TV/FM & DAB RECEPTION SURVEY REPORT

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

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DATE OF SURVEY: 15th May 2023
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SUMMARY

This report has been prepared by SCS Technologies Ltd on behalf of Northside (Manchester) Ltd (trading name – Lamington Group) to support a full planning application for an aparthotel development (hereafter referred to as the 'Proposed Development') at 12-16 Manchester Piccadilly, Manchester M1 3AN (hereafter referred to as 'the Site')

Full planning permission for the erection of a 34-storey building (land at no. 14-16 Piccadilly) and conversion of adjacent building (no.12 Piccadilly) (basement to fourth floor) to create an aparthotel, including a ground floor café (Use Class E (b), first floor exhibition hall (Use Class F1) and a rooftop bar and restaurant (Use Class E (b)).” and associated works.

The site is located within the Manchester City Centre on the west side of Piccadilly, to the south of Piccadilly Gardens and north of Piccadilly train station. The site is located at 12 – 16 Piccadilly, Manchester M1 3AN.

The site encompasses the vacant Grade II Listed former Union Bank building and adjacent vacant land; the Waldorf Public House and Indemnity House (no, 7 Chatham St) immediately adjoin the site but do not form part of the proposal. The site itself is bound by Piccadilly, Gore Street and Chatham Street.

At the time of surveying there was no existing building at the proposed multi storey building's location (14- 16 Piccadilly). Subsequently, the introduction of the proposed development will change the existing skyline, which can result in an impact to existing viewers' television reception.

By considering 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 can ascertain where, or if, 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 potential impact zones for terrestrial television reception on Map 1.

The area that the potential impact zone covers is predominantly commercial. However, there are some hotels within the potential impact zone/shadow zone (Malmaison Hotel and Doubletree by Hilton Hotels). Each of these hotels will have communal TV systems within the buildings, serving the hotel bedrooms, and if affected may require mitigation.

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Satellite Reception:
Both Sky TV and Freesat are broadcast from the Astra 28° satellites. This means that viewers require a beam path of 152° at an approximate elevation of 23°. Due to this, the proposed development has the potential to impact upon satellite reception for viewers located to the north (marked area on page 33)

However, directly to the north of the proposed development there is a multi-storey car park, and beyond this mainly commercial properties, no satellite dishes were noted at the time of the survey but there could be dishes at rooftop height that may be affected by the introduction of the development and if within the affected zone may require mitigation.

FM & DAB signals were recorded, and we anticipate these not to be significantly impacted.

During the development if scaffolding or tower cranes are used, that would extend to a greater height than the development, temporary minor disruption to the digital terrestrial signal may be affected for the duration it is used.

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 reception is monitored closely during the construction and any reports of interference are investigated promptly.

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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/FM/DAB Reception Survey has been undertaken to record the existing baseline conditions and assess 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 is conducted, followed by a comprehensive field survey.

The desktop study is conducted using plans of the proposed development for example 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 is then conducted at several test point locations surrounding the proposed development. Television signal test results and relevant information are recorded at each of the test point locations.

This report includes the information collated during the desk top study and field survey along with an assessment of where, or if, the introduction of the proposed development has the potential to cause interference to existing viewers' television reception, and mitigation if required.

SCOPE

To conduct 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 conform to Local Planning Authority requirements.
The results and information recorded during this field survey assist in assessing if, or where, the introduction of the proposed development has the potential to impact upon existing viewers' television reception.

DISCUSSIONS

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

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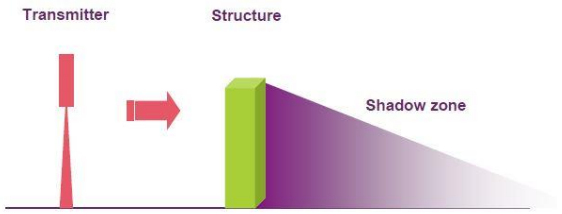
SIGNAL BLOCKING

Wireless signals, especially those using 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 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 like the way that an obstruction between a lamp and an observer's eye blocks out the light.

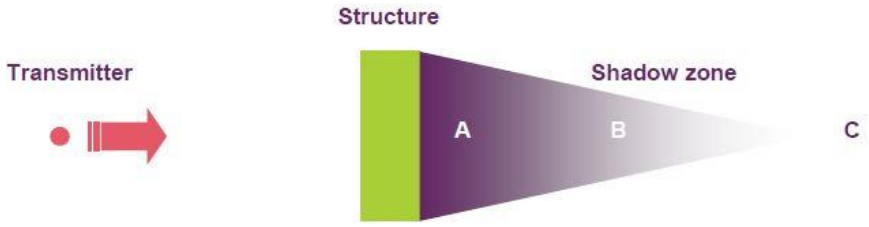


The shadow cast by a structure does not have hard edges though and does not usually extend indefinitely. While there would be a significant reduction in signal levels immediately behind the structure, the blocking effect of the structure diminishes with distance because of diffraction. Diffraction is 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 tens of metres) there may be a significant 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 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.

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FIELD SURVEY METHOD

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

Test results are recorded regarding 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 evaluated for and where receivable, results are recorded.

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

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

A bearing and distance to the proposed development is 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 conducted using the following equipment: -

- Specialist vehicle complete with telescopic mast.
- 360^{o} Antenna rotator
- 14 Element CAI approved wideband UHF antenna with balun and LTE filter, one vertical and one horizontal polarisation.
- FM Omni aerial
- DAB Omni aerial
- 20m x WF100 twin screened CAI approved coaxial cable.
- Televes spectrum analyser/field strength meter
- Ordnance survey maps
- Garmin GPS receiver
- Compass
- Digital camera

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SERVICES LIKELY TO BE AFFECTED

TERRESTRIAL TELEVISION RECEPTION

There are two potential ways that the introduction of a new building or extension can cause interference to terrestrial television reception; these are obstruction and reflection.

Obstruction occurs when existing viewers are in an area where their television aerial beam path (direction) to the television transmitter is either through, or within 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 proximity to the new building or structure); receiving terrestrial television signals can become problematic and may not be achievable.

Reflection occurs when the new building or extension 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 considered 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 considered 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 proximity to the new building or structure.

FM & DAB RECEPTION

There are two potential ways that the introduction of a new building or extension can cause interference to radio reception; these are obstruction and reflection.

Obstruction occurs when existing listeners are in an area where their radio reception to the radio transmitter is either through, or within proximity to, the new building or structure. This can result in a reduction of radio signal strength and quality and in some cases (if existing listeners are located within proximity to the new building or structure); receiving radio signals can become problematic and may not be achievable.

Reflection occurs when the new building or extension reflects radio signals.

FM & DAB reception is very rarely affected on a large scale and is mostly only relevant to existing listeners within proximity to the new building or structure.

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THE PROPOSED DEVELOPMENT:
Room2 Hometel Piccadilly Manchester

CONDUCTED ON BEHALF OF:
Lamington Group on behalf of Northside (Manchester) Ltd

OVERVIEW OF THE PROPOSED DEVELOPMENT
The proposed development is to consist of a new development.

DETAILS OF THE PROPOSED DEVELOPMENT

Development Type:	New development
Proposed Building Height:	The development is to consist of a redevelopment of an existing building and the introduction of a new 34 Storey building.

Please refer to.
Plan A which highlights the proposed development's location
Plan B the proposed site elevation

EXISTING BUILDINGS
A series of photographs has been taken to highlight the existing building/structure/area at the proposed development's location, and any existing buildings in the surrounding area.

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

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COORDINATES

Prior to commencement of the survey, coordinates at the proposed development's location are entered into a GPS receiver, along with the coordinates 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 coordinates used throughout the survey are listed below and shown on Plan A.

LOCATION	NATIONAL GRID REFERENCE
Proposed Development Position	SJ 84585 98138
Winter Hill Transmitter	SD 66000 14400
Holme Moss FM Transmitter	SE 09497 04077
Sunley Building (city tower) DAB Transmitter	SJ 84268 98194

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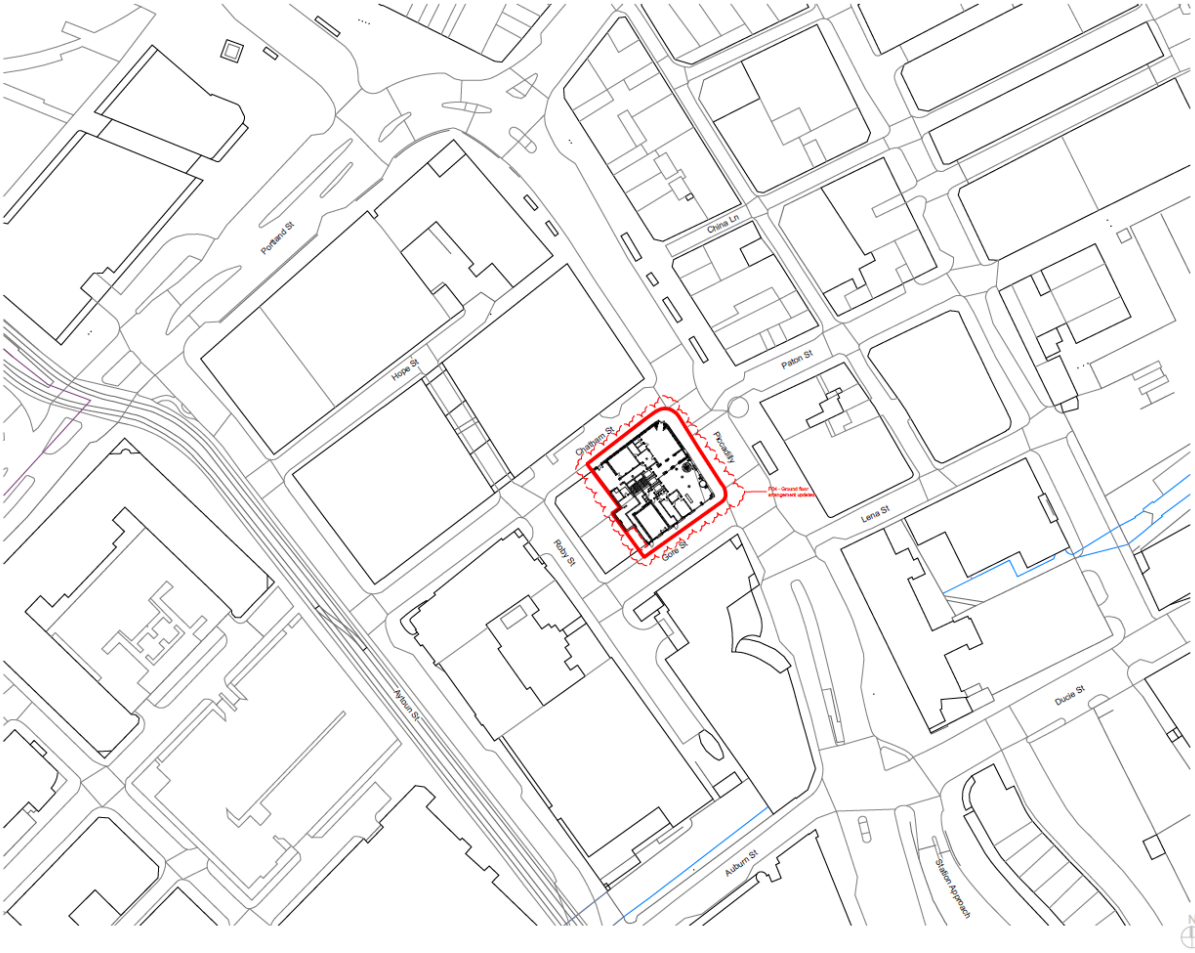
PLAN A: Proposed Location of the Development



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PLAN B: Proposed Elevations of the Development

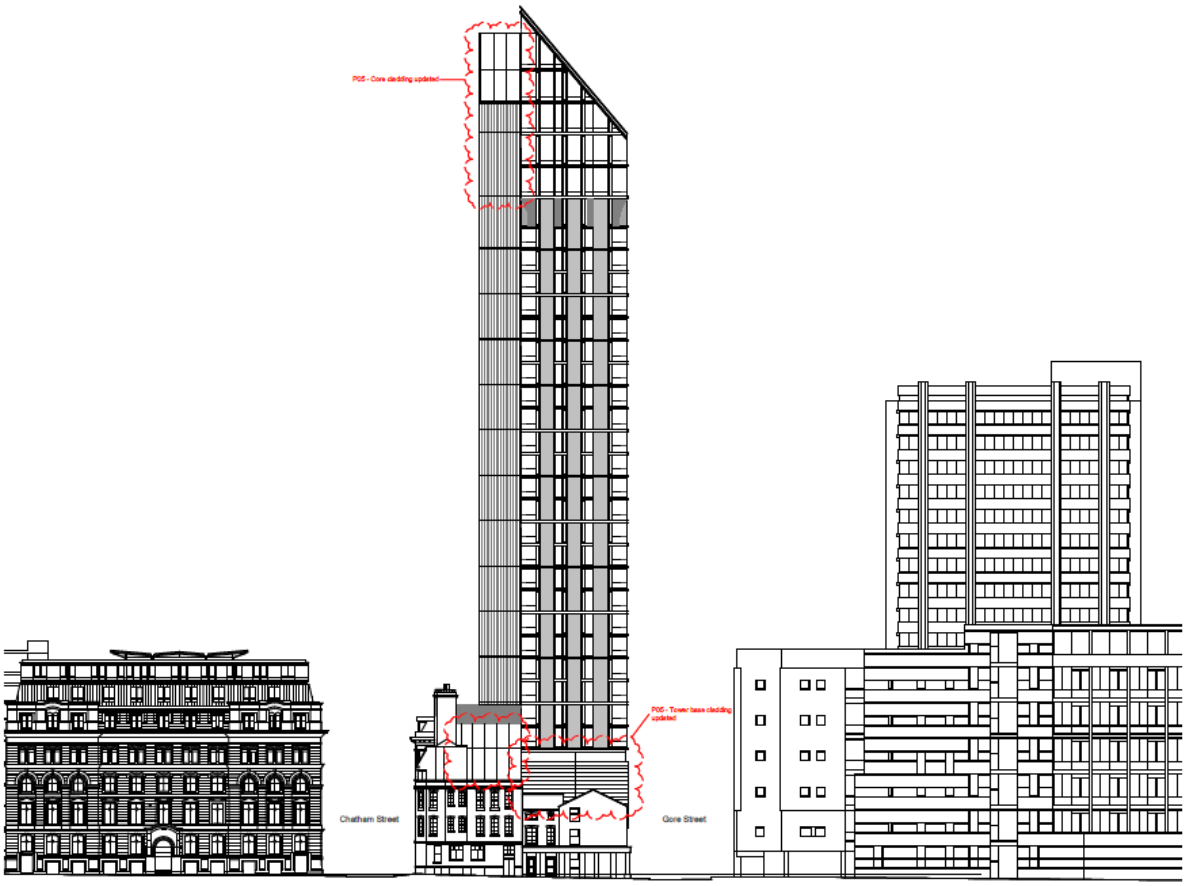

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PHOTO A: Proposed development location

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PHOTO B: View directly to the north of the proposed development

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PHOTO C: View directly to the east of the proposed development

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PHOTO D: View directly to the south of the proposed development

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PHOTO E: View directly to the west of the proposed development

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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 building/structure, approx. 24 km away.

The Winter Hill transmitter broadcasts 6 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 poor signal strengths and at the majority of test points the quality is poor. 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 multi-storey height reception could be much improved.

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

SATELLITE TELEVISION SERVICES

Both Sky TV and Freesat are broadcast from the same fleet of satellites located at an orbital position of 28.2º east of south, with a required satellite dish elevation of approximately 23º.

Sky TV is primarily a subscription-based service offering several packages of various television services at monthly subscription costs.

Freesat is a non-subscription-based service and offers a similar television service line up to Freeview and selectable regional programming.

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. 25 km away at a compass bearing of 76 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. 0.5km away at a compass bearing of 277 degrees.

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FIELD SURVEY TEST RESULTS AND INFORMATION

TEST POINT 1

Location Gore Street
NGR: SJ 84588 98127
Alt: 52 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	311°	24.7 km
Proposed Development	330°	0.01 km

Visible Existing Aerial Arrays:
High gain antenna on 3m mast, mounted at rooftop height on multistorey storey property, directed towards the Winter Hill Transmitter

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

WINTER HILL UHF TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	602.0	ARQB	SD	37	-	-	-		Fail
31	554.0	ARQA	SD	35	-	-	-		Fail
32	562.0	BBCA	SD	36	-	-	-		Fail
35	585.8	BBCB	HD	40	10	10		-3	Fail
29	538.0	SDN	SD	34	-	-	-		Fail
34	578.0	D3+4	SD	34	-	-	-		Fail

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	98.9	65	35	225.64(12B)	80	42
BBC 2	89.3	66	36	225.64(12B)	80	42
BBC 3	91.5	67	35	225.64(12B)	80	42
BBC 4	95.1	70	36	225.64(12B)	80	42

Television reception is of a poor quality and strength.

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VISIBLE TV AERIAL LOCATED IN THE AREA OF TEST POINT 1

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TEST POINT 2

Location Dale Street
NGR: SJ 84685 98177
Alt: 46 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	311°	24.8 km
Proposed Development	281°	0.15 km

Visible Existing Aerial Arrays:
18 element aerials on 1m and 2m masts, mounted at rooftop height on an 18-storey property, directed towards the Winter Hill Transmitter.

Visible Existing Obstructions:
Various multi storey buildings in the direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	602.0	ARQB	SD	37	-	-	-		Fail
31	554.0	ARQA	SD	39	-	-	-		Fail
32	562.0	BBCA	SD	39	10	10	-5		Fail
35	585.8	BBCB	HD	36	-	-	-	-	Fail
29	538.0	SDN	SD	34	-	-	-		Fail
34	578.0	D3+4	SD	36	-	-	-		Fail

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	98.9	66	42	225.65(12B)	77	44
BBC 2	89.3	68	44	225.64(12B)	77	44
BBC 3	91.5	63	43	225.64(12B)	77	44
BBC 4	95.1	60	38	225.64(12B)	77	44

Television reception is of a low quality and strength.

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TEST POINT 3

Location London Road
NGR: SJ 84689 97945
Alt: 41 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	311°	24.9 km
Proposed Development	331°	0.22 km

Visible Existing Aerial Arrays:
High gain aerial on a 2m mast mounted at roof top height on an 11-storey hotel building, directed towards the Winter Hill Transmitter

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

WINTER HILL UHF TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	602.0	ARQB	SD	38	-	-	-		Fail
31	554.0	ARQA	SD	40	-	-	-		Fail
32	562.0	BBCA	SD	39	10	10	-5		Fail
35	585.8	BBCB	HD	36	-	-	-	-	Fail
29	538.0	SDN	SD	35	-	-	-		Fail
34	578.0	D3+4	SD	33	-	-	-		Fail

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	98.9	64	38	225.65(12B)	74	44
BBC 2	89.3	60	40	225.64(12B)	74	44
BBC 3	91.5	62	42	225.64(12B)	74	44
BBC 4	95.1	59	35	225.64(12B)	74	44

Television reception is of a poor quality and strength.

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VISIBLE TV AERIAL LOCATED IN THE AREA OF TEST POINT 3

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TEST POINT 4

Location Ducie Street
NGR: SJ 84692 98081
Alt: 46 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	311°	24.91km
Proposed Development	242°	0.28 km

Visible Existing Aerial Arrays:
none

Visible Existing Obstructions:
Various multi storey buildings in the direction of the Winter Hill Transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	602.0	ARQB	SD	38	-	-	-		Fail
31	554.0	ARQA	SD	40	-	-	-		Fail
32	562.0	BBCA	SD	39	10	10	-5		Fail
35	585.8	BBCB	HD	36	-	-	-	-	Fail
29	538.0	SDN	SD	35	-	-	-		Fail
34	578.0	D3+4	SD	33	-	-	-		Fail

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	98.9	64	38	225.65(12B)	74	44
BBC 2	89.3	60	40	225.64(12B)	74	44
BBC 3	91.5	62	42	225.64(12B)	74	44
BBC 4	95.1	59	35	225.64(12B)	74	44

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TEST POINT 5

Location Aytoun Street
NGR: SJ 84558 97882
Alt: 41 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	312°	24.9 km
Proposed Development	005°	0.26 km

Visible Existing Aerial Arrays:
10 element aerials on 1m mast, mounted at rooftop height on 4 storey properties, directed towards the Winter Hill Transmitter

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

WINTER HILL UHF TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	602.0	ARQB	SD	36	5				Fail
31	554.0	ARQA	SD	36	5	17	-2		Fail
32	562.0	BBCA	SD	32	0				Fail
35	585.8	BBCB	HD	35	4				Fail
29	538.0	SDN	SD	37	5	17	-5		Fail
34	578.0	D3+4	SD	36	5				Fail

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	98.9	74	42	225.64(12B)	73	44
BBC 2	89.3	71	42	225.64(12B)	73	44
BBC 3	91.5	70	42	225.64(12B)	73	44
BBC 4	95.1	74	45	225.64(12B)	73	44

Television reception is of a poor quality and strength.

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TEST POINT 6

Location Store Street
NGR: SJ 84787 97982
Alt: 40 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	311°	24.96 km
Proposed Development	309°	0.26km

Visible Existing Aerial Arrays:
18 element aerials on a 2m mast mounted at roof top height on a 10-storey building in the direction of the Winter Hill.

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

WINTER HILL UHF TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	602.0	ARQB	SD	43	2	17	-4		Fail
31	554.0	ARQA	SD	44	2	17	-7		Pass
32	562.0	BBCA	SD	44	2	20	-6		Pass
35	585.8	BBCB	HD	41	0			-3	Fail
29	538.0	SDN	SD	43	1	19	-4		Fail
34	578.0	D3+4	SD	42	1	17	-4		Fail

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	98.9	75	44	225.64(12B)	74	45
BBC 2	89.3	74	42	225.64(12B)	74	45
BBC 3	91.5	71	42	225.64(12B)	74	45
BBC 4	95.1	72	44	225.64(12B)	74	45

Television reception is of a low quality and strength.

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VISIBLE TV AERIAL LOCATED IN THE AREA OF TEST POINT 6

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TEST POINT 7

Location Station Approach
NGR: SJ 84668 98014
Alt: 49 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	311°	24.8 km
Proposed Development	324°	0.16 km

Visible Existing Aerial Arrays:
none

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

WINTER HILL UHF TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	602.0	ARQB	SD	40	12	17	-4		Fail
31	554.0	ARQA	SD	42	-	-	-		Fail
32	562.0	BBCA	SD	43	12	18	-6		Pass
35	585.8	BBCB	HD	41	16	22	-7		Pass
29	538.0	SDN	SD	43	10	19	-4		Fail
34	578.0	D3+4	SD	42	10	17	-4		Fail

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	98.9	73	42	225.64(12B)	72	42
BBC 2	89.3	72	42	225.64(12B)	72	42
BBC 3	91.5	42	44	225.64(12B)	72	42
BBC 4	95.1	75	44	225.64(12B)	72	42

Television reception is of a low quality and strength.

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TEST POINT 7

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TEST POINT 8

Location Boad Street
NGR: SJ 84890 97920
Alt: 43 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	311°	25.07 km
Proposed Development	301°	0.55 km

Visible Existing Aerial Arrays:
none

Visible Existing Obstructions:
Railway station and various multi storey buildings in the direction of the Winter Hill transmitter.

WINTER HILL UHF TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	602.0	ARQB	SD	37	10	16	-5		Pass
31	554.0	ARQA	SD	41	15	17		-8	Pass
32	562.0	BBCA	SD	44	17	23	-8		Pass
35	585.8	BBCB	HD	29	8	10	-4		Fail
29	538.0	SDN	SD	41	14	20	-7		Pass
34	578.0	D3+4	SD	39	13	19	-6		Pass

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	98.9	77	42	225.64(12B)	70	44
BBC 2	89.3	72	43	225.64(12B)	70	44
BBC 3	91.5	72	42	225.64(12B)	70	44
BBC 4	95.1	72	42	225.64(12B)	70	44

Television reception is of an acceptable quality and strength.

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TEST POINT 9

Location Sparkle Street
NGR: SJ 84925 97943
Alt: 41 m
Mast Height: 10 m

LOCATION	BEARING	DISTANCE
Winter Hill Transmitter	311°	25.07 km
Proposed Development	301°	0.39 km

Visible Existing Aerial Arrays:
High gain aerials on 3 m masts mounted at roof top height, directed towards the Winter Hill transmitter.

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

WINTER HILL UHF TRANSMITTER - REPORT

Channel	Frequency	MUX	Format	Level (dBµv)	CN dB	MER	VBER	LBER	Quality
37	602.0	ARQB	SD	39	12	21	-7		Pass
31	554.0	ARQA	SD	39	11	16	-7		Pass
32	562.0	BBCA	SD	44	18	20	-5		Pass
35	585.8	BBCB	HD	45	15	19		-6	Pass
29	538.0	SDN	SD	48	21	22	-7		Pass
34	578.0	D3+4	SD	47	20	25	-8		Pass

FM/DAB TRANSMITTER – REPORT

Channel	Frequency FM	Level (dBµv) FM	CN Db FM	Frequency DAB	Level (dBµv) DAB	CN Db DAB
BBC 1	98.9	74	42	225.64(12B)	69	42
BBC 2	89.3	74	40	225.64(12B)	69	42
BBC 3	91.5	72	40	225.64(12B)	69	42
BBC 4	95.1	71	42	225.64(12B)	69	42

Television reception is of an acceptable quality and strength.

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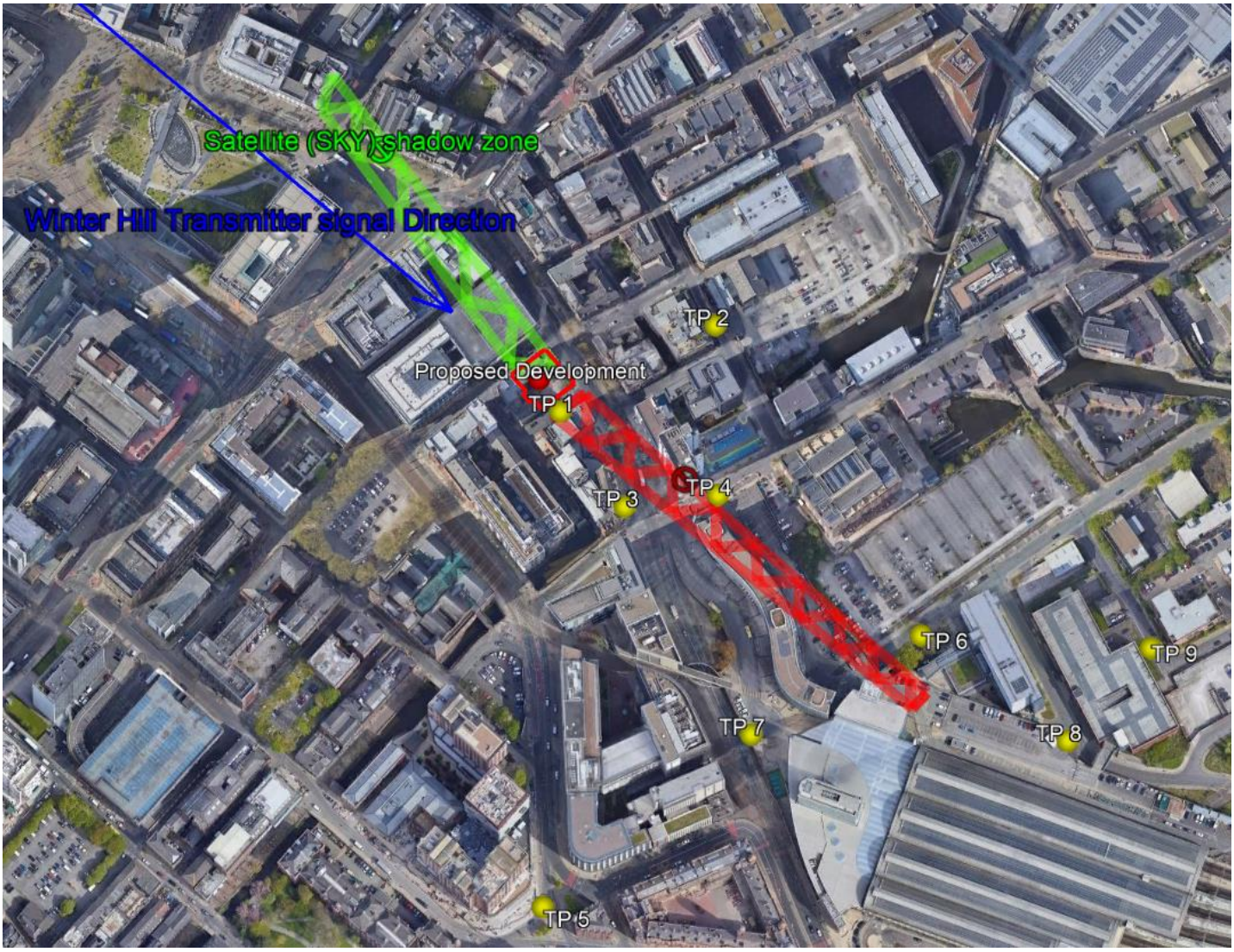
POTENTIAL IMPACT ZONE – MAP 1



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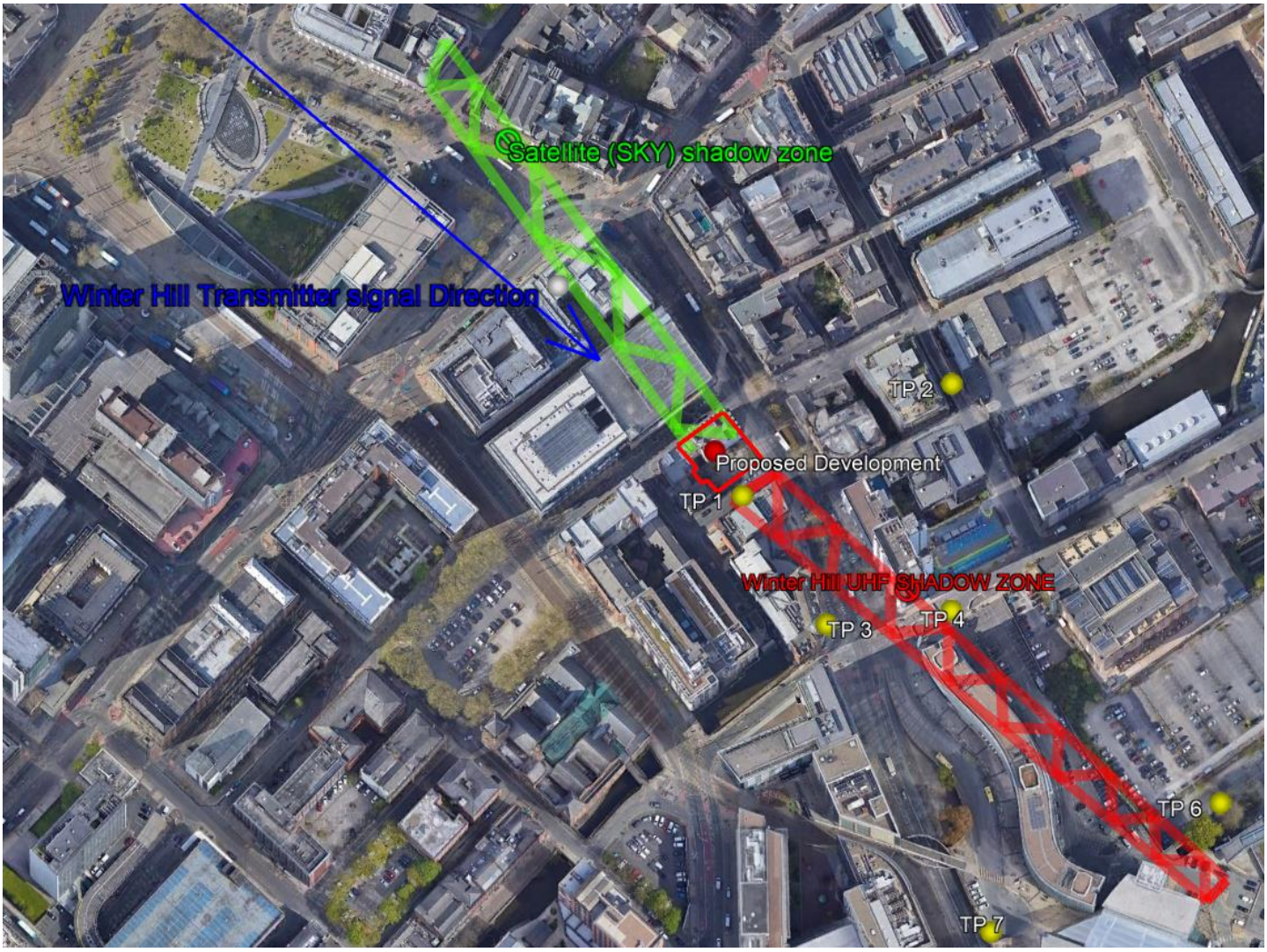
POTENTIAL IMPACT ZONE – MAP 1 (Zoom)



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MITIGATION

Terrestrial Television Reception
Remedial Aerial Work
One or all 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 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 of 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 using the Freesat/Sky platform can assist in rectifying reception issues.

To provide satellite television reception for individual 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 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 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.

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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.

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