



## Telecommunications Impact Assessment Report

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### DEVELOPMENT Richmond Road Phase 2 – Submission

24 February 2023

Prepared by  
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Director

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## DEFINITIONS

<b>Author:</b>	Independent Site Management Limited (hereinafter referred to as "ISM")
<b>Mitigation Measures:</b>	means the allowances made for the retention of important Telecommunication Channels (hereinafter referred to as "Mitigation Measures")
<b>Planning Body:</b>	means Dublin City Council (hereinafter referred to as the "Planning Body")
<b>Radio Frequency:</b>	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.
<b>Microwave Links:</b>	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.
<b>Report Date:</b>	means the date which the assessment was carried out (hereinafter referred to as "Report Date")
<b>Telecommunication Channels:</b>	means Radio Frequency links & Microwave Transmission links (hereinafter referred to as "Telecommunication Channels")
<b>The Applicant:</b>	means Malkey Limited (hereinafter referred to as the "Applicant")
<b>The Development:</b>	means the proposed development situated at Leyden's Wholesalers & Distributors No. 158A Richmond Road, Dublin 3 (hereinafter referred to as the "Development")



## EXECUTIVE SUMMARY

Independent Site Management ('ISM') has been engaged to provide a telecommunication impact assessment, to assess whether or not the proposal being made by Malkey Limited (the "Applicant") within its submission to Dublin City Council (the 'Planning Body') impacts any Telecommunication Channels ("Telecommunication Channels")

To provide this assessment, ISM reviewed the Applicant's proposed development (the "Development") 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 Body does not impact any existing Telecommunication Channels at the time of the assessment.



## ABOUT THE AUTHOR

ISM is a consultancy firm and asset management company that provides telecommunication consultancy and 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 20 years.

ISM is a multidiscipline firm proficient in the 3 main areas in the delivery of telecommunication services:

- (1) Radio Frequency technology;
- (2) Microwave Transmission technology; &
- (3) Fixed Line fiber optic & copper technologies.

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

ISM has designed built and operates 6 in-building distributed antenna systems, and 2 large area managed fibre optic networks.



## DEVELOPMENT DESCRIPTION

Malkey Limited intend to apply for permission for development (Large-scale Residential Development (LRD)) at this c. 0.55 hectare site at the former Leydens Wholesalers & Distributors, No. 158A Richmond Road, Dublin 3, D03 YK12. The site is bounded to the north-east by Richmond Road, to the west/south-west by No. 146A and Nos. 148-148A Richmond Road (pending application ABP Reg. Ref. TA29N.312352), to the south/south-west by a residential and commercial development (Distillery Lofts) and to the east/south-east by the Former Distillery Warehouse (derelict brick and stone building). Improvement works to Richmond Road are also proposed including carriageway widening up to c. 6 metres in width, the addition of a c. 1.5 metre wide one-way cycle track/lane in both directions, the widening of the northern footpath on Richmond Road to a minimum of c. 1.8 metres and the widening of the southern footpath along the site frontage which varies from c. 2.2 metres to c. 7.87 metres, in addition to a new signal controlled pedestrian crossing facility, all on an area of c. 0.28 hectares. The development site area and road works area will provide a total application site area of c. 0.83 hectares.

The proposed development will principally consist of: a Large-scale Residential Development (LRD) comprising the demolition of existing industrial structures on site (c. 3,359 sq m) and the construction of a mixed-use development including artist studios (c. 749 sq m), a creche (c. 156 sq m), a retail unit (c. 335 sq m), and a gym (c. 262 sq m), and 133 No. residential units (65 No. one bed apartments and 68 No. two bed apartments). The development will be provided in 3 No. blocks ranging in height from part 1 No. to part 10 No. storeys as follows: Block A will be part 1 No. storey to part 4 No. storeys in height, Block B will be part 1 No. storeys to part 10 No. storeys in height (including podium) and Block C will be part 1 No. storeys to part 9 No. storeys in height (including podium). The proposed development has a gross floor area of c. 14,590 sq m and a gross floor space of c. 13,715 sq m.

The development also proposes the construction of: a new c. 204 No. metre long flood wall along the western, southern and south-eastern boundaries of the proposed development with a top of wall level of c. 6.4 metres AOD to c. 7.15 metres AOD (typically c. 1.25 metres to c. 2.3 metres in

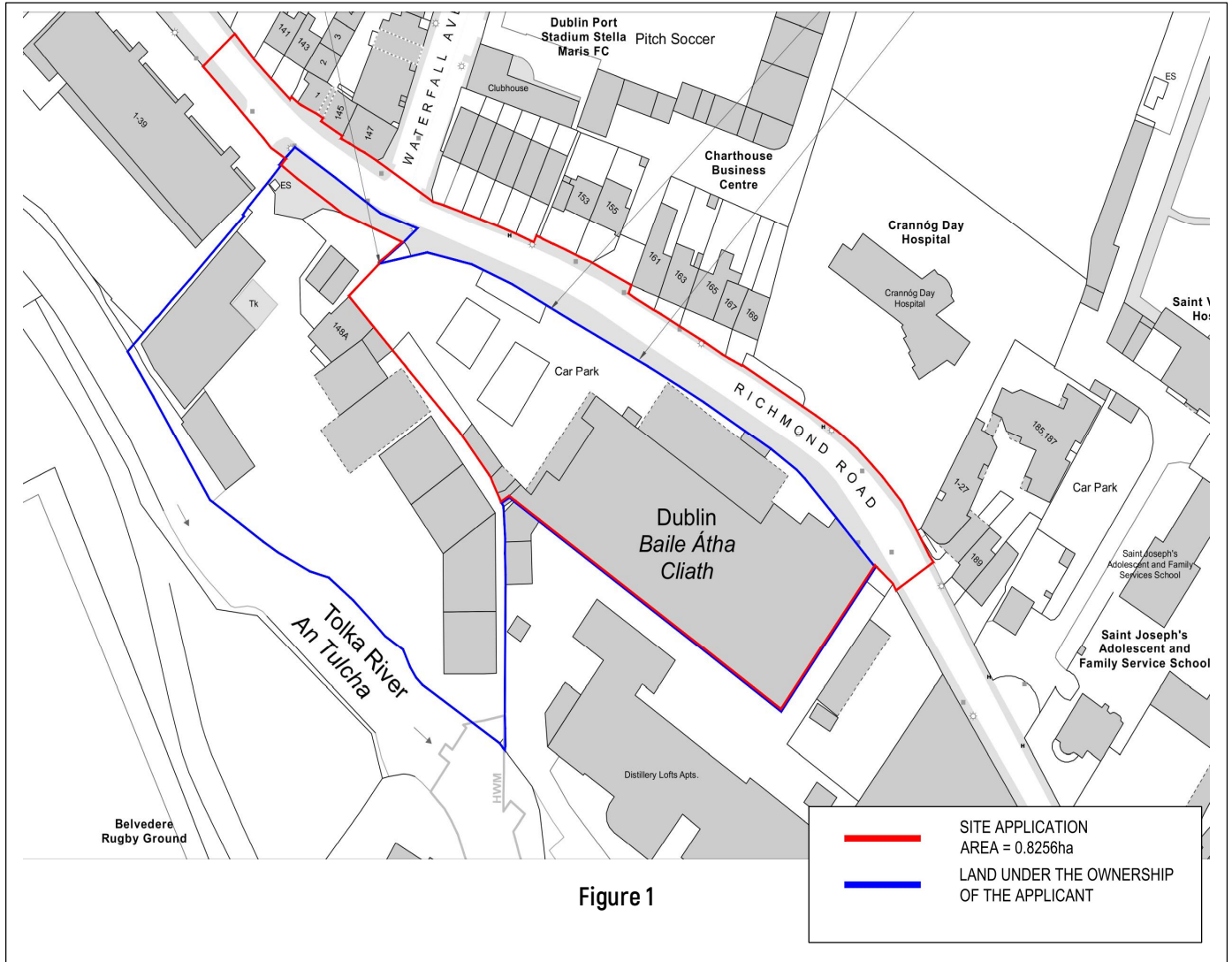


height) if required; and new telecommunications infrastructure at roof level of Block B including shrouds, antennas and microwave link dishes (18 No. antennas enclosed in 9 No. shrouds and 6 No. transmission dishes, together with all associated equipment) if required. A flood wall and telecommunications infrastructure are also proposed in the adjoining Strategic Housing Development (SHD) application (pending decision ABP Reg. Ref. TA29N.312352) under the control of the Applicant. If that SHD application is granted and first implemented, no flood wall or telecommunications infrastructure will be required under this application for LRD permission (with soft landscaping provided instead of the flood wall). If the SHD application is refused permission or not first implemented, the proposed flood wall and telecommunications infrastructure in the LRD application will be constructed.

The proposed development also provides ancillary residential amenities and facilities; 25 No. car parking spaces including 13 No. electric vehicle parking spaces, 2 No. mobility impaired spaces and 3 No. car share spaces; 2 No. loading bays; bicycle parking spaces; motorcycle parking spaces; electric scooter storage; balconies and terraces facing all directions; public and communal open space; hard and soft landscaping; roof gardens; green roofs; boundary treatments; lighting; ESB substation; switchroom; meter room; comms rooms; generator; stores; plant; lift overruns; and all associated works above and below ground.



# SITE LOCATION/LAYOUT MAP





## 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.

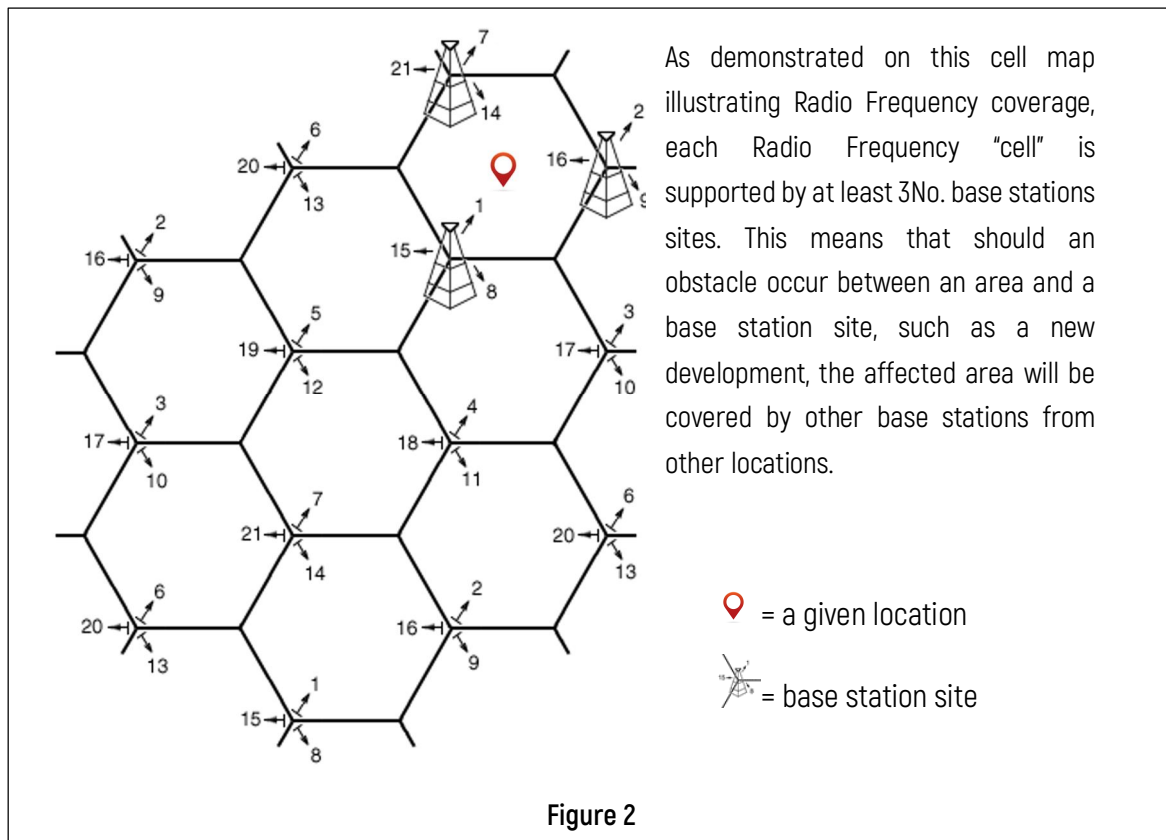
Radio Frequency links & Microwave Transmission Links are used in Ireland's mobile phone and fixed wireless networks and disseminate at an average above ground level height of 20m, making them the most relevant Telecommunication Channels to be assessed in relation to the height and scale of a new development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

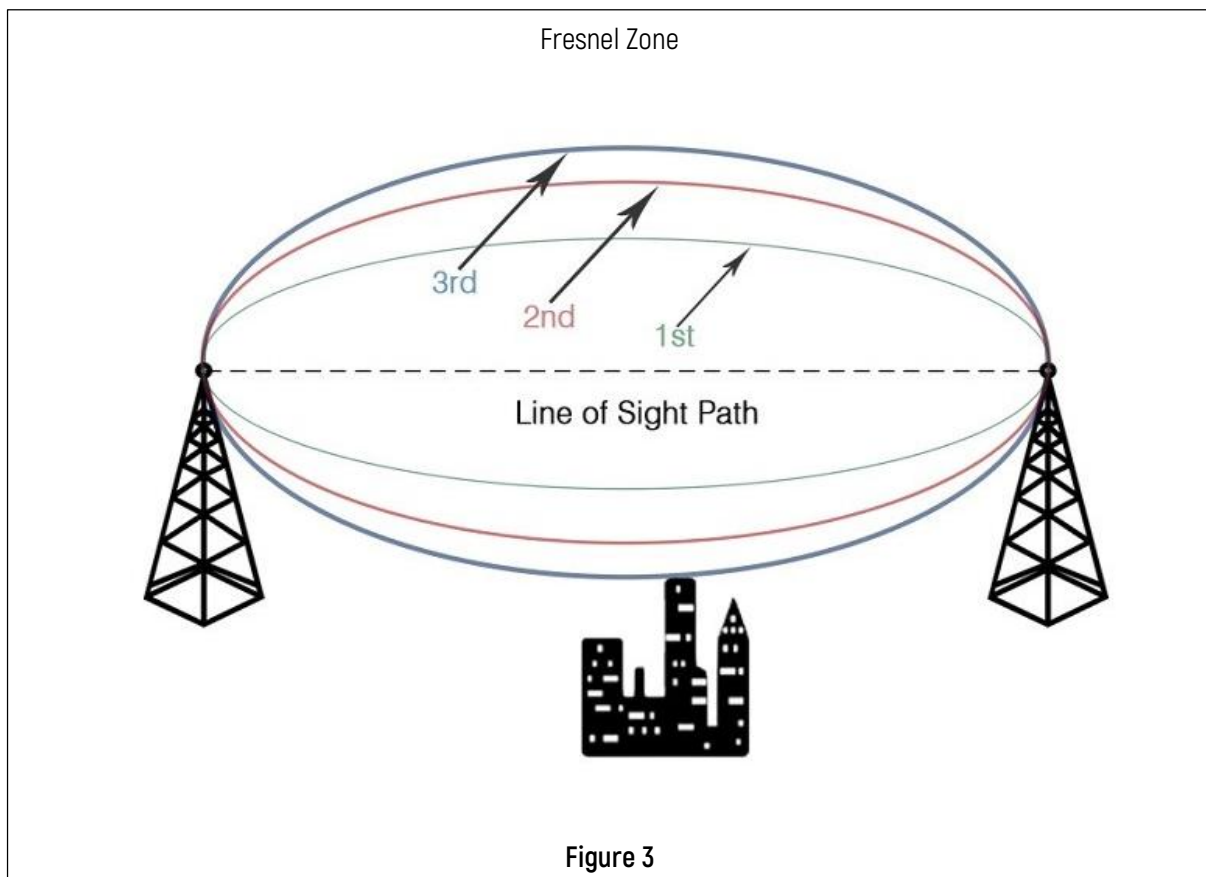




Cellular networks offer a number of desirable features, but most notably, additional cell towers can be added indefinitely and are not limited by the horizon, therefore it can be considered **indeterminable** as to whether a new development affects the Radio Frequency coverage of a geographical area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



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 identified 1 No. Microwave links that will require the Applicant to make specific allowances for their retention ("Mitigation Measures").

Our assessment also identified 3 No. Radio Frequency links that will require the Applicant to make 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.

### Impacted Microwave links

- (1) 1 No. is a Microwave link installed by Three Ireland.

### Impacted Radio Frequency links

- (1) 1 No. Radio Frequency links installed by Eir Mobile (Meteor) (120° azimuth respectively)
- (2) 1 No. Radio Frequency links installed by Three Ireland (150° azimuth respectively)
- (3) 1 No. is a Radio Frequency link installed by Vodafone (200° azimuth respectively)



The 1 No. Microwave link is installed on a telecommunication mast site located within the site boundary of the neighbouring development site under consideration owned by the Applicant (Planning Reference: ABP REG. REF. TA29N.312352). This mast is providing cellular coverage for the local area businesses and industrial units together with providing coverage for the local residential neighborhood along both Richmond Road to the north and Distillery Road and Conliffe Seminary to the south. We have been advised however, that this mast does not have the benefit of planning permission. We note that Dublin City Council granted temporary permissions for the temporary use of the mast and that said temporary permission expired June 2021 (DCC Reg. Ref. 2213/16). Please refer to Figure 4.

This Microwave link is situated at an approximate above ground level height of between 16 -20m (AGL) and therefore the Fresnel zone of each will be diffracted by the height of the Development. We've calculated the average radiuses of the Fresnel zones of the link which are not to be greater than 1.64m at its widest point which would be at half the distance to the end site. The proposed height of the Development will cause significant diffraction to this Microwave link.

ISM carried out a full assessment of neighbouring registered and document 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 walk test throughout the surrounding areas to ascertain what cells were serving the neighbourhoods and business districts 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 a range of distances to the development site, which is a typical cell pattern for urban Radio Frequency coverage. However, the local or immediate area is served by 2 cells on sites at very close range.



The walk test data determined that some business, residential, and the public road areas to the north, northeast and northwest of the development site receive signal from Radio Frequency links emanating from a telecommunication mast hosting Three Ireland and Eir Mobile which is located within the development site boundary. The walk test data also determined that some business, residential, and the public road areas to the south southeast and southwest of the development site receive signal from a Radio Frequency link emanating from a Vodafone telecommunication mast located on adjacent lands to the north of the development site. Please refer to Figure 4.

It is therefore our finding that the proposed heights sought by the Applicant will impact the identified Radio Frequency links. We have set out the impacted areas within Figure 7.



## MITIGATION MEASURES

To provide an adequate allowance for the retention of the 1No. identified Microwave links that will be impacted by the Development, the Applicant is seeking planning permission to install 3No. support poles, affixed to the lift shaft overrun on Block B.

These support poles are sufficient to accommodate 2No. Ø0.3m Microwave links each (*together with associated telecommunications equipment*), which provides an adequate solution for the Applicant to mitigate the impact the Development will have on the existing Microwave links emanating from the existing mast currently within the adjoining Strategic Housing Development (SHD) application (pending decision ABP Reg. Ref. TA29N.312352), as well as providing some capacity for future links that may or may not be required.

To provide an adequate allowance for the retention of the 3No. identified Radio Frequency links that will be impacted by the Development, the Applicant is seeking planning permission to install 9No. support poles, affixed to ballast mounts on Block B.

These support poles are sufficient to each accommodate 1No. 2m 2G/3G/4G antenna & 1No. 5G antenna each (*together with associated telecommunications equipment*), which creates the ability for the Applicant to mitigate the impact the Development will have on the existing Radio Frequency links emanating from the mast within the adjoining Strategic Housing Development (SHD) application (pending decision ABP Reg. Ref. TA29N.312352) and the neighbouring mast site to the north of the Development.

To adequately screen the infrastructure, the support poles used for the antennae will be installed within Radio friendly GRP shrouds.

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



Notwithstanding, the telecommunications infrastructure is also proposed in the adjoining Strategic Housing Development (SHD) application (pending decision ABP Reg. Ref. TA29N.312352) under the control of the Applicant. If that SHD application is granted and first implemented, no telecommunications infrastructure will be required under this application for LRD. If the SHD application is refused permission or not first implemented, the proposed telecommunications infrastructure in the LRD application will be constructed.

ISM can therefore conclude that the proposal being made by the Applicant within its submission to An Bord Pleanála allows for the retention of important Telecommunication Channels, such as Microwave links, to satisfy the criteria of Section 3.2 of the Building Height Guidelines [2018].



## APPENDICIES

Figure 5: Identification of neighbouring registered and documented telecommunication sites  
(Area Telecommunication Analysis)

Figure 6: Identification of Microwave links disseminating from neighbouring registered and  
documented telecommunication sites (Microwave Link Analysis)

Figure 7: Identification of local area Cells by Cell ID (Cell Identification Analysis)

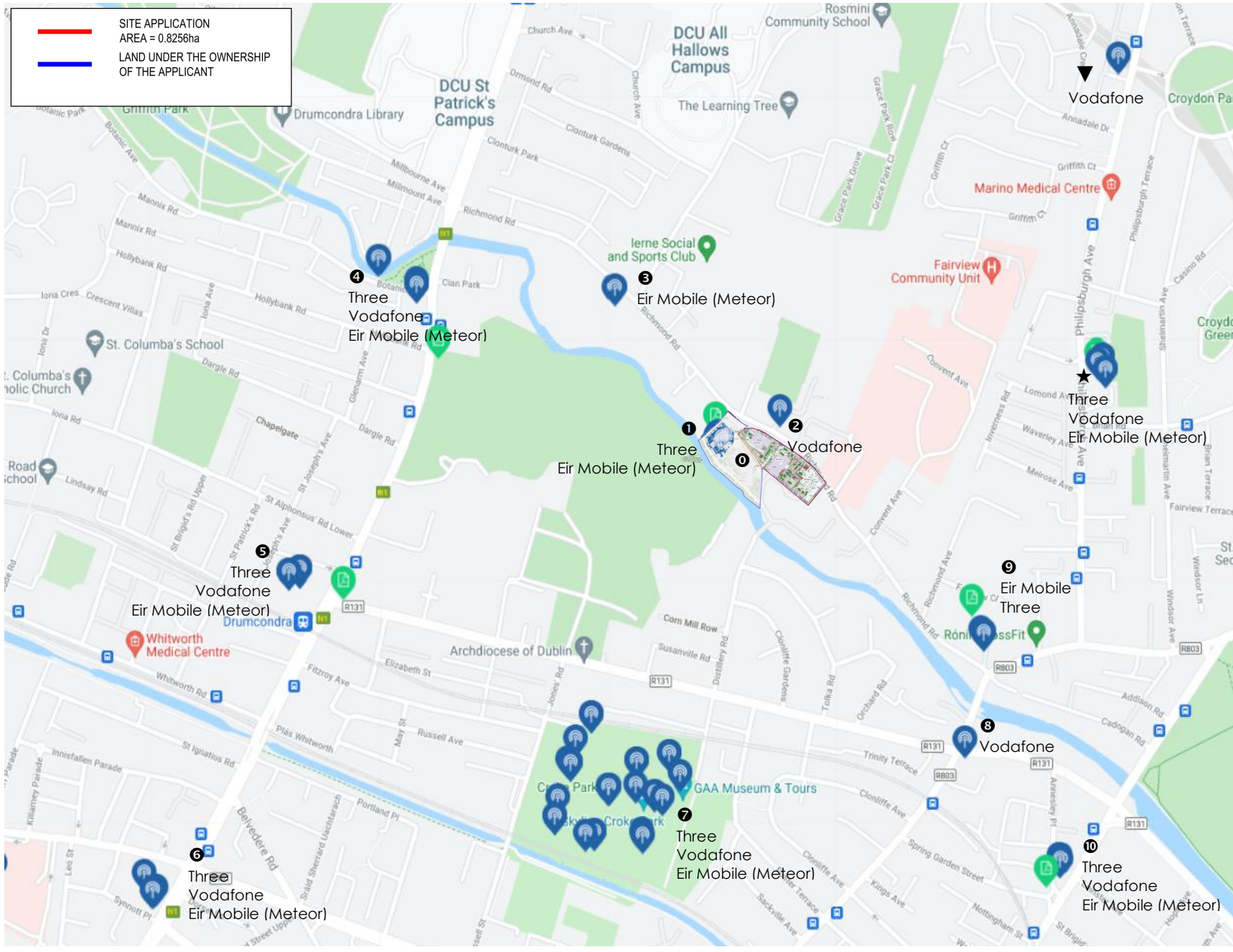
Figures 8: Mitigation Measures (Equipment).

Figures 9: Mitigation Measures (Site Layout / Site Elevation).

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 Richmond Builders Prov.
- 2 Charthouse
- 3 Shelbourne F.C.
- 4 Fagan's Pub
- 5 Centre for the Deaf
- 6 Synnott Place
- 7 Croke Park
- 8 Conliffe House
- 9 Meagher's Pub
- 10 Annesley House
- ★ CYMCA (ISM Site)
- ▼ C&T Superstore


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Client  
 Malkey Limited  
 Project  
 Richmond Road Phase 2

Option	1
Report Date	30/09/22
File Name	Richmond Road Phase 2

Drawing:  
 Area Site Analysis

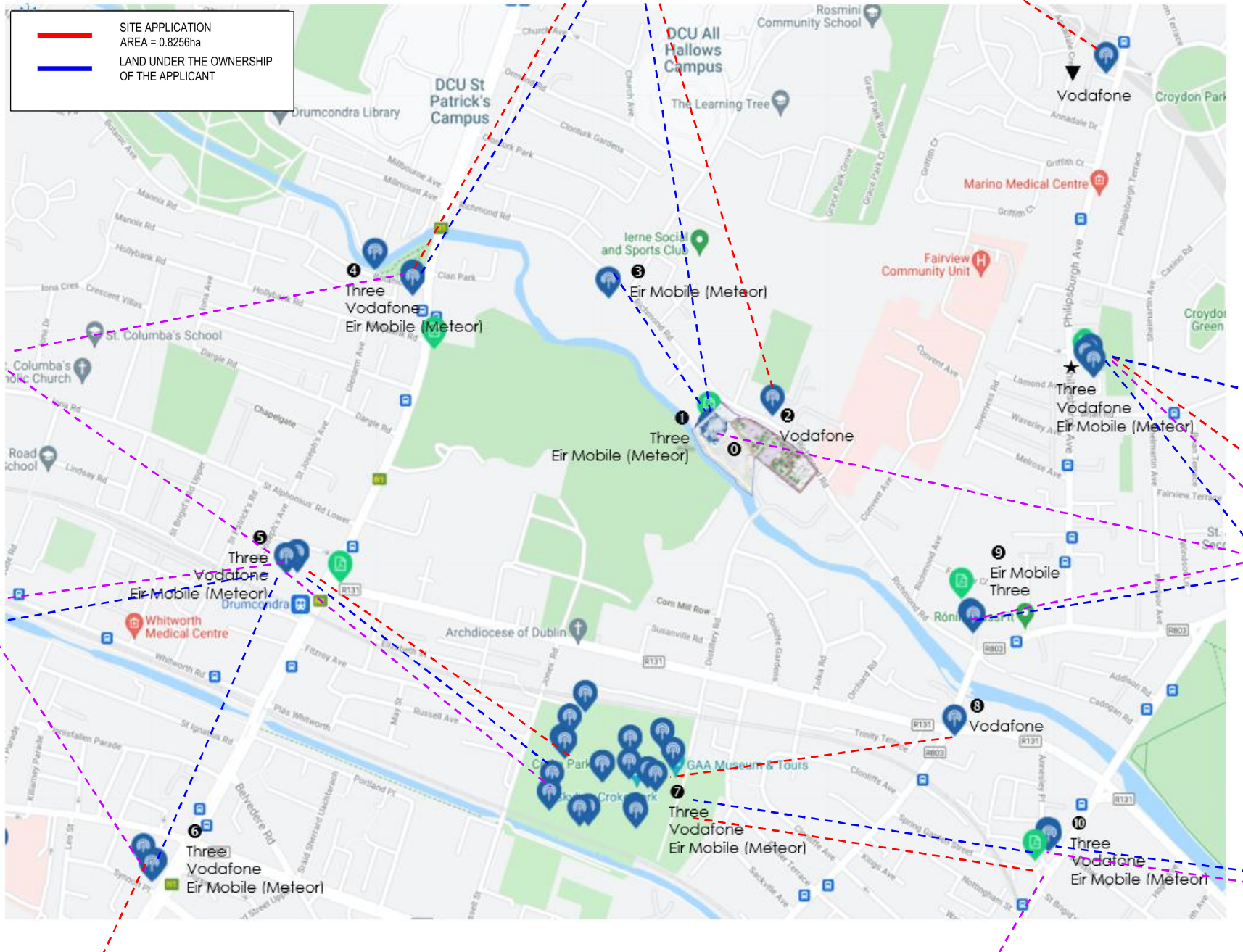
Building	Drawing No.	Zone	Rev
SPN	I 3022		1

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Figure 6

Microwave Link Analysis

Source: Comreg ISM Vodafone Three & Eir Mobile



Note  
 All Dimensions to be checked on site  
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 Consultant Drawings

- Three Transmission Link
- Vodafone Transmission Link
- Eir Transmission Link


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Drawing:  
 Link Analysis

Building	Drawing No.	Zone	Rev
SPN	I 3022		1

Figure 7

Walk Test Data

Source: Comreg, ISM



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

- Multiple Cell IDs  
 Fagan's Pub  
 Shelbourne FC
- CYMCA Cell ID
- Sch. for the Deaf Cell ID
- Multiple Cell IDs  
 Conliffe House  
 Meagher's Pub
- Impacted Area A.  
 1 No. RF link installed by Eir  
 1 No. RF link installed by Three
- Impacted Area B.  
 1 No. RF link installed by Vod

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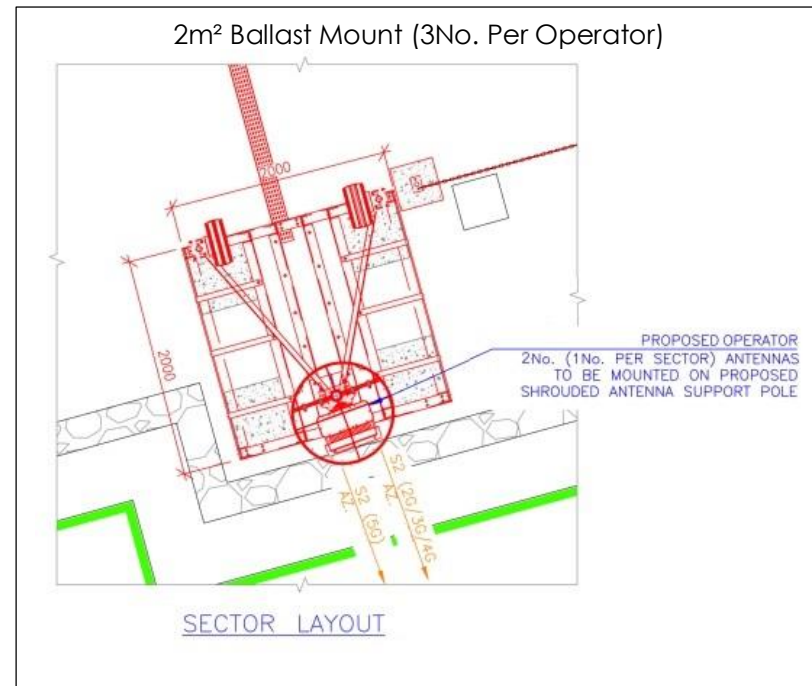
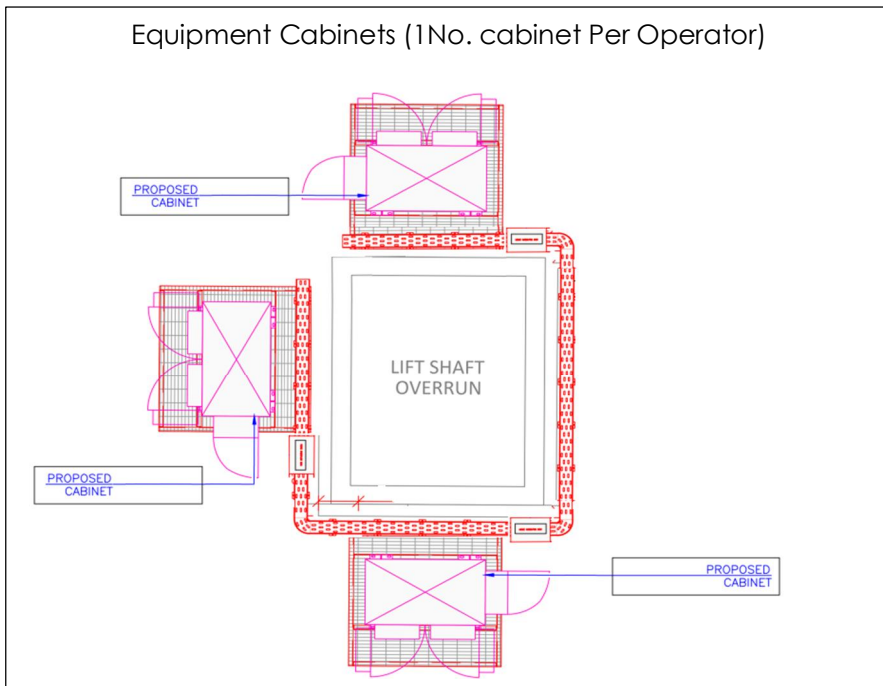
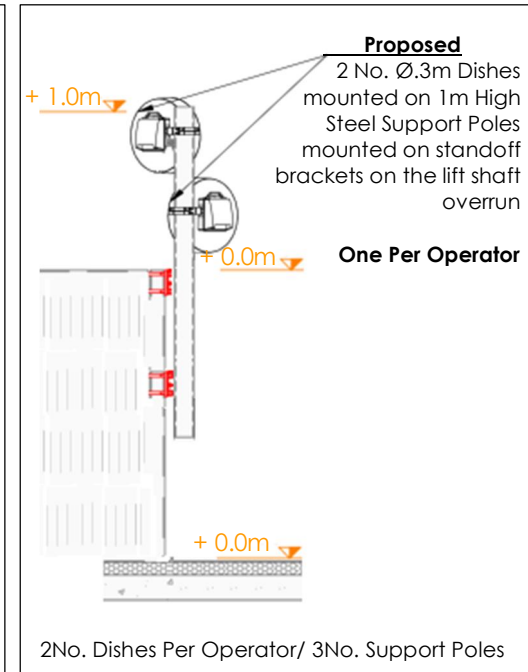
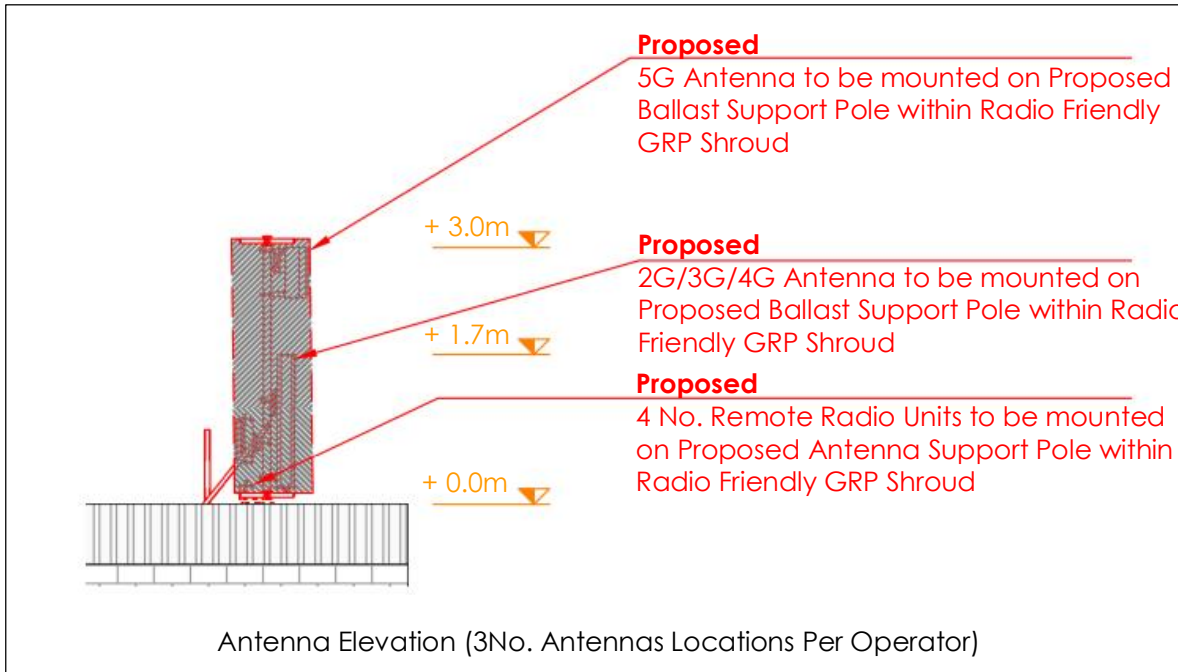
Drawing:  
 Cell Identification Analysis

Building	Drawing No.	Zone	Rev
SPN	I 3022		1

Figure 8

Mitigation Measure Design

Source: ISM



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

Proposed Equipment

9No. support poles, affixed to ballast mounts on Block B

9No. 2m 2G/3G/4G antenna & 9No. 5G antennas enclosed within Radio friendly GRP shrouds

6No. Ø0.3m Microwave links each.

3No. Equipment Cabinets

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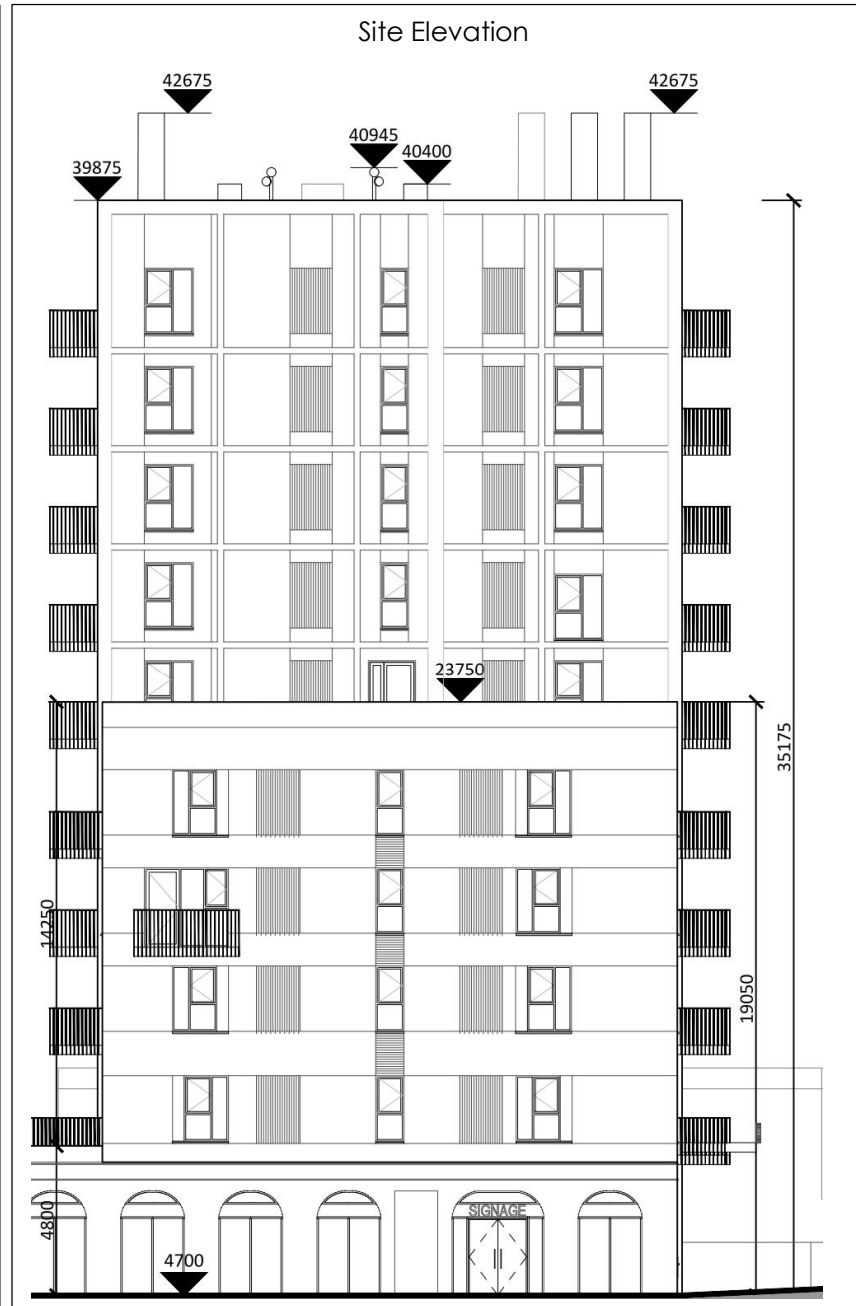
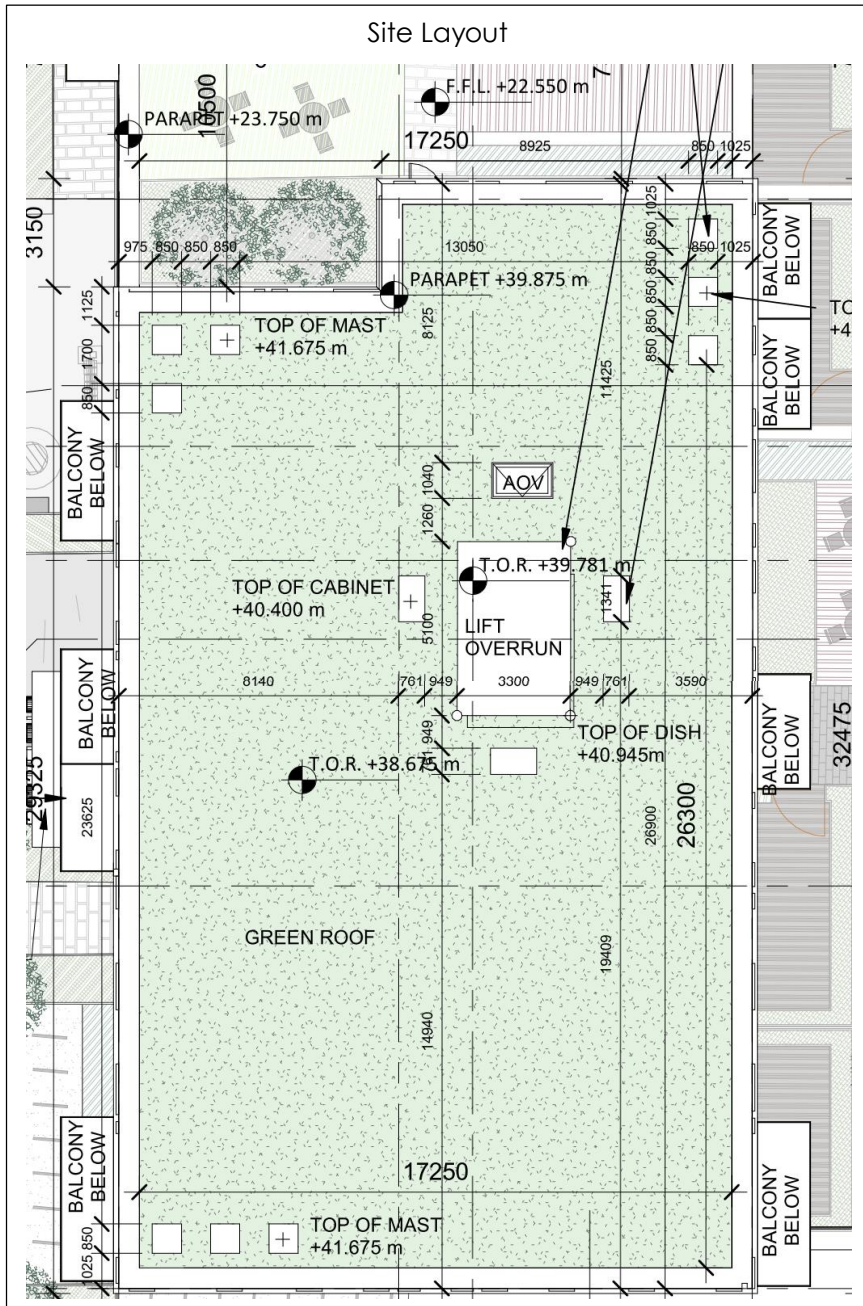
Drawing:  
Mitigation Measure

Building	Drawing No.	Zone	Rev
SPN	I 3022		1

Figure 9

Mitigation Measure Design

Source: Three Ireland; Vodafone Ireland; & Eir Mobile



Note  
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 Consultant Drawings

Site Layout Key

- Ballast Mount/Antennas
- Equipment Cabinets
- Microwave Dish

Elevation Key

- Ballast Mount/Antennas
- Equipment Cabinets
- Microwave Dish

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