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iSM INDEPENDENT SITE MANAGEMENT

Telecommunications Report - Section 3.2 of the Building Height Guidelines (2018)

DEVELOPMENT
Parkgate Street Blocks B1 & C

05 December 2024

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Table of Contents

DEFINITIONS

Author:	Independent Site Management Limited (hereinafter referred to as "ISM")
Mitigation Measures:	means the allowances made for the retention of important Telecommunication Channels (hereinafter referred to as "Mitigation Measures")
Planning Authority:	means Dublin City Council (hereinafter referred to as the "Planning Authority")
Radio Frequency:	means a frequency or band of frequencies in the range 104 to 1011 or 1012 Hz, of the electromagnetic spectrum suitable for use in telecommunications.
Microwave Links:	means the transmission of information by electromagnetic waves with wavelengths in the microwave range (1 m - 1 mm) of the electromagnetic spectrum suitable for use in telecommunications.
Report Date:	means the date which the assessment was carried out (hereinafter referred to as "Report Date")
Telecommunication Channels:	means Radio Frequency links & Microwave Transmission links (hereinafter referred to as "Telecommunication Channels")
The Applicant:	means Ruirside Developments Limited (hereinafter referred to as the "Applicant")
The Development:	means the proposed development situated at 42A Parkgate Street, Dublin 8 (hereinafter referred to as the "Development")

EXECUTIVE SUMMARY

Independent Site Management ('ISM') has been engaged to provide a specific assessment that the proposal being made by Ruirside Developments Limited (the "Applicant") within its submission to Dublin City Council (the 'Planning Authority'), allows for the retention of important Telecommunication Channels ("Telecommunication Channels") such as microwave links, to satisfy the criteria of both Section 3.2 of the Building Height Guidelines (2018) and Objective 5, within Table 4 of Appendix 3 of the Dublin City Council Development Plan 2022-2028.

To provide this assessment, ISM reviewed the Applicant's proposed development (the "Development"), together with their proposed allowances to retain relevant Telecommunication Channels in the context of the immediate surrounding registered and documented telecommunication sites.

Pursuant to our review, ISM can conclude, based on the findings outlined herein, that the proposal being made by the Applicant within its submission to the Planning Authority allows for the retention of important Telecommunication Channels, such as Microwave links, and therefore satisfies both the criteria of Section 3.2 of the Building Height Guidelines (2018) and Objective 5, within Table 4 of Appendix 3 of the Dublin City Council Development Plan 2022-2028.

ABOUT THE AUTHOR

ISM is a consultancy firm and asset management company that provides telecommunication consultancy and telecommunication services to developers and property owners.

ISM works closely with all providers of wireless and fixed line telecommunication services to bridge their infrastructure requirements with that of private and public development. ISM has successfully been providing this service in Ireland for over 20 years.

ISM is a multidiscipline firm proficient in the 6 main areas in the delivery of telecommunication services:

(1) Telecommunication Asset Management Cellular and Fixed Line Fibre Optic.
(2) Telecommunication Contract and Licensing.
(3) Radio Frequency technology.
(4) Microwave Transmission technology.
(5) In-building distributed antenna systems.
(6) Fixed Line fibre optic & copper technologies.

ISM has had an integral part in procuring, designing, building and subsequently managing over 300 mobile base stations and/or fixed wireless sites, the vast majority of which originated in densely populated, urban environments.

ISM has designed, built and operates 10 in-building distributed antenna systems, and 2 large managed fibre optic networks.

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DEVELOPMENT DESCRIPTION

Ruirside Developments Limited is seeking planning permission with a life of 8 years for Large-Scale Residential Development, at a site (c. 0.82 ha), at No. 42A Parkgate Street, Dublin 8. This is a brownfield site of former Parkgate Printing Works, now known as Parkgate House, with Protected Structures on site including (a) riverside stone wall; (b) turret; (c) square tower; and (d) stone arch. The proposed development adjoins consented development within the same application site boundary, including LRD6042/23 (Block B2 – 40no. apartments, café/restaurant unit (236 sq m) and community/cultural space (c. 52 sq m)) and SHD-310567-21 (Block A – 198no. apartments and restaurant/café (c.187 sq m)). **The proposed development** comprises mixed use residential, community and commercial redevelopment (c. 25,777 sq m gross floor area), accommodated in 2no. blocks (Block B1 and Block C) ranging in height from 8 to 13 storeys with basement and undercroft, and including: 316no. apartments (178no. 1-bed units and 138no. 2-bed units), with associated private balconies on all building elevations and communal roof terraces at Levels 07, 08, 09 and 12; ancillary internal residents' amenity facilities (c.226 sq m); multi-functional space accommodating co-working/cultural/community/exhibition uses available for public hire (c.496 sq m); ground level retail (c.147 sq m); and all associated and ancillary demolition, conservation, landscaping and site development works.

SITE LOCATION/LAYOUT MAP

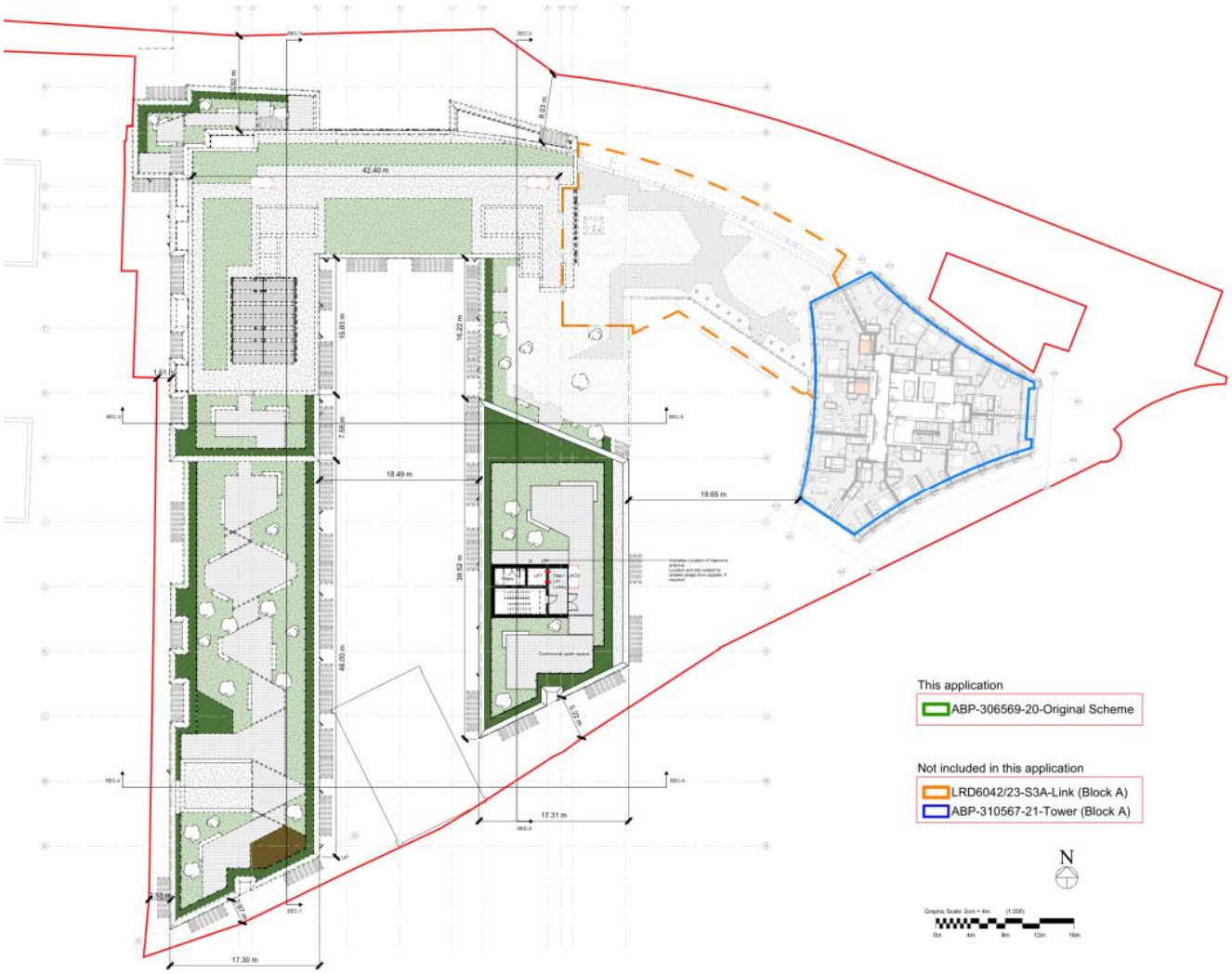


Figure 1

TELECOMMUNICATION CHANNELS

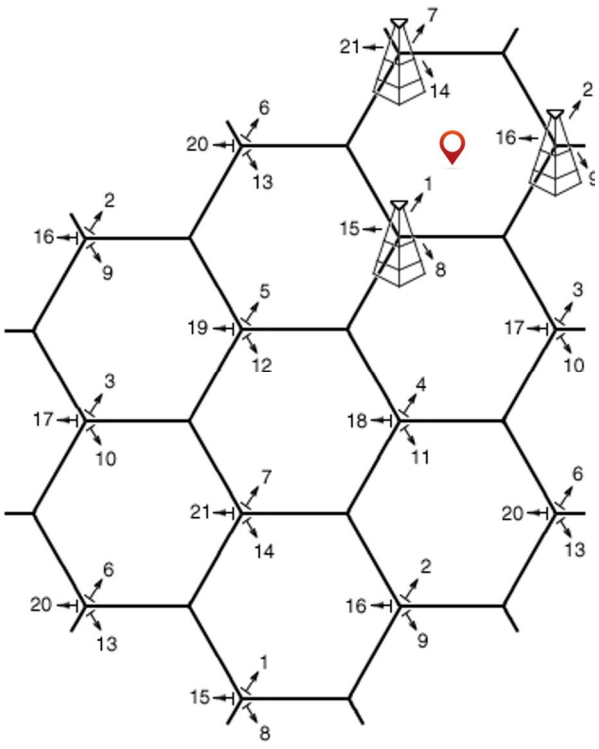
This report assessed the two wireless Telecommunication Channels or networks of Telecommunication Channels that may be affected by the height and scale of a new development, Radio Frequency links & Microwave Transmission links

Radio Frequency links & Microwave Transmission Links are used in Ireland's mobile phone and fixed wireless networks and disseminate at an average above ground level height of 20m, making them the most relevant Telecommunication Channels to be assessed in relation to the height and scale of a new development and to that end what allowance the Applicant needs to make for their retention.

Mobile phones send and receive signals via links from nearby antenna sites or cellular towers, technically known as base stations, using Radio Frequency waves. Microwave Transmission links use microwave dishes to "transmit" from these base stations to other base stations forming a network. Radio Frequency waves operate at a lower power within lower frequencies of the radio spectrum, whereas Microwave Transmission operates at higher power within higher frequencies of the radio spectrum.

Radio Frequency waves are distributed over land areas in "cells", each served by at least one fixed-location transceiver (base station), but more normally by three cell sites or base stations. These base stations provide the cell with the network coverage, which can then be used for voice, data, and other types of content. A cell typically uses a different set of frequencies from neighbouring cells to avoid interference and provide guaranteed service quality within each cell.

When joined together, these cells provide Radio Frequency coverage over a wide geographic area (Cellular network). This enables numerous portable transceivers (e.g. mobile phones, tablets and laptops equipped with mobile broadband modems, pagers, etc.) to communicate with each other and with fixed transceivers and telephones anywhere in the network, via base stations, even if some of the transceivers are moving through more than one cell during transmission.



As demonstrated on this cell map illustrating Radio Frequency coverage, each Radio Frequency "cell" is supported by at least 3No. base stations sites. This means that should an obstacle occur between an area and a base station site, such as a new development, the affected area will be covered by other base stations from other locations.

Figure 2

Cellular networks offer a number of desirable features, but most notably, additional cell towers can be added indefinitely and are not limited by the horizon, therefore it can be considered **indeterminable** as to whether a new development affects the Radio Frequency coverage of a geographical area which is being served by multiple base stations, not necessarily the closest.

Conversely, Microwave Transmission links are point-to-point links, which are easily determined to be affected, or not, by the height and scale of a new development. In point-to-point wireless communications, it is important for the line of sight between two base stations to be free from any obstruction (terrain, vegetation, buildings, wind farms and a host of other obstructions). As any interference or obstruction in the line of sight can result in a loss of signal.

While installing Microwave links, it is important to keep an elliptical region between the transmitting Microwave link and the receiving Microwave link free from any obstruction for the proper functioning of the system. This 3D elliptical region between the transmit antenna and the receive antenna is called the **Fresnel Zone**. The size of the ellipse is determined by the frequency of operation and the distance between the two sites.

Fresnel Zone

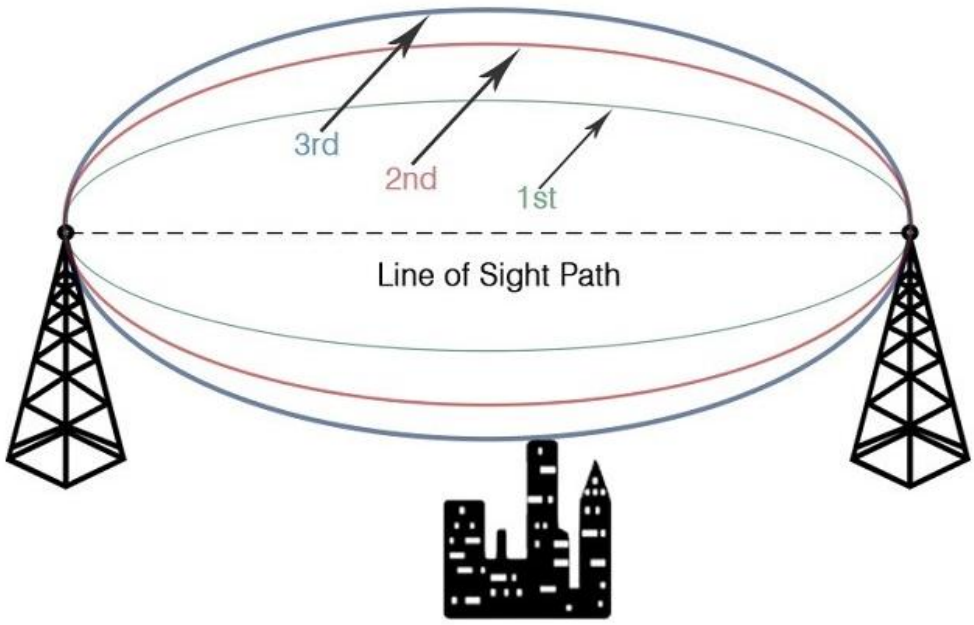


Figure 3

Essentially, if there is an obstacle in the Fresnel zone, part of the radio signal will be diffracted or bent away from the straight-line path. The practical effect is that on a point-to-point Microwave link, referred to herein, the refraction will reduce the amount of energy reaching the receiving microwave dish. The thickness or radius of the Fresnel zone depends on the frequency of the signal – the higher the frequency, the smaller the Fresnel zone. Microwave links are high frequency radio links used for point-to-point transmission.

FINDINGS

ISM's assessment did not identify any Microwave Links that will require the Applicant to make specific allowances for their retention ("Mitigation Measures").

It should be noted that ISM, in its original report, identified 2 Microwave Transmission Links emanating from the Criminal Court of Justice, one by Three Ireland and one by Vodafone Ireland. In the intervening period between our first impact assessment, and this impact assessment, we have confirmed that these Microwave Transmission Links have been reoriented away from the Development.

Our assessment has not identified any Radio Frequency links that will require the Applicant to make specific allowances for their retention.

ISM carried out a full assessment of neighbouring registered and documented telecommunication sites to assess what Microwave links would be impacted by the height and scale of the Development. Refer to Figure 5 & 6 of the appendices for full analysis. The assessment of Microwave Transmission links entailed both a visual survey of each identified neighbouring telecommunication sites within a reasonable geographic proximity to the Development and a request for information from telecommunication providers where the visual survey was inconclusive.

ISM carried out a full assessment of neighbouring registered and documented telecommunication sites to assess what Radio Frequency links might be impacted by the height and scale of the Development. To assess this, we carried out a drive test throughout the surrounding areas to ascertain what cells were serving the street areas to the north, south, east & west of the Development site. Refer to Figure 7 of the appendices for full analysis

Our assessment identified Radio Frequency coverage for the local geographic area is served by several cells at strategic distances away from the development site on a 360° basis which is a typical cell pattern for urban Radio Frequency coverage. The drive test data determined that the business, residential and public road areas to the north, south, east & west of the Development are adequately covered by the cell sites identified in figure 7 and are not reliant on Radio Frequency coverage from any one cell that would be obstructed by the Development.

Notwithstanding the fact that ISM did not identify any direct impact to either Telecommunication Channels such as Microwave Links or Radio Frequency links, ISM did identify a significantly high concentration of telecommunication channels emanating from multiple sites within a close proximity to the Development which would be typical of an urban centre wireless telecommunication environment.

Most notably:

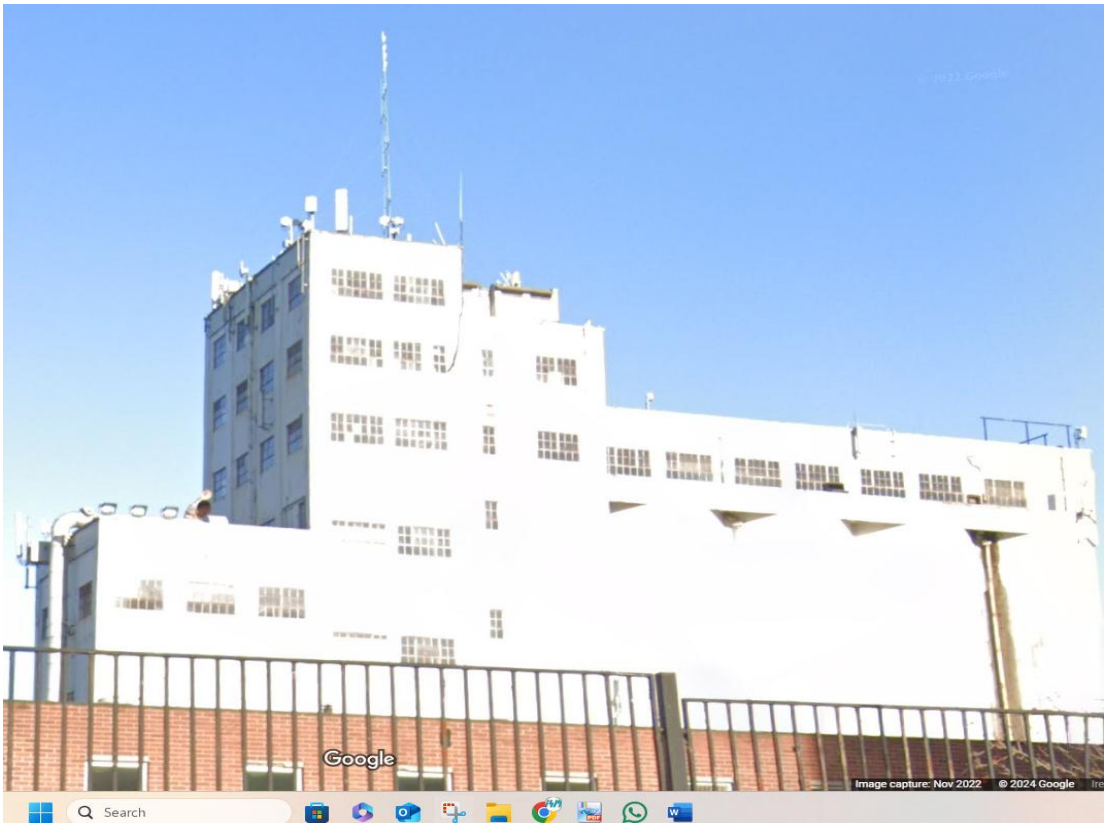
- Located 385m (approx.) to the southwest of the Development, situated at the intersection of the Chapelizod Bypass and Military Road, the Heuston Quarter is a medium-capacity telecommunication roof top site being utilised by 2No. Irish mobile operators
- Located 495m (approx.) to the southeast of the Development, situated on the Guinness Flaking Plant Building on James Street, is a large high-capacity telecommunication roof top site being utilised by 2No. Irish mobile operators.
- 797m (approx.) to the northwest of the Development, situated next to the Garda Head Quarter Building, is a large high-capacity telecommunication mast site utilised by 3No. Irish mobile operators
- 1,123m (approx.) to the northwest of the Development, situated within McKee Army Barracks is a large high-capacity telecommunication mast roof top site utilised by Vodafone and Military signalling and radio equipment.

On each of these sites, plus numerous others in the city centre demise, there are a sizable number of antennae (Radio Frequency links) and transmission dishes (Microwave Links) and a strong likelihood that, as telecommunication networks expand, so will the proliferation of equipment (predominantly Microwave Transmission Link dishes) on those structures and those on neighbouring sites,

ISM is therefore recommending that the Applicant make a minor provision for telecommunication infrastructure within its submission, should the height and scale of the development impact future Microwave links needing to reach the telecommunication roof top sites or masts identified herein.

Telecommunication Roof Top Sites West City Centre

Heuston Quarter (Eir Headquarter Building)



Guinness Flaking Plant

Figure 4.1

Telecommunication Mast Sites West City Centre

McKee Barracks

Garda Head Quarters

Figure 4.2

MITIGATION MEASURES

To provide an adequate allowance for the retention of future telecommunication channels that may be impacted by the height and scale of the Development, the Applicant is seeking planning permission to install:

- 4 No. 300mm Microwave Transmission link dishes installed on 2No, support poles, affixed to the plant screen steel frame at roof level
- and all associated ancillary equipment

This provides an adequate solution for the Applicant to mitigate the impact the Development will have on the high concentration of Microwave Transmission emanating from the surrounding city centre area and notably, the existing mast & roof top sites, as well as providing some capability for future links that may or may not be required.

To adequately screen the infrastructure, the support poles used for the dishes will be installed with glass reinforced plastic shrouds which will be designed to allow signal to travel through it.

Refer to Figures 8 & 9 of the appendices for full analysis and installation parameters for all the proposed replacement telecommunication infrastructure set out herein.

ISM can therefore conclude that the proposal being made by the Applicant within its submission to Dublin City Council allows for the retention of important Telecommunication Channels, such as Microwave links, and therefore satisfies both the criteria of Section 3.2 of the Building Height Guidelines (2018) and Objective 5, within Table 4 of Appendix 3 of the Dublin City Council Development Plan 2022-2028.

DISCLAIMER

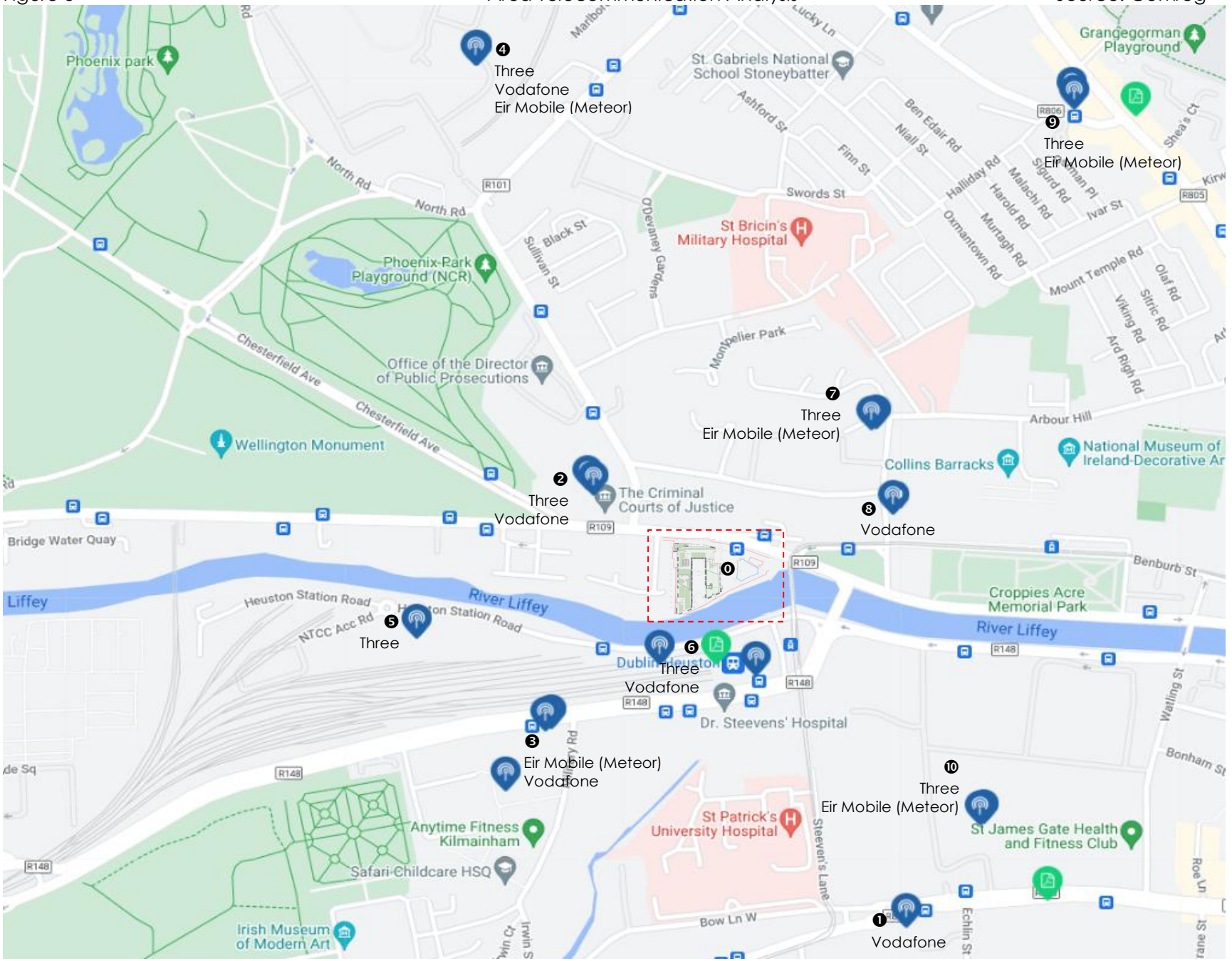
Due to the confidential nature of planning applications/submissions, ISM does not, as standard practice, contact or involve Ireland's licenced Mobile Network Operators, namely: Vodafone Ireland; Three Ireland; or Eircom Limited t/a Eir Mobile, when preparing this report. If contact is made with a Mobile Network Operator, we duly note the source information within our reports.

ISM has wholly relied upon the publicly available information provided by Commission for Communications Regulation, "ComReg", it's own extensive record of wireless infrastructure, and the results of a comprehensive visual survey carried out on the Report Date notated herein. Therefore, the specific Mobile Network Operator transmitting the identified telecommunication channel is recorded on a best endeavour basis.

Lastly, please note that telecommunication networks are always evolving, and as such, these findings remain subject to change.

APPENDICES

Figure 5 Area Telecommunication Analysis Source: Comreg



Note
All Dimensions to be checked on site
No Dimensions to be scaled from this Drawing
This drawing to be read with relevant Consultant Drawings

- 0 Proposed Development
- 1 The Jam Factory
- 2 Criminal Justice
- 3 Eir HQ
- 4 Garda Headquarters
- 5 Irish Rail
- 6 Heuston Station
- 7 Arbour Terrace
- 8 Temple Street West
- 9 Motor Parts
- 10 Guinness Flaking Plant

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Client
Ruirside Developments Limited

Project
Parkgate St Blocks B1 & C

Option	1
Date	11/11/24
File Name	Parkgate St Blocks B1 & C

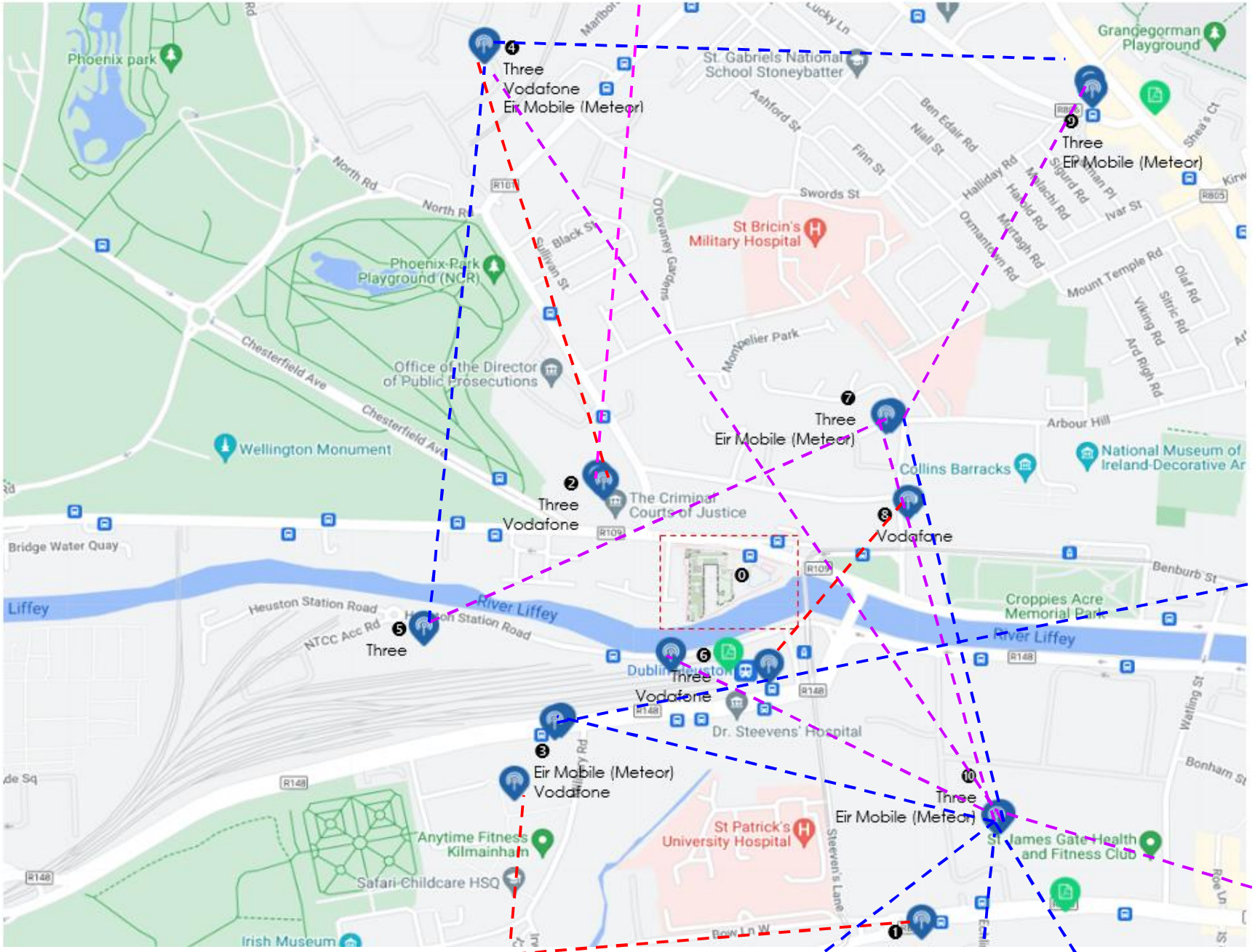
Drawing:
Area Site Analysis

Building	Drawing No.	Zone	Rev
SPN	K 1124		1

Figure 6

Microwave Link Analysis

Source: Comreg ISM



Three Transmission Link

Vodafone Transmission Link

Eir Transmission Link

Note
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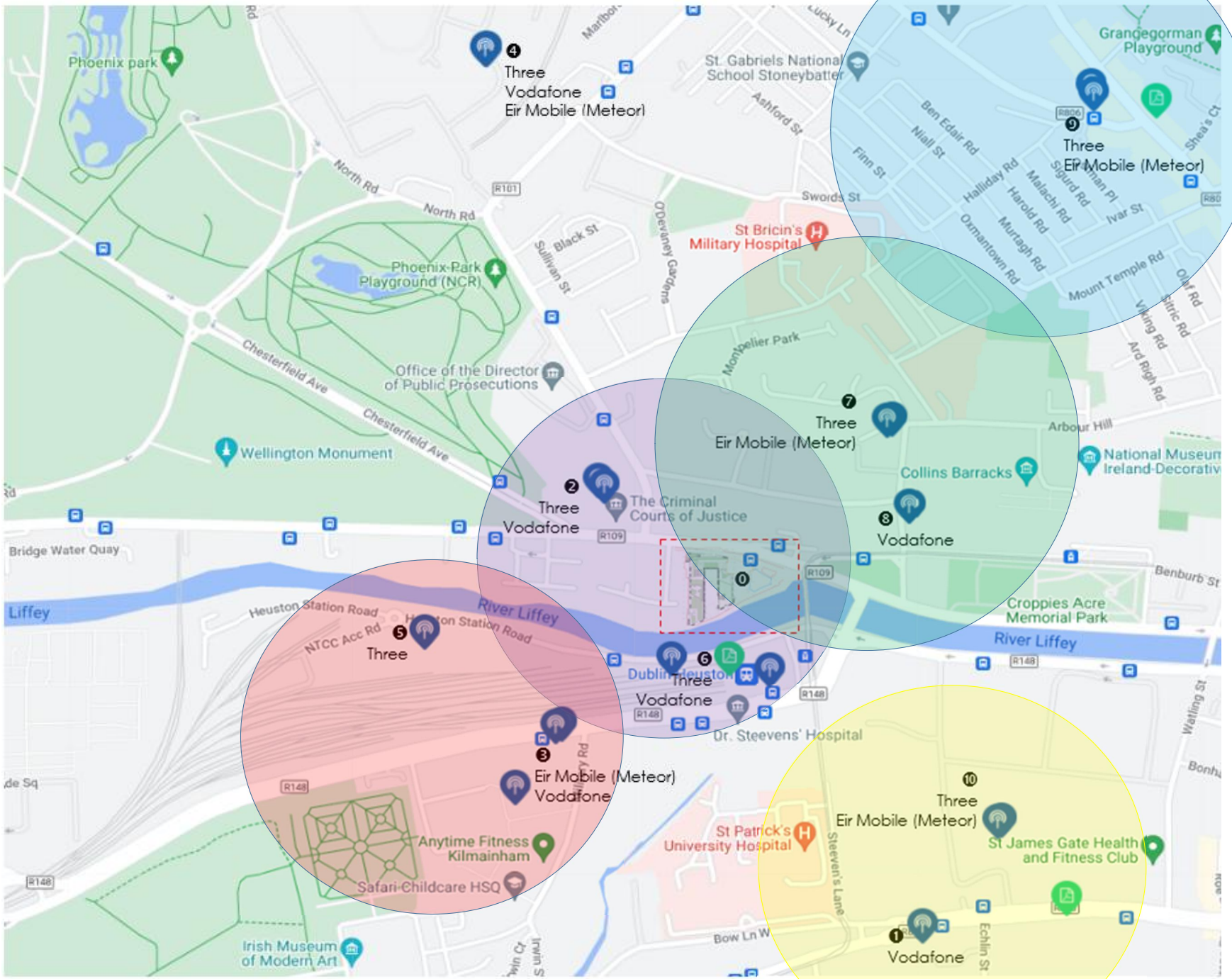
Drawing:
Link Analysis

Building	Drawing No.	Zone	Rev
SPN	K 1124		1

Figure 7

Drive Test Data

Source: ISM



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All Dimensions to be checked on site
No Dimensions to be scaled from this Drawing
This drawing to be read with relevant Consultant Drawings

- Cell ID(s)
  - ❾ Motor Parts
- Cell ID(s)
  - ❶ The Jam Factory
  - ❿ Guinness Flaking Plant
- Cell ID(s)
  - ❺ Irish Rail
  - ❸ Eir HQ
- Cell ID(s)
  - ❼ Arbour Terrace
  - ❽ Temple Street West
- Cell ID(s)
  - ❷ Criminal Justice
  - ❻ Heuston Station
- Cell ID(s)
  - ❹ Garda Headquarters

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Drawing:
Cell Identification Analysis

Building	Drawing No.	Zone	Rev
SPN	K 1124		1

Figure 8

Mitigation Measure Design

Source: ISM

Note
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No Dimensions to be scaled from this Drawing
This drawing to be read with relevant Consultant Drawings

Typical Installation

Location of Steel support Poles for microwave dishes

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Drawing:
Mitigation Measure

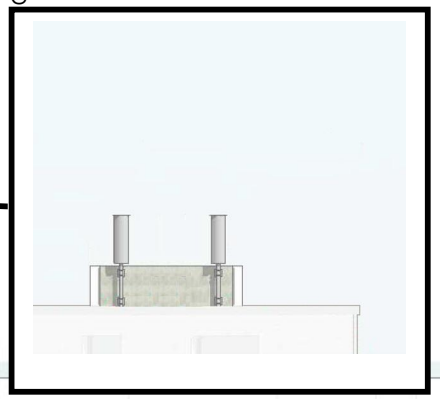
Building	Drawing No.	Zone	Rev
SPN	K 1124		1

Figure 9

Mitigation Measure Design

Source: ISM

4no. 300mm microwave link dishes mounted on 2no. high steel support poles rising 1100mm above the Lift shaft overrun (Block B1)



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