



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

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### DEVELOPMENT GLEBE HOUSE AND CORUBA LANDS

07 June 2022

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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 An Bord Pleanála (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>Telecommunication Channels:</b>	means Radio Frequency links & Microwave Transmission links (hereinafter referred to as "Telecommunication Channels")
<b>The Applicant:</b>	means Seabren Developments Limited & Circle VHA CLG (hereinafter referred to as the "Applicant")
<b>The Development:</b>	means the proposed development situated at Glebe House including the vacant Glebe light industrial lands, and the vacant site of the former Coruba House, Saint Agnes Road, Crumlin, Dublin 12 (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 Seabren Developments Limited & Circle VHA CLG (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

Seabren Developments Ltd and Circle VHA CLG intend to apply to An Bord Pleanála for planning permission for a strategic housing development at this site located at Glebe House (Protected Structure, RPS Ref. 7560), including the vacant Glebe light industrial lands, and the vacant site of the former Coruba House, Saint Agnes Road, Crumlin, Dublin 12 all on a site of 0.88 Hectares. The site bounds Somerville Drive and Somerville Green to the southeast and southwest, respectively, and includes the grass margin between the Coruba site boundary and Somerville Drive. The Glebe House lies within the Crumlin Architectural Conservation Area.

A residential development of 150 no. apartments consisting of 74 one beds, 72 two beds and 4 three bed residential units, a creche and café. The proposed scheme has an overall Gross Floor Area of 15,767 sq.m.

Two apartment buildings are proposed ranging in height from 4 – 6 storeys and linked by a carpark at ground floor and a podium at first floor level comprising the following:

- Block A is 5-6 storeys and consists of 79 apartments and includes 35 no. one beds and 44 no. two beds units, ESB substation/switch room/metering room of 85sqm, 42 no. secure bicycle storage and bin storage of 44sqm
- Block B is 4-5 storeys and consists of 66 apartments and includes 38 no. one beds, 25no. two beds and 3 no. three beds, a Creche of 147 sqm at ground floor level with associated outdoor area, ground floor plant rooms of 74sqm, ESB substations/switch room/metering room/telecoms of 89sqm, 188 no. secure bicycle storage spaces in two locations, 6 no. motorbike spaces and bin storage of 75sqm.

Two no.three storey pavilion buildings either side of Glebe House to accommodate:

- One number two storey duplex 2 bed apartment above one number 1 bed apartment at ground floor in the north west pavilion and,
- One number two storey duplex 2 bed apartment above a 55 sqm ground floor café, in the south east pavilion.

The repair of fire damaged elements (following a fire 21<sup>st</sup> April 2022) and the refurbishment of Glebe House, a protected structure, into two apartments, one number 2 bed unit at lower ground floor and one number 3 bed unit at upper ground and first floor;

- Repair of fire damaged elements including the replacement of all roof coverings and structure, replacement of all first floor timber stud walls, replacement of first floor rear return joists, replacement/repair of floor joists at first floor level, replacement of internal render to kitchen/dining area in rear return building and replacement/repair of stair from upper ground to first floor level,
- the refurbishment of Glebe House including the removal of extensions to the rear and sides of the building, restoration of the façade, replacement of pvc windows with sliding sash windows and associated works to the interior and to the curtilage of Glebe House.
- Lowering the front boundary wall and return boundary wall to the front of Glebe House.

Demolition of all workshops, offices and sheds to the rear and sides of Glebe House Demolition of boundary walls around the Coruba land on Somerville Drive, the front entrance and between Coruba and the Glebe lands. Demolition of non-original brick column's at St Agnes Road entrance to Glebe House (1,636 sqm).

75 car parking spaces are proposed:

- 66 no. car parking spaces (includes 2 Go Car spaces) in ground floor car park below podium and partly in Block A and 4 No. visitor car parking spaces in front of Glebe House all with vehicular access from St Agnes's Road
- 5 No. assigned car parking spaces on the eastern side of Block B with vehicular access from Somerville Drive.

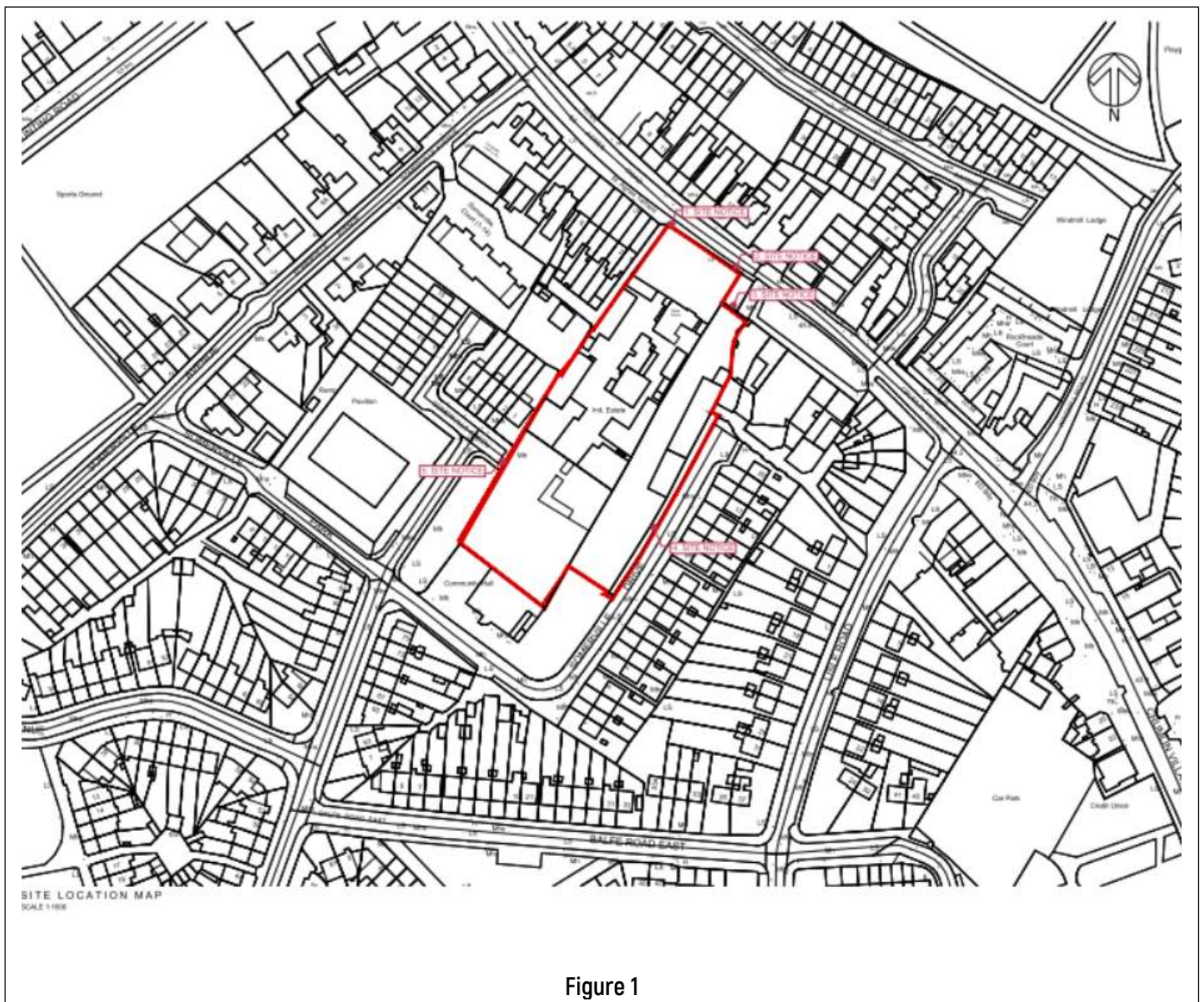
The development provides 905 sqm of Public Open Space to the front and side of Glebe House, and within the southeast public plaza. with a pedestrian route to the side of the Café at Pavilion B and 1,632 sqm of Communal Open Space located at podium level and to the rear of Block A.

- 76 no. visitor bicycle parking spaces are provided in the public accessible areas of the site.

The application also includes the provision of a new footpath along the south-eastern boundary at Somerville Drive, a new controlled gate between Somerville Drive and St Agnes Road allowing public access through the site within daylight hours and a new pedestrian access from the public open space onto St. Agnes Road, boundary treatment, landscaping, Solar Panels on the roof of Blocks A and B, provision of 4 no. Microwave link dishes to be mounted on 2 No. steel support posts affixed to the lift shaft overrun on Block A, lighting, services and connections, waste management and other ancillary site development works to facilitate the proposed development.



## SITE LOCATION/LAYOUT MAP



## 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

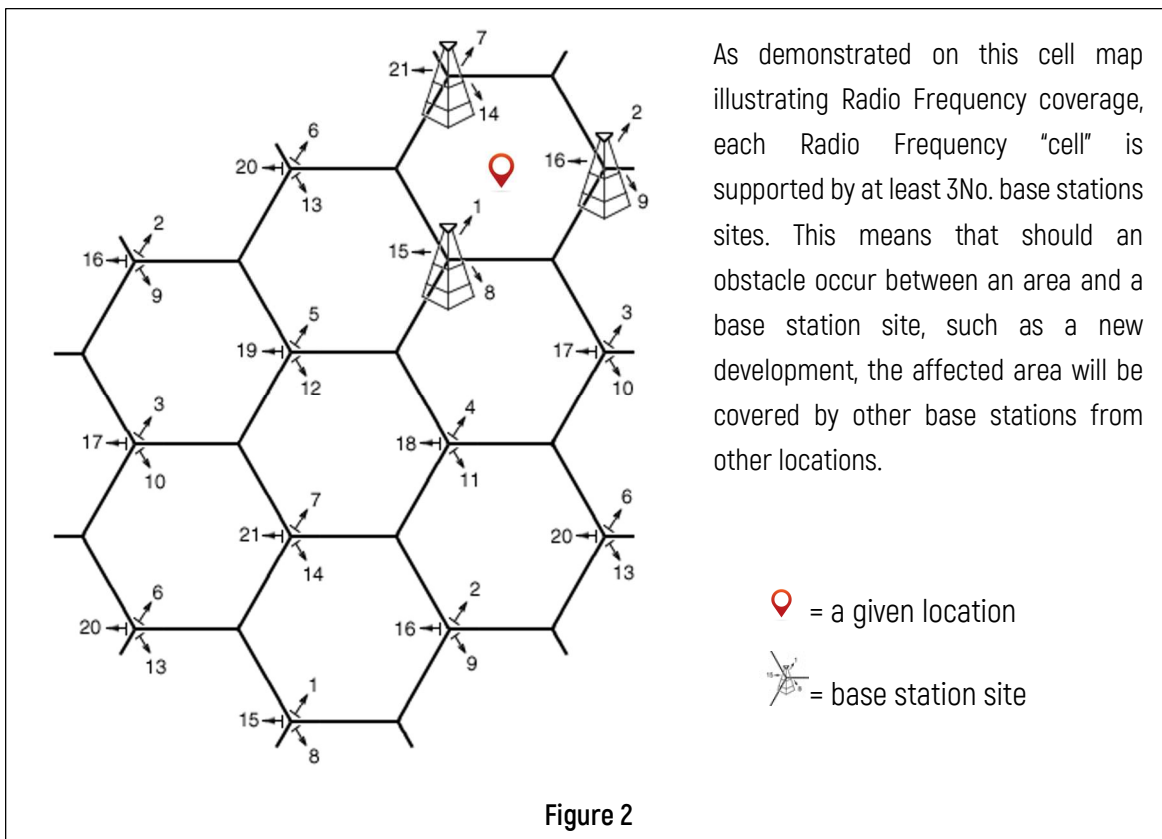
Radio Frequency links & Microwave Transmission Links are used in Ireland's mobile phone and fixed wireless networks and disseminate at an average above ground level height of 20m, making them the most relevant Telecommunication Channels to be assessed in relation to the height and scale of a new development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

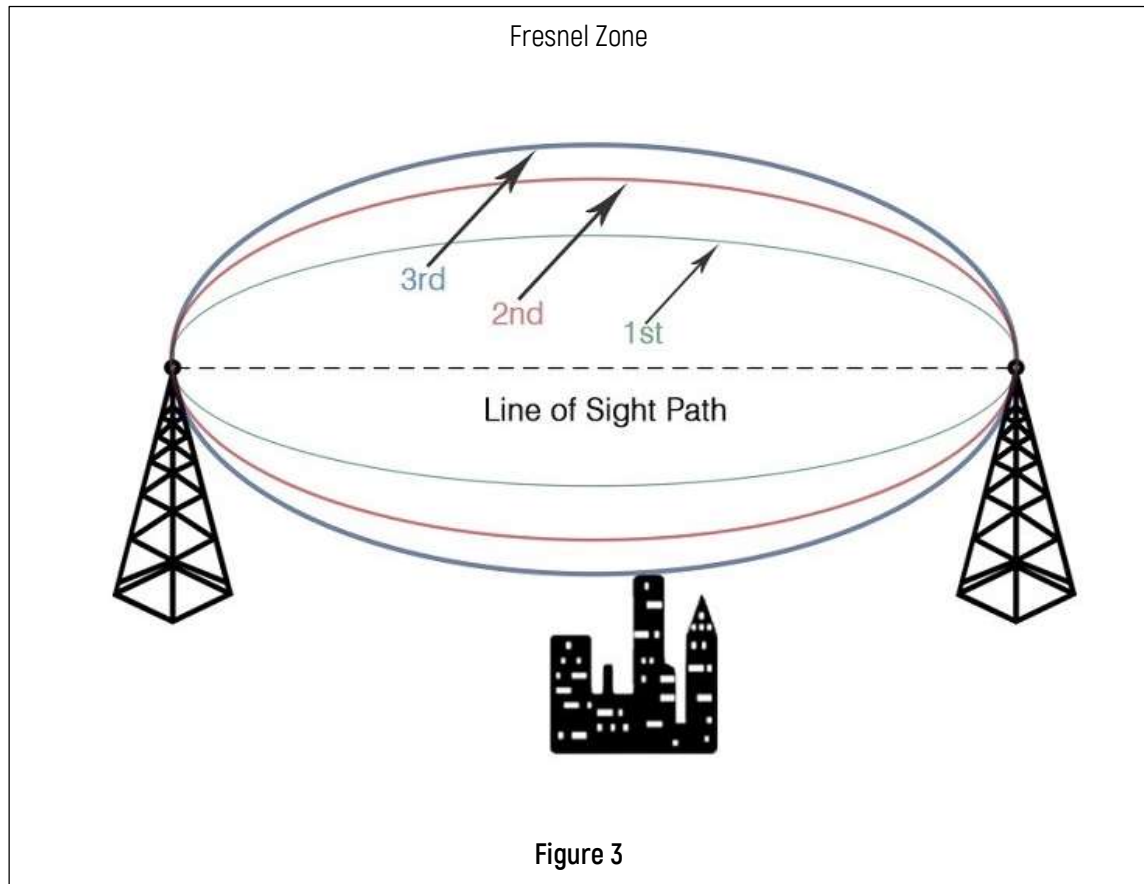




Cellular networks offer a number of desirable features, but most notably, additional cell towers can be added indefinitely and are not limited by the horizon, therefore it can be considered **indeterminable** as to whether a new development affects the Radio Frequency coverage of a geographical area 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 specific assessment identified 2No. Microwave links that will require the Applicant to make specific allowances for its retention ("Mitigation Measures").

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 and a request for information from telecommunication providers and where the visual survey proved inconclusive.

### Impacted Microwave links

- (1) 1 No. is a Microwave link installed by Vodafone
- (2) 1 No. is a Microwave link installed by Three Ireland

Both the 1No. Vodafone Microwave link and the 1No. Three Ireland Microwave link are installed on a telecommunication mast site located approximately 300m to the southeast of the proposed development site at Crumlin Village Garda Station.

This telecommunication mast site located on the Crumlin Village Garda Station is providing cellular coverage for the local business, residential and public areas along St Agnes Road in a 360° capacity

The identified Microwave links are situated at approximate above ground level heights of between 15-18m (AGL), therefore the proposed height of the Development will cause significant diffraction to these Microwave links.

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 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 typical cell pattern for urban Radio Frequency coverage. The walk test data determined that the business units and public road areas to the north, south, east & west of the Development are adequately covered by the cell sites identified in figure 6 and are not reliant on Radio Frequency coverage from any one cell that would be obstructed by the Development.

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 Microwave links that will be impacted by the Development, the Applicant is seeking planning permission to install 4No, 300mm Microwave Link dishes mounted on 2No. steel support poles affixed to the lift shaft overrun on Block A.

These 2No. support poles are sufficient to accommodate 2No. Ø.3m Microwave links each, which provides an adequate solution for the Applicant to mitigate the impact the Development will have on the identified Microwave links emanating from the neighbouring buildings to the north/northwest of the Development, as well as providing some capacity for future links that may or may not be required.

Refer to Figures 7 of the appendices for full analysis.



## APPENDICIES

Figure 4: Identification of neighbouring registered and documented telecommunication sites  
[Area Telecommunication Analysis]

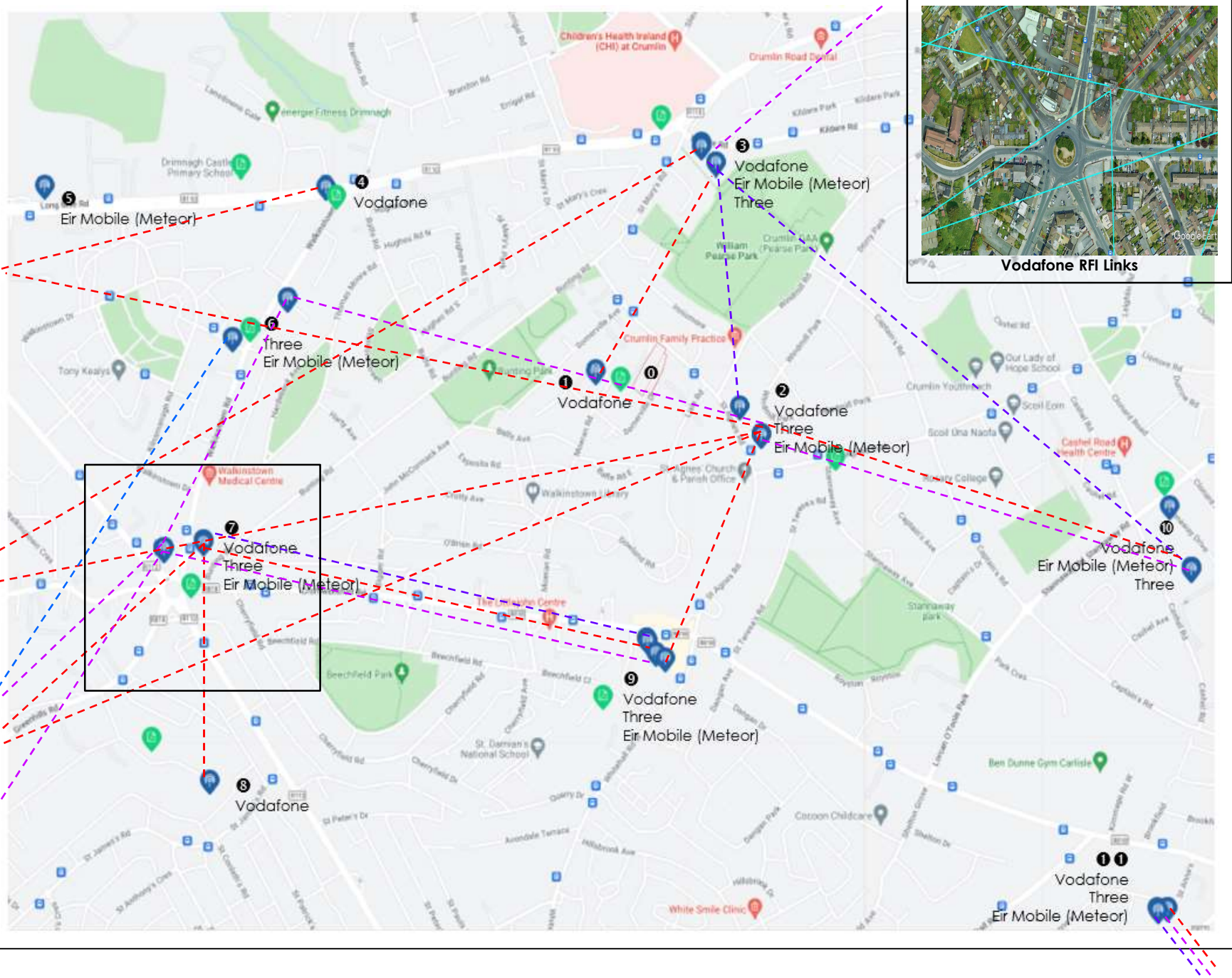
Figure 5: Identification of Microwave links disseminating from neighbouring registered and  
documented telecommunication sites (Microwave Link Analysis)

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

Figure 7: Mitigation Measures (if required in future)







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

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

FINAL

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SITE MANAGEMENT

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Client  
Seabren Developments Limited  
& Circle VHA CLG

Project  
Glebe House & Coruba Lands

Option	1
Date	07/06/2022
File Name	Glebe House & Coruba Lands

Drawing: Link Analysis			
Building	Drawing No.	Zone	Rev
SPN	D 0622		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
- 1 Somerville Park ESB
  - 2 Crumlin Village
- Multiple Cell IDs
- 3 Star Bingo
  - 4 Halfway House
- Multiple Cell IDs
- 5 Eir Street Furniture
  - 6 Walkinstown SV
  - 7 Walkinstown R-about
- Multiple Cell IDs
- 9 Ashleaf Shopping Ctr

FINAL

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Drawing:  
Cell Identification Analysis

Building	Drawing No.	Zone	Rev
SPN	D 0622		1

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## NOTE

The **Anife Walker Air** test kit was used to test and record the radio environment. This kit controls and logs the radio environment and the Cell ID the signal is coming from.

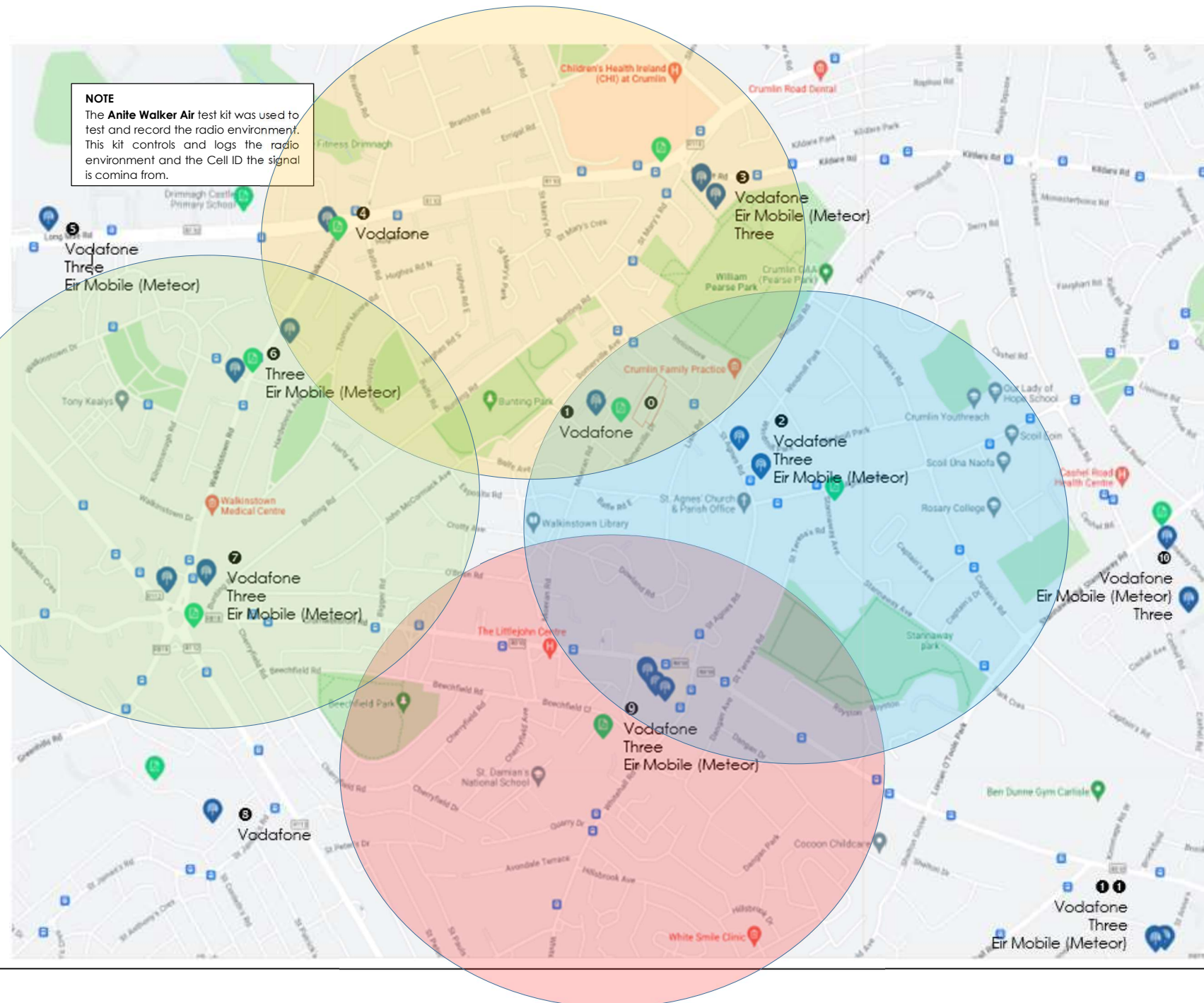


Figure 7

Mitigation Measure Design

Source: Comreg ISM

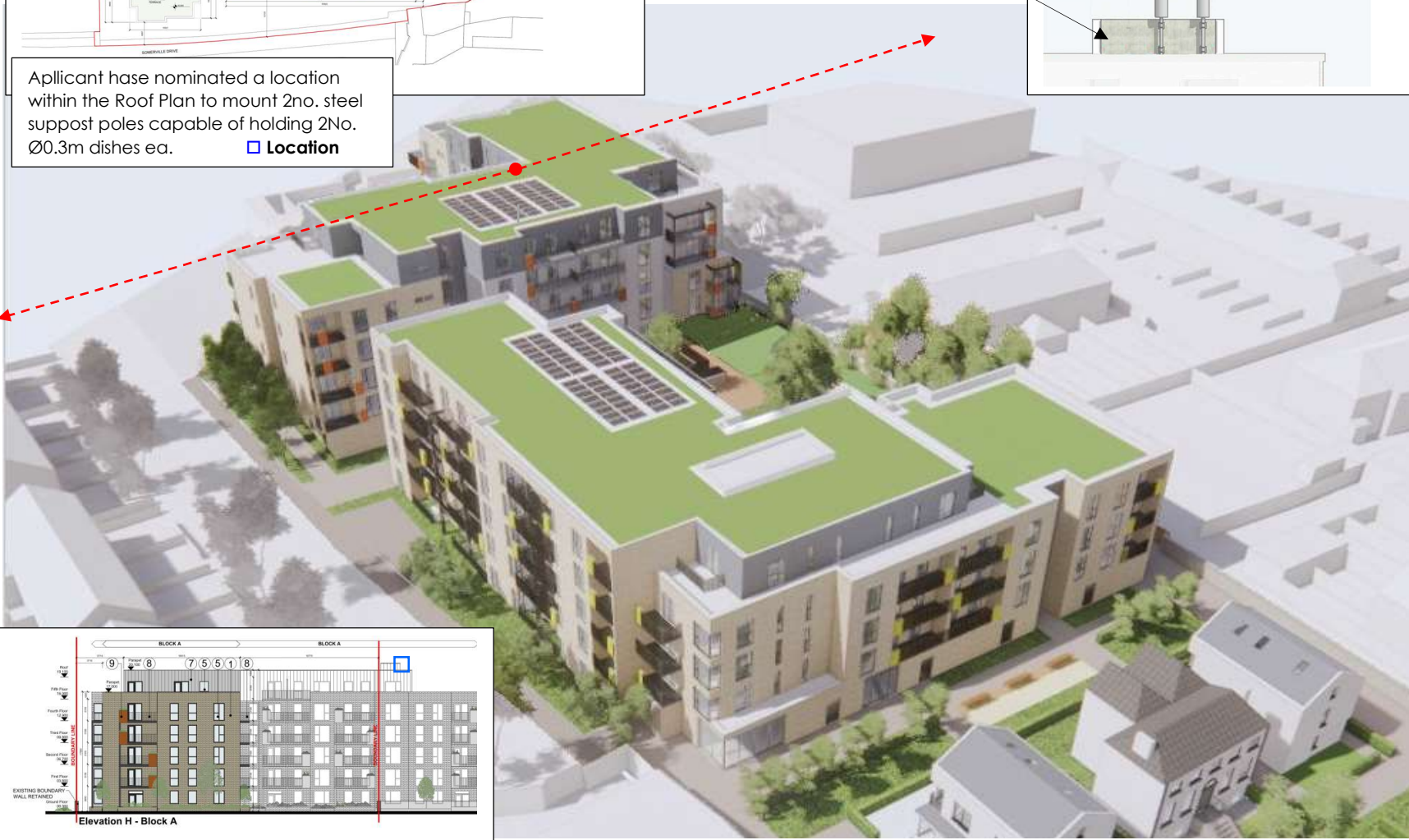
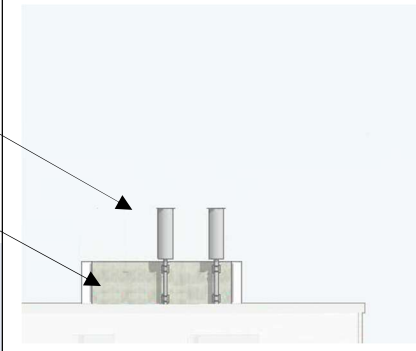


Applicant has nominated a location within the Roof Plan to mount 2no. steel support poles capable of holding 2No. Ø0.3m dishes ea. ■ Location

2No. Ø 0.3m Microwave link dishes mounted on 2no. steel support poles affixed to Lift shaft overrun and concealed with in radio friendly GRP shrouds

Lifts shaft Overrun

EXAMPLE



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

Typical Installation



- Transmission Link
- Location of Steel support Poles

FINAL

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Option	1
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Drawing:  
Mitigation Measure

Building	Drawing No.	Zone	Rev
SPN	D 0622		1

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