PAGERPOWER
Urban & Renewables

Terrestrial Television Baseline Survey Report

Cumming Group

Weston and Pendulum

December 2025







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ADMINISTRATION PAGE

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EXECUTIVE SUMMARY

Report Purpose

Pager Power has been commissioned to investigate the potential impact upon terrestrial television reception in the surrounding area of the proposed Weston and Pendulum building development. This report serves as a baseline to establish current terrestrial television signal strength and reception quality alongside a prediction of the expected impact.

Findings

- A baseline reception survey was undertaken on the 24th of November 2025 to record the terrestrial television signal strength and quality. The site survey confirmed that the Winter Hill transmitter is the main transmitter serving the area surrounding the proposed development;
- Any interference would be due to shadowing effects i.e. the weakening of the transmitted signal due to the physical presence of the buildings;
- The average terrestrial signal strength is very good in the development shadow zone for the main multiplexes and low for the local (lower power) multiplexes;
- Negative effects upon signal strength are typically limited to within 1km of the development and within its shadow zone based on Pager Power's industry experience;
- Multistorey dwellings and commercial properties are predominately located within 1km of the development. The signal strength within this range was recorded as good for the main multiplexes, and low for the local multiplexes. A reduction in signal strength is considered unlikely; however, effects cannot be entirely ruled out considering the baseline signal strength, particularly for local multiplexes;
- At locations beyond 1km and within the shadow zone, the signal strength was on average very good for the main multiplexes, and low for the local multiplexes. Effects at this range are likely to be relatively small based on previous experience.

Mitigation

No requirement for pre-emptive mitigation has been identified.

In the event that effects are reported, it is recommended that a reception measurement is undertaken (post-construction) to investigate the likely cause of the interference.

Mitigation measures should be installed if reported effects are found to be attributable to the development. Solutions are likely to be readily available if required, the most common options are presented in Section 6.

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ABOUT PAGER POWER

Pager Power is a dedicated consultancy company based in Suffolk, UK. The company has undertaken projects in 63 countries internationally.

The company comprises a team of experts to provide technical expertise and guidance on a range of planning issues for large and small developments.

Pager Power was established in 1997. Initially the company focus was on modelling the impact of wind turbines on radar systems. Over the years, the company has expanded into numerous fields including:

- Renewable energy projects;
- Building developments;
- Aviation and telecommunication systems.

Pager Power prides itself on providing comprehensive, understandable and accurate assessments of complex issues in line with national and international standards. This is underpinned by its custom software, longstanding relationships with stakeholders and active role in conferences and research efforts around the world.

Pager Power's assessments withstand legal scrutiny and the company can provide support for a project at any stage.

1 BACKGROUND

1.1 Introduction

Pager Power has been commissioned to investigate the potential impact upon terrestrial television reception in the surrounding area of the proposed Weston and Pendulum building development. This report serves as a baseline to establish current terrestrial television signal strength and reception quality alongside a prediction of the expected impact.

1.2 Proposed Development Site Plan and Location

The location of the site is shown in Figure 1 below.

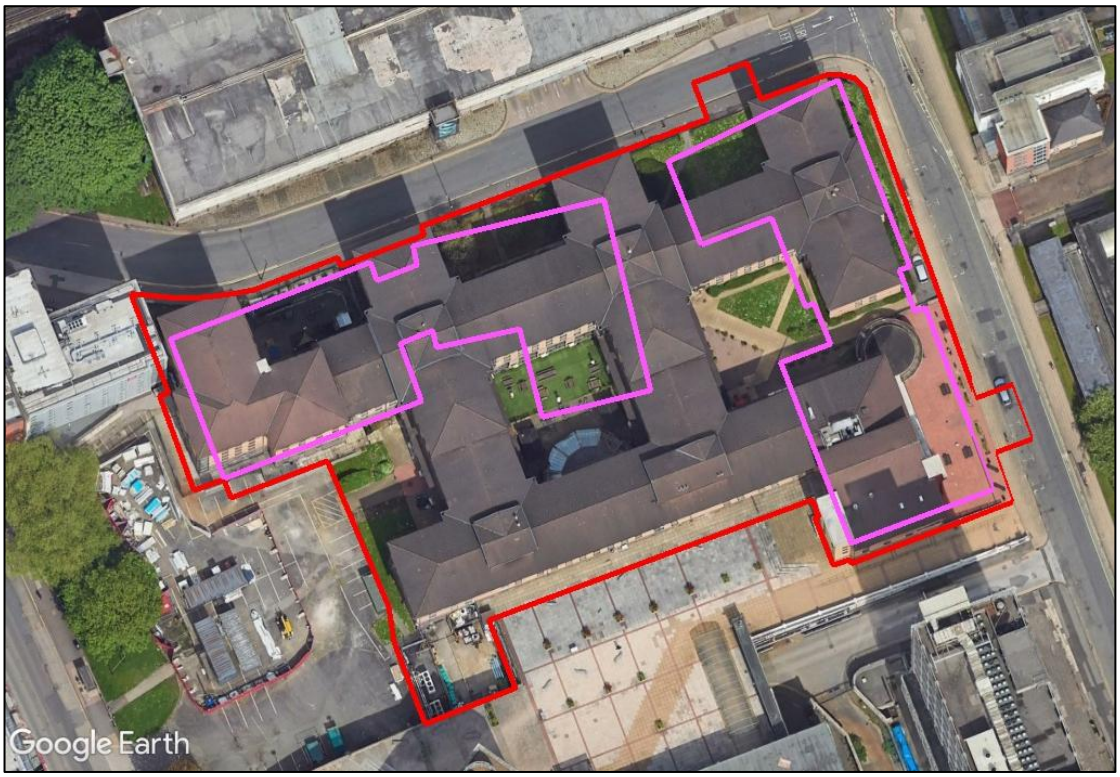


Figure 1 *Proposed site location*

The project description is as follows:

(a) *Partial removal of existing structures and erection of two buildings comprising purpose-built student accommodation (sui generis), one of 50 storeys and one of 17 storeys with an 8-storey link, together with associated amenity space, external landscaping, highways works, and change of use of the Pendulum Hotel to purpose-built student accommodation; and*

(b) *Removal of remaining existing structures and erection of two buildings comprising purpose-built student accommodation (sui generis), one of 33 storeys and one of part-24 and part-8 storeys with a 1-storey link, together with associated amenity space, external landscaping, and highways works.*

2 TELEVISION TRANSMITTER DETAILS

2.1 Relevant Transmitter

Winter Hill is one of the UK's main television transmitters located approximately 25km northwest of the development. The Winter Hill transmitter serves the area around the development.

Digital television services are broadcast via Ultra High Frequency (UHF) signals; no analogue television signals are broadcast. The transmitter information is presented below[1].

2.2 Winter Hill Main Transmitter

The main Winter Hill television transmissions are shown in Table 1 below.

	Public (PSB)			Commercial (COM)		
Service	BBC A	Digital 3&4	BBC B	SDN	Arqiva A	Arqiva B
Channel	32	34	35	29	31	37
Power	100 kilo-Watts (kW)					

Table 1 *Winter Hill main transmissions*

The local Winter Hill television transmissions are shown in Table 2 below.

	Local Multiplexes	
Service	LTVmux	Glmux
Channel	24	27
Power	2 kW	1 kW

Table 2 *Winter Hill additional transmissions*

[1] Source: Ofcom

3 BUILDINGS AND TELEVISION INTERFERENCE

3.1 Technical Overview

Terrestrial television services are provided by means of Ultra-High Frequency (UHF) radio waves which propagate from transmitters to receiving aerials which then relay the signal to a television set.

The quality of the image and sound on a television set is dependent on both the strength of the signal received directly from the transmitter (carrier signal) and the strength of any interference signals from other sources.

To achieve good quality reception an aerial must receive a strong carrier signal but weak interference signals.

3.2 Interference mechanisms

There are two mechanisms by which buildings can cause interference to terrestrial television reception, these are described below.

3.2.1 Obstruction of the Signal

This is caused by the building physically blocking the transmitted television signal, reducing the strength of the carrier signal in the shadow of the building. In the case of Winter Hill transmissions, this would affect residences to the southeast of the existing building. Specifically:

- The highest losses (greatest interference) will be located immediately behind the building relative to the transmitter;
- Losses near the edge of the shadow zone will be less significant due to diffraction effects (bending of the signal).

The Ofcom document states that:

"In general, there will be three 'zones' behind the structure:

Zone A - close behind the structure (typically a few tens of metres) there may be a large reduction in signal level with a possible complete loss of reception

Zone B - further away (typically a few hundred metres) the signal reduction is less severe and the shadow will be smaller as diffraction effects partially fill in the shadow. Depending on the size of the structure, some locations could still lose reception completely

Zone C - some distance away (1-5km) the shadow will effectively have disappeared."

The zones mentioned are illustrated in Figure 2 on the following page[2], taken from Section 3.2 of an Ofcom paper[3] regarding the impact of buildings on broadcast signals.

[2] Source: Ofcom (2009): Tall Structures and their impact on broadcast and other wireless services.
[3] Reference as above.

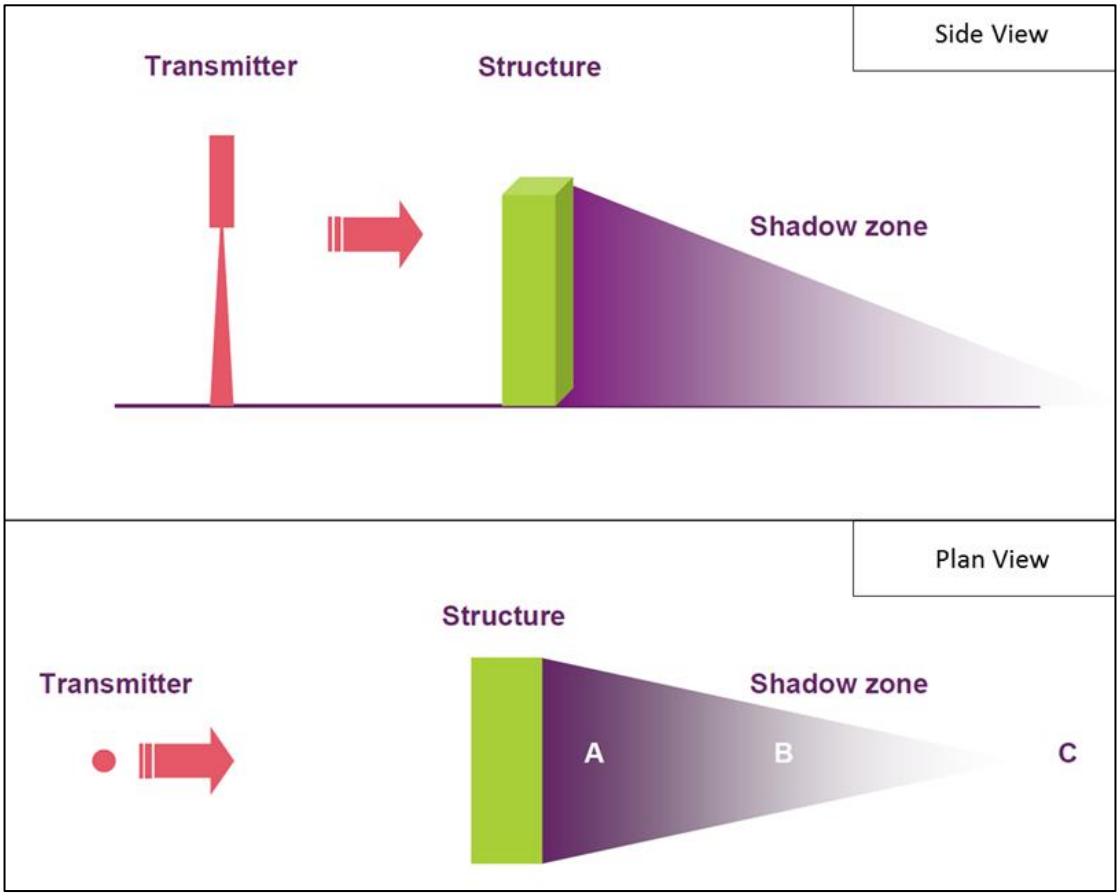


Figure 2 *Diffraction loss zones*

3.2.2 Reflection of the Signal

For large developments with straight edges, the transmitted signal can be reflected by the building itself. This causes an effect known as 'multipath interference' whereby the signal is received twice by an aerial at different times. The direct signal arrives first because it has a shorter distance to travel.

Figure 3 on the following page (taken from Section 3.3 of the Ofcom document referenced above) illustrates this effect.

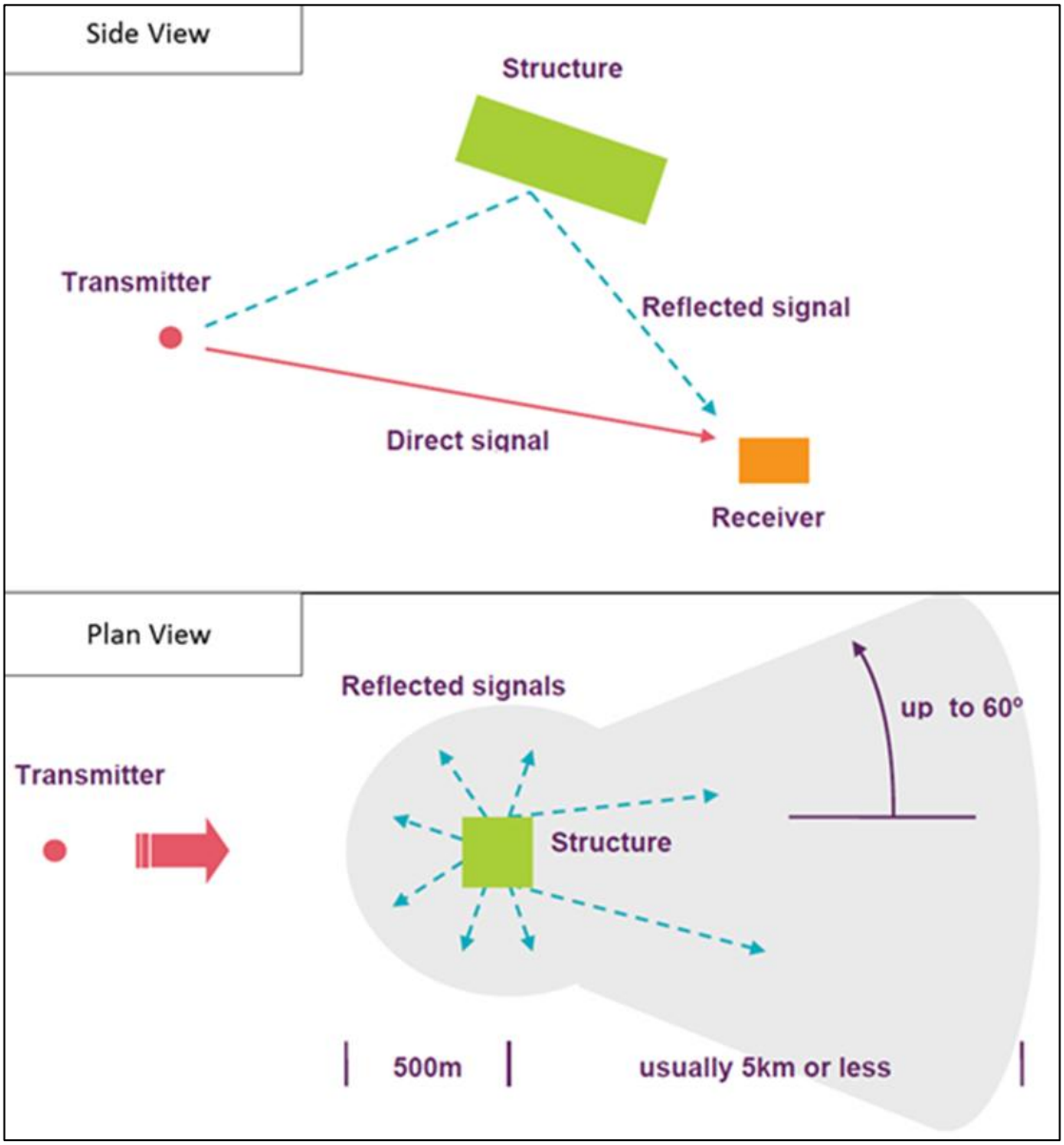


Figure 3 *Reflection zones*

In practice, it is considered highly unlikely that reflections will have an effect for receivers in front of the building or on either side when viewed from the location of the transmitter. For digital transmissions in particular, it is unlikely that issues will occur if the angle between the direct signal and the reflected signal is more than 30 degrees[4].

[4] This is known to be the angle that Arqiva considers when safeguarding its Television Re-Broadcast Links with regard to reflections from wind turbines – whilst wind turbines cause issues that are different to buildings this particular issue is similar for the two.

The reflection zone has been constructed in accordance with the Ofcom approach, however the angle considered is 30 degrees rather than 60 degrees. This is in order to represent a more realistic scenario for digital transmissions.

Reflection issues are most likely to cause a noticeable impact if:

- The direct signal from transmitter to receiver is weak (e.g. obstructed by terrain or buildings);
- The reflected signal from the building is strong (e.g. clear radio line of sight from the transmitter to the building and the building to the receiver).

The worst-case scenario is for both of the above conditions to be satisfied. The best-case scenario is for neither of the above conditions to be satisfied.

4 TECHNICAL ASSESSMENT

4.1 Potential Interference Areas

The shadow and reflection zones have been defined based on the geometry as set out in the previous section. Both zones extend to a distance of 5km beyond the development location in accordance with the Ofcom guidance.

In the case of the shadow zone, this has been modelled as having straight sides in order to be conservative. In actuality, due to diffraction effects, the zone would have a more triangular shape as shown in Figure 3 in the previous section. Figure 4 below shows the potential interference areas associated with the proposed development.

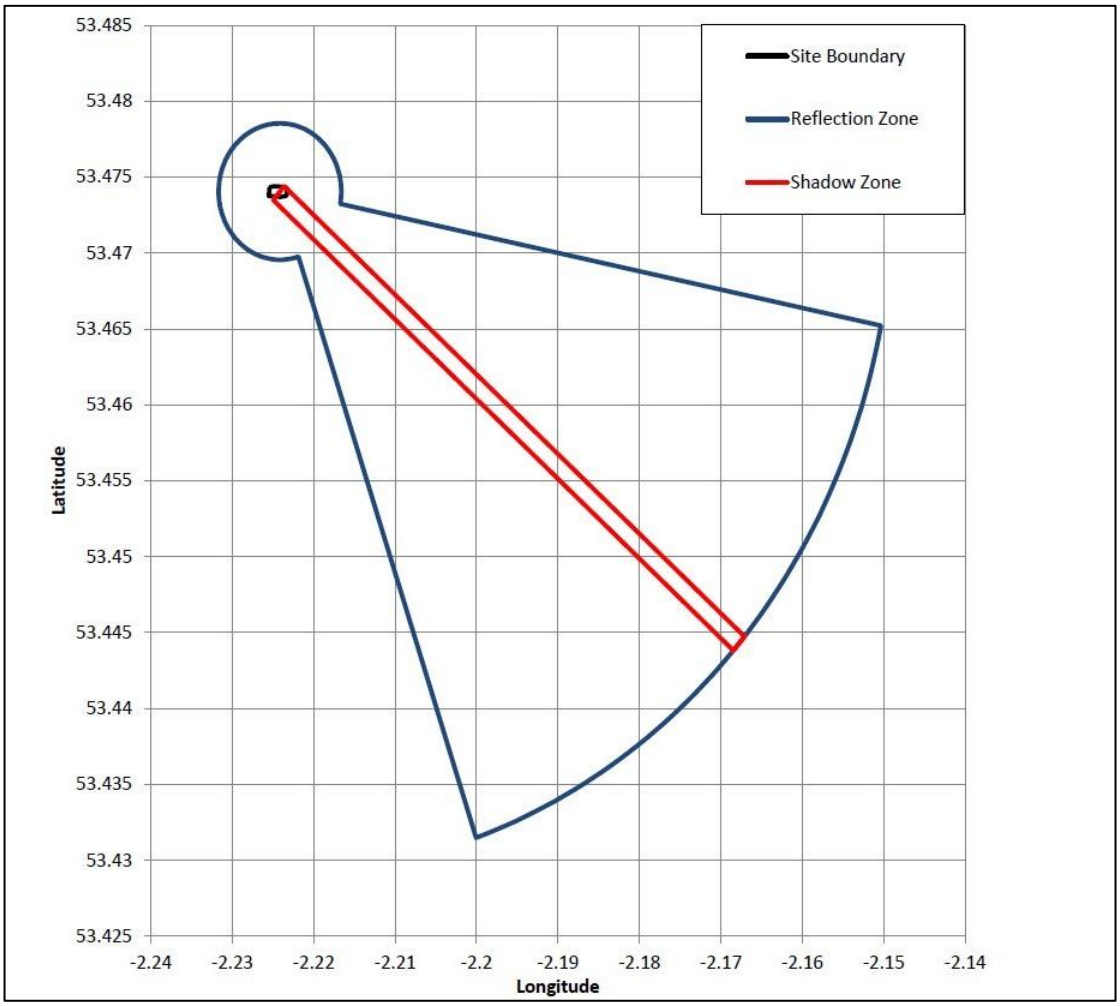


Figure 4 *Interference areas*

Figure 5 below shows the interference zones overlaid onto aerial imagery.

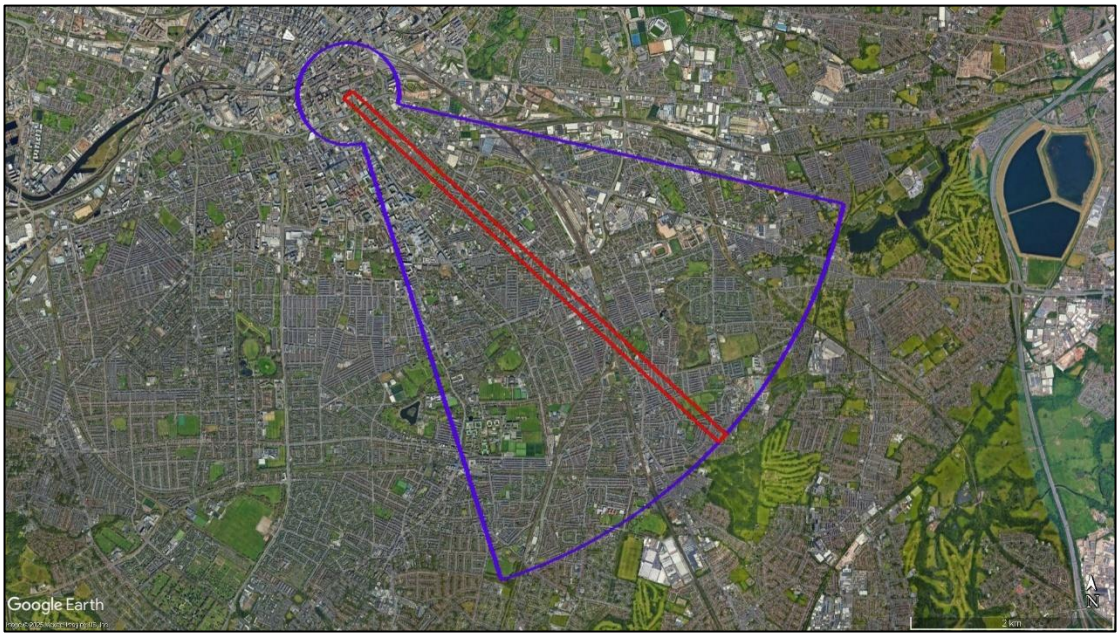


Figure 5 *Interference zones map*

4.2 Potential Diffraction Issues

The shadow zone passes over urban areas that contain commercial and residential buildings. Areas closest to the development are at the highest risk of experiencing television interference. This is typically limited to 1km based on Pager Power's assessment experience. Commercial buildings and multi-storey flats are located within 1km of the development shadow zone.

4.3 Potential Reflection Issues

Reflection effects are most likely if the transmitter does not have direct radio line of sight to the receiving aerial.

The predicted coverage of the Winter Hill transmitter is generally good in the surrounding area. Interference due to reflections are most likely when:

- The receiving aerial is unobstructed by existing obstacles;
- The reflected signal path via the development is unobstructed;
- The angle between the reflected signal via the development and the direct signal is small.

Interference is most likely if all of the above criteria are met. Interference is least likely if none of the above criteria are met.

In practice it is unlikely that all of the above criteria would be met for the development. In particular, locations that are below radio line of sight from the transmitter are unlikely to have an unobstructed path to the development, due to their relative heights. Impacts due to reflections are considered unlikely.

5 TERRESTRIAL TELEVISION BASELINE SURVEY

5.1 Overview

The purpose of a baseline survey is to establish current signal strength and quality in the area. The baseline survey serves three purposes these are:

1. It confirms which transmitter is serving most homes in the areas surveyed;
2. It provides an indicator regarding the likelihood of interference. If current signals are of good quality, minor degradation is less likely to have a noticeable effect;
3. It allows a 'before and after' comparison to be made in the event that a complaint is received.

A baseline television reception survey was undertaken for the development on the 24th of November 2025.

Survey measurements were taken using Pager Power's custom survey vehicle with a wideband UHF aerial extended to a height of 10 metres above ground level. This was connected to television analyser to record the signal strength and stability.

The strength of the recorded signals is categorised in accordance with Table 3 below.

Average Signal Strength (dB)	Subjective Signal Strength Definition
<35	Low
35-45	Moderate
45-55	Good
55+	Very Good

Table 3 *Signal strength categories*

5.2 Survey Locations

Survey locations were chosen (within the shadow zone) pre-survey; however, safe and available access influenced the specific position on the day.

Figure 6 below shows the surveyed locations, overlaid upon aerial photography. More readings are typically carried out closer to the building. This is because interference is generally more likely closer to the obstruction.

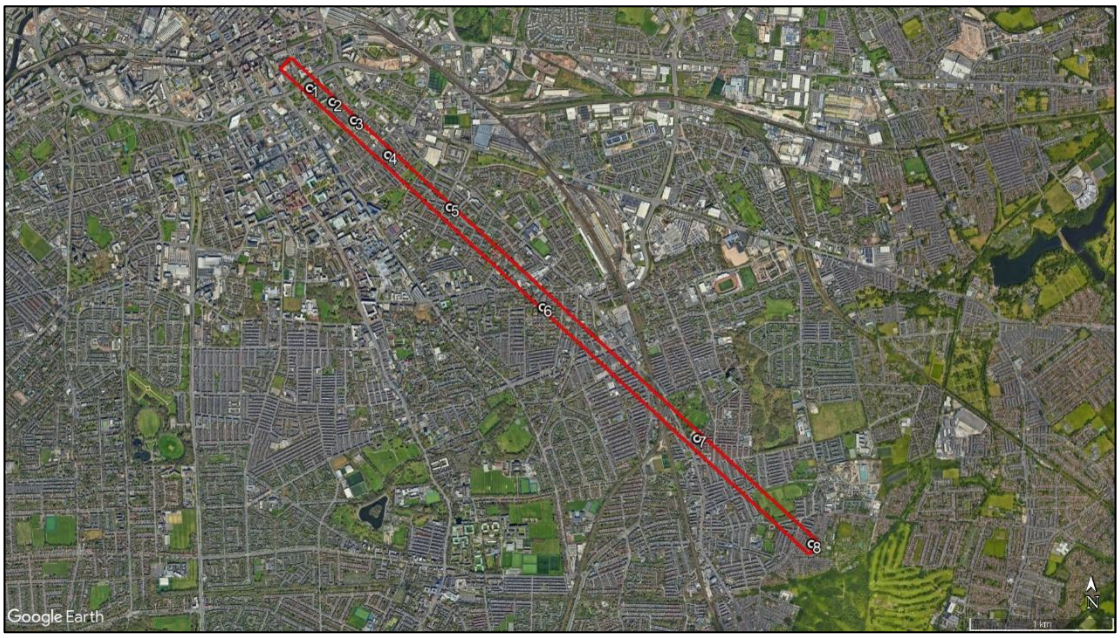


Figure 6 *Survey locations*

5.3 Survey Results

A summary of the television survey results is presented in Table 4 below and on the following pages. Full survey results are shown in Appendix A. Survey photographs are shown in Appendix B.

Location	Average Measured Signal Strength (dB)	Commentary	High Level Conclusion
1	Average: 60.8 (Very Good) Main TV MUX: 65.6 (Very Good) Local TV MUX: 46.4 (Good)	Multiple horizontally polarised aerials and satellites were observed. All main multiplexes showed fine picture and audio quality An average of very good signal strength and signal fluctuations of less than or equal to 0.3dB. Both local multiplexes showed fine picture and audio quality. An average of good signal strength and signal fluctuations of less than or equal to 0.2dB.	The survey location was within 250m of the proposed development and within its shadow zone. Signal losses at this range are likely to be small, considering the attenuation from existing buildings, and the baseline main signal strength, which is Very Good. Interference cannot be entirely ruled out for local multiplexes.
2	Average: 43.5 (Moderate) Main TV MUX: 47.4 (Good) Local TV MUX: 31.9 (Low)	Multiple horizontally polarised aerials and satellites were observed. All main multiplexes showed fine picture and audio quality. An average of good signal strength and signal fluctuations of less than or equal to 0.5dB. One local multiplex showed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.3dB.	The survey location was within 450m of the proposed development and within its shadow zone. Signal losses at this range are likely to be small, considering the attenuation from existing buildings, and the baseline main signal strength, which is Good. Interference cannot be entirely ruled out for local multiplexes.

Location	Average Measured Signal Strength (dB)	Commentary	High Level Conclusion
3	Average: 48 (Good) Main TV MUX: 53.2 (Good) Local TV MUX: 32.4 (Low)	Multiple horizontally polarised aerials and satellites were observed. All main multiplexes showed fine picture and audio quality. An average of good signal strength and signal fluctuations of less than or equal to 0.3dB. One local multiplex showed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.1dB.	The survey location was within 650m of the proposed development and within its shadow zone. Signal losses at this range are likely to be small, considering the attenuation from existing buildings, and the baseline main signal strength, which is Good. Interference cannot be entirely ruled out for local multiplexes.
4	Average: 46.7 (Good) Main TV MUX: 52.2 (Good) Local TV MUX: 30.3 (Low)	Multiple satellites were observed but no horizontally polarised aerials were observed. All main multiplexes showed fine picture and audio quality. An average of good signal strength and signal fluctuations of less than or equal to 0.3dB. One local multiplex showed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.1dB.	The survey location was within 1km of the proposed development and within its shadow zone. Signal losses at this range are likely to be small, considering the attenuation from existing buildings, and the baseline main signal strength, which is Good. Interference cannot be entirely ruled out for local multiplexes.

Location	Average Measured Signal Strength (dB)	Commentary	High Level Conclusion
5	Average: 46.5 (Good) Main TV MUX: 51.7 (Good) Local TV MUX: 30.8 (Low)	Multiple horizontally polarised aerials and satellites were observed. All main multiplexes showed fine picture and audio quality. An average of good signal strength and signal fluctuations of less than or equal to 0.2dB. One local multiplex showed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.3dB.	This location is approximately 1.55km from the proposed development. Effects at this range are likely to be relatively small based on previous experience. Based on the current signal quality, effects are unlikely to be noticeable.
6	Average: 55.7 (Very Good) Main TV MUX: 61.2 (Very Good) Local TV MUX: 39.3 (Moderate)	Multiple horizontally polarised aerials and satellites were observed. All main multiplexes showed fine picture and audio quality. An average of very good signal strength and signal fluctuations of less than or equal to 0.3dB. Both local multiplexes showed fine picture and audio quality. An average of good signal strength and signal fluctuations of less than or equal to 0.3dB.	This location is approximately 2.5km from the proposed development. Effects at this range are likely to be relatively small based on previous experience. Based on the current signal quality, effects are unlikely to be noticeable.

Location	Average Measured Signal Strength (dB)	Commentary	High Level Conclusion
7	Average: 46.0 (Good) Main TV MUX: 50.8 (Good) Local TV MUX: 31.4 (Low)	Multiple horizontally polarised aerials and satellites were observed. All main multiplexers showed fine picture and audio quality. An average of good signal strength and signal fluctuations of less than or equal to 0.3dB. One local multiplex showed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.2dB.	This location is approximately 3.9km from the proposed development. Effects at this range are likely to be relatively small based on previous experience. Based on the current signal quality, effects are unlikely to be noticeable.
8	Average: 42.2 (Moderate) Main TV MUX: 46.6 (Good) Local TV MUX: 28.9 (Low)	Multiple horizontally polarised aerials and satellites were observed. All main multiplexes showed fine picture and audio quality. An average of good signal strength and signal fluctuations of less than or equal to 0.3dB. One local multiplex showed fine picture and audio quality. An average of low signal strength and signal fluctuations of less than or equal to 0.3dB.	This location is approximately 5km from the proposed development. Effects at this range are likely to be relatively small based on previous experience. Based on the current signal quality, effects are unlikely to be noticeable.

Table 4 *Terrestrial television baseline survey results*

6 MITIGATION

6.1 Mitigation Requirement

No requirement for pre-emptive mitigation has been identified. The following sections are provided for reference.

If an adverse effect on terrestrial television service occurs and is attributable to the proposed development, mitigation may be required. The most effective form of mitigation is dependent on the specific impact. Common options are shown below.

Mitigation options include:

- Replacement of receiving aerial with a more directional or higher gain aerial;
- Repositioning the receiving aerial so that the received signal is stronger;
- Directing the receiving aerial to an alternative transmitter that covers the area and retuning the television accordingly;
- Upgrading antenna cabling and connections;
- Installation of signal amplifiers;
- Development of a bespoke local solution using a receiving aerial some distance from the dwelling;
- A combination of the above;
- Replacing terrestrial reception equipment with satellite reception equipment or cable.

6.2 Recommended Options

If interference were to occur for a small number of dwellings, it is likely that the installation of a satellite television receiver would be the most suitable option.

If effects are experienced for dwellings with poor quality or low receiving aerials, the best option may be to upgrade and/or elevate the existing aerial.

6.3 Recommended Process

It is possible that no adverse effects will occur due to the current reception quality in the surrounding area.

It is therefore recommended to investigate any reports of interference in order to determine whether these are attributable to the development. If this is found to be the case, mitigation can be applied.

No requirement for pre-emptive mitigation has been identified.

7 CONCLUSIONS

7.1 Findings

- A baseline reception survey was undertaken on the 24th of November 2025 to record the terrestrial television signal strength and quality. The site survey confirmed that the Winter Hill transmitter is the main transmitter serving the area surrounding the proposed development;
- Any interference would be due to shadowing effects i.e. the weakening of the transmitted signal due to the physical presence of the buildings;
- The average terrestrial signal strength is very good in the development shadow zone for the main multiplexes and low for the local (lower power) multiplexes;
- Negative effects upon signal strength are typically limited to within 1km of the development and within its shadow zone based on Pager Power's industry experience;
- Multistorey dwellings and commercial properties are predominately located within 1km of the development. The signal strength within this range was recorded as good for the main multiplexes, and low for the local multiplexes. A reduction in signal strength is considered unlikely; however, effects cannot be entirely ruled out considering the baseline signal strength, particularly for local multiplexes;
- At locations beyond 1km and within the shadow zone, the signal strength was on average very good for the main multiplexes, and low for the local multiplexes. Effects at this range are likely to be relatively small based on previous experience.

7.2 Mitigation

No requirement for pre-emptive mitigation has been identified.

In the event that effects are reported, it is recommended that a reception measurement is undertaken (post-construction) to investigate the likely cause of the interference.

Mitigation measures should be installed if reported effects are found to be attributable to the development. Solutions are likely to be readily available if required, the most common options are presented in Section 6.

APPENDIX A – DETAILED SURVEY RESULTS

Location 1

Coordinates: Lon: -2.23264, Lat: 53.47255					
Channel	**Service**	**Signal Strength (dBμV)**	**BER**	**Picture**	**Audio**
24	LTVmux	47.8 ± - 0.2	$1x10^{-8}$	Fine	Fine
27	Glmux	45.0 ± 0.2	$1x10^{-7}$	Fine	Fine
29	SDN	65.3 ± 0.3	$1x10^{-7}$	Fine	Fine
31	Arqiva A	64.5 ± 0.3	$1x10^{-7}$	Fine	Fine
32	BBC A	64.7 ± 0.2	$1x10^{-7}$	Fine	Fine
34	Digital 3&4	65.5 ± 0.2	$1x10^{-7}$	Fine	Fine
35	BBC B	68.0± 0.2	$1x10^{-7}$	Fine	Fine
37	Arqiva B	65.9 ± 0.1	$1x10^{-7}$	Fine	Fine

Notes; Multiple horizontally polarised aerials and satellite dishes observed.

Location 2

Coordinates: Lon: -2.23026, Lat: 53.47168					
Channel	**Service**	**Signal Strength (dBμV)**	**BER**	**Picture**	**Audio**
24	LTVmux	32.8 ± 0.3	$1x10^{-7}$	Fine	Fine
27	Glmux	31.0 ± 0.3	DND	N/A	N/A
29	SDN	48.1 ± 0.1	$7x10^{-6}$	Fine	Fine
31	Arqiva A	47.7 ± 0.2	$1x10^{-7}$	Fine	Fine
32	BBC A	48.8 ± 0.3	$3.3x10^{-8}$	Fine	Fine
34	Digital 3&4	46.7 ± 0.5	$1x10^{-7}$	Fine	Fine
35	BBC B	46.0 ± 0.4	$1x10^{-7}$	Fine	Fine
37	Arqiva B	47.5 ± 0.2	$1x10^{-7}$	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellite dishes observed.

Location 3

Coordinates: Lon: -2.22800, Lat: 53.47054					
Channel	**Service**	**Signal Strength (dBμV)**	**BER**	**Picture**	**Audio**
24	LTVmux	35.0 ± 0.1	$1x10^{-7}$	Fine	Fine
27	Glmux	29.8 ± 0.1	DND	N/A	N/A
29	SDN	55.2 ± 0.1	$1x10^{-7}$	Fine	Fine
31	Arqiva A	53.7 ± 0.2	$1x10^{-7}$	Fine	Fine
32	BBC A	54.8 ± 0.2	$1x10^{-7}$	Fine	Fine
34	Digital 3&4	52.1 ± 0.1	$1x10^{-7}$	Fine	Fine
35	BBC B	52.0 ± 0.3	$1x10^{-7}$	Fine	Fine
37	Arqiva B	51.4 ± 0.3	$1x10^{-7}$	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellite dishes observed.

Location 4

Coordinates: Lon:-2.22442; Lat: 53.46837					
Channel	**Service**	**Signal Strength (dBμV)**	**BER**	**Picture**	**Audio**
24	LTVmux	35.5 ± 0.1	$1x10^{-7}$	Fine	Fine
27	Glmux	25.1 ± 0.1	DND	N/A	N/A
29	SDN	51.5 ± 0.2	$1x10^{-7}$	Fine	Fine
31	Arqiva A	52.2 ± 0.1	$1x10^{-7}$	Fine	Fine
32	BBC A	52.4 ± 0.2	$1x10^{-7}$	Fine	Fine
34	Digital 3&4	51.5 ± 0.3	$1x10^{-7}$	Fine	Fine
35	BBC B	53.7 ± 0.1	$1x10^{-7}$	Fine	Fine
37	Arqiva B	52.3 ± 0.2	$1x10^{-7}$	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellite dishes observed.

Location 5

Coordinates: Lon: -2.21793, Lat: 53.46510					
Channel	**Service**	**Signal Strength (dBμV)**	**BER**	**Picture**	**Audio**
24	LTVmux	31.6 ± 0.3	$7x10^{-5}$	Fine	Fine
27	Glmux	30.0 ± 0.1	DND	N/A	N/A
29	SDN	52.8 ± 0.2	$1x10^{-7}$	Fine	Fine
31	Arqiva A	49.6 ± 0.2	$1x10^{-7}$	Fine	Fine
32	BBC A	51.0 ± 0.1	$1x10^{-7}$	Fine	Fine
34	Digital 3&4	53.2 ± 0.2	$1x10^{-7}$	Fine	Fine
35	BBC B	51.2 ± 0.2	$1x10^{-7}$	Fine	Fine
37	Arqiva B	52.7 ± 0.2	$1x10^{-7}$	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellite dishes observed.

Location 6

Coordinates: Lon: -2.20817, Lat: 53.45886					
Channel	**Service**	**Signal Strength (dBμV)**	**BER**	**Picture**	**Audio**
24	LTVmux	43.8 ± 0.2	$1x10^{-7}$	Fine	Fine
27	Glmux	34.8 ± 0.3	$5.4x10^{-4}$	Fine	Fine
29	SDN	61.1 ± 0.2	$1x10^{-7}$	Fine	Fine
31	Arqiva A	61.1 ± 0.1	$1x10^{-7}$	Fine	Fine
32	BBC A	60.9 ± 0.3	$1x10^{-7}$	Fine	Fine
34	Digital 3&4	63.2 ± 0.3	$1x10^{-7}$	Fine	Fine
35	BBC B	61.2 ± 0.2	$1x10^{-7}$	Fine	Fine
37	Arqiva B	59.7 ± 0.2	$1x10^{-8}$	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellite dishes observed.

Location 7

Coordinates: Lon: -2.19193, Lat: 53.45067					
Channel	**Service**	**Signal Strength (dBμV)**	**BER**	**Picture**	**Audio**
24	LTVmux	32.5 ± 0.2	$3x10^{-4}$	Fine	Fine
27	Glmux	30.4 ± 0.1	DND	N/A	N/A
29	SDN	51.5 ± 0.2	$7x10^{-7}$	Fine	Fine
31	Arqiva A	51.6 ± 0.2	$1x10^{-7}$	Fine	Fine
32	BBC A	49.1 ± 0.2	$1x10^{-7}$	Fine	Fine
34	Digital 3&4	51.9 ± 0.2	$1x10^{-7}$	Fine	Fine
35	BBC B	51.8 ± 0.3	$1x10^{-7}$	Fine	Fine
37	Arqiva B	49.3 ± 0.2	$7.1x10^{-6}$	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellite dishes observed.

Location 8

Coordinates: Lon: -2.17992, Lat: 53.44408					
Channel	**Service**	**Signal Strength (dBμV)**	**BER**	**Picture**	**Audio**
24	LTVmux	30.5 ± 0.3	$4.3x10^{-3}$	Fine	Fine
27	Glmux	27.4 ± 0.2	DND	N/A	N/A
29	SDN	47.6 ± 0.2	$2.2x10^{-5}$	Fine	Fine
31	Arqiva A	46.7 ± 0.2	$5.3x10^{-5}$	Fine	Fine
32	BBC A	46.5 ± 0.2	$4x10^{-7}$	Fine	Fine
34	Digital 3&4	47.3 ± 0.3	$4x10^{-6}$	Fine	Fine
35	BBC B	46.5 ± 0.2	$1x10^{-7}$	Fine	Fine
37	Arqiva B	45.1 ± 0.3	$2.7x10^{-4}$	Fine	Fine

Notes: Multiple horizontally polarised aerials and satellite dishes observed.

APPENDIX B – SURVEY PHOTOGRAPHS

Location 1



Location 2



Location 3



Location 4



Location 5



Location 6



Location 7



Location 8



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