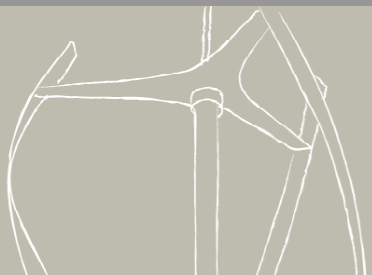


# Evaluating Noise Impact



- People are affected when turbine noise is greater than background noise
- Sensitivity of human ear
- Can pick out distinct frequencies, even when those frequencies are at a lower level than background noise
- It is often easier to hear a noise when looking at the source of the noise
- There is a dramatic drop in noise [approx. 15dB [A]] across an open window or door 35 dB [A] through a closed single glazed window & 50+ dB [A] with double glazing



- Light wind = Low background noise & low turbine noise. The turbine may be stationary
- Higher wind speeds, both background noise and turbine noise increase in tandem
- Turbine noise characteristics vary from one turbine type to another. Some turbines may be subject to a 'tonal' penalty
- The qr5 wind turbine has been specifically designed to minimise acoustic impact & to avoid tonality
- quietrevolution are one very few manufactures to have tested our acoustic profile to BS EN 61400
- To date we have had no reported noise complaints



# The key question:

**At the noise sensitive location  
will the turbine exceed  
background noise levels?**

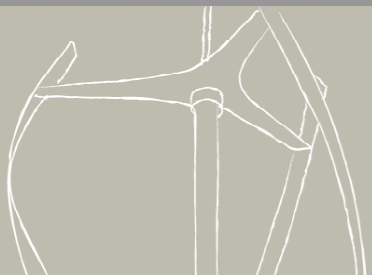
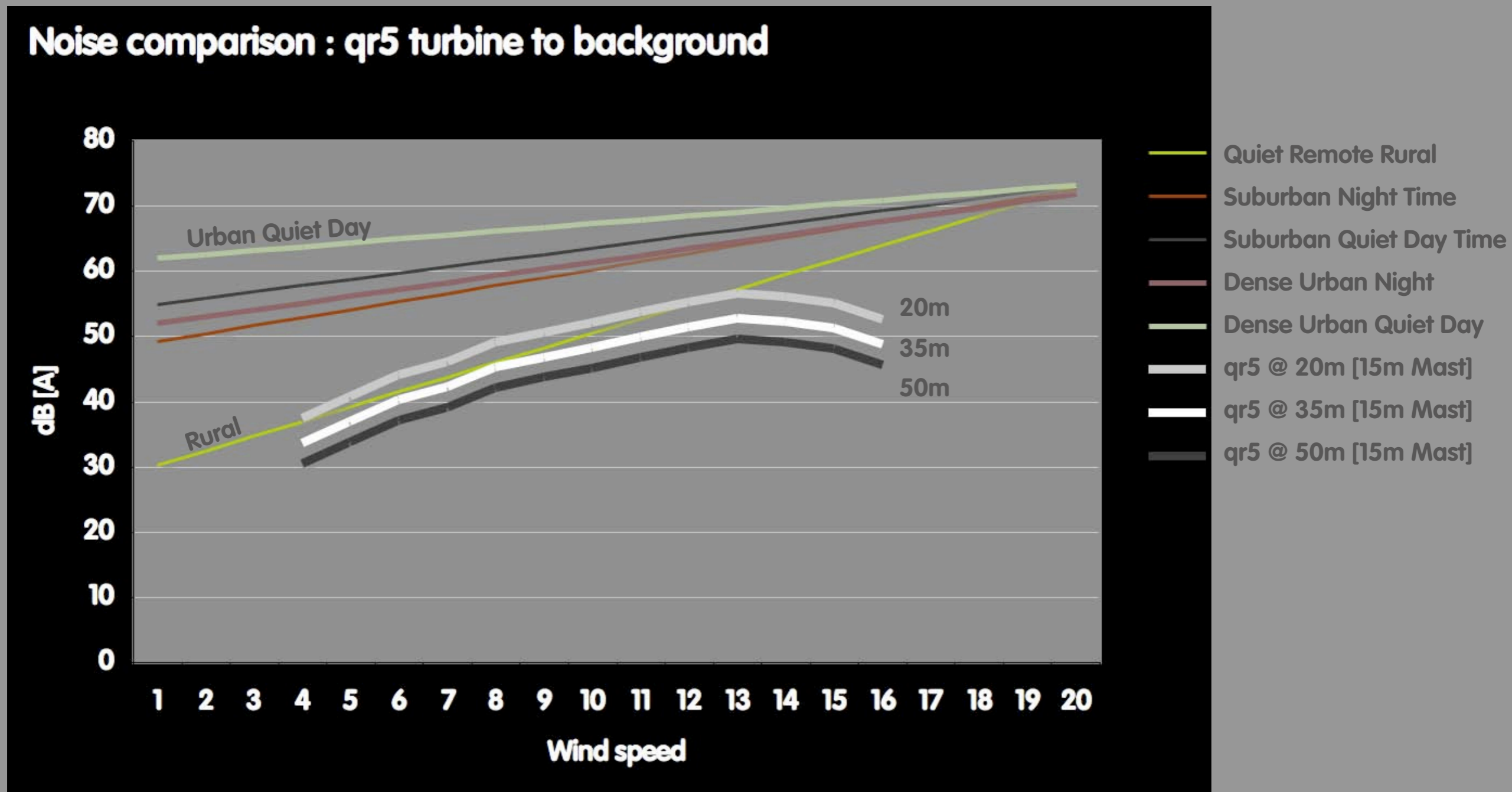
In low wind speeds, rural locations are far quieter than either suburban or urban locations

However

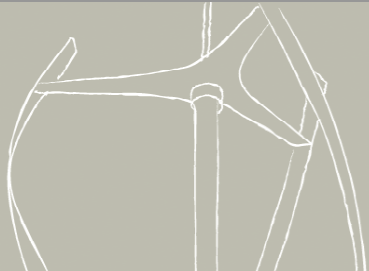
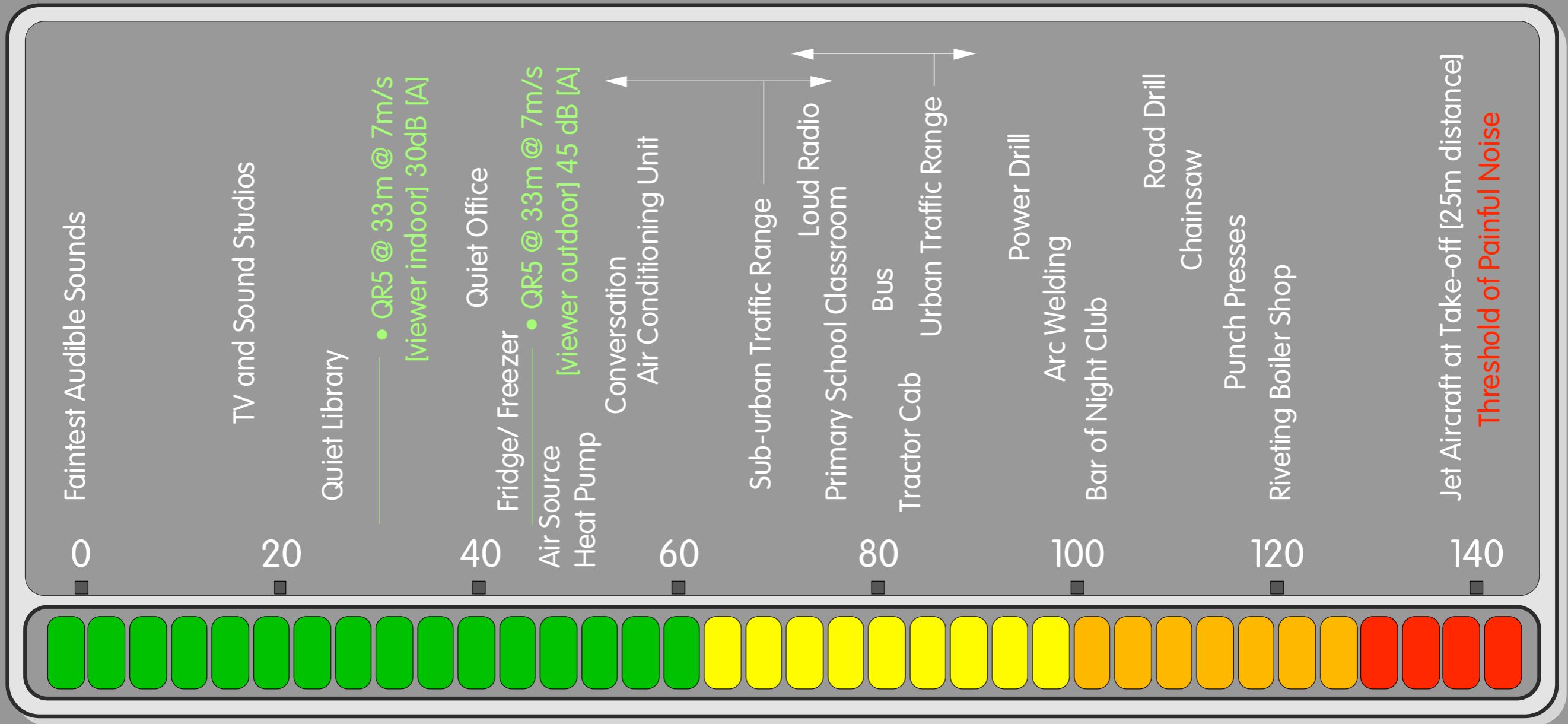
Even in urban locations there will come a point where the wind noise level will exceed most other noise sources in the vicinity.



# The rise in background noise levels



# Noise Comparisons



# Planning wording



## SUGGESTED PLANNING CONDITION WORDING:

1. Site specific noise measurements are to be taken in accordance with BS 4142:1997, with specific note of section 7.1.4
2. Background noise levels are to be measured over a range of wind speeds that are representative of the turbine operating range, e.g. 3m/s to 9m/s
3. Upon assessment of background noise, wind turbine noise levels should be:
  - less than or equal to the background noise level as measured at the exterior of a noise sensitive location (e.g. a bedroom window), or, where this condition can not be fulfilled:  
  
less than or equal to 45 dBA as measured at the exterior of the nearest noise sensitive location <sup>[3]</sup>.
4. Noise measurement instrumentation to be in accordance with type 2 or better of BS EN 61672-1



# Evaluating Noise Impact

questions

