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Dear Mr Tanner

**TEDDINGTON WEIR HYDRO ELECTRIC TURBINES
APPLICATION REFERENCE 14/3732/FUL**

Further to the letter from Robert Angus of LBoRUT, dated 18th August 2015, I write to provide comments on behalf of Lensbury Ltd, in relation to the revised noise report for the above planning application.

Detailed comments are set out within the attached report, prepared by Lensbury's acoustic consultants. In summary, the key points are as follows:-

- **Calculation errors and inconsistencies** – Despite the fact that the revised assessment uses the same data, background levels and calculation methodology as the previous assessment, the **noise levels now predicted from the proposed installation are up to 23 dBA higher** than previously reported. This is an **extraordinarily large inconsistency** and no explanation for this is presented. On this basis alone it would be most unsafe to LBRuT to rely on this noise assessment.
- **Background noise levels** – The most significant revision to the noise assessment is the inclusion of new background noise measurements in the area around the proposed site and the results of computer model of noise from the existing weir. It is not clear why this was considered necessary, as the validity of the previous background noise measurements at the site was not under question. The new noise assessment unsurprisingly concludes that the background noise levels previously used were correct. But the revised noise assessment uses the same source noise data and calculation methodology as the previous assessment. **We have previously identified this methodology as inappropriate** for the proposed application and our views on this remain unchanged.
- **Prof Kang's recommendations** – Professor Jian Kang was employed by LBRuT to review PBA's original noise assessment in Sept 2013. Prof Kang made 10 recommendations for amendments to the applicant's assessment methodology. **The revised assessment incorporates 5 of these recommendations but the remaining 5 points have not been addressed.**

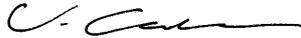
- **Mitigation measures** – The revised assessment shows that the rating level of noise from the hydro turbine will exceed the council’s criteria by up 22 dBA without appropriate mitigation measures. **A manufacturer of Hydro turbine installations has confirmed that the proposed mitigation measures proposed by the applicant could not be implemented in practice.** Even if the proposed mitigation measures could be installed without impeding the operation of the turbine we consider that the efficacy of these measures is greatly over-estimated with the PBA calculations. The PBA calculations shown that if the mitigation measures were to be only 2 dBA less effective than assumed the noise levels would exceed the permitted levels at residential receptors.
- **Uncertainty budget** – The local authority (LBRuT) have suggested that the noise assessment should allow a +/- 10 dB uncertainty budget to allow for variations in noise measurements at Romney Weir. The assessment report identifies an estimated uncertainty of +/- 8 dBA (albeit that the methodology used to determine this figure was used incorrectly). However, the predicted noise levels in the revised report do not include this uncertainty. **We have previously disagreed with the adoption of an arbitrary “Uncertainty budget”** but that would be a better option than that adopted in the revised assessment of excluding uncertainty from the calculated levels altogether.
- **Noise Data** – The noise levels calculated by Peter Brett Associates (PBA) and the resultant noise assessment have been made using measurement data from a hydro turbine installation at Romney Weir, Windsor. The validity of the assessment and all resultant recommendations are based entirely on the assumption that the existing installation at Romney Weir is representative of the proposed installation. However, despite PBAs review of other turbine assessment reports **there is no reason to suggest that the noise levels produced at Romney Weir will be representative of those produced by the Ham Hydro equipment.** In particular we would expect the tidal conditions below the weir at Teddington to have a significant effect on the levels of noise generated when the turbine is operating outside its optimum design conditions. This would result in higher noise levels than predicted by PBA.
- **High tides** – The tidal data supplied by PBA shows that the background noise levels are reduced for around 4 hours around each high tide but that the turbines will be stopped running for around 1.5 hours during each tidal cycle when the difference in water heights across the weir is below 1.2m. This still means that for **around 2.5 hours in every 12-hour period the turbine will be operating outside its design conditions,** and so potentially generating higher noise levels at a time when the background noise levels is lower. This means that this assessment overlooks a high impact scenario that occurs around for 25% of the proposed operation time of the turbine.
- **Proposed noise conditions** – We consider that the noise assessment locations and criteria adopted by LBRuT in their **planning conditions do not sufficiently protect Lensbury from adverse impact** on their business operations or on residents of their premises. Other than turning the turbine off, It is not clear what additional action could be taken if the proposed scheme were granted permission and noise levels found to exceed the permitted limits.
- **Misleading noise contour plots** – The revised noise assessment includes noise contour plots from a computer model of the existing weir and the proposed hydro scheme. Despite claims in the report that this shows existing “background” (LA90)

noise levels this appears to be a comparison of overall ambient (LAeq) noise levels with and without the proposed installation. BS4142:2014 requires the rating level of the proposed source (LA,r) against the background noise level (LA90). **The contour plots therefore do not comply with BS4142:2014 and systematically under-represent the noise impact.**

- **Planning conditions and nuisance** – We understand that LBRuT have proposed to control noise from the development with the adoption of appropriate noise conditions on the basis that the Romney Weir installation “operates without causing a problem”. However, **another similar installation at New Mills in Derbyshire has been served with a noise abatement notice which requires the device to be turned off during certain periods of the day.** This is, strangely enough, not referred to in PBA’s assessment but LBRuT should be aware of this issue and the associated risk.
- **Construction noise assessment** – The construction methodology does not assess the impact of construction noise and vibration on the surrounding receptors.

Despite the revisions to the noise assessment, we consider that the applicant has consistently and systematically failed to adequately assess the potential noise impact from the construction and operation of the proposed installation. We do not therefore consider that the report is sufficient to allow the Council to determine the planning application. We also fail to see how the report addresses any of the queries or concerns raised at the last committee meeting.

Yours sincerely



Vincent Gabbe
For and on behalf of
VRG PLANNING LTD

Encl. Report by Adrian James Acoustics: ‘Review of noise assessment and related documents’, dated August 2015