

Report

Ford Airfield, Climping
Kendall Group. Proposed
Concrete Batching Plant

Sound Level Assessment

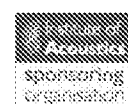
Prepared by
Dean E Barke MSc, MIOA

Date 23rd February 2018
Project No 1717351

Head Office:
Sharps Redmore
The White House, Loring Road,
Copdock, Ipswich, IP8 3JH

Regional Locations:
South England (Head Office),
North England, Wales, Scotland

Sharps Redmore Participate Under:
Regulation in England No. 2963285.
Directors:



Contents

- 1.0 Introduction
- 2.0 The Proposal
- 3.0 The Neighbourhood
- 4.0 Guidance on Threshold Values
- 5.0 Sound Level Prediction
- 6.0 Assessment
- 7.0 Summary and Conclusion

Figures

- 1. Aerial Image. Key Features
- 2. Proposed Site Layout
- 3. Aerial Image. Monitoring Locations

Annexes

- 1. SLR survey data, Appendix C & D
- 2. Calculation Sheets (4-off)

1.0 Introduction

- 1.1 The Kendall Group are aggregate and concrete suppliers based mainly on the South Coast. The Group includes Kendall Ready Mixed Concrete (KRM) which itself consists of five concrete batching plant facilities between Shoreham-By-Sea and Newbury.
- 1.2 KRM seek permission to erect and operate a new concrete batching plant on Ford Airfield at Climping. The airfield is currently used by a number of commercial operations including a wastes recycling facility, heavy-goods vehicle driver training ground and vehicle storage.
- 1.3 The generation of some sound to the environment is an inevitable consequence of an outdoor production process. There are standards and guidelines as to the levels of sound that are normally permissible. Sharps Redmore have been appointed to review the proposal for concrete batching and report on the likely environmental significance in the context of these standards and guidelines.

2.0 The Proposal

- 2.1 The plan attached at Figure 1 is an aerial image (courtesy of GoogleEarth) which has been annotated by Sharps Redmore to high-light key features.
- 2.2 It is proposed to locate a concrete batching plant at the south-west end of the former runway at Ford Airfield. The plan attached at Figure 2 illustrates the site layout. The plant would be positioned to enable 'concrete mixer' lorries ready access to the loading bay and thereafter, departure via the circular route around an adjacent barn.
- 2.3 Access to and from the Batching Plant compound would be via the concreted road running parallel with the former runway. The road connects to the B2233 to the east of the application site. Sharps Redmore understand this route is also used by existing operators on the western half of the former runway.
- 2.4 In terms of heavy vehicle numbers associated with the proposed Batching Plant, it is expected¹ to comprise 28 batch-loads out per day, plus 12 loads in per day of raw/base materials. That would equate to 80 movements (trips) per day. Over a notional batching day of 11 hours [0700 to 1800 hours], that would indicate an average of around 7 movements per hour.
- 2.5 The Transport Assessment indicates a further 50 trips per day by local users, adding approximately 5 movements per average hour. Most of these additional vehicles would likely be small vehicles for collections.
- 2.6 It is Sharps Redmore's experience that the sound emanating from batching plants is characterised by the concrete mixer lorry engine – it operating under light load at high idle speed to power the drum. This primary source would be intermittent and lasting between 5 and 10 minutes per production batch.
- 2.7 A sound level measurement performed² on KRM's batching plant and mixer trucks at Shoreham found the combined items to generate 74 dB $L_{Aeq,t}$ at a distance of 10 metres. In that case, the time period 't' was deemed to be the actual batching duration. That plant was described as operational for 15 minutes in the hour. Sharps Redmore has interpreted that measurement as applying on axis (or notionally in front of the mixer truck) and over at least one batching cycle. The corresponding sound power emission would appear to have been (74 dB + 28 dB for distance decay =) 102 dB L_{WA}' .
- 2.8 Other readings obtained during the Shoreham survey indicated the loading shovel as having an apparent sound power emission of 103 dB L_{WA}' and operational (on) time of 30 minutes in the hour.
- 2.9 In order to minimise sound emissions, the batching plant delivery bay would be configured to enable the lorry to be orientated to the south-east. The engine would therefore face away from the closest residential receptors.

¹ D.M Mason Transport Assessment, February 2018

² Acoustic Design Services Ltd. 6th May 2014.

An acoustic report in respect of Kendall Brothers activity at New Wharf, Shoreham.

3.0 The Neighbourhood

- 3.1 The application site on the former airfield runway is on open and level land bordered on three sides by the A259 to the south, the B2132 to the west and the B2233 to the east. (See aerial image attached at Figure 1).
- 3.2 There is established residential development to the west along the Bilsham Road, the B2132. The closest plot of land appears to be allotments and glasshouses, accessed via Cinders Lane. Sharps Redmore understand this land is being considered for residential development.
- 3.3 To the north of the application site, there is a wastes/recycling facility beyond which is Tithe Barn and Northwood House. Tithe Barn appears to be a self-catering holiday accommodation. Northwood House by contrast is identifiable as a conventional dwelling.
- 3.4 Yapton Road (the B2233) cuts across the former airfield and features housing which is east and north-east of the application site.
- 3.5 In the context of the proposed batching plant, the likely most relevant residential receptor locations are considered to be as follows:
- ❖ Cinders Lane. Notionally 470m to potential future housing, north-west
 - ❖ Northwood House. Notionally 460m north. (Approximately 380m to the self-catering 'Tithe Barn').
 - ❖ Yapton Road/Rollaston Park. Notionally 500 metres to the north-east.
- 3.6 There do not appear to be dwellings any closer than 460 metres of the proposed batching plant location.
- 3.7 Sharps Redmore attended the site and neighbourhood on Wednesday 10th January 2018. The application site was identified, as was the Cinders Lane 'allotments' land and the Tithe Barn. On the day of the survey, the weather was fine and dry with clear skies. The air temperature was 5°C. At ground level, air was calm/very light. Weather station data indicated a light south-westerly breeze present. That was supported by the observation of distant road traffic sound from the south-west.
- 3.8 Sharps Redmore were aware of baseline sound levels having been monitored and reported ³ in the context of a planning application for the waste recycling facility just south of Tithe Barn. That monitoring was conducted at the Yapton Road/Rollaston Park location and at Tithe Barn. (Tithe Barn was referred to at that time as Paynters Croft). Given their findings and the closer proximity of the current proposal to likely residential development at Cinders Lane, monitoring on the 10th January 2018 focused on the Northwood House/Tithe Barn location and the Cinders Lane location. The image attached at Figure 3 identifies the monitoring locations. Instrumentation employed for the recent surveying complied with current (class 1) standards. The meters underwent a field calibration check before and after the measurements. No drift was observed. Tripods were used to elevate the microphone to notionally 1.5m above local ground level.

³ SLR. February 2009. (SLR Ref: 402.0492.00005)

Proposed materials recovery facility/transfer station, Northwood Farm, Yapton.
Appendix C – Noise assessment. T.J.Waste & Recycling Limited.

3.9 Table 3.9 summarizes the sound levels observed in the neighbourhood.

Table 3.9

Summary of Baseline Sound Levels (Values rounded to nearest integer)				
Location, Date & Time		Observations	Measured value Background Residual	
1. Northwood House/Tithe Barn 14th January 2009 (SLR survey, Paynters Croft • SLR notional average, 1157 to 1357 hrs 10th January 2018 (Sharps Redmore) 1035 to 1325 hours *Modal value, **logarithmic average		• See SLR ‘Appendix D’ attached at Annex 1 to this SR Report	39 dB 38 dB*	47 dB 49 dB**
2. Yapton Road 14th January 2009 (SLR survey) • SLR notional average, 1205 to 1405hrs		• See SLR ‘Appendix D’ Attached as Annex 1 to this SR Report	48 dB	64 dB
3. Cinders Lane 10th January 2018 (Sharps Redmore) 1010 to 1315hrs *Modal value, **Logarithmic average			34 dB	40 dB

3.10 Based upon the full complement of survey readings, the typical level of background sound at key receptors can be considered as follows, during light south-westerly breeze conditions:

- ⊗ Northwood House/Tithe Barn: 38 dB $L_{A90,t}$ daytime
- ⊗ Yapton Road: 48 dB $L_{A90,t}$ daytime
- ⊗ Cinders Lane: 34 dB $L_{A90,t}$ daytime

3.11 The level of background sound can serve to inform the impact assessment of sound from the proposed batching plant.

4.0 Guidance on Threshold Values

- 4.1 The significance of sound from outdoor/open air operations affecting the environment can be assessed by reference to guidance on fixed (absolute) thresholds and on relative thresholds.
- 4.2 Absolute values for environmental sound are set out in WHO:1999⁴ and in BS 8233:2014⁵. Broadly, the general level of sound affecting residential receptors during normal daytime hours is considered significant when it exceeds a level of around 55 dB $L_{Aeq,t}$ where 't' is the 16-hour period 0700 to 2300 hours. A 'desirable' not-to-exceed value of 50 dB $L_{Aeq,t}$ is quoted. This guidance is helpful but very general. (The 55 dB $L_{Aeq,t}$ level serves to guide on the ceiling threshold to minerals, waste and construction-related operations).
- 4.3 The proposed batching plant would be related to construction projects and would use materials won from mineral workings. If it were located on a working quarry site, the guidance on sound from mineral workings⁶ would be relevant. However, the batching plant would be free-standing (not directly associated with a quarry) and accordingly it is appropriate to consider it under the guidance of BS 4142:2014⁷. This standard compares the anticipated (or measured) level of sound from the specific activity of interest with the typical level of background sound. Numerical corrections often need to be applied to derive what is termed the 'rating' level of the source and it is the rating level which is then compared with the typical background. In brief, the impact significance is initially indicated by the following 'differences', all depending on the context:
- ⊗ A difference of around +10 dB or more is likely to be an indication of a *significant* adverse impact.
 - ⊗ A difference of around +5 dB is likely to be an indication of an adverse impact.
 - ⊗ A difference of 0 dB (or negative) is an indication of a low impact.
- 4.4 The typical levels of background sound are summarised at paragraph 3.10 above. Accordingly, in order to avoid a situation indicative of a likely adverse impact at dwelling receptor locations, the rating level of sound from the proposed batching plant facility ought not exceed the typical level of background sound by 5 dB or more. Depending on the context, it would be desirable for the forecast impact to be low. Contextual considerations relevant to the proposed development are:
- ⊗ The area features other industrial and commercial operations.
 - ⊗ New residential developments should take account of existing and/or permitted activities on the former runway. (This includes an hgv driver-training circuit, plus a barn for the storage of straw).
 - ⊗ Tithe Barn is not a premises used for residential purposes.

⁴ World Health Organisation (WHO):1999. Guidelines for community noise.

⁵ BSI.BS 8233:2014. Guidance on sound insulation and noise reduction for buildings.

⁶ DCLG.NPPF Technical Guidance. 2012 and web based Planning Practice Guidance.

⁷ . BSI.BS 4142:2014. Methods for rating and assessing industrial and commercial sound.

5.0 Sound Level Prediction

Methology

- 5.1 The method by which sound levels have been predicted for the proposed Batching Plant closely follows the calculation guidance in BS 5228:2009⁸. Sharps Redmore has included refinements to this method to take account of sound propagation factors relevant to distances beyond the proximities for which BS 5228:2009 was developed. For example, sound 'absorption' by air often amounts to around 4 dBA/km and upwind/downwind effects can range from -10 dB to +2 dB.
- 5.2 The procedure for estimating the level of sound from vehicles following a haul route has also been simplified. The 'acoustic centre' of the haul road path has been modelled as the vehicles average location and distance from the receptor. Combined with the duration of the vehicle movement along the haul route and the number of movements per hour, an equivalent result is obtained to that based on the 'line source' method in BS 5228:2009. The former provides a more understandable and clearer approach.

Model

- 5.3 The following model has been derived to describe the routine concrete batching operations on the application site:
- ❖ Vehicles proceed along the access road at an average speed of 30 kph. The curve at the western end is taken at 20 kph. An average of 12 hgv movements per hour is modelled.
 - ❖ The access road is divided into 'segments' to assist the predictions. The length of each segment is guided by the visible sections and/or the sections screened by other buildings.
 - ❖ The batching plant and accompanying loading shovel are operational at the stated apparent sound power emission for an average of 30 minutes in the hour. (Stated at paragraphs 2.7 and 2.8 above). That is not to say the items could not operate for longer. Under lesser 'load' conditions (for example, low-speed running of the shovel), the sound power emission would be lower. So for the example of the loading shovel, its apparent sound power level could be the 103 dB (L_{WA}) for 30 minutes as used in this assessment, or equally it could be half the emission level for twice the amount of time – the end result would be the same.

Sound Level Predictions

- 5.4 Calculation sheets are attached at Annex 1 for review. The results are summarised in Table 5.4 beneath. The likely sound levels are presented for the development 'As Proposed'. To gauge the benefit of a solid barrier on the edge of the compound, a second calculation is shown. A barrier is modelled 4 metres tall.

⁸ BSI.BS5228-1:2009 + A1:2014. Code of practice for noise and vibration control on construction and open sites

Table 5.4

Summary of Predicted Levels. (From Annex 1 Calculation sheets)

Receptor	Comment	Predicted $L_{Aeq,1hr,free-field}$
Cinders Lane (Potential Future dwellings) Calculation sheet 1.	As Proposed Barrier on compound, 4m tall	37 dB 36 dB
Tithe Barn (Self-catering holiday accommodation) Calculation sheet 2.	As Proposed Barrier on compound, 4m tall	41 dB 40 dB
Northwood House (Dwelling) Calculation sheet 3.	As Proposed Barrier on compound, 4m tall	39 dB 39 dB (No change)
Yapton Road/Rollaston Park (Dwellings) Calculation sheet 4.	As Proposed Barrier on compound, 4m tall	45 dB n/a

- 5.5 The expectation is for the combined effect of routine concrete batching operations and hgv movements to give rise to sound levels at the nearest dwelling, that being Northwood House, of 39 dB $L_{Aeq,1hr,free-field}$. It is evident that the sound of lorry movements on the access road would be a material contributor to the overall levels. Sharps Redmore understand that other commercial operations on this part of the former runway are served by lorries without a restriction on their number.
- 5.6 The benefit of erecting a solid (and thin) acoustic-grade fence (or noise barrier) along the edge of the compound would be very limited. That would be because the batching plant and shovel are forecast to not be so dominant that the additional attenuation of a barrier is realised. The additional attenuation has also to be gauged against the benefit of 'soft' ground and air absorption, both of which are negated by the alternative use of a barrier.
- 5.7 The results are Assessed in the following section of this Report.

6.0 Assessment

6.1 Each receptor location is considered in turn.

Cinders Lane

6.2 The parcel of land seemingly comprising allotments and/or a plant nursery has apparently been promoted for a change of use to residential. This Report has included it as a potential receptor location in the interests of completeness.

6.3 Overall, the combined sound level from proposed batching plant and from hgv movements along the application side access road is predicted to be 37 dB $L_{Aeq,1hr,free-field}$. This is shown on calculation sheet 1 at Annex 1. A very slight benefit (of 1 dB L_{Aeq}) appears available if a 4 metre tall acoustic-grade fence were to be erected along the batching plant boundaries orientated towards the Cinders Lane land.

6.4 A sound level of 37 dB $L_{Aeq,1hr,free-field}$ would not normally be considered high. Guidance on fixed (absolute) values from WHO:1999 and BS 8233:2014, indicate 50 dB $L_{Aeq,t}$ as a desirable not-to-exceed threshold. In the context of a measured residual sound level of 40 dB $L_{Aeq,t}$ (see paragraph 3.9 above), the additive effect would be approximately 2 dB $L_{Aeq,t}$ and slight. For a complete assessment, it is necessary to consider BS 4142:2014. A short-form assessment is provided at Table 6.4.

Table 6.4

Cinders Lane. (Potential Future housing)	
Sound level assessment	
- Predicted level, specific to the proposed batching plant - Is a character correction applicable - The primary sound would be of lorry engines. This is not out-of-character with permitted uses - The residual sound level is higher than the predicted specific level - Rating level. Remains numerically same as Specific Level - Typical level of background sound. (Modal Value) - Difference. Rating level minus background level - Initial impact estimate, depending on the context	:37 dB $L_{Aeq,1hr,free-field}$:Considered not :37 dB $L_{Ar,1hr,free-field}$:34 dB $L_{A90,t,free-field}$ +3 dB >Low <Adverse
- Contextual considerations - Vehicular sound associated with the proposed development would not be out-of-character with use, by existing operators, of the HGV driver-training facility and the storage barn - The absolute level of sound predicted would not be considered excessive when compared with WHO:1999 and BS 8233:2014 guidance (of 50 dB $L_{Aeq,1hr,free-field}$) for general outdoor sound levels - Conclusion. The impact of the proposed batching plant operation would likely not be considered adverse	

- 6.5 Consideration has been given to the potential benefit of a 4 metre tall acoustic-grade fence on the boundary of the batching plant site. A reduction in the overall specific sound level of 1 dB to 36 dB L_{Aeq} would be expected. However, the final result would remain as less than adverse.

Tithe Barn

- 6.6 The expectation is for sound arising from the proposal to be 41 dB $L_{Aeq,1hr,free-field}$ at this receptor location. (See Table 5.4 above). The overall level would be equally apportioned to the plant site and to the hgv movements on the access road. (See calculation sheet 2 at Annex 1).
- 6.7 This receptor is believed to not be in residential use as a dwelling, but as self-catering holiday accommodation. The response to industrial/commercial sounds from people temporarily occupying a holiday home is not a situation extensively studied. Accordingly, the outcome of an assessment by the BS 4142 method ought to be treated with more caution than if the building were in permanent occupation by the owner or a tenant. A short-form BS 4142 assessment is provided at Table 6.7 below.

Table 6.7

Tythe Barn. (Holiday accomodation)	
Sound level assessment	
• Specific level predicted	:41 dB $L_{Aeq,1hr,free-field}$
• Is a character correction applicable	:Considered not
- Vehicle movement sound would not be out of character	
- The predicted level is 8 dB L_{Aeq} below the typical residual level measured	
• Rating level	:41 dB $L_{Ar,1hr,free-field}$
• Typical level of background sound. (Modal Value)	:38 dB $L_{A90,t,free-field}$
• Difference. Rating level minus background level	:+3 dB
• Initial impact estimate, depending on the context	>Low <Adverse
• Contextual considerations	
- Vehicular sound associated with the proposed development would not be out-of-character with existing/permitted uses on Ford Airfield	
- The former airfield features other commercial/industrial operations	
- The absolute level of sound predicted would not be considered excessive when compared with WHO:1999 and BS 8233:2014 guidance for general outdoor sound levels	
- The receptor location is not currently used as a dwelling	
• Conclusion. The impact of the proposed batching plant operation would likely not be considered adverse	

- 6.8 The erection of a 4 metre tall acoustic-grade fence along the (broadly orientated) northern boundary of the proposed batching plant compound would likely only provide a very small (1 dB L_{Aeq}) reduction in the overall specific/rating level. This is because the plant site sound emissions are not forecast to be dominant of the overall level.

Northwood House

6.9 This dwelling lies just north of Tithe Barn. It would be similarly, but to a slightly lesser degree, affected by the proposed development as the Tithe Barn receptor location. It can be seen from Table 5.4 above that a level of 39 dB $L_{Aeq,1hr,free-field}$ is predicted at Northwood House. The plant site-v -access road contributions would be notionally even. (Calculation sheet 3 at Annex 1 show 36 dB L_{Aeq} from the plant. That level would equate to 50% of the 39 dB L_{Aeq} combined value). The level of background sound at Northwood House has been taken to be notionally equivalent to the levels sampled near to the Tithe Barn receptor. Northwood House is slightly closer to Yapton Road and its traffic than the sound monitoring location and accordingly a similar or higher background level would be expected.

6.10 Table 6.10 sets-out the now familiar short-form assessment steps.

Table 6.10

Northwood House. Sound level assessment	
• Specific level predicted	:39 dB $L_{Aeq,1hr,free-field}$
• Is a character correction applicable	:Considered not
- Vehicle movement sound would not be out-of-character	
- The predicted level is 10 dB L_{Aeq} below the typical residual level measured	
• Rating level	:39 dB $L_{Ar,1hr,free-field}$
• Typical (modal) background level	:38 dB $L_{A90,t,free-field}$
• Difference. Rating level minus background level	:+1 dB
• Initial impact estimate, depending on the context	>Low <Adverse
• Contextual considerations	
- The predicted rating level is within (below) the WHO:1999 and BS 8233:2014 desirable threshold for general outdoor sound level. It is also notably below the typical residual level and only very slightly (1 dB) above the typical background level.	
• Conclusion. The impact of the proposed batching plant operation would likely be low	

Yapton Road/Rollaston Park

- 6.11 At the closest dwellings, vehicle movements on the access road would be the primary contribution to the overall level predicted of 45 dB $L_{Aeq,1hr,free-field}$. The level of background sound was sampled in 2009 and subsequently reported as having been 49 dB $L_{A90,t}$. Accordingly, the impact ought not be adverse. Table 6.11 sets-out the assessment steps for completeness.

Table 6.11

Yapton Road/Rollaston Park Sound level assessment	
• Specific level predicted	:45 dB $L_{Aeq,1hr,free-field}$
• Is a character correction applicable	:Considered not
- Vehicles are the dominant feature of the existing acoustic climate - The existing residual sound level was reported as having been 64 dB L_{Aeq} and hence significantly above the forecast level of sound associated with the proposal.	
• Rating level	:45 dB $L_{Ar,1hr,free-field}$
• Typical background level	:49 dB $L_{A90,t,free-field}$
• Difference. Rating level minus background level	:-4 dB
• Initial impact estimate, depending on the context	Low
• Contextual considerations - An elevated baseline prevailed as a result of Yapton Road traffic	
• Conclusion. The impact of the proposed batching plant operation would likely be considered low	

- 6.12 Summary of the receptor locations assessed, none would be expected to be impacted adversely by the proposed development.

7.0 Summary and Conclusion

- 7.1 This report has considered the proposal for a concrete batching plant on the Ford Airfield, at its south-western end. In terms of plant sound emissions, source values for the key items have been based on sound level readings performed at a KRM facility. Heavy goods vehicle movements along the access road have been included in sound level predictions – the sound outputs of which have been based on readings undertaken by Sharps Redmore for similar/heavy lorries at various sites.
- 7.2 The sound propagation calculations closely follow the guidance within BS 5228:2009 for ‘constructions and open sites’ and incorporate additional factors to improve certainty. One such factor is a correction for the effect of a broadly south-westerly light breeze, as observed during baseline monitoring.
- 7.3 The predicted levels of sound have been derived and compared with the main assessment tool for commercial/industrial sound sources, that being BS 4142:2014. (Other guidance has also been referred to). The former guidance requires a knowledge of the typical level of background sound and Sharps Redmore has performed monitoring to supplement readings reported by another practice for a separate development on the former airfield.
- 7.4 Sharps Redmore find that the batching plant and loading shovel activity on the proposed site compound are not likely to be the dominant feature across the four receptor locations considered in the neighbourhood. A similar or greater contribution to the forecast overall level of sound would be attributable to hgv movements along the access road. Such events would not be expected to differ in character to the general passage of lorries on the local road network and their gradual rise and fall in sound level ought not be any more attracting in attention to off-site lorries and/or those able to use the access road for permitted development. Accordingly, this assessment has considered that a correction for source character need not be applied.
- 7.5 The assessment steps follow the BS 4142:2014 guidance and due attention has been paid to context. The assessment outcomes indicate generally ‘less than adverse’ or ‘low’ acoustic impacts from routine batching and loading shovel activity combined with access road lorry movements. Consideration has been given as to whether an acoustic-grade fence on key boundary lines of the proposed compound would materially reduce the outcomes but the benefits would appear very slight at best.
- 7.6 It is concluded that the proposal for the KRM batching plant appears capable of achieving an acceptable level of sound at residential receptors in the neighbourhood.

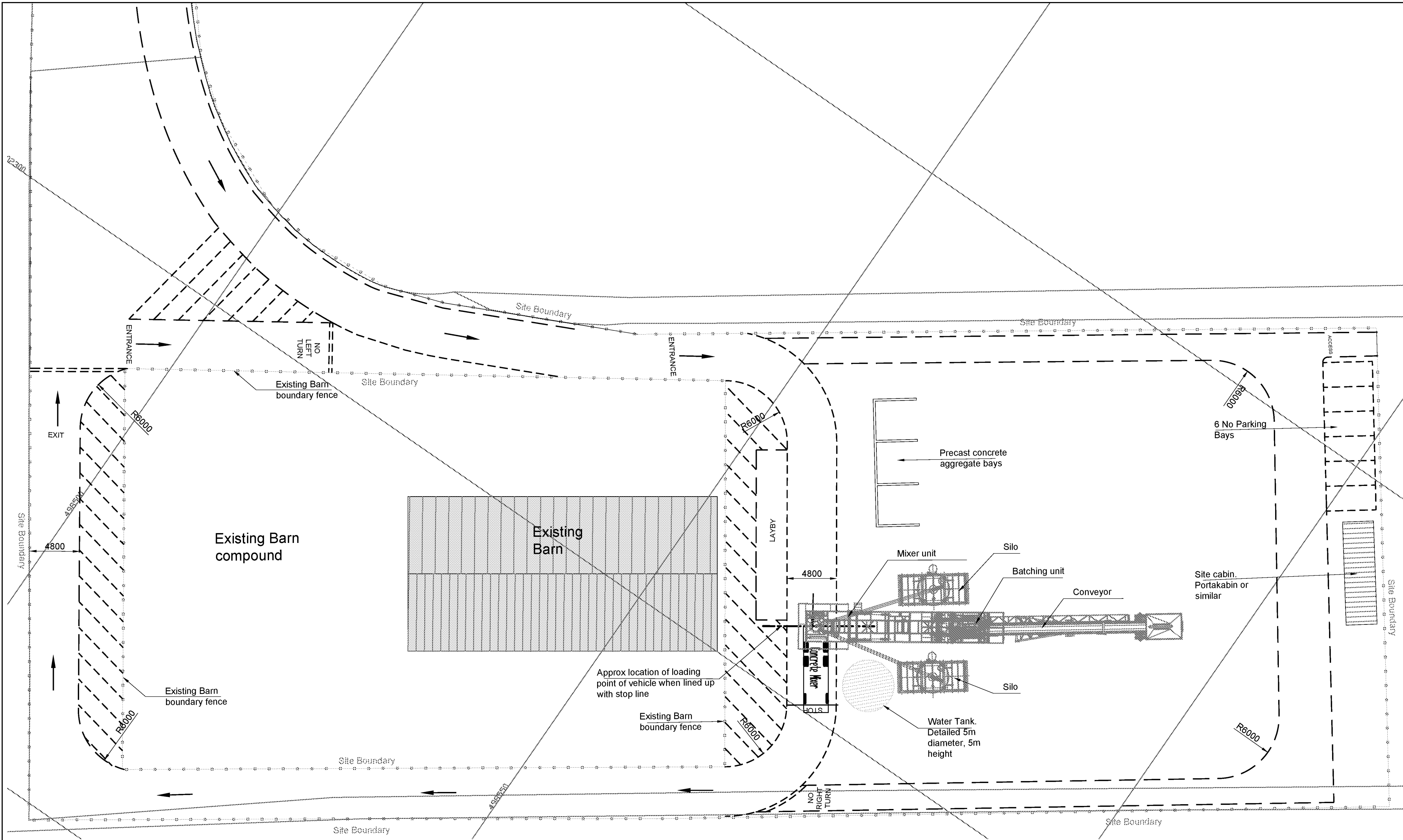
Figure 1

Aerial Image. Key Features

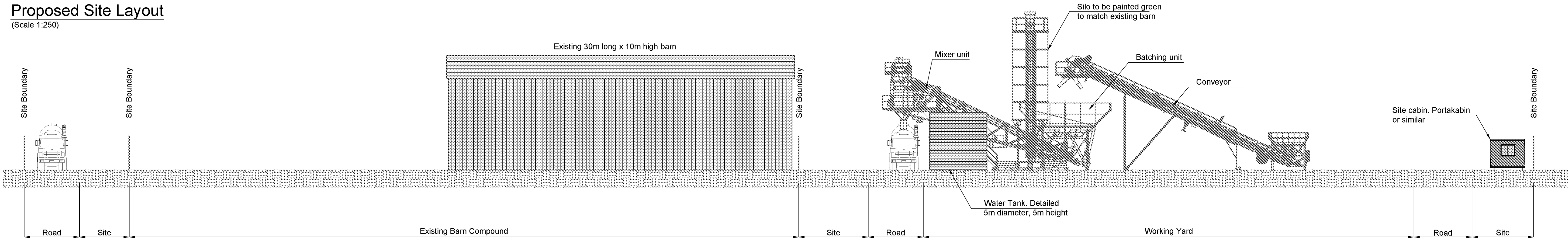


Figure 2

Proposed Site Layout



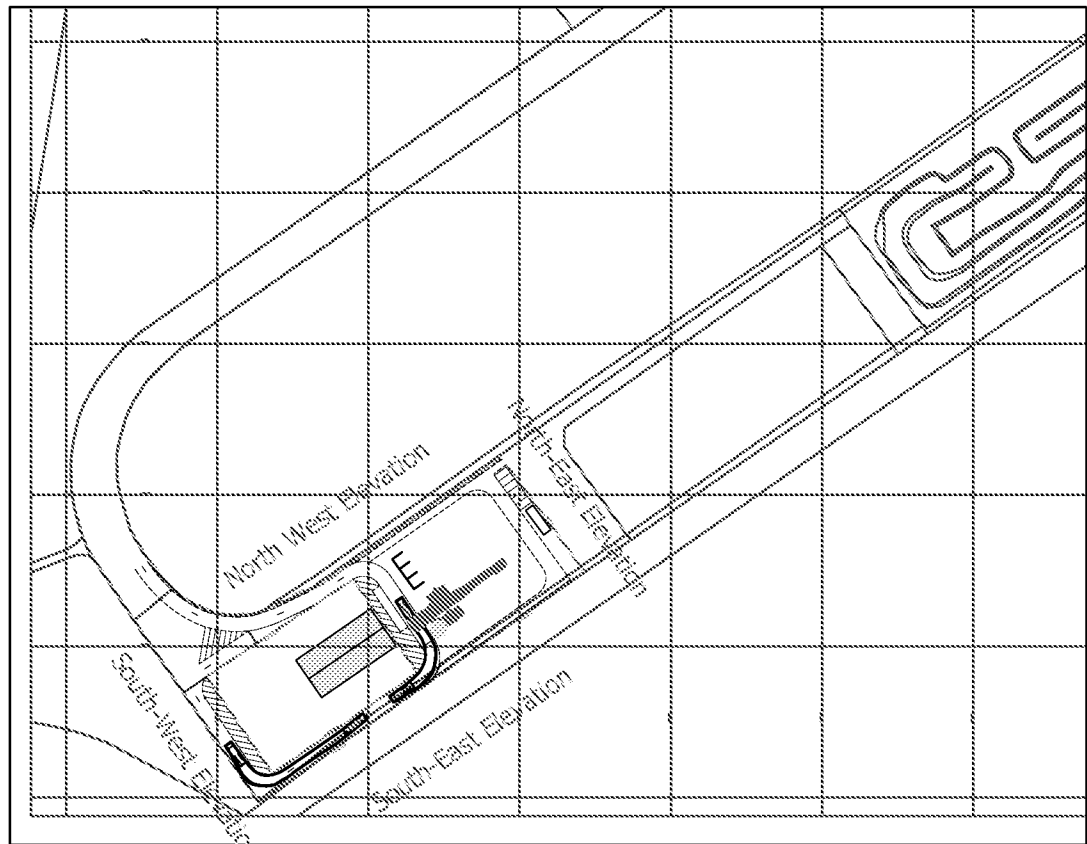
Proposed Site Layout
(Scale 1:250)



Proposed South-East
Elevation
(North West Elevation Similar -
Mirrored)
(Scale 1:200)

Proposed North-East Elevation
(Scale 1:200)

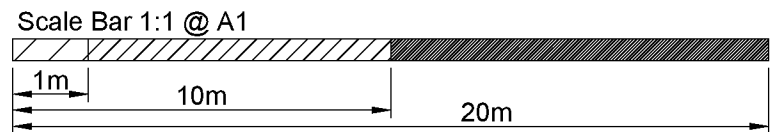
Proposed South-West Elevation
(Scale 1:200)



Location Plan
(Scale 1:2500)

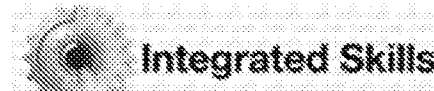
Concrete Mixer	Overall Length	8.36m
Concrete Mixer	Overall Width	2.615m
Concrete Mixer	Overall Body Height	3.97m
Concrete Mixer	Min Body Ground Clearance	0.39m
Concrete Mixer	Max Track Width	1.41m
Concrete Mixer	Lock to lock time	0.00s
Concrete Mixer	Kerb to Kerb Turning Radius	9.210m

Site vehicle tracking has been carried out using the above vehicle. Tracking omitted from this drawing for clarity



- NOTES:
1. This drawing is to be read in conjunction with all other Integrated Skills drawings, and any other relevant information.
 2. No dimensions are to be scaled from this drawing, but must be taken from site and / or the details.
 3. Unless noted otherwise all dimensions are in millimetres and all levels are in metres from the site datum.
 4. The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. Integrated Skills logos and company information must be removed from copies if information is re-used.

P4	MINOR REVISIONS TO ARRANGEMENT	D.N.	A.C.	22.02.18
P3	MINOR REVISIONS TO ARRANGEMENT	D.N.	A.C.	14.02.18
P2	DIRECTION OF TRAVEL REVISED	D.N.	A.C.	21.12.17
P1	PRELIMINARY ISSUE	D.N.	A.C.	20.11.17
REV.	DESCRIPTION	DRW	CHK	DATE



BELL HOUSE, 32 BELL STREET, ROMSEY
SOUTHAMPTON, SO51 8GW
TEL: 02380 737 983
EMAIL: ukinfo@integrated-skills.com
(www.integrated-skills.com)

CLIENT	KRM CONCRETE LTD.
PROJECT	LAND AT NORTHWOOD FARM BURNDELL ROAD, YAPTON BN18 0HR
DRAWING	PROPOSED CONCRETE PLANT INDICATIVE SITE LAYOUT AND ELEVATIONS

DRAWN BY:	D.G.N.	DATE	NOV 17
CHECKED BY:	A.C.	SCALE	1:250, 1:250@A1
DRAWING STATUS	PRELIMINARY		
DRAWING NO.	8975 / 200	REV.	P4

SAFETY, HEALTH AND ENVIRONMENTAL HAZARD INFORMATION BOX	
THE HAZARDS NOTED BELOW ARE IN ADDITION TO THE NORMAL HAZARDS AND RISKS FACED BY A COMPETENT CONTRACTOR WHEN DEALING WITH THE TYPE OF WORKS DETAILED ON THIS DRAWING.	
CONSTRUCTION RISKS	note ---
MAINTENANCE/CLEANING RISK	note ---
DEMOLITION RISKS	note ---

Figure 3

Aerial Image. Monitoring Locations



Google Earth

Annex 1

SLR Survey Data, Appendix C & D



Proposed Material Recovery Facility/Transfer Station
Northwood Farm, Yapton

Appendix C - Noise Assessment
TJ Waste & Recycling Limited

TJ Waste & Recycling

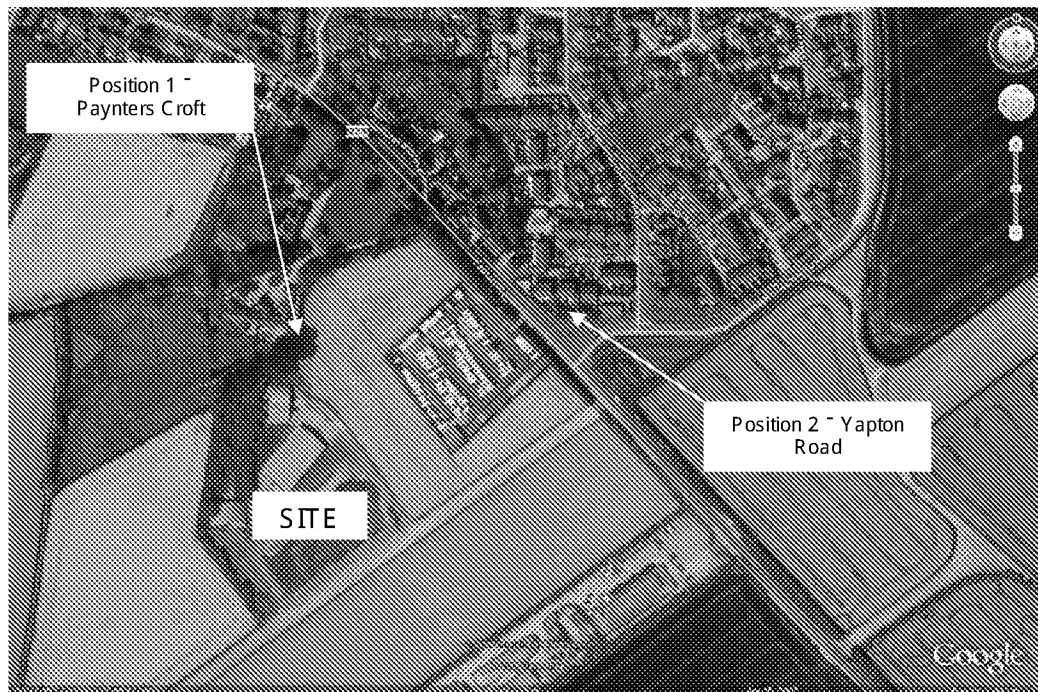
February 2009
SLR Ref: 402.0492.00005



solutions for today's environment

Appendix C - Noise Monitoring Locations

Figure C-1
Noise Measurement Locations



Appendix D - Full Survey Results

Table D-1
Measured Day time Noise Levels at Location 1 (Paynters Croft), free-field dB

Date	Start Time	L _{Aeq,T}	L _{A90}	L _{A10}	L _{AFmax}
14/01/2009	11:57	44.0	37.3	46.7	57.7
14/01/2009	12:12	44.0	35.4	46.8	61.4
14/01/2009	12:27	47.9	38.6	50.7	64.2
14/01/2009	12:42	48.2	40.1	51.2	66.6
14/01/2009	12:57	46.2	38.0	48.4	62.1
14/01/2009	13:12	46.1	39.7	49.2	61.7
14/01/2009	13:27	49.0	42.7	51.6	60.5
14/01/2009	13:42	53.4	39.7	57.5	71.2

Note: all measurements 15 minutes in duration

Table D-2
Measured Day time Noise Levels at Location 2 (Yapton road), free-field dB

Date	Start Time	L _{Aeq,T}	L _{A90}	L _{A10}	L _{AFmax}
14/01/2009	12:05	64.0	47.8	68.3	79.8
14/01/2009	12:20	64.2	48.1	68.8	77.8
14/01/2009	12:35	64.2	51.1	68.7	78.0
14/01/2009	12:50	64.3	46.5	69.2	76.0
14/01/2009	13:05	64.6	49.7	69.0	78.9
14/01/2009	13:20	65.7	51.2	70.1	80.7
14/01/2009	13:35	63.8	44.9	67.9	80.1
14/01/2009	13:50	65.0	50.5	68.9	78.6

Note: all measurements 15 minutes in duration

Annex 2

Calculation Sheets (4-off)

KRM. Proposed Batching Plant. Ford Airfield, Climping.

**Calc Sheet 1. Jan 2018
Routine Batching operations plus Vehicles.**

Receptor: Cinders Lane, potential future residential dwellings

1.	Batch plant & Shovel.				
	⌘ L _{WA} , on 100% time (102dB + 103dB)	: 106 dB			
	⌘ On-time per hour, on average, taken as	: 50%			
	⌘ Adjust for on-time	: -3 dB			
	⌘ Distance to receptor	: 470m			
	⌘ Adjust for distance	: -61 dB			
	⌘ Soft ground?	: Yes	Or	No	
	⌘ Adjust for soft ground (BS5228:2009)	: -5dB		0 dB	
	⌘ Barrier?	: No	Or	Yes	
	⌘ Hs=2m;Hr=1.5m;Hb=4m;s>b>r=30:440m	: 0 dB		-9 dB	
	⌘ Air absorption (4 dBA/km)	: -2 dB		0 dB	
	⌘ Downwind correction? For light SW	: 0 dB		0 dB	
	⌘ L _{Aeq,1hr,free-field, Plant}	: 35 dB		33 dB	
2.	Lorries on access road.				
	⌘ Consider Segments*:	: 1	2	3	*Notes
	⌘ L _{WA} , on 100% time	: 105 dB	105 dB	105 dB	Seg 1, TJWaste shields
	⌘ Length of segment	: 130m	350m	200m	Seg 2 straight,Seg3 curve
	⌘ On-time per segt, 30kph straight, 20kph curve	: 20sec	45sec	40sec	To nearest 5sec
	⌘ Adjust for on-time per hour	: -23 dB	-19 dB	-20 dB	
	⌘ Adjust for 12 movements per hour on average	: +11 dB	+11 dB	+11 dB	
	⌘ Average/acoustic centre distance	: 630m	410m	380m	
	⌘ Adjust for distance (Point source)	: -64 dB	-62 dB	-60 dB	
	⌘ Downwind correction? For light SW	: 0dB	0dB	0dB	
	⌘ Barrier?	: Yes	No	No	
	⌘ Barrier effect*	: Bldg	0 dB	0 dB	
	⌘ Segt 1. Hs=1.5m;Hr=1.5m;Hb~7m;	: -10 dB	n/a	n/a	s>b>r~130:500m
	⌘ Soft ground, say	: n/a	-5 dB	-5 dB	
	⌘ Air absorption (4 dBA/km)	: 0 dB	-2 dB	-2 dB	
	⌘ L _{Aeq,1hr,free-field, Lorries}	: 19 dB	28 dB	31 dB	
3.	Combined activity.				
	L _{Aeq,1hr,free-field,}	: 37dB or 36dB			

KRM. Proposed Batching Plant. Ford Airfield, Climping.

**Calc Sheet 2. Jan 2018
Routine Batching operations plus Vehicles.**

Receptor: Tithe Barn, self-catering accomodation

1. Batch plant & Shovel.

⌘ L _{WA'} , on 100% time (102dB + 103dB)	: 106 dB		
⌘ On-time per hour, on average, taken as	: 50%		
⌘ Adjust for on-time	: -3 dB		
⌘ Distance to receptor	: 380m		
⌘ Adjust for distance	: -60 dB		
⌘ Soft ground?	: Yes	Or	No
⌘ Adjust for soft ground (BS5228:2009)	: -5dB		0 dB
⌘ Barrier?	: No	Or	Yes
⌘ Hs=2m;Hr=1.5m;Hb=4m;s>b>r=30:350m	: n/a		-9 dB
⌘ Air absorption (4 dBA/km)	: -2 dB		0 dB
⌘ Downwind correction? For light SW	: +2 dB		+2 dB
⌘ L _{Aeq,1hr,free-field, Plant}	: 38 dB		36 dB

2. Lorries on access road.

⌘ Consider Segments*:	: 1	2a	2b	3	*Notes
⌘ L _{WA'} , on 100% time	: 105 dB	105 dB	105 dB	105 dB	Seg 1,open.
⌘ Length of segment	: 160m	100m	220m	200m	Seg2a,screened
⌘ On-time per segt, 30kph straight, 20kph curve	: 20sec	15sec	30sec	40sec	Seg2b,open
⌘ Adjust for on-time per hour	: -23 dB	-24 dB	-21 dB	-20 dB	Seg3, curve
⌘ Adjust for 12 movements per hour on average	: +11 dB	+11 dB	+11 dB	+11 dB	
⌘ Average/acoustic centre distance	: 220m	190m	220m	380m	
⌘ Adjust for distance (Point source)	: -55 dB	-54 dB	-55 dB	-60 dB	
⌘ Downwind correction? For light SW	: 0dB	0dB	+1 dB	+2 dB	
⌘ Barrier?	: No	Yes	No	No	
⌘ Barrier effect*	: 0 dB	Bldg	0 dB	0 dB	
⌘ Segt 2a. Hs=1.5m;Hr=1.5m;Hb~7m;70&120m	: n/a	-12 dB	n/a	n/a	
⌘ Soft ground, say	: -4 dB	0 dB	-4 dB	-5 dB	
⌘ Air absorption (4 dBA/km)	: -1 dB	0 dB	-1 dB	-2 dB	
⌘ L _{Aeq,1hr,free-field, Lorries}	: 33 dB	27 dB	34 dB	31 dB	

3. Combined activity.

L_{Aeq,1hr,free-field,} : 41dB or 40dB

KRM. Proposed Batching Plant. Ford Airfield, Climping.

**Calc Sheet 3. Jan 2018
Routine Batching operations plus Vehicles.**

Receptor: Northwood House

1. Batch plant & Shovel.

⌘ L _{WA'} , on 100% time (102dB + 103dB)	: 106 dB		
⌘ On-time per hour, on average, taken as	: 50%		
⌘ Adjust for on-time	: -3 dB		
⌘ Distance to receptor	: 460m		
⌘ Adjust for distance	: -61 dB		
⌘ Soft ground?	: Yes	Or	No
⌘ Adjust for soft ground (BS5228:2009)	: -6 dB		0 dB
⌘ Barrier?	: No	Or	Yes
⌘ Hs=2m;Hr=1.5m;Hb=4m;s>b>r=30:430m	: n/a		-9 dB
⌘ Air absorption (4 dBA/km)	: -2 dB		0 dB
⌘ Downwind correction? For light SW	: +2 dB		+2 dB
⌘ L _{Aeq,1hr,free-field, Plant}	: 36 dB		35 dB

2. Lorries on access road.

⌘ Consider Segments*:	: 1	2a	2b	3	*Notes
⌘ L _{WA'} , on 100% time	: 105 dB	105 dB	105 dB	105 dB	Seg 1,open.
⌘ Length of segment	: 180m	100m	200m	200m	Seg2a,screened
⌘ On-time per segt, 30kph straight, 20kph curve	: 25sec	15sec	25sec	40sec	Seg2b,open
⌘ Adjust for on-time per hour	: -22 dB	-24 dB	-22 dB	-20 dB	Seg3, curve
⌘ Adjust for 12 movements per hour on average	: +11 dB	+11 dB	+11 dB	+11 dB	
⌘ Average/acoustic centre distance	: 250m	250m	300m	460m	
⌘ Adjust for distance (Point source)	: -56 dB	-56 dB	-58 dB	-61 dB	
⌘ Downwind correction? For light SW	: 0dB	0dB	+1 dB	+2 dB	
⌘ Barrier?	: No	Yes	No	No	
⌘ Barrier effect*	: 0 dB	Bldg	0 dB	0 dB	
⌘ Segt 2a. Hs=1.5m;Hr=1.5m;Hb~7m;70&180m	: n/a	-12 dB	n/a	n/a	
⌘ Soft ground, say	: -4 dB	0 dB	-5 dB	-6 dB	
⌘ Air absorption (4 dBA/km)	: -1 dB	0 dB	-1 dB	-2 dB	
⌘ L _{Aeq,1hr,free-field, Lorries}	: 33 dB	24 dB	31 dB	29 dB	

3. Combined activity.

L_{Aeq,1hr,free-field,} : 39dB

KRM. Proposed Batching Plant. Ford Airfield, Climping.

**Calc Sheet 4. Jan 2018
Routine Batching operations plus Vehicles.**

Receptor: Yapton Road/Rollaston park

1. Batch plant & Shovel.

⊗ L _{WA'} , on 100% time (102dB + 103dB)	: 106 dB
⊗ On-time per hour, on average, taken as	: 50%
⊗ Adjust for on-time	: -3 dB
⊗ Distance to receptor	: 500m
⊗ Adjust for distance	: -62 dB
⊗ Soft ground?	: Yes
⊗ Adjust for soft ground (BS5228:2009)	: -6dB
⊗ Barrier?	: No
⊗ Hs= m;Hr=1.5m;Hb= m;s>b>r= : m	: 0 dB
⊗ Air absorption (4 dBA/km)	: -2 dB
⊗ Downwind correction? For light SW	: +2 dB dB
⊗ L _{Aeq,1hr,free-field, Plant}	: 35 dB

2. Lorries on access road.

⊗ Consider Segments*:	: 1	2	3	*Notes
⊗ L _{WA'} , on 100% time	: 105 dB	105 dB	105 dB	Seg1.Open.
⊗ Length of segment	: 240m	240m	200m	Seg2,Open. Seg3 curve
⊗ On-time per segt, 30kph straight, 20kph curve	: 30sec	30sec	40sec	To nearest 5sec
⊗ Adjust for on-time per hour	: -21 dB	-21 dB	-20 dB	
⊗ Adjust for 12 movements per hour on average	: +11 dB	+11 dB	+11 dB	
⊗ Average/acoustic centre distance	: 110m	250m	500m	
⊗ Adjust for distance (Point source)	: -49 dB	-56 dB	-62 dB	
⊗ Downwind correction? For light SW	: +1 dB	+2 dB	+2 dB	1dB@Seg1, <150m
⊗ Barrier?	: No	No	No	
⊗ Barrier effect*	: n/a	n/a	n/a	
⊗ Segt. Hs= m;Hr= m;	: 0 dB	0 dB	0 dB	s>b>r~
⊗ Soft ground, say	: -3 dB	-4 dB	-6 dB	
⊗ Air absorption (4 dBA/km)	: 0 dB	-1 dB	-2 dB	
⊗ L _{Aeq,1hr,free-field, Lorries}	: 44 dB	36 dB	28 dB	

3. Combined activity.

L_{Aeq,1hr,free-field,} : 45dB