14.0 MATERIAL ASSETS

14.1 Introduction

This Chapter of the EIAR has been prepared by Golder Associates Ireland Ltd (Golder). This Chapter of the EIAR addresses the construction and operational related impacts and effects of the Proposed Carmanhall Road SHD (the 'Proposed Development') on material assets located in the vicinity of the lands located at the former Avid Technology International site on Carmanhall Road, Sandyford Industrial Estate, Dublin 18, (the 'Site' / 'Application Site').

The following material assets assessment was prepared by Kevin McGillycuddy (BA (Mod), MSc). Kevin is a Practitioner Member of the Institute of Environmental Management and Assessment and has more than 8 years' experience in environmental consultation. Material assets comprise the physical resources in the environment, which may be of human or natural origin. Material assets in the vicinity of the Site comprise of built services and infrastructure such as surface water drainage, telecommunications, electricity, gas, water supply infrastructure and sewerage.

Other material assets include roads and traffic, which have been assessed in Chapter 11.0 of this EIAR.

14.2 Legislative Requirements

Directive 2011/92/EU (as amended by Directive 2014/52/EU, together the 'EIA Directive') requires that the developer provides a description of the factors (specified in Article 3(1)) which are likely to be significantly affected by the project, including a study of the potential impacts to material assets.

The 2014/52/EU Directive was transposed into Irish law through European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (SI No. 296 of 2018) which amended the Planning and Development Act, 2000, and the Planning and Development Regulations, 2001. This EIAR has been produced in accordance with these relevant legislative requirements and Statutory Instruments.

14.3 Assessment Methodology and Significance Criteria

14.3.1 Technical Scope

This assessment has been made with guidance from the 'Guidelines on the information to be contained in environmental impact assessment reports', published in 'draft' by the EPA in August 2017. The guidelines were drafted by the EPA with a view to facilitating compliance with the EIA Directive.

The EPA's 2017 draft 'Guidelines on the information to be contained in environmental impact assessment reports' suggest the following subheadings under which to arrange issues concerning 'Built Services'; *"Electricity, Telecommunications, Gas, Water Supply Infrastructure, Sewerage".*

The assessment also considered 'Advice Notes for Preparing Environmental Impact Statements', also published in 'draft' by the EPA in September 2015.

Having regard to the above guidance, particularly the EPA's 2017 draft 'Guidelines on the information to be contained in environmental impact assessment reports', and the characteristics and context of the lands that are the subject of this application, this EIAR chapter aims to identify the likely significant effects that the Development may have on 'built services' and these are discussed under the following headings:

- Electricity Network Utilities;
- Gas Infrastructure;
- Telecommunications;
- Potable Water Network;

- Foul Water Network; and
- Surface Water Network.

14.3.2 Prediction of Impacts and Effects Prior to Mitigation

This chapter of the EIAR describes the likely significant direct effects of the Proposed Development on the material assets surrounding the Proposed Development. The potential indirect/secondary, cumulative, do-nothing, worst case, indeterminable, irreversible, residual, and synergistic effects of the Proposed Development are also described, where appropriate. The extent, context and frequency of effects has also been considered in the assessment process.

Prediction methods are required to identify and assess the significant effects of the Development on the environment. The predictive method used for this assessment is a common framework of assessment criteria and terminology based on the EPA's 2017 draft 'Guidelines on the information to be contained in environmental impact assessment reports', with some adjustments to improve clarity.

This common framework follows a 'matrix approach' to environmental assessment which has been presented in Chapter 2 (Scope and Methodology) of this EIAR.

14.3.3 EIA Significance Terminology

As identified in Chapter 2 (Scope and Methodology) of this EIAR, a common framework of assessment criteria and terminology has been used based on the EPA's 2017 draft 'Guidelines on the information to be contained in environmental impact assessment reports'. This common framework follows a 'matrix approach' to environmental assessment which is based on the characteristics of the impact (magnitude and nature) and the value (sensitivity) of the receptor.

The assessment reported below is based on the common framework described in Chapter 2 of this EIAR. It has been assumed that the value (sensitivity) of the material assets is no greater than **Medium**, which equates to 'Medium or high importance and rarity, regional scale, limited potential for substitution' (see Table 2.3 of Chapter 2). This sensitivity has been assumed given the importance of the assets to users surrounding the Proposed Development, and their sensitivity to potential disruption from the impaired use.

A description of the significance categories used is provided in Table 14.1. Effects that are either Large or Profound are considered to be Significant, and effects that are Moderate, Slight or Imperceptible are considered to be Not Significant. How the level of effect is determined, based on the environmental value and magnitude of impact, is explained in Table 2.5 of Chapter 2.

Table 14.1: Significance categories and typical descriptions.

Significance Category	Typical Description
Profound	An effect which obliterates sensitive characteristics. Only adverse effects are usually assigned this level of significance. These factors are key issues in the decision-making and consent process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance which are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also be included in this significance category.
Large	An effect which, by its character, magnitude, duration or intensity alters a significant proportion of a sensitive aspect of the environment.

Significance Category	Typical Description
	These can be beneficial or adverse effects and are considered to be very important issues which are likely to be substantial in the decision-making process.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. These are beneficial or adverse effects which may be important but are not likely to be central to decision-making or consent. The cumulative effects of these factors may influence consent or decision-making if they should lead to an increase in the overall adverse effect on a particular resource or receptor.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities. These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the project.
Imperceptible	An effect capable of measurement but without significant consequences. No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

14.3.4 Information Sources

Information for the assessment of potential impacts on the identified material assets was obtained by means of a desk-based review, and included the following sources:

- ESB network utility plans;
- Gas Networks Ireland utility plans;
- Eir CYBD mapping;
- Irish water utility mapping;
- Field surveys of the Application Site;
- Department of Communication, Climate Action and Environment (DCCAE) Eircode maps; and
- Aerial and ordnance survey maps of the area.

Further information has been sourced from the IN2 ‘Utilities Report’ and the AECOM ‘Stage 3 Planning Application to An Bord Pleanála Infrastructure Report’ submitted alongside this EIAR in the overall SHD Application for the Proposed Development.

14.3.5 Temporal Scope

Under the current programme, it is expected that the duration of construction will last for approximately 24 months. The duration of the construction phase is therefore classified as ‘short-term’ by the EPA in their 2017 draft ‘Guidelines on the information to be contained in environmental impact assessment reports’ (one to seven years).

The operational phase of the Development will follow and will be a ‘permanent’ duration (those lasting greater than sixty years).

A decommissioning phase for the Development has not been considered due to the 'permanent' nature of the development. The EIA has been based on these assumptions.

14.3.6 Geographical Scope

The EIA directly covers the physical extent of the Site as shown in the red line boundary plan (Figure 14.1).

In the assessment of cumulative impacts, the geographical extent of the EIA has been extended as appropriate to include the relevant related or unrelated development activities.

Figure 14.1: Carmanhall Road SHD Application Site Boundary.

14.3.7 In-built Design Mitigation

Embedded design parameters have in-built to the design of the Proposed Development. Such measures include the design of the surface water infrastructure in accordance with the principles of SuDS (sustainable drainage systems) as embodied in the recommendations of the GDSDS (Greater Dublin Strategic Drainage Strategy). Furthermore energy efficiency has been in-built in the project design to lower the demand on existing infrastructure.

14.4 Existing Environment

The Site is located in south county Dublin, within the administrative area of Dún Laoghaire Rathdown County Council (DLRCC). Specifically, the Proposed Development Site is located on a brownfield site where a former commercial premise was recently demolished. The Site lies within the Sandyford Industrial Estate which is composed of retail, warehousing units, industrial uses and office buildings.

Carmanhall Road abuts the Site's northern boundary and Blackthorn Road abuts the Site's eastern boundary. The site immediately south of the subject site is occupied by a four-storey office building and the site immediately

west is occupied by a double storey office building. Vehicular access is provided in the north-western corner of the Site via a crossover to Carmanhall Road. The Site slopes from south to north towards Carmanhall Road.

14.5 Baseline Conditions

14.5.1 ESB Network Utilities

A service map was received from the ESB Networks on 21 April 2020 detailing both the layout of underground and overhead ESB lines onsite and in the locality. The local service layout has been provided in Figure 14.2.

The service map provided by ESB indicates that an underground 10KV/20KV line travels along the northern (Carmanhall Road), eastern, and southern (Blackthorn Drive) boundary of the Proposed Development.

An underground 38KV and higher voltage cable is routed into the east of the Site from Burton Hall Road.

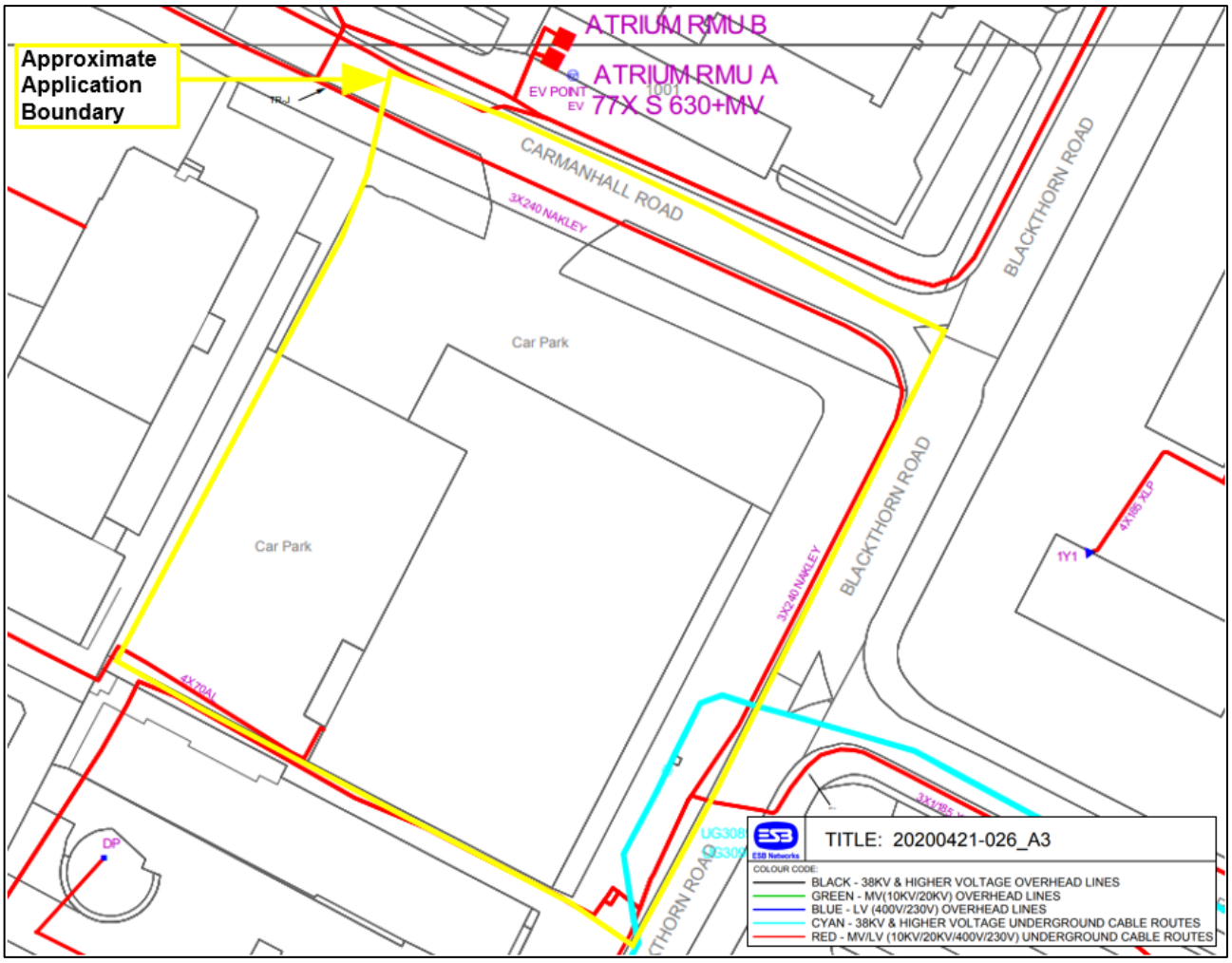

Figure 14.2: ESB Service Layout surrounding the Carmanhall Road SHD.

14.5.2 Gas Supply

A service map was received from Gas Networks Ireland (GNI) on 04 December 2020 detailing the layout of the underground gas lines in the locality.

The local service layout has been provided in Figure 14.3.

The service map provided by GNI indicates that an underground 125 PE 4 bar medium pressure distribution line travels along the northern (Carmanhall Road), eastern, and southern (Blackthorn Drive) boundary of the Proposed Development. It should be noted that the GNI service map indicates that this line is '*unverified*'.

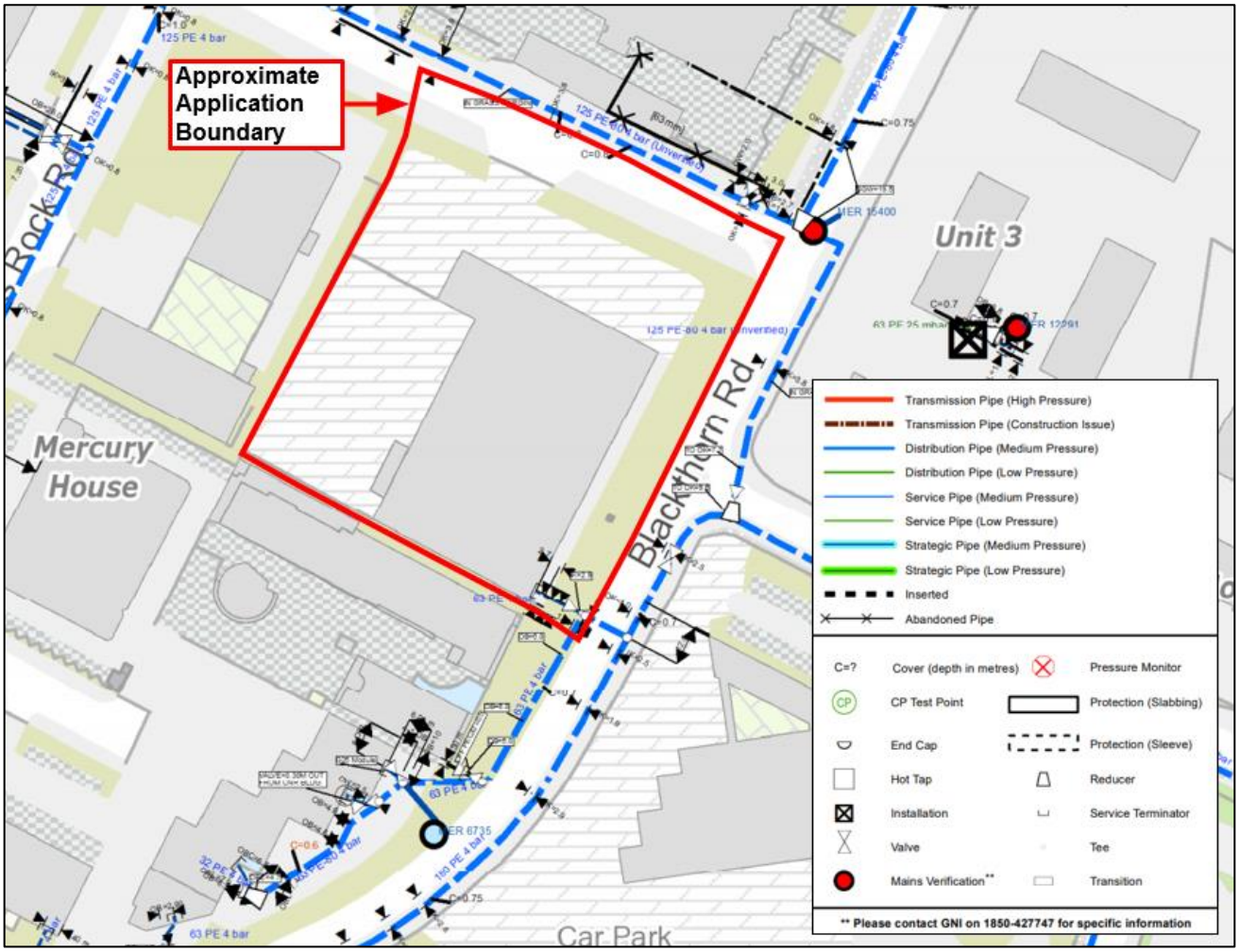

Figure 14.3: GNI Service Layout surrounding the Carmanhall Road SHD.

14.5.3 Telecommunications Network

14.5.3.1 Wired Telecommunications

The location of the existing telecommunications networks has been provided in Figure 14.4. Mapping has been sourced from the Eir CBYD online mapping request portal (04 December 2020).

The Eir telecommunication services can be seen to extend along the northern (Carmanhall Road), eastern, and southern (Blackthorn Drive) boundary of the Proposed Development. An existing service connection enters the Site along the east (opposite the junction with Burton Hall Road).

Virgin Media infrastructure has been identified in the IN2 Utilities Report (2021). Similar to the other telecommunication services the Virgin Media line can be seen to extend along the northern (Carmanhall Road), eastern, and southern (Blackthorn Drive) boundary of the Proposed Development, and an existing connection enters the Site on the east.

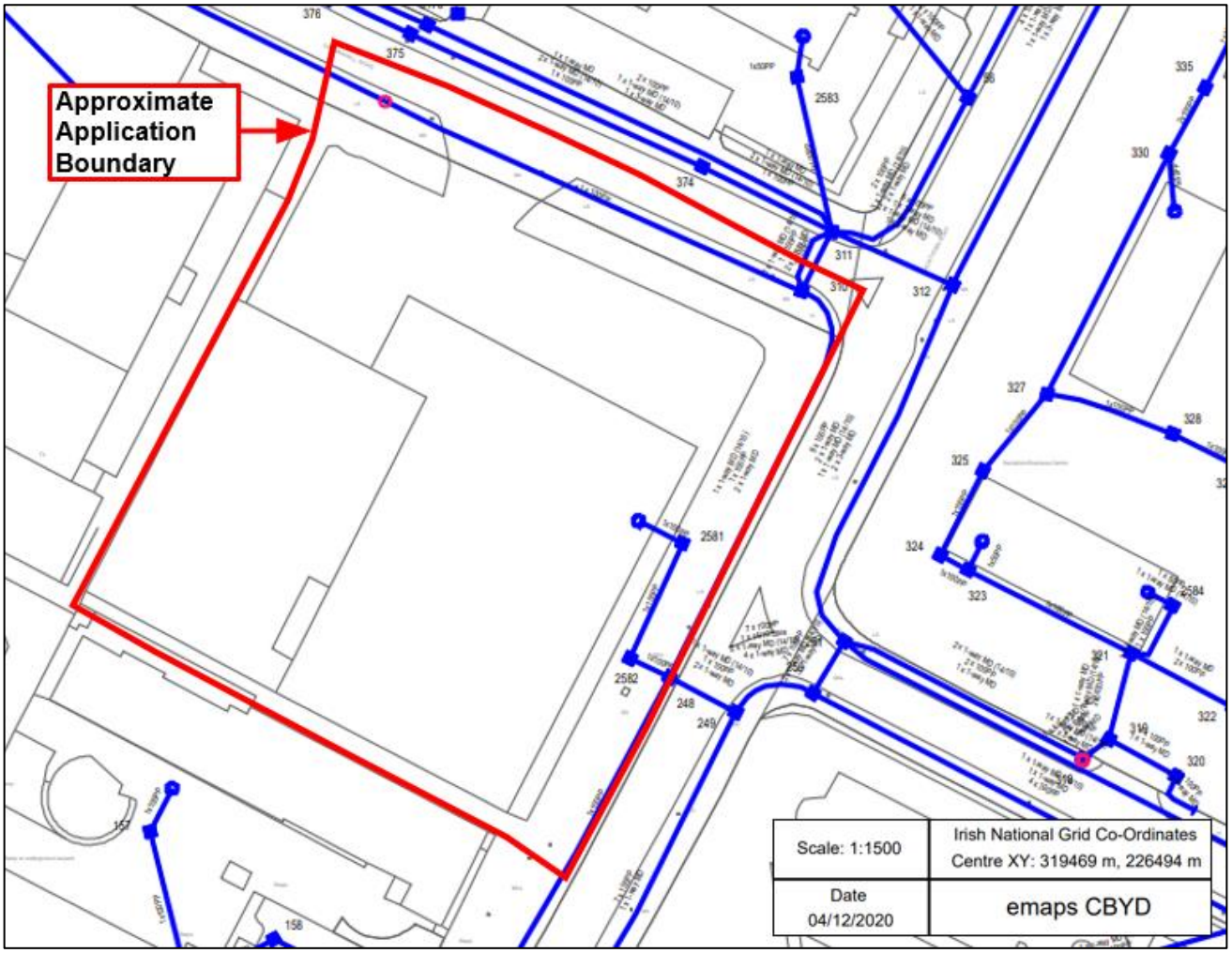

Figure 14.4: Eir Service Layout surrounding the Carmanhall Road SHD.

14.5.3.2 Microwave Link/Channel and Cellular Networks

Independent Site Management Limited (ISM) were commissioned to review and assess the Proposed Development in order to establish the potential effects on important telecommunication channels, (such as microwave links) in the vicinity of the Site.

ISM have identified 3 no. telecommunication channels surrounding the Site that will be affected by the height and scale of the Proposed Development. These channels are:

- 1 no. telecommunication channel link dish installed by Three Mobile;
- 1 no. telecommunication channel link dish installed by Vodafone; and
- 1 no. telecommunication channel link dish which is a legacy link installed by O_2.

The above infrastructure items have been identified in Figure 14.5. These microwave links are installed on three telecommunications sites located across Carmanhall Road to the north and northeast of the Proposed Development. These sites provide cellular cover to the immediate local area business on Carmanhall Road, Blackthorn Road, Three Rock Road, Arkle Road, Ballymoss Road and Corrig Road, and also Blackthorn Avenue and the Luas line traffic. It has been noted by ISM that the legacy link installed by O_2 on the former Microsoft, now Facebook office building, is scheduled for decommission in the forthcoming months.

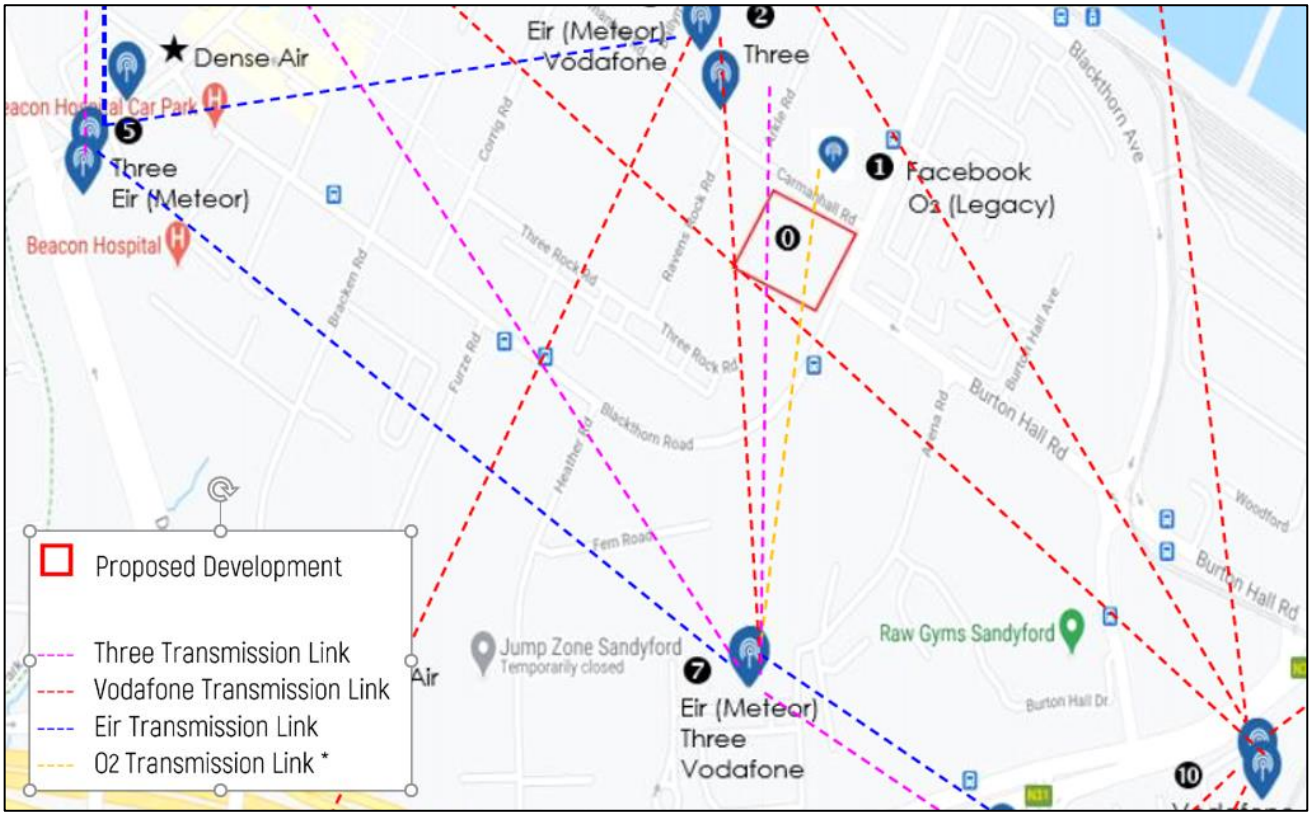

Figure 14.5: Microwave Links surrounding the Carmanhall Road SHD (ISM Limited 2021).

14.5.4 Foul Water Network

The AECOM 'Planning Application Infrastructure Report' indicates that an existing 225 mm diameter clay wastewater line is located on Carmanhall Road to the north of the Site. A further 225 mm diameter clay wastewater line is located northwards beyond Carmanhall Road on Arkle Road. These locations were confirmed by the GPR survey in April 2020. An existing 150 mm uPVC connection enters the Site at the current access point in the north of the Site.

14.5.5 Potable Water Network

The location of the existing potable water networks has been identified in the AECOM 'Stage 3 Planning Application to An Bord Pleanála Infrastructure Report'. The reporting identifies that a 14-inch diameter (355.6 mm) asbestos cement watermain is present on Carmanhall Road and a 6-inch diameter (152.4 mm) asbestos cement watermain is present in both Carmanhall Road and Blackthorn Avenue. A 101.6 mm diameter asbestos cement connection to the Site from the 6-inch diameter in Blackthorn Avenue was also identified.

14.5.6 Surface Water Drainage Infrastructure

The AECOM 'Stage 3 Planning Application to An Bord Pleanála Infrastructure Report' indicates (from Dún Laoghaire-Rathdown County Council records) that there is an existing 450 mm diameter public surface water sewer located on Carmanhall Road. This location was confirmed by a ground penetrating radar (GPR) survey conducted in April 2020.

A separate existing 375 mm public surface water sewer is located on Blackthorn Avenue, which then turns to continue along Burton Hall Road. The Site is currently connected to the junction manhole on Blackthorn Avenue.

14.6 Characteristics of the Proposed Development

Construction of the Proposed Development is expected to last for approximately 24 months. The operational phase of the Proposed Development will follow and will be of a 'permanent' duration (i.e. lasting greater than 60 years).

The Proposed Development will comprise of:

(i) construction of a Build-To-Rent residential development within a new part six, part eight, part nine, part eleven storey rising to a landmark seventeen storey over basement level apartment building (40,814sq.m) comprising 428 no. apartments (41 no. studio, 285 no. one-bedroom, 94 no. two-bedroom & 8 no. three-bedroom units) of which 413 no. apartments have access to private amenity space, in the form of a balcony or lawn/terrace, and 15 no. apartments have access to a shared private roof terrace (142sq.m) at ninth floor level;

(ii) all apartments have access to 2,600sq.m of communal amenity space, spread over a courtyard at first floor level and roof terraces at sixth, eighth and ninth floor levels, a 142sq.m resident's childcare facility at ground floor level, 392sq.m of resident's amenities, including concierge/meeting rooms, office/co-working space at ground floor level and a meeting/games room at first floor level, and 696sq.m of resident's amenities/community infrastructure inclusive of cinema, gym, yoga studio, laundry and café/lounge at ground floor level. The café/lounge will primarily serve the residents of the development and will be open for community use on a weekly/sessional basis;

(iii) provision of 145 no. vehicular parking spaces (including 8 no. mobility parking spaces, 2 no. club-car spaces and 44 no. electric charging spaces), 5 no. motorcycle parking spaces, bin stores, plant rooms, switch room and 2 no. ESB sub-stations all at ground floor level; provision of bicycle parking (752 no. spaces), plant and storage at basement level; permission is also sought for the removal of the existing vehicular entrance and construction of a replacement vehicular entrance in the north-western corner of the site off Carmanhall Road;

(iv) provision of improvements to street frontages to adjoining public realm of Carmanhall Road & Blackthorn Road comprising an upgraded pedestrian footpath, new cycling infrastructure, an increased quantum of landscaping and street-planting, new street furniture inclusive of bins, benches and cycle parking facilities and the upgrading of the existing Carmanhall Road & Blackthorn Road junction through provision of a new uncontrolled pedestrian crossing; and,

(v) All ancillary works including provision of play equipment, boundary treatments, drainage works - including SuDS drainage, landscaping, lighting, rooftop telecommunications structure and all other associated site services, site infrastructure and site development works. The former Avid Technology International buildings were demolished on foot of Reg. Ref. D16A/0158 which also permitted a part-five rising to eight storey apartment building. The development approved under Reg. Ref. D16A/0158, and a subsequent part-seven rising to nine storey student accommodation development permitted under Reg. Ref. PL06D.303467, will be superseded by the Proposed Development.

14.7 Potential Effects

This section considers the potential effects that may occur on surrounding material assets as a result of the Proposed Development during construction stage, operational stage and also any potential effects in a 'Do Nothing' scenario if the Development were not to proceed.

The occurrence of unplanned events (accidents and disasters) has been considered in Chapter 3 (Project Description) of this EIAR.

14.7.1 ESB network utilities

Construction Phase

During the construction phase electrical power will be supplied by ESB Networks from their existing supply lines. Pre-development authorisation will be sought from ESB Networks and any alterations to the existing lines will be carried out in accordance and agreement with ESB Networks.

Construction phase activities may require temporary enabling works to facilitate connections to the local electrical supply network.

The appointed Main Contractor will be required to produce a final Construction Management Plan, which will document appropriate procedures and responsible persons when working on and around utilities and services infrastructure within and around the Site.

An existing low-voltage ESB underground connection will need to be removed from the Site. One new ESB double sub-station and one new ESB single sub-station have been proposed within the footprint of the Proposed Development. These will cater for all the electricity supplies required for the new Development.

All works to the electrical power lines during the construction phase will be carried out in accordance with appropriate requirements and ESB Network guidelines. Locations and capacity of the network services will be agreed in consultation with ESB Networks.

With the above construction management controls, potential impacts from these connection activities on the local electrical supply network are likely to be **negligible** resulting in effects that are brief/temporary and **imperceptible**.

Operational Phase

There will be an increased demand in electricity supply required during the operational phase of the Proposed Development. Initial contact has been made by IN2 with the ESB and it was identified that there are currently no issues with the provision of the required power to the Proposed Development.

The potential impacts from the increased electricity demand on the local electrical supply network are therefore likely to be **negligible** resulting in effects that are permanent and **imperceptible**.

14.7.2 Gas Supply

The utility strategy for the Proposed Development at Carmanhall Road is a centralised plant solution utilising gas fired boilers with an Air source heat pump and combined heat and power. Therefore, a gas connection will be required for the Site.

Construction Phase

Construction phase activities will require access to GNI infrastructure to facilitate connections to the local gas network. Prior to the commencement of the construction phase the routing of services and potential interactions will be re-clarified by the Main Contractor with GNI in the interest of safety.

Works on and around the gas transmission lines will be conducted in accordance with the Main Contractor's final Construction Management Plan and the GNI '*Code of Practice for Working in the Vicinity of the Transmission Network'.*

It is considered that there will be **negligible** impacts on the surrounding GNI infrastructure and supply as a result of the construction phase of the Proposed Development. The effects will be brief/temporary and **imperceptible** given the above construction management controls which will be employed.

Operational Phase

There will be an increased demand in gas supplies required during the operational phase of the Proposed Development.

Initial contact has been made by IN2 with GNI, and they have provisionally confirmed that sufficient capacity exists in the local gas network to serve the Proposed Development.

The potential impacts from the increased gas supply demand on the local gas supply network are therefore likely to be **negligible** and the effects permanent and **imperceptible**.

14.7.3 Telecommunications

14.7.3.1 Wired Telecommunications

It is proposed to provide a new Landlord comms room in the basement where all incoming Telecoms providers will terminate their incoming cables. A new Virgin media chamber will be required. This will be connected with a new duct to the basement for future incoming telecom services.

All existing Eir cable connections will be removed from the Site and a new fibre cable connection will be provided. Additionally, there is currently a Virgin Media connection to the Site that will be disconnected and removed prior to the commencement of the main construction phase.

Construction Phase

Construction phase activities will require access to the local telecommunications networks to facilitate connections.

Works on and around the telecommunication utilities will be conducted in accordance with the Main Contractor's final Construction Management Plan and the appropriate service provider's Codes of Practice.

As construction works would be managed effectively and in accordance with provider practices it is considered that any negative impacts would be **negligible**. The effects would be brief/temporary and **imperceptible** to the surrounding users.

Operational Phase

Initial contact has been made by IN2 with the providers and it was confirmed that Eir and Virgin Media infrastructure to the surrounding area is sufficient to service the Development subject to final agreement with these providers.

During the operational phase of the Development, it is considered that there will be a positive long-term/permanent impact on the telecommunication services surrounding the Site. The surrounding telecommunication lines and infrastructure will benefit from the upgrade works required to service the Proposed Development. Impacts on demands of the network are considered to be **negligible** and effects **imperceptible** and long term/permanent.

14.7.3.2 Microwave Link/Channel and Cellular Networks

The microwave link dishes identified are located at 30 m above ground level and are therefore affected by the height of the Proposed Development. The microwave links (Three and Vodafone) will experience impact or diffraction which will render them ineffective.

The impact will cause the operators on their own accord to re-align the microwave links to alternate hop sites, and in the unlikely event the operators cannot find such alternative Sites the Applicant is committed to assisting in mitigating the issues. This design measure has been identified in the layout of the Proposed Development and will involve the location of a fixed 3 m pole to the lift shaft at Core 4 which will be able to accept 6 no. 300 mm replacement microwave dishes (together with associated equipment at its base; ISM, 2021).

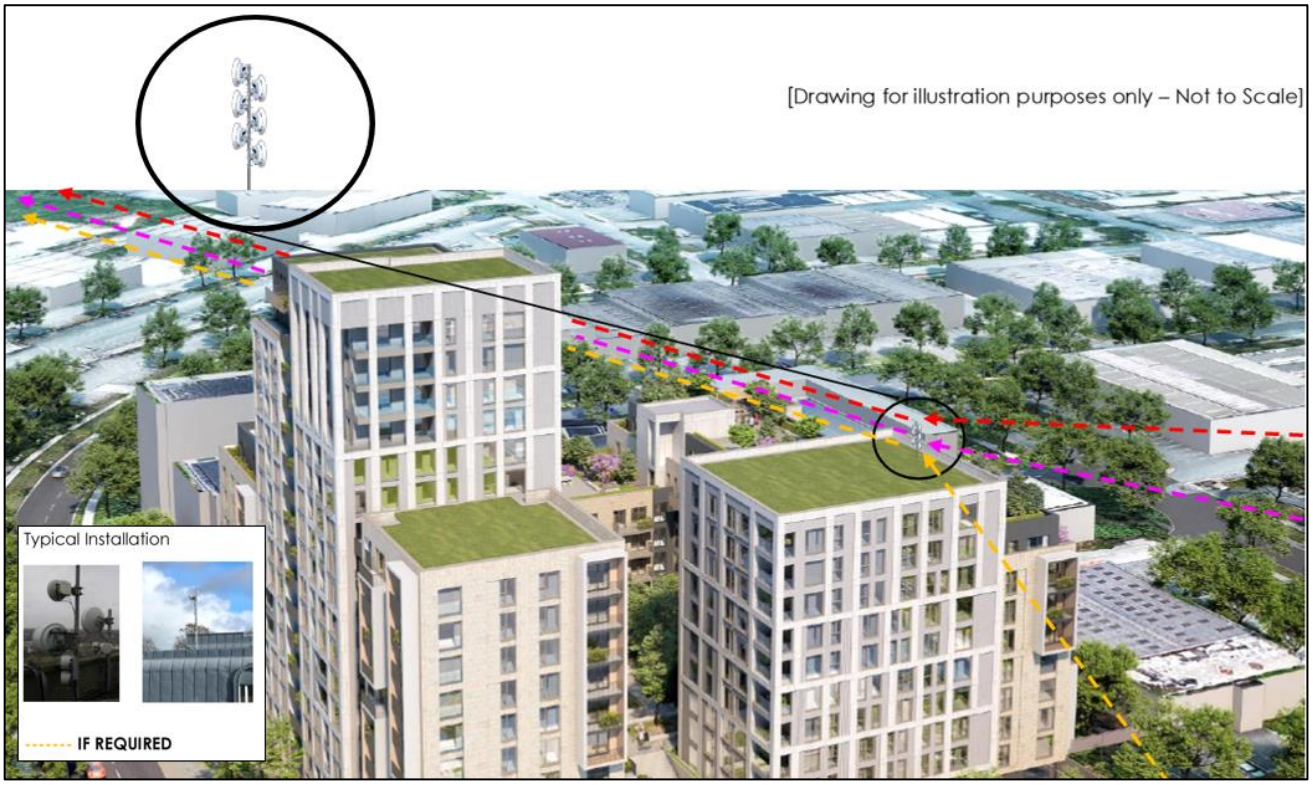

Figure 14.6: Microwave Links surrounding the Carmanhall Road SHD (ISM Limited 2021).

Construction Phase

When works progress to heights which may impact the microwave links then these will be conducted in consultation with the relevant microwave link operator. The installation of the design measures outlined above will be implemented as required.

As construction works would be managed effectively and in consultation with the relevant operators it is considered that any negative impacts would be **negligible**. The effects would be brief/temporary and **imperceptible** to the surrounding users.

Operational Phase

If the design measures are required to be implemented during the construction phase then these will be managed in the transition to and during the operational phase of the Proposed Development. Maintenance of the microwave linkage infrastructure will be carried out by the relevant operators and facilitated by the Property Management Company.

During the operational phase of the Proposed Development it is considered that impacts on the microwave linkages will be **negligible** and effects **imperceptible** and long term/permanent.

14.7.4 Foul Water Network

The Proposed Development will require a foul water connection to the local network to service the 428 No. residential units and other communal facilities within the Development.

A pre-connection enquiry was submitted by AECOM to Irish Water (Reference No: CDS20000844; 06 February 2020) for the Proposed Development. Irish Water issued a Confirmation of Feasibility (14 August 2020; please see the 'Stage 3: Planning Application Infrastructure Report' submitted with this SHD Application), which required the wastewater connection to be made to the foul sewer on Arkle Road (north of the Site). AECOM surveys for this sewer found that the furthest upstream pipe was blocked/capped and it is now proposed to

connect to the sewer at the next manhole downstream. Irish Water confirmed that a Statement of Design Acceptance had been issued to AECOM for the updated development following the An Bord Pleanála opinion.

Construction Phase

Construction phase activities will require access to the local foul water network to facilitate connections. Works on and around the network will be conducted in accordance with the Main Contractor's final Construction Management Plan and the Irish Water Code of Practice for such works. Works on these services will also include provisions for off-site works on Arkle Road and the potential interaction with the public and traffic.

As these construction works would be managed effectively and in accordance with the CMP it is considered that any impacts would be **negligible**. Effects will be brief/temporary and **imperceptible** to the surrounding users.

Operational Phase

As noted, Irish Water have confirmed that a Statement of Design Acceptance had been issued to AECOM for the updated development following the An Bord Pleanála opinion (18 November 2020).

To service the Proposed Development, it is proposed to connect to the existing 225 mm diameter clay wastewater sewer at Arkle Road. AECOM's design has been undertaken following Irish Water's Code of Practice for Wastewater Infrastructure. The proposed foul loading on the wastewater associated with the Development is based on the national average population equivalence (PE) of 2.7 persons per dwelling.

It is understood that foul water will be processed at the wastewater treatment plant at Ringsend in Dublin. In April 2019 Irish Water was granted planning permission for an upgrade to the Ringsend facility[1]. This will see improved treatment standards and will increase network capacity by 50%, with a target completion date of 2023 in time to address additional loading from new residential units as consented by this Project.

Irish water have confirmed acceptance of the design of the system and potential impacts on the local foul water network are likely to be **negligible** and effects permanent and **imperceptible**.

14.7.5 Potable Water Network

The Proposed Development will require a potable water supply connection to the local network to service the 428 No. residential units and other communal facilities within the Development.

As per the foul water pre-connection enquiry submitted by AECOM, Irish Water issued a Confirmation of Feasibility for the Proposed Development. Irish Water identified additional requirements with An Bord Pleanála subsequent to the Confirmation of Feasibility where further submissions are to be agreed if the Proposed Development includes proposals to build over or divert existing water or wastewater services. AECOM have obtained a Diversion Confirmation of Feasibility from Irish Water.

Construction Phase

Construction phase activities will require access to the local water supply network to facilitate connections. The existing asbestos cement supply connection to the Site is proposed to be removed and replaced with a 150 mm connection between the existing 6-inch (152.4 mm) asbestos cement watermain in Carmanhall Road and the existing 6-inch (152.4 mm) asbestos cement watermain in Blackthorn Road. In addition, one fire hydrant is proposed to be removed as part of decommissioning the existing connection. Two new hydrants are proposed to serve the Development. The AECOM design has been undertaken in accordance with Irish Water's Code of Practice for Water Infrastructure.

[1] https://www.water-technology.net/projects/ringsend-wastewater-treatment-plant-upgrade-project/

Works on and around the water supply network will be conducted in accordance with the Main Contractor's final Construction Management Plan and the appropriate Irish Water Code of Practice.

As works would be managed effectively and in accordance with the Main Contractor's CMP it is considered that impacts would be **negligible**. Effects will be brief/temporary and **imperceptible** to the surrounding users.

Operational Phase

As noted, Irish Water have confirmed that a Statement of Design Acceptance had been issued to AECOM for the updated development following the An Bord Pleanála opinion. The average water supply has been estimated to be 2.01 l/s, with a total peak of 12.5 l/s.

The potential impacts from the increased demand on the water supply network are likely to be **negligible** and effects permanent and **imperceptible**.

Surface Water Drainage Infrastructure

Specifications for the surface water infrastructure have been provided in the AECOM 'Stage 3 Planning Application to An Bord Pleanála Infrastructure Report' submitted with this SHD Application.

It is proposed that surface water discharge from the Proposed Development will be to the existing 450 mm diameter concrete surface water sewer on Carmanhall Road. This will be facilitated by a new connection to the existing manhole. It is also proposed to decommission the existing connection. The proposed storage network to serve the Proposed Development has been designed and modelled for the 1 in 100-year storm event, with an allowance of 20% for climate change, as required in the Greater Dublin Strategic Drainage Study (GDSDS; please refer to the 'Stage 3: Planning Application Infrastructure Report' for further details).

The design of the Proposed Development will also incorporate two Stormtech attenuation tanks which will provide a storage volume of 286 m^3. A proposed green roof system will provide additional storage volume throughout the Site; however, this storage was not included in the attenuation volume, thus providing further mitigation.

All surface water from the Site will discharge to the public network after flowing through the proposed petrol interceptor, where hydrocarbons will be removed.

Construction Phase

During the construction phase mitigation measures will be designed and implemented by the contractor. Construction good practice methods to reduce the potential for releases to the surface water environment and networks will be detailed in the Construction Management Plan and followed during the construction period. They will include methods to control run-off and the mobilisation of suspended material. Good practice vehicle maintenance and procedures to deal with unintentional leaks and spills will be developed and followed; as will pollution prevention measures relating to other construction activities and facilities. With appropriate mitigation, impacts during construction will be **negligible** and effects temporary and **imperceptible**.

Any discharges to surface water that are required during the construction period and that need consent, will be applied for and managed under the terms of the discharge consent. If necessary, monitoring can be stipulated which can be used to manage the concentrations in discharges to within limits.

As construction activities would be managed effectively and in accordance with the Main Contractor's CMP and Construction Environmental Management Plan (CEMP) it is considered that any negative impacts will be **negligible**. Effects will be brief/temporary and **imperceptible** to the surrounding users.

Operational Phase

The AECOM 'Stage 3 Planning Application to An Bord Pleanála Infrastructure Report' indicates that the runoff from the site will be restricted to a maximum 4.9 l/s, which is based on a site area of 0.73 ha and a soil class of 4 (as site investigation revealed boulder clay). However, the 1 year peak runoff event will be further restricted due to the Hydrobrake's head/discharge relationship.

Embedded design parameters include the design brief being undertaken in accordance with Irish Water's Code of Practice for Wastewater Infrastructure. In accordance with the Greater Dublin Strategic Drainage Study the Project will incorporate sustainable drainage systems (SuDS) that will reduce the current run-off rate. This will ensure that the flow leaving the Site will be reduced to a 'greenfield rate'. The drainage system for the Proposed Development will contain a range of SuDS treatment methods for surface water including green roofs, permeable paving, bioretention, swales, filter drains and treatment via open graded crush rock below all SUDs measures preventing materials and contaminants discharging from the Site. Discharge to the public surface water sewer will be via an oil and grit interceptor. With the appropriate design mitigation, the potential impacts on the surrounding surface water drainage network will be **negligible** and effects permanent and **imperceptible**.

14.8 Do-Nothing Scenario

There would be **negligible** impacts and **imperceptible** effects on local built services, utilities or supplies should the Proposed Development not be provided.

14.9 Mitigation and Management

To mitigate the effects associated with the potential impacts on material assets surrounding the Proposed Development, the following embedded mitigation and additional mitigation will be undertaken:

- A site-specific Construction Management Plan and associated Construction Environmental Management Plan will be developed, and implemented prior to the commencement of works, and implemented and updated throughout the construction phase of the Development;
- Pre-construction consultation and authorisation will be achieved for all of the relevant infrastructure connections;
- Any works required to material assets on or around the Site will be carried out in conjunction with the relevant provider to ensure minimal disruption to the existing users;
- Any works required to material assets on or around the Site will be carried out strictly in accordance with the relevant provider's Code of Practices;
- SuDS features will be maintained appropriately throughout the operational phase of the Development by the relevant management body; and
- Efficiencies in water usage should be considered throughout the engineering design and construction phase of the Proposed Development.

14.9.1 Monitoring

Any monitoring associated with authorisation or consents (e.g. construction discharges or those associated with operational activities) will be incorporated into the Main Contractor's CMP and CEMP and will be adhered to.

14.10 Residual Effects

Once the identified mitigation measures, appropriate design standards and operational infrastructure management plans are adhered to it is considered that any impacts on the material assets surrounding the Proposed Development will be **negligible** and any effects **imperceptible**.

Cumulative Residual Effects

Most impacts that have been identified are mitigated by design or good practice. This reduces the impact magnitude to **negligible** and the effects are considered to be **imperceptible and not significant**. Assuming other relevant developments (those identified in Chapter 15 of this EIAR) will be of a similar nature and incorporate similar design and widely adopted good practice mitigation, **it is considered unlikely that there will be significant cumulative effects**.

14.11 Difficulties Encountered

There were no particular difficulties encountered during the production of the material assets chapter of the EIAR.

14.12 Summary and Conclusions

This assessment has considered the potential impacts and effects on material assets that can be reasonably foreseen as consequences of the construction and operation of the Proposed Development.

The main receptors identified through the baseline study and subsequently assessed were surrounding utilities, including gas, electricity, telecommunications, foul water, potable water and surface water infrastructures.

Known design and construction management mitigation measures were accounted for in the assessment of impacts and effects.

In summary, with effective design and management effects on the relevant material assets arising from the relevant features of the Proposed Development, are predicted to be **imperceptible** and, therefore, **not significant** in terms of this assessment.

14.13 References

Environmental Protection Agency. August 2017. Guidelines on the information to be contained in Environmental Impact Assessment Reports. Published in 'Draft'.

Environmental Protection Agency. September 2015. Advice Notes for Preparing Environmental Impact Statements'. Published in 'Draft'.

IN2 2021. Carmanhall Road SHD Utilities Report.

AECOM. 2021. Stage 3: Planning Application Infrastructure Report.

Independent Site Management Limited (ISM), 25 February 2021. Letter Report on Microwave linkages impacts for the Carmanhall Road SHD.