

**From:**Robin Fraser

**Sent:**Fri, 25 Jan 2019 14:32:04 +0000

**To:**Epc

**Subject:**18/05427/S36 | To construct and operate a pumped storage hydro scheme approximately 14km SW of Inverness. | Land 630M East Of Park Cottage Dores

Apologies for delay in responding.

The application is for a large hydro power scheme in what is predominantly a rural setting. As such there is a potential for disturbance to sensitive premises from noise, dust and vibration. The applicant has submitted a noise assessment which has assessed the potential impact from noise and vibration during both the construction and operational phases.

## **Construction Noise**

In most cases, it is expected that construction activities will give rise to some level of disturbance but any impact will be temporary. The construction period for this development is expected to last for up to 6 years. Some □permanent□ developments don□t last for that long therefore this needs to be taken into account, particularly when considering what constitutes the best practicable means for noise and vibration mitigation.

Figure 16.1 of the supporting documents identifies the location of the noise sensitive properties in the area. Baseline monitoring has been undertaken at representative locations which shows generally low background levels which is not unexpected.

The assessment has assumed noise criteria, taken from BS 5228, of 65 dB(A), 55 dB(A) and 45 dB(A) during the day, evening and night-time respectively. However, BS 5228 also refers to *Minerals Policy Statement 2 - Controlling and mitigating the environmental effects of mineral extraction in England*. This advises that where the duration of earth moving works is likely to exceed six months then the development should be considered more as surface mineral extraction than conventional construction. For these activities MPS 2 suggests a daytime limit of 55 dB LAeq,1h. The equivalent guidance in Scotland is *PAN 50 Annex A Controlling The Environmental Effects Of Surface Mineral Workings*. This guidance actually goes on to suggest that in

areas of low background levels the appropriate limit for mineral workings should be 45dB LAeq 1hr.

The noise assessment appears to have broken down the various phases of construction into periods of months and has identified that there is only one phase which would last more than 6 months. I am of the opinion that the construction period should be considered as a whole. In that respect, I would advise that a limit of 55 dB LAeq, 1 hr is more appropriate for daytime noise throughout the construction period with possible exemptions for short term activities such as blasting or piling.

This being the case, the assessment demonstrates that noise levels will exceed the criteria of 55dB 1 hr LAeq at various locations and times throughout the construction period. It should also be noted that the assessment has apparently scoped out the impact of construction traffic which is only likely to increase noise at sensitive receptors.

The assessment states the intention is for tunnelling to be a 24hr operation but has not given predicted levels for night time construction noise. I understand the assumption is that underground activities will not present a significant issue at receptors but there are no further details.

It is noted that the predicted noise levels do not include any reductions from the implementation of mitigation measures. Examples of mitigation are given in section 16.7 of the assessment which also states that the best available construction methods shall be employed at all times, having regards to the principles of BPM to minimise noise and vibration impacts during the construction. At this stage, there is no specific mitigation scheme proposed and it appears the intention is to submit a CEMP which will incorporate things like mitigation, noise monitoring and consultation with the community. ■

I am of the opinion that based on the low background levels in this area and the likely duration of construction works, noise from this phase of the development is likely to have a detrimental effect on the day time amenity of local residents unless significant mitigation measures are implemented. This impact may be made worse if it is found that night time construction levels from tunnelling etc. also cause disturbance.

Planning conditions are not normally used to control the impact of construction noise as similar powers are available to the Local Authority under Section 60 of the Control of Pollution Act 1974. However in this case, given the extent of the development I believe it would be beneficial for all parties to be clear on the requirements prior to construction commencing. **I would therefore object to this development unless the following conditions are attached: -**

- Unless otherwise authorised in writing by the Planning Authority, noise arising from construction works associated with this development shall not exceed the following limits as calculated or measured at the curtilage of any noise sensitive property: -

Monday to Friday 8am to 6pm      55dB LAeq 1 hour

Monday to Friday 6pm to 10pm    45dB LAeq 1 hour

Saturdays 8am to 1pm                55dB LAeq 1hour

Saturdays 1pm to 6pm                45dB LAeq 1 hour

At all other times and including Easter and Christmas/New Year public holidays; operations for which noise is audible at the curtilage of any noise sensitive property are not permitted.

- Prior to the commencement of construction, the applicant shall submit for the written approval of the planning authority, a construction environmental management plan (CEMP) to include details of a noise mitigation and monitoring scheme which demonstrates how compliance with the above limits will be achieved. The CEMP should also include proposals for the monitoring and control of blasting noise and vibration.

I would also recommend a community liaison group be set up which meets at regular intervals following commencement of construction.

## Construction Vibration

The assessment has looked at construction vibration from surface works, piling, blasting and tunnelling. Given the separation distances involved, vibration levels are unlikely to exceed relevant Nuisance criteria. However, with such a long construction period complaints about vibration may arise even at levels below these limits. I would recommend the following condition but to clarify, should complaints arise about prolonged periods of perceptible vibration this Service has powers under the Control of Pollution Act 1974 to introduce additional controls if required.

- The peak particle velocity generated by construction activities shall not exceed 5mm / second as measured at any dwelling or other sensitive property. This applies to all operations other than blasting. For blasting, it is expected that the best practicable measures will be employed to minimise the impact of noise and vibration.
- For activities where vibration is perceptible at any sensitive property, the hours of operation shall be as follows: -

Monday to Friday 8am to 6pm

Saturdays 8am to 1pm

At all other times and including Easter and Christmas/New Year public holidays; operations for which vibration is perceptible within any noise sensitive property are not permitted.

- Prior to the commencement of construction, the applicant shall submit for the written approval of the planning authority, a construction environmental management plan to include details of a vibration mitigation and monitoring plan which demonstrates how compliance with the above limits will be achieved.

**For the avoidance of doubt it is expected that the best practicable means in accordance with BS 5228 Parts 1 & 2 will be employed to reduce the impact of construction noise or vibration**

## **Operational Noise**

The predicted operational noise levels from above ground equipment are given in table 16.24 of the assessment which compares them against background levels. This indicates that daytime noise is unlikely to be significant. Night time levels at some locations do exceed the existing low background levels but the absolute predicted levels are still very low. The maximum predicted external level is 26dB. Allowing for a 10-15dB reduction through an open window, internal noise levels should not give rise to complaints. As a precaution I would object to the development unless the following condition is attached: -

All plant, machinery and equipment associated with this development shall be so installed, maintained and operated such that the following standards are met: -

- Between 2300 hrs and 0700 hrs, any associated operating noise must not exceed NR 20 when measured or calculated within the bedroom of any noise-sensitive premises with windows open for ventilation purposes.
- Between 0700 hrs and 2300 hrs the operating noise Rating level must not exceed the Background noise level by more than 5dB(A) including any characteristics penalty. Terms and measurements to be in accordance with *BS 4142: 2014 Methods for Rating Industrial & Commercial Sound*.

## **Operational Vibration**

Experience has shown that people can be very sensitive to emissions which are perceived as a sensation rather than an audible noise. For construction noise, there is a foreseeable end to any impact and standards can be more relaxed. However, if the

development was to give rise to any noticeable operational vibration, this could have a significantly detrimental impact on the amenity of sensitive residents. For the avoidance of doubt, the only acceptable operational limit for vibration from this development is to be below the threshold of perception. I would therefore object to the development unless the following condition is attached: -

- The peak particle velocity generated by activities arising from the operation of this development shall not exceed 0.1mm / second as measured at any dwelling or other sensitive property.

## Dust

The CEMP will need to include an adequate scheme for the suppression of dust. Given the size of the development and the extent of earthmoving works, the applicant should submit information demonstrating how dust levels will be controlled should there be a recurrence of the dry weather conditions experienced across the country last summer.

Regards,

Robin Fraser

Environmental Health Officer

Highland Council, Community Services, 38 Harbour Road, Inverness, IV1 1UF

Telephone: 01463 228748 E-Mail: [robin.fraser@highland.gov.uk](mailto:robin.fraser@highland.gov.uk)

**N.B.** Any email message sent or received by the Council may require to be disclosed by the Council under the provisions of the Freedom of Information (Scotland) Act 2002

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<https://www.surveymonkey.com/s/highlandeh>

## Red John Pumped Storage Scheme

### THC Environmental Health Officer Section 36 Response

Thank you for your response dated 25<sup>th</sup> January 2019 which was received on the 5<sup>th</sup> February 2019. The Applicant has reviewed the comments and wishes to provide the following response – we have broken the response down in to sections so that the Applicants response directly relates to the comments made by the Environmental Health Officer for ease of reference:

EHO Comments	Applicants Response
<p>In most cases, it is expected that construction activities will give rise to some level of disturbance but any impact will be temporary. The construction period for this development is expected to last for up to 6 years. Some permanent developments don't last for that long therefore this needs to be taken into account, particularly when considering what constitutes the best practicable means for noise and vibration mitigation.</p> <p>Figure 16.1 of the supporting documents identifies the location of the noise sensitive properties in the area. Baseline monitoring has been undertaken at representative locations which shows generally low background levels which is not unexpected.</p> <p>The assessment has assumed noise criteria, taken from BS 5228, of 65 dB(A), 55 dB(A) and 45 dB(A) during the day, evening and night-time respectively. However, BS 5228 also refers to Minerals Policy Statement 2 - Controlling and mitigating the environmental effects of mineral extraction in England. This advises that where the duration of earth moving works is likely to exceed six months then the development should be considered more as surface mineral extraction than conventional construction. For these activities MPS 2 suggests a daytime limit of 55 dB LAeq,1h. The equivalent guidance in Scotland is PAN 50 Annex A Controlling The Environmental Effects Of Surface Mineral Workings. This guidance actually goes on to suggest that in areas of low background levels the appropriate limit for mineral workings should be 45dB LAeq 1hr.</p>	<p>It is not just the duration but also the type of works that are important when deciding what limit to apply. The Highland Council guidelines state that the 55 dB limit should be applied</p> <p><i>“Where construction activities involve large scale and long term earth moving activities”</i> and BS 5228-1 states that the limit should be applied where works are <i>“more akin to surface mineral extraction than to conventional construction activity.”</i></p> <p>This description applies to Headpond excavation but not to the other proposed works. Long-term earth moving activities emit more consistent noise levels than other construction activities which will vary significantly depending on the specific activities being undertaken at any one time. There will also be periods of respite between the worst-case elements where noise levels will be substantially below those predicted. Therefore the 55 dB limit is considered not to apply to any construction activities except the Headpond works.</p> <p>PAN 50 Annex A also states: <i>“The process of baffle mound construction, though short-lived, is itself one of the noisiest aspects of mineral working. It may therefore be appropriate for planning authorities and mineral operators to reach an agreement that ... noise limits should be raised by a specified amount to allow for the construction of these mounds ... It is suggested that 70 dB LAeq,1h (free field) for periods of up to 8 weeks in a year should be considered to facilitate this, but planning authorities and operators may also wish to weigh up the effects of shortening this period and allowing higher levels of noise, in order to get such temporary operations completed as quickly as possible.”</i> The EHO's response omits consideration of this part of the guidance.</p>



EHO Comments	Applicants Response
<p>The noise assessment appears to have broken down the various phases of construction into periods of months and has identified that there is only one phase which would last more than 6 months. I am of the opinion that the construction period should be considered as a whole. In that respect, I would advise that a limit of 55 dB LAeq, 1 hr is more appropriate for daytime noise throughout the construction period with possible exemptions for short term activities such as blasting or piling.</p> <p>This being the case, the assessment demonstrates that noise levels will exceed the criteria of 55dB 1 hr LAeq at various locations and times throughout the construction period. It should also be noted that the assessment has apparently scoped out the impact of construction traffic which is only likely to increase noise at sensitive receptors.</p>	<p>As mentioned in the EIA Report, the limit of 55 dB assumes a consistent level throughout the daytime without much respite, which would be the case for surface mineral extraction type works. However this type of work is only applicable to the construction of the Headpond. A limit of 55 dB in any one daytime hour throughout the construction cycle is therefore unlikely to be achievable, and would considerably curtail the proposed works, therefore extend the construction phase significantly.</p> <p>Should THC be minded to place a condition on the consent, we would suggest that this limit is amended to be calculated over a 10 hour day / 4 hour evening to make it more applicable to these types of works.</p>
<p>The assessment states the intention is for tunnelling to be a 24hr operation but has not given predicted levels for night time construction noise. I understand the assumption is that underground activities will not present a significant issue at receptors but there are no further details.</p>	<p>Noted</p>
<p>It is noted that the predicted noise levels do not include any reductions from the implementation of mitigation measures. Examples of mitigation are given in section 16.7 of the assessment which also states that the best available construction methods shall be employed at all times, having regards to the principles of BPM to minimise noise and vibration impacts during the construction. At this stage, there is no specific mitigation scheme proposed and it appears the intention is to submit a CEMP which will incorporate things like mitigation, noise monitoring and consultation with the community.</p>	<p>The CEMP outlines the basis of noise mitigation measures in addition to the application of noise bunds around the Headpond, a route of communication of any complaints and a Project Liaison Group which will communication any forthcoming works, such as blasting, so that local residents and communities are aware of these activities well in advance.</p>
<p>I am of the opinion that based on the low background levels in this area and the likely duration of construction works, noise from this phase of the development is likely to have a detrimental effect on the day time amenity of local residents unless significant mitigation measures are implemented. This impact may be made worse if it is found that night time construction levels from tunnelling etc. also cause disturbance.</p> <p>Planning conditions are not normally used to control the impact of</p>	<p>We acknowledge the application of these conditions but request that a limit of 70 dB <math>L_{Aeq,10h}</math> is applied for up to 8 weeks per year for landscape bund construction as per PAN 50 (Annex A states: "The night-time nominal limit should be 42 dB LAeq,1h (free field) at noise-sensitive dwellings" )</p> <p>Inaudibility is subjective and varies from person to person as it is dependent on the hearing of the listener and in an external location. It is almost impossible to identify what may be audible. The assessment of ground-borne noise radiating inside properties due to</p>

EHO Comments	Applicants Response
<p>construction noise as similar powers are available to the Local Authority under Section 60 of the Control of Pollution Act 1974. However in this case, given the extent of the development I believe it would be beneficial for all parties to be clear on the requirements prior to construction commencing. I would therefore object to this development unless the following conditions are attached: -</p> <ul style="list-style-type: none"> <li>• Unless otherwise authorised in writing by the Planning Authority, noise arising from construction works associated with this development shall not exceed the following limits as calculated or measured at the curtilage of any noise sensitive property: - <ul style="list-style-type: none"> <li>– Monday to Friday 8am to 6pm 55dB LAeq 1 hour</li> <li>– Monday to Friday 6pm to 10pm 45dB LAeq 1 hour</li> <li>– Saturdays 8am to 1pm 55dB LAeq 1hour</li> <li>– Saturdays 1pm to 6pm 45dB LAeq 1 hour</li> <li>– At all other times and including Easter and Christmas/New Year public holidays; operations for which noise is audible at the curtilage of any noise sensitive property are not permitted.</li> </ul> </li> <li>• Prior to the commencement of construction, the applicant shall submit for the written approval of the planning authority, a construction environmental management plan (CEMP) to include details of a noise mitigation and monitoring scheme which demonstrates how compliance with the above limits will be achieved. The CEMP should also include proposals for the monitoring and control of blasting noise and vibration</li> </ul>	<p>the tunnelling identified a worst-case noise level of 19 dB, which would be inaudible.</p>
<p>I would also recommend a community liaison group be set up which meets at regular intervals following commencement of construction.</p>	<p>Please see response above regarding the PLG.</p>
<p><b>Construction Vibration</b></p> <p>The assessment has looked at construction vibration from surface works, piling, blasting and tunnelling. Given the separation distances involved, vibration levels are unlikely to exceed relevant Nuisance criteria. However, with such a long construction period complaints about vibration may arise even at levels below these limits. I would recommend the following condition but to clarify, should complaints arise about prolonged periods of perceptible vibration this Service has powers under the</p>	<p>We consider the limit outlined in these conditions to be excessively onerous. In addition it is also very difficult to demonstrate whether the works would be compliant. The assessment identified that at 100m from the tunnelling, vibration levels would be in the range that is “just perceptible in residential environments”. The formula used to calculate groundborne vibration is limited to a maximum distance of 100 m from the tunnelling and the closest receptor is 170m away.</p> <p>Therefore we suggest that either the CEMP can be amended to commit to undertaking vibration monitoring to correlate vibration levels with distance from the tunnelling, or that the CEMP condition is amended to include this information at the point it is submitted for</p>

EHO Comments	Applicants Response
<p>Control of Pollution Act 1974 to introduce additional controls if required.</p> <ul style="list-style-type: none"> <li>The peak particle velocity generated by construction activities shall not exceed 5mm / second as measured at any dwelling or other sensitive property. This applies to all operations other than blasting. For blasting, it is expected that the best practicable measures will be employed to minimise the impact of noise and vibration.</li> <li>For activities where vibration is perceptible at any sensitive property, the hours of operation shall be as follows: - <ul style="list-style-type: none"> <li>Monday to Friday 8am to 6pm</li> <li>Saturdays 8am to 1pm</li> <li>At all other times and including Easter and Christmas/New Year public holidays; operations for which vibration is perceptible within any noise sensitive property are not permitted.</li> </ul> </li> <li>Prior to the commencement of construction, the applicant shall submit for the written approval of the planning authority, a construction environmental management plan to include details of a vibration mitigation and monitoring plan which demonstrates how compliance with the above limits will be achieved.</li> </ul> <p>For the avoidance of doubt it is expected that the best practicable means in accordance with BS 5228 Parts 1 &amp; 2 will be employed to reduce the impact of construction noise or vibration</p>	<p>agreement prior to construction commencing. Should the monitoring demonstrate a significant adverse effect to receptors, remedial measures will be implemented, and this can also be outlined in the CEMP.</p>
<p><b>Operational Noise</b></p> <p>The predicted operational noise levels from above ground equipment are given in table 16.24 of the assessment which compares them against background levels. This indicates that daytime noise is unlikely to be significant. Night time levels at some locations do exceed the existing low background levels but the absolute predicted levels are still very low. The maximum predicted external level is 26dB. Allowing for a 10-15dB reduction through an open window, internal noise levels should not give rise to complaints. As a precaution I would object to the development unless the following condition is attached: -</p> <ul style="list-style-type: none"> <li>All plant, machinery and equipment associated with this development shall be so installed, maintained and operated such that the following standards are met: -</li> <li>Between 2300 hrs and 0700 hrs, any associated operating noise</li> </ul>	<p>Noted. We have no comments on these conditions.</p>

EHO Comments	Applicants Response												
<p>must not exceed NR 20 when measured or calculated within the bedroom of any noise-sensitive premises with windows open for ventilation purposes.</p> <ul style="list-style-type: none"> <li>Between 0700 hrs and 2300 hrs the operating noise Rating level must not exceed the Background noise level by more than 5dB(A) including any characteristics penalty. Terms and measurements to be in accordance with BS 4142: 2014 Methods for Rating Industrial &amp; Commercial Sound.</li> </ul>													
<p><b>Operational Vibration</b></p> <p>Experience has shown that people can be very sensitive to emissions which are perceived as a sensation rather than an audible noise. For construction noise, there is a foreseeable end to any impact and standards can be more relaxed. However, if the development was to give rise to any noticeable operational vibration, this could have a significantly detrimental impact on the amenity of sensitive residents. For the avoidance of doubt, the only acceptable operational limit for vibration from this development is to be below the threshold of perception. I would therefore object to the development unless the following condition is attached: -</p> <ul style="list-style-type: none"> <li>The peak particle velocity generated by activities arising from the operation of this development shall not exceed 0.1mm / second as measured at any dwelling or other sensitive property.</li> </ul>	<p>There is no evidence relating vibration levels measured in PPV to effects for a vibration source such as the operation of the Development and therefore we would consider this criterion as inappropriate. The power house is 200m below the ground level at its highest point. The EIA Report outlined that the BS 6472-1 guidance was applied to assess operational vibration impacts (as per the table below).</p> <p><b>Table Error! Use the Home tab to apply Level 1 Heading to the text that you want to appear here..1 VDV Criteria from BS 6472-1:2008</b></p> <table border="1"> <thead> <tr> <th>Place and time</th> <th>Low probability of adverse comment m/s<sup>1.75</sup></th> <th>Adverse comment possible m/s<sup>1.75</sup></th> <th>Adverse comment probable m/s<sup>1.75</sup></th> </tr> </thead> <tbody> <tr> <td>Residential buildings 16 h day</td> <td>0.2 to 0.4</td> <td>0.4 to 0.8</td> <td>0.8 to 1.6</td> </tr> <tr> <td>Residential buildings 8 h night</td> <td>0.1 to 0.2</td> <td>0.2 to 0.4</td> <td>0.4 to 0.8</td> </tr> </tbody> </table> <p>The detailed design of the power house can integrate a VDV limit of 0.1 ms<sup>-1.75</sup> or 0.2 ms<sup>-1.75</sup>.</p>	Place and time	Low probability of adverse comment m/s <sup>1.75</sup>	Adverse comment possible m/s <sup>1.75</sup>	Adverse comment probable m/s <sup>1.75</sup>	Residential buildings 16 h day	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6	Residential buildings 8 h night	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8
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<p><b>Dust</b></p> <p>The CEMP will need to include an adequate scheme for the suppression of dust. Given the size of the development and the extent of earthmoving works, the applicant should submit information demonstrating how dust levels will be controlled should there be a recurrence of the dry weather conditions experienced across the country</p>	<p>This is acknowledged, and the finalised CEMP will provide this detail.</p>												

EHO Comments	Applicants Response
last summer.	





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**From:** Robin Fraser  
**Sent:** 25 March 2019 14:37  
**To:** Laura Stewart - Planning  
**Subject:** RE: Environmental Health response, Red John Pumped Hydro Scheme

I refer to the response submitted by the applicant's consultant's to my previous comments dated 25 January 2019.

- They have objected to the proposed noise limit of 55dB LAeq 1hr and suggested it is unlikely to be achievable throughout the whole construction period. The suggestion is to use a longer reference period i.e. 55db LAeq 10 hour. Given the likely duration of the construction works in what is a quiet rural area, I am of the opinion that a 55dB LAeq 1 hour limit is an appropriate level to protect neighbouring noise sensitive properties from excessive disturbance over such a long period.
- They have also requested a relaxation for higher limits for the construction of baffle mounds and I have amended the proposed condition below.
- The applicant has queried the use of inaudibility as relevant criteria for night time noise but has confirmed that any noise generated from night time tunnelling would be so low so as to be inaudible. Given the likely impact of daytime works, I would want to ensure that night time works do not impact further on noise sensitive properties. For clarity, I have amended the condition below to an objective standard.
- Similar to inaudibility, the applicant has queried the use of perceptibility as criteria for night time vibration. Again, given the potential impact of daytime construction works the intention is to provide an adequate period of respite out-with usual working hours. However, again I have amended the condition to include an objective standard.
- With regard to operational vibration, I acknowledge that vibration dose levels (vdv) is a more appropriate criterion. The relevant guidance is BS 6472-1:2008 Part 1 which states that *"In homes, adverse comment about building vibrations is likely when the vibration levels to which occupants are exposed are only slightly above thresholds of perception."* I have amended the proposed condition to include an objective standard based on BS 6472.

I can confirm I have no further objections provided the following conditions are applied to any consent: -

1. Unless otherwise authorised in writing by the Planning Authority, noise arising from construction works associated with this development shall not exceed the following limits as calculated or measured at the curtilage of any noise sensitive property: -
  - Monday to Friday; 8am to 6pm 55dB LAeq 1 hour
  - Monday to Friday; 6pm to 10pm 45dB LAeq 1 hour
  - Saturdays; 8am to 1pm 55dB LAeq 1hour
  - Saturdays; 1pm to 6pm 45dB LAeq 1 hour
  - Out-with the above times, noise from construction related activities shall not exceed 35dB LAeq 1 hour
  - Noise levels from the construction of baffle mounds may exceed 55dB LAeq 1 hour but not 70dB LAeq 1 hour for up to 8 weeks in any year.
2. Unless otherwise authorised in writing by the Planning Authority, vibration arising from construction works associated with this development shall not exceed the following limits as measured or calculated at any noise sensitive in accordance with *BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration*
  - Monday to Friday; 8am to 6pm The peak particle velocity shall not exceed 5 mm·s<sup>-1</sup>
  - Saturdays; 8am to 1pm The peak particle velocity shall not exceed 5 mm·s<sup>-1</sup>
  - Out-with the above times, the peak particle velocity shall not exceed 0.3 mm·s<sup>-1</sup>
  - The above limits apply to all construction activities other than blasting. For blasting, it is expected that the best practicable measures will be employed to minimise the impact of noise and vibration.
3. Prior to the commencement of construction, the applicant shall submit for the written approval of the planning authority, a construction environmental management plan (CEMP) to include details of: -
  - The proposed noise and vibration mitigation and monitoring,
  - The proposed route of communication of any complaints
  - The Project Liaison Group.
4. With regard to operational noise, unless otherwise authorised in writing by the Planning Authority all plant, machinery and equipment associated with this development shall be so installed, maintained and operated such that the following standards are met: -
  - Between 2300 hrs and 0700 hrs, any associated operating noise must not exceed NR 20 when measured or calculated within the bedroom of any noise-sensitive premises with windows open for ventilation purposes.

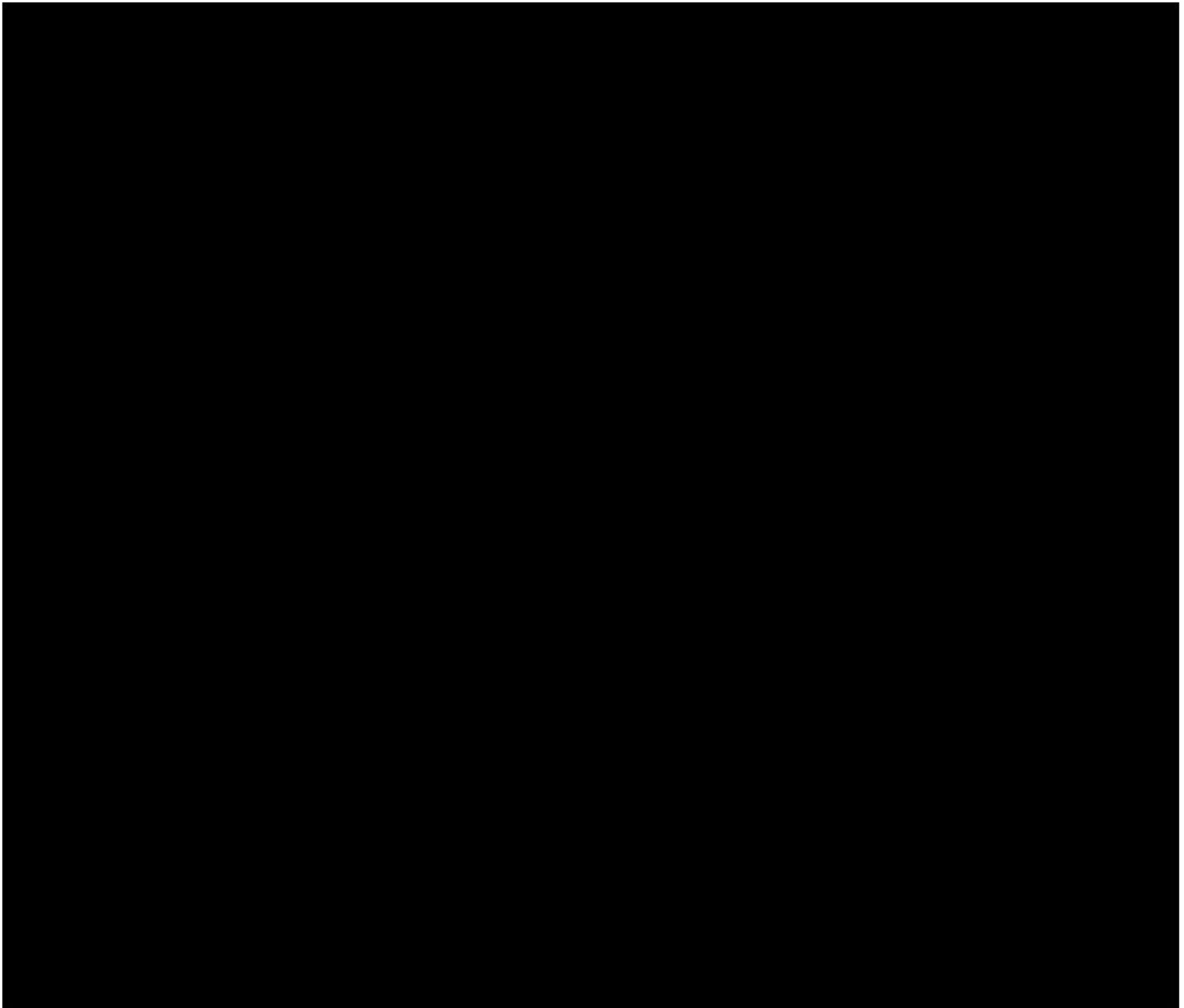


- Between 0700 hrs and 2300 hrs the operating noise Rating level must not exceed the Background noise level by more than 5dB(A) including any characteristics penalty. Terms and measurements to be in accordance with *BS 4142: 2014 Methods for Rating Industrial & Commercial Sound*.
5. With regard to operational vibration, unless otherwise authorised in writing by the Planning Authority the vibration dose value generated by this development shall not exceed  $0.1 \text{ m}\cdot\text{s}^{-1.75}$  as measured or calculated in accordance with *BS 6472-2-2008 Part 1 Vibration sources other than blasting*. Unless there is a clear difference between night time and day time operational activities this standard shall apply to both periods.

Regards,  
Robin Fraser  
Environmental Health Officer  
Highland Council, Community Services, 38 Harbour Road, Inverness, IV1 1UF  
Telephone: 01463 644617 E-Mail: [robin.fraser@highland.gov.uk](mailto:robin.fraser@highland.gov.uk)

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Environmental Health welcomes your feedback. Please help us improve our service by taking our short customer survey by clicking on this link  
<https://www.surveymonkey.com/s/highlandeh>





Tue 02-Apr-19 1:49 PM

RE: Environmental Health response, Red John Pumped Hydro Scheme

To  Laura Stewart - Planning

Cc  RedJohnPSH

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Afternoon Laura

I've just been advised by Tim that he has had a very productive conversation with your Robin Fraser (EHO). Robin has emphasised the importance of the phrase "unless agreed otherwise in writing" in the proposed conditions. He indicated that THC will be flexible and will consider requests from the contractor where short-term noisy activities will exceed the stated limit at the appropriate time.

On the basis of this conversation and understanding, we are satisfied to leave the condition as suggested.

Kind Regards

Catherine