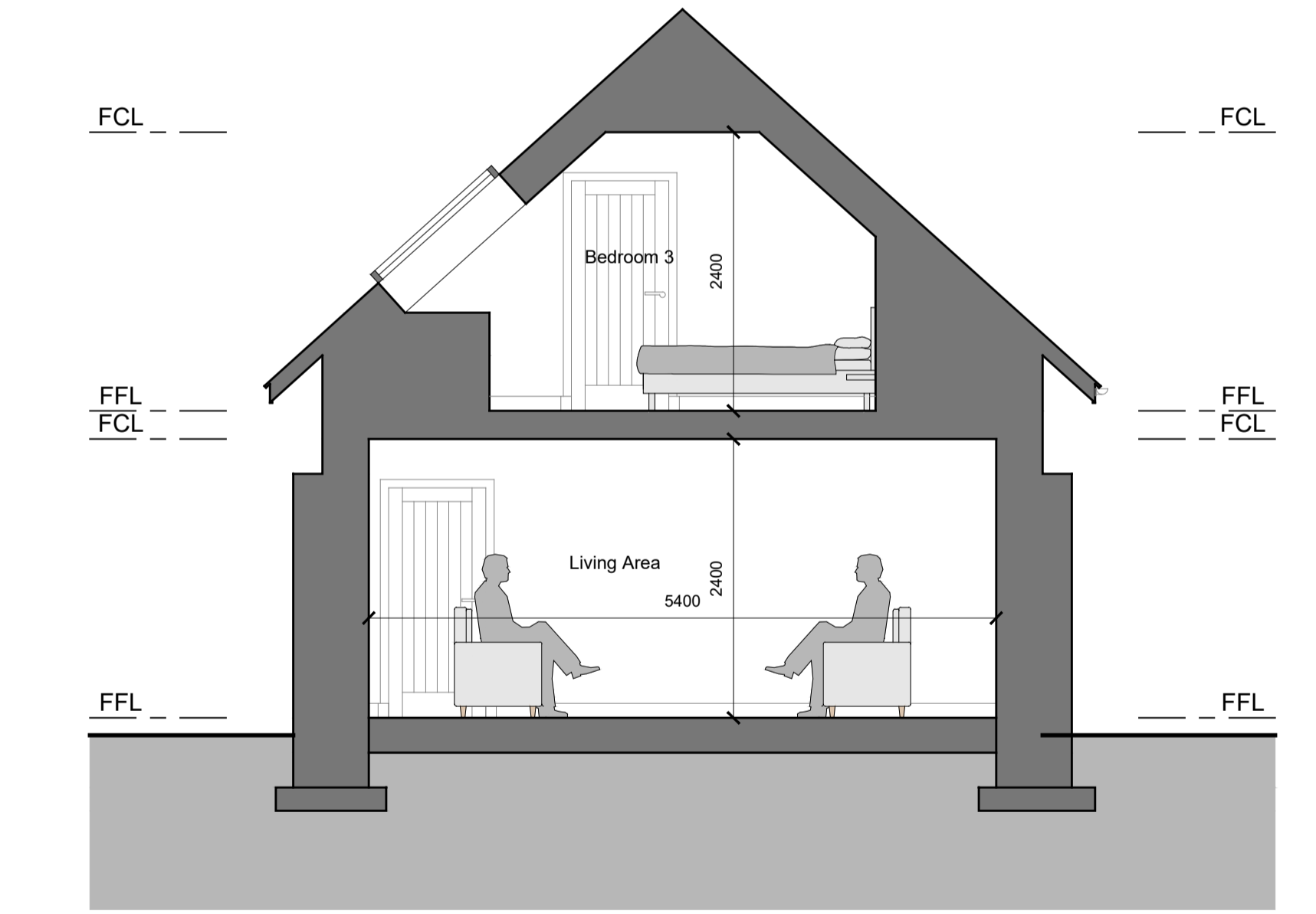


North East Elevation  
Scale 1:100

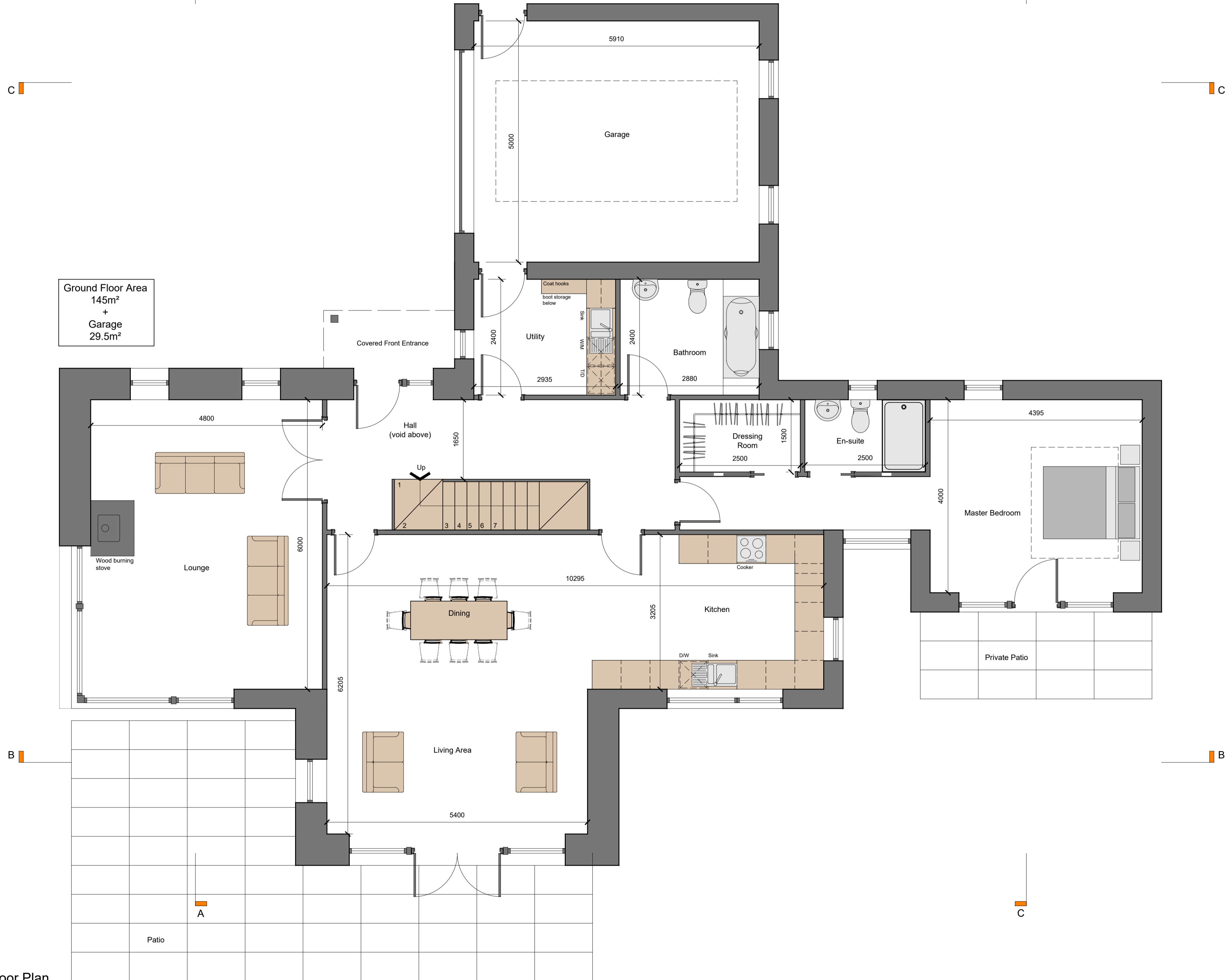
MATERIALS			
Wall finish -	Smooth render / stonework		
Roof finish -	Natural slate		
Window and door finish -	Grey alu-clad		
Rainwater goods -	Aluminium		
Rev: Details:		Date:	By:



Section A-A  
Scale 1:50






Section B-B  
Scale 1:50



Ground Floor Area  
145m<sup>2</sup>  
+  
Garage  
29.5m<sup>2</sup>

Ground Floor Plan  
Scale 1:50

Project		 <p>JOHN WINK DESIGN</p>
<p><b>New House</b></p> <p>At: Site adjacent Woodside Farm Kinloss Forres IV36 3UA</p> <p>For: Mr &amp; Mrs A. Rhind</p>		
<p>Drawing Planning - Ground Floor Plan, Sections &amp; Elevations</p> <p>Scale: <b>As noted @ A1</b> Date: <b>August 2019</b></p> <p>Revision: - Dwg No: <b>2102-020</b></p> <p>1-01464 841113   e-office@johnwinkdesign.co.uk Midtown of Foudland   Glens of Foudland   Huntly   Aberdeenshire   AB54 6AR</p> <p>Note Dimensions must not be scaled from this drawing. If in any doubt - ask! All dimensions to be checked prior to work commencing or prior to any components being manufactured. Any discrepancy to be reported. All work and material to comply fully with all current British Standards Codes of Practice, building regulations, IEE regulations and all HSE acts.</p> <p>This drawing is copyright of John Wink Design. ©</p>		
 		



MATERIALS	
Wall finish -	Smooth render / stonework
Roof finish -	Natural slate
Window and door finish -	Grey alu-clad
Rainwater goods -	Aluminium

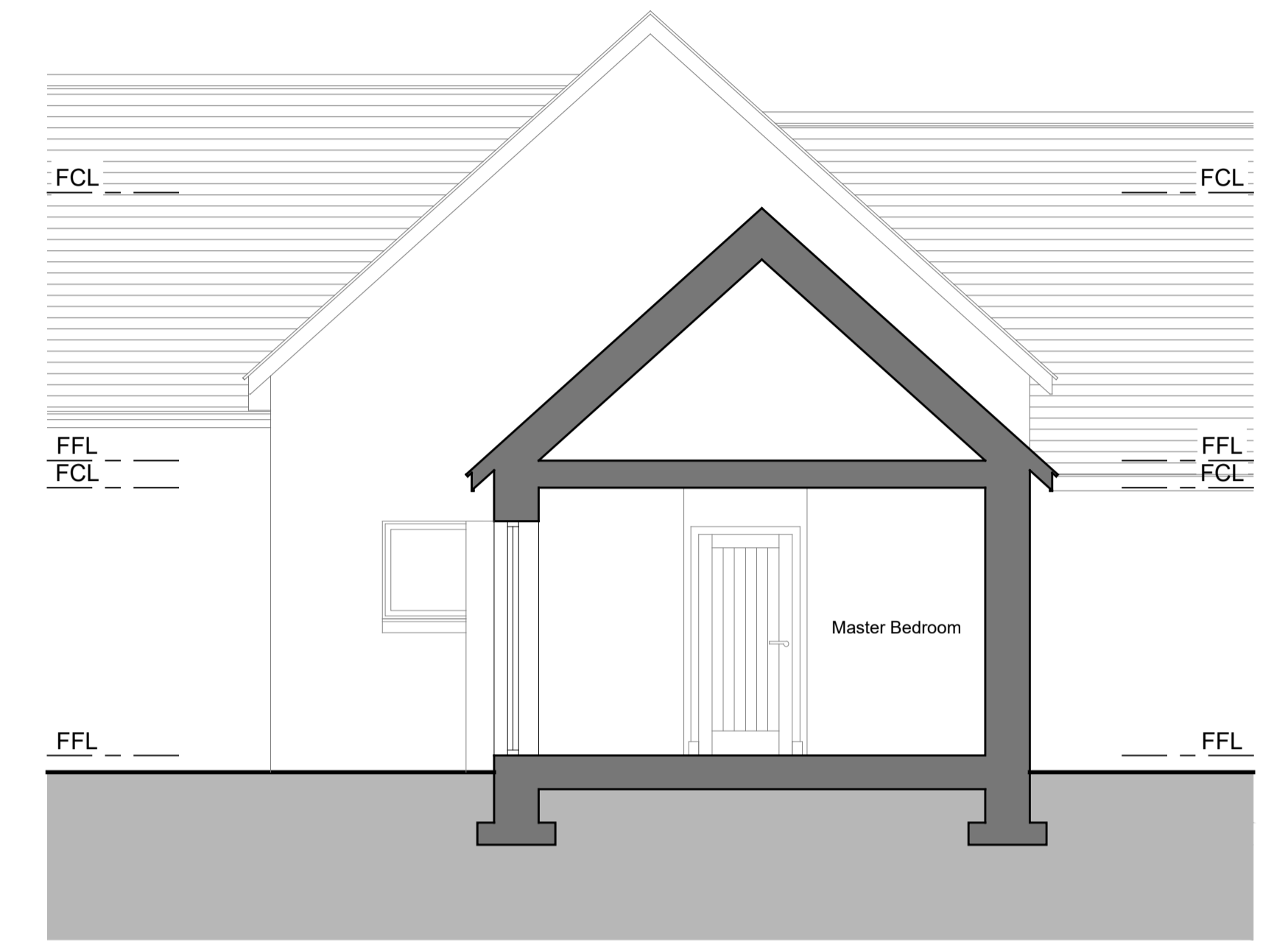
Rev:	Details:	Date:	By:



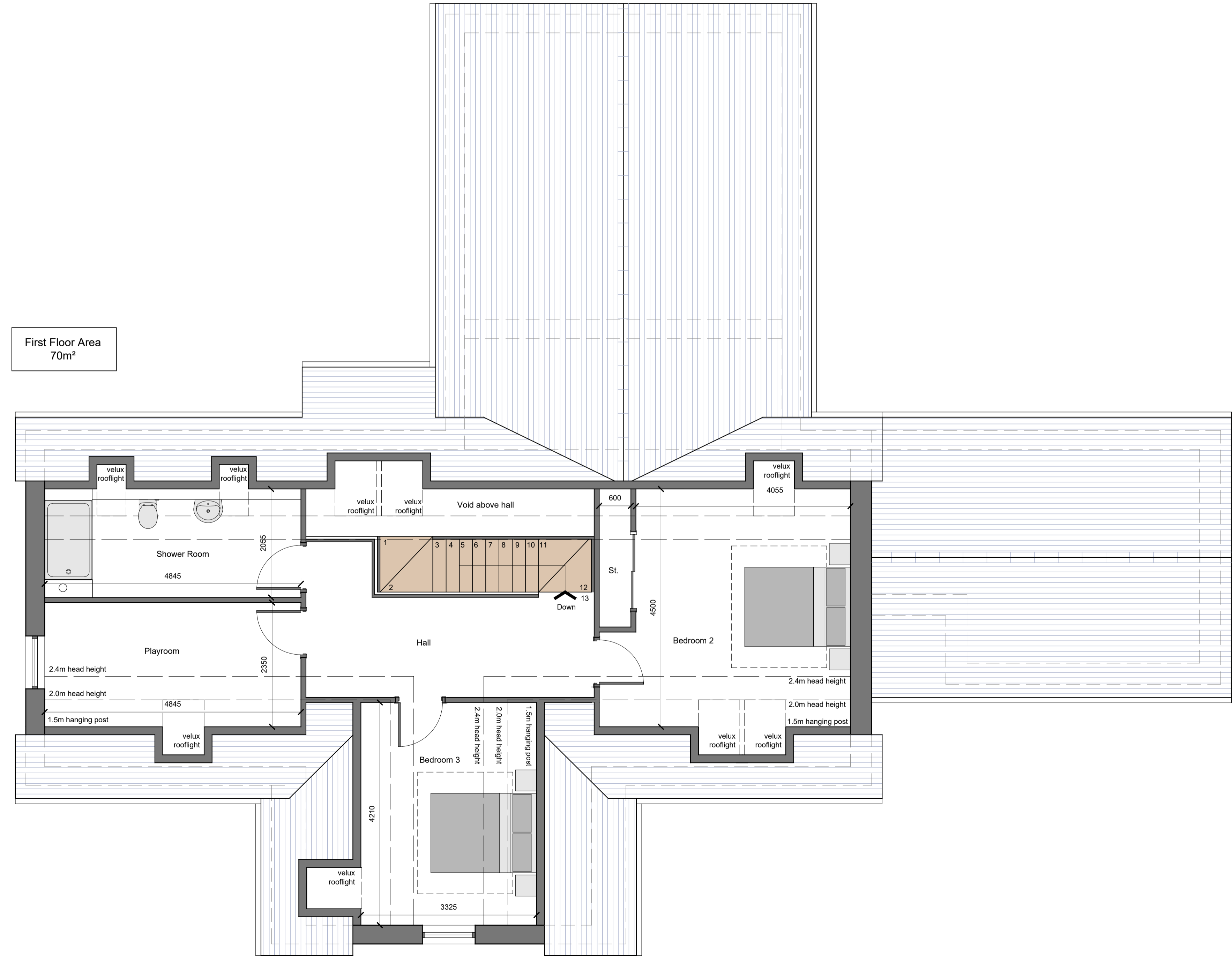
North East Elevation  
Scale 1:100



South West Elevation  
Scale 1:100

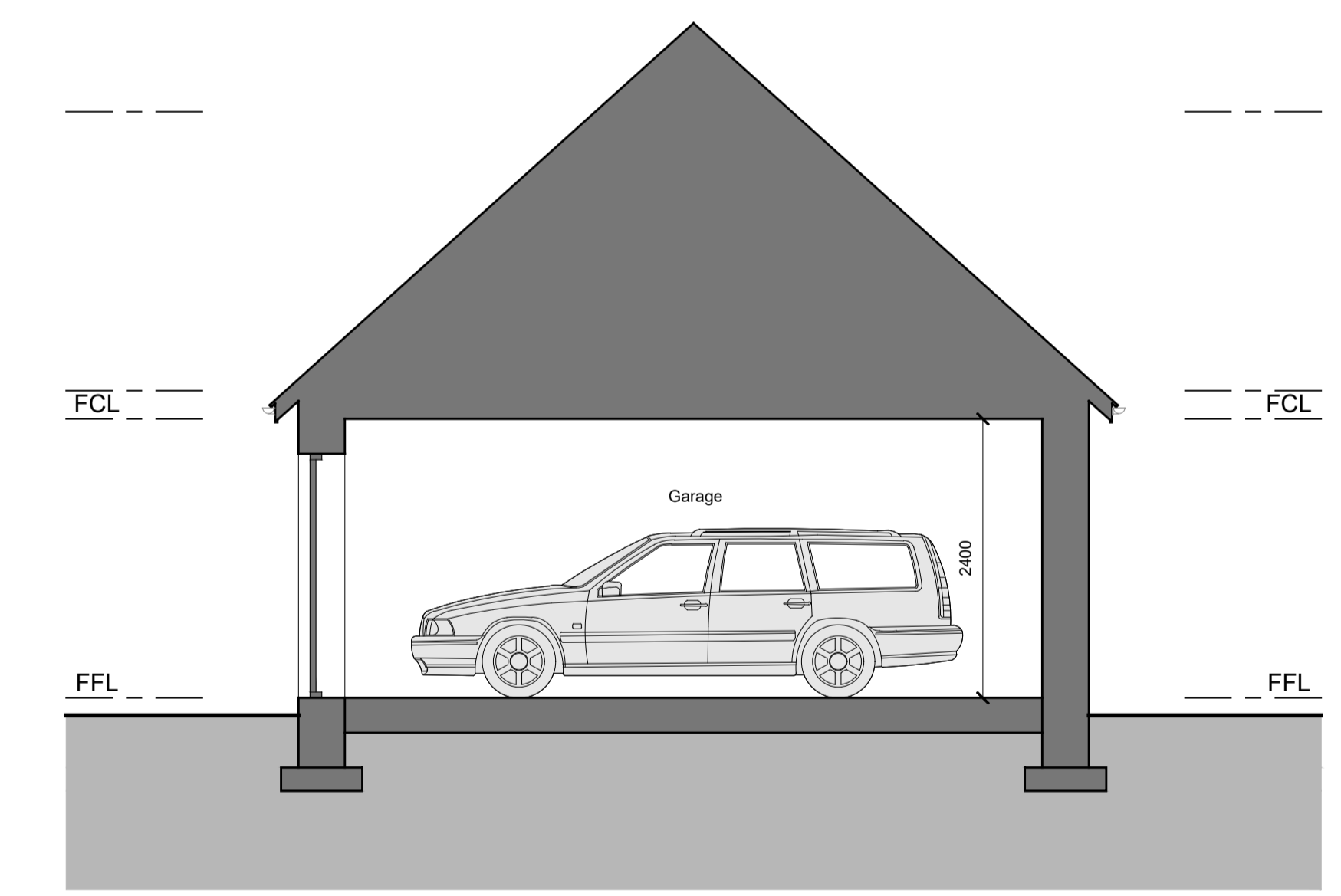


Section C-C  
Scale 1:50



First Floor Area  
70m<sup>2</sup>

First Floor Plan  
Scale 1:50



Section D-D  
Scale 1:50

Project  
**New House**  
At: Site adjacent Woodside Farm  
Kinloss  
Forres  
IV36 3UA  
For: Mr & Mrs A. Rhind

Drawing  
Planning - First Floor Plan, Sections & Elevations

Scale	As noted @ A1	Date	August 2019
Revision	-	Dwg No	2102-021

1-01464 841113 | e-office@johnwinkdesign.co.uk  
Midtown of Foudland | Glens of Foudland | Huntly | Aberdeenshire | AB54 6AR

Note  
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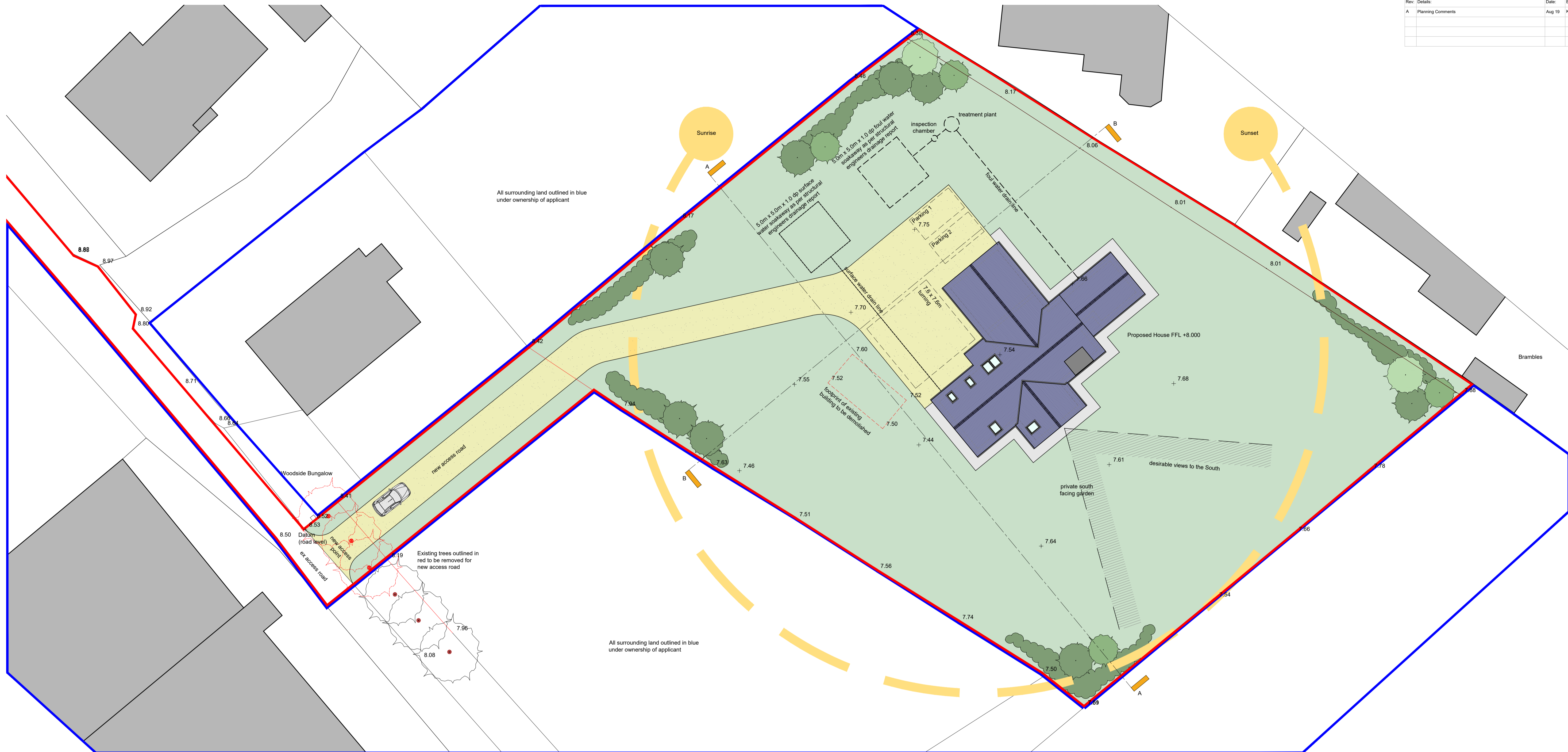
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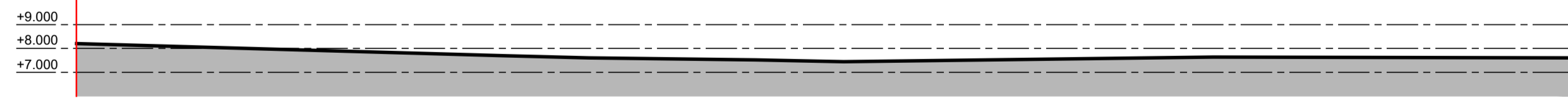


Rev:	Details:	Date:	By:
A	Planning Comments	Aug 19	KJ



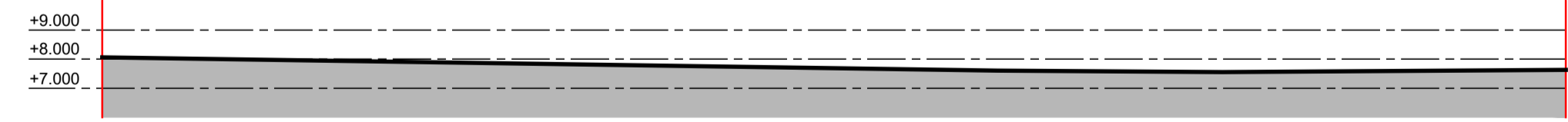
Site Plan

Scale 1:200



Proposed Site Section A-A

Scale 1:200



Proposed Site Section B-B

Scale 1:200



Proposed Site Section A-A

Scale 1:200



Proposed Site Section B-B

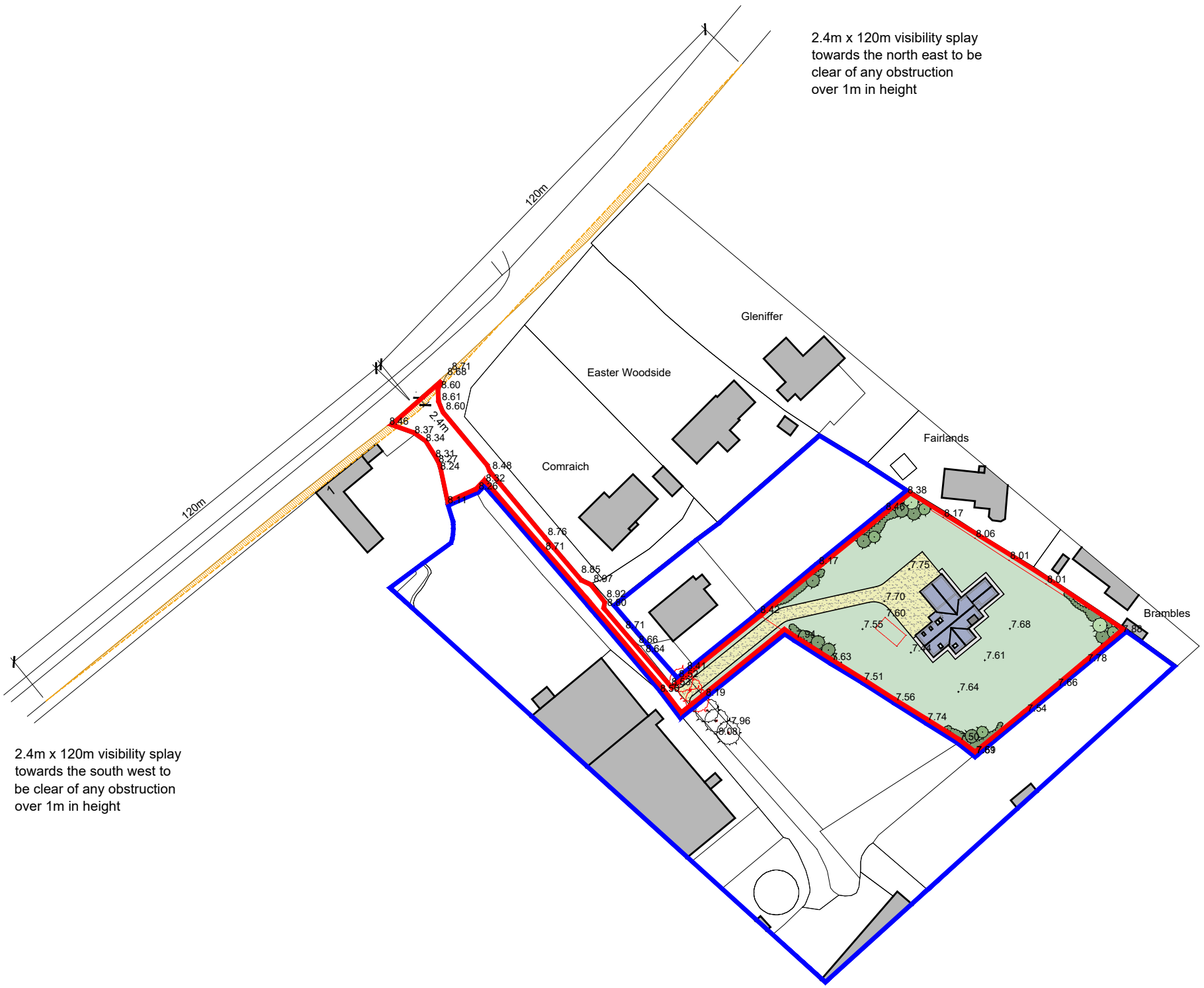
Scale 1:200

Project		New House	
At: Site adjacent Woodside Farm		Kinloss	
Forres		IV36 3UA	
For: Mr & Mrs A. Rhind			
Drawing			
Planning - Site Plan & Site Sections			
Scale	As noted @ A1	Date	August 2019
Revision	A	Dwg No	2102-022
1-01464 841113   e-office@johnwinkdesign.co.uk			
Midtown of Foudland   Glens of Foudland   Huntly   Aberdeenshire   AB54 6AR			
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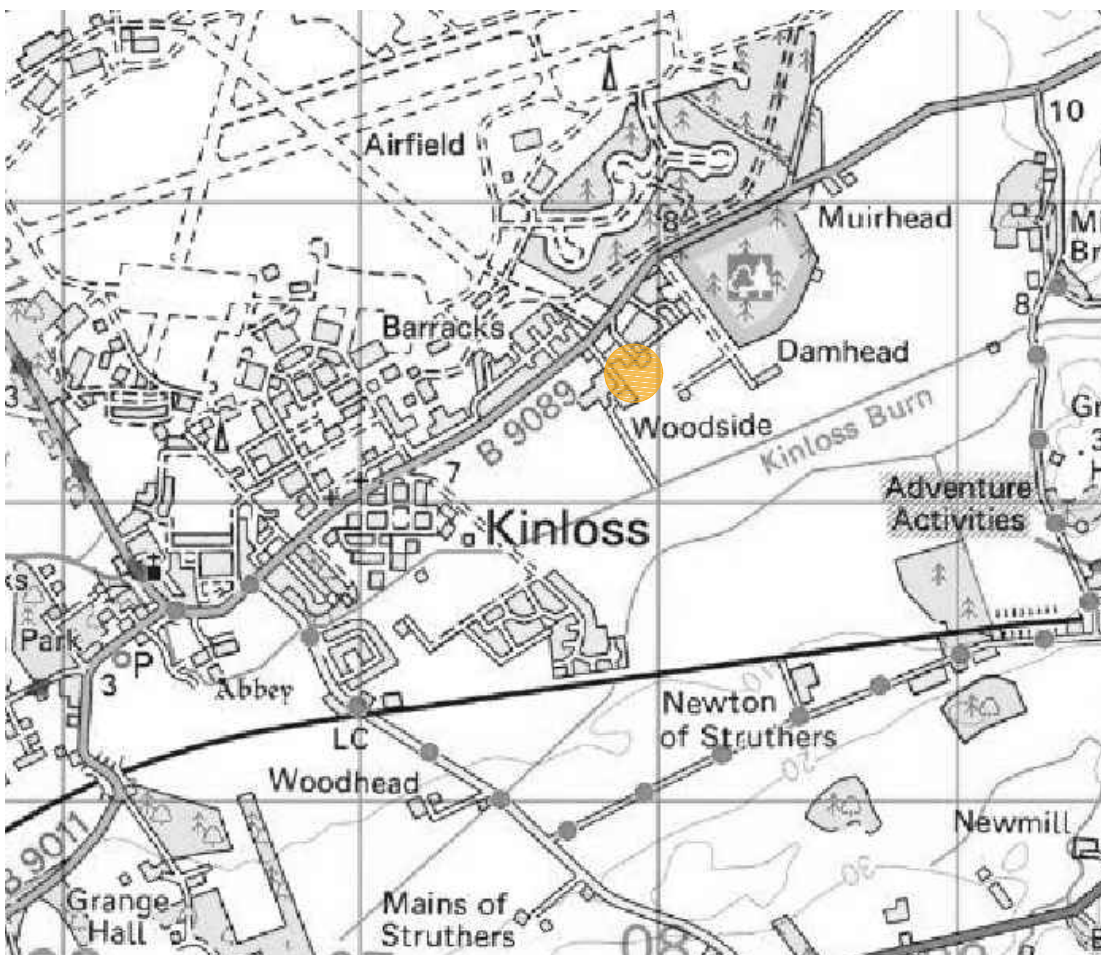
2.4m x 120m visibility splay towards the north east to be clear of any obstruction over 1m in height



2.4m x 120m visibility splay towards the south west to be clear of any obstruction over 1m in height

### Site Location Plan / Visibility Splays

Scale 1:1,250



### Ordnance Survey Map

Scale 1:25,000



Project New House	
At: Site adjacent Woodside Farm Kinloss Forres IV36 3UA	
For: Mr & Mrs A. Rhind	
Drawing Planning - SLP & OS Map	
Scale As noted @ A3	Date August 2019
Revision -	Dwg No 2102-SLP
t-01464 841113   e-office@johnwinkdesign.co.uk Midtown of Foudland   Glens of Foudland   Huntly   Aberdeenshire   AB54 6AR	
<small>Note Dimensions must not be scaled from this drawing. If in any doubt - ask! All dimensions to be checked prior to work commencing or prior to any components being manufactured. Any discrepancy to be reported. All work and material to comply fully with all current British Standards Codes of Practice, building regulations, IEE regulations and all HSE acts.</small>	
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**Project Number:** 12102  
**Project Title:** New Dwelling House  
**Project Address:** Site Adjacent to Woodside Farm, Kinloss,  
Forres, IV36 3UA  
**Client:** Mr & Mrs Rhind  
**Document Number:** REP-001  
**Document Title:** Drainage Assessment

Revision	Date	Notes	Prepared By	Checked By	Approved By
-	07.08.19	First Issue	VN	RM	RM

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## **1.0 INTRODUCTION**

This drainage strategy is prepared in accordance with the guidance given in the following documents:-

- Water Assessment & Drainage Assessment Guide – A guide for Scotland, produced by SEPA on behalf of the Sustainable Urban Drainage Scottish Working Party (SUDSWP), January 2016.
- Planning Advice Note (PAN) 61: Planning and Sustainable Urban Drainage Systems, issued by the Scottish Executive Development Department, July 2001.
- The SUDS Manual – (CIRIA C753)
- Sewers for Scotland, Third Edition, April 2015, published by WRc plc.
- The Water Environment (Controlled Activities) (Scotland) Regulations.

## **2.0 EXISTING SITE**

The existing site is adjacent to Woodside Farmshop near Kinloss, Forres (NJ081625). It can be accessed via an unclassified public road off the B9089 public road near Kinloss.

## **3.0 DEVELOPMENT PROPOSALS**

The development proposal is to build a three bedroom dwelling house which can be accessed via a new access road off the unclassified public road leading to the B9089 public road.

## **4.0 EXISTING DRAINAGE**

There are currently no drainage facilities on the site. Details for foul and rainwater drainage proposals are included in Items 5 and 6 of this report.

## **5.0 SURFACE WATER DRAINAGE**

Infiltration testing carried out at the site identified that the ground is of permeable nature. Therefore, it is proposed to dispose of all the rainwater, from the roof and parking areas of the proposed development, to a rainwater soakaway, located within the site boundaries. A minimum rainwater area soakaway equivalent to 25 square metres should be adopted. Drainage calculations are attached in Appendix A and drainage and soakaway details can be found on Drawing Number 12102-D1 in Appendix B.

## 6.0 FOUL DRAINAGE

Percolation testing carried out at the site identified that the ground is of permeable nature. Therefore, it is proposed to dispose of the foul water from the development, to a foul water soakaway, located within the site boundaries. A minimum soakaway surface area equivalent to 25 square metres should be adopted. For a three bedroom house (equivalent to 5PE), it is recommended by SEPA, to adopt a sewage treatment plant with 5PE minimum treatment capacity. Therefore, it is proposed to adopt a Balmoral Hydroclear HC6 sewage treatment plant, or equal approved. Drainage calculations are attached in Appendix A and drainage and soakaway details can be found on Drawing Number 12102-D1 in Appendix B.

## 7.0 SITE INVESTIGATION

A trial pit was excavated, with the assistance of a mechanical excavator, as shown on Drawing Number 12102-D1 in Appendix B. Groundwater was not encountered in the trial pit. The results are as follows:

**Trial Pit 1 (TP1)** -- 1800mm deep

400mm topsoil

1400mm fine sand

## 8.0 FUTURE MAINTENANCE

The future maintenance of the foul and rainwater disposal system will be the responsibility of owners/proprietors of the proposed development. This will be inspected on an annual basis. If blockage is identified or suspected, within the system, it will be cleaned out without delay. In the event of a system failure, it will be replaced with a similar specification.

## 9.0 CONCLUSIONS

Based on the investigations and the contents of this report I conclude that the proposed development site can accommodate the drainage proposals itemised within this report.

The subsoil materials, identified in the trial pits as being free from contamination and pollution, are deemed to be suitable for the proposed development. Based on the investigations and the contents of this report I conclude that a minimum safe bearing capacity of 100Kn/sqm can be used for foundations and ground bearing slab design for the project.



**APPENDIX A**

**DRAINAGE CALCULATIONS**

Members'  
Ref.

## CALCULATIONS

OUTPUT

From percolation testing

$$V_p = \frac{15 \times 60}{110} = 8.18 \text{ secs/mm}$$

$$f = \frac{1}{V_p} = \frac{1}{8.18 \times 10^3} = 12.2 \times 10^{-5} \text{ m/sec}$$

Rainwater Drainage

$$\begin{aligned} \text{Total Roof Area} &= 300 \text{ m}^2 \\ \text{Parking Area} &= 190 \text{ m}^2 \end{aligned}$$

$$f = 12.2 \times 10^{-5} \text{ m/sec}$$

$$a = 2(2.5 + 1.0) \times 0.8 \times 0.5 = 2.8 \text{ m}^2$$

$$\begin{aligned} S &= (490 \times 0.0145) - (2.8 \times 12.2 \times 10^{-5} \times 900) \\ &= 6.8 \text{ m}^3 \end{aligned}$$

Allow for 30% voids

$$V = \frac{6.8}{0.3} = 22.7 \text{ m}^3$$

Adopt 5.0 x 5.0 x 1.0 dp. s.w. soakawayFoul Drainage3 bedrooms  $\rightarrow$  5 pe

$$V_p = 8.18 \text{ secs/mm}$$

$$\Delta t = 5 \times 8.18 \times 0.25 = 10.2 \text{ m}^2$$

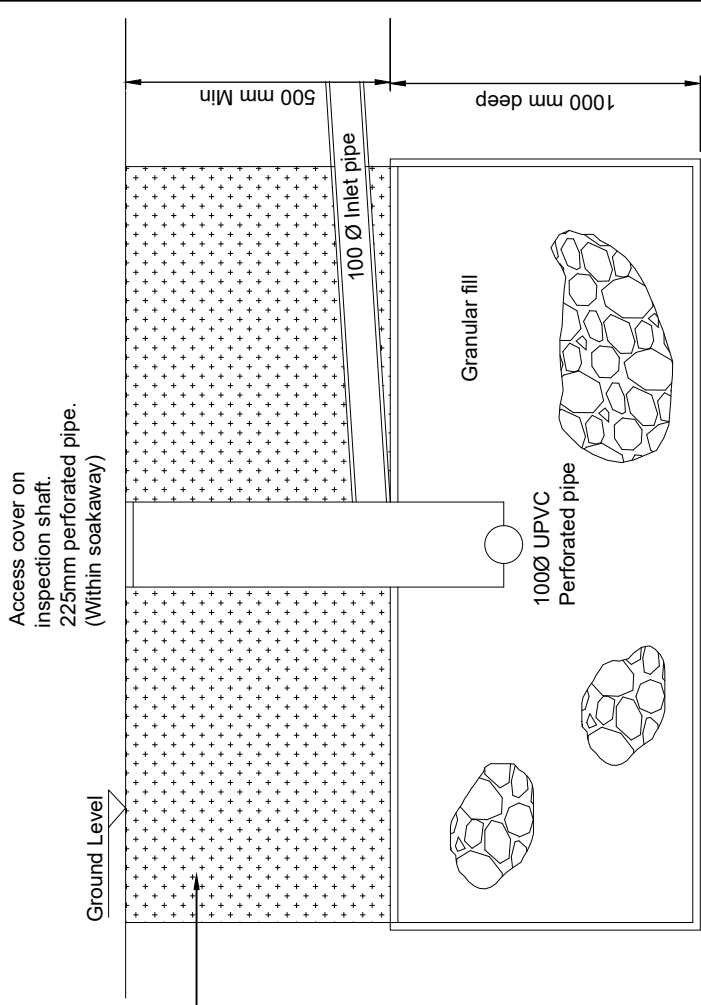
Adopt 5.0 x 5.0 x 1.0 dp f.w. soakaway

+ 6pe sewage treatment plant

(Balmoral Hydroclear HCG or eq.)

## **APPENDIX B**

### **DRAWING NUMBER D01**



**TYPICAL SOAKAWAY CROSS SECTION**  
SCALE 1:20

**RainWater-Soakaway Specification**

5.0m Wide x 5.0m Long x 1.0m Deep Soakaway pit lined on all four sides, top and base with TERRAM 1000 membrane (or equal), filled with 25-50mm clean granular fill material. 500mm topsoil to be separated from granular fill with 1000G Poly. Sheet. Perforated pipe to be installed inside soakaway and solid pipe installed externally.

5.0m Wide x 5.0m Long x 1.0m Deep Soakaway pit lined on all four sides, top and base with TERRAM 1000 membrane (or equal), filled with 25-50mm clean granular fill material. 500mm topsoil to be separated from granular fill with 1000G Poly. Sheet. Perforated pipe to be installed inside soakaway and solid pipe installed externally.

**WHERE ANY DIMENSIONS, GROUND CONDITIONS, EXISTING STRUCTURES VARY ON SITE, WORK TO BE STOPPED AND THE STRUCTURAL ENGINEER TO BE NOTIFIED IMMEDIATELY**

Revision	Date	By	Comments

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Client  
**MR & MRS RHIND**

Project  
**DWELLING HOUSE AT SITE ADJACENT TO WOODSIDE FARM, KINLOSS, FORRES, IV36 3UA**

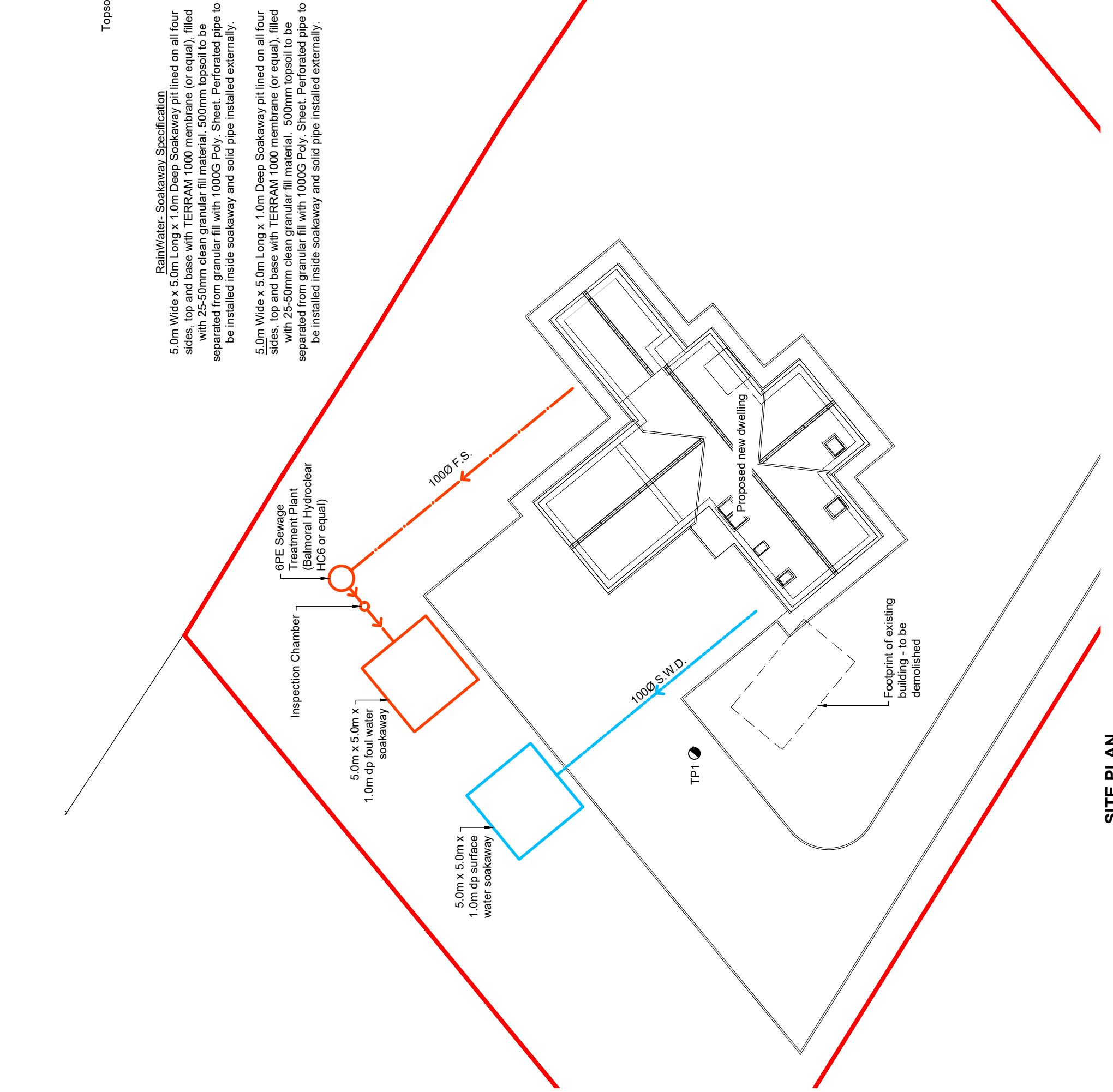
Title  
**PROPOSED DRAINAGE DETAILS**

Drawn By **VN** Date **06.08.19**

Checked By **RM**

Status **PLANNING** Scale at A3 **1:250**

Project No. **12102** Drawing No. **D01** Rev. **-**



**SITE PLAN**  
Scale 1:250



Unit 15  
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07732 561573  
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## Noise Assessment for proposed dwelling house At Woodside Farm, Kinloss

Prepared for: Midtown of Foudland,  
Glens of Foudland  
Huntly, Aberdeenshire AB54 6AR

On behalf of: The owners of the property

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Date: 22 November 2019

## Summary

The report below has considered the impact of noise from the Kinloss aerodrome on the residents of the proposed dwelling house. The location of the site is in an area of high noise, in the 66 – 72 dB contour band, so the building needs to be constructed to reduce noise as much as possible. The assessment has been based on the following:

- Standard wall construction, as described in Note on page 5
- High performance double glazing for the windows, and example given in Table 2
- Double plasterboard on the ceilings with resilient bars
- A mechanical ventilation system with heat recovery

The result is that the required noise limits are met in the living areas but the bedrooms will be 36 dB, rather than 35 dB. BS8233 states, in NOTE 7: Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.

The report below is based on the upper level of the contour band and the noise may not be continuously at this level.

As it is not practical to further reduce the sound levels in the bedrooms it is considered that the achieved sound levels will be sufficient to avoid unacceptable disturbance to the occupants.

Rev. 0.0



# Environmental Noise Assessment

Project No: PA945

Report Ref: KD2310191NR

Issue Date: 20<sup>th</sup> November 2019

Woodside Farm, Kinloss, Forres, IV36 3UA

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# 1. Summary

## 1.1. Proposal

The development of a new residential dwelling is proposed at Woodside Farm, Kinloss, Forres, IV36 3UA.

## 1.2. Reason for Assessment

The proposed dwelling is to be situated within the 66 – 72 dB  $L_{Aeq,16hr}$  contour band of noise from RAF Lossiemouth. A noise assessment is required to determine the potential noise impact and façade insulation necessary to achieve desirable internal noise levels.

## 1.3. Planning Conditions & Criteria

In accordance with BS8233:2014, the following criteria have been stipulated by The Moray Council:

- 35dB  $L_{Aeq,16hr}$  within living rooms (07:00 – 23:00)
- 35dB  $L_{Aeq}$  within bedrooms (07:00 – 23:00)
- 40dB  $L_{Aeq}$  within dining rooms (07:00 – 23:00)

## 1.4. Assessment Standards & Justification

‘BS8233:2014 – Guidance on sound insulation and noise reduction for buildings’ is a recognised standard for assessing and mitigating environmental noise levels upon a proposed noise sensitive development. The standard gives a rigorous calculation method for determining interior noise levels based on measured or derived environmental noise levels.

## 1.5. Noise Assessment Outcome

It is determined that by using mitigation as specified in Section 1.6. for the building façades, the outcome summarised in the following table is achieved.

Table 1. – Noise Assessment Outcome

Internal Space	Noise Parameter	Internal Noise Level (dB)	Within Desirable/Acceptable Limit (BS8233)
Lounge	Daytime $L_{Aeq, 16hr}$	35	Yes
Kitchen / Dining Room	Daytime $L_{Aeq, 16hr}$	39	Yes
Master Bedroom	Daytime $L_{Aeq, 16hr}$	36	Yes
Bedroom 2	Daytime $L_{Aeq, 16hr}$	36	Yes

## 1.6. Mitigation Recommendations

Table 2. – Mitigation Recommendations

Internal Space	Glazing		Ventilation
	Minimum Performance, $R_w+C_{tr}$	Example Specification	
Lounge	36	8/16/10.8A*mm	MVHR System
Kitchen / Dining Room	32	8/16/8.8mm	MVHR System
Master Bedroom	46	12.8A/16/16.8A*mm	MVHR System
Bedroom 2	46	12.8A/16/16.8A*mm	MVHR System

A\* – Denotes an acoustic PVB interlayer laminate

### Notes:

- The calculation of internal noise levels has been based on a 'standard' external wall construction (Brick and Block construction, 75mm cavity with mineral wool insulation).

### 1.6.1. Insulated Roof Specification

The following roof enhancements are recommended to ensure that desirable internal noise levels are maintained for habitable rooms located within the roof space.

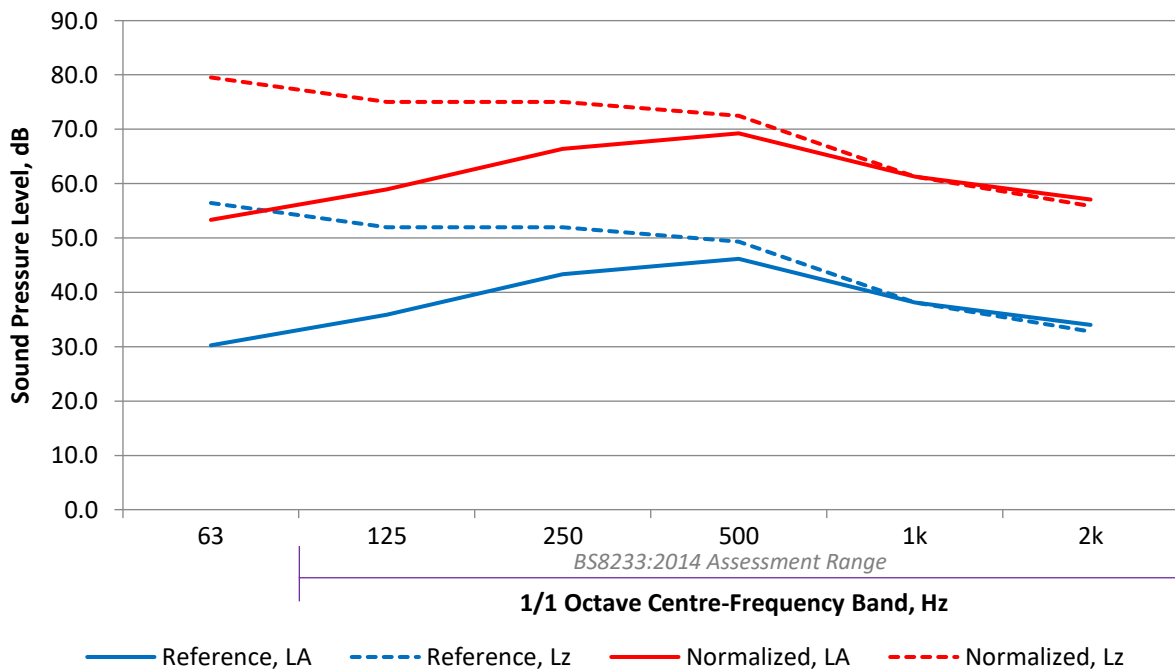
- Roof Slates/Tiles
- Timber Roof Rafters (Assumed 200mm)
- 100mm fiberglass insulation within the roof cavity (Min. Density 10kg/m<sup>3</sup>)
- Resilient rails installed perpendicular to the roof rafters. Installation should adhere to the manufacturer's instructions.
- 2x No. 12.5mm Standard Plasterboard

## 2. BS8233:2014 Noise Assessment

### 2.1. External Noise Levels

To derive spectral sound levels in the 125Hz to 2kHz range, measured noise data of a jet aircraft flyover (*Pàmies et al., 2014*) has been normalized to match a broadband figure of 72 dB(A), representing the upper boundary of the noise contour band within which the dwelling is to be situated. The reference and assessment noise levels are shown below in Figure 1, where it is demonstrated that A-Weighted noise levels are highest in the 250 – 500Hz bands.

Figure 1. – External Noise Data



### 2.2. Internal Noise Levels – Assumed Insulation

Internal noise levels have been calculated in order to demonstrate that the proposed development can achieve suitable internal noise levels inside rooms, when appropriate glazing and ventilation systems are used.

Room dimensions and glazing areas have been determined based on plans provided by the applicant and are considered within the calculation of internal noise levels. All assumed construction details are given in **Appendix A**.

An insulated roof specification has been provided for habitable rooms within the roof space. A detained sound insulation model is given in **Appendix B**.

## 2.3. Daytime Internal Noise Levels

### 2.3.1. Lounge

Considering the insulation with the addition of 36 dB  $R_w+C_{tr}$  rated glazing and an MVHR system, daytime noise would be reduced from 72 dB  $L_{Aeq, 16hr}$  to interior levels of **35 dB  $L_{Aeq, 16hr}$** .

The desirable limit of BS8233:2014 suggests a guideline of 35dB  $L_{Aeq, 16hr}$  for resting conditions, and up to 40dB is considered acceptable for necessary developments.

*The assumed standard of construction would place the internal levels in the lounge at below 35dB(A), therefore within the desirable category.*

### 2.3.2. Kitchen / Dining Room

Considering the insulation with the addition of 32 dB  $R_w+C_{tr}$  rated glazing and an MVHR system, daytime noise would be reduced from 72.0 dB  $L_{Aeq, 16hr}$  to interior levels of **39 dB  $L_{Aeq, 16hr}$** .

The desirable limit of BS8233:2014 suggests a guideline of 40 dB  $L_{Aeq, 16hr}$  for resting conditions, and up to 45dB is considered acceptable for necessary developments.

*The assumed standard of construction would place the internal levels in the kitchen / dining room at below 40dB(A), therefore within the desirable category.*

### 2.3.3. Master Bedroom (Within Roof Space)

Considering the insulation with the addition of 46 dB  $R_w+C_{tr}$  rated glazing, an MVHR system and the recommended roof specification given in section 1.6.1, daytime noise would be reduced from 72.0 dB  $L_{Aeq, 16hr}$  to interior levels of **36.0 dB  $L_{Aeq, 16hr}$** .

The desirable limit of BS8233:2014 suggests a guideline of 35dB  $L_{Aeq, 16hr}$  for resting conditions, and up to 40dB is considered acceptable for necessary developments.

*The assumed standard of construction would place the internal levels in the master bedroom at 36 dB(A), therefore exceeding the desirable category by a margin of 1.0 dB. Occupants of the proposed dwelling are unlikely to spend time in the bedrooms during the day and more likely to spend time in the living areas, where desirable noise levels have been met.*

### 2.3.3. Bedroom 2 (Within Roof Space)

Considering the insulation with the addition of 46 dB  $R_w+C_{tr}$  rated glazing, an MVHR system and the recommended roof specification given in section 1.6.1, daytime noise would be reduced from 72.0 dB  $L_{Aeq, 16hr}$  to interior levels of **36.0 dB  $L_{Aeq, 16hr}$** .

The desirable limit of BS8233:2014 suggests a guideline of 35dB  $L_{Aeq, 16hr}$  for resting conditions, and up to 40dB is considered acceptable for necessary developments.

*The assumed standard of construction would place the internal levels in bedroom 2 at 36 dB(A), therefore marginally above the desirable category. Occupants of the proposed dwelling are unlikely to spend time in the bedrooms during the day and more likely to spend time in the living areas, where desirable noise levels have been met.*

## 2.4. Effect Level and Exposure Outcomes

A summary of internal noise levels and their respective BS8233 classifications can be found below:

*Table 3. – Mitigation Recommendations*

Internal Space	Noise Parameter	Internal Noise Level (dB)	BS8233 Classification
Lounge	Daytime $L_{Aeq, 16hr}$	35	Desirable
Kitchen / Dining Room	Daytime $L_{Aeq, 16hr}$	39	Desirable
Master Bedroom	Daytime $L_{Aeq, 16hr}$	36	Desirable / Acceptable
Bedroom 2	Daytime $L_{Aeq, 16hr}$	36	Desirable / Acceptable

## References

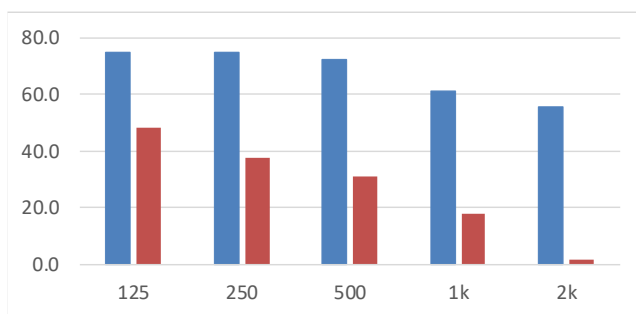
*T. Pàmies, J. Romeu, M. Genescà, Robert Arcos, Active control of aircraft fly-over sound transmission through an open window, In Applied Acoustics, Volume 84, 2014, Pages 116-121, ISSN 0003-682X, <https://doi.org/10.1016/j.apacoust.2014.02.018>.*

## APPENDIX A – BS8233 Rigorous Design Calculations

### Lounge

Room Properties		Sound Insulation Properties					
Room Width (m)	4.8	Freq. Hz	125	250	500	1k	2k
Room Depth (m)	6.0	Wall, dB $R_{w+Ctr}$	41	45	45	54	58
Room Height (m)	2.4	Roof, dB $R_{w+Ctr}$	41	45	45	54	58
Glazed Area (m <sup>2</sup> )	13.0	Glazing, dB $R_{w+Ctr}$	31	41	46	46	59
Is dwelling within roof?	<input checked="" type="checkbox"/>	Vents, $D_{n,e,w+Ctr}$	41	45	45	54	58

#### Noise Levels, dB



External Level	72.0 dB LAeq
Internal Level	34.9 dB LAeq
Insertion Loss	37.1 dB LAeq

#### Sound Insulation Requirement

	Minimum Sound Insulation Requirement		Suitable Systems
Glazing	<b>36</b>	dB $R_{w+Ctr}$	Laminated Double Glazing <a href="#">8/16/10.8A</a>
Ventilation	-	$D_{n,e,w+Ctr}$	Heat recovery system <a href="#">Multi-room Heat Recovery System</a>

*Suitable systems given as reference only. Other products that achieve the required sound insulation values are available.*

#### Technical Calculations

Frequency, Hz	125	250	500	1k	2k
Term 1	6.895E-05	2.7E-05	2.7E-05	3.5E-06	1.38E-06
Term 2	0.0008964	9E-05	2.8E-05	2.8E-05	1.42E-06
Term 3	-1.02E-05	-4E-06	-4.1E-06	-5E-07	-2E-07
Term 4	0	0	0	0	0
Internal, dB $L_{eq}$	48.1	37.7	31.2	17.8	1.9
Internal, dB LAeq	32.0	29.1	28.0	17.8	3.1

#### Façade Components

Wall	Brick and block, 75mm cavity
Roof	Not Within Roof Space
Glazing	Laminated Double Glazing
Vents	Heat recovery system

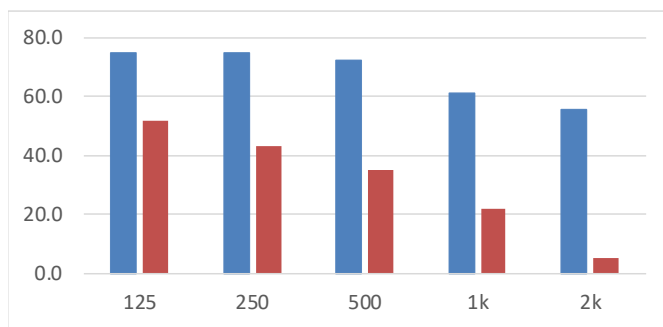
Calculations conducted in accordance with BS8233:2014 rigorous calculation method

$$L_{eq,2} = L_{eq,ff} + 10 \log_{10} \left( \frac{A_0}{S} 10^{\frac{-D_{01}}{10}} + \frac{S_w}{S} 10^{\frac{-R_w}{10}} + \frac{S_{ew}}{S} 10^{\frac{-R_w}{10}} + \frac{S_{ef}}{S} 10^{\frac{-R_e}{10}} \right) + 10 \log_{10} \left( \frac{S}{A} \right) + 3$$

## Dining / Kitchen

Room Properties		Sound Insulation Properties					
Room Width (m)	10.0	Freq. Hz	125	250	500	1k	2k
Room Depth (m)	5.0	Wall, dB R <sub>w+Ctr</sub>	41	45	45	54	58
Room Height (m)	2.4	Roof, dB R <sub>w+Ctr</sub>	41	45	45	54	58
Glazed Area (m <sup>2</sup> )	10.0	Glazing, dB R <sub>w+Ctr</sub>	26	34	41	41	56
Is dwelling within roof?	<input checked="" type="checkbox"/>	Vents, D <sub>n,e,w+Ctr</sub>	41	45	45	54	58

### Noise Levels, dB



External Level	72.0 dB LAeq
Internal Level	39.4 dB LAeq
Insertion Loss	32.6 dB LAeq

### Sound Insulation Requirement

	Minimum Sound Insulation Requirement	Suitable Systems
Glazing	<b>32</b> dB R <sub>w+Ctr</sub>	Double Glazing <a href="#">8/16/8.8</a>
Ventilation	- D <sub>n,e,w+Ctr</sub>	Heat recovery system <a href="#">Multi-room Heat Recovery System</a>

*Suitable systems given as reference only. Other products that achieve the required sound insulation values are available.*

### Technical Calculations

Frequency, Hz	125	250	500	1k	2k
Term 1	3.31E-05	1.3E-05	1.3E-05	1.7E-06	6.6E-07
Term 2	0.0010466	0.00017	3.3E-05	3.3E-05	1.05E-06
Term 3	4.634E-05	1.8E-05	1.8E-05	2.3E-06	9.25E-07
Term 4	0	0	0	0	0
Internal, dB L <sub>eq</sub>	52.0	43.3	35.3	21.7	5.1
Internal, dB LAeq	35.9	34.7	32.1	21.7	6.3

### Façade Components

Wall	Brick and block, 75mm cavity
Roof	Not Within Roof Space
Glazing	Double Glazing
Vents	Heat recovery system

Calculations conducted in accordance with BS8233:2014 rigorous calculation method

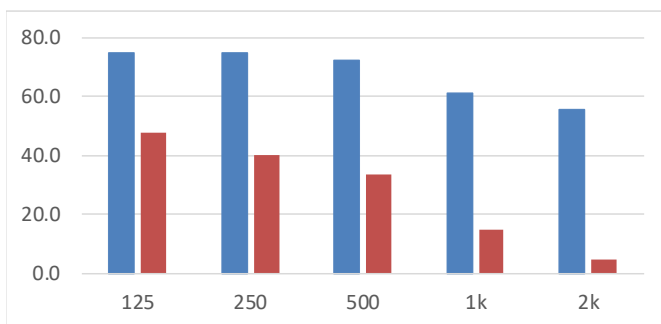
$$L_{eq,2} = L_{eq,ff} + 10 \log_{10} \left( \frac{A_0}{S} 10^{-\frac{D_{e,1}}{10}} + \frac{S_{wi}}{S} 10^{-\frac{R_{w1}}{10}} + \frac{S_{ew}}{S} 10^{-\frac{R_{ew}}{10}} + \frac{S_{n1}}{S} 10^{-\frac{R_{n1}}{10}} \right) + 10 \log_{10} \left( \frac{S}{A} \right) + 3$$



## Master Bedroom (Within Roof Space)

Room Properties		Sound Insulation Properties					
Room Width (m)	4.4	Freq. Hz	125	250	500	1k	2k
Room Depth (m)	4.0	Wall, dB $R_{w+Ctr}$	41	45	45	54	58
Room Height (m)	2.4	Roof, dB $R_{w+Ctr}$	43	52	59	64	66
Glazed Area (m <sup>2</sup> )	6.0	Glazing, dB $R_{w+Ctr}$	34	41	47	53	61
Is dwelling within roof?	✓	Vents, $D_{n,e,w+Ctr}$	41	45	45	54	58

### Noise Levels, dB



External Level	72.0 dB LAeq
Internal Level	36.1 dB LAeq
Insertion Loss	35.9 dB LAeq

### Sound Insulation Requirement

	Minimum Sound Insulation Requirement	Suitable Systems
Glazing	<b>46</b> dB $R_{w+Ctr}$	Laminated Double Glazing <a href="#">12.8A/16/16.8A</a>
Ventilation	-	Heat recovery system <a href="#">Multi-room Heat Recovery System</a>

*Suitable systems given as reference only. Other products that achieve the required sound insulation values are available.*

### Technical Calculations

Frequency, Hz	125	250	500	1k	2k
Term 1	2.821E-05	1.1E-05	1.1E-05	1.4E-06	5.63E-07
Term 2	0.0002262	4.5E-05	1.1E-05	2.8E-06	4.51E-07
Term 3	3.43E-05	1.4E-05	1.4E-05	1.7E-06	6.84E-07
Term 4	8.353E-05	1.1E-05	2.1E-06	6.6E-07	4.19E-07
Internal, dB $L_{eq}$	47.9	40.1	33.7	15.0	4.9
Internal, dB LAeq	31.8	31.5	30.5	15.0	6.1

### Façade Components

Wall	Brick and block, 75mm cavity
Roof	Roof / Ceiling (Insul)
Glazing	Laminated Double Glazing
Vents	Heat recovery system

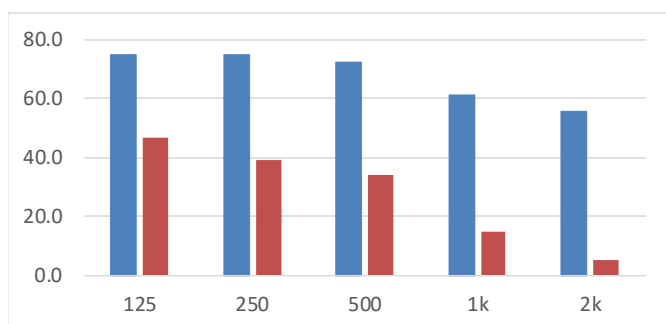
Calculations conducted in accordance with BS8233:2014 rigorous calculation method

$$L_{eq,2} = L_{eq,ff} + 10 \log_{10} \left( \frac{A_0}{S} 10^{-\frac{D_{e,1}}{10}} + \frac{S_{w1}}{S} 10^{-\frac{R_{w1}}{10}} + \frac{S_{ew}}{S} 10^{-\frac{R_{ew}}{10}} + \frac{S_{n1}}{S} 10^{-\frac{R_{n1}}{10}} \right) + 10 \log_{10} \left( \frac{S}{A} \right) + 3$$

## Bedroom 2 (Within Roof Space)

Room Properties		Sound Insulation Properties					
Room Width (m)	4.5	Freq. Hz	125	250	500	1k	2k
Room Depth (m)	4.0	Wall, dB $R_{w+Ctr}$	41	45	45	54	58
Room Height (m)	2.4	Roof, dB $R_{w+Ctr}$	43	52	59	64	66
Glazed Area (m <sup>2</sup> )	3.0	Glazing, dB $R_{w+Ctr}$	34	41	47	53	61
Is dwelling within roof?	✓	Vents, $D_{n,e,w+Ctr}$	41	45	45	54	58

### Noise Levels, dB



External Level	72.0 dB LAeq
Internal Level	35.6 dB LAeq
Insertion Loss	36.4 dB LAeq

### Sound Insulation Requirement

	Minimum Sound Insulation Requirement	Suitable Systems
Glazing	<b>46</b> dB $R_{w+Ctr}$	Laminated Double Glazing <a href="#">12.8A/16/16.8A</a>
Ventilation	- $D_{n,e,w+Ctr}$	Heat recovery system <a href="#">Multi-room Heat Recovery System</a>

*Suitable systems given as reference only. Other products that achieve the required sound insulation values are available.*

### Technical Calculations

Frequency, Hz	125	250	500	1k	2k
Term 1	2.758E-05	1.1E-05	1.1E-05	1.4E-06	5.5E-07
Term 2	0.0001106	2.2E-05	5.5E-06	1.4E-06	2.21E-07
Term 3	5.737E-05	2.3E-05	2.3E-05	2.9E-06	1.14E-06
Term 4	8.353E-05	1.1E-05	2.1E-06	6.6E-07	4.19E-07
Internal, dB $L_{eq}$	46.7	39.4	34.2	14.8	5.4
Internal, dB LAeq	30.6	30.8	31.0	14.8	6.6

### Façade Components

Wall	Brick and block, 75mm cavity
Roof	Roof / Ceiling (Insul)
Glazing	Laminated Double Glazing
Vents	Heat recovery system

Calculations conducted in accordance with BS8233:2014 rigorous calculation method

$$L_{eq,2} = L_{eq,ff} + 10 \log_{10} \left( \frac{A_0}{S} 10^{-\frac{D_{e,1}}{10}} + \frac{S_{wi}}{S} 10^{-\frac{R_{w1}}{10}} + \frac{S_{ew}}{S} 10^{-\frac{R_{ew}}{10}} + \frac{S_{n}}{S} 10^{-\frac{R_n}{10}} \right) + 10 \log_{10} \left( \frac{S}{A} \right) + 3$$

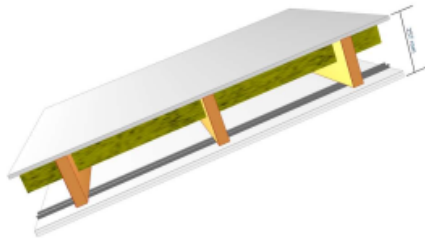
## APPENDIX B – Sound Insulation Model

### Sound Insulation Prediction (v9.0.19)

Program copyright Marshall Day Acoustics 2017  
 Margin of error is generally within  $R_w \pm 3$  dB  
 Peak Acoustics - Key No. 5547  
 Job Name:  
 Job No.: Initialskyle  
 Date:18/11/2019  
 File Name:Roof - Enhanced.ixl



Notes:



$R_w$  62 dB  
 $C$  -2 dB  
 $C_{tr}$  -6 dB

Mass-air-mass resonant frequency = 34 Hz  
 Panel Size = 2.7 m x 4.0 m  
 Partition surface mass = 50.5 kg/m<sup>2</sup>

### System description

Panel 1 : 1 x 14 mm Roofing tiles

Frame: Solid Joist with resilient rail (2E2 mm x 45 mm), Stud spacing 600 mm; Cavity Width 218 mm, 1 x Fibreglass (10kg/m<sup>3</sup>) Thickness 100 mm  
 Panel 2 : 2 x 12.5 mm Gyproc Wallboard 12.5mm

freq.(Hz)	R(dB)	R(dB)
50	23	
63	29	26
80	35	
100	40	
125	44	43
160	47	
200	50	
250	53	52
315	55	
400	57	
500	59	59
630	61	
800	63	
1000	65	64
1250	66	
1600	66	
2000	64	66
2500	69	
3150	65	
4000	65	66
5000	69	

