



**REDROW HOMES
NOISE PROTECTION SCREENING
PHASE 2 BEREWOOD, WATERLOOVILLE**

SCREENING ASSESSMENT ADDENDUM

APRIL 2014



the journey is the reward

**REDROW HOMES
NOISE PROTECTION SCREENING
PHASE 2 BEREWOOD, WATERLOOVILLE**

SCREENING ASSESSMENT ADDENDUM

APRIL 2014

Project Code:	RHWATERLOOVILLE.9
Prepared by:	Andrea Hughes
Approved by:	Stuart Aldridge
Issue Date:	APRIL 2014
Status:	FINAL V3

REDROW HOMES
NOISE PROTECTION SCREENING
PHASE 2 BEREWOOD, WATERLOOVILLE
SCREENING ASSESSMENT ADDENDUM

List of Contents

Sections

1 Introduction 1

2 Noise Monitoring 3

3 Requirement for Noise Protection 5

Figures

Figure 1: 2014 Noise Monitoring..... 7

Figure 2: Extent of Type A Glazing Required..... 8

1 Introduction

1.1 In January 2014 Mayer Brown Limited was commissioned by Redrow Homes to undertake a study of the noise data available to inform the provision of a noise protection scheme for the future residents of the Phase 2 development at Berewood.

1.2 This was required in order to discharge the following planning condition:

“No relevant phase of the development hereby permitted shall commence until a scheme for protecting proposed dwellings and their gardens from noise from the London Road has been submitted to and approved in writing by the Local Planning Authority. Those dwellings shall not be occupied until the implementation of all works forming part of such approved noise protection scheme has been completed in full accordance with all detailed components of such scheme.”

“Reason: To safeguard the amenity of occupiers and having due regard to policies CS16 and DM10 of the Havant Borough Core Strategy 2011, which forms part of the Local Development Framework.”

1.3 In addition, the Council’s Noise Officer has advised that the following standards are expected:

“Maximum noise level (predicted 15 years from completion of dwellings) in habitable rooms, with windows closed and other means of ventilation provided should not exceed the following:

- *Daytime 35 dB $L_{Aeq,16h}$*
- *Night time 30 dB $L_{Aeq,8h}$ ”*

1.4 The preceding study collated all of the noise data available at that time. This was primarily traffic noise data modelled for the assessment year of 2021 (hence 15 years from the baseline year of 2006) in order to identify the locations where noise protection may be necessary and to highlight where further data was required to inform the Noise Protection Scheme.

1.5 It should be noted here that this assessment cannot at this time provide traffic data for 15 years from the completion of dwellings, but that at the time of the original application the assessment year of 2021 (hence 15 years from

the baseline year of 2006) was deemed suitable for the assessment of future noise levels.

- 1.6 The study concluded that whilst the available noise data demonstrated that acceptable internal noise levels were achievable with standard thermal double glazing, it also suggested that further validation monitoring was required in order to support the assumptions made.
- 1.7 This noise screening addendum sets out the further monitoring which was undertaken and the specifications for any noise screening required.

2 Noise Monitoring

- 2.1 The Phase 2 site is currently undergoing infrastructure works. Therefore, meaningful noise measurements can only be obtained for short periods of the day. Fully manned environmental noise monitoring was undertaken on Tuesday 25th February 2014.
- 2.2 During the initial survey period of 10:30am to 1:30pm, wind speeds were in excess of 10m/s and were not considered conducive to noise monitoring. Therefore, further noise monitoring was undertaken for 3 x 5 min periods at two locations adjacent to London Road during a later period of the day when wind speeds had dropped and background noise levels were not affected by site construction.
- 2.3 Measurement positions were chosen in order to capture typical noise levels adjacent to London Road. The measurement positions are described in Table 1 below and are also illustrated in Figure 1:

Position No	Description
1	Short-term and fully attended 15-minute noise measurement during the day-time. The microphone was under free-field conditions approximately 31m from the kerb of London Road and at the approximate facade location. The noise environment at this location was dominated by road traffic noise.
2	Short-term and fully attended 15-minute noise measurement during the day-time. The microphone was under free-field conditions approximately 26.5m from the kerb of London Road. The noise environment at this location was dominated by road traffic noise.

Table 2.1: 2014 Berewood Noise Monitoring Locations

- 2.4 Measurements were taken in a free field position at a height of 1.5m and of the A-weighted (dBA) L10, L50, L90, Leq and Lmax sound pressure levels over consecutive 5 min periods. No atypical noises were noted. The noise levels measured are therefore assumed to be representative of the noise climate during the period in which the measurements were taken.

Location	Sound Level dB(A) 15min (0.4 - 20Hz)					
	Leq*	L10	L50	L90	Lmin	Lmax
1	60.9	64.0	60.8	57.4	60.0	61.9
2	60.3	65.3	60.0	55.0	59.1	61.1

Table 2.2: 2014 Berewood Noise Monitoring Results

***NB these values have not been converted to 16hr Leq for comparison with the maximum noise level requirements and therefore it is considered that these represent worse case 16hr noise levels.**

- 2.5 The previous noise screening assessment compiled noise data modelled from traffic noise modelled for the assessment year of 2021. Those results concluded that the noise levels at the closest facades were likely to be approximately 62.3 L_{Aeq} dBA.
- 2.6 It is seen here that these are comparable to the L_{Aeq} noise levels modelled at equivalent locations in 2014. The modelled noise levels are seen to be on average 1.7 dBA higher than those monitored in 2014 and this is will be due to the uplift in traffic associated with the 2021 assessment year.
- 2.7 Therefore, it is concluded that the monitoring undertaken in 2014 supports the findings of the previous modelling exercises.

3 Requirement for Noise Protection

Houses

- 3.1 The proposed Phase 2 Housing Layout is illustrated in Figures 1 and 2. The layout indicates that the majority of houses within the Phase 2 scheme will be screened from London Road by those which are situated in closer proximity to it.
- 3.2 However, the previous noise screening assessment provided a review of the modelling exercises which were undertaken to examine the likely noise environment of those houses positioned adjacent to London Road and this indicated that by 2021 these facades may be subject to typical day time noise levels of 62.3 L_{Aeq} dBA and night time noise levels of 56.3 L_{Aeq} dBA.
- 3.3 The Council's Noise Officer has advised that maximum noise in habitable rooms, with windows closed and other means of ventilation provided should not exceed :
- Daytime 35 dB $L_{Aeq,16h}$
 - Night time 30 dB $L_{Aeq,8h}$
- 3.4 Redrow has advised that their standard glazing specification is as follows:
- "All windows, front and rear doors and screens are to be double glazed, where indicated on the drawings. All Double glazed units are to be BS Kite-marked and are to be a minimum 24mm thick (4mm glass, 16mm cavity & 4mm glass). All front door side Panels, Rear/Utility External doors are to be constructed as follows 4mm Contora Toughened safety glass 12mm cavity and 4mm float toughened safety glass."*
- 3.5 A window of specification 4:16:4 as set out above, will typically provide a noise reduction of at least R_w 29 dBA¹ when associated with standard trickle ventilation. When this R_w is applied to the anticipated free field day time and night time noise levels of 62.3 dBA and 56.3 L_{Aeq} dBA, it can be seen that the stated requirement for maximum noise in habitable rooms can be achieved.

¹ Based upon standard glazing specifications provided by FGM Windows, Saint-Gobain and Rollplast.

- 3.6 However, upon consultation the Havant noise officer has raised the concern that where glazing panes of equal thickness are specified this can lead to the problem of 'sympathetic resonance' where both panes resonate at the same frequency causing a dip in performance at that frequency allowing a dominant tone to be transmitted through. This can potentially result in a distinct annoying hiss, particularly during wet weather.
- 3.7 The concern has also been raised that standard glazing does not perform well at the low frequencies associated with road traffic. Therefore, it is advised that for facades facing London Road, the glazing provided is of a minimum specification of (4mm glass, 6 - 20mm cavity & 10 mm glass) and with an $R_{w+C_{tr}}^2$ of at least 30dBA.
- 3.8 All glazing to habitable rooms must be accompanied by a 'system 3' ventilation regime in accordance with Building Regulations (Part F). These glazing specification are illustrated in Figure 2.

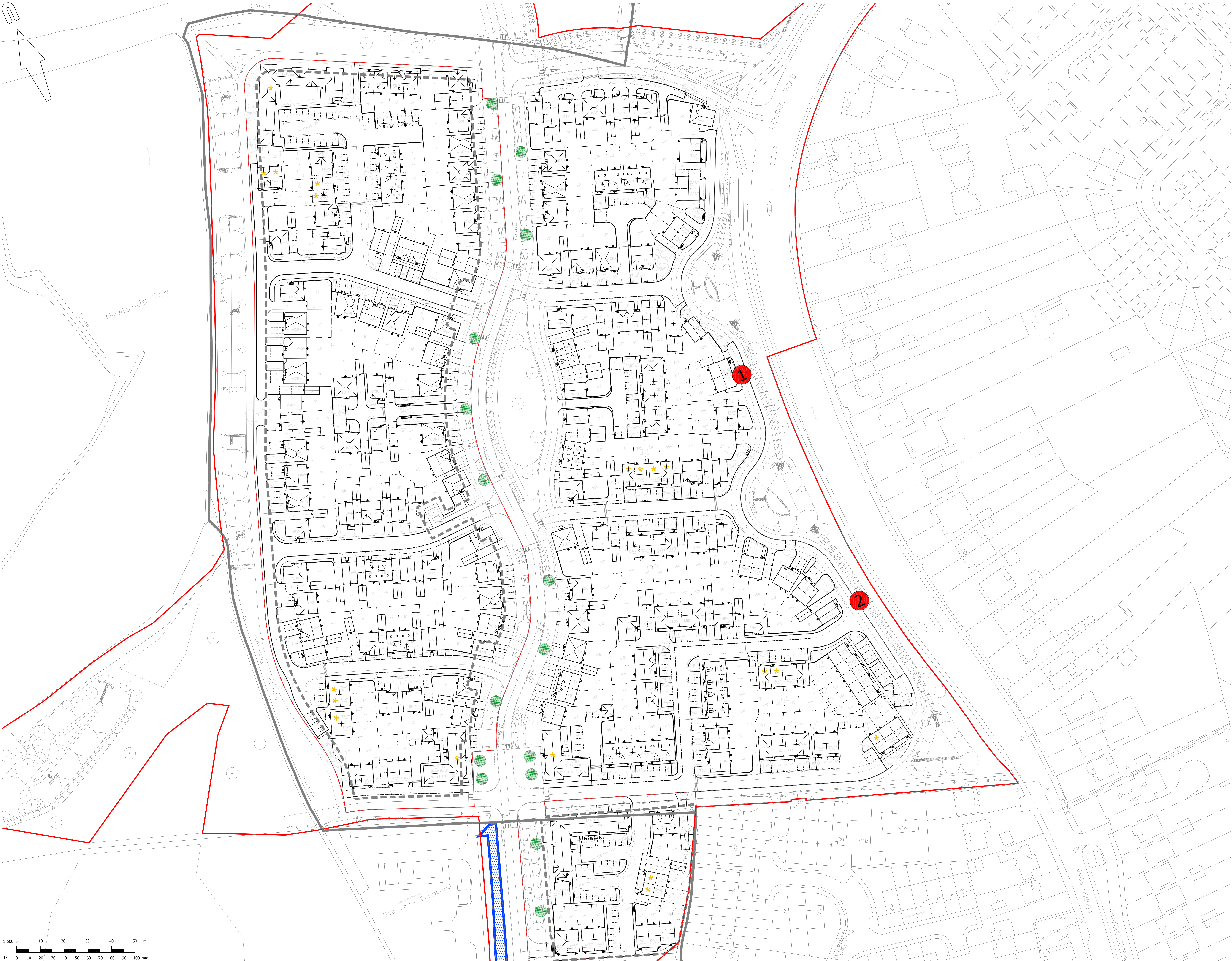
Gardens

- 3.9 Regarding any possible noise nuisance affecting outside living space and gardens. The WHO Guidelines for Community Noise³ advises that that noise levels which exceed 55 dB $L_{Aeq,T}$ may result in serious annoyance during both day-time and night-time periods.
- 3.10 No private gardens are indicated as fronting directly onto London Road. However, it is suggested that any portions of gardens which are located adjacent to London Road are screened with acoustic grade fencing, in order to ensure that noise levels will not exceed those stated above.

² Weighted Sound reduction + An adjustment to account for low frequency noise such as from road traffic

³ The World Health Organisation (WHO) (2000). Guidelines for Community Noise. Geneva

Figure 1: 2014 Noise Monitoring



FOR INFORMATION
NOT FOR CONSTRUCTION

rev.	amendment	checked	date
------	-----------	---------	------

mb
mayer brown
Mayer Brown Limited, Lion House,
Oriental Road, Woking, Surrey GU22 8AQ,
Telephone 01483 750 500 Fax 01483 750 437
woking@mbmayerbrown.co.uk www.mayerbrown.co.uk

client
REDROW HOMES

project
WATERLOOVILLE
PHASE 2 HOUSING

scale 1:500 drawn by CEW checked by AH

date MARCH 2014 cad file SK_03.dwg

title
FIGURE 1: 2014 MONITORING LOCATIONS

drawing number
RHWVILLE/SK/03

rev.

Figure 2: Extent of Type A Glazing Required



© Mayer Brown Limited Copyright. The drawings, information and data recorded in this document ("the information") is the property of Mayer Brown. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purposes other than which it was supplied by Mayer Brown. Mayer Brown makes no representation, undertakes no duty and accepts no responsibilities to any third party who may use or rely upon this document or the information.

AO ORIGINAL

© Crown copyright, all rights reserved. 2014. Licence number 100802189.

Key:
Type A Specification

Notes:

- All windows facing London Road are to be BS Kite-marked and are to be of specification 10/6-20/4 and with an $Rw+Ctr^*$ of at least 30dB(A).
 - All other windows are to adhere to the Redrow standard specification: Minimum 24mm thick (4/16/4).
 - All glazing to habitable rooms must be accompanied by a system '3' 'continual approach' ventilation regime in accordance with Building Regulations (Part F).
- * Rw - Weighted sound reduction.
 Ctr - An adjustment to account for low frequency noise such as from road traffic.

FOR INFORMATION
NOT FOR CONSTRUCTION

B	Notes updated. (H)	AH	22/04/2014
A	Drafting amendments. Notes updated. (H)	AH	30/03/2014

rev.	amendment	checked	date
------	-----------	---------	------

mb
mayer brown

Mayer Brown Limited, Lion House,
Oriental Road, Woking, Surrey GU22 8AG.
Telephone: 01483 759 558. Fax: 01483 759 437.
woking@mbmayerbrown.co.uk www.mayerbrown.co.uk

client
REDROW HOMES

project
WATERLOOVILLE
PHASE 2 HOUSING

scale
1:500 drawn by CEW checked by AH

date
MARCH 2014 cad file SK_04.dwg

title

FIGURE 2
EXTENT OF TYPE A GLAZING REQUIRED

drawing number	rev.
RHWVILLE/SK/04	B

Appendix A

Instrumentation

Description	Manufacturer	Type	Serial Number	Calibration Data
Sound Level Meter Type 1 (Precision) and Frequency Analyser, class 1	Norsonic	140	1403354	18/12/2012
Microphone	Norsonic	1225	62667	18/12/2012
Calibrator	Norsonic	1251	31313	18/12/2012
Preamplifier	Norsonic	1209	12751	18/12/2012

The sound level meter, was calibrated prior to and on completion of the surveys. No significant changes were found to have occurred (no more than 0.1 dB).

During the survey period the weather was dry and wind conditions were approximately 7m/s. The microphone was fitted with a wind shield and conditions were considered suitable for obtaining representative measurement results.