

TV/FM & DAB RECEPTION SURVEY REPORT

THIS PRE-CONSTRUCTION TV/FM & DAB RECEPTION SURVEY WAS CARRIED OUT BY:

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DATE OF SURVEY: 11th August 2021

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EXECUTIVE SUMMARY

This study was undertaken in August 2021, to investigate whether the proposed development could cause interference to television broadcast service reception. The report also details the baseline reception conditions for future reference.

A survey has been undertaken to determine the potential effects of the introduction of the proposed development at Jordan Street, Alpha Place, Manchester. Impacts to the reception of digital terrestrial television (Freeview) FM, DAB and digital satellite television services (SKY and Freesat) have all been assessed.

From the results of the desktop and field survey we have located an approximate area where digital terrestrial reception may be affected. However due to the nature of the buildings in this zone and the height of the buildings to the Southeast, we do not envisage any significant impact by the disruption to the digital terrestrial signal.

On a very small-scale Satellite reception may be impacted to the north, one dish was noted during the survey at 2 Jordan Street that may be affected and as always, we recommend that funds are available to deal with the investigation of any reported interference and to enable subsequent mitigation requirements. We advise that the situation regarding television and satellite reception is monitored closely during the construction and any reports of interference are investigated promptly.

FM & DAB signals were recorded, and we anticipate these not to be affected

Please note if tower cranes are used on site these could cause interference on a greater scale than the completed development. This interference would be for the duration of time that the tower cranes are present.

INTRODUCTION

Theory predicts and practical evaluation has confirmed that the introduction of new structures into an area can cause interference to television reception.

This Pre-Construction TV Reception Survey has been undertaken to satisfy the requirements of planning. We have recorded the existing television reception baseline conditions. Using these measurements, we assessed if the introduction of the proposed new development has the potential to impact upon existing viewers' television reception in the surrounding area.

To enable us to make an assessment, an initial desktop study was conducted, followed by a comprehensive field survey.

The desktop study was carried out using plans of the proposed development including the proposed building's location and elevations, along with maps of the surrounding area and details of local television transmitter broadcast information.

The field survey was then carried out at a number of test point locations surrounding the proposed development. Television signal test results and relevant information were recorded at each of the test point locations.

This report includes the information collated during the desktop study and field survey along with an assessment of where the introduction of the proposed development has the potential to cause interference to existing viewers' television reception and to give recommended mitigation solutions.

SCOPE

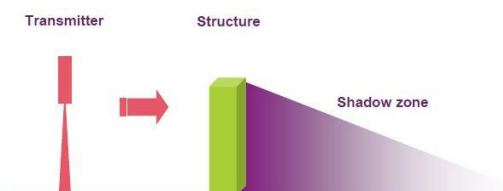
- To carry out a desktop study and comprehensive field survey to record existing baseline television reception conditions in the surrounding area to the proposed development.
- To provide details of any potential impact zone and methods of mitigation if required.
- To assess the potential impact of the development on TV reception and confirm the zone of impact.

DISCUSSIONS

The introduction of a new building or structure into an area has the potential to cause interference to existing viewers' television reception.

SIGNAL BLOCKING

Wireless signals, especially those using relatively high frequencies such as television, behave much like light. Therefore, it is desirable to have a clear line of sight path between the transmitter and a receiving aerial in order to achieve the most reliable reception. The presence of a tall structure between the transmitter and receiver will cause a 'shadow' to be cast behind the structure on the side opposite the transmitter. This effect is similar to the way that an obstruction between a lamp and an observer's eye blocks out the light.

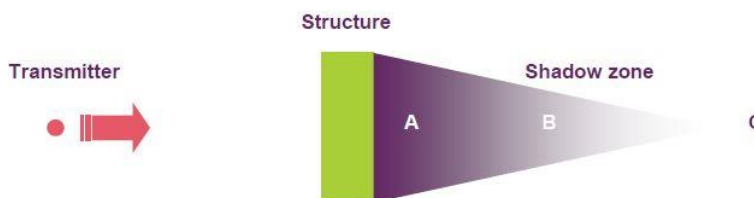


The shadow cast by a structure does not have hard edges though and does not usually extend indefinitely. While there would be a large reduction in signal levels immediately behind the structure, the blocking effect of the structure diminishes with distance because of diffraction. Diffraction is a process where signals appear to bend behind the structure and partially fill in the shadow.

Zone A - close behind the structure (typically a few 10s 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 100 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 resulting shadow is, therefore a triangular shape as shown in Figure 2.



It should be noted that the severity of the reduction and the actual size of the shadow will depend upon many factors including the construction of the structure and its height – the distances given above are for guidance only.

FIELD SURVEY METHOD

Tests are carried out at a selection of locations in the area surrounding the proposed development.

Test results are recorded for television signal strength and quality:-

Strength is recorded in - 'dBµv'

Quality is recorded in - 'VBER' (Standard definition SD)

'LBER' (High definition HD)

Due to the rollout of the 4G Networks, all results are recorded with a CAI approved benchmarked aerial with a balun and LTE filter.

An alternative transmitter is tested for and where receivable, results are recorded.

All tests are carried out at a 10m height above ground level.

The direction and type of existing viewers' television aerials are noted.

A bearing and distance to the proposed development are recorded at each test point location, for comparison with the bearing and distance to the television transmitter serving the area.

Existing obstructions to television reception are noted.

FIELD SURVEY EQUIPMENT

The field survey is carried out using the following equipment: -

- Specialist vehicle complete with telescopic mast
- 360° Antenna rotator
- 14 Element CAI approved wideband UHF antenna with balun and LTE filter, one vertical and one horizontal polarisation
- 20m x WF100 twin screened CAI approved coaxial cable
- Televes spectrum analyser/field strength meter
- Ordnance survey maps
- Garmin GPS receiver
- Compass
- Digital camera
- Digital terrestrial television decoder

SERVICES LIKELY TO BE AFFECTED

TERRESTRIAL TELEVISION RECEPTION

There are two potential ways that the introduction of a new building, extension, wind turbine or wind farm can cause interference to terrestrial television reception. These are obstruction and reflection.

Obstruction occurs when existing viewers are located in an area where their television aerial beam path (direction) to the television transmitter is either through or within very close proximity to the new building or structure. This can result in a reduction of television signal strength and quality and in some cases (if existing viewers are located within close proximity to the new building or structure) receiving terrestrial television signals can become problematic and may not be achievable as the level of interference can vary dependant on the direction the turbines are facing and the speed of rotation.

Reflection occurs when the new building, extension, wind turbine or wind farm reflects terrestrial television signals. These unwanted reflected signals are received on the existing viewer's television aerial along with the direct signals from the television transmitter resulting in irregularities of television signal strength and quality. However digital terrestrial television broadcasts are less prone to reflections than the previous analogue television broadcasts, but this must still be taken into account when assessing any potential impact.

SATELLITE TELEVISION RECEPTION

Satellite television reception requires a clear line of sight between the satellite antenna and the satellite it is aligned to. In most cases, the angle of the satellite antenna to the satellite orbiting the earth is between 20 and 30 degrees elevation.

This elevation must be taken into account when assessing if the introduction of the new building or structure has the potential to obstruct existing viewers' satellite antenna beam path to the satellite.

Satellite reception is very rarely affected on a large scale and is mostly only relevant to existing viewers within close proximity to the new building or structure.

THE PROPOSED DEVELOPMENT:

Jordan Street (Alpha Place)
Manchester

CARRIED OUT ON BEHALF OF:

365 Rooms Manchester Ltd
7 Billinge Avenue
Blackburn
BB2 6SD

OVERVIEW OF PROPOSED DEVELOPMENT

New build of 7 storeys including ground floor of hotel accommodation

DETAILS OF PROPOSED DEVELOPMENT

Development Type: Redevelopment

Proposed Building Height: The development is to have 7 floors with a maximum height of approximately 22m.

Please refer to:

Plan A which highlights the proposed development's location

page 10

Plan B the proposed site elevation

page 11

EXISTING BUILDINGS

A series of photographs have been taken to highlight the area at the proposed development's location, and any existing buildings in the surrounding area.

Photograph A: -	The proposed development's location	Page 12
Photograph B: -	View directly to the north of the proposed development.	Page 13
Photograph C: -	View directly to the east of the proposed development.	Page 14
Photograph D: -	View directly to the south of the proposed development.	Page 15
Photograph E: -	View directly to the west of the proposed development.	Page 16

COORDINATES

Prior to commencement of the survey co-ordinates at the proposed development's location are entered into a GPS receiver along with the co-ordinates for the television transmitter serving the area. This enables us to record a bearing and distance from each test point location to the proposed development for comparison with the bearing and distance to the television transmitter. The co-ordinates used throughout the survey are listed below and shown on Plan A.

LOCATION

NATIONAL GRID REFERENCE

Proposed Development Position	SJ 83468 97401
Winter Hill Transmitter	SD 66000 14400
Holme Moss FM Transmitter	SE 09497 04077
Sunley Building (city tower) DAB Transmitter	SJ 84268 98194

PLAN A: THE PROPOSED DEVELOPMENT LOCATION

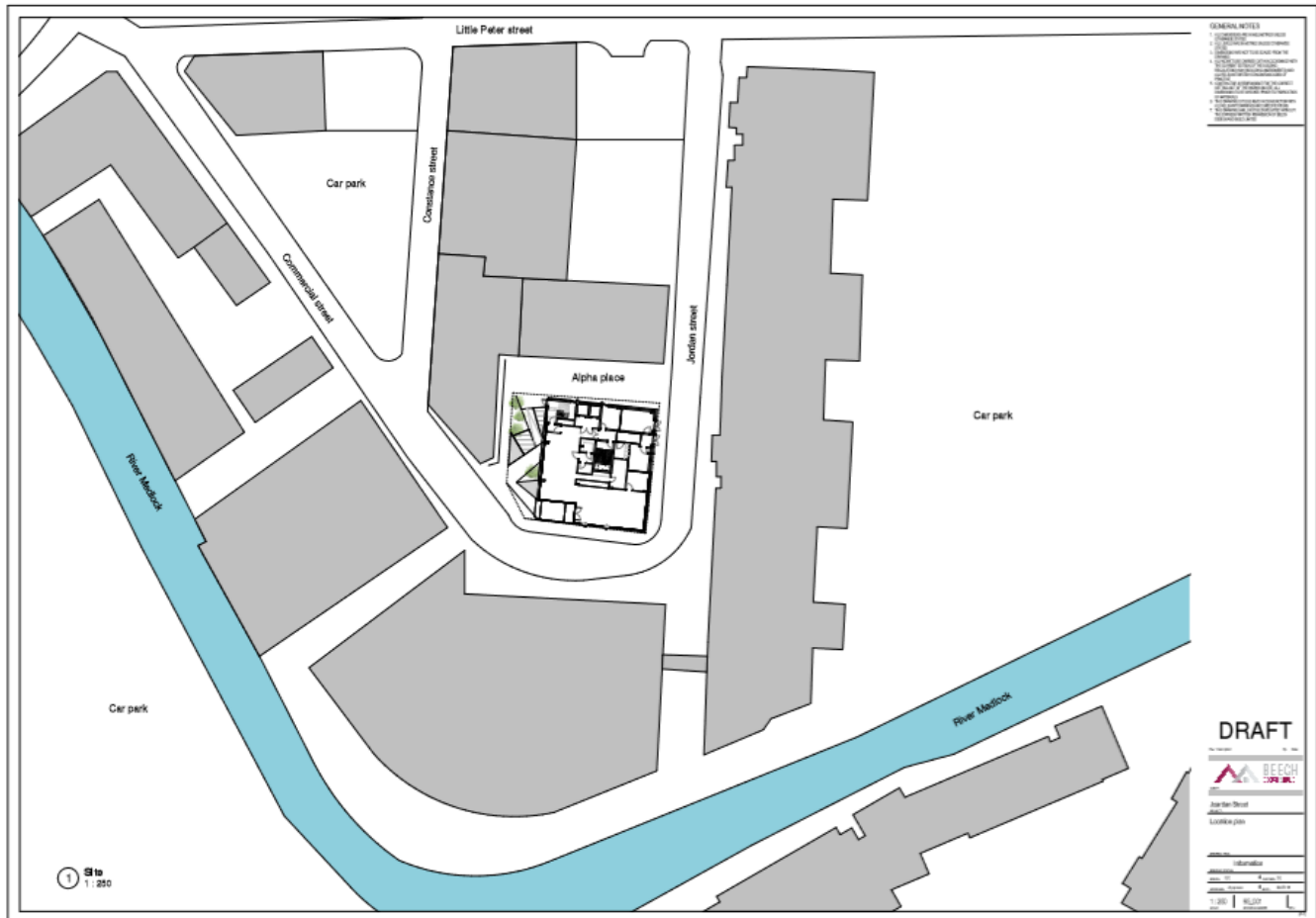


PHOTO A: THE PROPOSED DEVELOPMENT LOCATION



PHOTO B: VIEW DIRECTLY TO THE NORTH OF THE PROPOSED DEVELOPMENT



PHOTO C: VIEW DIRECTLY TO THE EAST OF THE PROPOSED DEVELOPMENT



PHOTO D: VIEW DIRECTLY TO THE SOUTH OF THE PROPOSED DEVELOPMENT



PHOTO E: VIEW DIRECTLY TO THE WEST OF THE PROPOSED DEVELOPMENT



TERRESTRIAL TELEVISION SERVICES

Viewers in the surrounding area to the proposed development are receiving their terrestrial television services from the Winter Hill transmitter, located to the northwest of the site, approx. 24.3 km away

The Winter Hill transmitter broadcasts 8 digital multiplexers providing the full range of standard definition and high-definition digital terrestrial television services available on Freeview, with regional programming. Please refer to the transmitter details for further information

The test results recorded during the survey show that terrestrial television reception from the Winter Hill transmitter has good signal strengths. Please note that the results are recorded at a 10m aerial height, in accordance with TV reception survey specifications and that for existing television aerials sited at multistorey height reception could be much improved.

During the survey, tests were carried out to receive an alternative transmitter to the Winter Hill transmitter. The result of these tests was that no other Transmitter could be received at an acceptable quality and strength.

SATELLITE TELEVISION SERVICES

Satellite television reception requires a clear line of sight between the satellite antenna and the satellite it is aligned to. In most cases, the angle of the satellite antenna to the satellite orbiting the earth is between 20 and 30 degrees elevation.

This elevation must be taken into account when assessing if the introduction of the new building or structure has the potential to obstruct existing viewers' satellite antenna beam path to the satellite.

Satellite reception is very rarely affected on a large scale and is mostly only relevant to existing viewers within close proximity to the new building or structure.

FM RADIO SERVICES

Listeners in the surrounding area to the proposed development are receiving their radio services from the Holme Moss transmitter, located to the northwest of the building/structure, approx. 26 km away at a compass bearing of 75 degrees

DAB RADIO SERVICES

Listeners in the surrounding area to the proposed development are receiving their radio services from the Sunley Building, (now city tower) Piccadilly transmitter, located to the east of the building/structure, approx. 1 km away at a compass bearing of 43 degrees

FIELD SURVEY TEST RESULTS AND INFORMATION

TEST POINT 1

Location Gilbert Street
NGR: SJ 83446 97464
Alt: 33 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	312°	24.3km
Proposed Development	127°	0.03 km

Visible Existing Aerial Arrays:

18 element aerials on 2m mast, mounted at rooftop height, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions:

Various multistorey buildings in the general direction of the Winter Hill Transmitter

WINTER HILL TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBμV)	CN dB	MER	VBER	LBER	Quality
55	746.0	COM7	HD	40	23	18		-2	Marginal
37	602.0	COM6	SD	47	31	21	-7		Marginal
31	698.0	ARQA	SD	50	34	29	-8		Pass
32	562.0	BBCA	SD	50	33	28	-8		Pass
35	585.8	BBCB	HD	48	29	25		-4	Pass
24	498.0	LOC1	SD	36	18	-	-		Fail
29	538.0	SDN	SD	51	33	21	-7		Pass
34	578.0	D3+4	SD	48	30	26	-8		Pass

Television reception is of an acceptable quality and strength

FM/DAB TRANSMITTERS – REPORT

Channel	Frequency FM	Level (dBμV) FM	CN Db FM	Frequency DAB	Level (dBμV) DAB	CN Db DAB
BBC Radio 1	98.9	87	38	225.64(12B)	76	27
BBC Radio 2	89.3	58	11	225.64(12B)	76	27
BBC Radio 3	91.5	59	12	225.64(12B)	76	27
BBC Radio 4	93.7	87	39	225.64(12B)	76	27

VISIBLE TV AERIAL LOCATED IN THE AREA OF TEST POINT 1



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TEST POINT 2

Location Great Jackson Street
NGR: SJ 83455 97218
Alt: 33 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	314°	24.4 km
Proposed Development	005°	0.18 km

Visible Existing Aerial Arrays:

High Gain Antenna on 2m mast, mounted at rooftop height, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions:

Various buildings in the general direction of the Winter Hill Transmitter

WINTER HILL TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dB μ V)	CN dB	MER	VBER	LBER	Quality
55	746.0	COM7	HD	45	28	25		-3	Pass
37	602.0	COM6	SD	50	30	28	-8		Pass
31	698.0	ARQA	SD	54	34	30	-8		Pass
32	562.0	BBCA	SD	55	30	30	-8		Pass
35	585.8	BBCB	HD	47	30	27		-4	Pass
24	498.0	LOC1	SD	39	25	18	-6		Marginal
29	538.0	SDN	SD	55	32	28	-8		Pass
34	578.0	D3+4	SD	50	32	30	-8		Pass

Television reception is of a good quality and strength

FM/DAB TRANSMITTERS – REPORT

Channel	Frequency FM	Level (dB μ V) FM	CN Db FM	Frequency DAB	Level (dB μ V) DAB	CN Db DAB
BBC Radio 1	98.9	75	45	225.64(12B)	74	40
BBC Radio 2	89.3	61	35	225.64(12B)	74	40
BBC Radio 3	91.5	60	35	225.64(12B)	74	40
BBC Radio 4	93.7	77	45	225.64(12B)	74	40

VISIBLE TV AERIAL LOCATED IN THE AREA OF TEST POINT 2



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TEST POINT 3

Location Garwood Street
NGR: SJ 83528 97207
Alt: 33 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	314°	24.4km
Proposed Development	345°	0.2 km

Visible Existing Aerial Arrays:

High Gain Antenna on 2m mast, mounted at rooftop height, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions:

Various buildings in the general direction of the Winter Hill Transmitter

WINTER HILL TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBμV)	CN dB	MER	VBER	LBER	Quality
55	746.0	COM7	HD	50	30	28		-4	Pass
37	602.0	COM6	SD	55	28	28	-8		Pass
31	698.0	ARQA	SD	58	32	32	-8		Pass
32	562.0	BBCA	SD	59	32	30	-8		Pass
35	585.8	BBCB	HD	51	31	30		-5	Pass
24	498.0	LOC1	SD	42	28	22	-7		Pass
29	538.0	SDN	SD	58	30	22	-8		Pass
34	578.0	D3+4	SD	52	35	33	-8		Pass

Television reception is of a good quality and strength

FM/DAB TRANSMITTERS – REPORT

Channel	Frequency FM	Level (dBμV) FM	CN Db FM	Frequency DAB	Level (dBμV) DAB	CN Db DAB
BBC Radio 1	98.9	80	45	225.64(12B)	70	45
BBC Radio 2	89.3	62	45	225.64(12B)	70	45
BBC Radio 3	91.5	59	40	225.64(12B)	70	45
BBC Radio 4	93.7	77	42	225.64(12B)	70	45

VISIBLE TV AERIAL LOCATED IN THE AREA OF TEST POINT 3



TEST POINT 4

Location City Road
NGR: SJ 83562 97308
Alt: 33 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	312°	24.4km
Proposed Development	331°	0.13 km

Visible Existing Aerial Arrays:

High Gain Antenna on 2m mast, mounted at rooftop height, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions:

Various buildings in the general direction of the Winter Hill Transmitter

WINTER HILL TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBμV)	CN dB	MER	VBER	LBER	Quality
55	746.0	COM7	HD	48	28	24		-4	Pass
37	602.0	COM6	SD	52	28	25	-7		Pass
31	698.0	ARQA	SD	53	30	30	-8		Pass
32	562.0	BBCA	SD	55	28	28	-8		Pass
35	585.8	BBCB	HD	44	28	25		-4	Pass
24	498.0	LOC1	SD	39	26	23	-7		Marginal
29	538.0	SDN	SD	55	28	28	-8		Pass
34	578.0	D3+4	SD	50	33	30	-8		Pass

Television reception is of an acceptable quality and strength

FM/DAB TRANSMITTERS – REPORT

Channel	Frequency FM	Level (dBμV) FM	CN Db FM	Frequency DAB	Level (dBμV) DAB	CN Db DAB
BBC Radio 1	98.9	85	45	225.64(12B)	75	45
BBC Radio 2	89.3	60	45	225.64(12B)	75	45
BBC Radio 3	91.5	60	45	225.64(12B)	75	45
BBC Radio 4	93.7	80	40	225.64(12B)	75	45

VISIBLE TV AERIAL LOCATED IN THE AREA OF TEST POINT 4



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TEST POINT 5

Location City Road East
NGR: SJ 83600 97380
Alt: 34 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	312°	24.6km
Proposed Development	295°	0.15 km

Visible Existing Aerial Arrays:

High Gain Antenna on 2m mast, mounted at rooftop height, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions:

Various buildings in the general direction of the Winter Hill Transmitter

WINTER HILL TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBμV)	CN dB	MER	VBER	LBER	Quality
55	746.0	COM7	HD	45	28	20		-3	Marginal
37	602.0	COM6	SD	50	32	28	-8		Pass
31	698.0	ARQA	SD	52	30	28	-8		Pass
32	562.0	BBCA	SD	48	33	30	-8		Pass
35	585.8	BBCB	HD	45	25	22		-4	Marginal
24	498.0	LOC1	SD	32	18	-	-		Fail
29	538.0	SDN	SD	49	30	24	-8		Pass
34	578.0	D3+4	SD	49	32	28	-8		Pass

Television reception is of an acceptable quality and strength

FM/DAB TRANSMITTERS – REPORT

Channel	Frequency FM	Level (dBμV) FM	CN Db FM	Frequency DAB	Level (dBμV) DAB	CN Db DAB
BBC Radio 1	98.9	80	42	225.64(12B)	70	42
BBC Radio 2	89.3	62	40	225.64(12B)	70	42
BBC Radio 3	91.5	62	42	225.64(12B)	70	42
BBC Radio 4	93.7	78	40	225.64(12B)	70	42

TEST POINT 6

Location River Street
NGR: SJ 83618 97242
Alt: 30m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	314°	24.7km
Proposed Development	317°	0.21 km

Visible Existing Aerial Arrays:

High Gain Antenna on 2m mast, mounted at rooftop height, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions:

Various buildings in the general direction of the Winter Hill Transmitter

WINTER HILL TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBμV)	CN dB	MER	VBER	LBER	Quality
55	746.0	COM7	HD	48	30	24		-6	Pass
37	602.0	COM6	SD	55	33	30	-8		Pass
31	698.0	ARQA	SD	56	30	30	-8		Pass
32	562.0	BBCA	SD	52	28	28	-8		Pass
35	585.8	BBCB	HD	49	28	26		-4	Pass
24	498.0	LOC1	SD	40	22	20	-7		Pass
29	538.0	SDN	SD	55	32	30	-8		Pass
34	578.0	D3+4	SD	54	28	28	-8		Pass

Television reception is of a good quality and strength

FM/DAB TRANSMITTERS – REPORT

Channel	Frequency FM	Level (dBμV) FM	CN Db FM	Frequency DAB	Level (dBμV) DAB	CN Db DAB
BBC Radio 1	98.9	88	45	225.64(12B)	77	45
BBC Radio 2	89.3	65	45	225.64(12B)	77	45
BBC Radio 3	91.5	66	40	225.64(12B)	77	45
BBC Radio 4	93.7	85	45	225.64(12B)	77	45

VISIBLE TV AERIAL LOCATED IN THE AREA OF TEST POINT 6



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TEST POINT 7

Location First Street
NGR: SJ 83706 97299
Alt: 34 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	314°	24.7km
Proposed Development	289°	0.25 km

Visible Existing Aerial Arrays:

High Gain Antenna on 2m mast, mounted at rooftop height, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions:

Various buildings in the general direction of the Winter Hill Transmitter

WINTER HILL TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBμv)	CN dB	MER	VBER	LBER	Quality
55	746.0	COM7	HD	50	35	24		-4	Pass
37	602.0	COM6	SD	60	38	34	-8		Pass
31	698.0	ARQA	SD	57	35	31	-8		Pass
32	562.0	BBCA	SD	57	33	30	-8		Pass
35	585.8	BBCB	HD	60	34	30		-4	Pass
24	498.0	LOC1	SD	44	26	25	-7		Pass
29	538.0	SDN	SD	57	38	30	-6		Pass
34	578.0	D3+4	SD	60	37	31	-8		Pass

Television reception is of a good quality and strength

Channel	Frequency FM	Level (dBμv) FM	CN Db FM	Frequency DAB	Level (dBμv) DAB	CN Db DAB
BBC Radio 1	98.9	84	45	225.64(12B)	75	45
BBC Radio 2	89.3	74	45	225.64(12B)	75	45
BBC Radio 3	91.5	73	45	225.64(12B)	75	45
BBC Radio 4	95.1	77	45	225.64(12B)	75	45

VISIBLE TV AERIAL LOCATED IN THE AREA OF TEST POINT 7



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TEST POINT 8

Location Medlock Street
NGR: SJ 83649 97349
Alt: 33 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	313°	24.7km
Proposed Development	271°	0.18 km

Visible Existing Aerial Arrays:

High Gain Antenna on 2m mast, mounted at rooftop height, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions:

Various buildings in the general direction of the Winter Hill Transmitter

WINTER HILL TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dB μ V)	CN dB	MER	VBER	LBER	Quality
55	746.0	COM7	HD	48	30	28		-6	Pass
37	602.0	COM6	SD	58	33	32	-8		Pass
31	698.0	ARQA	SD	54	30	28	-8		Pass
32	562.0	BBCA	SD	56	28	28	-8		Pass
35	585.8	BBCB	HD	55	30	26		-5	Pass
24	498.0	LOC1	SD	40	25	22	-6		Pass
29	538.0	SDN	SD	55	33	34	-8		Pass
34	578.0	D3+4	SD	56	33	32	-8		Pass

Television reception is of a good quality and strength

FM/DAB TRANSMITTERS – REPORT

Channel	Frequency FM	Level (dB μ V) FM	CN Db FM	Frequency DAB	Level (dB μ V) DAB	CN Db DAB
BBC Radio 1	98.9	80	45	225.64(12B)	73	45
BBC Radio 2	89.3	70	40	225.64(12B)	73	45
BBC Radio 3	91.5	70	40	225.64(12B)	73	45
BBC Radio 4	95.1	71	38	225.64(12B)	73	45

TEST POINT 9

Location NCP Bridgewater
NGR: SJ 83533 97412
Alt: 33 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	312°	24.6km
Proposed Development	265°	0.1 km

Visible Existing Aerial Arrays:

High Gain Antenna on 2m mast, mounted at rooftop height, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions: Various buildings in the general direction of the Winter Hill Transmitter

WINTER HILL TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBμV)	CN dB	MER	VBER	LBER	Quality
55	746.0	COM7	HD	36	21	18		-2	Fail
37	602.0	COM6	SD	50	33	22	-8		Pass
31	698.0	ARQA	SD	54	35	30	-8		Pass
32	562.0	BBCA	SD	52	30	29	-8		Pass
35	585.8	BBCB	HD	52	30	28		-6	Pass
24	498.0	LOC1	SD	36	20	16	-4		Fail
29	538.0	SDN	SD	55	38	27	-8		Pass
34	578.0	D3+4	SD	48	30	26	-8		Pass

Television reception is of a good quality and strength

FM/DAB TRANSMITTERS – REPORT

Channel	Frequency FM	Level (dBμV) FM	CN Db FM	Frequency DAB	Level (dBμV) DAB	CN Db DAB
BBC Radio 1	98.9	87	38	225.64(12B)	76	27
BBC Radio 2	89.3	58	11	225.64(12B)	76	27
BBC Radio 3	91.5	59	12	225.64(12B)	76	27
BBC Radio 4	93.7	87	39	225.64(12B)	76	27

VISIBLE TV AERIAL LOCATED IN THE AREA OF TEST POINT 9



TEST POINT 10

Location: Hulme Street
NGR: SJ 83861 97272
Alt: 33 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	313°	24.8km
Proposed Development	288°	0.4 km

Visible Existing Aerial Arrays:

High Gain Antenna on 2m mast, mounted at rooftop height, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions:

Various buildings in the general direction of the Winter Hill Transmitter

WINTER HILL TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBμV)	CN dB	MER	VBER	LBER	Quality
55	746.0	COM7	HD	48	33	30		-5	Pass
37	602.0	COM6	SD	58	33	30	-8		Pass
31	698.0	ARQA	SD	55	32	30	-8		Pass
32	562.0	BBCA	SD	54	32	28	-8		Pass
35	585.8	BBCB	HD	58	32	30		-6	Pass
24	498.0	LOC1	SD	41	26	22	-6		Marginal
29	538.0	SDN	SD	55	33	28	-7		Pass
34	578.0	D3+4	SD	58	33	32	-8		Pass

Television reception is of a good quality and strength

FM/DAB TRANSMITTERS – REPORT

Channel	Frequency FM	Level (dBμV) FM	CN Db FM	Frequency DAB	Level (dBμV) DAB	CN Db DAB
BBC Radio 1	98.9	80	45	225.64(12B)	70	45
BBC Radio 2	89.3	72	40	225.64(12B)	70	45
BBC Radio 3	91.5	70	44	225.64(12B)	70	45
BBC Radio 4	95.1	75	45	225.64(12B)	70	45

CONCLUSIONS FOR BUILDING DEVELOPMENT

The proposed development is to be located at Jordan Street (Alpha Place). The development is to consist of the introduction of a multistorey scheme with a maximum height of 7 storeys which would incorporate a Hotel/Apartment type building.

Subsequently, the introduction of the proposed development will change the existing skyline which can result in causing an impact on the existing viewers' television reception.

By taking into account the proposed development's location and elevation the details collated during the desktop study and the results and information recorded during the field survey we were able to ascertain where the introduction of the proposed development has the potential to impact upon existing viewers' television reception.

In the case of the proposed development, we have highlighted a potential impact zone for terrestrial television reception shown on Map 1. The potential impact zone for terrestrial television reception covers a small area to the south east, we do not expect any widespread interference due to the height of the buildings to the southeast and no mitigation will be required.

We have indicated a potential impact zone for satellite television reception as there are buildings directly to the north that have been identified and one or more satellite dish that would be affected from the proposed development. If this is found to be the case Satellite antenna re-location or upgrade may be required to resolve.

We recommend that funds are available to deal with the investigation of any reported interference and to enable subsequent mitigation requirements. We advise that the situation regarding television and satellite reception is monitored closely during the construction and any reports of interference are investigated promptly.

Please note that when tower cranes are used on site they have the potential to cause interference on a wider scale for the duration of time they are on site.

Please also refer to the mitigation section of this report, on the following page for possible remedies to rectifying terrestrial television reception issues.

MITIGATION

Terrestrial Television Reception

Remedial Aerial Work

One or all of the following may assist in rectifying interference being received to terrestrial television reception.

Change of aerial type to one most suited to the type of interference being received.

Redirecting the existing television aerial to an alternative transmitter that is not affected, in some cases, the existing television aerial may not be suitable for redirecting and the installation of a suitable television aerial may be required.

Re-siting of the television aerial to a position on the property where interference is reduced or not present.

Increase or decrease in aerial height.

Installation of masthead amplification to improve television signal strengths being received.

Remote Television Aerial

When a remote television aerial is positioned at a location with good quality television reception, (which can be a considerable distance from the affected area), and the signals are brought back via a cable network to the affected properties.

Utilising Satellite Reception

Should rectifying terrestrial television reception prove problematic, the installation of satellite systems utilising the Freesat platform can assist in rectifying reception issues.

To provide satellite television reception for individually affected dwellings or commercial units requires the installation of a satellite dish and set-top box.

SATELLITE TELEVISION RECEPTION

Remedial Satellite Work

One or all of the following may assist in rectifying satellite television reception issues.

Re-siting of the satellite antenna to a position on the property where a clear line of sight can be achieved.

Increase in height of the satellite antenna to achieve a clear line of sight to the satellite.

Remote Satellite Dish

When the receiving satellite dish is sited in a position where a clear line of sight can be achieved, this can sometimes be a considerable distance from the affected property. In some instances, the satellite dish may require siting on the offending property in order to achieve a clear line of sight or on an adjoining property where permission will have to be sought. The signals are brought back to the affected property via a cable and amplifier network.

The need for such mitigation would need to be determined on a case by case basis.

POTENTIAL IMPACT ZONE – MAP 1



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POTENTIAL IMPACT Satellite dish in locality



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REFERENCE OF TERMS

c.	Circa
CH	The UHF Channel allocation from the transmitter
MUX	The digital multiplexer allocation/operator
Tx	Transmitter
dBμv	Carrier strength reading (decibel microvolt)
C/N	Carrier /Noise Ratio
VBER	Measurement for digital signal after error correction (BER after VITERBi)
LBER	BER after been applied the LDPC (low-density parity check) error correction
SD	SD Standard Definition
HD	HD High Definition
NGR	National Grid Reference
ALT	Altitude above sea level at the location
BRG	Bearing from North
GPS	Global Positioning System