



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

**DEVELOPMENT
ROSEMOUNT SHD
NORTHERN CROSS, DUBLIN 17**

02 August 2022

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Table of Contents

DEFINITIONS	3
EXECUTIVE SUMMARY	4
ABOUT THE AUTHOR.....	5
DEVELOPMENT DESCRIPTION	6
SITE LOCATION/LAYOUT MAP	8
TELECOMMUNICATION CHANNELS	9
FINDINGS.....	12
MITIGATION MEASURES	14
APPENDICES	15
AREA TELECOMMUNICATION ANALYSIS	16
MICROWAVE LINK ANALYSIS.....	17
WALK TEST DATA	18
MITIGATION MEASURE DESIGN.....	19

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 Body:	means An Bord Pleanála (hereinafter referred to as the "Planning Body")
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.
Telecommunication Channels:	means Radio Frequency links & Microwave Transmission links (hereinafter referred to as "Telecommunication Channels")
The Applicant:	means Walls Construction Limited (hereinafter referred to as the "Applicant")
The Development:	means the proposed development situated at Rosemount House, Northern Cross, Malahide Road, Dublin 17 (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 Walls Construction Limited (the "Applicant") within its submission to An Bord Pleanála (the 'Planning Body'), allows for the retention of important Telecommunication Channels ("Telecommunication Channels") such as microwave links, to satisfy the criteria of Section 3.2 of the Building Height Guidelines (2018).

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 Body allows for the retention of important Telecommunication Channels, such as Microwave links, and therefore satisfies the criteria of Section 3.2 of the Building Height Guidelines (2018).

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

The proposed development shall consist of:

- Demolition of existing c. 3,315 sq.m, 3 storey office building on site and existing ancillary facilities and the construction of a single mixed-use block (Block A) of up to 9 storeys (over basement), consisting of a 4-sided structure based around a central courtyard area.
- c. 1,060 sq.m. of office space at ground floor level with own door access and associated infrastructure including staff kitchen, meeting rooms and designated car parking (7 spaces) at basement level.
- A café unit of c. 143.7 sq.m at ground floor level with own door access to the south and east, accessed via proposed public open space.
- 176 no. residential units from 1st to 8th floor level comprising 72 no. 1 bed units (41%), 57 no. 2 bed units (32%) and 47 no. 3 bed units (27%) [each with private amenity space in the form of balcony or terrace], with separate access to the proposed commercial uses at ground floor level.
- c. 1,846 sq. m. of communal open space at ground floor, first floor podium, 4th floor and 7th floor level, and public open space of c. 1,577 sq.m. at ground floor level, including a public courtyard area located to the southeast of the proposed block.
- Resident amenity and support services are proposed at ground floor level to include a cinema room, post room, games room, co-working spaces, gym and concierge services.
- 134 no. car parking spaces, 7 of which are accessible, and 6 no. motorcycle parking spaces, located at basement level and accessed by a vehicular ramp via Mayne River Avenue to the west (with a vehicular set down areas fronting Mayne River Avenue), in addition to 2 no. car club spaces at the southern boundary.

- 424 no. bicycle parking spaces, 416 of which at ground floor and at surface level and 8 no. spaces at basement level.
- All associated vehicular and pedestrian access routes (including links to the adjoining site to the north), external communal play facilities, E.S.B substation, Meter rooms, foul and surface water drainage, hard and soft landscaping, lighting, plant at basement level, bin stores, PV panels and green roof, 2 no. telecommunications antenna at roof level and all associated and ancillary site works.

The application contains a statement setting out how the proposal will be consistent with the objectives of the relevant development plan and local area plan. The application contains a statement indicating why permission should be granted for the proposed development, having regard to a consideration specified in section 37(2)(b) of the Planning and Development Act, 2000, as amended, notwithstanding that the proposed development materially contravenes a relevant development plan or local area plan other than in relation to the zoning of the land. A Natura Impact Statement has been prepared in respect of the proposed development.

TELECOMMUNICATION CHANNELS

This report assesses 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

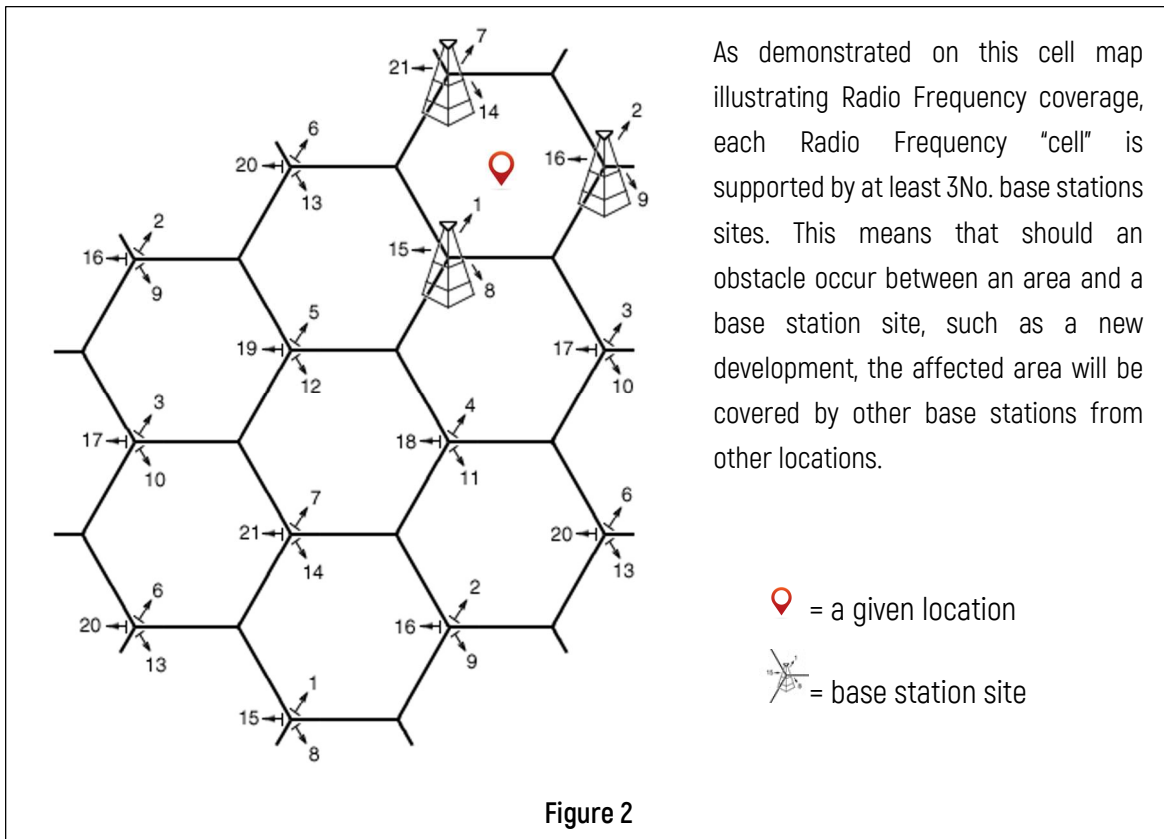
Radio Frequency links & Microwave Transmission Links are used in Ireland's mobile phone and fixed wireless networks and disseminate at an average above ground level height of 20m, making them the most relevant Telecommunication Channels to be assessed in relation to the height and scale of a new development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

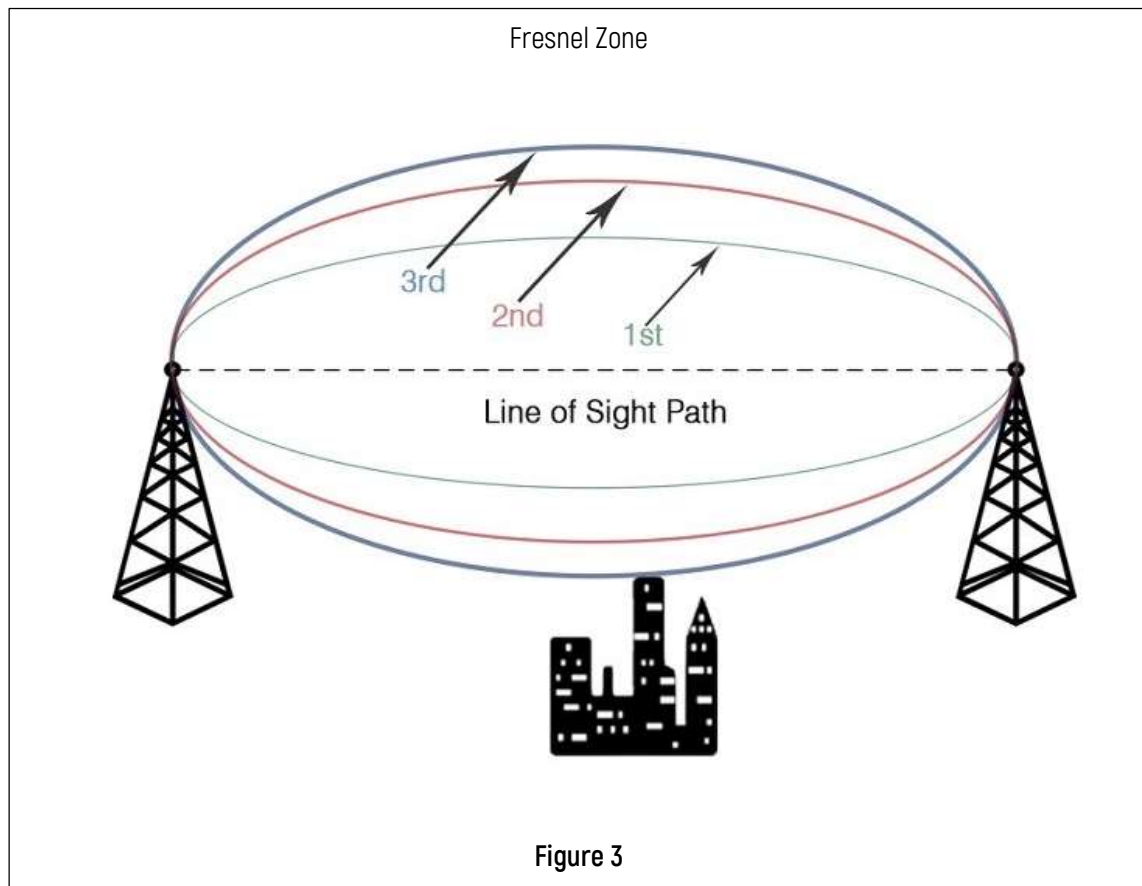




Cellular networks offer a number of desirable features, but most notably, additional cell towers can be added indefinitely and are not limited by the horizon, therefore it can be considered **indeterminable** as to whether a new development affects the Radio Frequency coverage of a geographical area 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 did not identify any Microwave links that will require the Applicant to make specific allowances for their retention ("Mitigation Measures").

Our assessment has identified 2No. Radio Frequency links that will require the Applicant to make specific allowances for their retention.

Impacted Radio Frequency links

- ① 1 No. is a Radio Frequency link installed by Eir Mobile (Meteor). Approximately 0° to 180° az
- ② 1 No. is a Radio Frequency link installed by Vodafone Ireland. Approximately 0° to 180° az

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 4 & 5 of the appendices for full analysis. The assessment of the microwave links entailed both a visual survey of each identified neighbouring site within a reasonable geographic proximity to the Development a request for information from telecommunication providers where the visual survey did not yield an accurate finding.

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 6 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 from the development site on a 360° basis, which is a typical cell pattern for urban Radio Frequency coverage. The walk test data determined that some business, residential, and the public road areas to the east and northeast of the development site receive signal from the Radio Frequency links emanating from the Bewley's plant building located on the adjacent lands to the southwest of the Development (see Figure 6).



It is therefore our finding that the proposed heights sought by the Applicant will impact the identified Radio Frequency links.

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



MITIGATION MEASURES

To provide an adequate allowance for the retention of the 2No. identified Radio Frequency links that will be impacted by the Development, the Applicant is seeking planning permission to install additional telecommunications infrastructure affixed to steel support poles mounted on ballasts at roof level in the north east corner, including: 2no. 0.8m Radio Antennas (5G) and 2No. 2.0m Radio Antennas (2G/3G/4G) enclosed within radio friendly GRP shrouds which is sufficient to mitigate potential interference with existing Radio link telecommunication channels identified herein.

Refer to Figures 7 , 8 , & 9 of the appendices for full analysis.

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

Figure 5: Identification of Microwave links disseminating from neighbouring registered and
documented telecommunication sites (Microwave Link Analysis)

Figure 6: Identification of local area Cells by Cell ID (Cell Identification Analysis)

Figure 7: Mitigation Measures Site Layout

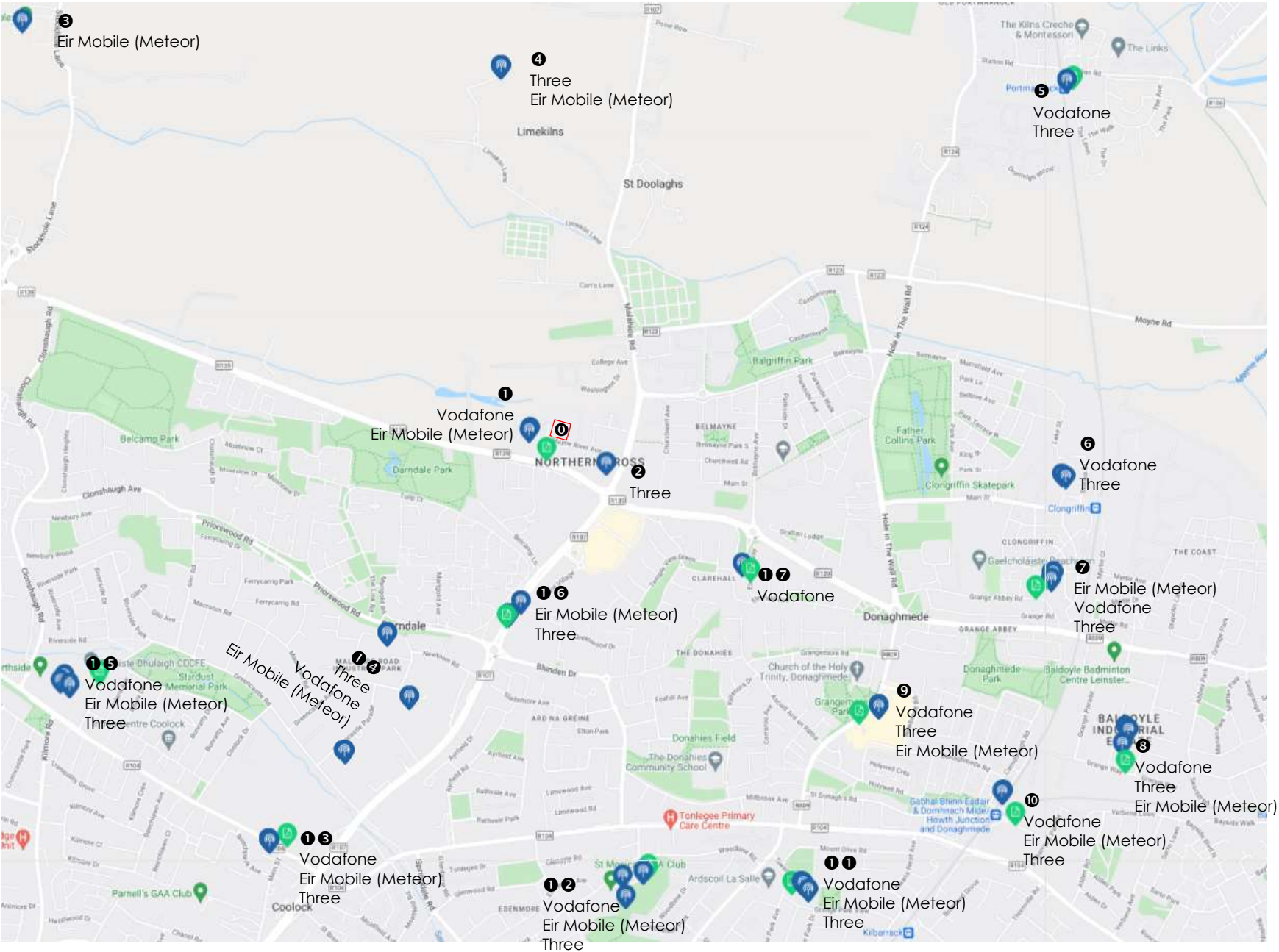
Figure 8: Mitigation Measures Equipment

Figure 9: Mitigation Measures Elevation

Figure 4

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 Bewley's
- 2 Hilton Airport
- 3 AUL Sports Complex
- 4 Limekilns Lane
- 5 Portmarnock CIE
- 6 Clongriffin CIE
- 7 Grange ESB
- 8 Baldoye Indus.
- 9 Donaghmede S.C.
- 10 Howth Junction CIE
- 11 Kilbarrack S.C.
- 12 St Monica's (ISM)
- 13 Coolock Gard Station
- 14 Greencastle Park/Exch
- 15 Northside S.C. (ISM)
- 16 O'Toole's GAA
- 17 Spar Clare Hall

FINAL

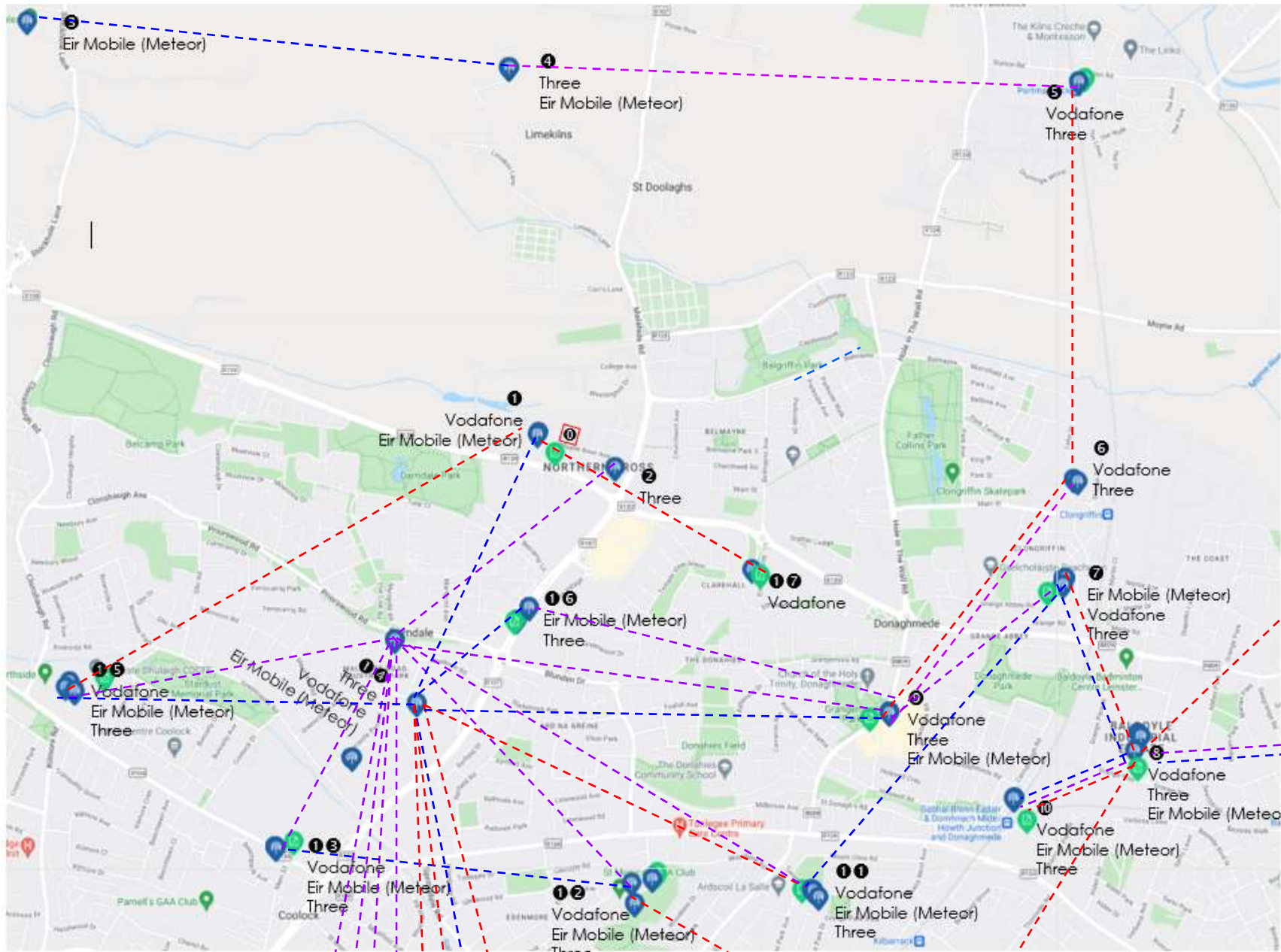
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Client
Walls Construction Limited
Project
Rosemount SHD

Option	1
Date	02/08/2022
File Name	Rosemount SHD

Drawing:
Area Site Analysis

Building	Drawing No.	Zone	Rev
SPN	C 0822		1



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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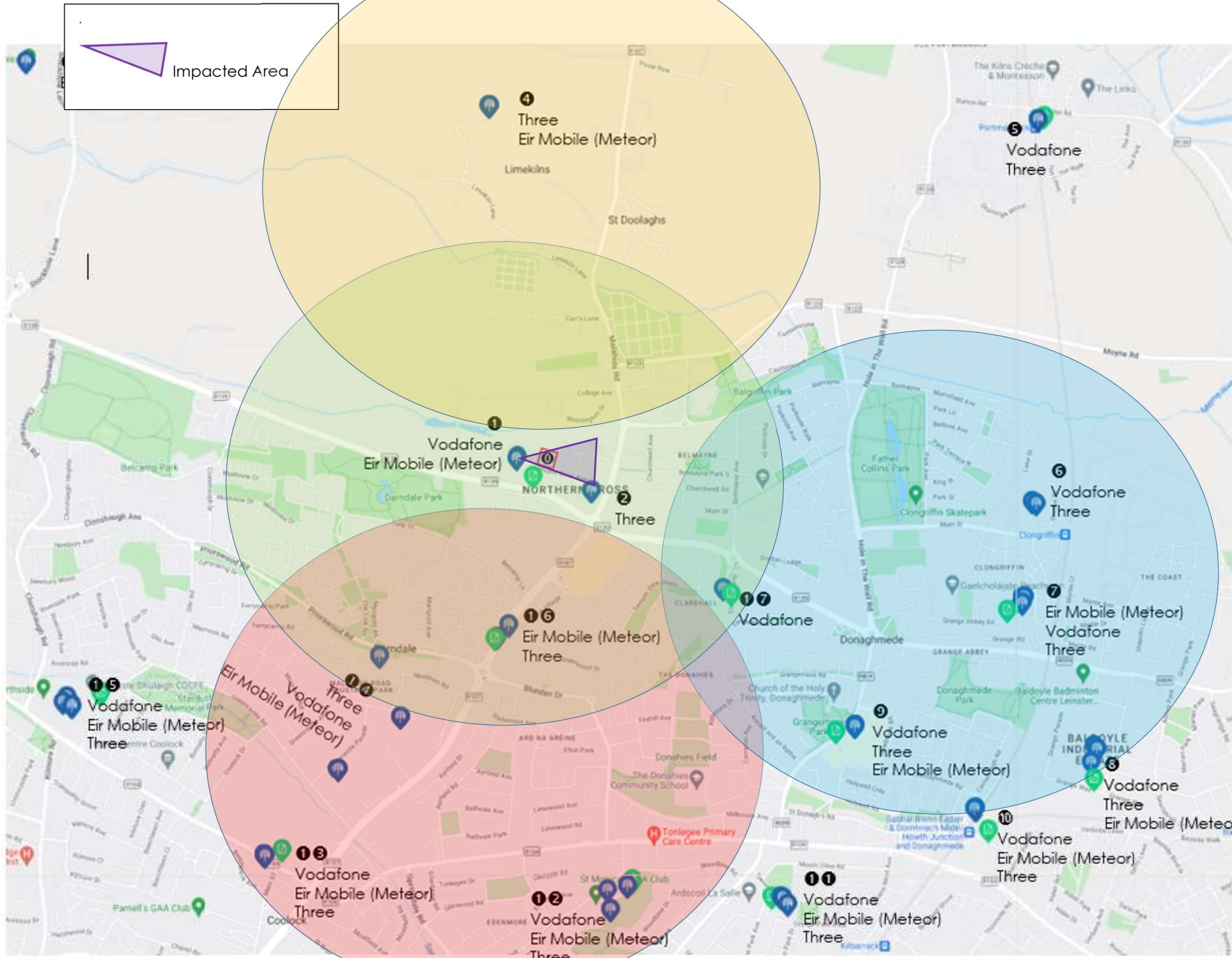
Option	1
Date	02/08/2022
File Name	Rosemount SHD

Drawing: Link Analysis			
Building	Drawing No.	Zone	Rev
SPN	C 0822		1

Figure 6

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

- 6 Clongriffin CIE
- 7 Grange ESB
- 8 Baldoye Indus.
- 9 Donaghmede S.C.
- 10 Howth Junction CIE
- 17 Spar Clare Hall
- Multiple Cell IDs

- 4 Limekilns Lane
- Multiple Cell IDs

- 1 Bewley's
- 2 Hilton Airport
- 14 Greencastle Park/Exch
- 16 O'Toole's GAA
- Multiple Cell IDs
- 12 St Monica's (ISM)
- 13 Coolock Gard Station
- 14 Greencastle Park/Exch
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Project
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Option	1
Date	02/08/2022
File Name	Rosemount SHD

Drawing:
Cell Identification Analysis

Building	Drawing No.	Zone	Rev
SPN	C 0822		1

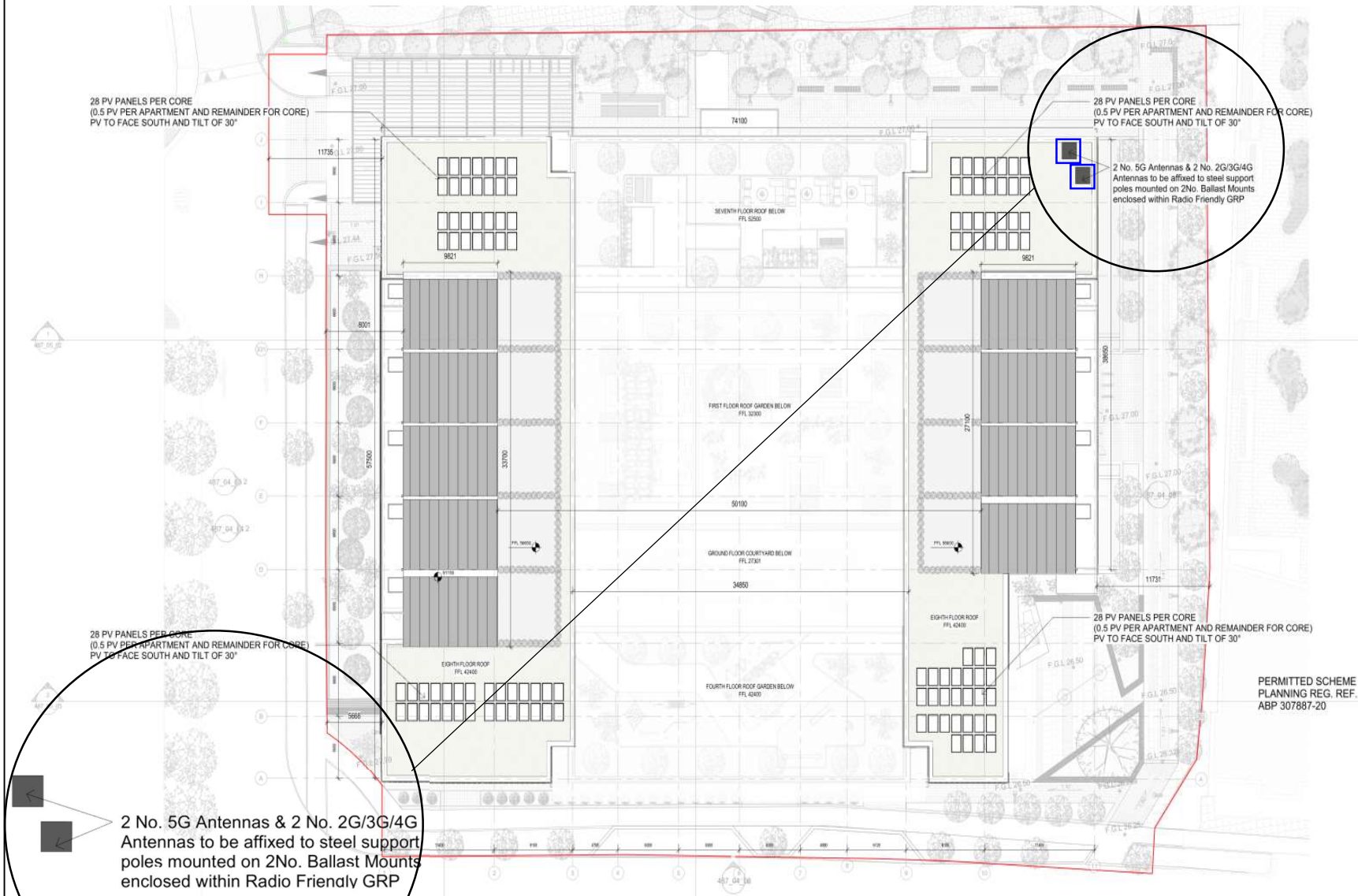
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Figure 7

Mitigation Measures

Source: ISM

Site Layout



Note

All Dimensions to be checked on site
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Consultant Drawings

Typical Installation



--- Transmission Link

□ Location of Ballast mounts

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Rosemount SHD

Option	1
Date	02/08/2022
File Name	Rosemount SHD

Drawing:
Mitigation Measure

Building	Drawing No.	Zone	Rev
SPN	C 0822		1

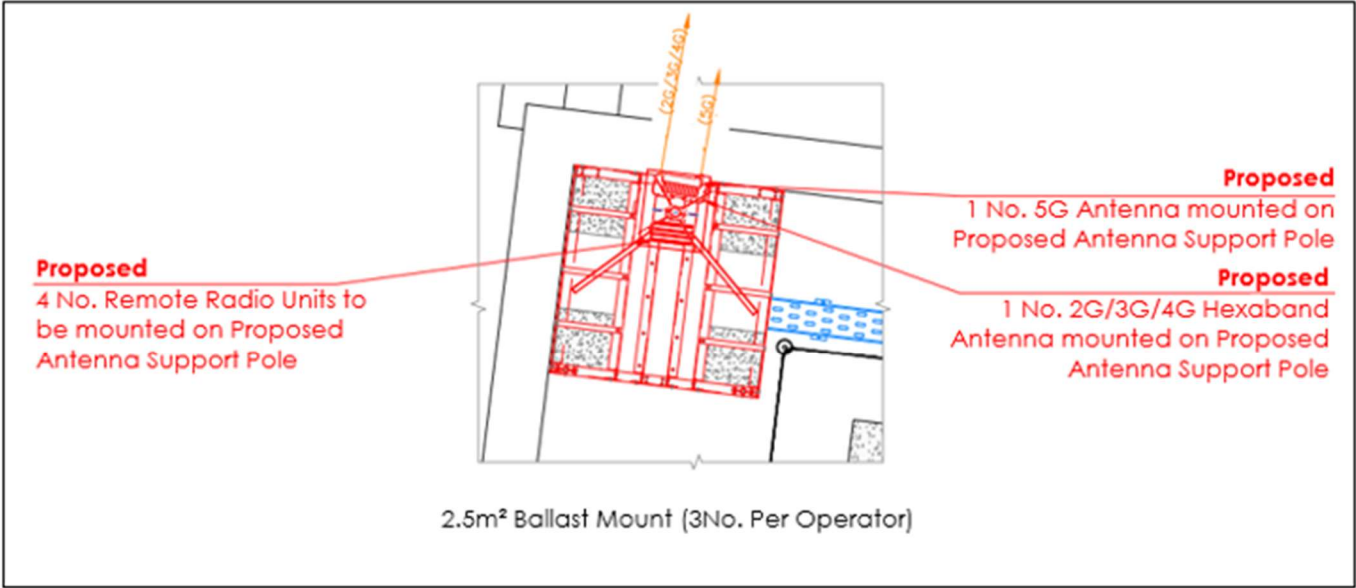
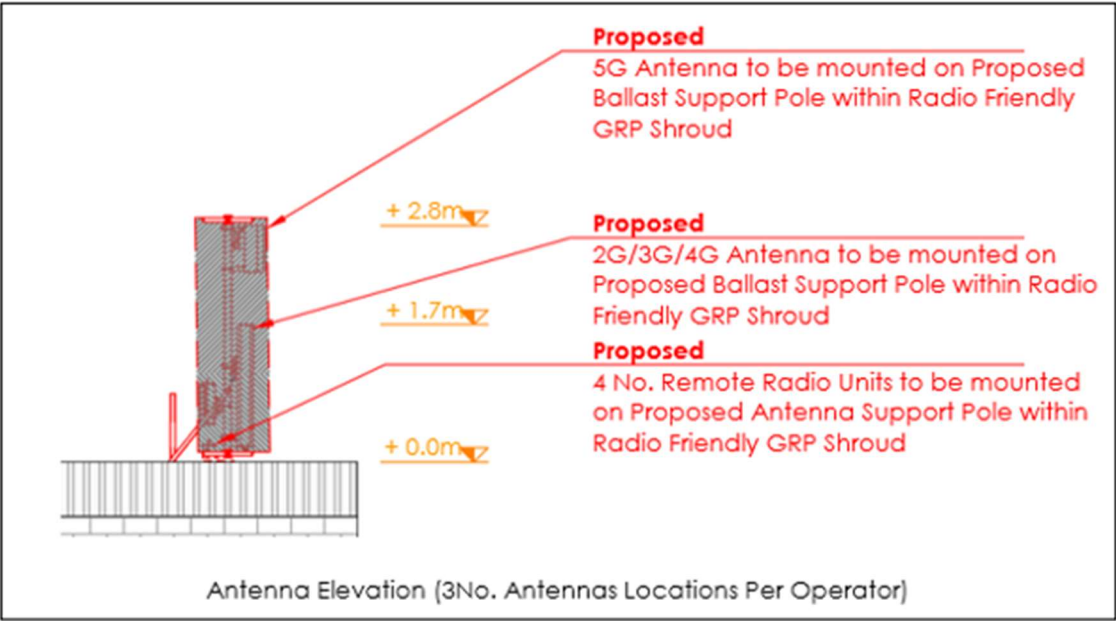
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Figure 8

Mitigation Measures

Source: ISM

Equipment



Note
All Dimensions to be checked on site
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Consultant Drawings

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Project
Rosemount SHD

Option	1
Date	02/08/2022
File Name	Rosemount SHD

Drawing:
Mitigation Measure

Building	Drawing No.	Zone	Rev
SPN	C 0822		1

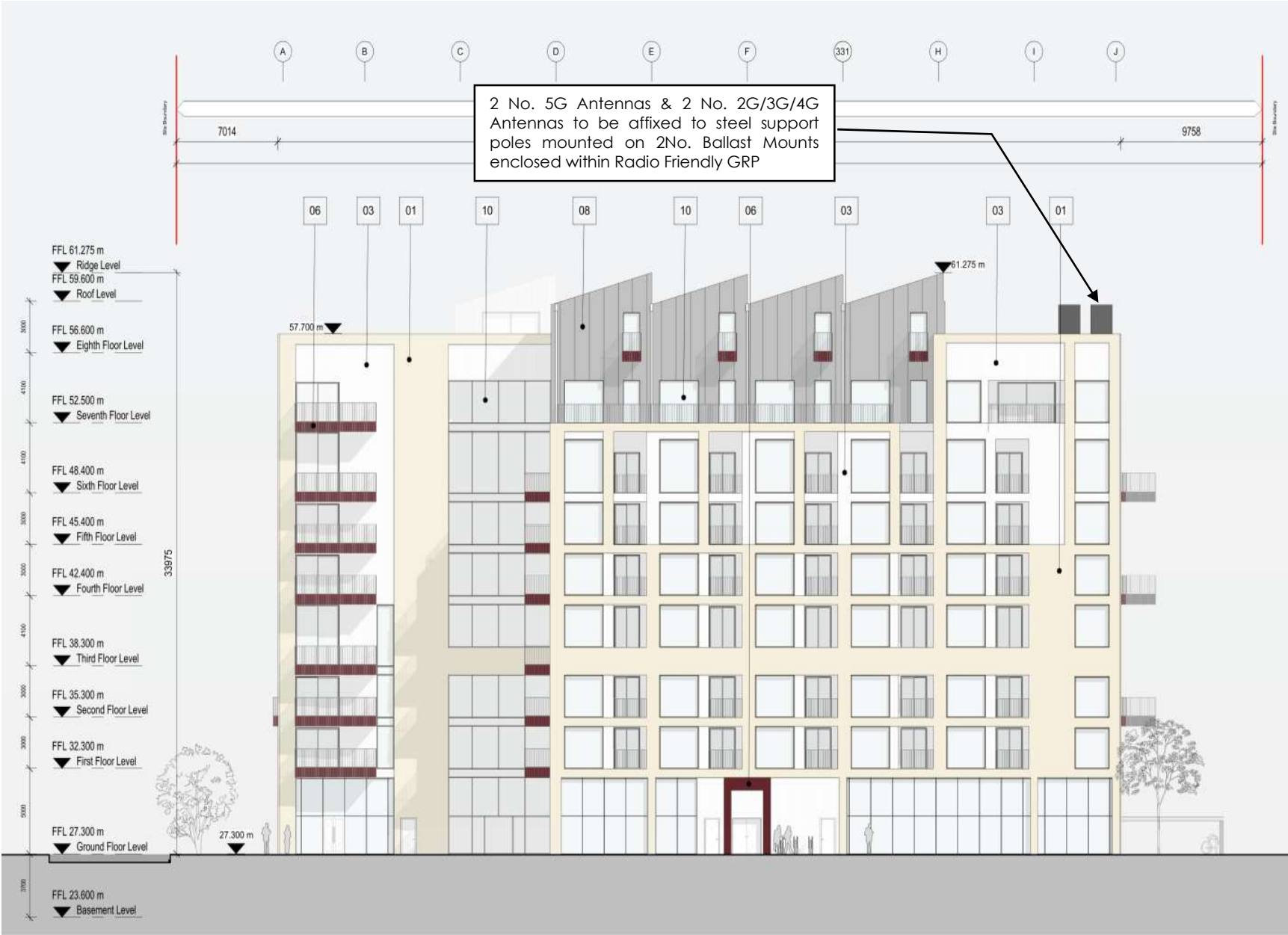
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Figure 8

Mitigation Measures

Source: ISM

Elevation



Note
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Drawing:
Mitigation Measure

Building	Drawing No.	Zone	Rev
SPN	C 0822		1