



## Telecommunications Impact Assessment Report

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### DEVELOPMENT SECTOR 3, AIKENS VILLAGE STEPASIDE, CO. DUBLINN

19 August 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>Report Date:</b>                | means the date which the assessment was carried out (hereinafter referred to as "Report Date")  |
| <b>The Applicant:</b>              | means Ironborn Real Estate Limited (hereinafter referred to as the "Applicant")   |
| <b>The Development:</b>            | means the proposed development situated at lands at Aikens Village in the Townlands of Woodside and Kilgobbin, Stepside, Co. Dublin (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 Ironborn Real Estate Limited (the "Applicant") within its submission to An Bord Pleanála (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 now operates 6 in-building distributed antenna systems, and 2 large area managed fibre optic networks.



## DEVELOPMENT DESCRIPTION

The development will consist of:

438no. 'Build-to-Rent' apartment units (154no. 1 bedroom units and 284no. 2 bedroom units) arranged in 9no. blocks ranging in height from 2 – 8 storeys over 2no. independent single level basements. Private patios / terraces and balconies are provided for some apartment units (not all units have a patio, terrace or balcony). Upper level balconies are proposed on elevations of all multi-aspect apartment buildings.

- Blocks A – D are located above Basement 1 (c. 6,002 sq. m gross floor area) and Blocks F – J are above Basement 2 (c. 5,058 sq. m gross floor area).
- Provision 1no. childcare facility (c. 514.9 sq. m gross floor area) in Block D.
- Provision of resident amenity space / communal areas (c. 1,455.7 sq. m gross floor area) in Block C and Block G.

And all associated and ancillary site development, infrastructural, landscaping and boundary treatment works including: -

- New vehicular access to / from Basement 1 from Atkinson Drive and new vehicular access to / from Basement 2 from Thornberry Road.
- Provision of c. 9,799 sq. m public open space, including a public plaza onto Village Road and improvement works to existing open space area to the north of existing Griannan Fidh residential development.
- Provision of 350no. car parking spaces including basement parking, set down spaces for proposed childcare facility and repositioning of set down area on Atkinson Drive.
- Provision of 669no. bicycle parking spaces.
- Provision of 14no. motorcycle parking spaces.
- Communal bin storage and plant provided at basement level and additional plant provided at roof level.

- Provision of below ground wastewater storage tank (c. 500m<sup>3</sup>) and associated connection to the wastewater networks including ancillary above ground kiosk and appropriate landscaping on open space lands to the south of Griannan Fìdh residential development.

## SITE LOCATION/LAYOUT MAP



Figure 1



## 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.

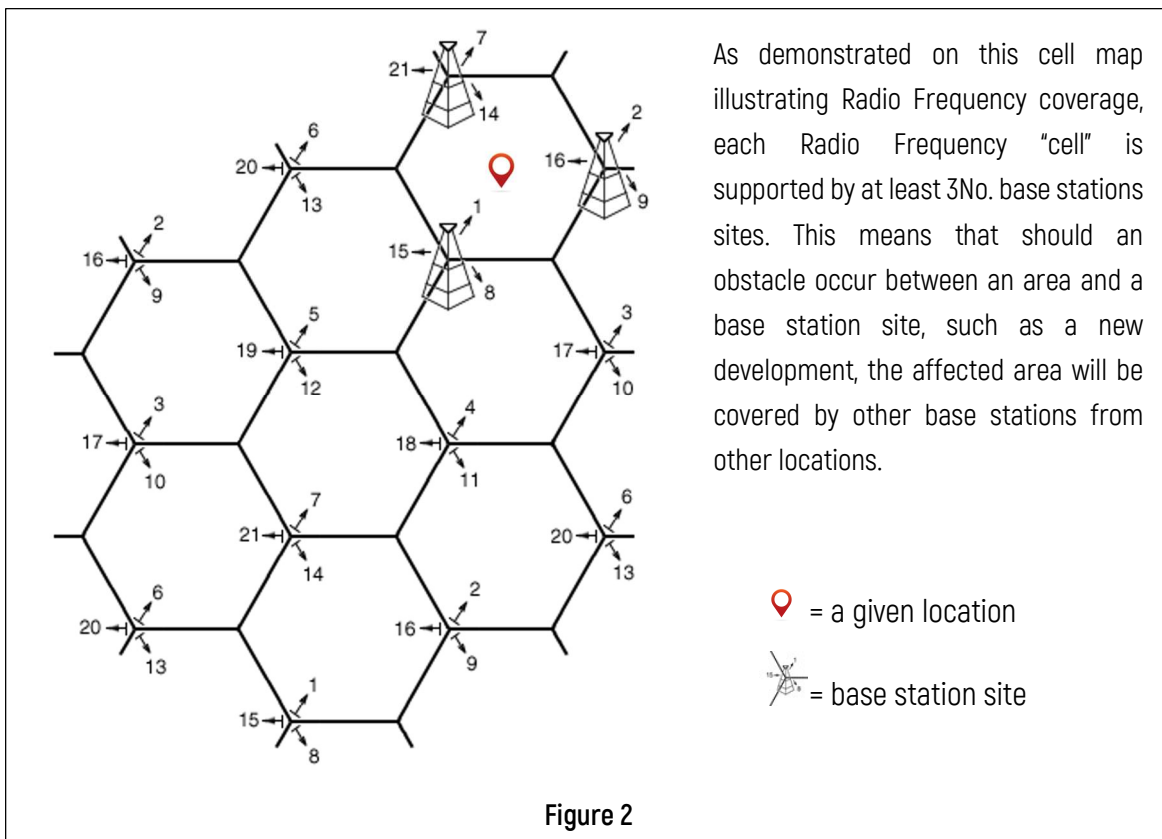
Radio Frequency links & Microwave Transmission Links are used in Ireland's mobile phone and fixed wireless networks and disseminate at an average above ground level height of 20m, making them the most relevant Telecommunication Channels to be assessed in relation to the height and scale of a new development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

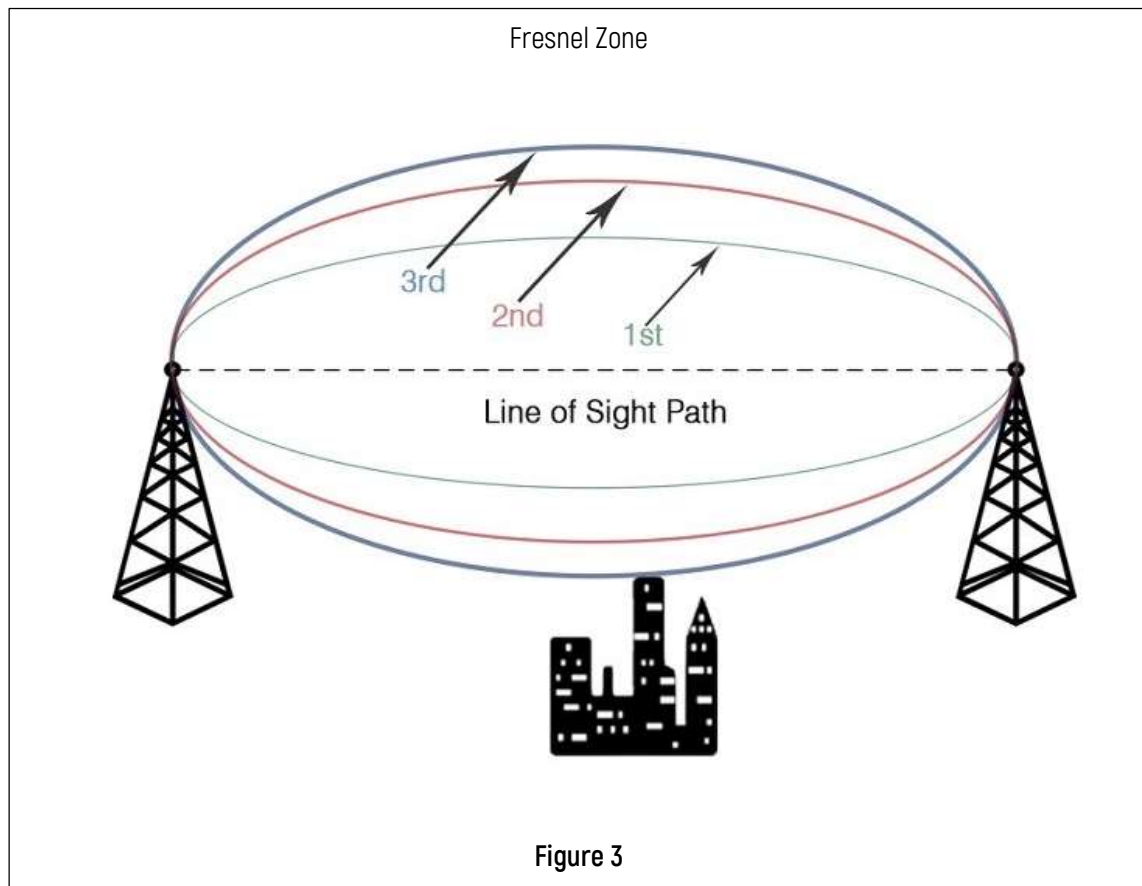




Cellular networks offer a number of desirable features, but most notably, additional cell towers can be added indefinitely and are not limited by the horizon, therefore it can be considered **indeterminable** as to whether a new development affects the Radio Frequency coverage of a geographical area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

Our assessment has not identified any Radio Frequency links that will be impacted by the height and scale of the Development.

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 Microwave Transmission links entailed both a visual survey of each identified neighbouring telecommunication site 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 6 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 typical cell pattern for semi-urban/semi-rural Radio Frequency coverage. The drive test data determined that the lands, residential and public road & amenity 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.

Lastly, we hasten to point out that the Development is in close proximity to Three Rock Mountain, which is home to a significantly high concentration of telecommunications channels, which are



predominantly microwave links. We can conclude that the Development will not impact these telecommunication channels as the height and site elevation are well below the above ground level heights of the telecommunication channels emanating from the masts on Three Rock Mountain.

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 and therefore we have not made any recommendations that the Applicant allow for, or implement any mitigating infrastructure relative the specific assessment in section 3.2 of the Urban Development and Building Heights Guidelines (December 2018).

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

## APPENDICIES

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

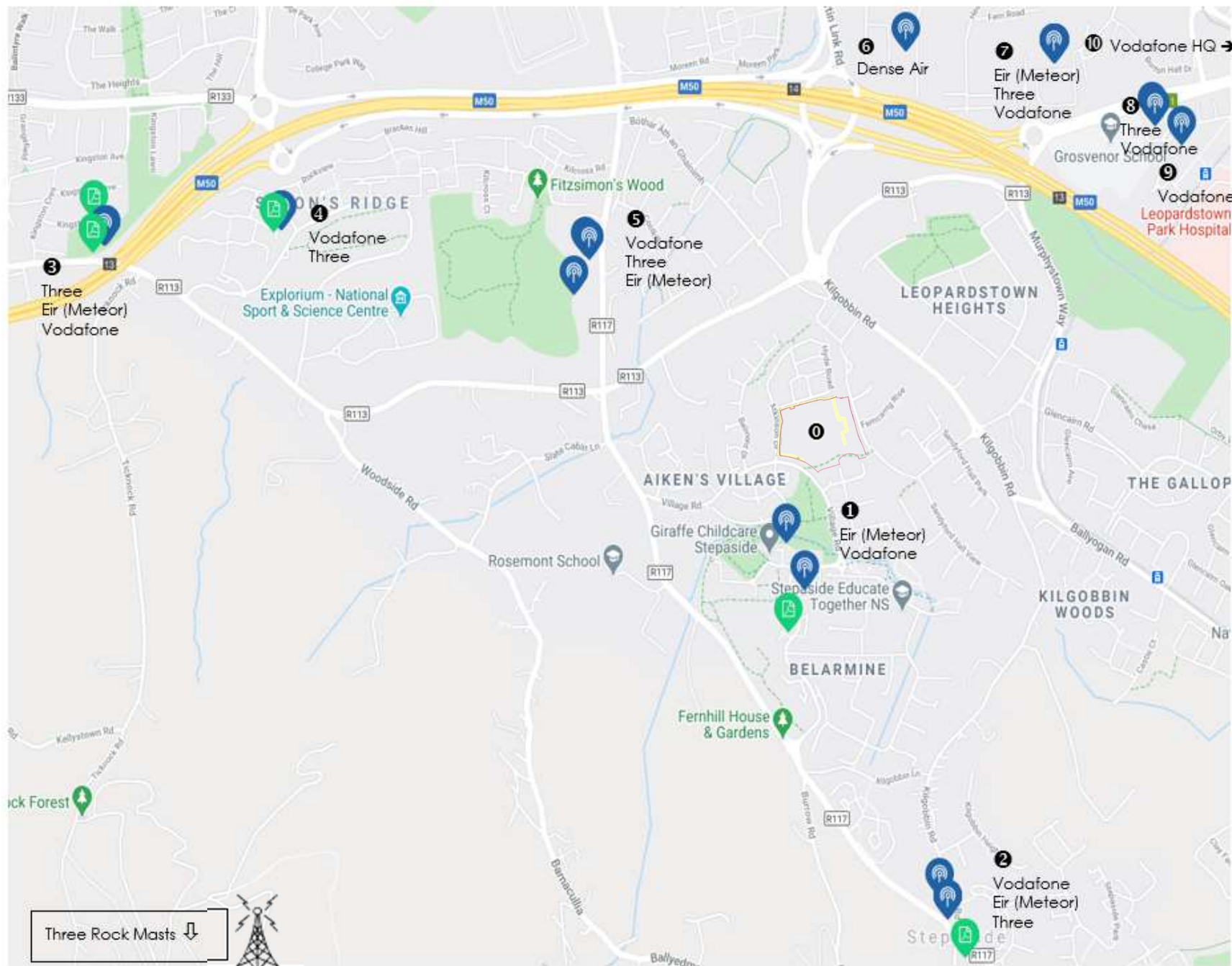
Figure 5: Identification of Microwave links disseminating from neighbouring registered and  
documented telecommunication sites (Microwave Link Analysis)

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

Figure 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 Belarmine Plaza
- 2 Stepside Garda Station
- 3 DLRCC Water Tower
- 4 Blackglan Medical
- 5 Sandford ESB Mast(s)
- 6 Sandford St furniture
- 7 ESB Leopardstown Mast
- 8 Clayton Hotel
- 9 Central Park
- 10 Vodafone Headquarters

\*Three Rock Mountain hosts a high concentration of telecommunication channels.

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Ironborn Real Estate Limited  
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Sector 3, Aikens Village

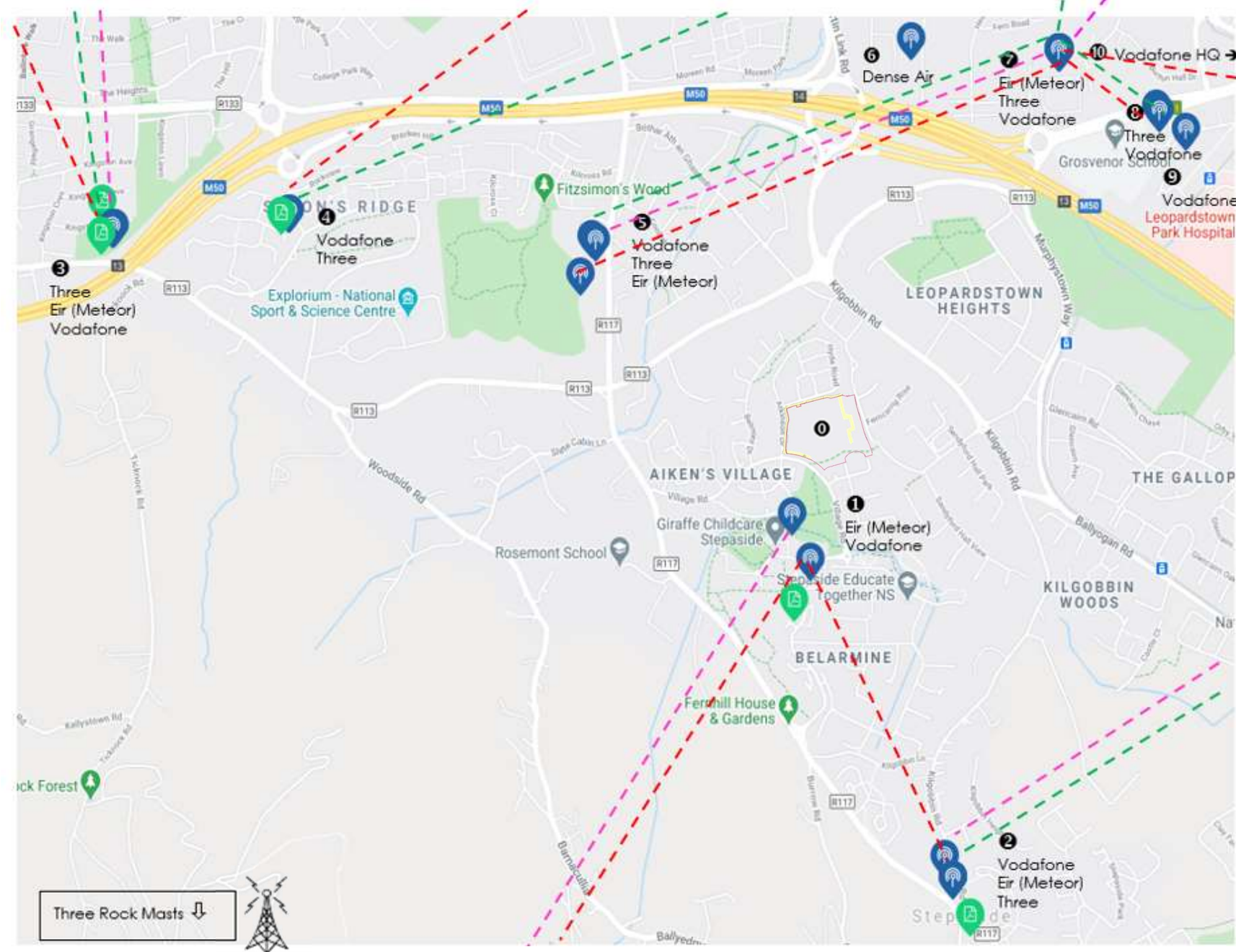
|             |                          |
|-------------|--------------------------|
| Option      | 1                        |
| Report Date | 10/08/22                 |
| File Name   | Sector 3, Aikens Village |

Drawing:  
Area Site Analysis

| Building | Drawing No. | Zone | Rev |
|----------|-------------|------|-----|
| SPN      | H 1022      |      | 1   |


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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

 Three Rock Mountain hosts a high concentration of telecommunication channels. It is not impacted by the development because of its height which far exceeds those sought by the applicant

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|               |             |      |     |
|---------------|-------------|------|-----|
| Drawing:      |             |      |     |
| Link Analysis |             |      |     |
| Building      | Drawing No. | Zone | Rev |
| SPN           | H 1022      |      | 1   |



Figure 6

Drive 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
- ③ DL RCC Water Tower
- ④ Blackglenn Medical
- Multiple Cell IDs
- ④ Blackglenn Medical
- ⑤ Sandford ESB Mast(s)
- One Cell IDs
- ② Stepside Garda Stat.
- One Cell IDs
- ① Belarmine Plaza
- Multiple Cell IDs
- ⑥ Sandford St furniture
- ⑦ ESB Leopardstown Mast
- ⑧ Clayton Hotel
- ⑨ Central Park
- ⑩ Vodafone HQ

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Drawing:  
Cell Identification Analysis

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|----------|-------------|------|-----|
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