

Slip End Farm, Slip End Hertfordshire, SG7 6SG

Planning Noise Assessment for a Proposed Residential Development

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Issued to

James Northern

Prepared by

Rob Kirkaldy BSc (Hons) MIOA
Principal Consultant

Alex Priestley MSc MIOA
Associate Director

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1. INTRODUCTION

James Northern is seeking prior approval under Class Q for a residential development consisting of nine dwellings at land at Slip End Farm, Slip End, Hertfordshire. As the site is located next to the A505, a noise assessment is required to support the application.

Accordingly, Spectrum Acoustic Consultants has been instructed to carry out a noise assessment for the purpose of establishing the impact on the proposed residential properties. This report provides the information required to inform and satisfy the requirements of the Local Planning Authority, for the purpose of determining the application.

2. SITE DESCRIPTION AND PROPOSALS

The proposed development site is located at land at Slip End Farm, Slip End, Hertfordshire, SG7 6SG. The site consists of two existing farmhouses and a working farm. The A505 bounds the site to the east, which is a busy A-road linking Royston to Baldock, where it joins the A1(M). The site is surrounded by arable farmland. To the west is a railway line. An existing site location plan is included in Appendix A.

Proposals involve constructing nine houses at the northern end of the site. Three of the existing agricultural buildings will be converted into dwellings. The houses would include parking and garden at the rear.

The other existing farm buildings would be retained, mainly for agricultural use. However, the site is not used intensely, as it is used by the owner as a secondary yard primarily for storage, typically from 08:00 to 18:00. The activities carried out at the site are seasonal and weather dependant, as the owners main farm specialises in agricultural produce. The proposed scheme layout plans are included in Appendix B.

3. CRITERIA FOR ACCEPTABILITY

3.1 PLANNING GUIDELINES

3.1.1 National Planning Policy Framework (NPPF), MHCLG, December 2024

The National Planning Policy Framework (NPPF)¹ sets out the Government's planning policies for England and how these should be applied by establishing a framework within which locally prepared plans for development can be produced.

The NPPF requires (187) prevention of new or existing development from contributing to, or being adversely affected by, unacceptable levels of noise pollution.

New development (198) should be appropriate to its location taking into account the likely effects of pollution on health, living conditions and the natural environment. In doing so it is required to:

¹ National Planning Policy Framework, MHCLG, December 2024



'a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life²;

'b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason'

Planning policies and decisions should also (200) *'ensure that new development can be integrated effectively with existing businesses and community facilities [...]. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.'*

3.1.2 Noise Policy Statement for England (NPSE), DEFRA, March 2010

The NPPF refers to the Noise Policy Statement for England (NPSE) which sets out the long term vision of Government noise policy as follows: *Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.*

The first aim of the Noise Policy Statement for England

Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

- 2.23 The first aim of the NPSE states that significant adverse effects on health and quality of life should be avoided while also taking into account the guiding principles of sustainable development (paragraph 1.8).

The second aim of the Noise Policy Statement for England

Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

- 2.24 The second aim of the NPSE refers to the situation where the impact lies somewhere between the Lowest Observed Adverse Effect Level (LOAEL) and the Significant Observed Adverse Effect Level (SOAEL). It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur.

The third aim of the Noise Policy Statement for England

Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

- 2.25 This aim seeks, where possible, positively to improve health and quality of life through the proactive management of noise while also taking into account the guiding principles of sustainable development (paragraph 1.8), recognising that there will be opportunities for such measures to be taken and that they will deliver potential benefits to society. The protection of quiet places

² See Explanatory Note to the Noise Policy Statement for England, paragraphs 2.23 and 2.24 , Department for Environment, Food & Rural Affairs, 15 March 2010).



and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim.

3.1.3 Planning Practice Guidance – Noise (PPG), July 2019

The PPG sets out government guidance on the role of noise in the planning process. This provides advice on issues such as when noise is relevant to planning, how to determine noise impact, discussion on the context of noise and how the impact of noise can be mitigated.

Of relevance to this scheme, it advises that *“Noise needs to be considered when ...new developments would be sensitive to the prevailing acoustic environment.”* Whilst it does advise that noise can override other planning concerns, it states that as with the NPSE and the NPPF it does not expect noise to be considered in isolation from other economic, social and environmental dimensions of a proposed development.

It asks an LPA to consider:

- *whether or not a significant impact is occurring or likely to occur;*
- *whether or not an adverse effect is occurring or likely to occur;*
- *whether or not a good standard of amenity can be achieved.*

This includes identifying whether the noise exposure is above or below SOAEL or LOAEL.

The PPG talks about “impact” and “effect”. This is an important part of the context discussion, as a noise may have a significant impact for a brief period of time, but because the impact is only brief, the overall “effect” is not significant, as it does not materially affect behaviour.

The PPG summarises examples of the perception of noise, with the outcome and the effect level:

- No observed effect: Noise is not noticeable, and no specific measures are required. This would correlate to NOEL of the NPSE;
- No observed adverse effect: Noise is noticeable and not intrusive, does not cause any change in behaviour or attitude, can affect the acoustic character of an area but not such that there is a perceived change in the quality of life. No specific measures are required;
- Observed adverse effect: Noise causes small changes in behaviour (eg closing windows for some of the time because of the noise), potential for some sleep disturbance, and there is a perceived change in the quality of life. In this case noise should be mitigated and reduced to a minimum as it represents the onset of the LOAEL as defined in the NPSE;
- Significant observed adverse effect: Noise causes a material change in behaviour and attitude (eg avoiding certain activities during periods of intrusion, or having to keep windows closed most of the time because of the noise where there is no alternative ventilation), potential for difficulty getting back to sleep, quality of life diminished. This correlates to a SOAEL as defined by the NPSE and should be avoided.
- Unacceptable adverse effect: Extensive and regular changes in behaviour and/or an inability to mitigate effects, leading to psychological stress and physiological effects (eg regular sleep deprivation, medically definable harm). This, the PPG advises, should be prevented.



It is of note that the examples given in the PPG relate to changes of behaviour, changes to quality of life and changes in the character of an area. In the case of this development, residents would be moving into an existing situation, so behaviours would not change, as no pattern of behaviour is already established. This is reflected formally in paragraph 007 of the PPG. This paragraph helps the LPA consider the balance between planning and statutory nuisance (Environmental Protection Act 1990). It states that *"When assessing whether a statutory nuisance exists, local authorities will consider a number of relevant factors including the noise level, its duration, how often it occurs, the time of day or night that it occurs and the 'character of the locality'. The factors influencing the 'character of the locality' may include long-established sources of noise in the vicinity, for example church bells, industrial premises, music premises or public houses'."*

As stated in the NPSE, there is no simple relationship between noise levels and the effect of those noise levels. The NPSE lists a number of factors as relevant, and the following are those that apply to this scheme:

- Source and level of noise;
- Number of noise events, how often they occur, and the pattern;
- The spectral content of the noise and its character;
- Whether noise effects can be mitigated by closing windows, allowing for alternative ventilation to be provided;
- The acoustic environment in external amenity spaces where they are an intrinsic part of the overall design;
- The effect on a nearby existing business.

The PPG says that for development, mitigation can be considered in terms of engineering (reducing noise at source, or containing it). This is unlikely to be practicable in a case like this, as the proposed developer would need to rely on the goodwill (unless formal agreements could be reached) with those responsible for the source of the noise. However, layout (orientating site to minimise impact, and including screening), planning conditions, and mitigation to the dwellings themselves are all likely to be feasible.

Such mitigation techniques are therefore recognised by the PPG as normal practice in the case of noise sensitive schemes.

The noise impact can also be offset where residents have access to a quiet facade, a quiet external amenity space for their sole or shared use, or a public amenity space nearby.

3.2 CRITERIA FOR ASSESSMENT

3.2.1 BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

BS 4142 provides a method for rating and assessing sound of a commercial/industrial nature, and is applicable when assessing sound at new dwellings. It uses the outdoor sound level to assess the likely effects on people who may be inside or outside a dwelling. The standard is not intended to be applied to the assessment of indoor sound levels.

It uses the concept of a 'Rating Level', which is based on the 'Specific' sound from the existing commercial site, (measured in terms of L_{Aeq} at the defined assessment position), with corrections applied to account



for any tonal or impulsive characteristics (as these can increase the likelihood of an adverse impact). The assessment level is obtained by comparing the Rating Level with the existing Background Sound Level (measured in terms of L_{A90} at the assessment position).

The Background Sound Level is established by measuring the sound when the commercial noise (the “Specific Noise”) is not present. This is called the Residual Sound. The Background Sound Level is then the sound pressure level that is exceeded for 90% of the time, denoted $L_{A90,T}$. The Standard is clear the “lowest” assessment should not necessarily be used, but a typical level should be quantified. For example, the Guidelines for Environmental Noise Impact Assessment, (IEMA 2014) recommends use of the mode average (the most commonly occurring sound level).

The Specific Sound Level is a measurement of the sound level whilst the commercial activity occurs. This then is corrected to take account of the residual sound level (the level that would be measured if the industrial activity were not occurring), corrected to take account of particular acoustical characteristics (eg tone, impulse or other distinguishing characteristic), to determine a Rating Level, for comparison to the Background Sound Level. For daytime activity, a 1-hour time period is used. At night, a 15 minute period is used, and the sound level is an average over that time period (denoted $L_{Aeq,T}$). The same time periods are to be used when considering the Background Sound Level.

The standard advises that, where the Rating Level exceeds the Background Sound Level by around +10 dB or more this is likely to indicate a significant adverse impact. A difference of around +5 dB is likely to be an indication of an adverse impact. The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.

In all cases, the Standard states that the assessment is dependent on the particular context in which the sound occurs. In particular, the following factors must be considered:

- The absolute level of the sound;
- The character and level of the residual sound;
- The sensitivity of the receptor and whether dwellings will incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as facade insulation, ventilation and/or cooling that reduces the need to open windows and acoustic screening.

Whilst BS 4142 talks about “impact”, the NPSE talks about “effect”. This is an important part of the context discussion, as a noise may have a significant impact for brief period of time, and because the impact is only brief, the overall “effect” is not significant, as it does not materially affect behaviour.

It is therefore important that any assessment of sound in accordance with BS 4142 takes these additional factors into consideration, and WHO and BS 8233:2014 can assist in such a process.

3.2.2 WHO – Environmental Noise Guidelines for the European Region 2018

New guidance from WHO titled Environmental Noise Guidelines for the European Region (ENG) was published in 2018. The document takes a very different approach to guidance set out in the previous WHO Guidelines for Community Noise 1999 (GCN) document by identifying separate thresholds for specific sources, rather than for community noise as a whole. Consequently, much of the earlier guidance

set out in GCN is now absent from ENG. While ENG was intended to supersede GCN, it recognises this absence and states that *‘indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) should remain valid.’*

3.2.3 WHO – Guidelines for Community Noise, 1999

Guidelines for Community Noise - World Health Organization (GCN) gives guidance on suitable noise levels for sleeping and resting conditions in dwellings. It sets out these values in table 4.1, and lists them as being guideline values for community noise. The document defines community noise (also called environmental noise, residential noise or domestic noise) as noise emitted from all sources, except noise at the industrial workplace. Main sources of community noise include road, rail and air traffic, industries, construction and public work, and the neighbourhood.

WHO recommends internal noise levels of 30dB(A) at night for bedrooms, and 35dB(A) during the day for living-rooms. The guideline levels are based on annual average data.

To avoid sleep disturbance in bedrooms during the night time period, it also recommends that noise levels from single sound events should not regularly exceed L_{Amax} 45dB(A). WHO defines ‘regular’ as not more than 10-15 events per night.

WHO also gives guidance on suitable noise levels for outdoor living areas such as gardens. The WHO guidelines state that *“to protect the majority of people from being seriously annoyed during the daytime, the sound pressure level on balconies, terraces and outdoor living areas should not exceed 55 dB L_{Aeq} for a steady continuous noise. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound pressure level should not exceed 50 dB L_{Aeq} ”*.

The preface to WHO states that community noise includes road, rail and air traffic, industries, construction and public work, and the neighbourhood. Therefore, although these noise levels are usually used to determine acceptability from steady continuous noise from anonymous sources, such as road traffic or rail movements, they provide helpful guidance when considering noise from commercial sources.

3.2.4 BS 8233:2014 guidance on sound insulation and noise reduction for buildings

BS 8233:2014 *Guidance on sound insulation and noise reduction for buildings* gives guidance on indoor ambient noise levels to be achieved in dwellings for reasonable resting and sleeping conditions. The guidance in BS 8233:2014 is based on guidelines issued by the WHO, Guidelines for Community Noise (1999).

In Section 7.7.1 of BS 8233:2014, it states that it applies to external noise as it affects the internal acoustic environment from sources without a specific character, previously termed “anonymous noise”. However, it then goes on to state that if the noise has a specific character, if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate.

The BS 8233:2014 guideline levels are shown in Table 1.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Table 1: BS 8233 guideline noise level limits in dwellings for resting and sleeping



BS 8233 advises that *"If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the facade insulation or the resulting noise level. If applicable, any room should have adequate ventilation (e.g. trickle ventilators should be open) during assessment."*

It also advises that *"Where development is considered necessary or desirable...the internal target levels may be relaxed by up to 5 dB and reasonable conditions still achieved."*

The standard also advises that *"Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or L_{AFmax} depending on the character and number of events per night. Sporadic noise events could require separate values."* It does not give guidance on what might constitute a guideline value. However, as the standard does cross reference Guidelines for Community Noise - World Health Organization, 1999 (WHO), it is suggested that the guideline value of L_{AFmax} 45 dB, inside bedrooms, should not be exceeded during the night more than 10-15 times, which reflects the WHO position.

BS 8233:2014 suggests the following guidelines for noise levels in external spaces that are used for amenity space, such as gardens and patios. *"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."*

4. AMBIENT NOISE MEASUREMENT SURVEY – JANUARY 2021

4.1 MEASUREMENT LOCATIONS

For the purpose of the assessment, unattended noise loggers were utilised for the recording of continuous noise measurements at two measurement locations, each representative of the most sensitive areas of the site. The noise measurement locations are detailed as follows:

Position 1 – Front of site facing the A505.

Position 2 – Rear of site facing the railway line.

Noise measurements were carried out at 3m above ground. The measurement locations are illustrated on the existing site location plan, included in Appendix A.

4.2 SURVEY DETAILS AND INSTRUMENTATION

Measurements of noise were completed over the period Friday 15 to Wednesday 20 January 2021. Throughout the survey, weather conditions were generally cold and dry, with low wind speeds. However, between 12:00 and 18:00 on 15.01.2021, and 23:00 on 18.01.2021 and 09:30 on 20.01.2021, adverse weather was present. Consequently, the noise data measured during these periods has been omitted from the analysis.



Noise measurements consisted of contiguous five-minute periods for the duration of the survey at each of the identified noise logger locations. The instrumentation recorded short audio samples at timed intervals and selected individual events using a trigger to allow identification of noise sources.

Noise measurement parameters consisted of equivalent continuous (L_{Aeq}) noise levels and maximum (L_{Amax}) noise levels, as well as statistical noise levels (termed L_n , where n is the percentage of time the level is exceeded during the measurement period). Both overall and octave band measurements were stored for later analysis at all of the measurement positions.

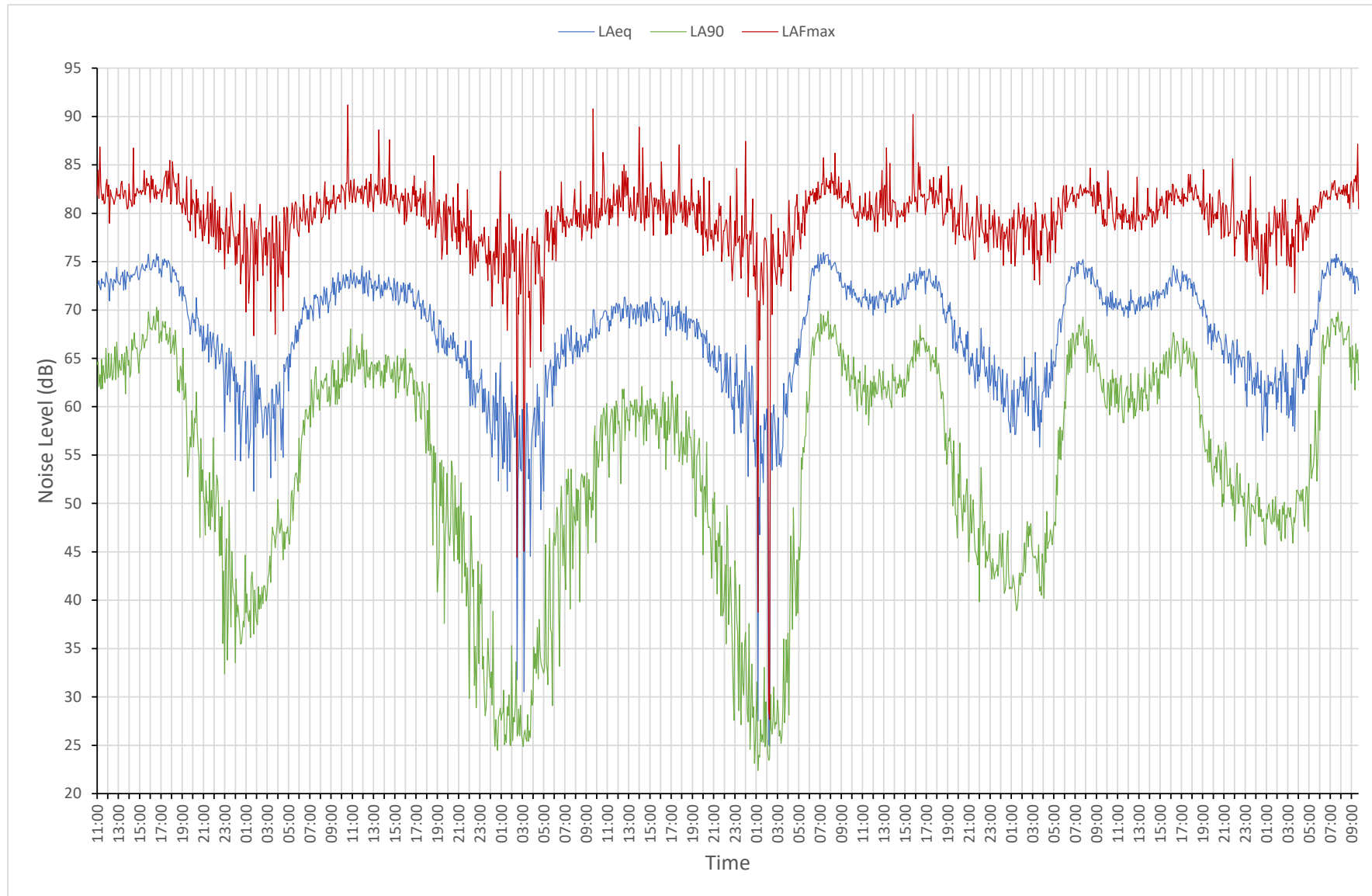
The following instrumentation was used during the noise measurement survey:

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3023840
- Bruel & Kjaer Type 4189 Microphone s/n 3130623
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 3020229
- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3024398
- Bruel & Kjaer Type 4189 Microphone s/n 3147720
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 3021283

Before and after the survey, the sound level meters were field-calibrated in accordance with the manufacturer's guidelines, and no significant drift was observed. The meters, microphone and field calibrators are laboratory calibrated biennially in accordance with UKAS procedures or to traceable National Standards.

4.3 RESULTS & OBSERVATIONS

During the daytime noise levels across the site are dominated by road traffic movements on the A505. At the rear of the site occasional rail movements are just audible, though road traffic noise is still dominant. During the night-time road traffic movements reduce. Charts below show the noise profiles measured at the logger monitoring locations.



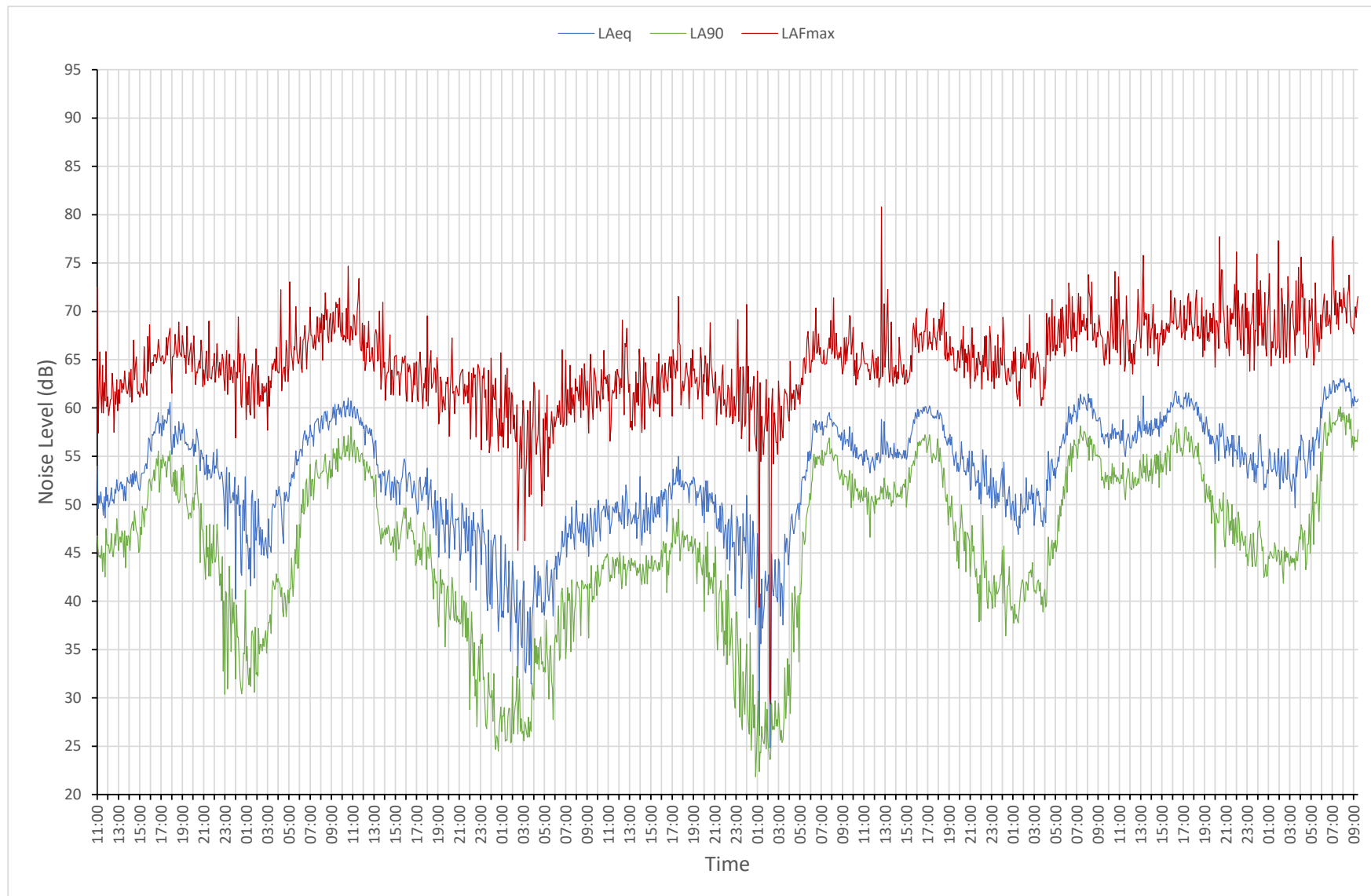


Chart 2: Position 2, rear of site facing the railway line, ambient noise profile - Friday 15 to Wednesday 20 January 2021



A summary of the measured noise data over the daytime and night-time periods is included in Table 2 below. The $L_{Aeq,16\text{ hour}}$ and $L_{Aeq,8\text{ hour}}$ levels have been calculated using all of the daytime and night-time noise measurements.

With reference to L_{Amax} levels, World Health Organisation (WHO) guidelines for community noise, define regular as not more than 10-15 events per night. Therefore, the L_{Amax} levels measured during the night time periods have been sorted from highest to lowest. It is then possible to read off the 10-15th highest L_{Amax} levels during each of the night-time periods which are regarded as being typical. The typical L_{Amax} values for each of the night-time periods obtained in this survey are included in Table 2.

Measurement Position	Date	Daytime L_{Aeq} (dB) 0700-2300	Night-time L_{Aeq} (dB) 2300-0700	Night-time typical L_{Amax}^3 (dB)
Position 1 Front of site facing the A505.	Friday 15.01.2021	-	64	81
	Saturday 16.01.2021	71	61	79
	Sunday 17.01.2021	69	67	82
	Monday 18.01.2021	72	-	81
	Tuesday 19.01.2021	-	-	-
	Wednesday 20.01.2021	-	-	-
	Overall	71¹	65²	81
Position 2 Rear of site facing the railway line.	Friday 15.01.2021	-	52	67
	Saturday 16.01.2021	56	43	62
	Sunday 17.01.2021	50	51	66
	Monday 18.01.2021	57	-	-
	Tuesday 19.01.2021	-	-	-
	Wednesday 20.01.2021	-	-	-
	Overall	55¹	50²	67

Table 2: Summary of results of ambient noise survey

- Notes: 1 Overall $L_{Aeq,16hr}$ taken from log average over all of the daytime periods
 2 Overall $L_{Aeq,8hr}$ taken from log average over all of the night-time periods
 3 The L_{Amax} data is only relevant to the night time

During the daytime, noise levels across the site are $L_{Aeq,16hour}$ 55-71dB. During the night-time, noise levels across the site are $L_{Aeq,8hour}$ 50-65dB, with maximum levels typically in the range L_{AFmax} 67-81dB.



5. ON SITE FARM NOISE MEASUREMENT SURVEY – MARCH 2022

For the purposes of the assessment, attended measurements of noise generated by typical activities carried out within the farmyard were conducted on Wednesday 9 March 2022.

5.1 MEASUREMENT LOCATIONS

An unattended noise logger was utilised for the recording of continuous noise measurements at a fixed location within the farmyard, approximately 10m from the acoustic centre of the activities. This was supplemented by attended measurements carried out at various locations within the farmyard. The measurement locations are illustrated on the existing site location plan, included in Appendix A.

For the logger noise measurements, continuous 5-second noise measurements were carried out at a height of 1.5m above ground, approximately 10m from the acoustic centre of the noise source (in this case the delivery operation). Attended sample measurements were also carried out at 1.5m above ground.

The following instrumentation was used during the noise measurement survey:

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 2739650
- Bruel & Kjaer Type 4189 Microphone s/n 2983518
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 3018719
- Bruel & Kjaer Type 2260 Sound Level Meter s/n 2027587
- Bruel & Kjaer Type 4189 Microphone s/n 2906873
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 2229825
- Bruel & Kjaer Type ZC 0026 Preamplifier s/n 4130

Before and after the survey, the sound level meters were field-calibrated in accordance with the manufacturer's guidelines, and no significant drift was observed. The meters, microphone and field calibrators are laboratory calibrated biennially in accordance with UKAS procedures or to traceable National Standards.

The noise profile taken over the entire measurement period at the noise logger location is shown in Chart 3 below.

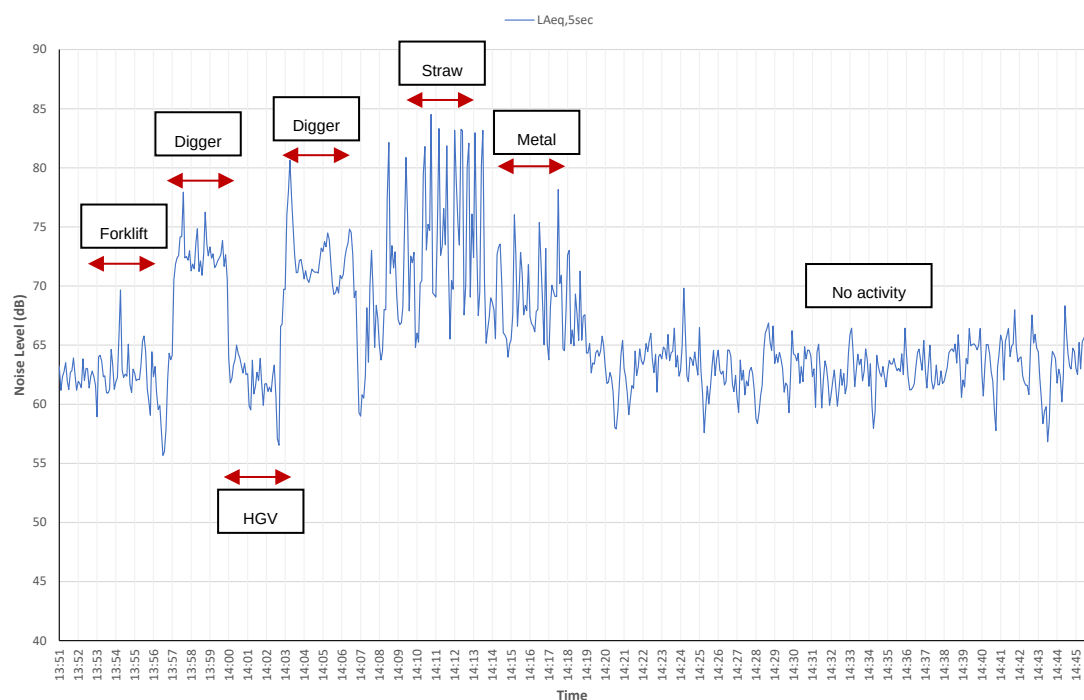


Chart 3: Yard noise logger, ambient noise profile – Wednesday 9 March 2022

Table 3 shows a summary of the measured activities within the farmyard on Wednesday 9 March 2022.

Activity	Location	Time	Duration (mins)	Measurement Distance (m)	$L_{Aeq,T}$ (dB)
Forklift truck (gas powered) unloading a HGV	Yard noise logger	13:50	5:00	20	63
Digger excavating trench	Yard noise logger	13:56	2:45	15	73
	Attended location			10	74
HGV Pulling away	Yard noise logger	13:59	1:42	30	63
	Attended location			10	66
Digger excavating/filling in trench	Yard noise logger	14:02	3:45	15	73
	Attended location			10	71
JCB moving bales of straw	Yard noise logger	14:06	6:14	10	77
	Attended location			10	78
JCB moving metal	Yard noise logger	14:13	4:44	20	70
	Attended location			10	76
No activity (traffic noise only)	Yard noise logger	14:25	18:50	-	63

Table 3: Summary of farmyard activity noise levels



6. PREDICTION OF ENVIRONMENTAL NOISE LEVELS AT INDIVIDUAL BUILDING FACADES

The proposed development comprises of habitable rooms at various heights, distances and aspects relative to the A505. As a result, the noise levels affecting different parts of the proposed development will be subject to differing levels of distance attenuation, screening and angle of view to the road. Therefore, analysis has been undertaken to predict the noise levels at the various residential facades of the houses, based on the measurement results and taking these effects into account.

The procedure that has been followed is as summarised below:

- Generate a three-dimensional numerical noise model of the site conditions at the time of the survey using DGMR Raadgevende Ingenieurs B.V 'iNoise V2026.0' software. This acoustic model implements the procedures set out in ISO 9613-2:2024 *Acoustics – Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors*.
- Validate the noise prediction model against noise measurement data taken at the site and reported in Section 4.3. This validation is carried out in respect of daytime and night-time $L_{Aeq,T}$ levels, as well as night-time $L_{Amax,typ}$ for road traffic noise. The octave band frequency levels of the noise predictions are also taken from the measurements carried out at the site.
- Alter the noise model to replace the physical configuration at the time of the measurements with the proposed new scheme.
- Predict noise levels at numerous locations across the façades of the houses, representative of the proposed residential windows. A graphical representation of this model is shown at Appendix C.
- Use these noise level predictions as the starting point for intrusive noise calculations at key locations on the development.
- Compare predicted indoor noise levels against the guideline noise levels in terms of:
 - * - $L_{eq,T}$ noise levels in living rooms and bedrooms during the daytime (i.e. $L_{Aeq,T}$ 30 dB)
 - * - $L_{eq,T}$ noise levels in bedrooms during the night-time (i.e. $L_{Aeq,T}$ 30 dB), and
 - * - L_{Amax} noise levels in bedrooms during the night-time (i.e. $L_{Amax,typ}$ 45 dB)
- Using measured sound insulation data for standard façade components, set the sound insulation specifications for the relevant façade components necessary to meet the target noise levels (more information on this in Section 7.2.1).

Detailed results of daytime and nighttime $L_{Aeq,T}$ levels at the noisiest locations are shown in Appendix C. All octave band levels listed in Appendix C are A-weighted.

The $L_{Amax,typ}$ levels have been calculated in the following way. The $L_{Amax,typ}$ measured at the monitoring locations is from a single, short-term event at one location and not the aggregate of noise from all points on the road network. Therefore, the $L_{Amax,typ}$ model includes a series of point sources, rather than line sources (as for the L_{Aeq} model). Accordingly, the single highest sound pressure level at each receptor location from an individual point source is taken to be the $L_{Amax,typ}$ for design purposes. The measured L_{max} frequency distribution (i.e. spectrum) has also been used in this way within the predictions.



7. ASSESSMENT OF NOISE

7.1 ASSESSMENT OF FARMYARD NOISE LEVELS IN ACCORDANCE WITH BS 4142:2014+A1:2019

Activities which typically occur in the farmyard during a worst case 1-hour period are set out in Table 4.

Activity	Typical On-time (mins)
Delivery - forklift truck unloading a HGV	30
Digger excavating trench	10
JCB/Tractor in the yard	20

Table 4: Summary of farmyard activities and typical on-times during a worst case one hour period

Note, the activities represent a worst-case scenario when there is lots of activity occurring. Deliveries typically occur once per day/two days. The digger is generally used only when maintenance is required. This is likely to be for only a handful of occasions during the year. The JCB/Tractor is typically used in the yard once per week when bales of straw are needed to be moved from the barn storage so that they can be transported to the owner's other main farm up the road.

For the purpose of this assessment, the specific L_{Aeq} noise levels produced by farmyard activities, at the proposed residential receptor locations, will be established by prediction.

Prediction methodologies use the sound power level (L_w) of a source as input data, so for this purpose, the measured farmyard activity noise levels, expressed in terms of $L_{Aeq,T}$, need to be converted to the equivalent activity sound power levels. This is derived using the $L_{Aeq,T}$ (where T is the time period) measured on Wednesday 9 March 2022, corrected firstly for the pre-existing ambient noise levels in the absence of the yard activity and then to take account of the measurement surface area enveloping the noise source. A summary of the calculated activity sound power levels is shown in Table 5 below.

Activity	Duration (mins)	Meas. Distance (m)	Measured $L_{Aeq,T}$ (dB) (Corrected for traffic noise)	On-time Correction	Time Corrected Overall Sound Power Level L_{WA} (dB)
Forklift truck (gas powered) unloading a HGV	30:00	20	53	-3	84
Digger excavating/filling in trench	10:00	10	74	-8	94
HGV Pulling away	1:42	10	63	-15	76
JCB moving bales of straw	20	10	78	-5	101

Table 5: Derived farmyard activity sound power levels

The sound power levels of the activities (as detailed in Table 5) are used as a starting point for the purpose of predicting noise levels in the surrounding environment and at the proposed house locations, using an environmental noise propagation model. As with the environmental noise model described in Section 6, the prediction of noise associated with the farmyard is carried out using iNoise³ noise prediction model software.

The noise map, showing the noise contours produced by the farmyard activities during a worst-case 1-hour period is included in Appendix D of this report. The predicted specific sound levels at the most exposed façade of each proposed dwelling are summarised in Table 6 below.

Receptor	Specific sound level at most exposed façade $L_{Aeq,1hour}$ (dB)
Plot 1	41
Plot 2	43
Plot 3	44
Plot 4	42
Plot 5	40
Plot 6	45
Plot 7	51 ^{Note 1}
Plot 8	38
Plot 9	43

Table 6: Predicted specific sound levels from farmyard during a worst-case 1-hour period at the most exposed façade of each proposed residential dwelling.

Note 1: Plot 7 worst case façade level is $L_{Aeq,T}$ 51dB outside the ground floor study. Levels outside windows to all other rooms are 41dB or below (i.e. living/kitchen/dining and bedrooms).

As indicated in Table 6, the worst-case specific sound levels at the most exposed facades would be in the range $L_{Aeq,1hour}$ 38-51dB. It is noted, however, that at Plot 7, levels of up to $L_{Aeq,1hour}$ 51dB are predicted outside the ground floor study window only, while outside all other windows of this plot levels would not exceed $L_{Aeq,1hour}$ 41dB. Levels on the quiet facades of all plots (on the garden side) would be in the range $L_{Aeq,1hour}$ 29-38dB.

Table 7 shows a BS 4142 assessment covering the noise impact. As indicated, the predicted farmyard rating levels are compared with the background sound levels measured during the daytime period (08:00-18:00), when the farmyard is used, at the proposed residential receptor locations.

³ DGMR Raadgevende Ingenieurs B.V – iNoise V2024.1



Results		Relevant Clause	Commentary
Specific sound level	51 dB	7.3.4 7.3.5	Established using the noise prediction model for the most affected proposed house (Plot 7).
Acoustic feature correction	+3 dB	9.2	The specific sound is not tonal or impulsive, though is otherwise distinctive against the residual acoustic environment.
Rating level	(51 + 3) dB = 54 dB	9.2	
Background sound level	$L_{A90,1hour} = 50$ dB	8	Measured at Position 2 when noise from the farmyard was not audible. Established using statistical analysis (mean value).
Excess of rating over background sound level	(54 - 50) dB = +4 dB	11	
Assessment indicates a potential adverse impact, subject to context		11	
Uncertainty of the assessment		10	Uncertainty has been reduced by considering a worst-case scenario reflecting intensive site activity. Additionally, the assessment location is the single most exposed window across the whole site. Rating levels outside all other windows would be at least 6dB lower during this intensive activity scenario.

Table 7: BS 4142:2014 assessment

For a worst-case scenario when the farmyard is used intensely during the daytime period, the initial BS 4142:2014 assessment indicates that there would be a potential adverse impact, subject to context. However, this is based on an assessment of sound levels outside the most exposed habitable room window of the proposed development, which is the ground floor study in Plot 7. It should be noted that outside all other habitable room windows, the rating level would not exceed the background sound level, even during this worst-case activity scenario. The site more broadly is therefore subject to a low impact.

It is also noted that, contextually, for much of the time each day, the yard is used much less intensely. Therefore, the noise impact would be even lower for the majority of the time.

The background $L_{A90,1hour}$ measured at Position 2 is also further back from the proposed residential location, at the rear of the site, relative to the road. Consequently, the representative $L_{A90,1hour}$ level used in the assessment is likely to be lower than that which would be at the proposed residential properties.



Noise levels from the farmyard are in keeping with the area, which is predominantly agricultural. Therefore, contextually, the impact may be reduced, as residents would be moving into an existing noise environment where other existing dwellings are currently located, characterised by agricultural activities.

Consequently, in view of the above, the overall effect would be low. Furthermore, a façade mitigation scheme is set out below in Section 7.2.1 to further reduce the noise impact for prospective residents.

7.2 ASSESSMENT OF AMBIENT NOISE IN ACCORDANCE WITH BS 8233:2014 AND WHO

7.2.1 Internal noise levels

Section 11 of BS 4142:2014 advises *“where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the following:*

3) The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:

- i) facade insulation treatment;*
- ii) ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and*
- iii) acoustic screening.”*

In view of the above, mitigation measures in the form of incorporating façade treatments, is an acceptable method that may be implemented, in order to reduce the noise impact.

Internal noise levels can be calculated from external noise levels, given the size and construction of the building façade elements including glazing and ventilation, as well as acoustic properties of the receiving room, such as the volume and reverberation time. Usually, it is the glazing and, depending upon the particular strategy, the ventilation apertures that admit most noise into residences. It is then a matter of providing façade elements with adequate acoustic performance to achieve sufficient noise reduction to meet the internal noise target.

The method that has been followed is described in Annex G2.1 of *BS 8233:2014 Guidance on sound insulation and noise reduction for buildings*.

The analysis carried out here assumes typical internal finishes for the type of rooms considered, based on acoustic properties Spectrum have measured in a range of occupied dwellings. The general construction of the building envelope is as follows:-

- External walls of brick cladding, with an insulated cavity to 2 layers of 12.5mm plasterboard.
- Window glazing having a specification as described below.
- Tile/slate roof with 12.5mm plasterboard ceiling below and absorbing layer within the void.
- Ventilation to meet the requirements of Part F of the Building Regulations.

Two trickle vents have been assumed in bedrooms and study rooms. Six trickle vents have been assumed in open plan living/kitchen/dining rooms. It will be the responsibility of the mechanical designer to ensure the correct number of trickle vents are installed in order to meet the requirements of Part F of the Building Regulations. It should be noted that the noise ingress to habitable rooms is affected by the number of



vents installed. If a greater number of vents are installed, a greater level of noise will enter the room. Therefore, if more vents are installed than we have assumed in our calculations, the acoustic specification for vents may need to be increased.

Sound insulation data for the façade elements have been taken from sources such as standard data provided by BRE and DETR, Spectrum library of measurement data, calculations using Marshall Day's *Insul* software as well as manufacturer's data and the BRE/CIRIA publication 'Sound Control for Homes'.

Based on the internal layout drawings for the proposed dwellings, sample intrusive noise calculations for the most noise-exposed habitable rooms of the development, based on the room and façade dimensions are included in Appendix E. The calculations have been carried out in order to establish the façade glazing and ventilation specification necessary to achieve guideline internal noise levels.

Table 8 below details a sound insulation specification for the proposed dwellings. The numeric sound insulation rating for the glazing and the ventilator openings has been specified in terms of R_w+C_{tr} and $D_{n,e,w}+C_{tr}$ respectively.

Plots	Room	Wall type	Window Performance R_w+C_{tr} dB	Vent Performance $D_{n,e,w}+C_{tr}$ dB
1 and 2	Study	Brick/block	25	37
	Living/Kitchen/Dining	Brick/block	25	37
	Bedrooms	Brick/block	25	37
3 to 9	Study	Brick/block	25	32
	Living/Kitchen/Dining	Brick/block	25	32
	Bedrooms	Brick/block	25	32

Table 8: Sound insulation specification for the proposed development site

For Plots 1 and 2, acoustic performances in habitable rooms can typically be achieved by the following specification.

- Standard double-glazed units (rated R_w+C_{tr} 25dB), typically comprising of 4mm float glass, 12mm cavity, 4mm float glass.
- Acoustic trickle ventilators (rated at $D_{n,e,w}+C_{tr}$ 37dB).

For Plots 3 to 9, acoustic performances in habitable rooms can typically be achieved by the following specification.

- Standard double-glazed units (rated R_w+C_{tr} 25dB), typically comprising of 4mm float glass, 12mm cavity, 4mm float glass.
- Standard hit and miss trickle ventilators (rated at $D_{n,e,w}+C_{tr}$ 32dB).



7.2.2 Noise levels in outdoor living spaces

BS 8233:2014 suggests the following guidelines for noise levels in external spaces that are used for amenity space, such as gardens and patios. *“For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.”*

The site by definition adjoins the strategic road network. Consequently, the residential scheme has been designed to achieve the lowest practicable noise levels in the outside amenity areas of properties.

A scheme of acoustic screening has been developed to reduce noise as far as practicable in external amenity areas. This comprises a mix of 1.8m high and 2.4m high closed boarded fences around garden perimeters. It is recommended that the gardens of plots 1 and 2 have 2.4m high perimeter fences and the gardens of the remaining plots have 1.8m high perimeter fences. All fences should be imperforate for the full height of the fence and have a minimum mass per unit area of 10kg/m². The scheme is presented on a plan in Appendix F.

With the recommended fences in place, noise levels in all but one garden during the daytime would not exceed the $L_{Aeq,16hour}$ 55dB guideline suggested by BS 8233:2014. In plot 1, noise levels would be up to $L_{Aeq,16hour}$ 59dB.

8. CONCLUSIONS

James Northern has commissioned Spectrum Acoustic Consultants to complete a noise assessment in order to inform an application for prior approval under Class Q for a residential development consisting of nine dwellings on land at Slip End Farm, Slip End, Hertfordshire.

During the daytime noise levels are dominated by noise from traffic movements on the A505. During the night-time road traffic movements reduce, coinciding with a reduction in ambient noise levels.

An assessment of noise from the farmyard has been completed in accordance with BS 4142:2014 *Methods for rating and assessing industrial and commercial sound* has been conducted. The initial estimate of impact indicated a potential adverse impact, subject to context. However, given the worst-case assumptions made in the assessment and the agricultural nature of the area, the conclusion of the assessment indicates there would be a low noise impact resulting from agricultural activities. This notes that for much of the time each day, the yard is used much less intensely than assumed in the assessment, representative background $L_{A90,T}$ levels used in the assessment are lower than what would be expected at the residential receptor locations, and noise from farmyard activities are in keeping with the area, which is predominantly agricultural. Consequently, the overall effect on the proposed properties would be low.

A noise mitigation strategy has been developed, by considering the character of the noise impacting on the proposed development, as well as the noise insulation and noise control requirements for the proposed plots. The mitigation scheme that has been proposed and specified satisfies internal noise levels that the guidelines set out for good internal conditions in BS 8233:2014 and WHO Guidelines for Community Noise. Furthermore, mitigation measures have been proposed in order to achieve acceptable noise levels in gardens.

A P P E N D I X A

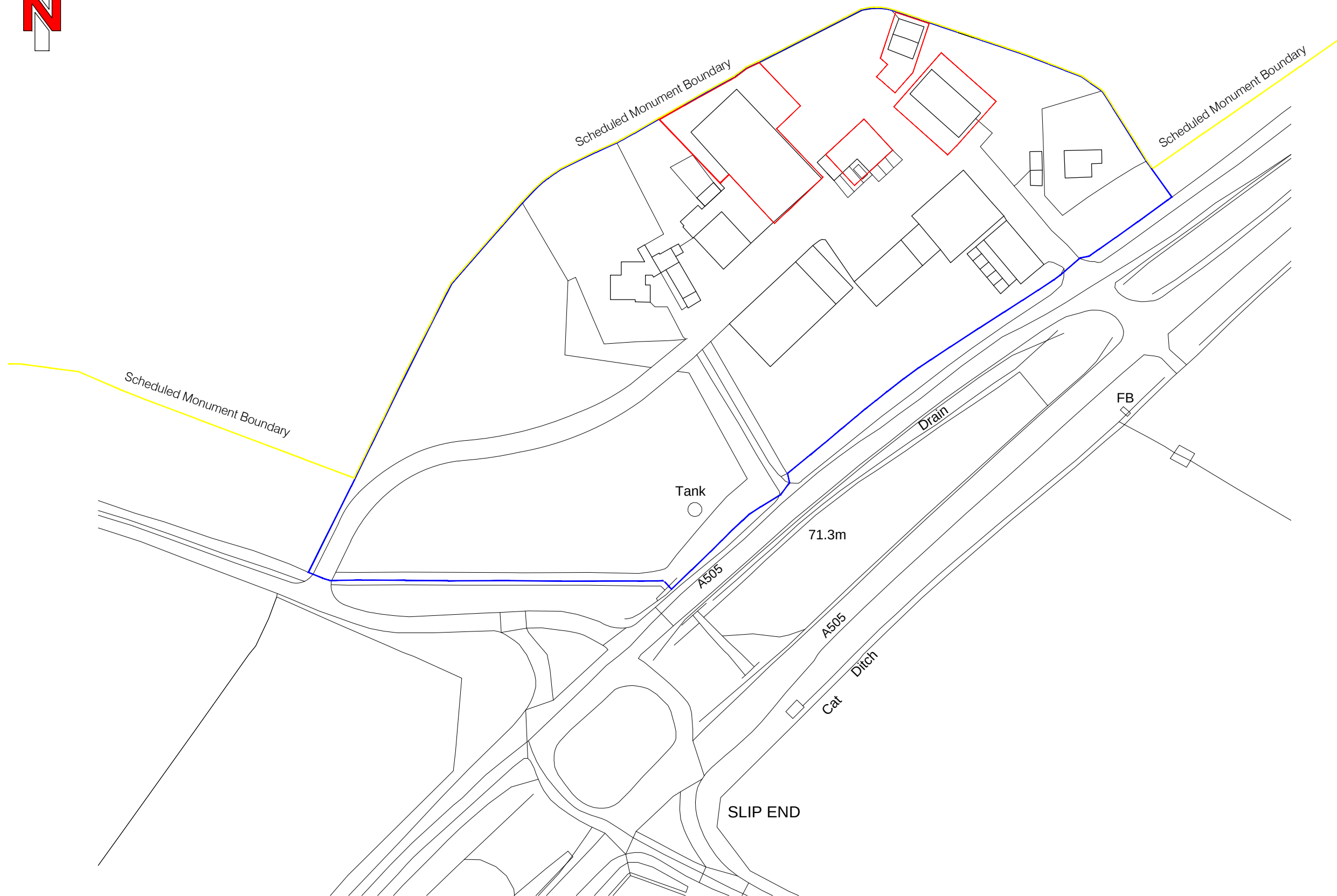
Existing Site Location Plan with Measurement Locations



Position 2

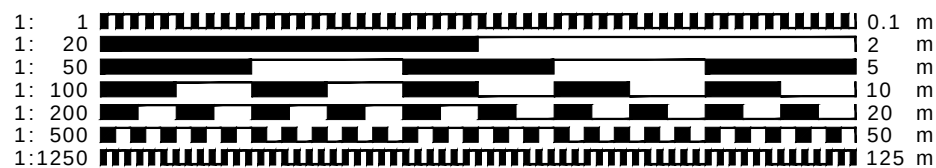
Position 1

Yard Noise
Logger



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Site Location Plan 1:1250



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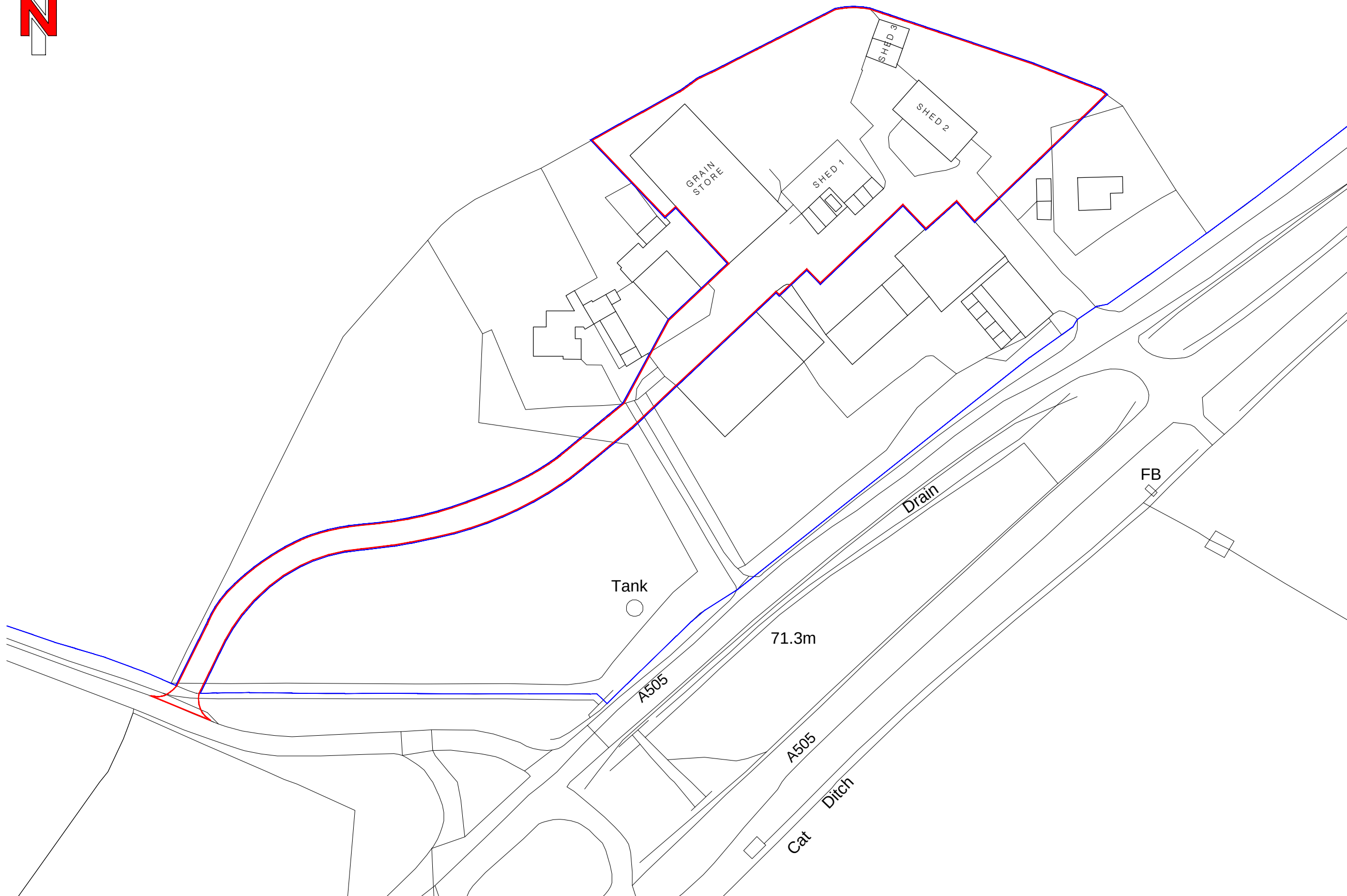


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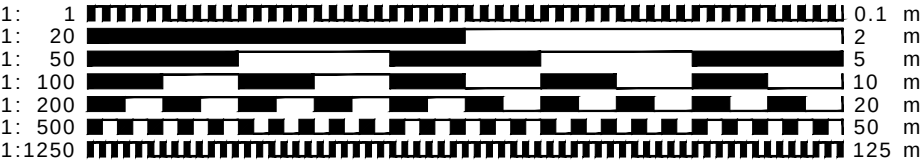
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DATE	Dec 2024	PO1	
DRAWN	JEI		
JOB NUMBER	RSD-24-17	CHECKED BY	
redshed design 45 Hoo Road Meppershall Bedfordshire SG17 5JP			
telephone: 01462 807175, 07884008970 fax: 01462 807175 e-mail: james/karen@redsheddesign.co.uk www.redsheddesign.co.uk			

A P P E N D I X B

Proposed Scheme Layout Plan



Site & Access Plan 1:1000



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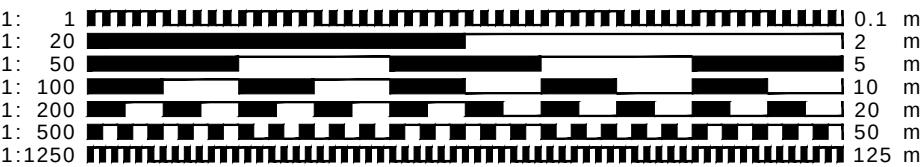


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DRAWING TITLE		
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redshed design 45 Hoo Road Meppershall Bedfordshire SG17 5JP		
telephone: 01462 807175, 07884008970 fax: 01462 807175 e-mail: james/karen@redsheddesign.co.uk www.redsheddesign.co.uk		



Site & Access Plan 1:1000



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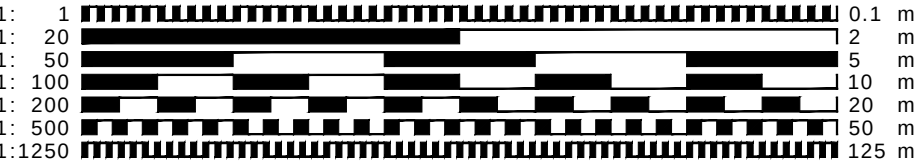


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Proposed Site Plan 1:500



PLOT		GIA	PARKING	CYCLE	GARDEN
PLOT 1	3 bed semi detached dwelling	165sqm	3 parking spaces	2	377sqm
PLOT 2	3 bed semi detached dwelling	130sqm	3 parking spaces	2	220sqm
PLOT 3	3 bed semi detached dwelling	140sqm	2 parking spaces	2	212sqm
PLOT 4	4 bed semi detached dwelling	180sqm	3 parking spaces	2	262sqm
PLOT 5	4 bed semi detached dwelling	152sqm	3 parking spaces	2	155sqm
PLOT 6	4 bed detached dwelling	180sqm	3 parking spaces	2	229sqm
PLOT 7	4 bed detached dwelling	180sqm	3 parking spaces	2	228sqm
PLOT 8	4 bed semi detached dwelling	215sqm	3 parking spaces	2	175sqm
PLOT 9	4 bed semi detached dwelling	215sqm	3 parking spaces	2	177sqm

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Existing highway access to A505 to be decommissioned and blocked up

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DRAWING TITLE
Proposed Site Plan

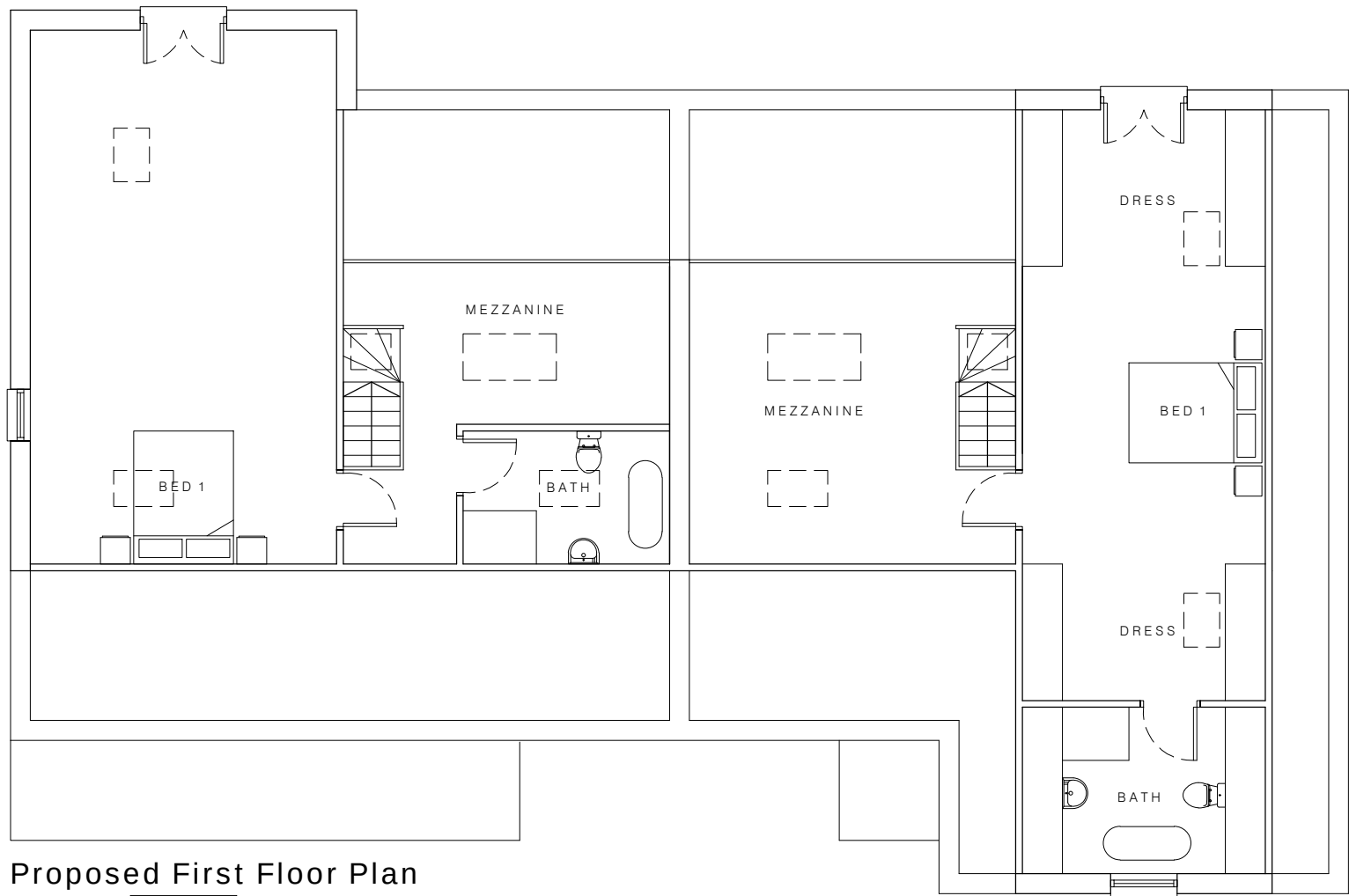
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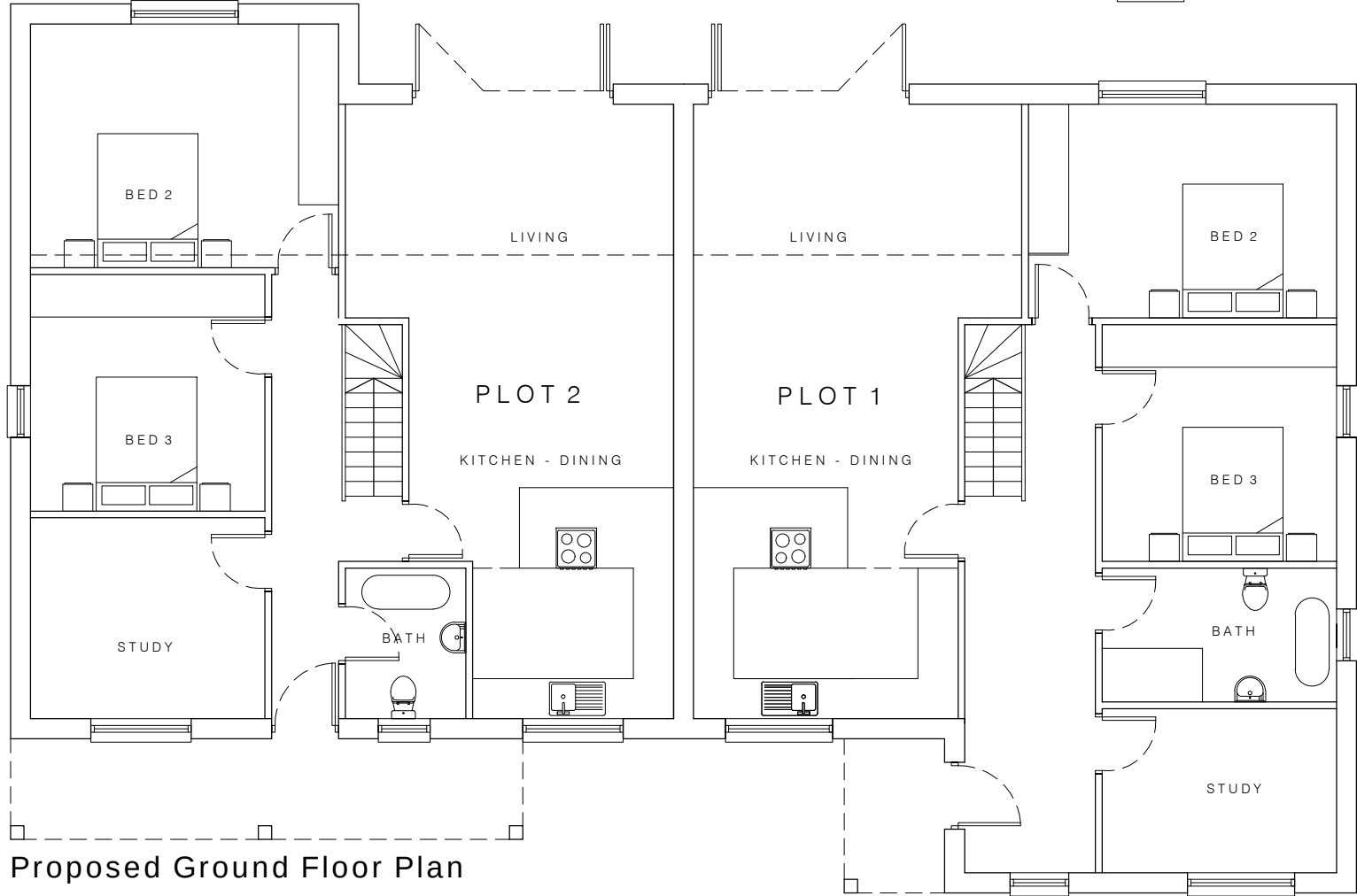
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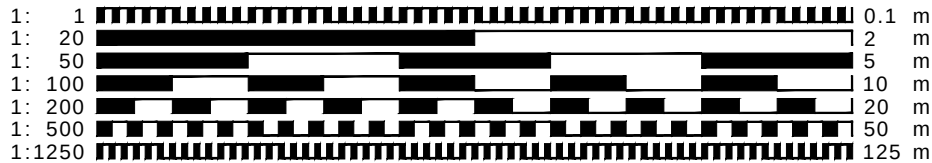
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45 Hoo Road fax: 01462 807175
Meppershall e-mail: james/karen@redsheddesign.co.uk
Bedfordshire www.redsheddesign.co.uk
sg17 5lp



Proposed First Floor Plan



Proposed Ground Floor Plan



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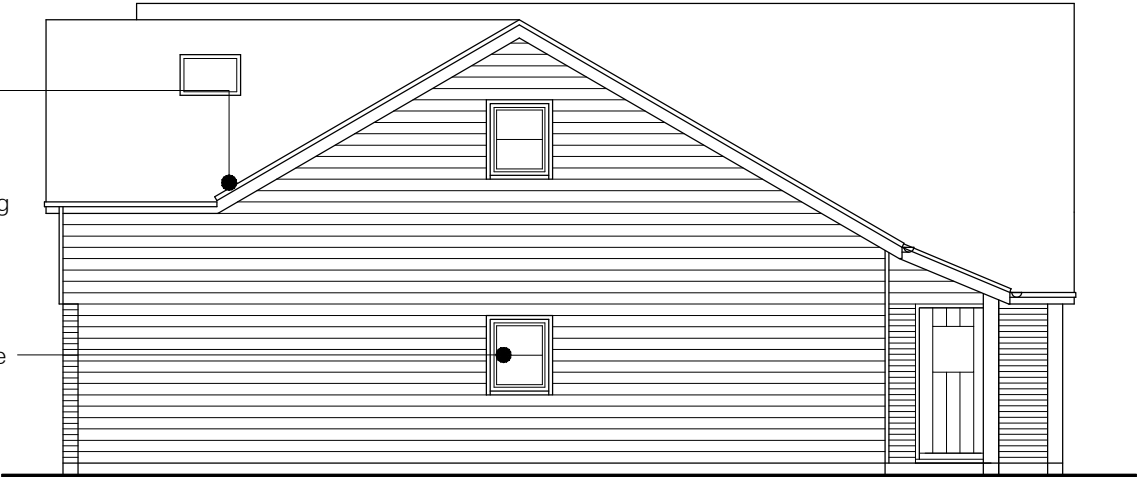
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Proposed Residential Development
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Proposed Floor Plans		PLOTS 1 & 2
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DATE	Sept 2025	PO5
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redshed design
45 Hoo Road
Meppershall
Bedfordshire
SG17 5JP
telephone: 01462 807175, 07884008970
fax: 01462 807175
e-mail: james/karen@redsheddesign.co.uk
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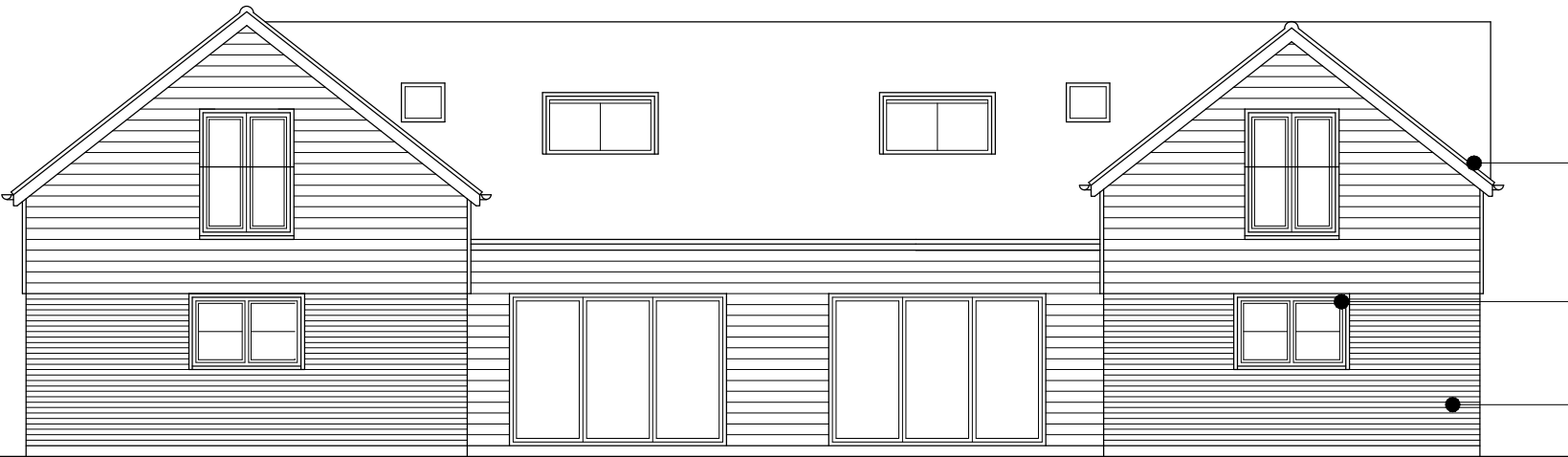


Proposed Front Elevation

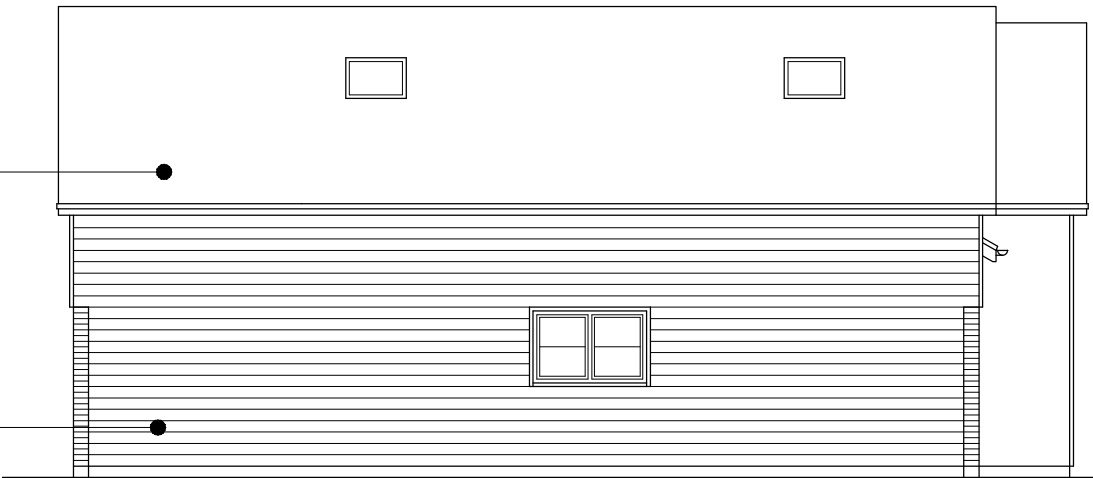


Proposed Side Elevation

- Pitched roofs:
Orange / red profiled tiles
- External walls :
Black weather board cladding
Red facing brick
- Windows :
Green framed casement style

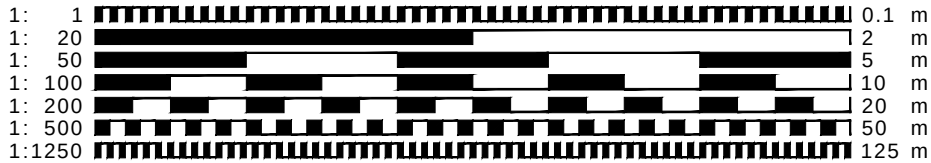


Proposed Rear Elevation



Proposed Side Elevation

- Pitched roofs:
Orange / red profiled tiles
- Windows :
Green framed casement style
- External walls :
Black weather board cladding
Red facing brick



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Proposed Elevations PLOTS 1 & 2

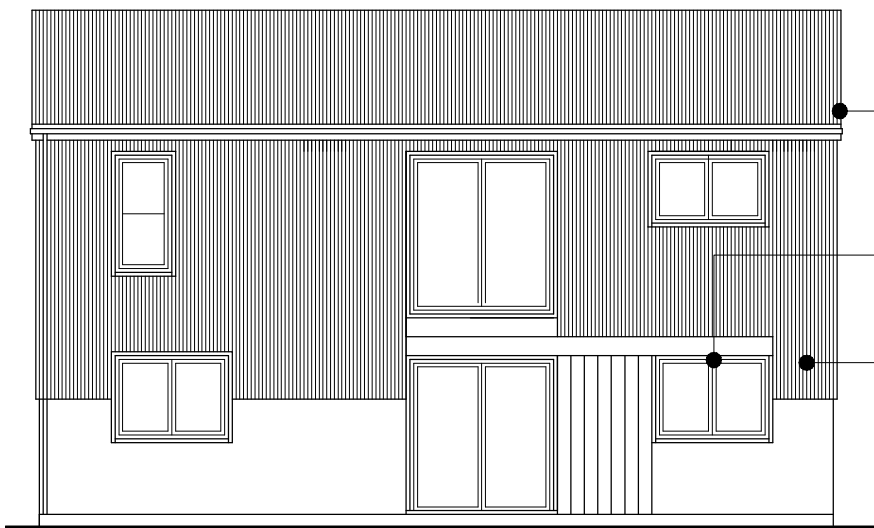
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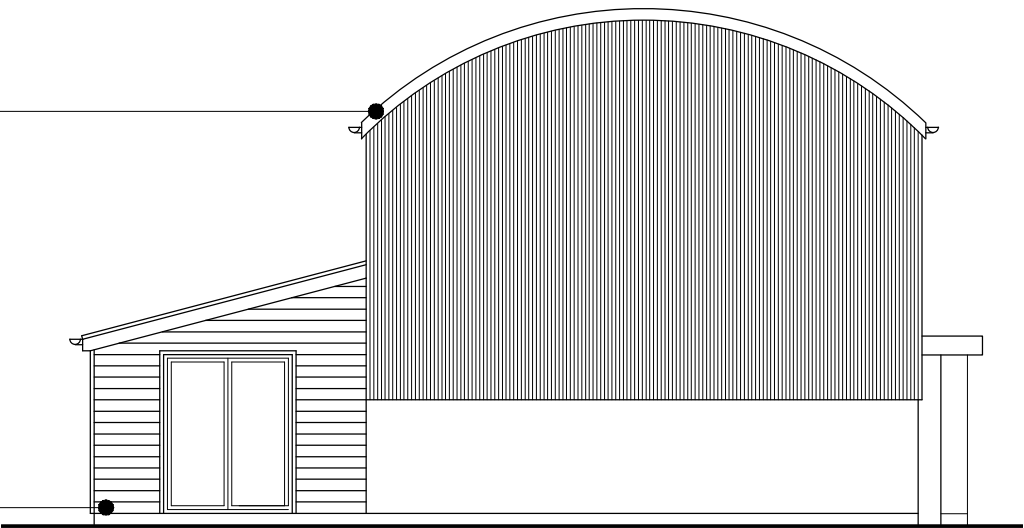
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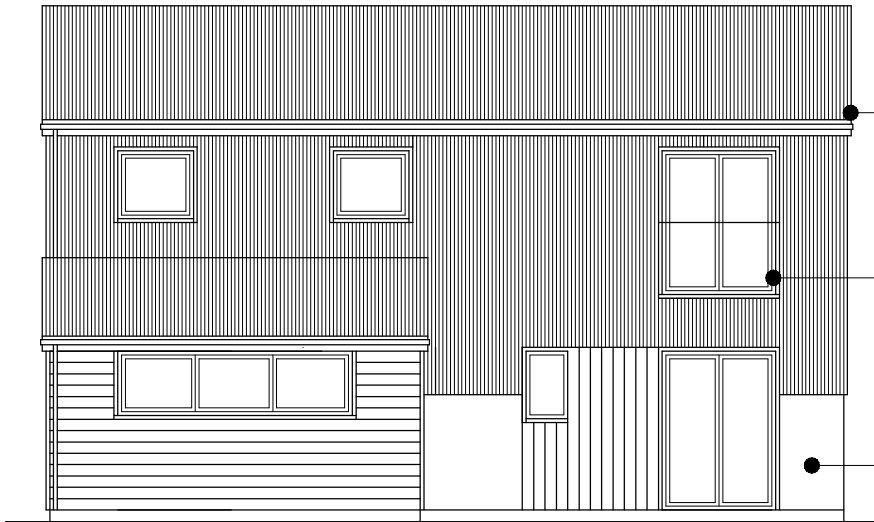


Proposed Front Elevation

- Pitched roofs:
Gray corrugated sheeting
- Windows /Doors :
Black framed casement style
- External Walls :
Gray corrugated sheeting & brickwork
- External Walls :
Oak style weather board cladding

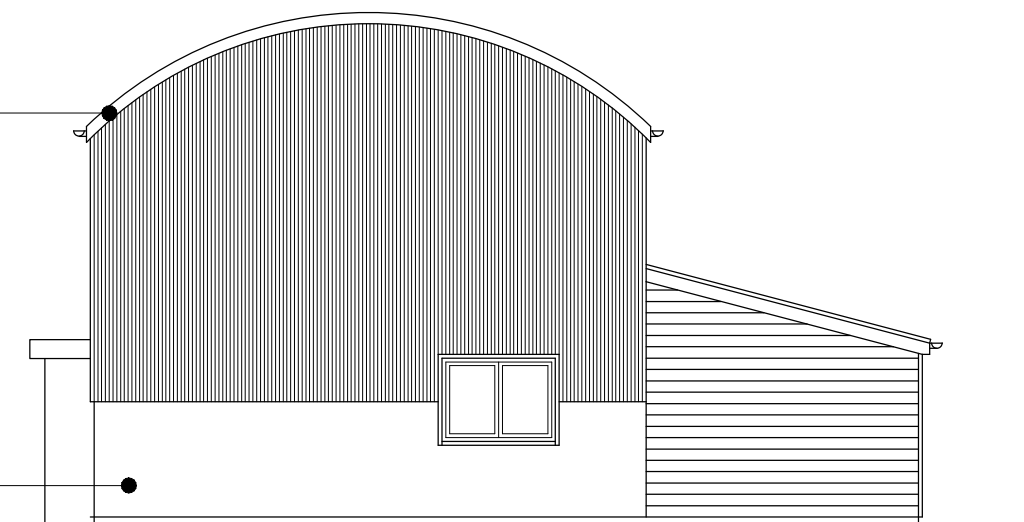


Proposed Side Elevation

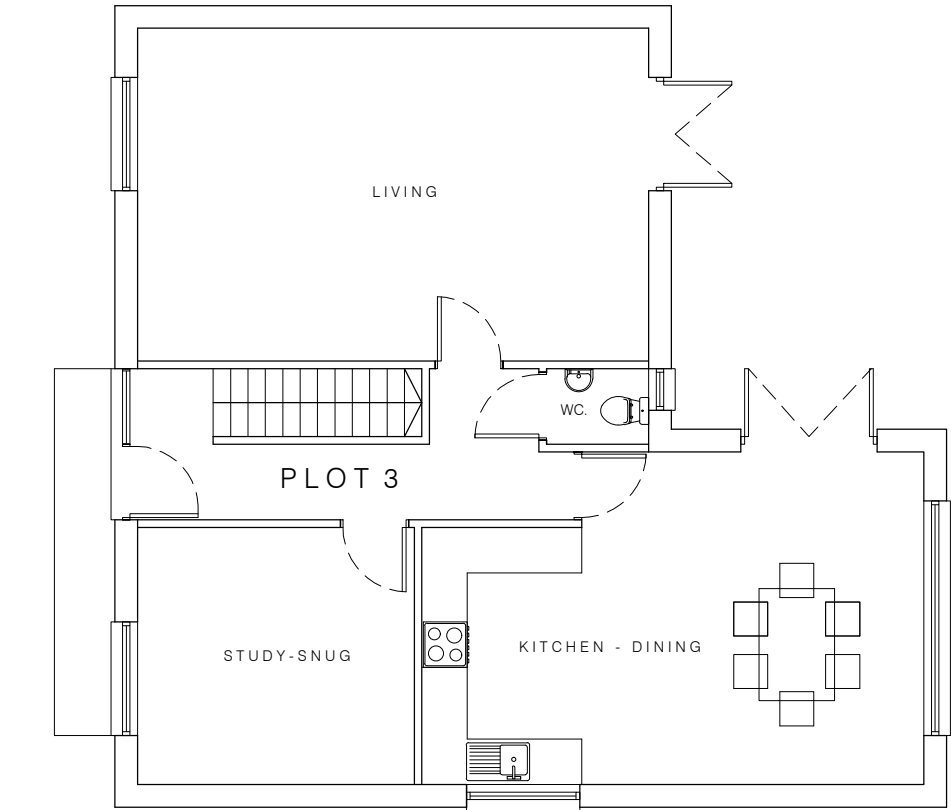


Proposed Rear Elevation

- Pitched roofs:
Gray corrugated sheeting
- Windows /Doors :
Black framed casement style
- External Walls :
Gray corrugated sheeting & brickwork



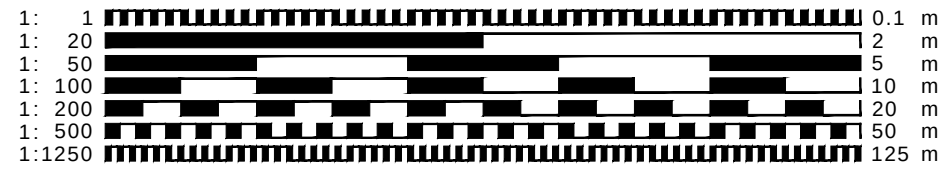
Proposed Side Elevation



Proposed Ground Floor Plan



Proposed First Floor Plan



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Proposed Floor Plans & Elevations PLOTS 3

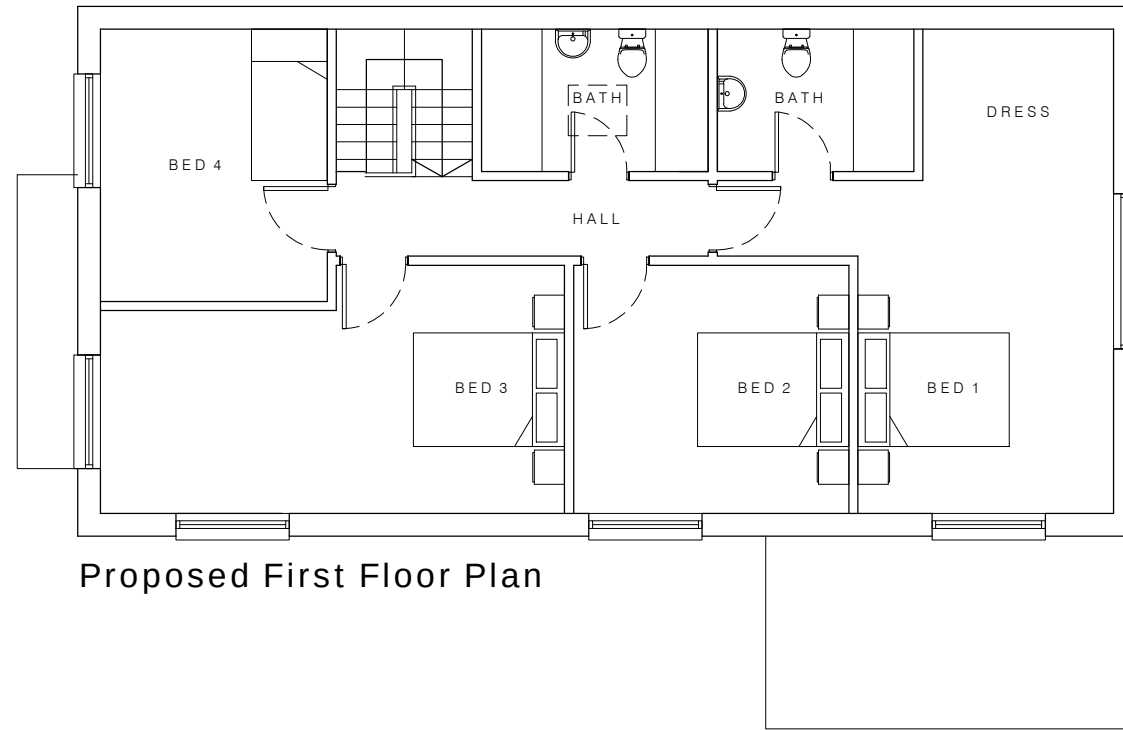
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DATE Sept 2025 PO6

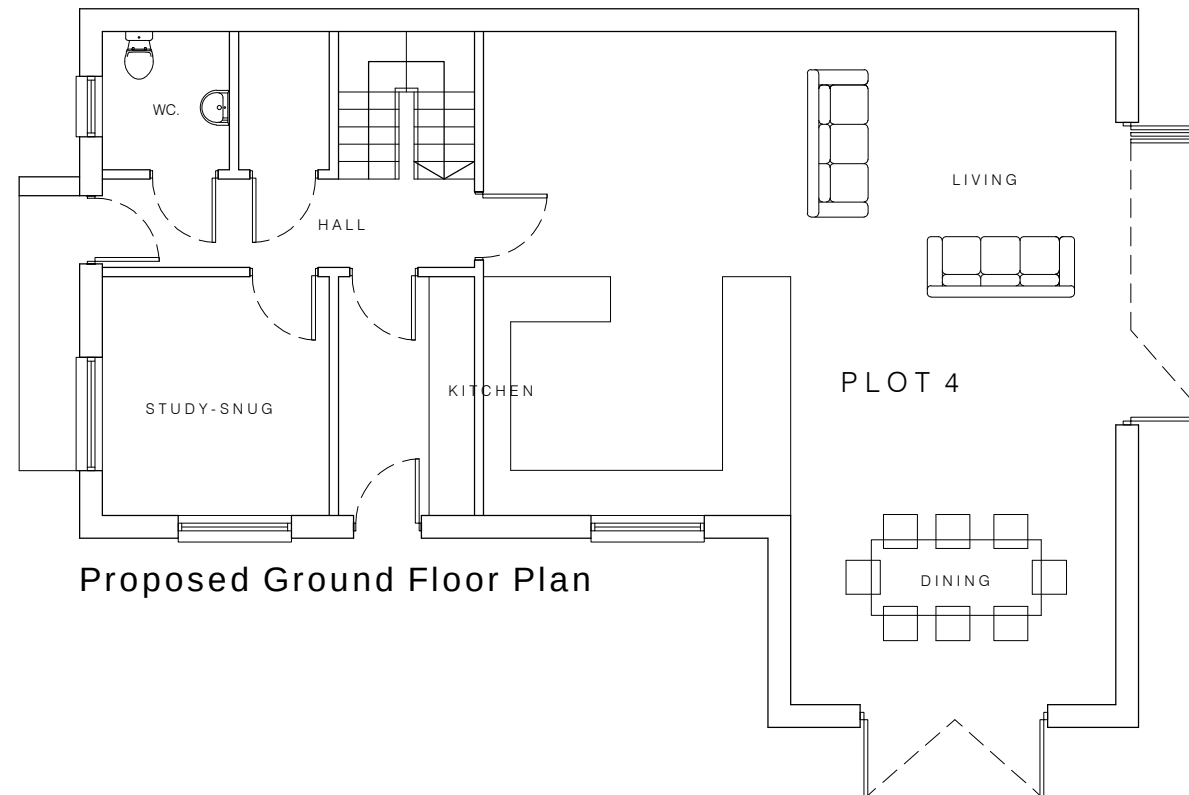
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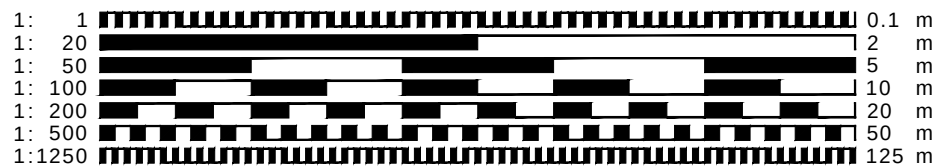
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telephone: 01462 807175 fax: 01462 807175
e-mail: james/karen@redsheddesign.co.uk www.redsheddesign.co.uk



Proposed First Floor Plan



Proposed Ground Floor Plan



- o CLIENT MUST SEEK SEPARATE SPECIALIST ADVICE ON PARTY WALL MATTER IN SUFFICIENT TIME TO SERVE ALL NOTICES IF REQUIRED
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CONTRACT
Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

Proposed Floor Plans & Elevations PLOT 4

SCALE 1:100@A3 DRAWING NUMBER REVISION

DATE Sept 2025 PO7

DRAWN JEI

JOB NUMBER RSD-24-17 CHECKED BY

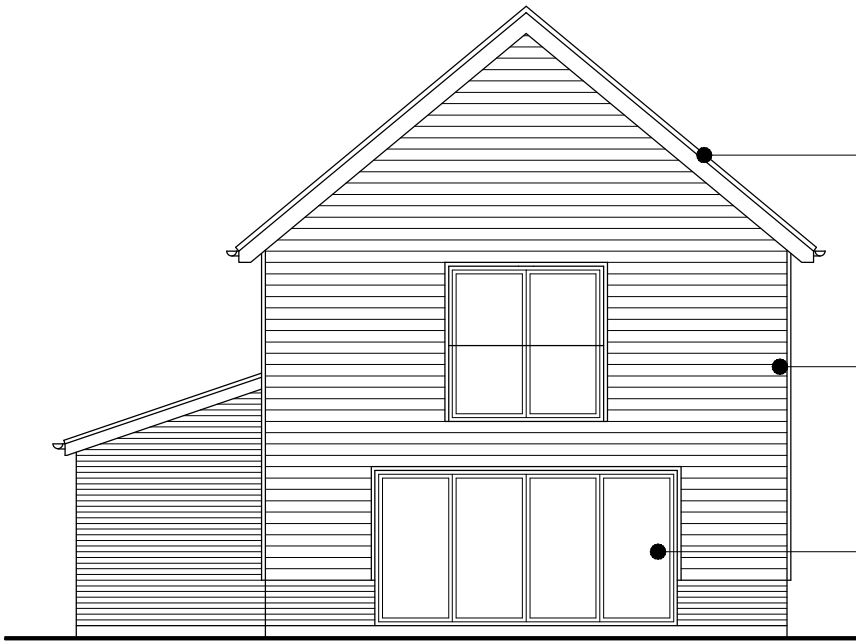
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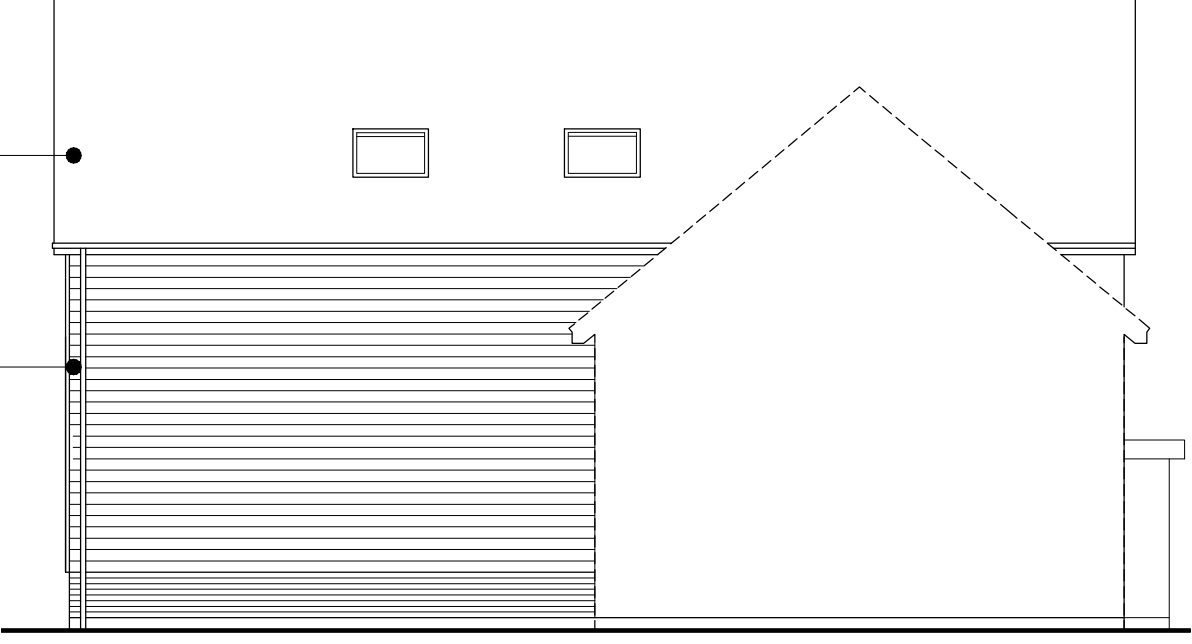
Proposed Front Elevation



Proposed Side Elevation



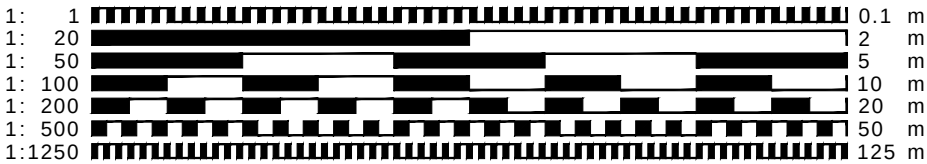
Proposed Rear Elevation



Proposed Side Elevation

- Pitched roofs:
Natural slate covering
- External walls :
Oak style weather board cladding
Red facing brick
- Windows - Doors:
Black framed casement style

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Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

Proposed Elevations PLOT 4

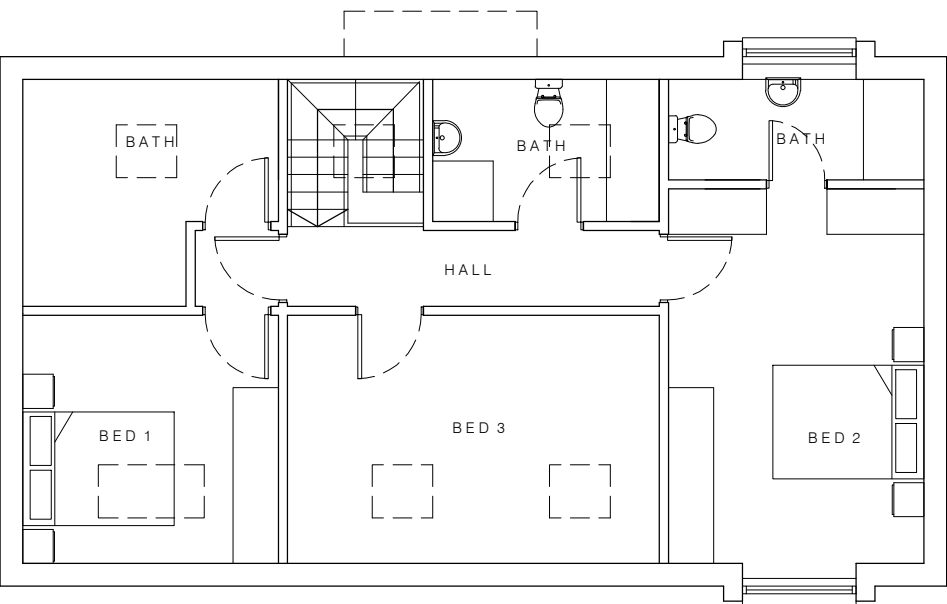
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DATE Sept 2025 PO8

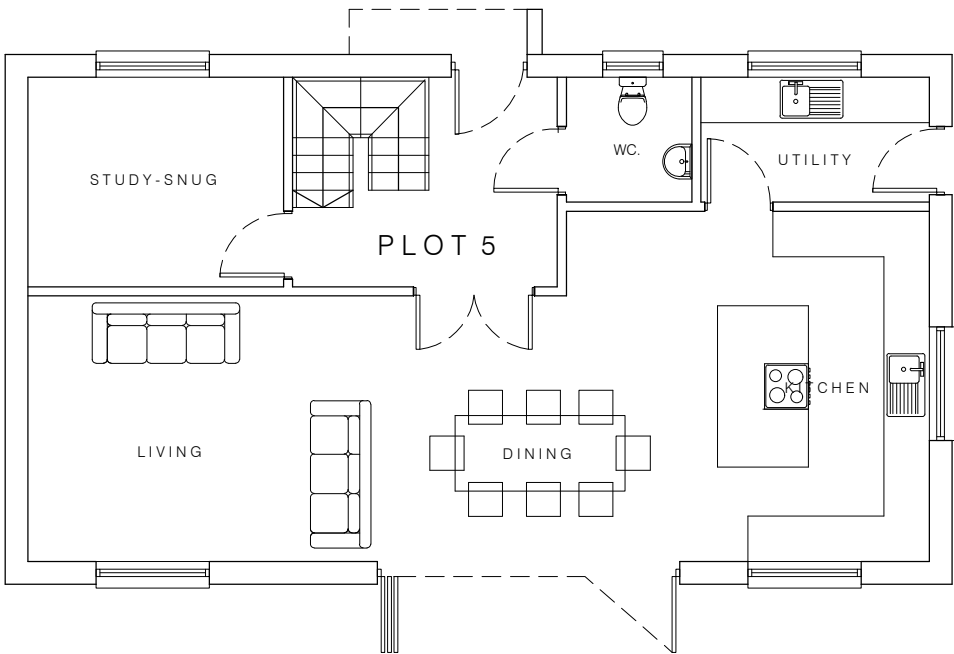
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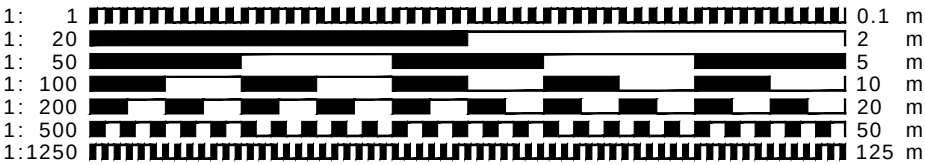
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45 Hoo Road fax: 01462 807175
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Bedfordshire www.redsheddesign.co.uk
sg17 5lp



Proposed First Floor Plan



Proposed Ground Floor Plan



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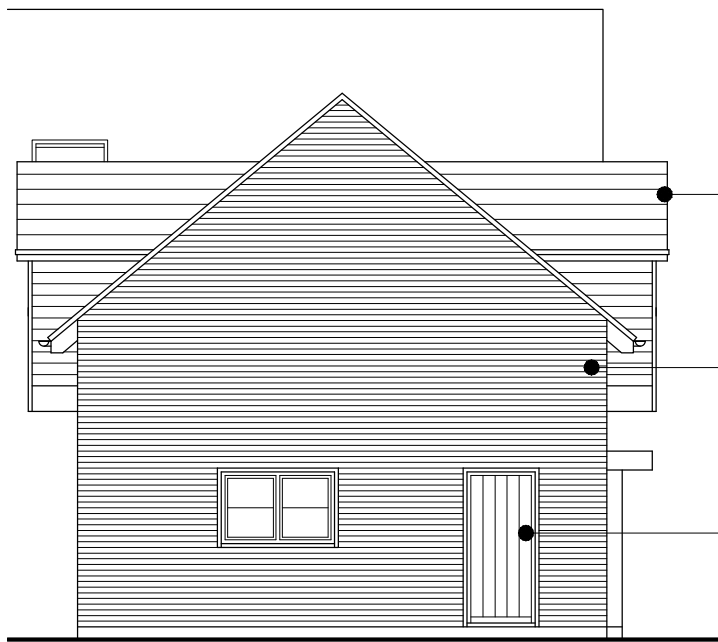


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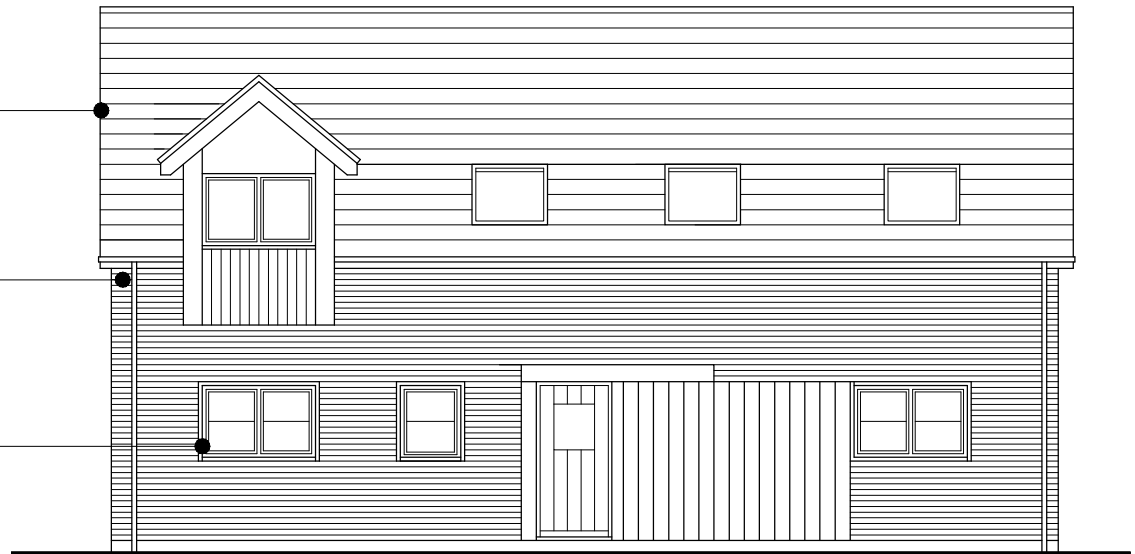
CONTRACT
Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

Proposed Floor Plans		PLOT 5
SCALE	1:100@A3	DRAWING NUMBER
DATE	Sept 2025	PO9
DRAWN	JEJ	
JOB NUMBER	RSD-24-17	CHECKED BY

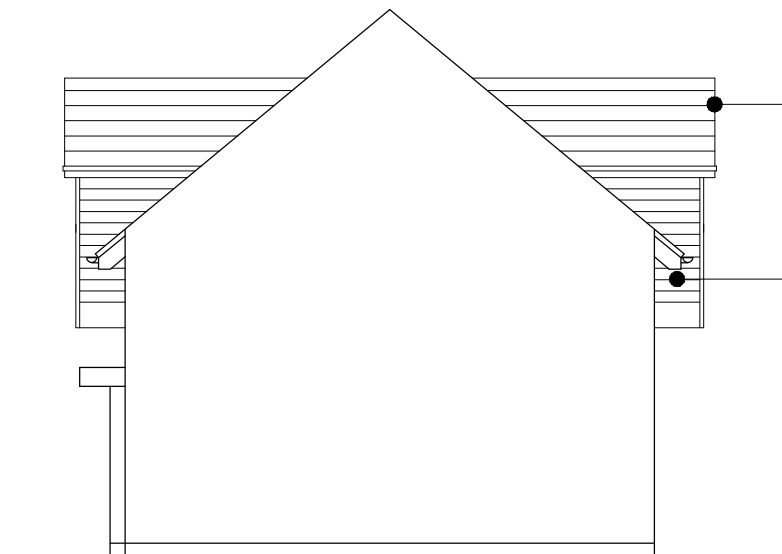
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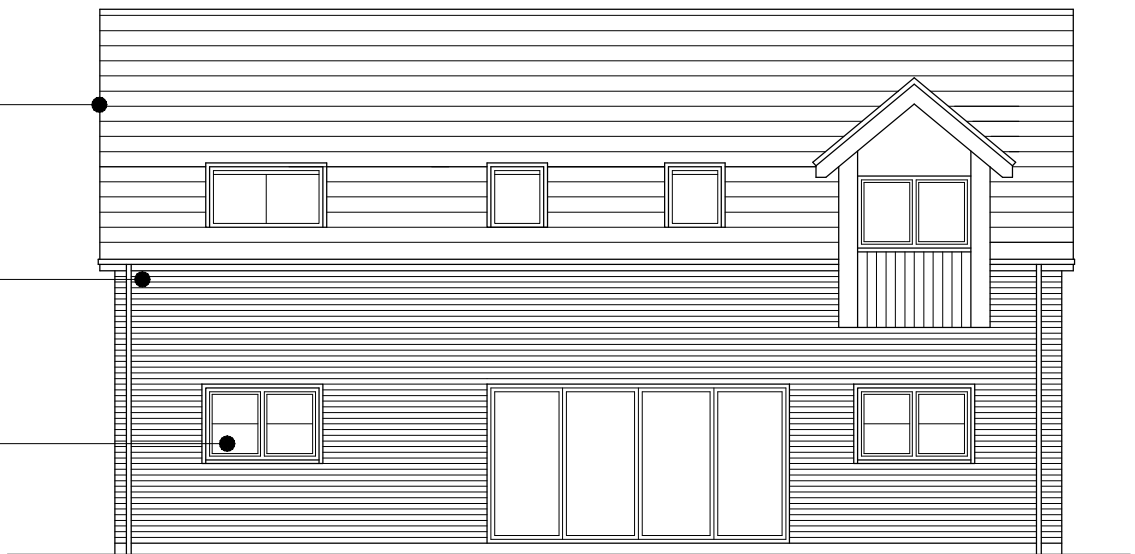
Proposed Side Elevation



Proposed Front Elevation



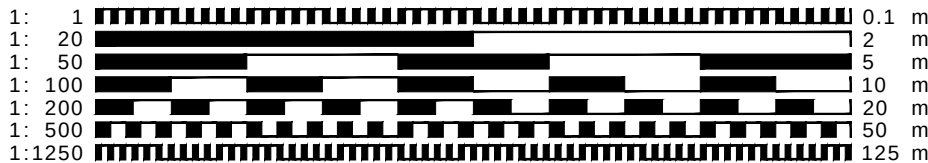
Proposed Side Elevation



Proposed Rear Elevation

- Pitched roofs:
Natural slate covering
- External walls :
Oak style weather board cladding
Red facing brick
- Windows - Doors:
Black framed casement style

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Proposed Residential Development
Slip End Farm, Slip End, Baldock,
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Proposed Elevations PLOT 5

SCALE 1:100@A3 DRAWING NUMBER P10 REVISION

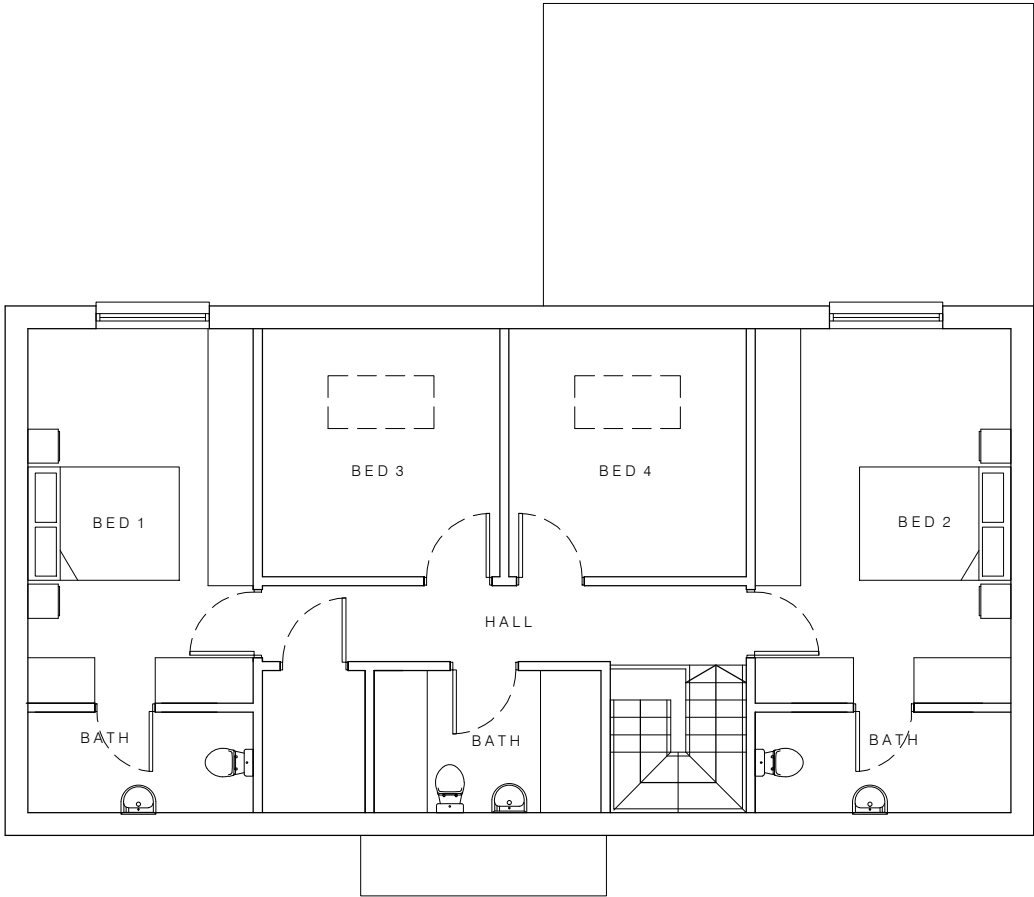
DATE Sept 2025

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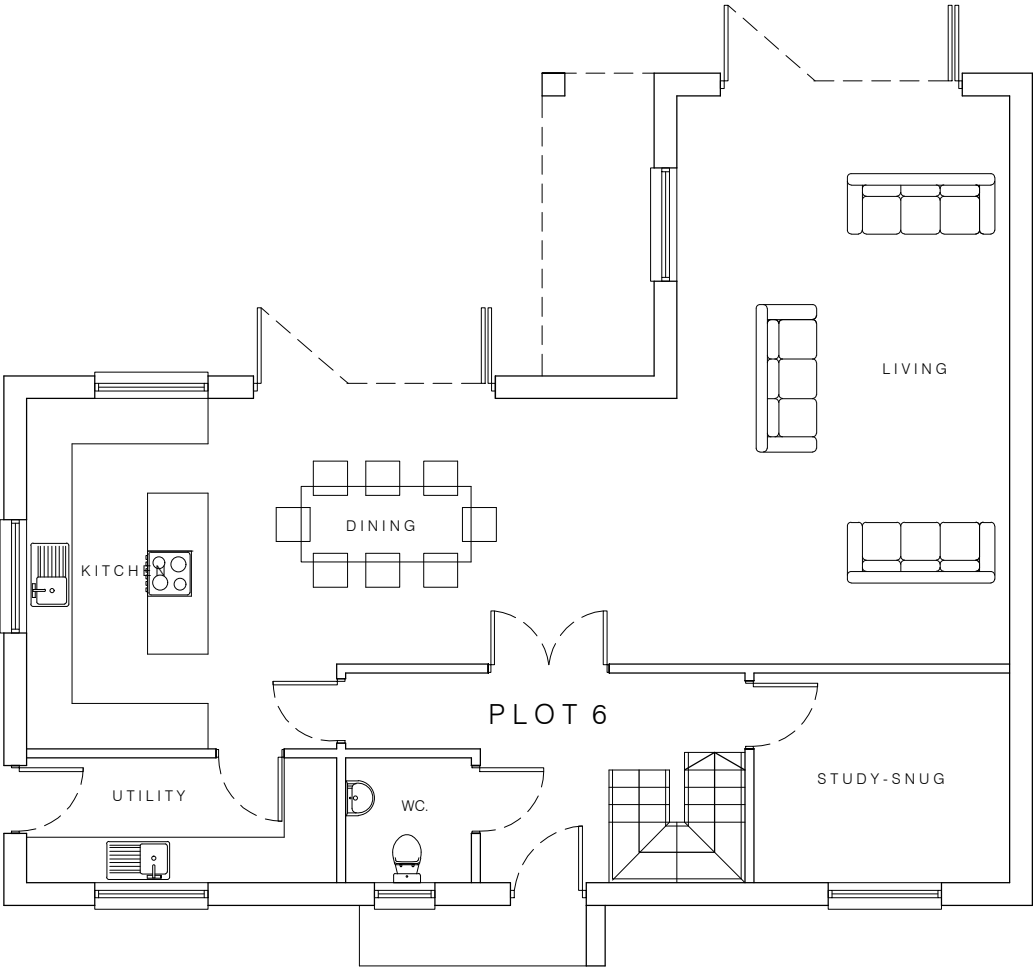
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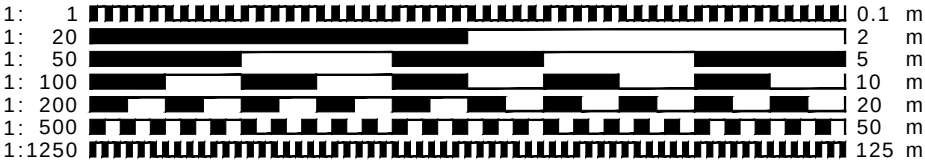
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Proposed First Floor Plan



Proposed Ground Floor Plan



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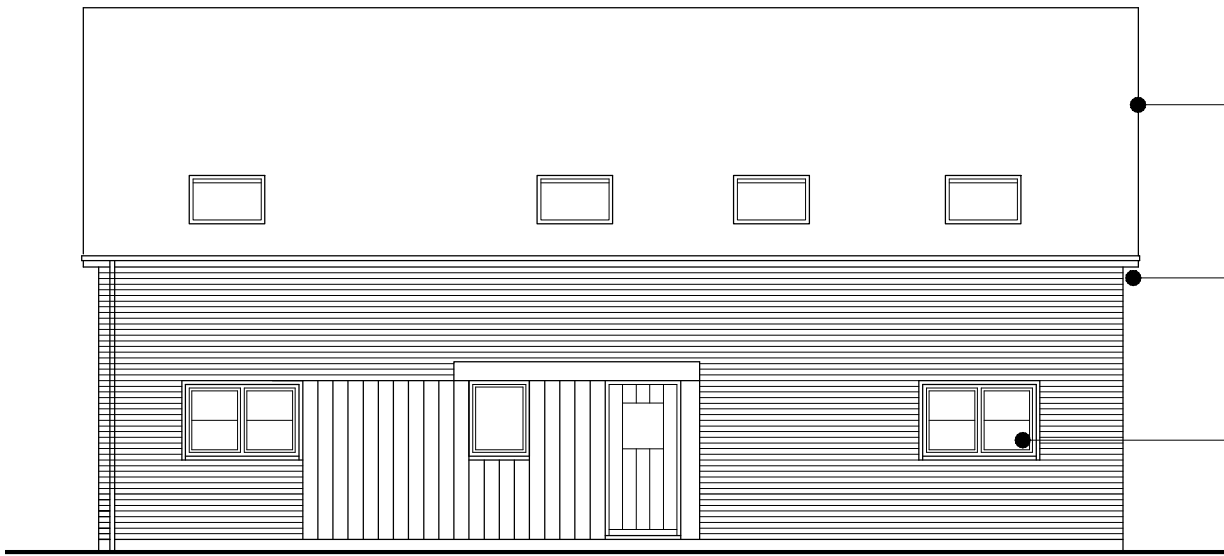


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Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

Proposed Floor Plans - PLOT 6	
SCALE	1:100@A3
DATE	Sept 2025
DRAWN	JEI
JOB NUMBER	RSD-24-17

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SG17 5LP
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Proposed Front Elevation

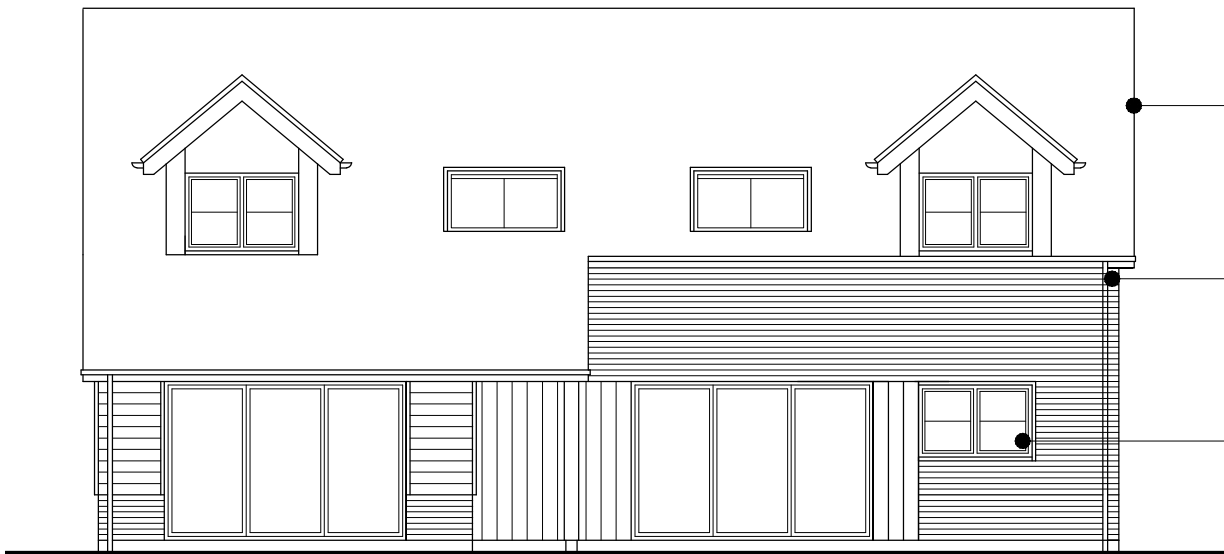
Pitched roofs:
Natural slate covering

External walls :
Oak style weather board cladding
Red facing brick

Windows - Doors:
Black framed casement style



Proposed Side Elevation

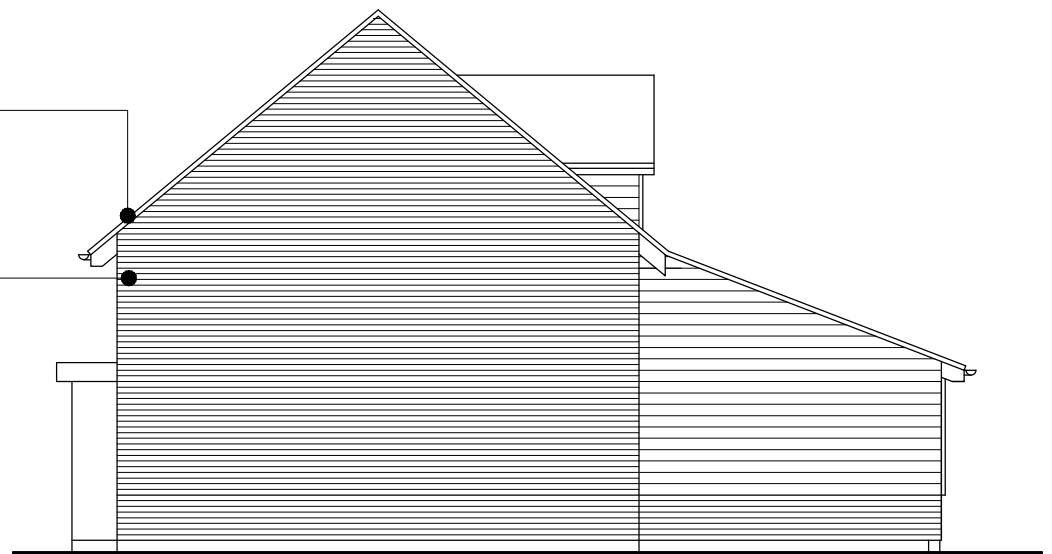


Proposed Rear Elevation

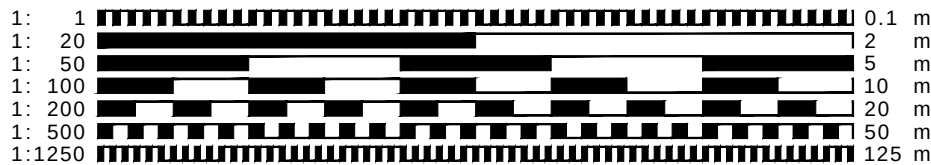
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Windows - Doors:
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Proposed Side Elevation



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Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

Proposed Elevations PLOT 6

SCALE 1:100@A3 DRAWING NUMBER P12

DATE Sept 2025

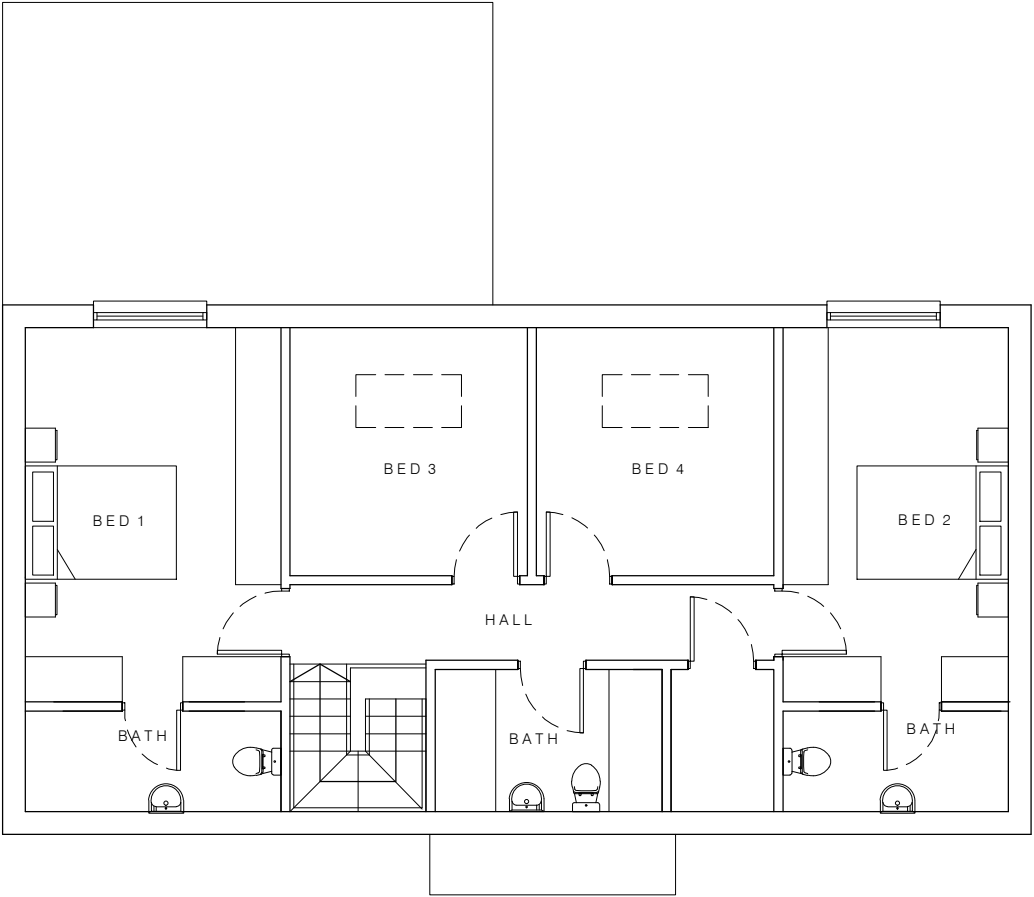
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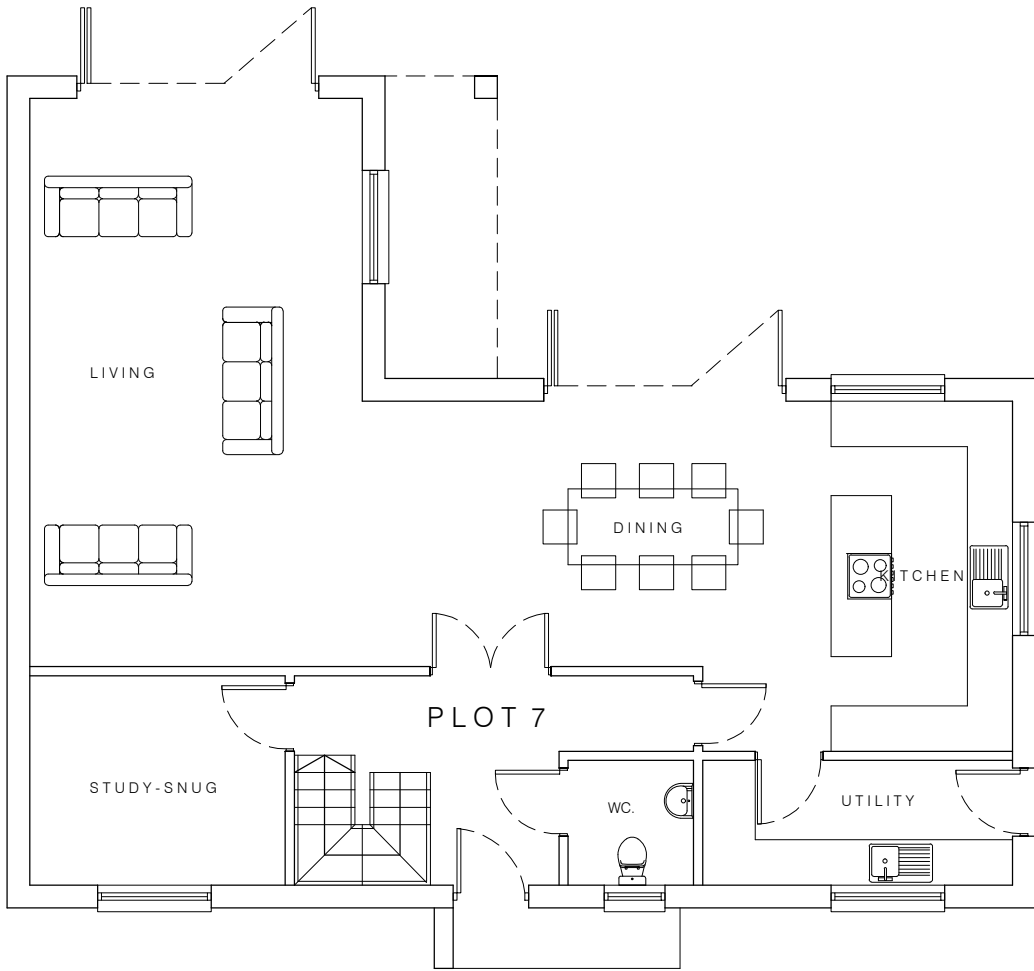
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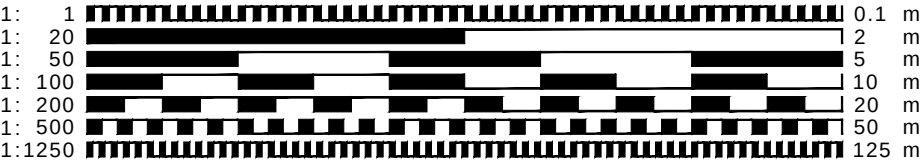
telephone: 01462 807175, 07884008970
fax: 01462 807175
e-mail: james/karen@redsheddesign.co.uk
www.redsheddesign.co.uk



Proposed First Floor Plan



Proposed Ground Floor Plan



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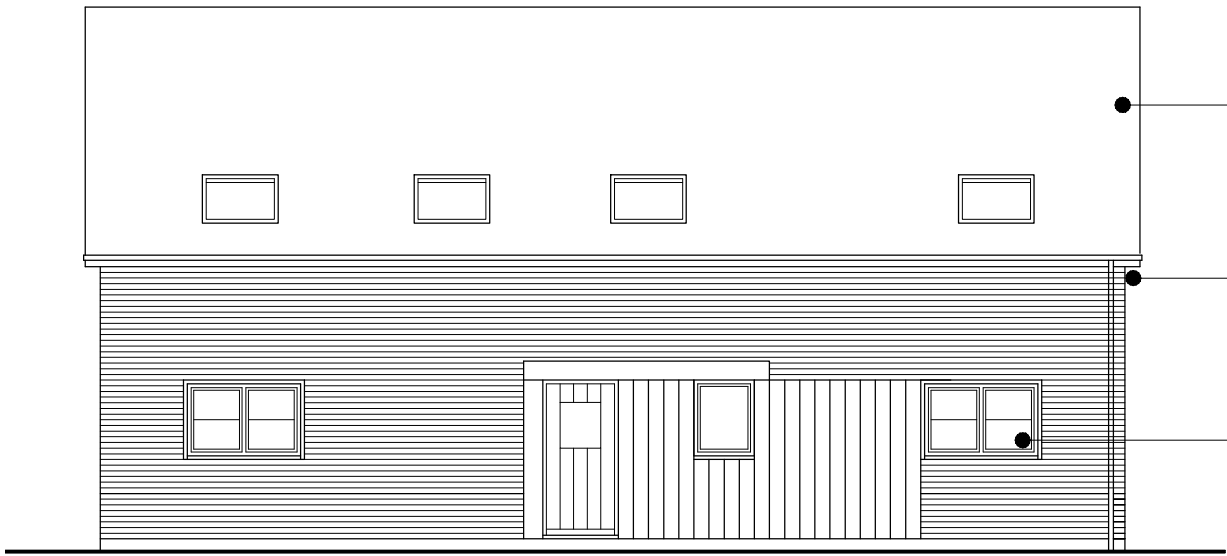


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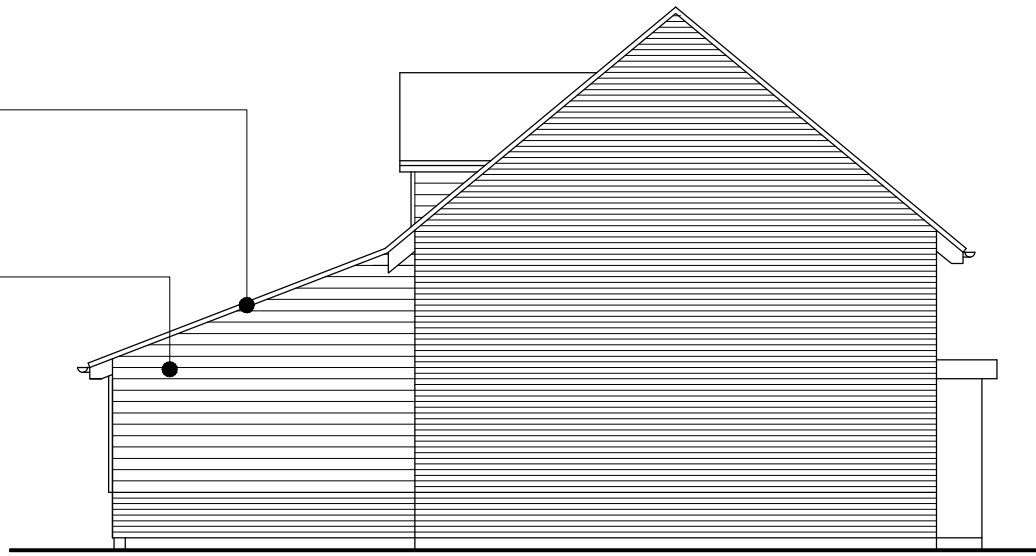
CONTRACT
Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

Proposed Floor Plans PLOT 7		REVISION
SCALE	1:100@A3	DRAWING NUMBER
DATE	Sept 2025	P13
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JOB NUMBER	RSD-24-17	CHECKED BY

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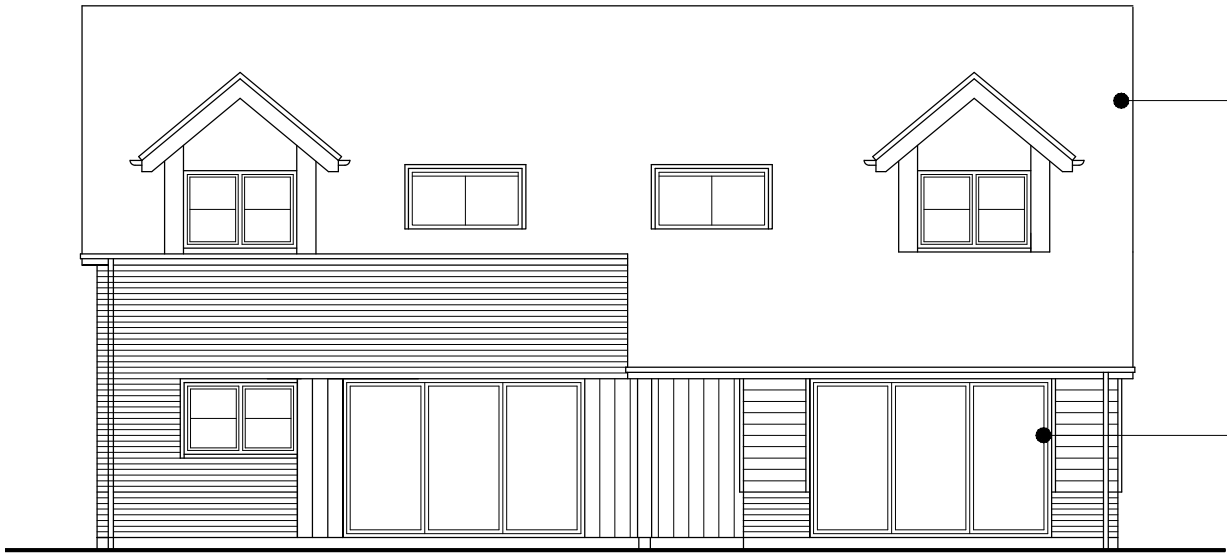


Proposed Front Elevation



Proposed Side Elevation

- Pitched roofs:
Natural slate covering
- External walls :
Oak style weather board cladding
Red facing brick
- Windows - Doors:
Black framed casement style

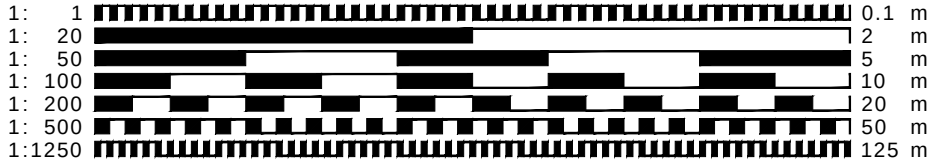


Proposed Rear Elevation



Proposed Side Elevation

- Pitched roofs:
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Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

Proposed Elevations PLOT 7

SCALE 1:100@A3 DRAWING NUMBER P14

DATE Sept 2025

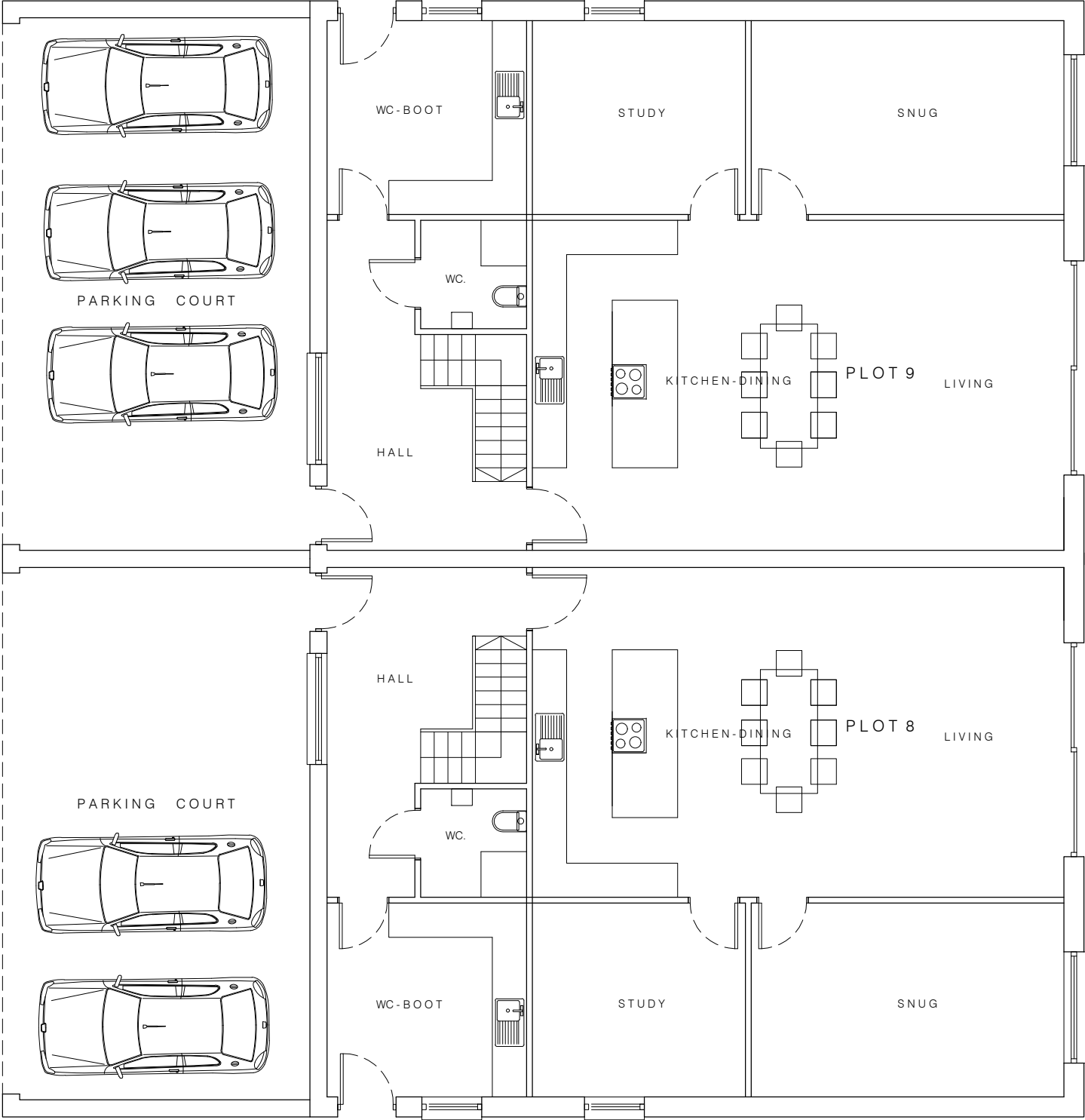
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JOB NUMBER RSD-24-17

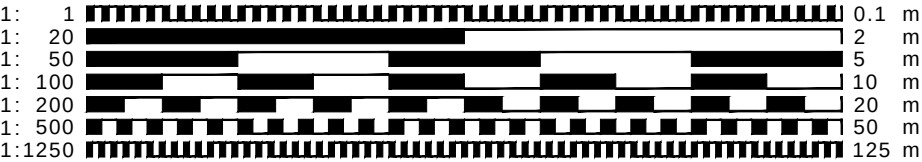
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Meppershall
Bedfordshire
sg17 5lp

telephone: 01462 807175, 07884008970
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e-mail: james/karen@redsheddesign.co.uk
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Proposed Ground Floor Plan (GRAIN STORE BARN)

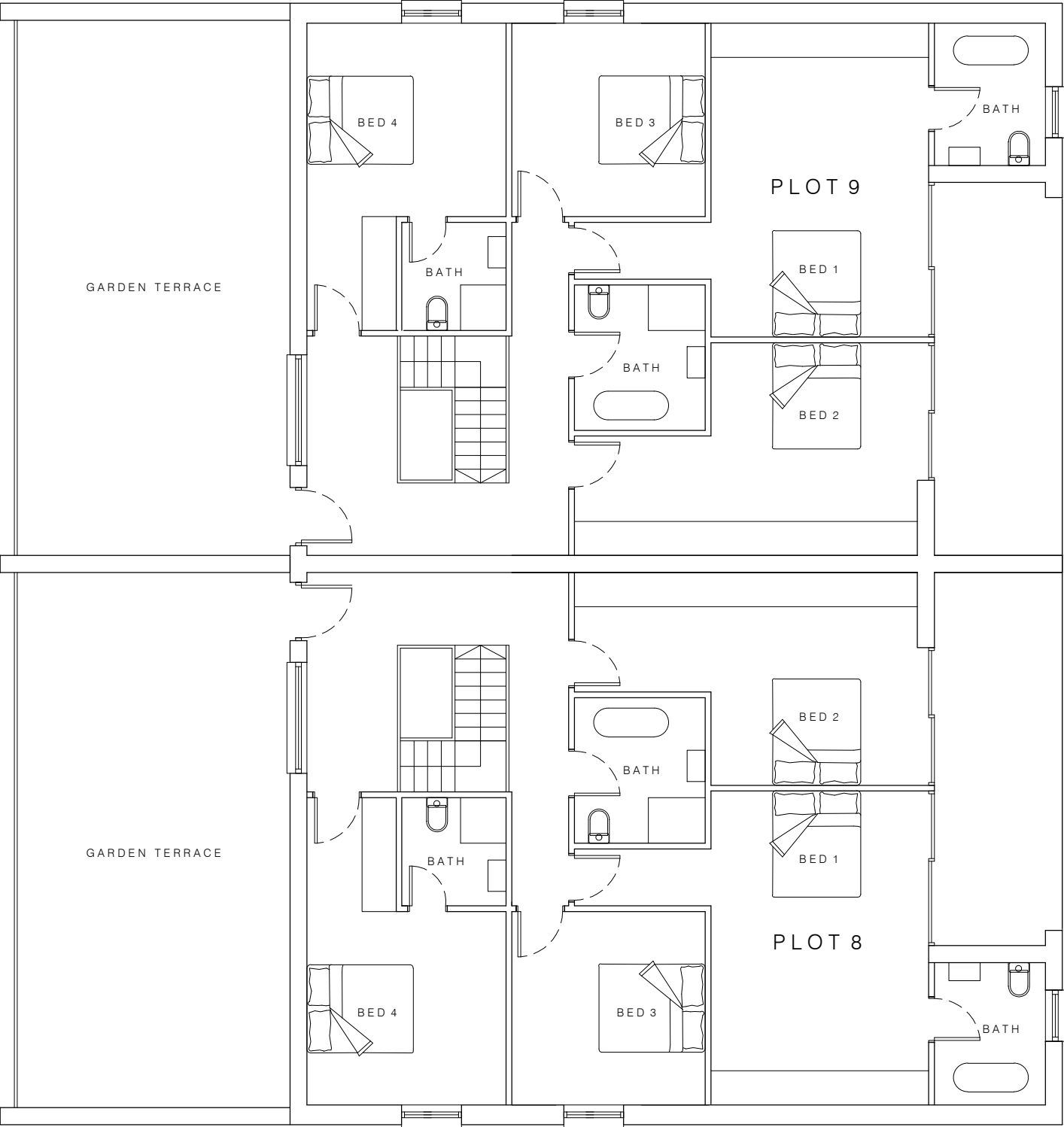


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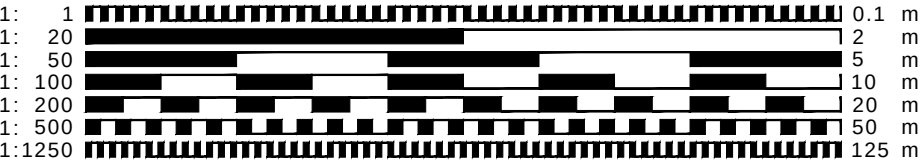


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Proposed Residential Development
Slip End Farm, Slip End, Baldock,
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GRAIN STORE PLOTS 8 & 9
Proposed Ground Floor
SCALE: 1:100@A3 DRAWING NUMBER: P15 REVISION:
DATE: Sept 2025
DRAWN: JET
JOB NUMBER: RSD-24-17 CHECKED BY:
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SG17 5LP
telephone: 01462 807175, 07884008970
fax: 01462 807175
e-mail: james@redsheddesign.co.uk
www.redsheddesign.co.uk



Proposed First Floor Plan (GRAIN STORE BARN)

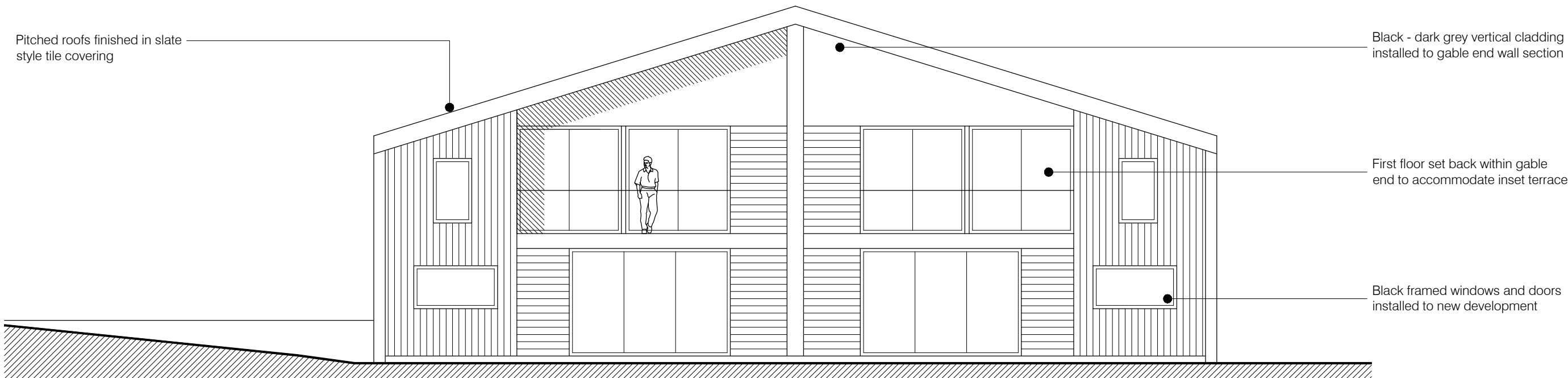


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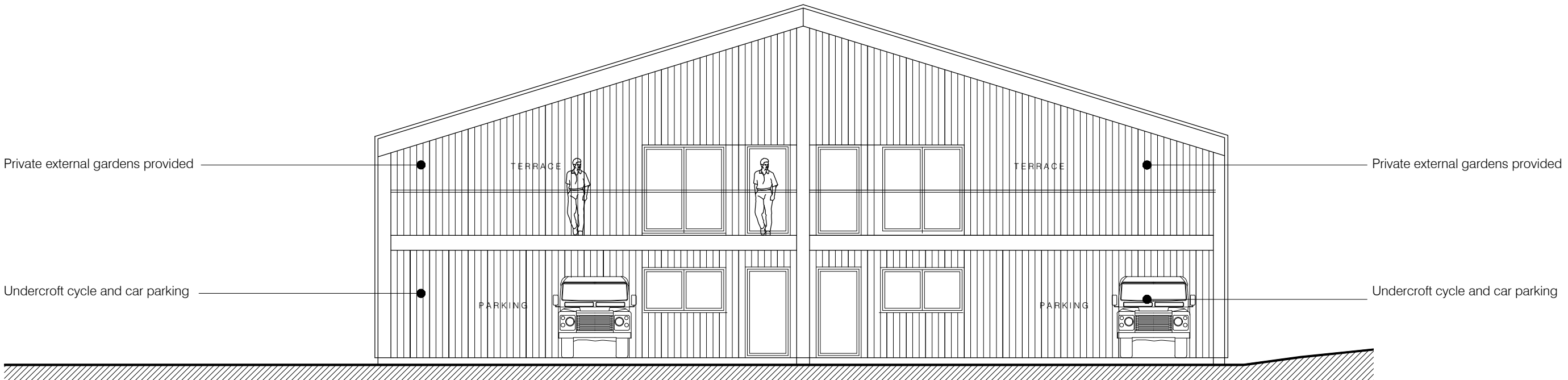


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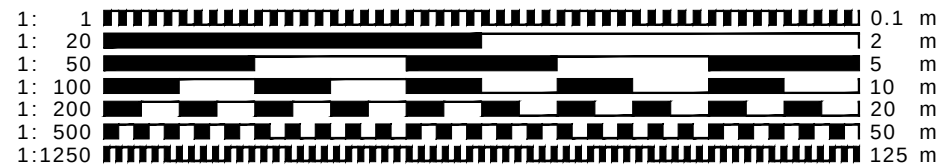
CONTRACT
Proposed Residential Development
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GRAIN STORE PLOTS 8 & 9
Proposed First Floor
SCALE 1:100@A3 DRAWING NUMBER REVISION
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Proposed North West Elevation



Proposed South East Elevation



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Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

GRAIN STORE PLOTS 8 & 9
Proposed Elevations

SCALE 1:100@A3 DRAWING NUMBER P17

DATE Sept 2025

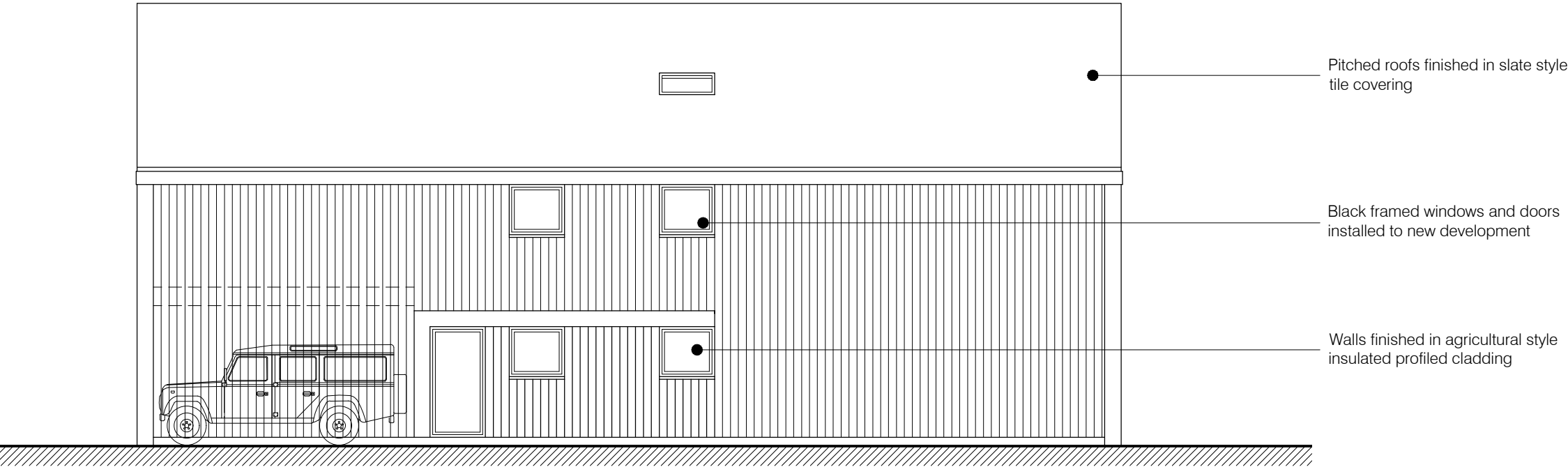
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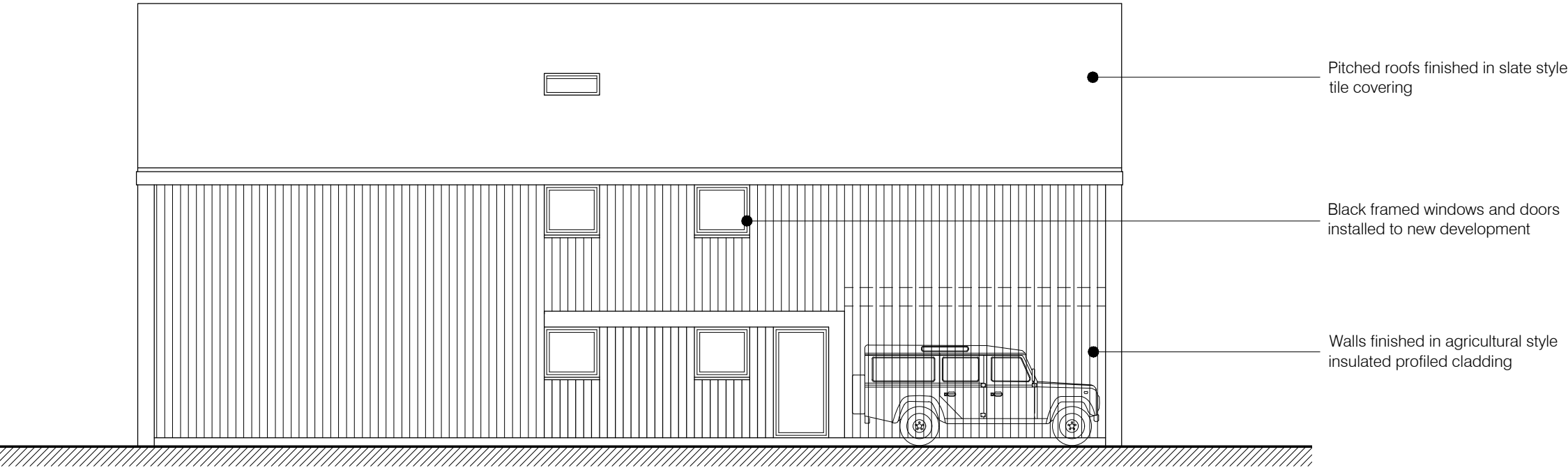
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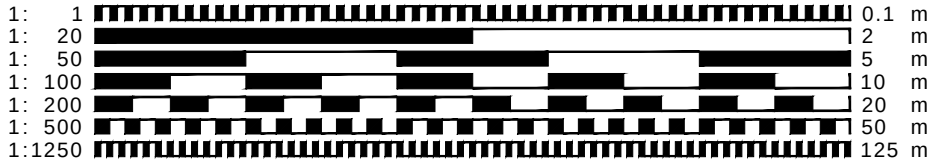
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Proposed North East Elevation



Proposed South West Elevation



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Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

GRAIN STORE PLOTS 8 & 9
Proposed Elevations

SCALE 1:100@A3 DRAWING NUMBER REVISION

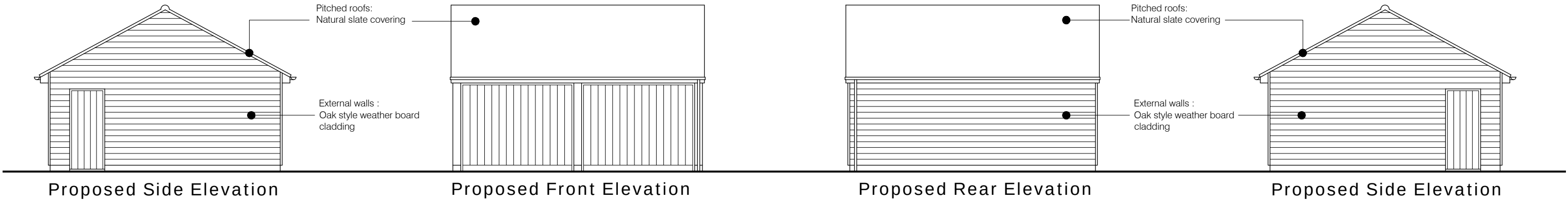
DATE Sept 2025 P18

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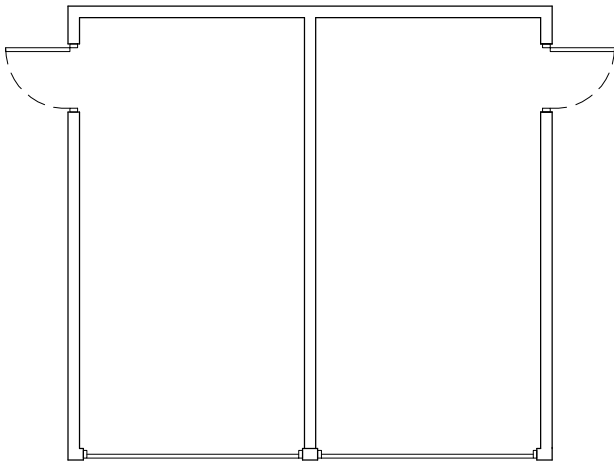
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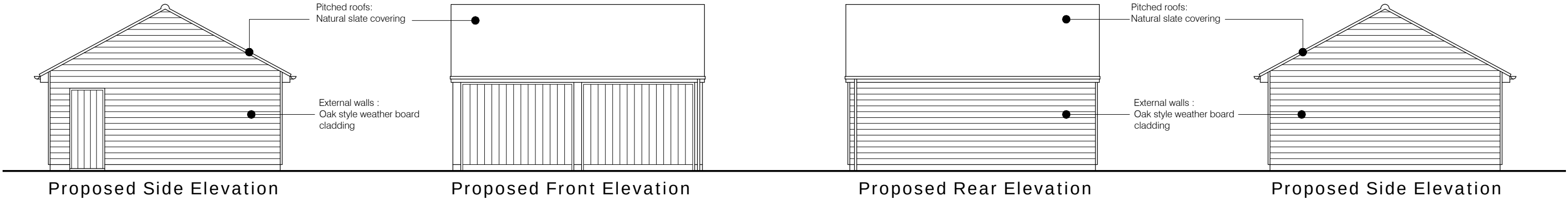
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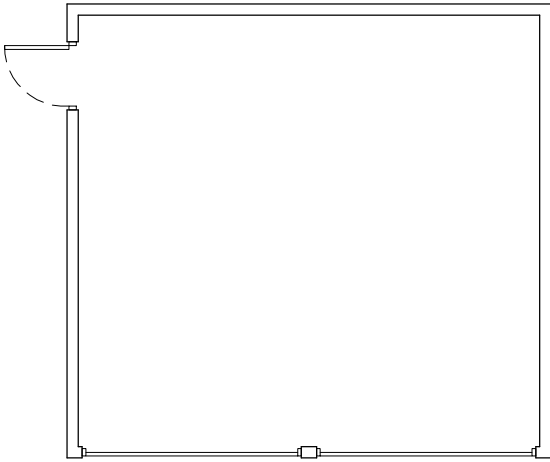
PLOTS 6 & 7



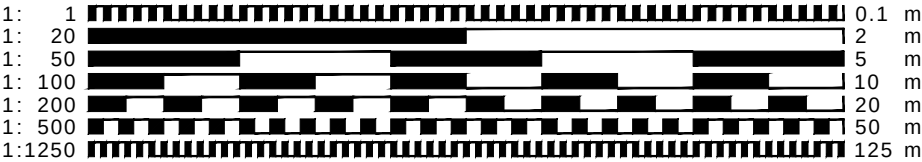
Proposed Floor Plan



PLOT 1



Proposed Floor Plan

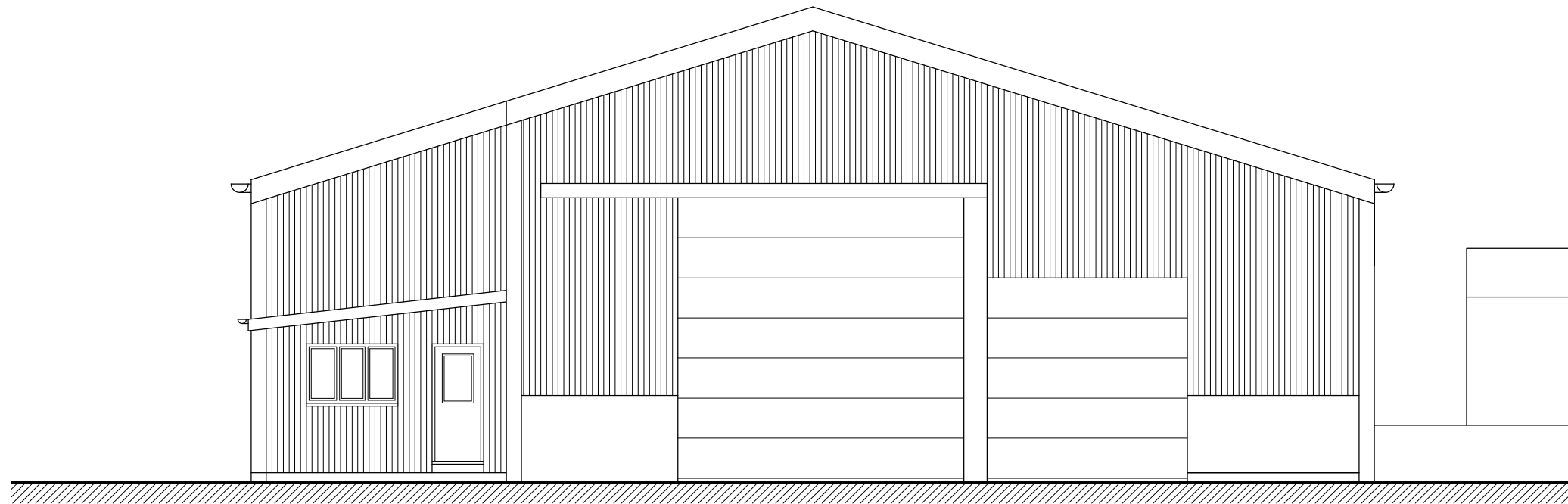


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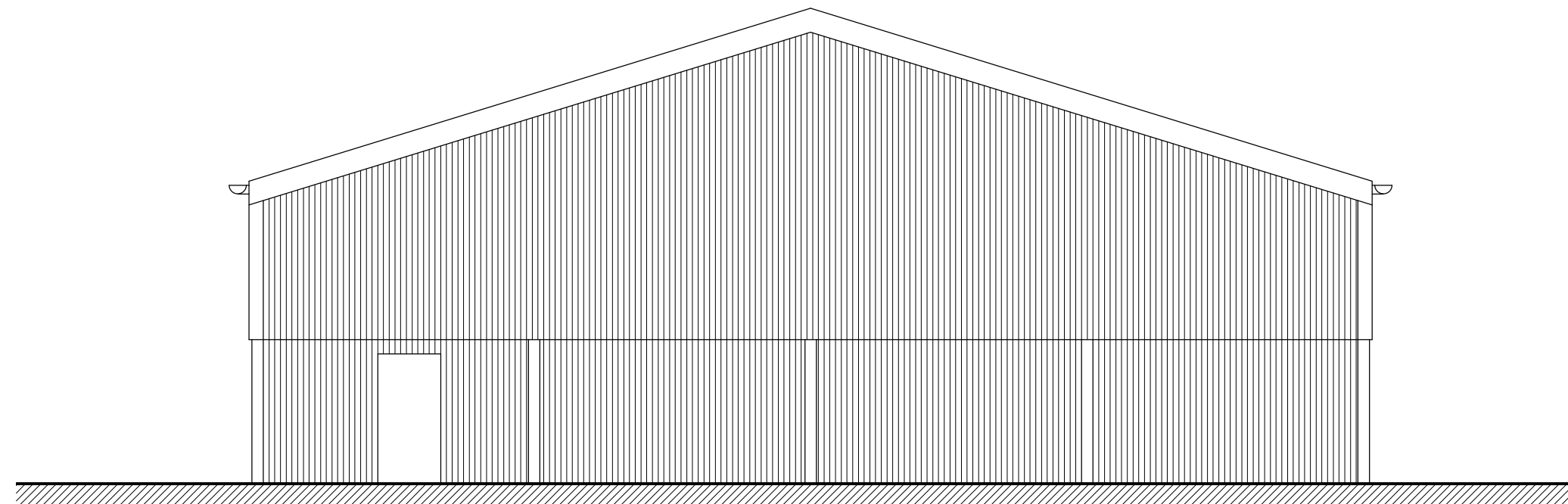


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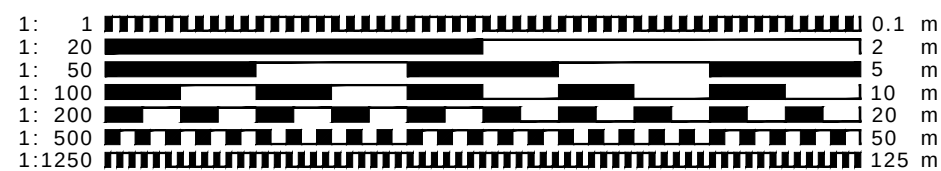
CONTRACT
Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire
PLOT 1, 6 & 7 GARAGES
Proposed Plans & Elevations
SCALE 1:100@A3 DRAWING NUMBER REVISION
DATE Sept 2025 P19
DRAWN JEI
JOB NUMBER RSD-24-17 CHECKED BY
redshed design telephone: 01462 807175, 07884008970
45 Hoo Road Meppershall Bedfordshire MK44 2LJ
e-mail: james@redsheddesign.co.uk www.redsheddesign.co.uk
sg17 slip



Existing South East Elevation



Existing North West Elevation



- o CLIENT MUST SEEK SEPARATE SPECIALIST ADVICE ON PARTY WALL MATTER IN SUFFICIENT TIME TO SERVE ALL NOTICES IF REQUIRED
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FOR APPROVAL

CONTRACT
Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

GRAIN STORE
Existing Elevations

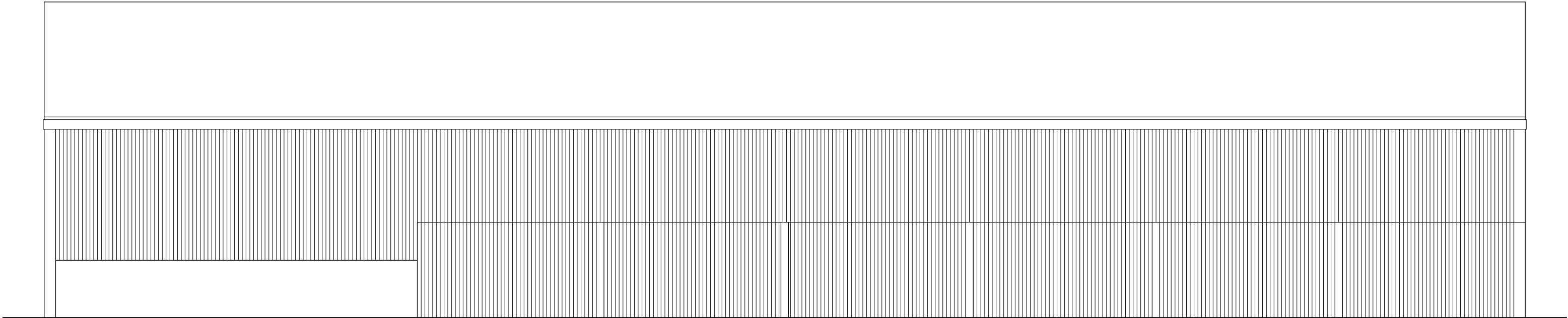
SCALE 1:100@A3 DRAWING NUMBER REVISION

DATE Sept 2025 P20

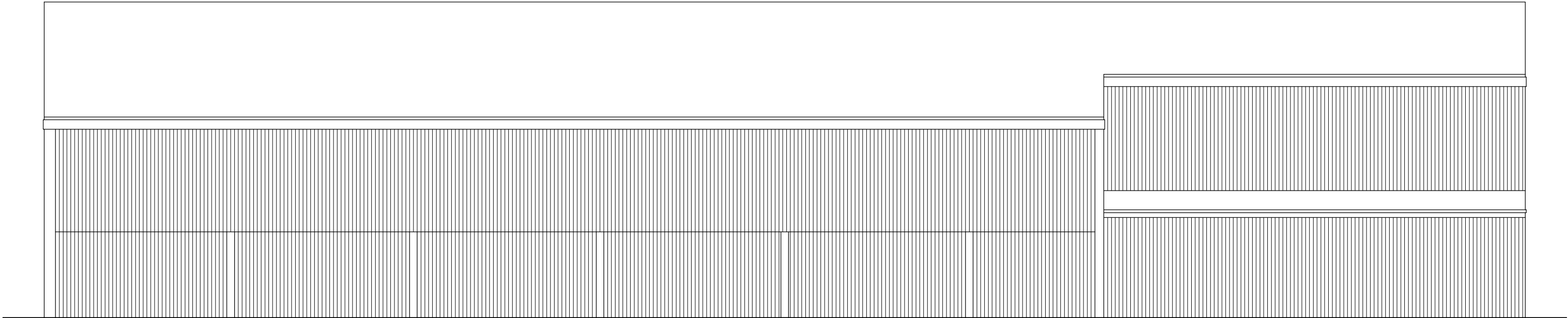
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JOB NUMBER RSD-24-17 CHECKED BY

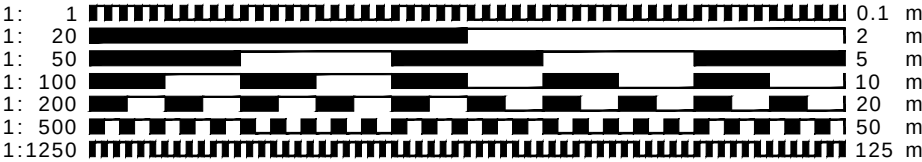
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45 Hoo Road Meppershall Bedfordshire sg17 5ip
e-mail: james@redsheddesign.co.uk
www.redsheddesign.co.uk



Existing North East Elevation



Exiting South West Elevation



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FOR APPROVAL

CONTRACT
Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

GRAIN STORE
Existing Elevations

SCALE 1:100@A3 DRAWING NUMBER P21 REVISION

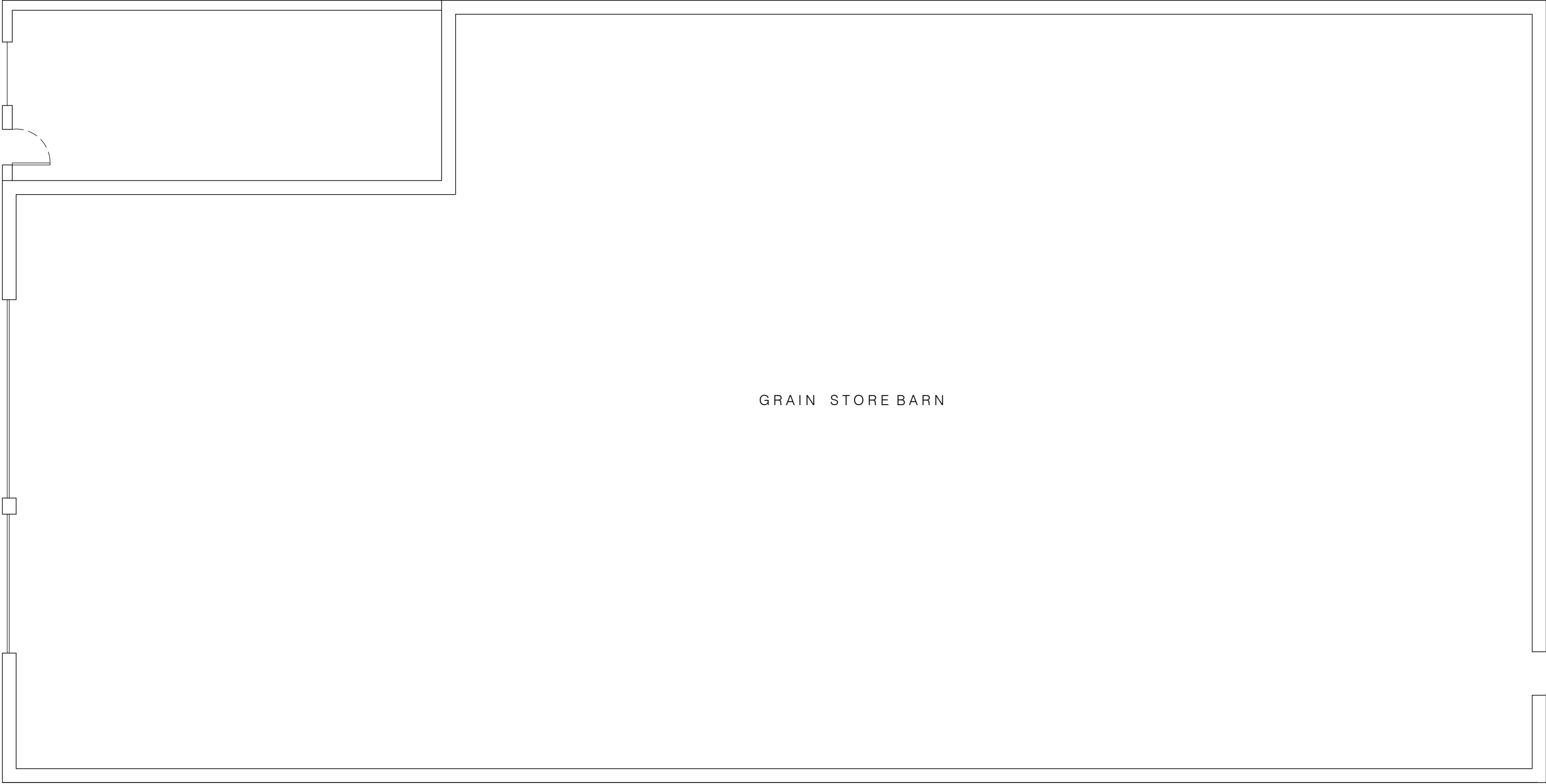
DATE Sept 2025 P21

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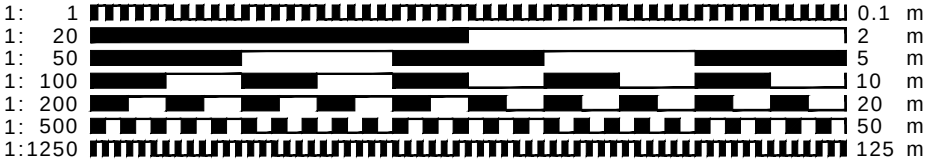
JOB NUMBER RSD-24-17 CHECKED BY

redshed design
45 Hoo Road
Meppershall
Bedfordshire
SG17 5JP

telephone: 01462 807175, 07884008970
fax: 01462 807175
e-mail: james@redshedesign.co.uk
www.redsheddesign.co.uk



Existing Ground Floor Plan (GRAIN STORE)



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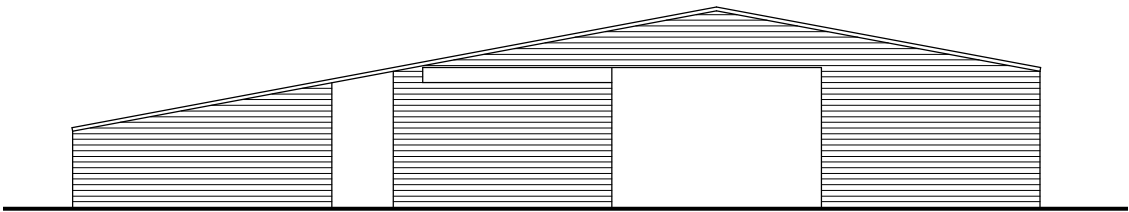
FOR APPROVAL

CONTRACT
Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

GRAIN STORE
Existing Floor Plan

SCALE	1:100@A3	DRAWING NUMBER	REVISION
DATE	Sept 2025	P22	
DRAWN	JEI		
JOB NUMBER	RSD-24-17	CHECKED BY	

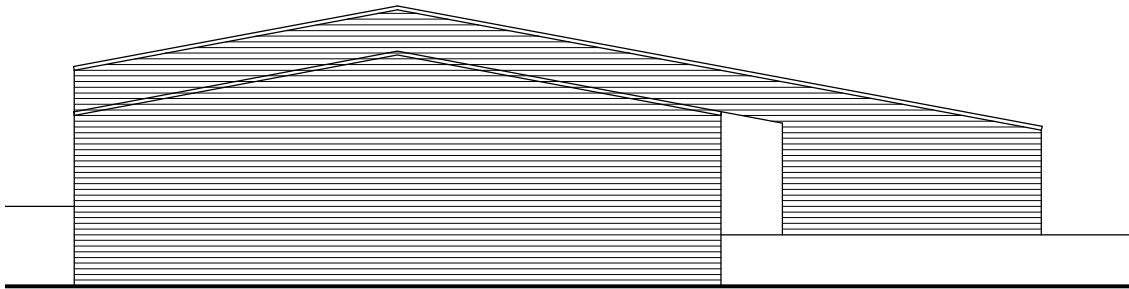
redshed design
45 Hoo Road
Meppershall
Bedfordshire
sg17 5lp
telephone: 01462 807175, 07884008970
fax: 01462 807175
e-mail: james/karen@redsheddesign.co.uk
www.redsheddesign.co.uk



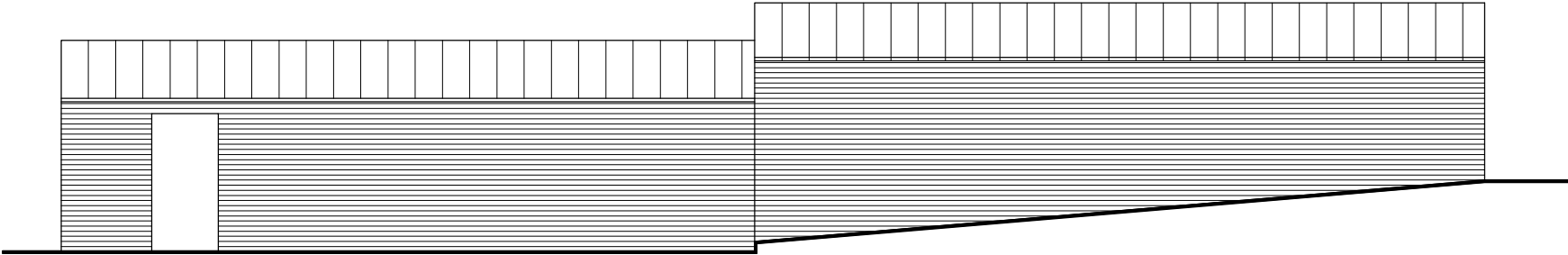
Existing Front Elevation



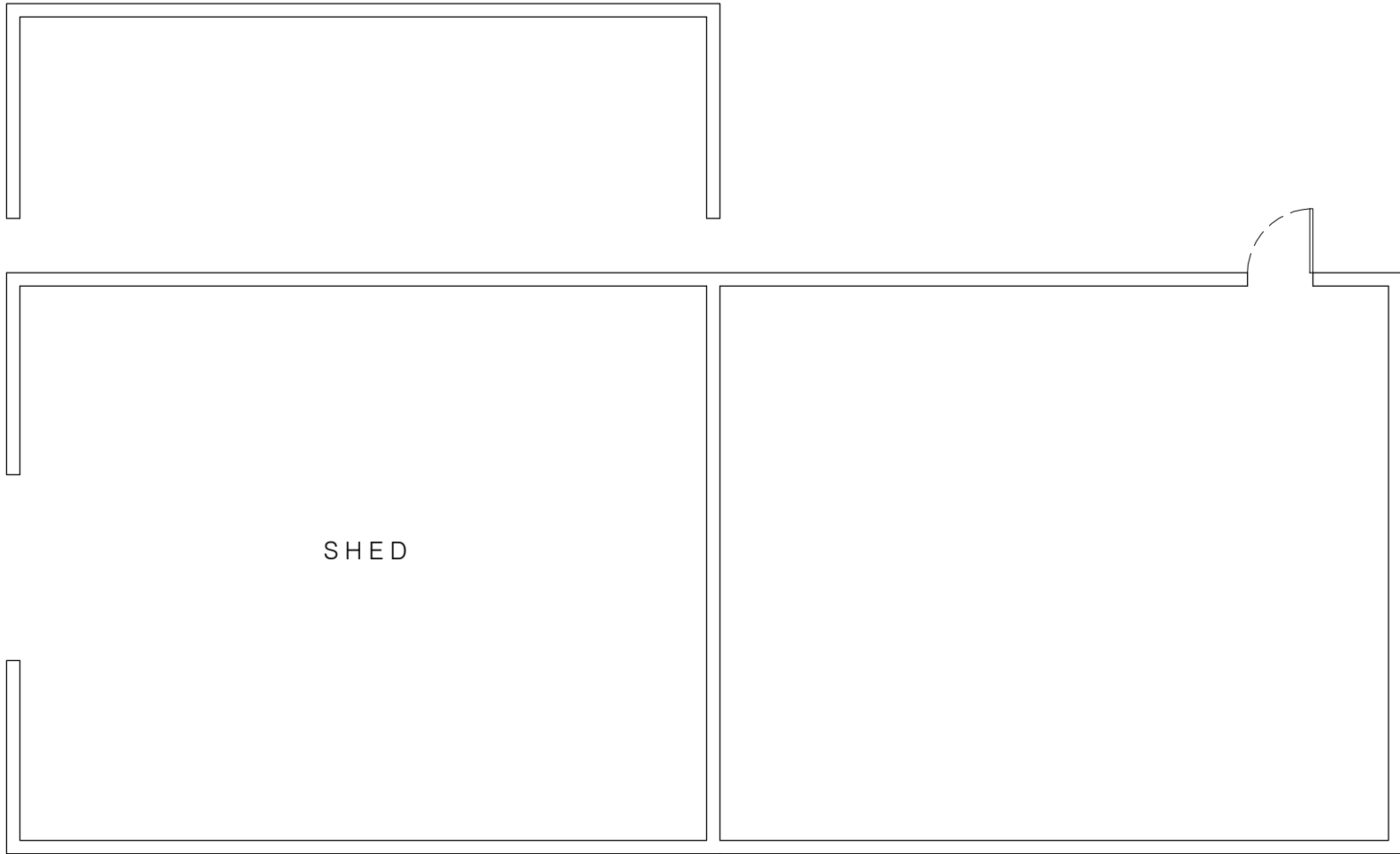
Existing Side Elevation



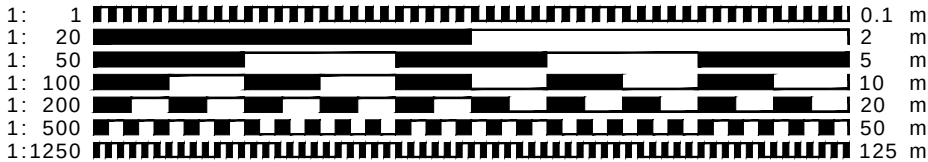
Existing Rear Elevation



Existing Rear Elevation



Existing Floor Plan



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FOR APPROVAL

CONTRACT
Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

SHED 1
Existing Elevations & Plan

SCALE 1:100@A3 DRAWING NUMBER P23

DATE Sept 2025

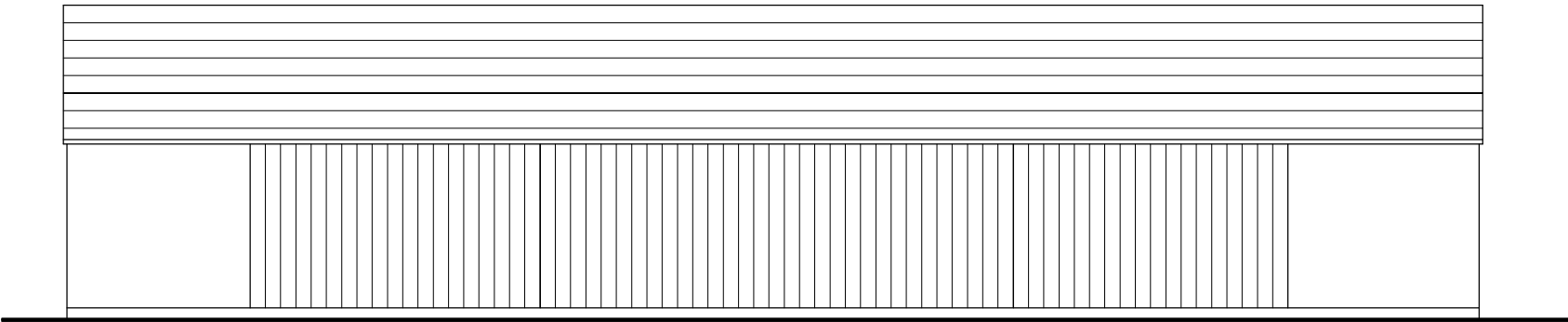
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JOB NUMBER RSD-24-17

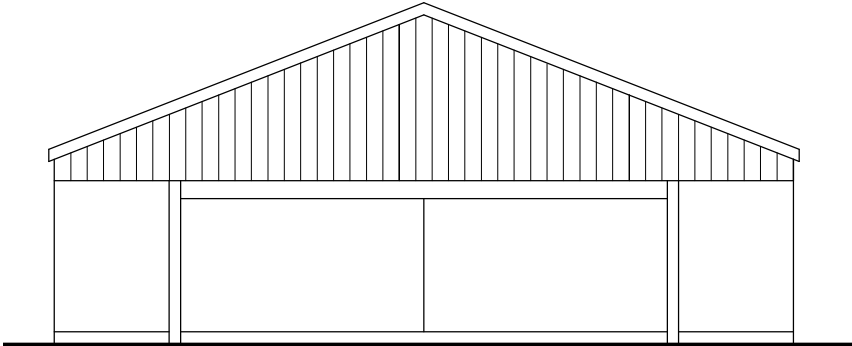
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Meppershall
Bedfordshire
sg17 5lp

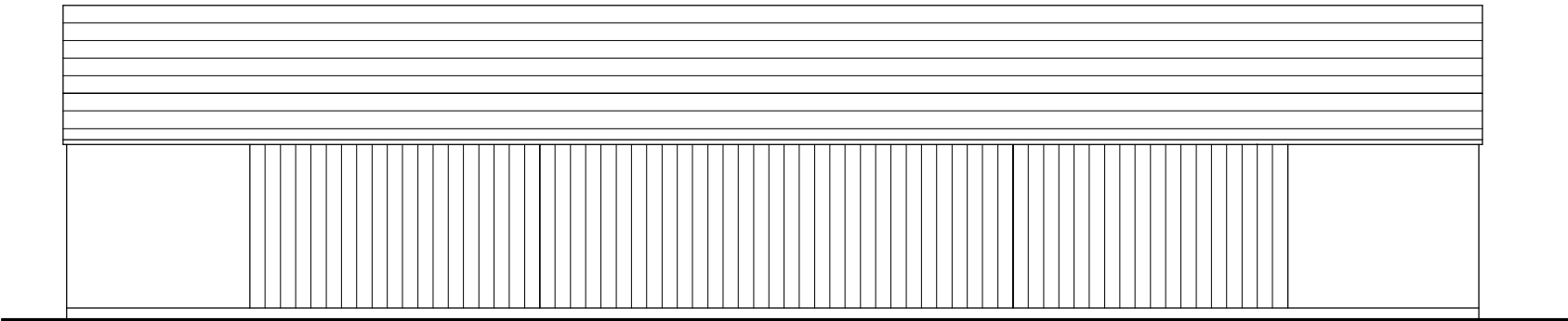
telephone: 01462 807175.07884008970
fax: 01462 807175
e-mail: james/karen@redsheddesign.co.uk
www.redsheddesign.co.uk



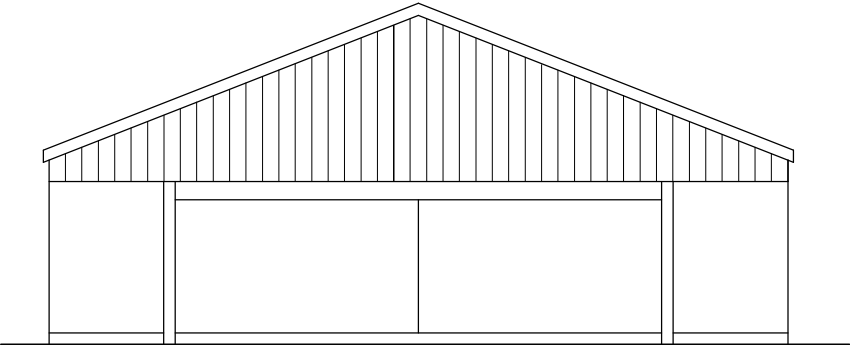
Existing Front Elevation



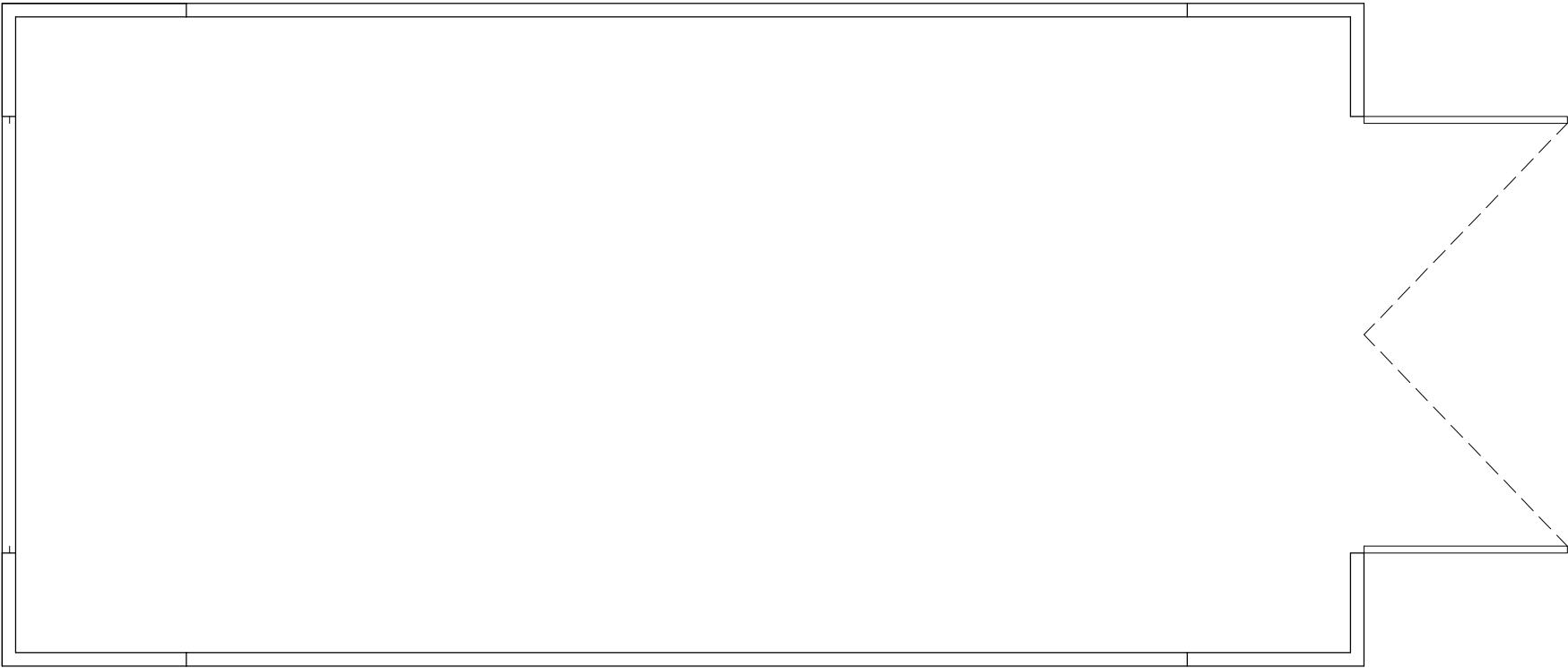
Existing Side Elevation



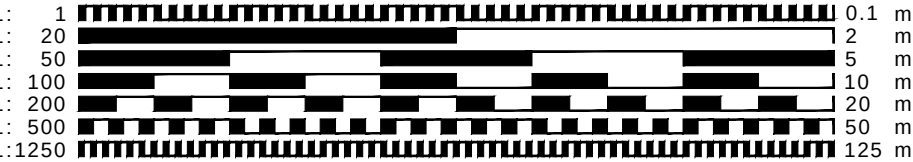
Existing Rear Elevation



Existing Side Elevation



Existing Floor Plan



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FOR APPROVAL



CONTRACT
Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

SHED 2
Existing Shed Plans & Elevations

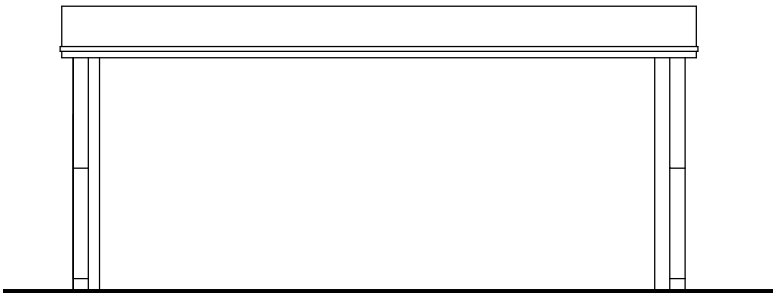
SCALE 1:100@A3 DRAWING NUMBER REVISION

DATE Sept 2025 P24

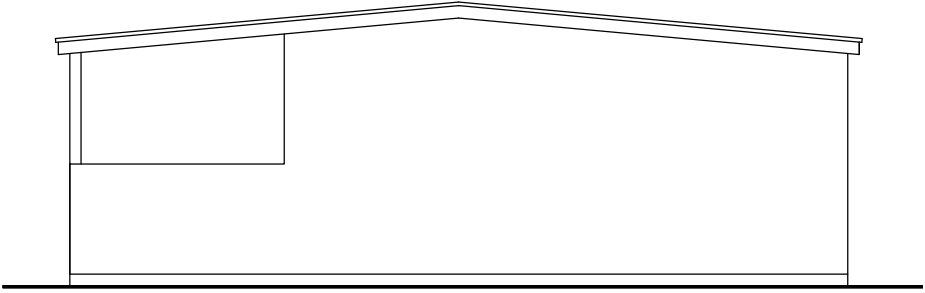
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JOB NUMBER RSD-24-17 CHECKED BY

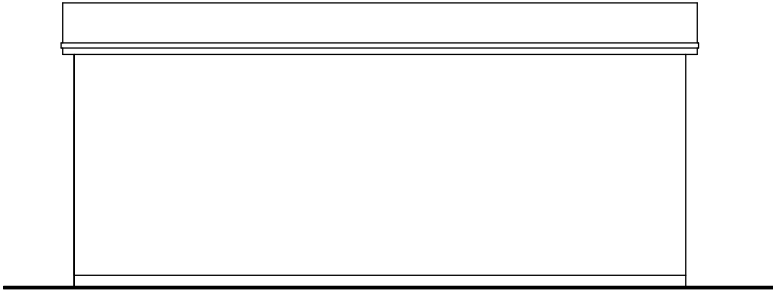
redshed design: 45 Hoo Road, Meppershall, Bedfordshire, SG17 5LP
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fax: 01462 807175
e-mail: james/karen@redsheddesign.co.uk
www.redsheddesign.co.uk



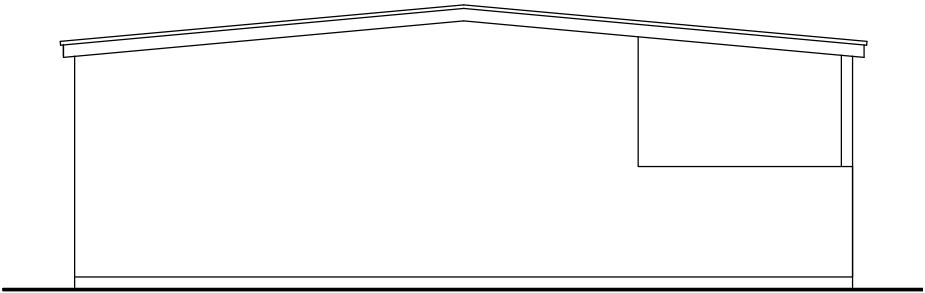
Existing Front Elevation



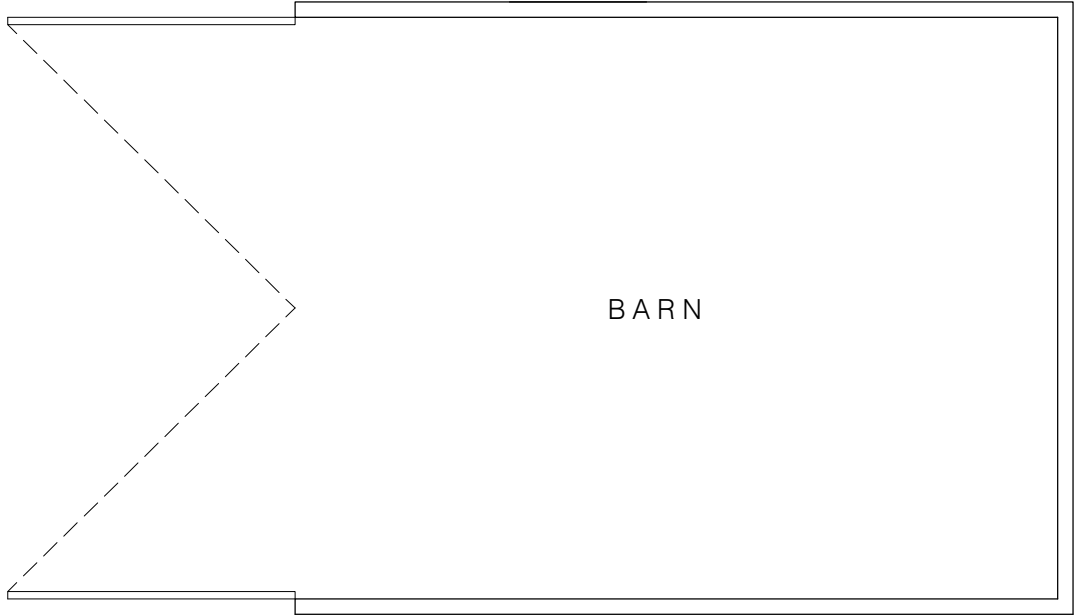
Existing Side Elevation



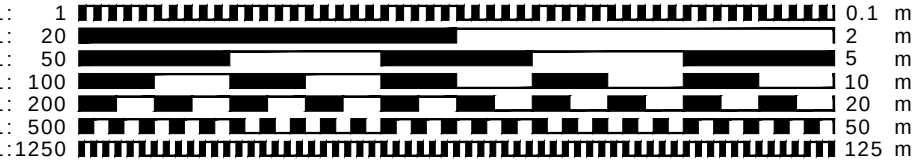
Existing Rear Elevation



Existing Side Elevation



Existing Floor Plan



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FOR APPROVAL

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Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

SHED 3
Existing Elevations & Plan

SCALE 1:100@A3 DRAWING NUMBER P25

DATE Sept 2025

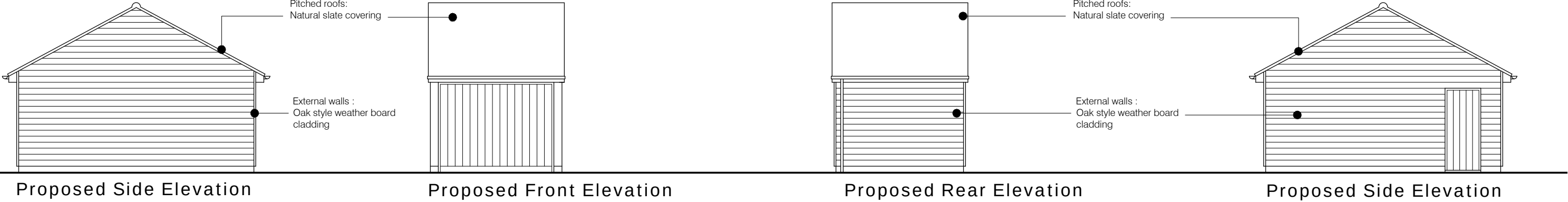
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JOB NUMBER RSD-24-17

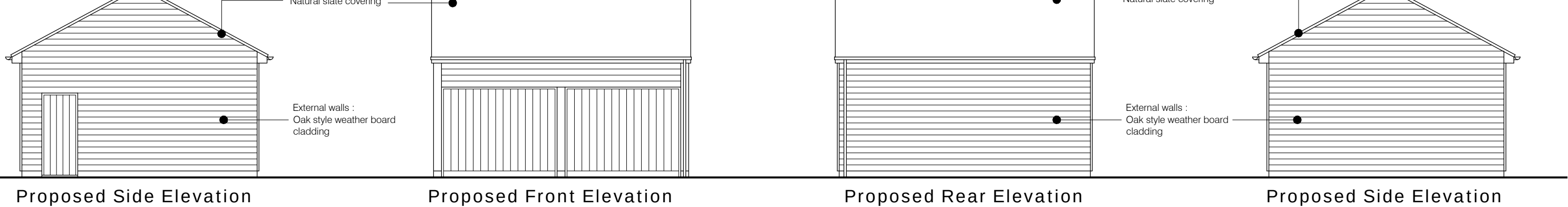
CHECKED BY

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telephone: 01462 807175 07884008970
fax: 01462 807175
e-mail: james/karen@redsheddesign.co.uk
www.redsheddesign.co.uk

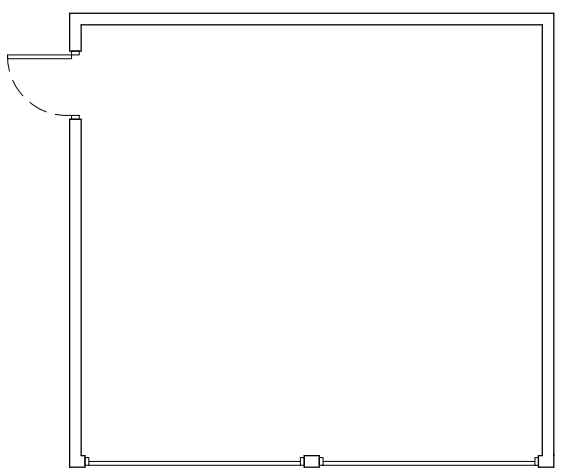
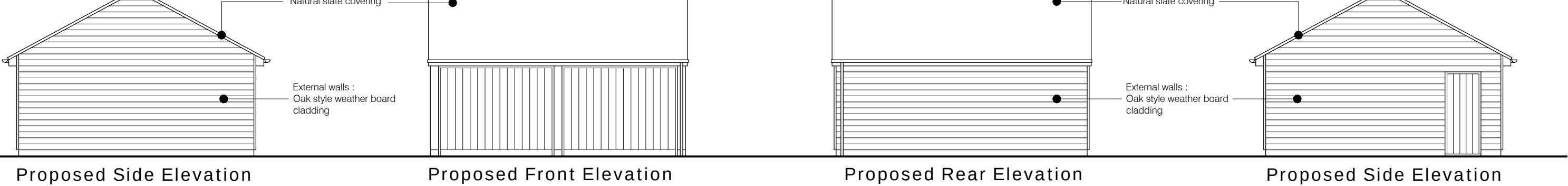
PLOTS 2 & 3



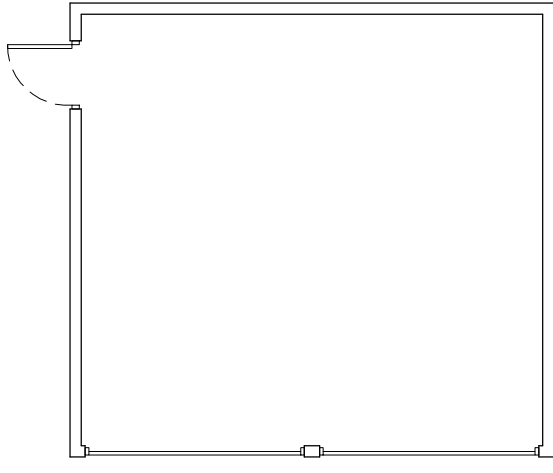
PLOT 4



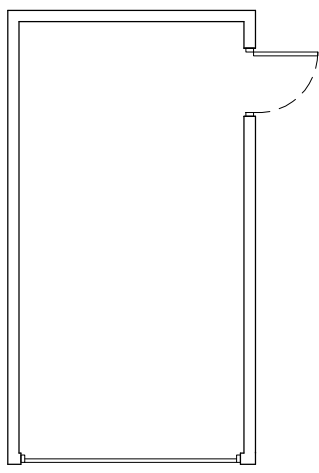
PLOT 5



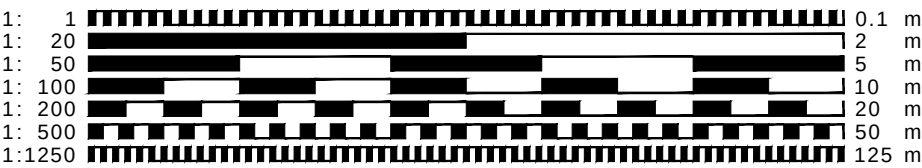
Proposed Floor Plan (Plot 4)



Proposed Floor Plan (Plot 5)



Proposed Floor Plan (Plots 2 & 3)



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Proposed Residential Development
Slip End Farm, Slip End, Baldock,
Hertfordshire

PLOT 2,3,4 & 5 GARAGES
Proposed Plans & Elevations

SCALE 1:100@A3 DRAWING NUMBER REVISION

DATE Sept 2025 P19 / 2

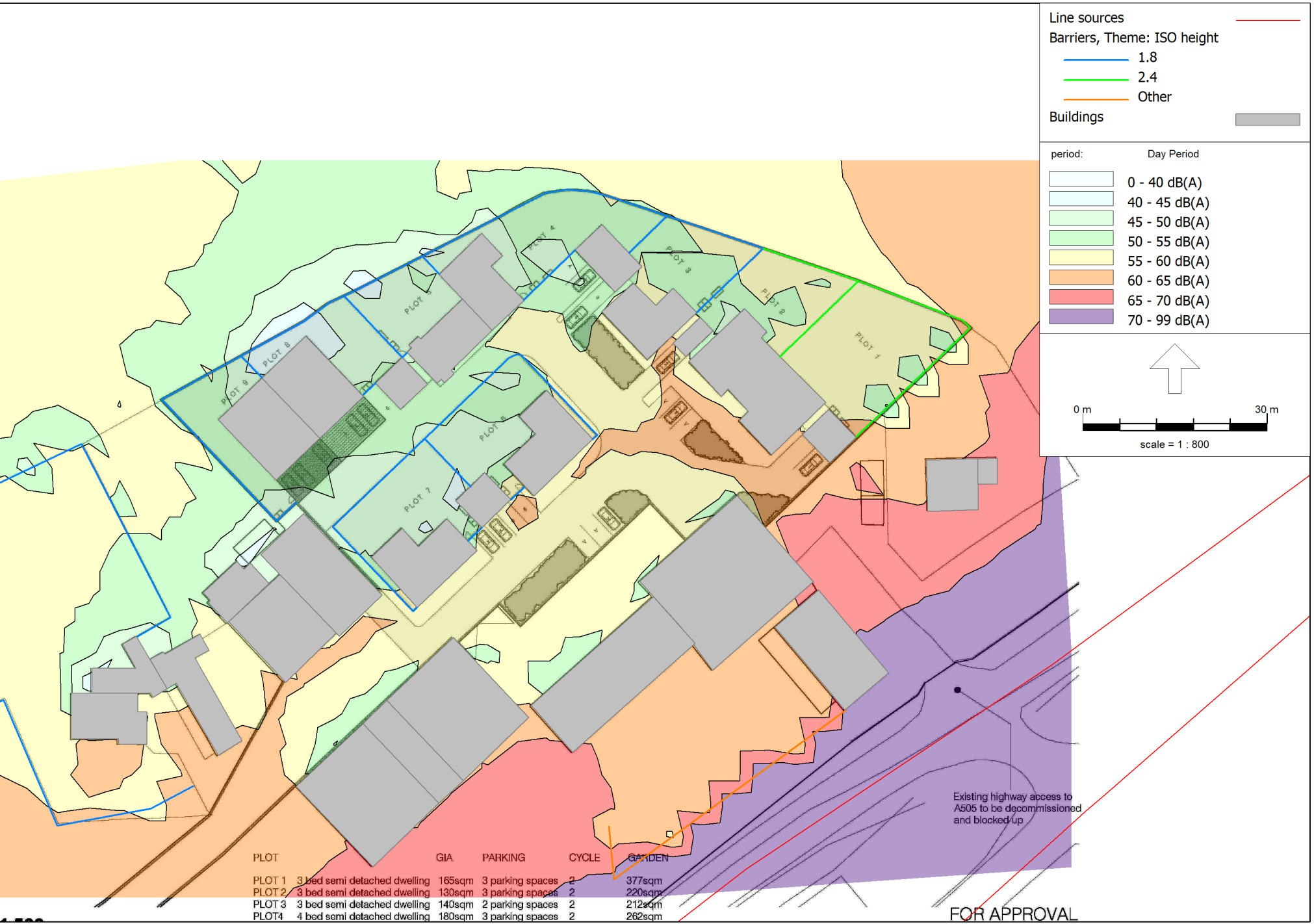
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JOB NUMBER RSD-24-17 CHECKED BY

redshed design telephone: 01462 807175, 07884008970
45 Hoo Road fax: 01462 807175
Meppershall e-mail: james@redsheddesign.co.uk
Bedfordshire www.redsheddesign.co.uk
sg17 5lp

A P P E N D I X C

Environmental Noise Prediction Model



Slip End Daytime LAeq

Report: Table of Results
 Model: LAeq, 16hr - Daytime 2026
 LAeq per octave: total results for receivers
 Group: (main group)
 Group Reduction: No

Name Receiver	Height	Day Total	31	63	125	250	500	1000	2000	4000	8000
1&2_B	4.50	63	--	33	39	45	51	61	58	45	30
1&2_B	4.50	63	--	34	40	45	52	61	57	44	28
1&2_A	1.50	62	--	33	39	42	48	59	57	45	30
1&2_B	4.50	61	--	32	38	43	50	58	55	42	25
1&2_B	4.50	60	--	32	38	42	48	58	55	42	23
1&2_A	1.50	60	--	32	38	40	47	58	55	42	25
1&2_B	4.50	59	--	31	37	41	47	57	55	41	22
1&2_A	1.50	59	--	33	38	38	44	57	55	42	27
Plot 6_A	1.50	58	--	33	39	40	47	56	53	37	16
Plot 4_B	4.50	58	--	29	35	39	48	56	52	38	17
Plot 7_A	1.50	58	--	33	39	42	48	56	51	35	12
1&2_B	4.50	58	--	30	36	40	47	56	51	36	12
Plot 4_B	4.50	57	--	29	35	40	45	55	52	38	17
Plot 4_B	4.50	57	--	31	37	42	47	55	51	36	12
1&2_A	1.50	57	--	31	36	37	45	55	52	37	15
Plot 3_B	4.50	57	--	31	37	40	46	54	51	38	20
Plot 3_A	1.50	57	--	31	36	39	45	55	51	35	10
Plot 9_B	4.50	57	--	29	35	39	45	54	51	36	13
Plot 3_B	4.50	56	--	30	35	39	45	54	51	37	15
1&2_A	1.50	56	--	30	35	37	43	54	50	34	10
Plot 4_B	4.50	56	--	29	34	38	44	54	51	36	13
Plot 3_A	1.50	55	--	31	37	38	43	53	50	37	19
Plot 4_A	1.50	55	--	31	36	37	42	51	51	37	17
1&2_B	4.50	54	--	29	34	38	44	52	48	34	12
1&2_A	1.50	53	--	31	35	36	42	51	48	31	8
Plot 3_B	4.50	53	--	29	33	37	43	51	47	30	4
Plot 4_A	1.50	53	--	28	33	35	41	51	48	33	11
Plot 6_A	1.50	53	--	30	35	37	42	51	46	31	9
Plot 5_A	1.50	53	--	30	35	38	43	51	46	29	5
Plot 9_A	1.50	52	--	28	33	35	41	50	46	32	7
Plot 6_B	4.50	52	--	26	29	33	42	50	46	31	7
Plot 3_A	1.50	52	--	28	31	32	38	50	46	29	4
Plot 3_A	1.50	52	--	29	33	34	40	50	45	29	5
Plot 5_A	1.50	51	--	29	34	36	42	49	44	26	1
Plot 4_A	1.50	51	--	27	31	33	41	49	44	30	7
Plot 4_A	1.50	50	--	28	33	35	40	48	44	29	7
Plot 7_B	4.50	50	--	24	27	34	39	48	44	29	7
Plot 7_A	1.50	50	--	28	33	35	40	47	43	28	6
Plot 6_A	1.50	48	--	22	25	28	37	46	42	25	3
Plot 3_B	4.50	46	--	28	31	34	38	44	39	23	3
Plot 5_B	4.50	46	--	25	28	32	38	44	38	21	-1
Plot 6_A	1.50	46	--	24	27	28	33	44	40	24	3
Plot 8_B	4.50	46	--	27	31	33	39	43	38	21	3
Plot 6_A	1.50	45	--	23	25	28	36	43	38	24	4
Plot 9_A	1.50	45	--	23	25	24	28	37	44	30	6
1&2_A	1.50	45	--	27	30	30	35	43	38	24	4
Plot 7_A	1.50	44	--	23	25	30	35	42	38	24	4
Plot 3_A	1.50	43	--	26	28	27	30	39	41	26	4
Plot 4_B	4.50	43	--	25	28	31	35	41	36	19	-2
Plot 8_A	1.50	43	--	25	29	30	34	40	38	22	-1

All shown dB values are A-weighted

Slip End
Daytime LAeq

Report: Table of Results
Model: LAeq, 16hr - Daytime 2026
LAeq per octave: total results for receivers
Group: (main group)
Group Reduction: No

Name		Day										
Receiver	Height	Total	31	63	125	250	500	1000	2000	4000	8000	
Plot 7_A	1.50	42	--	22	25	30	33	39	37	23	4	
Plot 9_B	4.50	42	--	25	27	30	34	40	35	19	-3	
Plot 7_A	1.50	42	--	23	26	29	33	39	36	23	4	
Plot 5_B	4.50	41	--	24	27	29	33	38	34	19	-1	
Plot 8_B	4.50	40	--	24	26	28	32	37	33	19	-4	
Plot 4_A	1.50	39	--	21	23	24	27	37	34	19	-2	
Plot 8_A	1.50	39	--	21	22	23	26	36	34	20	-2	
Plot 5_A	1.50	38	--	22	24	24	27	36	33	19	-2	
Plot 5_A	1.50	38	--	20	23	24	27	35	33	19	-2	

All shown dB values are A-weighted

Slip End Nighttime LAeq

Report: Table of Results
 Model: LAeq, 8hr - Nighttime 2026
 LAeq per octave: total results for receivers
 Group: (main group)
 Group Reduction: No

Name Receiver	Height	Night Total	31	63	125	250	500	1000	2000	4000	8000
1&2_B	4.50	58	--	29	35	40	47	56	52	40	23
1&2_B	4.50	58	--	28	34	40	47	56	53	40	24
1&2_A	1.50	57	--	28	34	37	44	55	52	40	24
1&2_B	4.50	56	--	26	32	38	45	54	50	37	18
1&2_B	4.50	56	--	26	33	38	45	53	50	37	19
1&2_A	1.50	55	--	27	33	35	43	53	50	37	20
1&2_A	1.50	55	--	28	33	33	41	53	50	38	21
1&2_B	4.50	55	--	26	32	37	44	53	50	36	17
Plot 6_A	1.50	54	--	28	34	36	43	52	48	33	11
1&2_B	4.50	53	--	25	31	36	43	51	47	31	7
Plot 4_B	4.50	53	--	24	30	36	42	51	47	33	11
Plot 7_A	1.50	53	--	28	34	37	43	51	46	30	7
Plot 4_B	4.50	53	--	23	28	33	43	51	47	32	11
Plot 4_B	4.50	53	--	26	32	37	43	51	46	30	6
Plot 3_B	4.50	52	--	24	30	36	42	50	46	32	10
Plot 3_B	4.50	52	--	26	32	36	42	50	47	33	14
1&2_A	1.50	52	--	26	31	34	42	50	46	31	9
Plot 9_B	4.50	52	--	24	30	35	42	50	46	31	8
Plot 3_A	1.50	52	--	26	31	34	41	50	46	30	5
1&2_A	1.50	52	--	25	31	32	39	50	45	29	5
Plot 3_A	1.50	51	--	26	32	33	39	48	46	32	14
Plot 4_B	4.50	50	--	24	29	33	40	48	44	29	4
Plot 4_A	1.50	50	--	26	31	32	37	47	46	32	12
1&2_B	4.50	49	--	23	29	33	40	47	44	29	7
1&2_A	1.50	49	--	26	31	33	39	47	43	26	3
Plot 3_B	4.50	49	--	24	28	34	40	47	42	25	-1
Plot 4_A	1.50	49	--	23	28	31	37	47	43	28	6
Plot 6_A	1.50	48	--	25	31	33	38	46	42	27	4
Plot 5_A	1.50	48	--	25	30	33	38	46	41	24	0
Plot 9_A	1.50	48	--	23	28	31	37	46	42	28	2
Plot 3_A	1.50	48	--	23	27	29	36	46	41	24	-1
Plot 4_A	1.50	48	--	22	26	28	37	46	41	27	6
Plot 6_B	4.50	47	--	21	24	28	38	45	41	26	2
Plot 3_A	1.50	47	--	24	28	31	37	45	41	24	0
Plot 5_A	1.50	46	--	23	29	32	37	44	39	21	-4
Plot 7_A	1.50	45	--	23	28	30	36	43	39	23	1
Plot 7_B	4.50	45	--	19	22	30	35	43	39	24	2
Plot 4_A	1.50	44	--	23	27	30	35	42	36	19	-6
Plot 6_A	1.50	43	--	18	20	23	32	42	37	20	-3
Plot 3_B	4.50	42	--	22	26	30	34	40	34	18	-2
Plot 5_B	4.50	42	--	20	24	28	34	40	34	16	-7
1&2_A	1.50	42	--	22	25	25	30	38	38	22	-1
Plot 8_B	4.50	41	--	22	26	29	34	39	33	16	-2
Plot 6_A	1.50	41	--	19	22	23	29	39	35	19	-2
Plot 6_A	1.50	41	--	17	20	23	32	39	34	19	-2
Plot 9_A	1.50	40	--	18	20	19	22	31	39	25	0
Plot 7_A	1.50	40	--	18	20	26	32	37	33	19	-1
Plot 3_A	1.50	39	--	20	23	22	26	34	36	21	-1
Plot 4_B	4.50	39	--	20	23	27	31	37	31	14	-8
Plot 8_A	1.50	38	--	20	24	25	29	35	33	18	-6

All shown dB values are A-weighted

Slip End
Nighttime LAeq

Report: Table of Results
Model: LAeq, 8hr - Nighttime 2026
LAeq per octave: total results for receivers
Group: (main group)
Group Reduction: No

Name		Night									
Receiver	Height	Total	31	63	125	250	500	1000	2000	4000	8000
Plot 7_A	1.50	38	--	17	20	25	28	35	32	18	-2
Plot 9_B	4.50	37	--	19	22	25	29	35	30	14	-9
Plot 7_A	1.50	37	--	18	21	24	28	34	31	18	-1
Plot 5_B	4.50	36	--	19	22	25	28	33	29	14	-7
Plot 8_B	4.50	36	--	19	21	23	27	33	28	13	-9
Plot 4_A	1.50	35	--	16	18	19	22	33	29	14	-8
Plot 8_A	1.50	34	--	16	17	18	21	32	29	14	-8
Plot 5_A	1.50	34	--	17	20	20	23	31	28	14	-7
Plot 5_A	1.50	33	--	16	18	19	22	30	28	14	-7

All shown dB values are A-weighted

Slip End

Nighttime Typical LAFmax

Report: Table of Results
Model: LAFmax - Nighttime 2026
LA;max: total results for receivers
Group: (main group)

Name		
Receiver	Height	Night
1&2_B	4.50	76
1&2_A	1.50	76
1&2_B	4.50	75
1&2_A	1.50	75
1&2_B	4.50	74
1&2_A	1.50	74
Plot 3_A	1.50	70
Plot 4_B	4.50	70
Plot 3_B	4.50	70
1&2_B	4.50	68
Plot 4_A	1.50	68
Plot 4_A	1.50	68
Plot 4_B	4.50	68
Plot 4_B	4.50	67
Plot 4_B	4.50	67
Plot 6_A	1.50	67
1&2_B	4.50	67
1&2_B	4.50	66
1&2_A	1.50	66
Plot 4_A	1.50	66
Plot 4_A	1.50	64
1&2_A	1.50	64
Plot 3_B	4.50	63
Plot 6_A	1.50	63
Plot 9_B	4.50	63
Plot 3_A	1.50	63
Plot 6_B	4.50	63
Plot 7_A	1.50	62
Plot 3_B	4.50	62
Plot 8_B	4.50	62
Plot 7_B	4.50	62
1&2_B	4.50	62
Plot 6_A	1.50	61
Plot 9_A	1.50	60
1&2_A	1.50	59
1&2_A	1.50	59
Plot 7_A	1.50	58
Plot 3_A	1.50	58
Plot 6_A	1.50	57
Plot 7_A	1.50	57
Plot 5_A	1.50	57
Plot 7_A	1.50	57
Plot 3_A	1.50	56
Plot 6_A	1.50	56
Plot 4_A	1.50	56
Plot 9_A	1.50	55
Plot 8_A	1.50	53
Plot 5_B	4.50	52
Plot 7_A	1.50	51
Plot 3_B	4.50	51
Plot 3_A	1.50	51

All shown dB values are A-weighted

Slip End
Nighttime Typical LAFmax

Report: Table of Results
Model: LAFmax - Nighttime 2026
LA;max: total results for receivers
Group: (main group)

Name		
Receiver	Height	Night
Plot 4_B	4.50	47
Plot 9_B	4.50	46
Plot 8_A	1.50	44
Plot 5_B	4.50	44
Plot 8_B	4.50	44
Plot 5_A	1.50	43
Plot 5_A	1.50	43
Plot 5_A	1.50	--
P1_A	3.00	--

All shown dB values are A-weighted

A P P E N D I X D

Farmyard Noise Prediction Model



Slip End
BS4142 Specific Sound Levels

Report: Table of Results
Model: BS4142 Assessment 2026
LAeq per octave: total results for receivers
Group: (main group)
Group Reduction: No

Name	Day										
Receiver	Height	Total	31	63	125	250	500	1000	2000	4000	8000
Plot 7_A	1.50	51	--	37	43	44	44	45	43	34	18
Plot 6_A	1.50	45	--	31	37	40	38	37	34	23	4
Plot 6_A	1.50	44	--	32	36	39	37	36	33	22	3
Plot 3_B	4.50	44	--	29	34	39	38	37	33	22	1
Plot 9_B	4.50	43	--	29	34	36	36	36	36	27	7
1&2_B	4.50	43	--	22	31	38	37	36	32	21	1
Plot 3_A	1.50	42	--	28	34	37	36	34	30	19	0
Plot 4_B	4.50	42	--	25	30	38	35	35	33	24	3
1&2_B	4.50	41	--	29	34	36	34	31	29	18	-1
Plot 3_A	1.50	41	--	28	33	36	34	32	29	18	-2
Plot 7_A	1.50	41	--	24	31	36	34	33	30	20	3
1&2_A	1.50	40	--	29	34	35	33	31	28	18	0
Plot 5_A	1.50	40	--	27	31	35	33	32	29	17	-4
Plot 9_A	1.50	39	--	26	32	32	32	32	31	22	2
1&2_A	1.50	39	--	28	32	34	31	29	27	17	-1
1&2_B	4.50	38	--	22	26	29	27	36	32	20	0
1&2_A	1.50	38	--	28	32	34	31	29	26	17	0
Plot 8_B	4.50	38	--	22	28	34	33	30	27	16	-4
1&2_A	1.50	38	--	27	32	34	31	28	26	16	-1
Plot 7_B	4.50	38	--	27	30	33	31	29	27	19	2
1&2_B	4.50	38	--	22	25	30	27	34	30	19	-2
Plot 5_A	1.50	37	--	26	30	32	30	28	25	14	-5
Plot 4_B	4.50	37	--	19	23	26	23	34	30	19	-4
Plot 7_A	1.50	36	--	23	26	32	29	28	27	19	2
Plot 7_A	1.50	36	--	24	26	31	28	28	27	19	2
Plot 6_B	4.50	36	--	26	28	29	28	28	26	17	0
Plot 7_A	1.50	35	--	24	27	30	27	27	27	19	2
Plot 8_A	1.50	35	--	19	26	31	29	27	25	15	-5
Plot 4_A	1.50	34	--	23	27	30	27	26	24	14	-5
Plot 3_B	4.50	33	--	20	24	28	26	25	24	15	-5
Plot 4_B	4.50	33	--	17	21	23	21	30	26	15	-6
Plot 3_B	4.50	33	--	20	24	27	27	25	23	14	-5
Plot 6_A	1.50	33	--	21	24	27	24	25	25	16	-1
Plot 3_B	4.50	32	--	20	24	27	25	25	24	14	-5
Plot 6_A	1.50	32	--	20	24	26	23	26	25	17	0
Plot 6_A	1.50	31	--	19	23	25	22	25	24	16	-2
Plot 5_B	4.50	31	--	20	23	25	23	25	23	14	-5
Plot 5_B	4.50	31	--	20	23	25	23	24	23	14	-6
1&2_A	1.50	31	--	20	23	24	22	25	24	14	-4
Plot 4_B	4.50	31	--	18	21	24	23	26	23	14	-6
1&2_A	1.50	31	--	19	23	25	22	23	24	15	-3
Plot 8_B	4.50	31	--	19	22	24	23	24	23	14	-7
1&2_A	1.50	30	--	19	22	24	21	24	23	14	-5
Plot 9_B	4.50	30	--	19	22	24	22	23	22	13	-7
Plot 3_A	1.50	30	--	17	21	23	21	24	23	14	-5
Plot 4_B	4.50	30	--	18	21	23	21	24	22	13	-8
Plot 3_A	1.50	30	--	17	21	23	21	23	23	14	-5
Plot 3_A	1.50	30	--	17	21	23	21	23	22	13	-5
Plot 8_A	1.50	29	--	17	20	21	19	24	23	13	-7
Plot 5_A	1.50	29	--	16	20	22	19	23	22	13	-6

All shown dB values are A-weighted

Slip End

BS4142 Specific Sound Levels

Report:	Table of Results										
Model:	BS4142 Assessment 2026										
L _{Aeq} per octave:	total results for receivers										
Group:	(main group)										
Group Reduction:	No										
Name		Day									
Receiver	Height	Total	31	63	125	250	500	1000	2000	4000	8000
Plot 4_A	1.50	29	--	16	20	23	20	22	22	12	-8
Plot 5_A	1.50	29	--	16	20	22	19	23	22	13	-6
Plot 4_A	1.50	29	--	15	19	22	19	23	22	13	-7
Plot 9_A	1.50	29	--	17	20	21	19	22	23	14	-6
Plot 4_A	1.50	28	--	15	19	21	18	22	21	12	-8
Plot 4_A	1.50	28	--	15	19	21	18	22	21	12	-9

All shown dB values are A-weighted

APPENDIX E

Intrusive Noise Calculations

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Slip End, SG7 6SF
Project number:	20441
Date:	06/05/2026

Plot:	Plot 1
Room:	LKD

Daytime ($L_{Aeq,16hr}$)				Octave band centre frequency										Broadband term	
Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k				
EXTERNAL NOISE LEVEL															
External noise level			Front Façade	$L_{eq,1}$	59	55	51	51	59	56	44	31	$L_{Aeq,1}$	62 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
External noise level			Rear Façade	$L_{eq,1}$	57	52	46	48	55	51	36	16	$L_{Aeq,1}$	57 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Front Façade	$L_{eq,ff}$	59	55	51	51	59	56	44	31	$L_{Aeq,ff}$	62 dB	
Incident noise level			Rear Façade	$L_{eq,ff}$	57	52	46	48	55	51	36	16	$L_{Aeq,ff}$	57 dB	
ROOM DATA															
Room description and reverberation time	Volume	94	Living/Kitchen/Dining Room	RT60	0.6	0.6	0.7	0.7	0.8	0.8	0.7	0.6	s		
FAÇADE ELEMENTS (Front Façade)															
Glazing	Area	1.7	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB	
Wall	Area	7.66	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	2	Greenwood 5000EAW.AC1 (Acoustic trickle)	Dn,e	32	38	37	31	43	43	40	40	Dn,e,w / Dn,e,w+Ctr	39 / 37 dB	
None			--												
FAÇADE ELEMENTS (Rear Façade)															
Glazing	Area	6.3	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB	
Wall	Area	5.46	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	4	Greenwood 5000EAW.AC1 (Acoustic trickle)	Dn,e	32	38	37	31	43	43	40	40	Dn,e,w / Dn,e,w+Ctr	39 / 37 dB	
None			--												
RESULTS															
Contribution from Front Façade				$L_{eq,2}$	33	26	26	24	21	17	9	-	$L_{Aeq,2}$	26 dB	
Contribution from Rear Façade				$L_{eq,2}$	36	29	26	25	21	16	5	-	$L_{Aeq,2}$	26 dB	
Total calculated indoor noise level				$L_{eq,2}$	38	31	29	28	24	20	10	-	$L_{Aeq,2}$	29 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Slip End, SG7 6SF
Project number:	20441
Date:	06/05/2026

Plot:	Plot 1
Room:	Study

Daytime ($L_{Aeq,16hr}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Front Façade	$L_{eq,1}$	59	55	51	51	59	56	44	31	$L_{Aeq,1}$ 62 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Front Façade	$L_{eq,ff}$	59	55	51	51	59	56	44	31	$L_{Aeq,ff}$ 62 dB		
ROOM DATA															
Room description and reverberation time		Volume	20	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	s	
FAÇADE ELEMENTS (Front Façade)															
Glazing	Area	1.7	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr 29 / 25 dB		
Wall	Area	12.7	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr 50 / 47 dB		
Vent	No. off.	2	Greenwood 5000EAW.AC1 (Acoustic trickle)	Dn,e	32	38	37	31	43	43	40	40	Dn,e,w / Dn,e,w+Ctr 39 / 37 dB		
None			--												
RESULTS															
Total calculated indoor noise level				$L_{eq,2}$	40	33	31	29	25	21	13	-	$L_{Aeq,2}$ 31 dB		

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Slip End, SG7 6SF
Project number:	20441
Date:	06/05/2026

Plot:	Plot 1
Room:	Bedroom 1

Daytime ($L_{Aeq,16hr}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1	$L_{eq,1}$	60	56	54	55	61	56	43	29	$L_{Aeq,1}$	63 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1	$L_{eq,ff}$	60	56	54	55	61	56	43	29	$L_{Aeq,ff}$	63 dB	
ROOM DATA															
Room description and reverberation time	Volume	66	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s		
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	3.6	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB	
Wall	Area	12.2	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	2	Greenwood 5000EAW.AC1 (Acoustic trickle)	Dn,e	32	38	37	31	43	43	40	40	Dn,e,w / Dn,e,w+Ctr	39 / 37 dB	
Roof	Area	21.12	Tiles, 100mm rafters (400c/s), m.wool, plbd (l	Rw	22	18	26	46	51	49	53	60	Rw / Rw+Ctr	41 / 31 dB	
RESULTS															
Total calculated indoor noise level				$L_{eq,2}$	42	41	33	28	22	16	7	-	$L_{Aeq,2}$	31 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Slip End, SG7 6SF
Project number:	20441
Date:	06/05/2026

Plot:	Plot 1
Room:	Bedroom 1

Night time ($L_{Aeq,8hr}$)				Octave band centre frequency											Broadband term		
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k					
EXTERNAL NOISE LEVEL																	
External noise level			Façade 1	$L_{eq,1}$	55	51	49	50	56	51	39	24	$L_{Aeq,1}$	58 dB			
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	$L_{eq,ff}$	55	51	49	50	56	51	39	24	$L_{Aeq,ff}$	58 dB			
ROOM DATA																	
Room description and reverberation time		Volume	66	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s			
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	3.6	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB			
Wall	Area	12.2	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB			
Vent	No. off.	2	Greenwood 5000EAW.AC1 (Acoustic trickle)	Dn,e	32	38	37	31	43	43	40	40	Dn,e,w / Dn,e,w+Ctr	39 / 37 dB			
Roof	Area	21.12	Tiles, 100mm rafters (400c/s), m.wool, plbdt	Rw	22	18	26	46	51	49	53	60	Rw / Rw+Ctr	41 / 31 dB			
RESULTS																	
Total calculated indoor noise level					$L_{eq,2}$	37	36	28	23	17	11	3	-	$L_{Aeq,2}$			26 dB

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Slip End, SG7 6SF
Project number:	20441
Date:	06/05/2026

Plot:	Plot 1
Room:	Bedroom 1

Night time ($L_{A\text{Max}}$)				Octave band centre frequency										Broadband term			
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k					
EXTERNAL NOISE LEVEL																	
External noise level			Façade 1	$L_{\text{Max},1}$	68	66	64	68	73	69	58	47	$L_{A\text{Max},1}$			75 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	$L_{\text{Max},\text{ff}}$	68	66	64	68	73	69	58	47	$L_{A\text{Max},\text{ff}}$			75 dB	
ROOM DATA																	
Room description and reverberation time	Volume	66	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s				
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	3.6	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	$R_w / R_w + C_{tr}$			29 / 25 dB	
Wall	Area	12.2	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	$R_w / R_w + C_{tr}$			50 / 47 dB	
Vent	No. off.	2	Greenwood 5000EAW.AC1 (Acoustic trickle)	Dn,e	32	38	37	31	43	43	40	40	$D_{n,e,w} / D_{n,e,w} + C_{tr}$			39 / 37 dB	
Roof	Area	21.12	Tiles, 100mm rafters (400c/s), m.wool, plbd (l	Rw	22	18	26	46	51	49	53	60	$R_w / R_w + C_{tr}$			41 / 31 dB	
RESULTS																	
Total calculated indoor noise level				$L_{\text{Max},2}$	50	51	43	41	34	29	22	7	$L_{A\text{Max},2}$			42 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Slip End, SG7 6SF
Project number:	20441
Date:	06/05/2026

Plot:	Plot 7
Room:	Study

Daytime (<i>L</i> _{Aeq,16hr})				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Front Façade	<i>L</i> _{eq,1}	59	55	51	51	56	50	34	13	<i>L</i> _{Aeq,1} 58 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Front Façade	<i>L</i> _{eq,ff}	59	55	51	51	56	50	34	13	<i>L</i> _{Aeq,ff} 58 dB		
ROOM DATA															
Room description and reverberation time		Volume	22	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	s	
FAÇADE ELEMENTS (Front Façade)															
Glazing	Area	1.7	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr 29 / 25 dB		
Wall	Area	13.18	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr 50 / 47 dB		
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr 33 / 32 dB		
None			--												
RESULTS															
Total calculated indoor noise level				<i>L</i> _{eq,2}	40	33	31	27	33	22	5	-	<i>L</i> _{Aeq,2} 34 dB		

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Slip End, SG7 6SF
Project number:	20441
Date:	06/05/2026

Plot:	Plot 7
Room:	Study

Daytime (<i>L</i> _{Aeq,1hr agricultural activity})				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Front Façade	<i>L</i> _{eq,1}	63	59	53	47	45	42	33	19	<i>L</i> _{Aeq,1} 51 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Front Façade	<i>L</i> _{eq,ff}	63	59	53	47	45	42	33	19	<i>L</i> _{Aeq,ff} 51 dB		
ROOM DATA															
Room description and reverberation time		Volume	22	Living Room	RT60	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	s	
FAÇADE ELEMENTS (Front Façade)															
Glazing	Area	1.7	Generic 4/6-16/4	R _w	20	21	17	25	35	37	31	36	R _w / R _w +C _{tr} 29 / 25 dB		
Wall	Area	13.18	Brick and block external wall	R _w	34	40	44	45	51	56	60	63	R _w / R _w +C _{tr} 50 / 47 dB		
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	D _{n,e}	32	38	37	34	30	34	37	46	D _{n,e,w} / D _{n,e,w} +C _{tr} 33 / 32 dB		
None			--												
RESULTS															
Total calculated indoor noise level				<i>L</i> _{eq,2}	44	37	33	23	22	14	4	-	<i>L</i> _{Aeq,2} 29 dB		

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Slip End, SG7 6SF
Project number:	20441
Date:	06/05/2026

Plot:	Plot 3
Room:	Bedroom 1

Daytime ($L_{Aeq,16hr}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1	$L_{eq,1}$	57	53	49	49	54	50	37	21	$L_{Aeq,1}$ 56 dB		
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1	$L_{eq,ff}$	57	53	49	49	54	50	37	21	$L_{Aeq,ff}$ 56 dB		
ROOM DATA															
Room description and reverberation time		Volume	30	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s	
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	1.6	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr 29 / 25 dB		
Wall	Area	15.2	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr 50 / 47 dB		
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr 33 / 32 dB		
None			--												
RESULTS															
Total calculated indoor noise level				$L_{eq,2}$	35	29	26	23	28	20	5	-	$L_{Aeq,2}$ 30 dB		

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Slip End, SG7 6SF
Project number:	20441
Date:	06/05/2026

Plot:	Plot 3
Room:	Bedroom 1

Night time ($L_{Aeq,8hr}$)				Octave band centre frequency										Broadband term			
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k					
EXTERNAL NOISE LEVEL																	
External noise level			Façade 1	$L_{eq,1}$	52	48	45	45	50	46	32	15	$L_{Aeq,1}$			52 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0					
INCIDENT FAÇADE NOISE LEVEL																	
Incident noise level			Façade 1	$L_{eq,ff}$	52	48	45	45	50	46	32	15	$L_{Aeq,ff}$			52 dB	
ROOM DATA																	
Room description and reverberation time	Volume	30	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2				s	
FAÇADE ELEMENTS (Façade 1)																	
Glazing	Area	1.6	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr			29 / 25 dB	
Wall	Area	15.2	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr			50 / 47 dB	
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr			33 / 32 dB	
None			--														
RESULTS																	
Total calculated indoor noise level				$L_{eq,2}$	30	24	22	19	24	16	0	-	$L_{Aeq,2}$			26 dB	

Calculated Indoor Ambient Noise Levels (as per BS 8233:2014 Annex G)



Project:	Slip End, SG7 6SF
Project number:	20441
Date:	06/05/2026

Plot:	Plot 3
Room:	Bedroom 1

Night time ($L_{A\text{Max}}$)				Octave band centre frequency											
	Unit	Value	Description	Term	63	125	250	500	1k	2k	4k	8k	Broadband term		
EXTERNAL NOISE LEVEL															
External noise level			Façade 1	$L_{\text{Max},1}$	64	64	62	63	67	63	54	40	$L_{A\text{Max},1}$	70 dB	
Façade correction factor				C	0	0	0	0	0	0	0	0			
INCIDENT FAÇADE NOISE LEVEL															
Incident noise level			Façade 1	$L_{\text{Max},\text{ff}}$	64	64	62	63	67	63	54	40	$L_{A\text{Max},\text{ff}}$	70 dB	
ROOM DATA															
Room description and reverberation time	Volume	30	Bedroom	RT60	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	s		
FAÇADE ELEMENTS (Façade 1)															
Glazing	Area	1.6	Generic 4/6-16/4	Rw	20	21	17	25	35	37	31	36	Rw / Rw+Ctr	29 / 25 dB	
Wall	Area	15.2	Brick and block external wall	Rw	34	40	44	45	51	56	60	63	Rw / Rw+Ctr	50 / 47 dB	
Vent	No. off.	2	Greenwood 4000 SBW (Hit and miss)	Dn,e	32	38	37	34	30	34	37	46	Dn,e,w / Dn,e,w+Ctr	33 / 32 dB	
None			--												
RESULTS															
Total calculated indoor noise level				$L_{\text{Max},2}$	42	40	39	37	41	33	22	-	$L_{A\text{Max},2}$	43 dB	

APPENDIX F

Garden Screening



Head Office

Spectrum Acoustic Consultants Ltd
27-29 High Street
Biggleswade
Bedfordshire
SG18 0JE
UNITED KINGDOM

 +44 (0)1767 318871

 enquiries@spectrumacoustic.com

 www.spectrumacoustic.com