12 MATERIAL ASSETS: WASTE AND UTILITIES

12.1 Introduction

Material assets have been defined as '*Resources that are valued and that are intrinsic to specific places, they may be either human or natural origin and the value may arise for either economic or cultural reasons'* (EPA 2002).

This definition was further expanded by the Environmental Protection Agency (EPA) in 2022 in '*Guidelines on the information to be contained in Environmental Impact Assessment Reports'* as follows:

'*The meaning of this factor is less clear than others. In Directive 2011/92/EU it included architectural and archaeological heritage. Directive 2014/52/EU includes those heritage aspects as components of cultural heritage. Material assets can now be taken to mean built services and infrastructure. Traffic is included because in effect traffic consumes roads infrastructure. Sealing of agricultural land and effects on mining or quarrying potential come under the factors of land and soils.'*

The scope and definition of Material Assets within the context of the EIA process has been defined by the EIA Directive as including Architectural and Archaeological Heritage or Cultural Heritage. These elements are assessed separately in Chapter 11 under Archaeology and Cultural Heritage.

This chapter of the Environmental Impact Assessment Report (EIAR) provides an assessment of the potential impacts of the Proposed Development on Material Assets or physical resources in the environment of human origin including built services and infrastructure comprising:

- Electricity Supply,
- Gas Supply,
- Information and Communications Technology,
- Surface Water Drainage,
- Water Supply and Demand,
- Wastewater Management, and
- Waste Management

Natural resources (water, land, biodiversity, air) are addressed in their respective chapters.

12.1.1 Quality Assurance and Competency of Experts

This chapter was prepared by has been prepared by Louise Hewitt, Environmental Consultant, and Claire Fagan, Principal Consultant, within the EIA Team at Enviroguide.

Louise has a Master of Science (Hons) in Environmental Resource Management from University College Dublin and a Bachelor of Science (Hons) in Biology from Maynooth University. Louise has 3 years' experience as an Environmental Consultant which includes preparing Environmental Impact Assessment (EIA) Screening Reports, Introduction, Population and Human Health, and Material Asset chapters of EIARs.

Claire holds a B.A degree in Geography from NUI Maynooth, a MSc degree in Planning and Development from Queen's University, Belfast, an Advanced Diploma in Planning and Environmental Law from King's Inns College, Dublin, is a member of the Royal Town Planning Institute (RTPI), and has 5 years planning experience including preparing Material Assets EIAR chapters for similar scale projects.

This chapter was reviewed by Harry Parker, Technical Director and EIA Lead at Enviroguide. Harry is an environmental consultant with 17 years' experience in consultancy, specialising in EIAs for large-scale residential and commercial developments, working closely with a range of developers, planning consultants and architects within the public and private sector. Harry has a MA in Environmental Impact Assessment and Management from the University of Manchester, UK.

12.2 Study Methodology

The methodology adopted for the assessment takes cognisance of the relevant guidelines the following:

- Environmental Protection Agency (EPA) (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR)
- EPA (2003) Advice Notes on Current Practice in the preparation of Environmental Impact Statements.
- EPA (2002) Guidelines on the information to be contained in Environmental Impact Statements.

The scope of work undertaken for the assessment included a desk-based study of material assets, namely built services, utilities and infrastructure associated with the existing site and the Proposed Development. All phases of the Proposed Development were considered in the assessment of potential impacts on material assets.

Information on built assets in the vicinity of the site of the Proposed Development was assembled by the following means:

- A desktop review of ESB Networks Utility Maps, Irish Water Utility Plans, Gas Networks Ireland Service plans, EIR E-Maps, Engineering Infrastructure Report and Stormwater Impact Assessment, Telecommunications Report, Construction and Demolition Waste Management Plan, Operational Waste Management Plan, and Energy Statement Report.

Assessment of the likely impact of features of the Proposed Development, including surface water runoff, foul water discharge and water usage was carried out in accordance with the following guidelines:

- IS EN752, "Drain and Sewer Systems Outside Buildings"

12.2.1 Prediction and Assessment of Impacts

Impacts were predicted and assess based on EPA guidance and by using the definitions detailed in the Table 12-1. Impact will vary from negative to neutral or positive, and also will

vary in significance on the receiving environment. The terminology and methodology used for assessing the impact significance and corresponding effects throughout this chapter are described in Table 12-1.

Table 12 -1 Description of Effects

Category	Description
Quality of effects	**Positive effects** A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative or adverse effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Describing the significance of effects	**Imperceptible** An effect capable of measurement but without significant consequences.
	Not significant An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate effects An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant effects An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
	Very significant An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
	Profound effects An effect which obliterates sensitive characteristics.
Describing the extent and context of effects	**Extent** Describe the size of the area, the number of sites and the proportion of a population affected by an effect.
	Context Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions.
	Likely effects The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely effects The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Describing the probability of effects	**Likely effects** The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely effects The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

Category	Description
Describing the duration and frequency of effects	**Momentary effects** Effects lasting from seconds to minutes.
	Brief effects Effects lasting less than a day.
	Temporary effects Effects lasting less than a year.
	Short-term effects Effects lasting one to seven years.
	Medium-term effects Effects lasting seven to fifteen years.
	Long-term effects Effects lasting fifteen to sixty years.
	Permanent effects Effects lasting for duration of operation.
	Reversible effects Effects that can be undone, for example through remediation or restoration.
	Frequency of effects Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
Describing the types of effects	**Indirect effects** Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative effects The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	Do-nothing effects The environment as it would be in the future should the subject project not be carried out.
	Worst-case effects The effects arising from a project in the case where effects are unmitigated or mitigation measures substantially fail.
	Indeterminable effects When the full consequences of a change in the environment cannot be described.
	Irreversible effects When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual effects The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic effects Where the resultant effect is of greater significance than the sum of its constituents.

Figure 12-1 shows how the character of the predicted impact in relation to the sensitivity of the receiving environment can determine the significance of the impact.

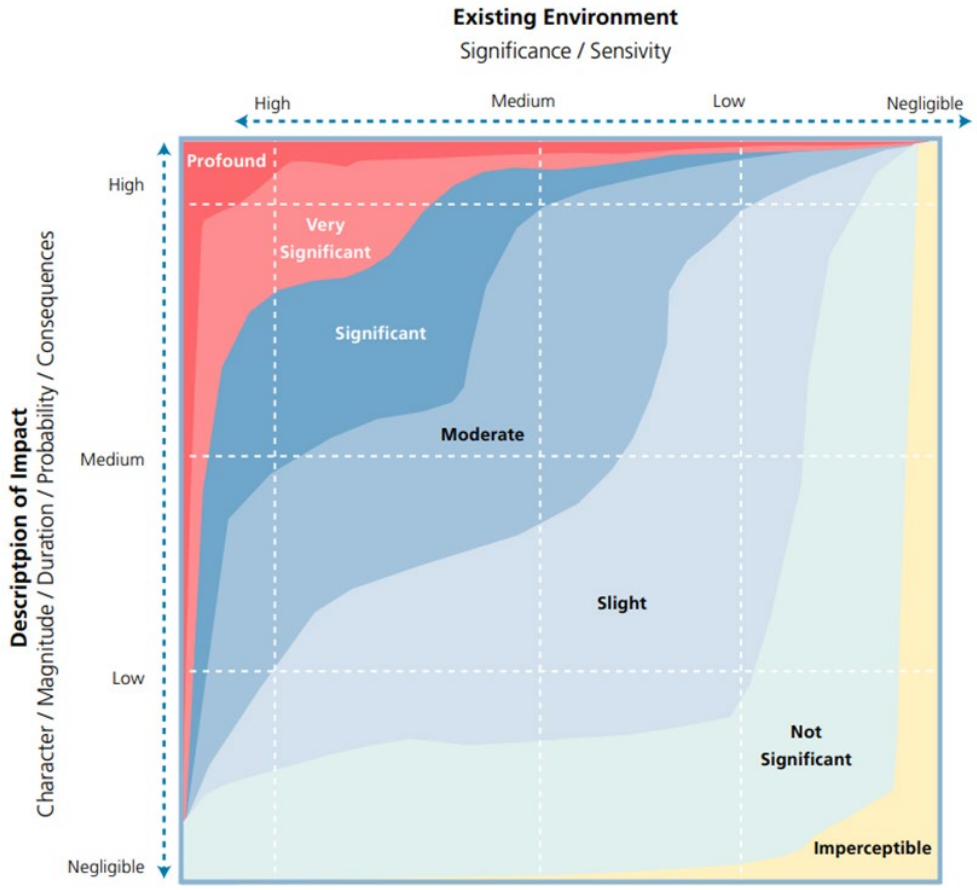

Figure 12-1 Determining the significance of the effect (EPA 2022).

12.3 The Existing and Receiving Environment (Baseline environment)

12.3.1 Immediate Surroundings

The surrounding area is predominantly residential and agricultural. The site is bordered in the north by Glenamuck Road South, to the west by Enniskerry Road, to the south by Ballycorus Road and to the east by agricultural land.

12.3.2 Local Settlement and Land Use

The site is served by public transport and is within a short distance of employment locations such as Kilternan Village, Carrickmines, Enniskerry, Sandyford Business District, Dundrum and links to the M50. The Ballyogan Wood LUAS stop is located c. 2.5 km to the north-east (c. 29 No. minute walk). Access to the M50 Carrickmines (Exit 15) is located c. 1.9 km from the site, a c. 3 No. minute car journey away. Bus route Nos. 44, 63 and 118 serve the Kilternan and Glenamuck area with direct links to Dublin City Centre and institutions such as Dublin City University in Glasnevin. There are also several proposed new bus routes for Kilternan within the Bus Connects scheme will serve Kilternan Village and offer transport links to Dublin City Centre and other suburbs and employment and education facilities in the greater Dublin area such as University College Dublin. The Proposed Development is located in proximity to natural recreational and amenity areas, as the Dublin Mountains which lie approximately 3km to the west of the site, and the Irish Sea is located approximately 6km to the east of the site.

12.3.3 Electricity Supply

12.3.3.1 Local Supply and Grid Connection

The site is well located with regards to electrical supply infrastructure. There is both high voltage transmission lines and local distribution infrastructure in the area with a mix of overhead and underground cables. High voltage overhead infrastructure consists of the Arklow – Carrickmines 220kV Double Circuit Route which runs along the eastern boundary of the site.

12.3.3.2 Onsite Supply and Consumption

There is currently no onsite consumption of electricity.

12.3.4 Gas Supply

Gas Networks Ireland builds, develops and operates Ireland's gas infrastructure, maintaining over 14,521 km of gas pipelines and two sub-sea interconnectors. Gas Networks Ireland is responsible for connecting all new gas customers to the network, and for work on service pipes and meters at customers' premises, on behalf of all gas suppliers in Ireland.

According to the utilities map from Gas Networks Ireland, there is a medium pressure distribution pipe along the Glenamuck Road and Enniskerry Road South in addition to feeds to various local developments.

12.3.5 Information and Communication Technology (ICT)

National Broadband Ireland was set up by the Irish Government to facilitate the roll out of fibre broadband across the Country. The Department of the Environment, Climate and Communications have developed an interactive map which details the progress of the rollout of the National Broadband Plan. The High-Speed Broadband map identifies locations and premises as amber or blue and the map is updated on a quarterly basis. Amber areas depict target areas for the State intervention of the National Broadband Plan. Blue areas indicated that commercial operators have instated or are in the process of delivering high speed broadband services. The Enniskerry Road, Glenamuck Road and the site of the Proposed Development are located within a blue area and high-speed broadband is available.

12.3.6 On-site Surface Water Drainage

There is no surface water drainage at the site and no direct hydraulic connection with any water courses.

There is an existing roadside drainage channel located approximately 0.02km north of the site along Glenamuck Road. It is understood that this drainage channel flows approximately 1.4km downstream in a north-easterly direction along Glenamuck Road before discharging to the Glenamuck North Stream. The Glenamuck North Stream flows approximately 0.6km downstream in a north-easterly direction before converging with the Carrickmines Stream.

12.3.7 Water Supply and Demand

There is no water supply or demand at present on site. The site of the Proposed Development is located in an area serviced by mains water supply. There is an existing 300mm water supply main located along the Enniskerry Road and an existing 250mm water supply main located along Glenamuck Road.

12.3.8 Wastewater Management

There are no wastewater management requirements at present, and there is currently no existing connection to a public sewer at the site of the Proposed Development. There are Uisce Éireann foul sewers in the vicinity of the site.

12.3.9 Waste Management

Dun-Laoghaire Rathdown (DLR) is the local authority responsible for setting and administering waste management activities in the area of the site. DLR's waste management activities are governed by the requirements set out in the Eastern-Midlands Region (EMR) Waste Management Plan 2015-2021. The site currently has no waste management requirements.

12.4 Characteristics of the Proposed Development

The Proposed Development will principally consist of the demolition of existing structures on site and the provision of a mixed-use development consisting of residential units, a neighbourhood centre, retail / commercial spaces, a creche, café, restaurant and a community facility. The Proposed Development will range in height from 2 no. to 4 no. storeys.

Chapter 2 of this EIAR has described the Proposed Development in further detail.

12.5 Potential Impact of the Proposed Development

This section assesses the impact of the Proposed Development on the Material Assets of the area.

12.5.1 Construction Phase

12.5.1.1 Electricity Supply

Construction related activities will require temporary connection to the local electrical supply network. The Main Contractor will apply for a power supply from ESB Networks to power both the construction compound and the construction site. The size of supply will be calculated to ensure it is sufficient to power both the site compounds and construction site activities. Mobile diesel-powered generators may also be used during the Construction Phase.

Connecting a new multi-unit housing development to the electricity distribution system must be carried out in accordance with ESB Networks' specifications, and in particular with the guidance provided in the documents ESB Networks National Code of Practice for the Customer Interface Version 5 (2021) and ESB Networks Construction Standards for MV Substation Buildings (2019). The developer must undertake the preparatory work such as installation of ducting and provision of substation plinth or building. Once the preparation work has been completed to a satisfactory standard, ESB Networks will commence installation of the electricity cabling/lines and any other necessary equipment. A temporary suspension of the network locally to facilitate the connection works may be required during the Construction Phase, and an additional temporary suspension will also occur when power is provided to the Site of the Proposed Development. These temporary suspensions will be controlled by ESB Networks as the statutory undertaker and in accordance with standard protocols. The potential impact from the Construction Phase on the local electrical supply network is likely to be negative, slight, and short-term.

12.5.1.2 Gas Supply

Connecting a new multi-unit housing development to the gas network system must be carried out in accordance with Gas Networks Ireland's specifications. The developer must employ the services of a registered mechanical installer or plumber and select and register with a natural gas supplier.

A temporary suspension of the network locally to facilitate the connection works may be required during the Construction Phase. These temporary suspensions will be controlled by Gas Networks Ireland as the statutory undertaker and in accordance with standard protocols. The potential impact from the Construction Phase on the local gas supply network is likely to be negative, slight, and short-term.

12.5.1.3 Information and Communication Technology (ICT)

A specific Telecommunications Report has been compiled by Independent Site Management (ISM) (2024) regarding the telecommunication channels (such as microwave links) at the site of the Proposed Development to satisfy the criteria of Section 3.2 of the Building Height Guidelines (2018).

The assessment conducted by ISM concluded the local area in vicinity of the Proposed Development site is significantly underserved by telecommunication channels (mobile phone signal/voice and data services) and an increase in the population density residing in the area resulting from the Proposed Development will create a strain on existing capacity and cell size, which becomes smaller the greater number of people using or accessing it for voice and data services (ISM 2024).

To provide an adequate allowance to support the density and scale of the Proposed Development with the appropriate level of telecommunication channels (mobile phone signal /voice and data services), it is proposed to install the following;

- Nine support poles, affixed to ballast mounts on the neighbourhood centre rising 2.8 metres above parapet level. These support poles are sufficient to each accommodate 1No. 2m 2G/3G/4G antenna and 1No. 5G antenna each.
- Nine support poles, affixed to the rear of the ballast mounts, rising 1 .5 metres above roof level. These support poles are sufficient to accommodate 2No. Ø0.3m Microwave links each.
- Together with all associated telecommunications equipment and cabinets, and to adequately screen the infrastructure, the support poles used for the antennae will be installed within Radio friendly GRP shrouds.

The assessment conducted by ISM concluded the above proposal will provide an adequate solution to mitigate the impact the Proposed Development will have on the existing poor mobile phone signal in the site and area. It will provide both the occupants of the Proposed Development and the local area with adequate voice and data services to meet modern demands. The full Telecommunications Report (ISM, 2024) is included in this EIAR as Appendix 12-1.

Connections will be required to the existing ICT network during the Construction Phase of the Proposed Development which, if not conducted in accordance with best practice, has the potential to impact on local telecoms and ICT connectivity. However, due to the temporary and

phased nature of the Construction Phase the potential impact of the Construction Phase on the local telecoms network is considered negative and not significant.

12.5.1.4 Surface Water Drainage

An Engineering Infrastructure Report and Stormwater Impact Assessment has been compiled by Roger Mullarkey and Associates (2024). The total drained area of the site will be 12.6 ha and the surface water drainage is to be divided into four main catchment areas as shown in Table 12 -3 (Roger Mullarkey and Associates, 2024).

Table 12- 3 Surface Water Catchment Summary

Surface Water Catchment Summary		
Catchment No	**Catchment Drained Area**	**Outfall Location**
1	9.99Ha	Outfalls into existing 300mm pipe NE of Rockville development
2	0.21Ha	Outfalls into 225mm pipe to be constructed as part of the Glenamuck Road upgrade
3	0.56Ha	Outfalls into the existing 300mm pipe in the Enniskerry Road at the Glenamuck Road junction
4	1.80Ha	Outfalls into the 300mm pipe to be constructed as part of the GLDR project

The surface water drainage infrastructure for the development will collect the rainfall on the site and convey the storm water run-off via roadside swales, rear garden filter drains, tree pits, bio retention areas, rain gardens, green & blue roofs, gullies, underground pipes, manholes, silt -traps and direct the flows via void arched attenuation systems and a petrol interceptor towards vortex flow restricting devices, Hydrobrake or similar. (Engineering Infrastructure Report, Roger Mullarkey and Associates, 2024).

Attenuated and treated surface water from the Glenamuck Distributer Link Road (GLDR) / Glenamuck District Roads Scheme (GDRS) roads project will ultimately outfall to the watercourses within the catchments of the Carrickmines Stream (River Waterbody Code: IE_EA_10C040350) and the Shanganagh River (River Waterbody Code: IE_EA_10S010600). The Environmental Impact Assessment Report (EIAR) for the GDRS project (DBFL, 2019) that assess the overall scheme including surface water drainage concluded that '*the significance of the identified impacts will be reduced to a "not significant" residual impact on the identified hydrological/ hydrogeological receptors'.*

Surface water runoff from the Proposed Development will be managed in accordance with the principles and objectives of Sustainable Drainage Systems (SuDS) and the Greater Dublin Sustainable Drainage System (GDSDS) to treat and attenuated water prior to discharge to the outfall point. A full SuDS treatment train approach has been implemented in accordance with the CIRIA SuDS Manual (Engineering Infrastructure Report, Roger Mullarkey and Associates, 2024).

Temporary diversions of surface water courses are not required for the Construction Phase, however there may be a requirement for management of surface water (rainwater) and shallow groundwater was encountered during groundworks. Surface runoff entrained with sediment is

unlikely to result in an impact on receiving water courses as there is no direct connection for the Construction Phase based on the existing site condition.

Construction Phase activities that could potentially impact on water quality are detailed in the Hydrology Chapter of this EIAR and control measures for potential emissions to surface water, groundwater and soil are detailed in the Construction Environmental Management Plan (CEMP) (Enviroguide Consulting, 2024).

It is not expected to cause any likely significant effects on the wider surface water drainage network.

12.5.1.5 Water Supply and Demand

Site offices and construction activities will create a demand for water supply to the site. A temporary connection is required to facilitate on-site works for the Proposed Development. Commencement of construction will therefore result in a net increase in the water demand for the site of the Proposed Development. The Proposed Development will be connected to the existing mains water supply adjacent to the site. Irish Water issued a Confirmation of Feasibility (CoF) for the Proposed Development on the 14th June 2024, reference number CDS24004528 (refer to Appendix 12-2). Within the CoF, Irish Water have confirmed that connection to the existing mains water supply network and wastewater are feasible without infrastructure upgrade by Uisce Eireann.

Water supply to the western portion of the Proposed Development (i.e., to the west of the GLDR) will be from the existing 300mm UE mains water supply located on Enniskerry Road. While water supply to the eastern portion of the Proposed Development (i.e., to the east of the GLDR) will be via the 280mm watermain currently under construction as part of the GLDR roads project. As part of the land acquisition agreements for the GLDR between the Applicant and DLRCC, it has already been agreed that a spur watermain connection from this new water main into the eastern portion of the site will be constructed as part of the GLDR project.

Some local diversions may be required to water supplies to accommodate the construction works which may require temporary outages. Additionally, new connection works may cause water supply disruptions during the Construction Phase. These disruptions will be controlled by Uisce Eireann and DLRCC in accordance with standard protocols. The likely effect will be negative, slight, short term and temporary (not significant).

12.5.1.6 Wastewater Management

Foul water from the Proposed Development will be treated in the Shanganagh Wastewater Treatment Plant (WWTP) (Discharge Licence No. D0039-02) before ultimately discharging to the Southwestern Irish Sea - Killiney Bay coastal waterbody.

An Engineering Infrastructure Report and Stormwater Impact Assessment has been compiled by Roger Mullarkey and Associates (2024) and includes wastewater management for the Proposed Development. The proposed foul drainage system will have 4 no. outfall connection locations summarised in Table 12-4 (Roger Mullarkey and Associates (2024)).

Table 12-4 Foul Drainage Catchment Summary

Foul Drainage Catchment Summary		
Catchment No	Quantity Drained	Outfall Location
1	308Residential Units + 5,434m2 Commercial/Retail + 691m2 Creche	Outfalls into the existing 225mm foul sewer constructed as part of the existing Rockville development (D17A/0793 and D18A/0566) to the northeast of the site.
2	18 Residential Units	Outfalls into 225mm pipe to be extended as part of the Glenamuck Road upgrade
3	36 Residential Units	Outfalls into the existing 300mm pipe in the Enniskerry Road at the Glenamuck Road junction
4	125 Residential Units	Outfalls into the 225mm pipe to be constructed as part of the GLDR project

A temporary connection is required to facilitate on-site works for the Proposed Development. Commencement of construction will result in a net increase in the wastewater produced at the site of the Proposed Development. It will be the Main Contractor's responsibility to apply to Irish Water for connections to the foul water drains to service the site toilets and canteen facilities during the Construction Phase.

A Pre-Connection Enquiry Form application (PCEA) was submitted to Uisce Éireann (UÉ) and a Confirmation of Feasibility (CoF) was received from UÉ (ref CDS24004528), noting that a foul connection is "feasible without infrastructure upgrade". A copy of the UÉ Confirmation of Feasibility letter can be viewed in Appendix 12-2. Foul connections will be constructed strictly in accordance with Irish Water requirements and drains will be laid to comply with the requirements of the latest Building Regulations, and in accordance with the recommendations contained in the Technical Guidance Document H. The new connection works may cause disruptions to the foul water network during the Construction Phase. These disruptions will be controlled by Irish Water and DLRCC in accordance with standard protocols. Due to the nature of the works during the Construction Phase, the likely effect will be negative, short term and temporary (not significant).

12.5.1.7 Waste Management

The majority of waste arising during the Construction Phase will comprise soil and stone materials associated with the excavation works required for foundations and connections to utilities and services. There will be demolition waste associated with the demolition of the existing structures on site. A member of the construction team will be appointed as the Waste Officer to ensure commitment, operational efficiency and accountability during the Construction Phase of the Proposed Development.

The waste streams that will be generated by Construction and Demolition (C&D) activities are as follows:

- Demolition waste from the existing derelict dwelling and associated derelict outbuildings and the former Kilternan Country Market (wooden structure);
- Topsoil and subsoil;
- Packaging and general waste from construction activities;
- General site clearance waste including tree stumps; and
- Municipal waste generated by workers.

All waste generated during the Construction Phase will be segregated onsite to enable ease in re-use and recycling, wherever appropriate. Material will be segregated on-site for the appropriate waste stream and disposal destination. The Waste Officer or appointed delegate will ensure waste streams are adequately identified. The segregation and management of waste storage and stockpiling will be routinely inspected and audited by the Waste Officer. In general, the priority of the RMWP shall be to promote recycling, reuse and recovery of waste and diversion from landfill wherever possible. This will be also managed in accordance with the principles set out in the RWMP (Enviroguide Consulting, 2024).

After in-situ reuse and recycling options have been fully considered, all residual waste streams will be collected by appropriately authorised waste collection contractors and will be managed using suitably permitted/licensed waste disposal or materials recovery facilities.

A breakdown of the approximate quantities of C&D waste materials that will be generated throughout the Construction Phase of the Proposed Development, based on the information available to date and estimated quantities provided by the Main Contractor, is presented in Table 12- 5. The List of Waste (LoW) code for each waste stream is also shown.

These wastes are as defined in the Resource and Waste Management Plan (RWMP) (Enviroguide Consulting, 2024), which is submitted as a separate document with this planning application. The full Resource and Waste Management Plan is included in this EIAR as Appendix 12-3.

Table 12-5 Predicted Quantities of C&D Waste and LoW Code

Materials and Waste Type	List of Waste (LoW) Code	Approximate Volume (tonnes)
C&D Materials		
Demolition Stage		
Concrete	17 01 01	1,443
Wood, Glass and Plastic	17 02 01, 17 02 02 and 17 02 03	8
Metals (including their alloys)	17 04 01, 17 04 02, 17 04 03, 17 04 04, 17 04 05, 17 04 06 and 17 04 07	16
Electrical and Electronic Components	20 01 35* and 20 01 36	1
Construction Stage		
Concrete	17 01 01	207
Wood	17 02 01	963
Plasterboard	17 08 02	345
Metals (including their alloys)	17 04 01, 17 04 02, 17 04 03, 17 04 04, 17 04 05, 17 04 06 and 17 04 07	276

Materials and Waste Type	List of Waste (LoW) Code	Approximate Volume (tonnes)
Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	17 09 04	1,137^
Total		**4,396**
Materials and Waste Type	**List of Waste (LoW) Code**	**Approximate Volume (tonnes)**
Soil and Stone		
Non-Hazardous Soil and Stone	17 05 04	66,400
Hazardous Soil and Stone	17 05 03*	0
Total		**66,400**

Note:

^Where possible, all waste materials will be segregated onsite. However, there may be a requirement for segregation of waste materials offsite at the receiving waste facility. In this instance the materials will be transported offsite as LoW Code 17 09 04 Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03

Where possible, it is intended to reuse suitable excavated soil and subsoil for landscaping and engineering use. However, it is anticipated that up to 66,400m3 of surplus materials will require removal offsite in accordance with all statutory legislation. It is noted that the re-use of soil and stone will be prioritised in accordance with relevant waste management legislation (e.g. Article 27 By-product Notification).

The total estimated volume of soil and bedrock to be excavated has been calculated at c.95,250m3. Of this, c.28,850m3 will be retained on site and will be reused as fill material and for landscaping.

The total estimated volume of construction and demolition waste to be generated is c.1,350m3. The disposal of such material will occur on a phased basis thereby reducing any potential effects on the surrounding road network. All material to be disposed of offsite will be transported to a licensed waste disposal facility. Due to the use of permitted/licensed waste collection/waste management facilities, it is not predicted that the production of waste will cause any likely significant effects on the environment. It is the responsibility of the Main Contractor to ensure that waste collection contractors are legally permitted to carry the waste, and that the facility they bring the waste to is licensed to handle that type of waste as outlined in the Waste Management Acts 1996-2005.

12.5.2 Operational Phase

12.5.2.1 Electricity Supply

An Energy Statement produced by Waterman Moylan (2024), has been prepared for the Proposed Development which can be viewed in Appendix 12-4. The Energy Statement provides details for energy standards with which the Proposed Development will have to comply, in accordance with Building Regulations Part L 2002, Conservation of Energy and Fuel.

Electricity will be required to provide public lighting, domestic lighting, power supply and heating for each individual unit for the Proposed Development, and electric car charging facilities.

All proposed solutions for both heating and renewable energy systems provide low carbon, low energy heating solutions and in accordance with Building Regulations Part L 2002. A cost benefit analysis of all energy technology solutions will be assessed during the detailed design stage of the Proposed Development to determine the correct balance between the efficient building envelope and the most appropriate combination of technology and renewable energy systems (Waterman Moylan 2024).

The impact of the Operational Phase of the Proposed Development on the electricity supply network is likely to increase demand to the existing supply. The potential impact from the Operational Phase on the electricity supply network is likely to be neutral and not significant in the long term.

12.5.2.2 Gas Supply

The use of natural gas to provide heating and hot water to domestic and non-domestic buildings is very common in urban development's due to its convenience and low fuel prices. High efficiency gas fired condensing boilers convert gas to heat energy with an efficiency of over 90%. The potential impact from the Operational Phase on the gas supply network is likely to be neutral and not significant in the long term.

The final selection and combination of technologies, electricity and/or gas supply, will be selected based on a more in-depth technical and financial appraisal of the technologies which will be carried out during detailed design.

12.5.2.3 Information and Communication Technology (ICT)

The Telecommunication Report prepared by ISM (Appendix 12-1) found that "*Radio Frequency coverage for the local geographic area is served by a distinct lack of cells at a range of distances to the Development*" and "*existing limited mobile signal conditions will become weaker as the area is continuously developed*". The report concluded:

> *"It is therefore our finding that the local area is significantly underserved by telecommunication channels (mobile phone signal/voice & data services) and any increase in the population density residing in the area resulting from the proposed development will create a significant strain on existing capacity and cell size, which becomes smaller the greater number of people using or accessing it for voice and data services."*

To provide an adequate allowance to support the density and scale of the Development with the appropriate level of telecommunication channels (mobile phone signal /voice and data services), the Applicant is seeking planning permission to install the following:

- 9 no. support poles, affixed to ballast mounts on the neighbourhood centre rising 2.8 metres above parapet level. These support poles are sufficient to each accommodate 1 no. 2m 2G/3G/4G antenna and 1no. 5G antenna each.
- 3 no, support poles, affixed to the rear of the ballast mounts, rising 1 .5 metres above roof level. These support poles are sufficient to accommodate 2 no. Ø0.3m Microwave links each.

- Together with all associated telecommunications equipment and cabinets,
- To adequately screen the infrastructure, the support poles used for the antennae will be installed within Radio friendly GRP shrouds.

This will provide an adequate solution for the Applicant to mitigate the impact the Proposed Development will have on the existing poor mobile phone signal in the area and provide both the occupants of the Proposed Development and the local area with adequate voice and data services to meet modern demands.

The Telecommunication Report concluded that the Proposed Development "*allows for the retention of important Telecommunication Channels, such as Microwave links, to satisfy both the criteria of Section 3.2 of the Building Height Guidelines (2018) and Appendix 5, Section 1.4.2 of the Dun Laoghaire- Rathdown County Development Plan 2022-2028.*"

The Proposed Development includes for the provision of new telecommunications infrastructure at roof level of the Neighbourhood Centre. The impact of the Proposed Development on surrounding telecommunication channels is likely to be positive and slight in the long term. The Operational Phase of the Proposed Development will likely have an increase in demand on the telecoms network. Based on the construction of the new telecommunications infrastructure, the impact from the Operational Phase on the telecoms network is likely to be positive and not-significant in the long term.

12.5.2.4 Surface Water Drainage

Once operational, the surface water drainage infrastructure for the Proposed Development will replicate natural characteristics by collecting the rainfall on the site and conveying the storm water run-off via roadside swales, rear garden filter drains, tree pits, bio retention areas, gullies, underground pipes, manholes, silt-traps and direct the flows via void arched attenuation systems and petrol towards vortex flow restricting devices, Hydrobrake or similar, Roger Mullarkey and Associates (2024).

The surface water drainage design has been carried out in accordance with and in conjunction with the requirements of Dun Laoghaire Rathdown County Council's Drainage Department, Greater Dublin Regional Code of Practice, the Greater Dublin Sustainable Drainage System (GDSDS) and the CIRIA Report c753 "The SuDS Manual" 2015. The sites surface water has been divided into 4 separate catchments, each outfalling their respective attenuated flows to different outfall points as set in Table 12-6.

Table 12-6 Surface Water Catchment Summary

Surface Water Catchment Summary		
Catchment No	**Catchment Drained Area**	**Outfall Location**
1	9.99Ha	Outfalls into existing 300mm pipe NE of Rockville development
2	0.21Ha	Outfalls into 225mm pipe to be constructed as part of the Glenamuck Road upgrade
3	0.56Ha	Outfalls into the existing 300mm pipe in the Enniskerry Road at the Glenamuck Road junction
4	1.80Ha	Outfalls into the 300mm pipe to be constructed as part of the GLDR project

Surface water from the site of the Proposed Development will ultimately discharge to the Shanganagh River via settlement ponds that are part of the GDRS project. Due to hardstanding areas in the Proposed Development, which will replace greenfield lands, the attenuation systems have been designed to provide sufficient capacity to contain and convey all surface water runoff associated with a 1 in 100-year event, plus an additional allowance of 20% to account for Climate Change and 10% to account for Urban Creep as per the GDSDS. The SuDS design will also incorporate best practice for improved flow control and quality of water discharged to the receiving waters, in particular the Shanganagh River.

The surface water management strategy includes a number of measures that will capture any potentially contaminating compounds (petroleum hydrocarbons, metals, and suspended sediments) in surface water runoff from roads and the impermeable areas. Given the design of the surface water management strategy for the Proposed Development and the implementation of SuDS features, it is considered that there be an overall neutral, imperceptible, long-term impact on the receiving surface water quality of the Shanganagh River.

12.5.2.5 Water Supply and Demand

During the Operational Phase there will be a demand for water from the public water supply. The mains water supply is operated in accordance with relevant existing statutory consents.

Calculations for the water demand for the Proposed Development were carried out in the Engineering Infrastructure Report and Stormwater Impact Assessment and are summarised below (Roger Mullarkey and Associates, 2024).

Estimates of the water demand for the entire site were carried out using the guidelines in accordance with Uisce Éireann (UÉ) COP for Water Infrastructure 2020 publication. The calculations estimate that the 493 residential units of the Proposed Development will have an average daily water usage demand of approximately 2.31 litres/sec (l/s). Retail / commercial daily water usage demand has been calculated at approximately 1.26 l/s. Creche daily water usage demand has been calculated at approximately 0.12 l/s.

Uisce Eireann have confirmed that, based on a desk top analysis of the capacity currently available in the Uisce Eireann network(s) as assessed by Uisce Eireann, the proposed demand can be facilitated. Excess usage is the consumption of water services above the threshold amount stipulated in the Water Services Act (2017). Water use above the annual household allowance (213m3) is considered to be excessive use and Irish Water customers may be liable for charges on the amount above this level.

In accordance with best practice, water conservation appliances are to be incorporated as part of the Proposed Development to reduce the water demand, including water saving tap valves, eco-flush toilet system and water saving appliances. Each dwelling will be fitted with a cold-water storage tank to provide 24 hours of supply, and it is proposed to provide 200l rainwater butts to the rear of each gabling property. This will collect rainwater from the house roofs for use in garden irrigation, therefore reducing drinking water demand and decreasing run-off from the site.

The likely effect of the increase in mains water demand will be neutral, long-term not significant on mains water supply.

12.5.2.6 Wastewater Management

A Pre-Connection Enquiry Form application (PCEA) was submitted to Uisce Éireann (UÉ) and a Confirmation of Feasibility (CoF) was received from UÉ (ref CDS24004528), noting that a foul connection is "feasible without infrastructure upgrade". A copy of the UÉ Confirmation of Feasibility letter can be viewed in Appendix 12-2.

Calculations for the foul water flows for the Proposed Development were carried out in the Engineering Infrastructure Report and Stormwater Impact Assessment and are summarised below (Roger Mullarkey and Associates, 2024).

The calculations have been performed in line with the Irish Water Code of Practice for Wastewater Infrastructure (2020). Domestic wastewater loads have been calculated based on 493 residential units housing 2.7 persons per unit with a per capita wastewater flow of 150 litres per head per day. A peak flow multiplier of 3 was used in the residential calculations. The resulting total dry weather foul water flow from the residential section of the Proposed Development is 2.51l/s.

Commercial wastewater loads have been calculated using the area of the commercial units, estimating 1 person per 5m2 in the retail units and 1 child per 8m2 in the creche plus 20% for staff, with a per capita wastewater flow of 50 litres per head per day. A peak flow multiplier of 4 was used in the calculations. The resulting total dry weather foul water flow from the commercial units and creche of the Proposed Development is 1.38 l/s.

The foul water from the Proposed Development will ultimately be treated at Shanganagh Wastewater Treatment Works. The increase in wastewater being discharged to the public sewer will have a neutral, long-term, non-significant impact and on the capacity of the sewer.

12.5.2.7 Waste Management

Enviroguide Consulting has prepared an Operational Waste Management Plan (OWMP) for the Proposed Development. The OWMP contains full details of the types and quantities of waste that may arise at the Proposed Development. The predicted waste types that will be generated at the residential dwellings in the Proposed Development include the following:

- Mixed Municipal Waste (MSW) / General Waste
- Dry Mixed Recyclables (DMR) - includes cardboard, plastic packaging, aluminium cans, tins, paper, and Tetra Pak cartons
- Organic (food) waste, and
- Glass – bottles and jars.

In addition to the typical waste materials that will be generated on a daily basis, there will be some additional waste types generated in small quantities that will need to be managed separately including:

- Bulky wastes – including furniture, carpets, mattresses
- Waste electrical and electronic equipment (WEEE)
- Batteries
- Textiles – clothes or soft furnishings
- Light bulbs or fluorescent tubes
- Chemicals – old medicines, paints, detergents, and
- Waste oil

The commercial units (creche, office, medical, retail) and the community area will generate similar waste types to domestic waste types:

- Dry mixed recyclables
- Mixed Municipal (non-recyclable)
- Organic (food) waste, and
- Glass

with some additional commercial “office” type wastes such as paper and printer ink, batteries, and waste electrical and electronic equipment (WEEE). An additional lockable, colour coded, hazardous waste storage area will be provided for medical waste from the medical unit which will be managed and accessed by medical personnel only.

The List of Waste (LoW) code (previously referred to as European Waste Code or EWC) for typical waste materials expected to be generated during the operation of the Proposed Development are provided in Table 12-7.

Table 12-7 Expected Waste Types and List of Waste Codes

Waste Description	List of Waste Code
Mixed Municipal Waste	20 03 01
Dry Mixed Recyclables	20 03 01
Biodegradable Kitchen Waste	20 01 08
Glass	20 01 02
Bulky wastes	20 03 07
Waste electrical and electronic equipment*	20 01 35* 21 01 36
Batteries and accumulators*	20 01 33* 20 01 34
Textiles	20 01 11
Fluorescent tubes and other mercury containing waste*	20 01 21
Chemicals (solvents, pesticides, paints & adhesives, detergents)*	20 01 13/19/27-28/29-30
Plastic	20 01 39
Metals	20 01 40
Paper and Cardboard	20 01 01

**Individual waste type may contain hazardous materials*

The waste storage capacity requirements for the apartment and duplex buildings have been calculated in the OWMP. Based on the number of units and the number of bedrooms in each unit, with waste collections occurring on a weekly basis, it is anticipated that typical weekly waste arising is 54,580L (Operational Waste Management Plan, Enviroguide, 2024).

Based on weekly waste collections, there would be a requirement to accommodate storage for a volume of 54,580L, or the equivalent of 50 no. 1,110L wheeled bins. Based on weekly waste collections, it is anticipated that 32 no.1,100L bins, 27 no. 660L bins, 20 no. 240L bins and 26 no. 140L bins (or equivalent) will be required in the waste storage areas as detailed in Table 4-6 below (15 no. 1,100L bins and 9 no. 660L bins for Mixed Municipal Waste (MMW), 17 no. 1,100L bins and 18 no. 660L bins for Dry Mixed Recyclables (DMR), 10 no. 140L bins and 15 no. 240L bins for organic (food) waste, and 16 no. 140L bins and 5 no. 240L bins for glass (Operational Waste Management Plan, Enviroguide, 2024).

All collections must take place in compliance with conditions of the waste contractor's Waste Collection Permit for the region and in line with the Local Authority by-laws and the Waste Management (Waste Collection Permit) Regulations 2007 as amended. All residents are obliged by law to avail of the waste management service and must comply with local By-Laws and Statutory Instruments in relation to the presentation of waste for collection. Waste collections for a three-bin system service will be available from the time of first occupancy (i.e., even if all dwellings are not occupied).

A number of bin compound areas have been allocated for the apartment and duplex residents. It will be the responsibility of the residents to bring their segregated waste to the bin compound and place into the appropriately labelled bins. Each bin will be clearly labelled to identify what wastes can and cannot be placed in the bin and labels will be pictorial. The route to the bin compound area and the area itself will be wheelchair accessible, adequately lit and appropriately ventilated.

Residents will be required to suitably store other waste materials that may be generated infrequently (such as bulky waste, textiles, printer toner/cartridges, WEEE, batteries and other household hazardous wastes) within their own dwellings and dispose of them appropriately at bring centres or civic amenity facilities. Ballyogan Recycling Park is located 1km northeast of the site and bring banks are available at Stepaside Public Golf Course, approx. 950m north of the site. All occupants will be supplied with information by the Management Company on the location of recycling facilities in the area.

The calculation for typical weekly waste arisings and subsequent storage requirements for commercial units is as follows:

Volume Per M^2 Of Sales Area [10 L] × Sales Area

The Operational Waste Management Plan (Enviroguide 2024) states that 41,745L is estimated as waste volume with 41,960L bins are provided for commercial areas.

A breakdown of the bin numbers is provided in Table 12 – 8. The frequency of bin collections can be increased as required, and individual bin requirements can be adjusted once the overall bin capacity is met at a minimum.

Table 12-8 : Breakdown of bin numbers (Commercial Units)

			Organic (food) Waste	Organic (food) Waste	Glass	Glass	Dry Mixed Recyclables (DMR)	Dry Mixed Recyclables (DMR)	Mixed Municipal Waste (MMW)	Mixed Municipal Waste (MMW)
Bin Size	Description	m2	140	240	140	240	1100	660	1100	660
Commercial Unit	Neighbourhood Centre Block	3901	0	6	0	3	10	0	6	0
	Commercial (Block A)	706	2	0	1	0	3	0	3	0
	Commercial (Block D)	501	3	0	2	0	2	0	2	0
	Café	326	2	0	2	0	0	2	0	2
	Creche	691	1	0	1	0	3	0	3	0
	Total	6125								

By implementing the actions outlined in the OWMP, a high level of recycling, reuse and recovery will be achieved at the development in line with European targets and the Eastern-Midlands Region Waste Management Plan 2015-2021.

The Operational Waste Management Plan is included in this EIAR as Appendix 12-5.

In the absence of mitigation, the potential impact from the Operational Phase on municipal waste disposal is likely to be long term, negative and moderate.

12.5.3 Potential Cumulative Impacts

Cumulative Impacts can be defined as “impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project”. Effects which are caused by the interaction of effects, or by associated or off-site projects, are classed as indirect effects. Cumulative effects are often indirect, arising from the accumulation of different effects that are individually minor. Such effects are not caused or controlled by the project developer.

A review of other off-site developments and proposed developments was completed as part of this assessment.

Previous pre-planning consultation with DLRCC in relation to the GDRS project resulted in meetings and discussions been held with the GRDS consultant engineers (DBFL) to discuss any interface between the roads project and this subject application, with specific attention to drainage services and access arrangements. Furthermore, agreement was made with DLRCC project office to facilitate drainage connections subject to a successful planning application. It was confirmed by DLRCC consultants that GDRS infrastructure has been designed to cater for the attenuated run-off from the Kilternan Village lands and that the regional pond in that project has capacity to intercept and store the surface water outfall from the site of the Proposed Development. Correspondence relating to the above interface is included in Appendix 12-6.

Extant permissions and current live planning applications that have been taken into consideration for the purposes of determining cumulative impacts are detailed in Chapter 2 Description of the Proposed Development of this EIAR (Section 2.6).

Having regard to other permitted developments in the area, which are either under construction or where construction has not yet commenced, there is potential for greater impact arising from the demand of additional population living in the area. The cumulative impact of the permitted and Proposed Development will be a further increase in the population of the area.

Due to the nature of the Proposed Development (i.e. primarily residential with some retail / commercial, restaurant and café facilities) it is not expected to cause likely significant effects on municipal waste facilities.

In relation to water services, Uisce Éireann have provided a letter detailing confirmation of feasibility. Each of the permitted developments assessed for potential cumulative effects have been required to engage with Uisce Éireann and carry out any necessary upgrade to water facilities as required.

Accordingly, surrounding permitted development, when considered cumulatively with the Proposed Development, will result in a permanent impact on the receiving networks and services, however, the impact is not considered to be adverse having regard to the capacity of services.

12.5.4 "Do Nothing" Impact

If the Proposed Development is not advanced, the site will remain as a greenfield area with grazing fields, hedgerows, and derelict buildings. If the lands were to remain undeveloped, this would be an under-utilisation of zoned and serviceable urban lands from a sustainable planning and development perspective, particularly considering the location of the lands, and the potential for the land to be developed into a new Neighbourhood Centre.

12.6 Avoidance, Remedial and Mitigation Measures

12.6.1 Construction Phase

Specific avoidance, remedial and mitigation measures will be required for the Proposed Development. The measures that will be taken to ensure that there will be no significant impact on the surrounding Material Assets during the Construction Phase include:

Waste will be stored onsite in such a manner as to:

- Prevent environmental pollution.
- Minimise nuisance generation such as dust.
- Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling, and recovery.

In the event that hazardous soil, or historically deposited waste is encountered during the site bulk excavation phase, the contractor will notify DLRCC and provide a Hazardous/Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal/treatment, in addition to information on the proposed authorised waste collector(s). According to the RWMP, it is anticipated that there will be no asbestos containing materials (ACMs) generated during the Construction Phase of the Proposed Development. If ACMs are identified on site at a later stage, a full asbestos report will be carried out. Removal of asbestos or ACMs will be carried

out by a suitably qualified contractor and ACM's will only be removed from site by a suitably permitted/licenced waste contractor. in accordance with S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.

Additionally, a Construction Environmental Management Plan will be in effect for the full duration of works. The Health and Safety Authority's "Code of Practice for Avoiding Danger From Underground Services" will be followed during construction and excavation activities and all underground and overhead utilities and public services will be identified and protected during the Construction Phase. All temporary suspensions to public services will be controlled by the relevant statutory undertaker, in accordance with standard protocols and all services will be reinstated as soon as possible post connection. Potable water networks and foul water sewers will be properly tested prior to connection.

12.6.2 Operational Phase

An OWMP (Enviroguide Consulting, 2024) has been produced for the Proposed Development which outlines measures to be taken to achieve waste prevention, maximum recycling and recovery of waste with a focus on diversion of waste from landfill wherever possible. Waste segregation will be implemented at the Proposed Development to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery. The Management Company will be responsible for the provision of a leaflet to all new tenants encouraging good waste segregation and pictorial information detailing the waste streams that can be placed in each bin. In addition to this, clauses that support waste segregation targets will be included in relevant legal documentation e.g., tenancy agreements where possible. The OWMP also states that the facilities management company must employ suitably permitted or licenced contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contractor handle, transport and reuse / recover / recycle / dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

12.6.3 "Worst Case" Scenario

In the event that the Proposed Development was to proceed, a worst-case scenario in relation to built services and infrastructure (electricity, telecommunications, gas, water supply infrastructure, and sewerage), would be where the works involved during construction resulted in an extended power or telecommunications outage, or disruption to water supply or sewerage systems for existing properties in the area due to unforeseen delays on site.

12.7 Residual Impacts

Having regard to the mitigation measures proposed within this and other chapters of the EIAR, no significant residual impacts are anticipated.

12.8 Monitoring

12.8.1 Construction Phase

The monitoring of Construction and Demolition (C&D) waste during the Construction Phase of the Proposed Development is recommended to ensure that impacts are not experienced beyond the site boundary. The Main Contractor will be responsible for monitoring and record keeping in respect of waste leaving the facility and that these records will be maintained on site.

12.8.2 Operational Phase

The building management company, residents, tenants, retail units and creche operators will be required to maintain the bins and storage areas in good condition as required by the DLRCC Waste Bye-Laws. The waste strategy presented in the Operational Waste Management Plan (Enviroguide Consulting 2024) will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated areas for waste storage will provide sufficient room for the required receptacles in accordance with the details of this strategy. The areas will be fitted with CCTV for monitoring.

12.9 Interactions

The Proposed Development will provide additional housing in a densely populated urban area. Material assets, utilities and waste interact with other environmental receptors as follows:

- Population and Human Health: The improper removal, handling and storage of hazardous waste could negatively impact on the health of construction workers. Extended power or telecommunications outages, or disruption to water supply or sewerage systems for existing properties in the area could negatively impact on the surrounding human population and their overall health. Potential impacts on population and human health are addressed in Chapter 4.
- Biodiversity: The improper handling and storage of waste during the Construction and Operational Phases could negatively impact on biodiversity. Potential impacts on biodiversity are addressed in Chapter 5.
- Land and Soil: Improper handling and segregation of hazardous or contaminated wastes could lead to the contamination of soil and stones excavated from the site. Potential impacts on land and soils are addressed in Chapter 6.
- Water (Hydrology and Hydrogeology): Any connections to the public water network (water supply or foul sewer) during the Construction and Operational Phases will be under consent from Uisce Eireann. Potential impacts on water are addressed in Chapter 7.
- Traffic: Waste collection activities at the Proposed Development have the potential to impact upon traffic movements in the Kilternan area. Potential impacts on traffic are addressed in Chapter 13.

12.10 Difficulties Encountered When Compiling

No difficulties were encountered in the preparation of this chapter.

12.11 References

Environmental Protection Agency (EPA) (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports

Glenamuck District Roads Scheme Environmental Impact Assessment Report Volume 2: Main Report (March 2019)

https://www.gov.ie/en/publication/5634d-national-broadband-plan-map/#interactive-map

https://www.dlrcoco.ie/sites/default/files/atoms/files/chapters_1-10.pdf

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https://www.dlrcoco.ie/sites/default/files/atoms/files/kiltiernan_appendixa1.pdf

https://www.dlrcoco.ie/sites/default/files/atoms/files/kiltiernan_appendixa2.pdf

Kilternan Neighbourhood Framework Plan (January 2010) (dlr Architects Department dlr Planning Department)