

Michael Elkington
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County Planning

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29th August 2018

Mr Mark Oldridge,
Mineral Surveying Services Ltd,
20 Saddlers Close,
Glenfield,
Leicester,
LE3 8QU

By email only to (oldridgemark@gmail.com)

Dear Mr Oldridge,

Description of Development: Temporary permission for exploration and appraisal comprising the flow testing and monitoring of the existing hydrocarbon lateral borehole along with site security fencing, the provision of an enclosed testing flare and site restoration

Location of Development: Lower Stumble Hydrocarbon Exploration Site, London Road, Balcombe, Haywards Heath, West Sussex, RH17 6JH

Planning Permission Ref: WSCC/040/17/BA

Thank you for your recent application regarding the above and the information submitted in respect of the planning conditions for the above development.

The Council has considered your application and I am now able to inform you that:

- (1) The submitted details for condition 7 (Pollution Prevention) are acceptable and the condition is now discharged.
- (2) The submitted details for condition 8 (Surface Water Drainage Scheme) are acceptable and the condition is now discharged.
- (3) The submitted details for condition 9 (Foul Water Drainage Scheme) are acceptable and the condition is now discharged.
- (4) The submitted details for condition 10 (Lighting Strategy) is acceptable and the condition is part discharged. Further submission of information is required covering part c) of condition 10 once the lighting has been installed.
- (5) The submitted details for condition 11 (Traffic Management Plan) are acceptable and the condition is now discharged.
- (6) The submitted details for condition 15 (Noise Management Plan) are acceptable and the condition is now discharged.
- (7) The submitted details for condition 17 (Bat Monitoring) is acceptable and the condition can be part discharged. Further submission of reports is required once the permission has been implemented.
- (8) The submitted details for condition 18 (Restoration) are acceptable and the condition is now discharged.

(9) The submitted details for condition 19 (Additional Security Measures) are acceptable and the condition is now discharged.

I have emailed you separately concerning further details/information for condition 21 (Community Liaison Group) and discussions are still on-going regarding the Terms of Reference for this condition.

Please retain a copy of this letter/email with the Decision Notice and approved details for future reference.

Planning application details can be accessed via the Council's website using the application reference

number: <http://buildings.westsussex.gov.uk/ePlanningOPS/searchPageLoad.do>

Copies of approved conditional information for the application can be found in the 'post decision' folder.

Please note that condition 3 (Notification of Works) and condition 20 (Workover Rig) are still required to be discharged prior to the commencement of development. In addition, condition 14 (Noise Monitoring) requires noise levels to be continuously monitored from the date of the commencement of development, with the results submitted to the Minerals Planning Authority on a weekly basis.

In addition, and as mentioned above, conditions 10 (Lighting Strategy) and 17 (Bat Monitoring) also require further details before they can be fully discharged.

Yours sincerely

Chris Bartlett
Principal Planner

Application for approval of details reserved by condition.
Town and Country Planning Act 1990
Planning (Listed Buildings and Conservation Areas) Act 1990

Publication of applications on planning authority websites.

Please note that the information provided on this application form and in supporting documents may be published on the Authority's website.
If you require any further clarification, please contact the Authority's planning department.

1. Applicant Name, Address and Contact Details

Title:	<input type="text"/>	First Name:	<input type="text"/>	Surname:	<input type="text" value="Angus Energy PLC"/>
Company name:	<input type="text" value="Angus Energy PLC"/>				
Street address:	<input type="text" value="Building No. 3 Chiswick Business Pk"/>				
	<input type="text" value="566 Chiswick High Street"/>				
	<input type="text"/>				
Telephone number:	<input type="text" value="02088996380"/>				
Mobile number:	<input type="text"/>				
Town/City:	<input type="text" value="London"/>				
Fax number:	<input type="text"/>				
Country:	<input type="text"/>				
Email address:	<input type="text"/>				
Postcode:	<input type="text" value="W4 5YA"/>				
Are you an agent acting on behalf of the applicant?					
<input checked="" type="radio"/> Yes <input type="radio"/> No					

2. Agent Name, Address and Contact Details

Title:	<input type="text" value="Mr"/>	First Name:	<input type="text" value="Mark"/>	Surname:	<input type="text" value="Oldridge"/>
Company name:	<input type="text" value="Mineral Surveying Services Limited"/>				
Street address:	<input type="text" value="20 Saddlers Close"/>				
	<input type="text" value="Glenfield"/>				
	<input type="text"/>				
Telephone number:	<input type="text"/>				
Mobile number:	<input type="text"/>				
Town/City:	<input type="text" value="Leicester"/>				
Fax number:	<input type="text"/>				
Country:	<input type="text" value="Leicestershire"/>				
Email address:	<input type="text"/>				
Postcode:	<input type="text" value="LE3 8QU"/>				
	<input type="text" value="oldridgemark@gmail.com"/>				

3. Site Address Details

Full postal address of the site (including full postcode where available)

House: Suffix:

House name:

Street address:

Town/City:

Postcode:

Description of location or a grid reference
(must be completed if postcode is not known):

Easting:

Northing:

Description:

Temporary permission for exploration and appraisal comprising the flow testing and monitoring of the existing hydrocarbon lateral borehole along with site security fencing, the provision of an enclosed flare and site restoration.

4. Pre-application Advice

Has assistance or prior advice been sought from the local authority about this application?

Yes No

If Yes, please complete the following information about the advice you were given (this will help the authority to deal with this application more efficiently):

Officer name:

Title: First name: Surname:

Reference:

Date (DD/MM/YYYY): (Must be pre-application submission)

Details of the pre-application advice received:

5. Description of the Proposal

Please provide a description of the approved development as shown on the decision letter:

Temporary permission for exploration and appraisal comprising the flow testing and monitoring of the existing hydrocarbon lateral borehole along with site security fencing, the provision of an enclosed flare and site restoration.

Application reference number:

Date of decision:

Please state the condition number(s) to which this application relates:

Condition number(s):

Has the development already started? Yes No

6. Discharge of Condition(s)

Please provide a full description and/or list of the materials/details that are being submitted for approval:

Condition 7 Pollution Prevention, Condition 8 Surface Water Drainage, Condition 9 Foul Water Drainage, Condition 10 Lighting Strategy, Condition 11 Traffic Management Plan, Condition 15 Noise Management Plan, Condition 17 Bat Monitoring, Condition 18 Restoration, Condition 19 Additional Security Measures and Condition 21 Liaison Group.

7. Part Discharge of Condition(s)

Are you seeking to discharge only part of a condition?

Yes No

8. Site Visit

Can the site be seen from a public road, public footpath, bridleway or other public land?

Yes No

If the planning authority needs to make an appointment to carry out a site visit, whom should they contact? (Please select only one)

The agent The applicant Other person

9. Declaration

I/we hereby apply for planning permission/consent as described in this form and the accompanying plans/drawings and additional information. I/we confirm that, to the best of my/our knowledge, any facts stated are true and accurate and any opinions given are the genuine opinions of the person(s) giving them.



Date

22/05/2018



Angus Energy Plc

Noise Management Plan

Balcombe 2z hydrocarbon bore holing

AUGUST 2018



1. Summary

A Noise Management Plan (NMP) is provided for Balcombe 2z hydrocarbon well testing in response to planning condition 15. This document presents a noise management plan for the gas exploration site. It establishes the framework within which noise from the site will be controlled. Control will be by the following measures:

- Best Practicable Means,
- Setting noise limits,
- Noise monitoring procedure,
- Community liaison,
- Procedure for addressing any complaints received, and
- Details of mitigation methods (if required).

Details of these approaches are provided within this plan.

2. Site Objectives

The proposed works at the Balcombe 2z hydrocarbon site will involve the following three stages:

- Stage 1: Exploration well testing and operations which includes borehole preparation and flow initiation operations, flow testing and pressure monitoring;
- Stage 2: Plug and abandonment of the well; and
- Stage 3: Demobilisation and restoration of the site.

3. Introduction

Planning conditions are now being discharged for a temporary 14 day operational period of works involving flow testing and pressure monitoring of the existing exploration borehole. If this testing reveals that the hydrocarbon reserves are not of sufficient quantity and/or quality to commercially extract then the existing borehole would be plugged with cement and the land restored back to its previous use as forestry storage. In the event that the borehole testing and pressure monitoring confirms that there are hydrocarbon reserves that could be commercially extracted then the existing borehole would be temporarily suspended whilst a separate planning application prepared for a future production phase.

4. Management of Noise Impacts

The requirement to use Best Practicable Means (BPM) to mitigate the effects of noise and vibration is set out in section 72 of the Control of Pollution Act 1974 and section 79 of the Environmental Protection Act 1990. Best Practicable Means incorporates two essential elements:

- Practicable – this is defined as reasonably practicable having regard, among other things, to local conditions and circumstances; the current state of technical



knowledge; and to financial implications; and

- Means – these are the means to be employed, including design, installation, maintenance, manner and periods of operation of plant and machinery; and the design, construction and maintenance of buildings and structures.

5. Plant Repair and Maintenance

All planned repairs and maintenance of plant shall be undertaken during normal working hours. By exception repair and maintenance may need to be carried out outside normal working hours. Activities outside normal working hours that could give rise to disturbance will be kept to a practicable minimum. Such maintenance activities shall only be undertaken within the site compound and behind the site hoarding.

6. Noise Control

The contractor will, in so far as is reasonably practicable, control and limit noise levels so that residential properties and other sensitive receptors are protected from excessive noise from the site. Best Practicable Means (BPM's) shall be employed at all times and for all stages of set up, operation, and decommissioning of the site.

Details of the site activities and steps to minimise noise are set out in this NMP. Any changes to the noise monitoring methodology set out in this plan, working practices or equipment to be used that affect the offsite noise level will be discussed with West Sussex County Council (WSCC). Noise prediction, evaluation and assessment of noise will, by necessity, be a continuous activity throughout all stages of set up, operation, and decommissioning of the site.

Measures to be considered in implementing BPM's will be consistent with condition 15 and the recommendations of BS5228-1:2014 'Code of practise for noise and vibration and open sites' and will, where reasonably practicable, include BMP's shown within Section 22.

7. Noise Limit Criteria

The National Planning Policy Framework (NPPF) (published March 2012) is the means by which noise is considered within the planning regime. The NPPF provides a series of policies, giving local authorities the flexibility in meeting the needs of local communities. An associated technical guidance note for NPPF provides noise limits when determining planning applications covering minerals extraction. The noise limits from the NPPF technical guidance are presented in Table 7.1.

Table 7.1: Assessment Criteria

Time Period	First Aim	Alternative Limit
Day: 0700 – 1900	Background $L_{A90,t}$ + 10dB	As close as possible to the $L_{A90}+10dB$, with an upper limit of 55dB $L_{Aeq,1hour}$
Evening: 1900 – 2200		Background $L_{A90,t}$ + 10dB

Time Period	First Aim	Alternative Limit
Night: 2200 - 0700		42 dB L _{Aeq,1hour}

8. Baseline Noise Measurements

Unattended and attended noise measurements were taken between 20 September 2017 and 28 September 2017. The results of the survey are summarised in Tables 8.1 and 8.2. A full set of measurement data and discussion can be found within RSK Ltd previous issued report (Doc ref: Balcombe Environmental Report with Appendix_1.0).

Table 8.1 Attended Noise Level Measurement Results

Location	Date	Time Period	Start Time	Duration (hh:mm)	Statistical Parameters, dB			
					L _{Aeq,T}	L _{Amax,T}	L _{A10,T}	L _{A90,T}
R2	20/09/17	Day	17:26	01:00	59.5	88.3	49.1	37.8
	28/09/17	Evening	19:34	01:00	35.1	59.4	37.0	29.0
	21/09/17	Night	23:15	01:00	33.3	57.2	36.0	26.3
R3	20/09/17	Day	16:14	01:00	49.5	75.3	46.8	40.4
	21/09/17	Evening	21:05	01:00	44.7	74.7	39.6	29.9
	21/09/17	Night	22:05	01:00	39.3	73.8	36.6	26.7
R4	20/09/17	Day	12:26	01:00	51.0	80.3	53.2	45.0
R4	28/09/17	Evening	20:50	01:00	43.2	74.9	44.0	31.6
	20/09/17	Night	00:22	01:00	28.6	60.0	30.3	23.7
R5	21/09/17	Day	11:11	01:00	70.3	89.8	74.7	47.4
	21/09/17	Evening	19:33	01:00	69.9	87.5	73.0	40.7
	20/09/17	Night	22:00	01:00	63.5	87.3	61.6	30.2

Table 8.2 Unattended Noise Level Measurement Results

Date	Time Period	Start Time	Duration (hh:mm)	Statistical Parameters, dB			
				L _{Aeq,T}	L _{Amax,T}	L _{A10,T}	L _{A90,T}
20/09/17	Day	17:26	12:00	54.7	84.5	56.0	43.3
	Evening	19:00	03:00	50.9	79.3	51.4	37.2
	Night	22:00	09:00	51.3	87.8	43.9	33.9
21/09/17	Day	07:00	12:00	54.3	87.8	56.2	44.9
	Evening	19:00	03:00	48.7	76.3	48.7	38.8
	Night	22:00	09:00	50.3	90.7	43.0	35.4
22/09/17	Day	07:00	12:00	63.9	88.9	58.4	41.9
	Evening	19:00	03:00	50.3	74.1	50.8	39.1
	Night	22:00	09:00	51.9	90.7	44.0	35.7
23/09/17	Day	07:00	12:00	55.7	89.5	55.0	40.9
	Evening	19:00	03:00	49.7	81.8	50.2	37.0
	Night	22:00	09:00	45.9	84.1	43.2	33.4
24/09/17	Day	07:00	12:00	55.1	87.5	53.4	40.7
	Evening	19:00	03:00	49.6	76.5	50.9	39.8
	Night	22:00	09:00	32.5	62.0	37.7	34.6
25/09/17	Day	07:00	12:00	54.0	92.1	53.7	40.4
	Evening	19:00	03:00	49.0	67.2	47.6	35.1
	Night	22:00	09:00	44.6	73.6	40.4	33.0
26/09/17	Day	07:00	12:00	53.3	85.3	53.4	39.8

Date	Time Period	Start Time	Duration (hh:mm)	Statistical Parameters, dB			
				L _{Aeq,T}	L _{Amax,T}	L _{A10,T}	L _{A90,T}
	Evening	19:00	03:00	50.0	73.4	49.0	36.6
	Night	22:00	09:00	51.5	90.5	42.8	33.5
27/09/17	Day	07:00	12:00	53.6	84.8	55.0	41.9
	Evening	19:00	03:00	N/A ¹	N/A ¹	N/A ¹	N/A ¹
	Night	22:00	09:00	42.8	76.2	51.2	37.1
28/09/17	Day	07:00	11:00	64.6	93.7	56.1	41.8
Summary*			Day	59.1	93.7	55.2	41.7
			Evening	49.8	81.8	49.8	37.7
			Night	48.9	90.7	43.3	34.6

*Statistical analysis averaged over periods.

9. Working hours

Site operation and the movement of all Heavy Goods Vehicles (HGVs) to and from the site will be undertaken during standard working hours i.e. 08:00 to 18:00 Monday to Friday; and 08:00 to 13:00 on Saturdays. The flow testing operations and borehole pressure monitoring will be undertaken within 14 days. Flow testing will require 24 hours operation and monitoring, but will not require any vehicle movements. (essential maintenance/security e.g. obstacles/obstructions).

10. Identification of Sensitive Receptors

This section identifies the existing noise sensitive receptors within close proximity of the site. These receptors are shown in Table 10.1 below.

Table 10.2: Existing Sensitive Receptors near to site location

ID	Receptor	Positioning (x,y)	Distance form site (m)
R1	Kemp Farm	530830.84, 129575.86	380

¹ No data available due to rain during this period

ID	Receptor	Positioning (x,y)	Distance form site (m)
R2	Upper Pilstye Cottage	530472.78, 128702.12	765
R3	Pilstye Farm Cottage	530702.37, 128498.19	810
R4	Norfolk Cottage	530252.68, 129480.83	775
R5	Peartree cottage	531564.84, 129822.91	745

The closest receptors to the site are shown in Figure 1.1 and site location is shown in Figure1.2.



Figure 1.1: Receptors and Site Location

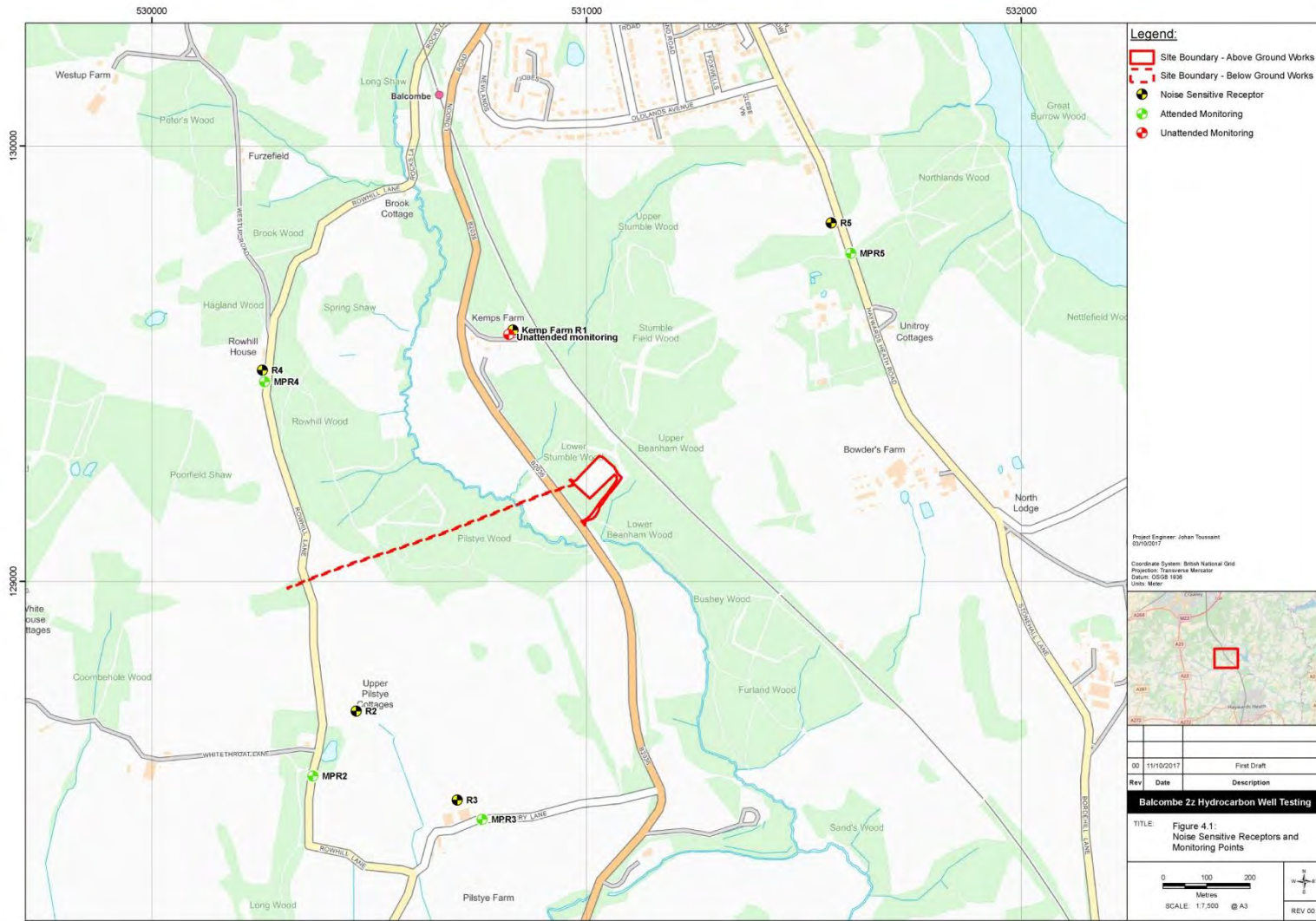
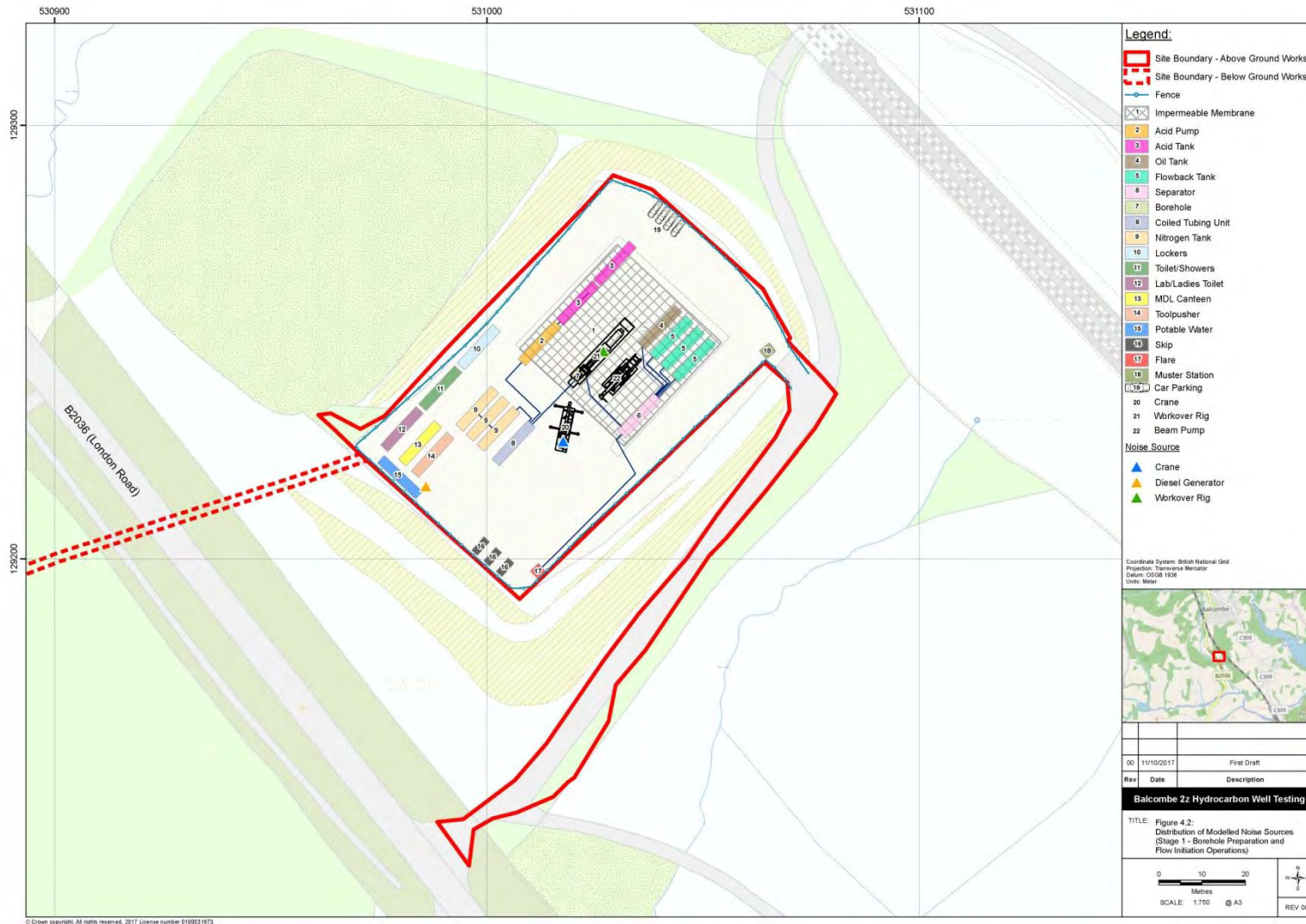




Figure 1.2: Site Layout



11. Plant Noise Level

Full details of the calculation of operational noise levels are given in Appendix A, including the main items of plant and the noise level attributed to the plant. The following plant and equipment will be required to support the proposed operations:

- Linear Pump Rod and associated crane;
- Shrouded flare;
- Nitrogen Converter;
- Nitrogen Tank;
- Acid Tank;
- Acid pump;
- Oil Tank;
- Flowback Tank;
- Separator;
- Coil tubing unit;
- Coil tubing; and
- Lighting towers.

12. Operational Plant Locations

Operational noise levels will be recalculated if any significant changes to the layout are made. Significant changes include different positioning or orientation of the main noise-producing plant items; use of different plant items or different numbers of plant items; and different locations of plant in relation to office/storage containers that provide a screening effect.

13. Operational Noise Emissions

Plant noise levels associated with the well testing operations have been obtained from Angus Energy Plc. For generic, non-specific items of plant are obtained from Annex C and D of BS 5228:2009+A1:2014 used to estimate the plant levels of plant measured at 10m. All items of plant have been converted to sound power levels (L_w) and have been represented as point and areas sources where appropriate.

The operational resultant noise emissions are set out in Section 15.

14. Noise Calculations

Worst-case operational noise levels from each activity have been calculated, using the methodology set out in Annex F of BS 5228:2009+A1:2014. Although the operations on site could be classed as either 'operational' or 'construction' for the purpose of predictions it is felt the calculation algorithm in BS5228 is most appropriate. The calculations have been set up to predict maximum noise levels from each activity at worst case sensitive receptors, considering the plant in operation at closest distance of approach from the

receptor.

The noise predictions at each considered receptor have been compared to the noise criteria limits as defined in Table 7.1, Section 7. This was accomplished in order to assess the significance of the impact against the criteria as a result of the operational noise from the site.

15. Noise Modelling

A computer noise model has been created in order to determine the plant noise level at the façade of the nearest receptors arising from operations within the site. Predictions have been undertaken using Soundplan v7.4, which incorporates methodology specified within ISO 9613-2. The noise prediction method described in ISO 9613 is suitable for a wide range of engineering applications where the noise level outdoors is of interest. The noise source(s) may be moving or stationary and the method considers the following major mechanisms of noise attenuation:

- Geometrical divergence (also known as distance loss or geometric damping);
- Atmospheric absorption;
- Ground effect;
- Reflection from surfaces; and
- Screening by obstacles and buildings.

The model has been set up using the following parameters:

Table 15.1: Modelling parameters

Item	Setting
Algorithms	Source noise - ISO 9613:-2:1996 'Attenuation of sound during propagation outdoors – general method of calculation'
Ground Absorption	Acoustically soft (assumed 0.7 coefficient) – mostly farming land with roads and scattered houses. Acoustically hard (assumed 0.4 coefficient) – mostly gravel and high-density polyethylene (HDPE) membrane around the well area.
Meteorological Conditions	10 degrees Celsius 70% humidity Wind from source to receiver
Façade Corrections	A free-field level predicted value at 1m from the façade is taken into consideration for the purpose of assessment.
Receptor Height	Ground Floor 1.5m above ground (daytime) First Floor 4m above ground (night-time)
Source Modelling	See Appendix A
Terrain	Terrain contours intervals of 2m have been imported into the model, using 2m resolution terrain contours.
Site Layout	Digitised based on aerial imagery with 50cm resolution

16. Predicted Noise Levels

A summary of predicted noise levels from the different phases at the closest properties to the works and the corresponding assessment criteria is presented in Table 16.1. Due to the distance between the site and the closest residential receptors and the nature of the site noise (i.e. broadband), it is unlikely that higher frequencies would contribute significantly to the overall noise level and the tones unlikely to be present at receptors. The noise will neither be intermittent (being continuous for the time it is on) irregular, nor impulsive. Therefore, no acoustic corrections as per condition 13 have been applied to specific noise levels of the site operations.

An assessment for the proposed operation at the site has been conducted at ground floor during daytime and first floor during evening and night time, each of those at the most exposed facades of the residential receptors for the site operations. Predictions which are equal to or exceed the assessment criteria have been highlighted.

Table 16.1: Predicted noise levels at the closest receptors

	Period	Criteria (Background $L_{A90,t}$ + 10dB)	Highest Predicted Site Operation Noise Levels / dB $L_{Aeq, T}$			
			Stage 1		Stage 2	Stage 3
			Borehole preparation and flow initiation operations (daytime)	Flow testing (24 hours)	Plug and abandonment of the well (day and evening)	Demobilisation and restoration of the site (daytime)
R1	Day	55	45	45	34	45
	Evening	48	n/a	45	34	n/a
	Night	42	n/a	45	n/a	n/a
R2	Day	55	32	32	19	31
	Evening	39	n/a	33	21	n/a
	Night	42	n/a	33	n/a	n/a
R3	Day	55	28	28	16	29
	Evening	40	n/a	28	16	n/a
	Night	42	n/a	28	n/a	n/a
R4	Day	55	38	38	23	38
	Evening	42	n/a	39	26	n/a
	Night	42	n/a	39	n/a	n/a

	Period	Criteria (Background $L_{A90,t}$ + 10dB)	Highest Predicted Site Operation Noise Levels / dB $L_{Aeq, T}$			
			Stage 1		Stage 2	Stage 3
			Borehole preparation and flow initiation operations (daytime)	Flow testing (24 hours)	Plug and abandonment of the well (day and evening)	Demobilisation and restoration of the site (daytime)
R5	Day	55	23	23	11	22
	Evening	51	n/a	24	13	n/a
	Night	42	n/a	24	n/a	n/a

The assessment of impact is undertaken by comparing the measured background noise level (L_{A90}) plus 10dB to the calculated plant level (L_{Aeq}) at each receptor (NPPF first criteria). Since the calculated plant level (L_{Aeq}) at each receptor was below or equal to the first aim criteria within NPPF technical guidance, it was not necessary to assess the results against the alternative limit presented in Table 7.1, Section 7.

Although the calculated plant level (L_{Aeq}) at each receptor is below the ‘first aim’ criteria set in NPPF, they are above the measured background level (L_{A90}) at some receptors. As a result, the site activities may be audible at the properties facades however unlikely to be dominant in the existing noise environment. The above assessment indicates that noise from the site operations with respect to residential receptors is a minor direct impact. The impact will only be during the duration of the works and therefore temporary.

At R1 (Kemp Farm) the predicted noise level is above to the noise criteria and has the potential to cause an impact during the night time period. However it should be noted that the noise predictions are considered to be worst case (based on worst case assumptions) and in practice noise levels are expected to be lower. It is proposed that continuous noise monitoring is undertaken during Stage 1 Flow Testing at this receptor. The monitoring will follow the noise monitoring procedures with Section 20 of this document. Where exceedances of the criteria are measured in practice additional noise control measures will be identified by the project team.

17. Complaints Procedure

In the event that exceedances are identified and complaints are raised, appropriate mitigation measures will be installed to reduce noise levels to within the specified limit. Where safe and practical works will be stopped immediately following a verified complaint and exceedance, and will not be commenced until adequate noise control measures are developed and installed.

Furthermore, noise measurements will be undertaken once additional mitigation is in place, in order to check the effectiveness of those mitigation measures and the compliance with the noise limits.

The Local Authority's Environmental Health Department will be informed in writing in the event of any noise exceedance and the measures undertaken to reduce noise levels. In the event that noise complainants are raised, the veracity of such complaints will be investigated. Part of the investigation will be based on construction site logs (identifying the works and plant used at the time of the complaints) with the rest reliant on the undertaking of noise monitoring at the complainant receptor or at a representative location. Complaints will be logged by the project team, and complainants contacted within 48 hours of the complaint to talk through the investigation process. Where monitoring is considered to be a necessity, noise monitoring will be undertaken within 72 hours of receipt of the complaint. The project team will keep the complainant updated throughout the investigation process.

18. Noise Monitoring Equipment

Where monitoring is required instrumentation meeting the standards set out in BS EN 60942: 2018 'Electroacoustics – Sound level meters. Specifications' will be used;

Measurements will comprise of broadband indices L_{Aeq} , L_{A10} , L_{Amax} and L_{A90} . The equipment chosen will be a Class 1 noise level meter with a suitable traceable calibration certificate. Field calibration will also be undertaken and documented prior to and after measurements;

19. Noise Monitoring Procedure – Attended Complaint Response or Attended Compliance

Should noise monitoring be requested or required during the works, the following outline procedure would apply:

- Measurements will be undertaken in accordance with British Standard BS 7445-1:2003 'Description and measurement of environmental noise. Guide to quantities and procedures',
- The noise survey will be undertaken at the receptor closest to the works, complainants property or proxy location, whichever is considered most appropriate;
- The noise survey will be carried out during representative working hours for a duration considered representative of the activity, and where possible inclusive of worst case activities, or those responsible for a complaint;
- The noise monitoring results will be used to assess compliance with the applicable project criteria; and
- Noise monitoring should be undertaken by a competent and qualified person.

Noise survey results will be included in a letter report to be submitted to the Local Authority Environmental Health Department within one week of the monitoring.

20. Continuous Noise Monitoring Procedure

Due to the predicted noise levels at Kemp's Farm (R1) during the 24 hour flow testing (Stage 1) at night, a continuous noise monitoring regime will be established at the boundary of the residence. Noise monitoring equipment shall be installed in free-field

conditions representative of a worst case façade of the receptor in the direction of the site works. Noise monitoring will be continuous over the course of 24 hour periods, where noise monitoring equipment shall comply with procedures detailed in Section 18. Noise monitoring equipment will either be battery or mains powered whichever is appropriate. If exceedances over the project criteria are identified in practice, then further long term noise mitigation shall be implemented following the mitigation procedure detailed in Section 23.

21. Noise Monitoring Reporting

Angus Energy Plc will inform WSCC within 24 hours of the occurrence of any exceedance of the project noise criteria during the attended compliance or continuous noise monitoring. Angus Energy Plc will inform WSCC of the cause of the alert and implement any remedial action that is necessary within 48 hours of the occurrence of the event. Where requested, Angus Energy Plc will submit records showing the raw data collected at the receptor(s). Noise monitoring reports shall include L_{A90} and L_{Aeq} noise levels, the prevailing weather conditions, details and calibration of the equipment used for measurement and comments on the other sources of noise which affect the noise environment. The data will be presented graphically and submitted within one week following the end of each weekly monitoring period.

22. Vibration

Through a review of the construction plant list provided by Angus Energy Plc has shown that there are no items of plant that would cause the potential to exceed threshold values in the relevant British Standards. However if during the operational stages complaints have arisen due to excessive vibration; vibration monitoring should be conducted during a period of operation at the identified receptor in order to determine the level of significance over an appropriate threshold category identified within relevant standards.

23. Long Term Noise Mitigation

If regular exceedances of the project noise criteria are indicated in the results of the weekly noise monitoring at Kemps Farm, long term noise mitigation measures to protect this receptor will be investigated. Long term noise mitigation is likely to be in the form of a noise barrier. Indicatively this will be the erection of temporary hoarding at 2 meters height with a minimum surface density of 15 kg/m^2 (or manufacturer provide evidence to confirm minimum of 10dB(A) reduction at 500Hz. If exceedances have been identified on regular basis then long term mitigation will be designed and implemented in a reasonable and practical timeframe.

24. Best Practicable Means and Instantaneous Mitigation

Best Practicable Means (BPM) and instantaneous mitigation methods will be employed at all times to minimise noise and vibrations. The following general measures will be included;

- Throttling back gas flow for the flare where appropriate;

- Stopping works where safe to do so;
- Erection of acoustic screens where necessary;
- if required a temporary noise barrier must have at least 12 kg/m² surface density (or manufacturer provide evidence to confirm minimum of 10dB(A) reduction at 500Hz), where possible higher than the line of sight to neighbours;
- using electrically powered equipment run from the mains supply, or when this is not available, generators compliant with Euro Standard IV;
- use of screws and drills rather than nails for fixing hoardings etc;
- careful handling of materials & waste such as lowering rather than dropping items;
- taking steps to isolate the deconstruction works from sensitive neighbours, in order to minimise the transfer of vibration and structure borne noise;
- avoidance of unnecessary noise (such as engines idling between operations);
- The site layout should be designed to minimise potential effects on neighbours. A competent banksman should be employed to provide assistance to vehicles accessing and leaving the site, thereby ensuring minimal traffic disturbance and pedestrian safety.
- Vehicle movements should be planned to ensure that Lorries do not arrive or depart outside standard hours. No daytime or night-time parking of lorries will be permitted outside agreed areas.
- shouting, loud radios or excessive revving of engines) by effective site management.
- Permitted working hours for the site work will normally be the following:
 - o 07:00 – 19:00 hours (Monday to Friday);
 - o 22:00 – 07:00 hours (night);
 - o 08:00 – 13:00 hours (Saturday); and
 - o no working is permitted on Sunday or Bank Holidays.

25. Neighbour Notification

The following neighbour notification procedures will be followed during the operational works:

Prior to work commencing, the Contractor will liaise with Local Environmental Officer in order to discuss their methods of working and measures planned to minimise disruption throughout the construction works; and

- The Contractor should appoint a responsible person to liaise with stakeholders in order to keep them informed of matters likely to affect them.
- Prior to site work commencing (at least one week before the works or a change in works), neighbours will be informed of:
 - o The start date;
 - o the duration and nature of the project;



- the principal stages of the project;
 - possible impacts; and
 - details of contact names and numbers of appropriate site personnel.
- The names and contact details of appropriate site personnel should be forwarded to Local Environmental Officer.

An example of a typical notification letter is presented below:



Angus Energy Plc Neighbour

Angus Energy Plc
 Building 3 Chiswick Park
 566 Chiswick High Street
 Building 3 Chiswick Park
 London
 W4 5YA

20 August 2018

T: 0208 899 6380

26. Draft Notification Letter (Example Only)

Angus Energy Plc Programme – Balcombe, 2x Hydrocarbon

Angus Energy Plc is undertaking a temporary 14 day well testing within your area and the proposed work involves flow testing and pressure monitoring of the existing exploration borehole. If this testing reveals that the hydrocarbon reserves are not of sufficient quantity and/or quality to commercially extract then the existing borehole would be plugged with cement and the land restored back to its previous use as forestry storage. In the event that the borehole testing and pressure monitoring confirms that there are hydrocarbon reserves that could be commercially extracted then the existing borehole would be temporarily suspended for preparation for a future production phase.

All our work will be managed to minimise disruption to our neighbours and residents. We will continue to write to you with updates and hope you find the below information useful.

Well testing works

Date and Time	Description of works
June 2018 – June 2018 Typically 08:00hrs – 18:00hrs Monday to Friday; and (Well testing will require 24 hour operation) Also Saturday 08:00hrs – 13:00hrs Saturday	<ul style="list-style-type: none"> • Stage 1: Exploration well testing and operations which includes borehole preparation and flow initiation operations, flow testing and pressure monitoring; • Stage 2: Plug and abandonment of the well; and • Stage 3: Demobilisation and restoration of the site.

Whilst we do anticipate these works will create noise at times we will do what we reasonably can in order to keep noise levels to a minimum. The local authority has been, and will continue to be, consulted through the Control of Pollution Act 1974 process regarding the implementation of the works.



We apologise for any inconvenience these essential works may cause and appreciate your patience. However, if you have any additional questions or concerns, please telephone us **on 0208 899 6380** and for more information about the Angus Energy Plc Programme please visit **www.angusenergy.co.uk**.

Yours faithfully

Head office
Angus Energy Plc

Appendix A: Plant List

Table A1: Adopted Sound Power Levels Stage 1 - Borehole Preparation and Flow Initiation Operations

Plant List: Stage 1 - Borehole Preparation and Flow Initiation Operations							
Plant	Noise Data			On time (%)	Number of plant items	Modelling Type	Calculated L _w dB(A) from L _p
	Plant Ref	Type	L _p (at 10m) dB(A)				
Diesel generator	C4.79	-	64	100	1	Point Source	92
Wheeled Mobile Crane	C4.80	-	70	100	1	Point Source	98
Linear Pump rod - Generator	C4.79	-	64	100	1	Point Source	92
HT 400 Pump - Diesel generator	Manufacturer data	-	64	100	1	Point Source	92
CT Spooler - Diesel generator	C4.79	-	64	100	1	Point Source	92
Nitrogen Converter	Manufacturer data	Diesel Hydraulic	60	100	3	Point Source	88

Table A2: Adopted Sound Power Levels Stage 1 – Flow Testing

Plant List: Stage 1 – Flow Testing							
Plant	Noise Data			On time (%)	Number of plant items	Modelling Type	Calculated L _w dB(A) from L _p
	Plant Ref	Type	L _p (at 10m) dB(A)				
Diesel generator	C4.79	-	64	100	1	Point Source	92
HT 400 Pump - Diesel generator	Manufacturer data	-	64	100	1	Point Source	92
CT Spooler - Diesel generator	C4.79	-	64	100	1	Point Source	92
Nitrogen Converter	Manufacturer data	Diesel Hydraulic	60	100	3	Point Source	88

Plant List: Stage 1 – Flow Testing							
Plant	Noise Data			On time (%)	Number of plant items	Modelling Type	Calculated L _w dB(A) from L _p)
	Plant Ref	Type	L _p (at 10m) dB(A)				
Shrouded Flare	Manufacturer data	-	87	40	1	Point Source	111
SMC TL90 LED lighting tower	Manufacturer data	-	62	100	8	Point Source	90
Linear Pump rod - Diesel generator	C 4.79	-	64	100	1	Point Source	92

Table A3: Adopted Sound Power Levels Stage 2 – Plug and Abandonment

Plant List: Stage 2 – Plug and Abandonment							
Plant	Noise Data			On time (%)	Number of plant items	Modelling Type	Calculated L _w dB(A) from L _p)
	Plant Ref	Type	L _p (at 10m) dB(A)				
Diesel generator	C4.79	-	64	100	1	Point Source	92
Gas Cutter	C1. 18	-	79	25	1	Point Source	101
Linear Pump rod - Diesel generator	C4.79	-	64	100	1	Point Source	92
Hand Held Welder	C3. 31	-	73	25	1	Point Source	95
SMC TL90 LED lighting tower	Manufacturer data	-	62	100	1	Point Source	90
Generator for Welding	C3.32	-	73	25	1	Point Source	95

Table A4: Adopted Sound Power Levels Stage 3 - Demobilisation and Restoration of Site

Plant List: Stage 3– Demolishment and Restoration of Site							
Plant	Noise Data			On time (%)	Number of plant items	Modelling Type	Calculated L _w dB(A) from L _p
	Plant Ref	Type	L _p (at 10m) dB(A)				
Dozer	C2.1	20t	75	30	2	Area Source	101
Pneumatic breaker	C5.6	-	95	20	2	Area Source	109
Compressor	C5.5	-	65	100	2	Area Source	86
Lorry iwth lifting boom	C4.53	-	77	20	1	Area Source	98
Dumper	C4.4	9t	76	20	3	Area Source	102
Wheeled excavator	C4.10	18t	66	30	1	Area Source	89
Hand Tools	-	-	-	-	-	-	-
CALCULATED TOTAL L_w							111

Appendix B: Planning Conditions

Condition 13

13. The corrected* noise level for operational noise from the site shall not exceed 55dB(A) LAeq,5 minutes (free-field) between the hours of 07:00 - 19:00 Mondays to Fridays and 08:00 - 13:00 Saturdays; shall not exceed Background LA90,1 hour + 10dBA evenings (19:00-22:00) and weekends and shall not exceed 42dB(A) LAeq,5-minutes free-field at night (22:00-07:00). Noise levels, which shall be continuously monitored and recorded, shall be determined at Kemps Farm.

- * A 5dB correction shall be added to the LAeq noise level to provide a corrected noise level if one or more of the following features occur:
- the noise contains a distinguishable, discrete, continuous note (whine, hiss, screech, hum, etc.);
- the noise contains distinct impulses (bangs, clicks, clatters or thumps)
- the noise is irregular enough to attract attention.

Reason: In the interests of residential amenity.

Condition 14

Noise levels shall be continuously monitored at Kemps Farm from the date of the commencement of development. The results of the monitoring shall be submitted to the minerals Planning Authority on a weekly basis or on the request of the Minerals Planning Authority and shall include L_{A90} and L_{Aeq} noise levels, the prevailing weather conditions, details and calibration of the equipment used for measurement and comments on other sources of noise which affect the noise climate. If the results indicate that the noise levels exceed those set out in Condition 13 the mitigation detailed in Condition 15 shall be implemented within 48 hours.

Reason: To minimise the impact on residents and the environment.

Condition 15

Prior to the commencement of development, the applicant shall submit to, and have approved in writing by the Minerals Planning Authority a Noise Management Plan. The Plan shall identify:

- Details of initial noise tests for each item of noise-emitting plant on site to establish whether noise emissions are compliant with condition 13;
- If not compliant, details of what mitigation would be introduced and timescales for implementation;
- Details of instantaneous mitigation methods for each item of noise-emitting equipment (e.g. throttling back gas flow for the flare, stopping works where safe to do so) and any longer term mitigation;
- Detail of continuous monitoring procedure to monitor noise limits;
- Procedures for addressing any complaints received.



Once approved, the Noise Management Plan shall be implemented in full throughout the course of the development.

Reason: To minimise the impact on residents and the environment.