NOISE AND VIBRATION
ASSESSMENT
AT
‘FIBRELINE’
HARD INGS ROAD
KEIGHLEY

An Assessment on Behalf of

Bradford MDC

NOISE AND VIBRATION ASSESSMENT AT 'FIBRELINE' HARD INGS ROAD KEIGHLEY

Environmental Studies

July 2016

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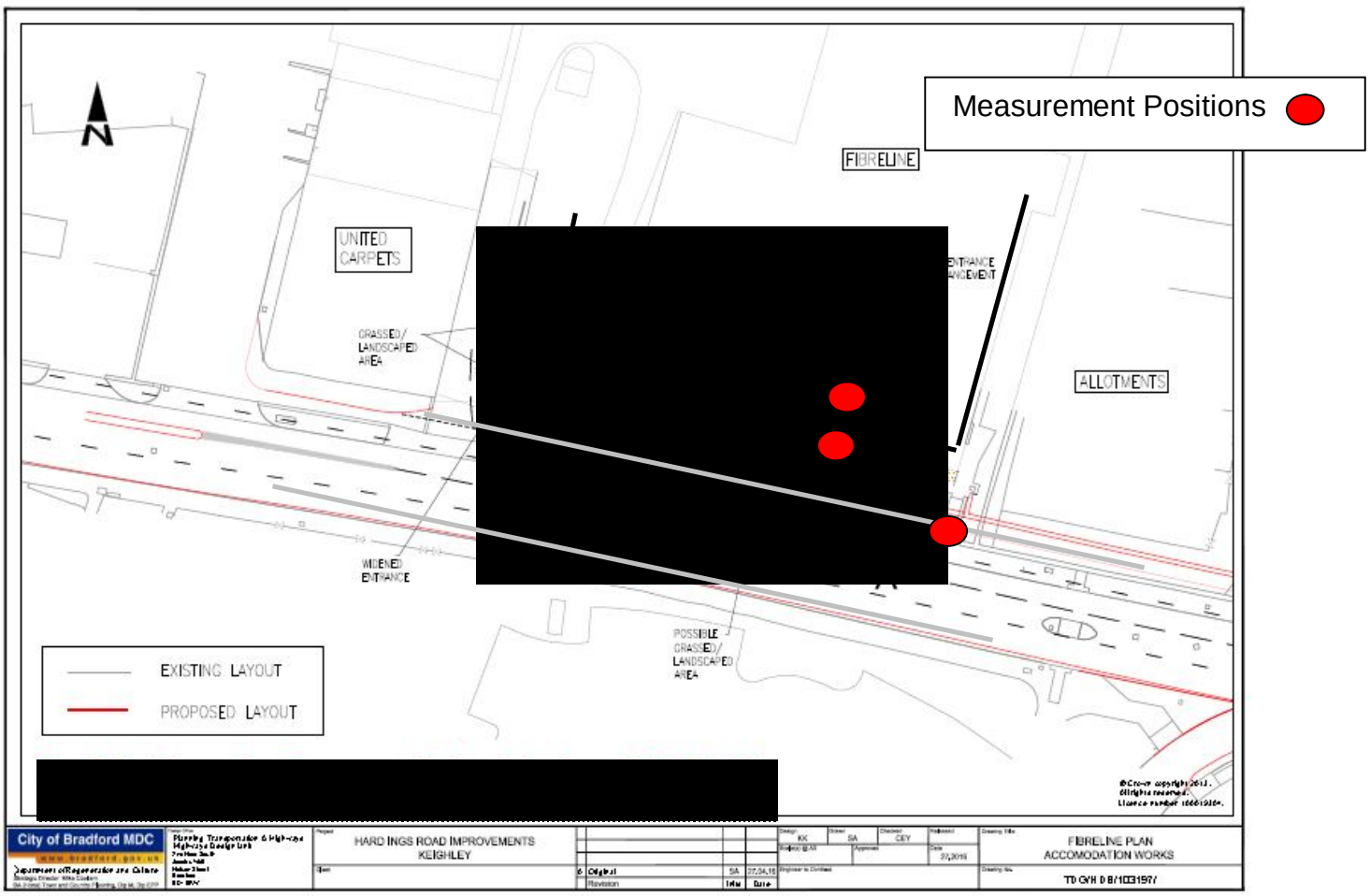
1. Background

Due to a proposed road improvement scheme on the A650 in Keighley, occupants of the ‘Fibreline’ premises have expressed concerns about the effect of changes on noise and vibration levels.

2. Methodology

Arrangements were made with ‘Fibreline’ to measure current levels of noise and vibration both inside and outside their premises, with levels also monitored at the current roadside. The results were then used to predict values after the carriageway improvements.



3. Results

All measurements were made on 6th July 2016 between 10 and 11 am.

The results of the LA_{EQ} noise level measurements at the different measurement positions are shown below.

Measurement Position	Noise Level dB
Inside Office (window closed)	41.0
Inside Office (window open)	44.5
Immediately Outside Office	64.7
Roadside (no barrier effect)	70.8

Ground-borne vibration levels are given below (PPV m/s)

Measurement Position	Vehicle Type/Carriageway	Vibration Level
Office Inside Window Sill	HGV / Nearside	0.06
Office Inside Window Sill	HGV / Far side	0.04
Office Inside Window Sill	S/Decker Bus/ Far Side	0.03
Office Inside Window Sill	Cars / either direction	0.02 – 0.03
Wall at back of Footpath	Coach / Nearside	0.23
Wall at back of Footpath	Van / Nearside	0.15
Wall at back of Footpath	HGV / Nearside	0.29
Wall at back of Footpath	HGV / Far Side	0.26
Immediately outside Office	HGV / Far Side	0.18
Immediately outside Office	HGV / Nearside	0.20
Immediately outside Office	Oil Tanker / Nearside	0.13
Immediately outside Office	HGV / Nearside (slow)	0.10

4. Discussion

As a result of the proposed scheme, a new section of carriageway is to be introduced bringing vehicles approximately 3 metres closer to the 'Fibreline' premises.

Noise calculations based on the forecast traffic increases on Hard Ings Road and which take into account the new alignment of the carriageway show that road traffic noise levels at 'Fibreline' will increase by 1.8 dB(A) in 2017 and by 2.2 dB(A) (i.e.an additional 0.4 dB(A)) by 2026.
To put these changes into perspective, an increase of 3dB(A) is generally accepted as being 'barely perceptible' to the human ear.

In terms of ground borne vibrations levels, the measurement exercise indicated that an outside-to-inside reduction of around 50% occurs on levels generated by vehicles using the current road alignment. Whilst it is possible that the level of this reduction could fall as the source of the vibration moves closer to the building, even if it was at 25% then the majority of vibration events (based on those measured) would be below the threshold of human perception. Damage criteria levels (to a sound structure) are considerably higher than human perception levels, and there was nothing in the measurement exercise to suggest that anything approaching such levels would occur as a result of vehicles using the proposed new road alignment.

5. Conclusions

The noise and vibration measurements conducted at 'Fibreline' together with calculations based on forecast traffic flows for the proposed carriageway alignment indicate that whilst there will be increases in both noise and vibration levels, these will be largely imperceptible (notwithstanding the possible psychological effect sometimes associated with being able to see the traffic more clearly). Whilst it is possible that occasionally HGV vehicles might generate vibration levels which might

be felt within the building, these are highly unlikely to be of a magnitude which can cause (even cosmetic) damage to a sound structure.

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July 2016