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Environmental Impact Assessment Report

Volume 1 – EIAR Non-Technical Summary

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1. INTRODUCTION

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1.1 Proposed Development

This Non-Technical Summary (NTS) has been prepared to accompany the Environmental Impact Assessment (EIA) Report. This Environmental Impact Assessment Report (EIAR) has been prepared in respect of a Masterplan in Kilmeaden, Co Waterford which comprises a number of distinct but connected areas; a new village centre, a solar farm and rewilding area, battery storage, and a data centre with associated energy centre (hereinafter referred as 'Proposed Development). The applicant for the Proposed Development is Crag Rathnew DC Limited (hereinafter referred as 'the Applicant').

1.2 Relevant Legislative Requirement for Environmental Impact Assessment

This EIA Report has been prepared in accordance with the most relevant guidance and legalisation, including the following:

- EIA Directive (2011/92/EU) as amended by EIA Directive (2014/52/EU);
- Planning and Development Act 2000 (as amended);
- Planning and Development Regulations 2001 (as amended);
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (Department of Housing, Planning and Local Government, 2018);
- *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022);
- *European Commission,* Environmental Impact Assessment of Projects Guidance on Scoping (Directive 2011/92/EU as amended) (European Commission, 2017);
- *European Commission,* Environmental Impact Assessment of Projects Guidance on Screening (Directive 2011/92/EU as amended) (European Commission, 2017); and
- *Guidance on the preparation of the Environmental Impact Assessment Report* (European Commission, 2017)

1.3 Format and Structure of this EIA Report

This EIAR has been laid out using the grouped format structure, the report examines each environmental factor in a separate chapter (the chapters are listed in Table 1.2 of Chapter 1). These EIAR chapters have been prepared by suitably qualified expert(s) and have considered the construction and operational phases of the Proposed Development under the following headings:

- Assessment Methodology;
- Receiving Environment;
- Characteristics of the Proposed Development;
- Potential Impacts of the Proposed Development;
- Mitigation Measures;
- Monitoring or Reinstatement Measures;
- Residual Impacts of the Proposed Development; and
- Cumulative Impacts of the Proposed Development

1.4 Description Of Effects

The quality, magnitude and duration of potential impacts are defined in accordance with the criteria provided in the *Guidelines on Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022). This criterion is duplicated in Table 1.3 of Chapter 1.

1.5 Additional Assessments

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The additional reports and/or assessments required under Legalisation or EU Directives other than the EIA Directive in respect of the Proposed Development are listed below.

- **Natura Impact Statement** has been completed by FERS pursuant to the Habitats and Birds Directive (92/43/EEC and 79/409/EEC).
- **Water Framework Directive Assessment** has been completed by AWN pursuant to the Water Framework Directive (2000/60/EC).
- **An Energy Statement** - prepared by Homan O'Brien Engineers.
- **Landscape Plan** - prepared by KFLA.
- **Outline Construction Management Plan (CMP)** prepared by Atkins Realis.
- **Resource Waste management Plan** prepared by Coyle Environmental

The following will be required upon commissioning of the ICT and Energy Centre development.

- **Industrial Emissions Directive** - An Industrials Emissions Directive (2010/75/EU) licence application is required for the Proposed Development under Class 2.1 "Combustion of fuels in installations with a total rated thermal input of 50 MW or more."
- **Greenhouse Gas Emissions Regulations** - The Medium Combustion Plant (MCP) Regulations (S.I No. 595 of 2017), which transposed the Medium Combustion Plant Directive ((EU) 2015/2193), applies to the individual emergency back-up generators.

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

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2.1 Introduction

This chapter presents the description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development. The scope of this chapter aligns with the relevant legislation and guidance which comprises the following:

- EIA Directive (2011/92/EU), as amended by the 2014 EIA Directive (2014/52/EU) (herein referred to as the EIA Directive);
- European Commission 'Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report' (2017); and
- EPA 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (2022) (herein referred to the as the EPA EIA Report Guidelines 2022).

This guidance advises that description of the existence of the project should define all aspects of the proposed lifecycle of the facility, including:

- Description of Construction;
- Description of Commissioning;
- Operation of the Project;
- Changes to the Project; and
- Description of Other Related Projects.

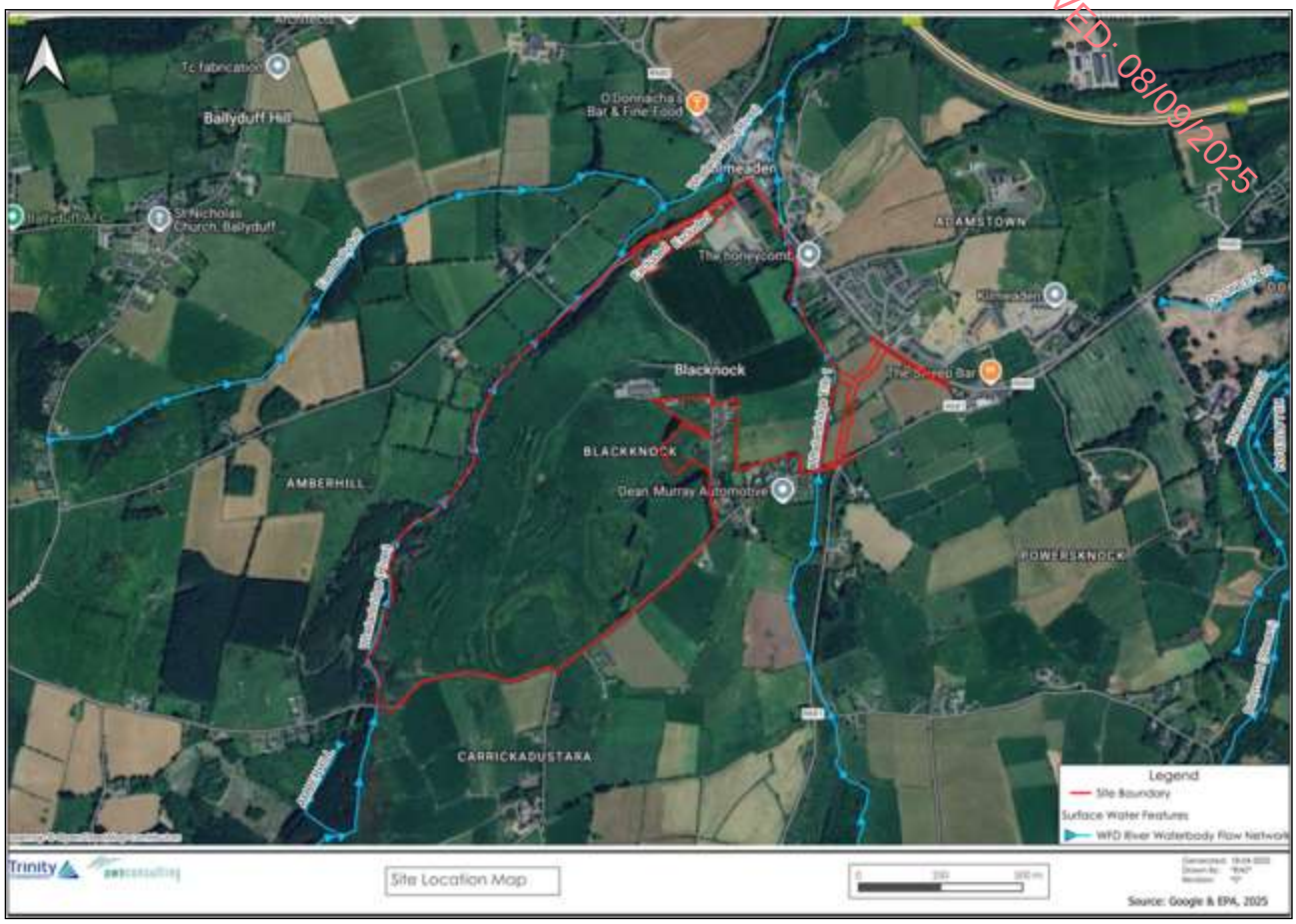
The description is not exhaustive, and as such the EIA Report should be read in conjunction with the full application package.

2.2 Description of the Existing Development Site

The Proposed Development covers an area of 108.64 hectares and is located in Kilmeaden, Co Waterford. The proposed development location lies to the south of the R680, within the townlands of Ballyduff East, Amberhill and Blackknock, Co Waterford. Figure 2-1 provides the site setting.

Figure 2.1 Proposed Development Lands (indicative red line boundary) (Source: Google Earth)

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The subject site comprises undeveloped agricultural lands and lands previously developed for the Kilmeaden Cheese Factory (brownfield). The topography rises significantly for the from east to west with site levels range from 13.7m to 89m.

The brownfield (northeast) portion of the site contains existing hardstanding areas of the old roads and buildings of the Kilmeaden Cheese Factory. The Blackknock hill area of the site includes constructed wetlands previously used for treatment of effluent. These ponds have largely dried out over time but two ponds still retain water.

The Whelan's Bridge River and tributary border the northern and eastern site boundaries and join the River Suir approximately 1.7 km for the site. As such the site has a hydrological pathway with the Lower River Suir SAC (Site Code: 002137 Site Code: 002137) and the Upper Suir Estuary transitional waterbody.

2.3 Characteristics of the Proposed Development

The proposed development comprises the development of the former cheese factory site and adjoining lands to provide for a mixed use village centre, technology park, and renewable energy development on a total site area of 108.79 hectares. The proposed development will consist of the following:

The demolition of 2 no. existing single storey outbuildings and 1 no. AGI building (126 sq.m. GFA in total) in the northern portion of the site, along with all site clearance and enabling works required to facilitate the proposed development.

In the northern portion of the site the construction of a new village centre comprising the following:

- A two-storey mixed-use building (fronting onto the R680) comprising a gym, café, health centre, pharmacy, and office space, with a total GFA of c. 1,856 sq.m. (c. 10.3m in height).
- A two-storey community centre (with a GFA of c. 847 sq.m. and c. 11m in height).
- 2 no. three-storey apartment buildings (Apartment Blocks A and B) comprising 48 no. units in total, including 6 no. 1 bedroom apartments and 42 no. 2 bedroom apartments. The apartment buildings have a combined gross floor area (GFA) of c. 5,374 sq.m. and the buildings are c. 14.3m in height. Each of the apartment buildings include private open space in the form of patios and balconies, along with bin stores, communal open space, and access arrangements.
- A two-storey supermarket (including off-licence) comprising a GFA of c. 1,605 sq.m. (c. 1,514 sq. m at ground floor level and c. 91 sq. m . at first floor level) with a height of c. 8.2m . A bring bank will be provided to the south of the supermarket.
- A two-storey childcare facility building with a GFA of c. 1,345 sq.m. (c. 10m in height), along with adjacent outdoor play area.
- A Multi-Use Games Area (MUGA), located adjacent to Apartment Block A and the childcare facility.
- A two-storey commercial / office building comprising 4 no. commercial units, (with a GFA of c. 614 sq.m. and c. 10.1m in height).
- 2 no. two storey warehouse buildings (each with a GFA of c. 562 sq. m. including ancillary office space and staff welfare facilities, with an overall height of c. 10m).
- A District Heating Plant Room (with a GFA of c. 14 sq. m. and c. 3.8m in height) to provide district heating from the technology park to the village centre, bin stores, lighting, access arrangements, and the provision of areas of public realm and open recreational spaces including a new village square.

In the central portion of the site the construction of a new technology park comprising the following:

- 3 no. two storey (with two mezzanine level), information and communication technology (ICT) facility buildings, each with a GFA of c. 24,033 sq.m (c. 72,099 sq.m GFA in total), and with a height (to parapet level) of c. 19.8m and a maximum flue height of c. 25m.
- Each of the 3 no. ICT facility buildings will accommodate ICT equipment rooms, associated electrical and mechanical equipment rooms, loading bays, maintenance and storage space, office administration areas, and staff facilities, emergency generators and flues, and plant at roof level. External plant rooms (with an overall height of c. 3.7m) and modular water tanks will be provided adjacent to each of the ICT facility buildings.
- An energy centre building (with a GFA of c. 3,720 sq.m and with a parapet height of c. 13.8m) including 16 no. gas powered turbines, associated flues (with a height of c. 29.8m), associated ancillary containers and tanks, backup fuel pumps and tanks, fire tanks (with a height of c. 12.8m) and pump house, MCC control room (with a GFA of c. 41 sq.m.), welfare and storage facilities (with a GFA c. 60 sq.m.), a three storey control room building with basement (with a GFA of c. c. 5,343 sq.m. and an overall height of c. 18.9m), a single storey with basement MV building (with a GFA of c. 1,246 sq.m. and an overall height of c. 5.3m), step up and step down transformers, and 7 no. blackstart generators.
- 2 no. warehouses with ancillary office space, with a GFA of c. 3,121 sq.m. each, and with a height of c. 14.2 metres
- A gas above ground installation (AGI) and pressure regulating and metering station (PRMS) compound, (comprising an AGI Building, Boiler House Kiosk, E&I Kiosk, Control Room and Skid House) with a combined GFA of c. 202 sq.m.), 3 no. ICT pumphouses (c. 40 sq.m. each), and two single storey guardhouses (each with a GFA of c.29 sq.m).

In the southern portion of the site the construction of a of a solar farm with PV arrays consisting of 43,056 PV panels mounted on concrete footings, 3 no. single storey transformer cabins (with a combined GFA of c. 54.6 sq.m), a battery energy storage system (BESS) compound with an area of c. 6,682 sq.m.(comprising modular battery units within a fenced compound, along with associated electrical equipment and transformers), internal access tracks, and security fencing.

In the western portion of the site the construction of a new vehicular access (including a bridge over an existing watercourse) to the Technology Park to be provided between the R680 and the R681. The primary

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vehicular access to the village centre will be facilitated via the existing access from the local road to the north. Pedestrian and cycling access to the village centre will be facilitated via both the local road and R680. Access to the Solar farm is provided via the local road to the north of the solar farm.

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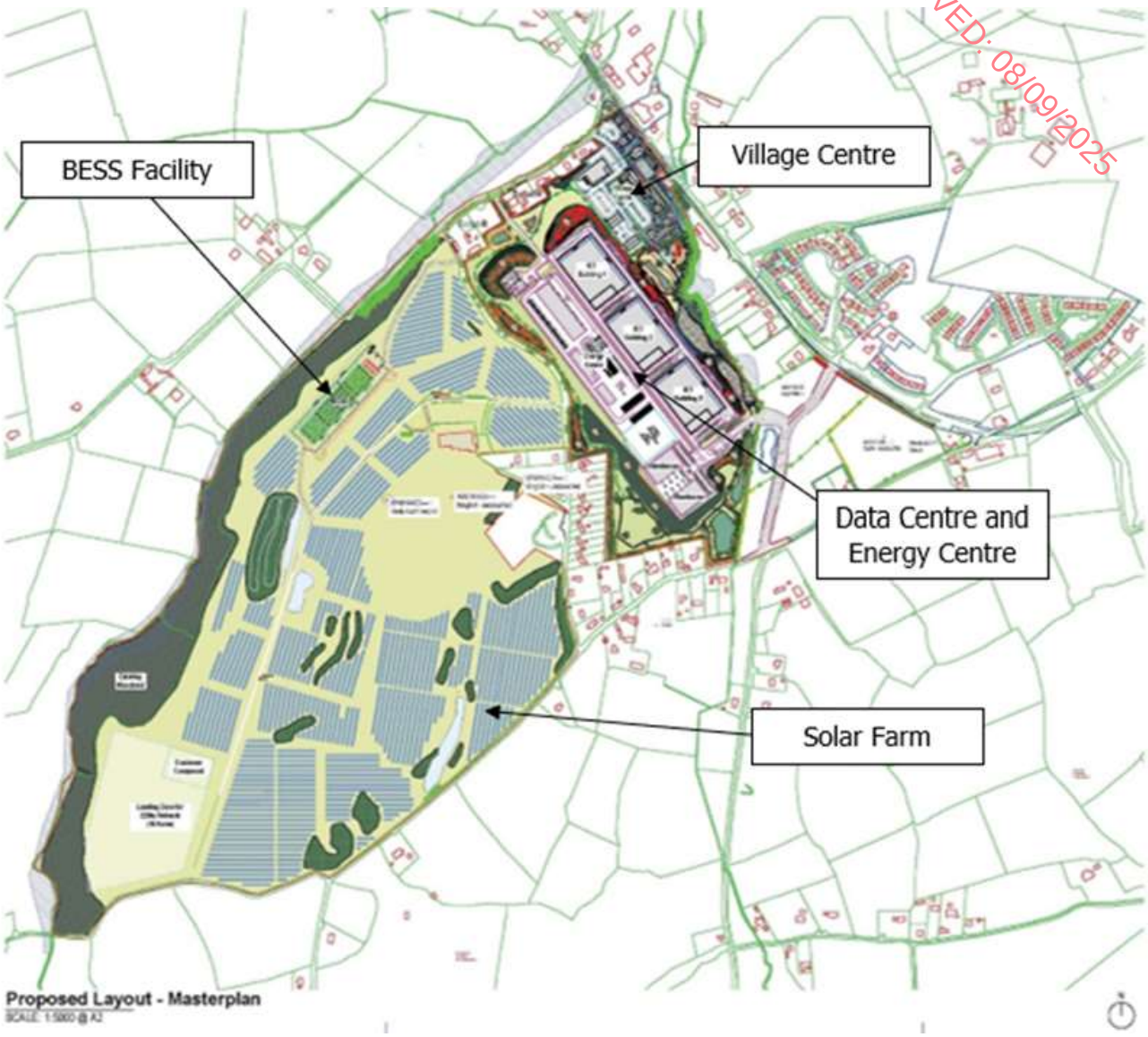
Provision of areas of public open space and a walking/cycling route which extends from the village centre to the southeast of the Technology Park. The development provides 441 no. car parking spaces and 267 no. cycle spaces. The development includes provision of landscaping and planting throughout, PV panel zones at roof level, boundary treatments, signage zones, site lighting, and all associated site services and development works, including underground foul and storm water drainage network and sustainable urban drainage systems, and all ancillary works.

The new village centre shall be provided with separate connections to the 10KV ESB network to meet power demand. The village centres aims to be the first new village centre in Ireland to be 100% fossil fuel free. This will be achieved by integrating renewable energy solutions and pioneering waste heat recovery systems, adopting a circular approach to energy efficiency and resource management. Waste heat will be captured for reuse in the proposed village centre. Waste heat plate heat exchanger within each ICT facility shall remove heat from the facility side chilled water system before it is exhausted to the atmosphere. This waste heat will be distributed to the village centre through a hydraulic flow and return piped water distribution system. The potential for off site heat recovery and required district heating infrastructure will be subject to feasibility assessment by WCC.

The Proposed Development site layout is shown in Figure 2.2 below.

Figure 2.2 Proposed Development Layout (Source: Hyphen DRG No. KMMP-HYP-ZZ-ZZ-DR-A-0100) Redline – Site Boundary

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Energy Centre

The onsite power generation facility incorporates an Open Cycle Gas Turbines (OCGT) designed to provide 203 MWe (at 10°C) to match the capacity of the proposed datacentre demand. The onsite prime power generation facility comprises 16 dual fuel (natural gas and renewable hydrotreated vegetable oil (HVO)), gas turbines (GTs) – 14.2MWe including 2 reserve and associated 16 flue stacks. This dual fuel OCGT technology, is designed to meet flex demand conditions imposed by the grid connection. The onsite power plant will provide support services to the grid thus alleviating constraints on the national grid and allowing greater integration of renewable energy. When necessary, it will be capable of powering the ICT facility as required by the CRU guidelines.

Data Centres

The data storage facility comprises three datacentre buildings (GF 10,363 m^3). The building will be two storey and accommodate data halls, associated electrical and mechanical plant rooms, maintenance and storage space, ancillary office administration areas, with plant at roof level (Total Area of each is 24,033 $m^{3)}$.

The three datacentre buildings will be powered from a mix of on-site renewable power generation from the proposed 29 MW solar farm, and a 220kV HV grid connection. Back up (emergency power) will also be available from generators fuelled by hydrotreated vegetable oil (HVO) tanks.

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Warehouses

Two warehouses with a gross floor area (GFA) of 605 m^2 each are located to the south of the datacentres. These have a separate access off the entrance road to the datacentre development. The warehouses share a loading yard and parking facilities and are shielding from the surrounding residential buildings via large tree lined berms and a green buffer.

BESS

The BESS will function as a support for the national grid network where there are periods of low energy production. This is located adjacent to the solar park accessed by a separate internal road. The BESS is designed to store 144MW for 3.5 hours autonomy.

Solar Farm

The solar farm consists of 43,056 bifacial Leapton or similar solar panels mounted on metal frames, 3 no transformer stations, new access tracks, CCTV cameras and access gates. The total installed capacity is 29.71MWp. The solar farm and rewilding area will cover c. 80 hectares.

Village Centre

The village centre forms a key component of this planning application. The village centre comprises a mixed-use development which includes a medical centre, café, gym, community centre, crèche, supermarket, small scale commercial units and retired living / residential use with associated open space, roads, footpaths and car parking. The village centre creates a new focal point to Kilmeaden with a pedestrianised square and strong connections to the existing village and surrounding environment.

Landscaping

A linear public park stretches along the site between the village centre and the technology park. This includes a new pathway for pedestrians and cyclists – an extension of the Waterford Greenway. The thick hedgerows running along the path will be retained, ensuring habitats are preserved and retaining a vegetated zone along the river.

2.4 Description Of Construction

Construction Staffing, Working Hours and Duration

It is estimated that there will be a maximum of 750 construction staff at peak construction. Site staff will include; management, engineers, construction crews, supervisors, environment health and safety personal, and maintenance contractors.

Site development and building works will only be carried out between the hours of 07:00 to 19:00 Mondays to Fridays inclusive and between 08:00 and 14:00 hours on Saturdays. However, it is possible that the contractor may wish to carry out certain operations outside these hours i.e. Sunday or evening hours during long summer days etc. Such occurrences will be kept to a minimum and take place over a short timeframe and as such are unlikely to cause excessive disturbance. Deviation from these times will only take place when written approval is granted by WCC in exceptional circumstance.

Once the grant of planning is received, the construction activities on site will commence Q4 with the village centre being completed in Q2 2029 while the technology park will be fully completed by Q1 2030.

Establishment of Construction Services

The construction compound will provide office, portable sanitary facilities, equipment storage, parking etc for contractors for the duration of the works. The construction compound will be fenced off for health and safety reasons so that access is restricted to authorised personnel only. All areas under construction will be fenced for security and safety purposes and temporary lighting supplied, as necessary.

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Construction Techniques and Materials

Construction techniques will include mechanical excavation, construction of reinforced concrete foundations, structural steel frame building, mass concrete rising walls, steel roof beams, and composite cladding for external walls. Where possible it is proposed to source general construction materials from the local area to minimise transportation distances. Specialised data centre equipment will be imported.

Landscaping and Reinstatement

Once the majority of the construction works are completed the landscaping will be completed in accordance with the specification of the project landscape architect (KFLA) and to the agreement with the local authority. KFLA have provided a landscape plan and strategy for the site which is provided with the planning documentation.

Commissioning Works

Once all the equipment and systems are installed, the technology park equipment and solar and battery facility must be commissioned. The commissioning process for the site involves a series of steps to ensure that the plant is functioning properly and is ready to begin operations. The commissioning process typically takes several months to complete and is included in the proposed construction timeline.

2.5 Potential Impacts and Mitigation Measures During Construction and Commissioning

The main potential impacts during the construction and commissioning phase which require mitigation are:

- Management of run-off water in terms of silt runoff, potential for construction leaks and temporary dewatering (see Chapter 6 (Hydrogeology and Hydrology) for further information on potential impacts and mitigation measures) and Chapter 7 (Biodiversity);
- Impacts on human beings in terms of nuisances relating to the air quality of the environs due to dust and other particulate matter generated (see Chapter 8 (Air Quality) for further information);
- Impacts on human beings in terms of nuisances due to plant noise and vibration from equipment (see Chapter 10 (Noise and Vibration) for further information on potential impacts and mitigation measures;
- Effects on the road network (due to construction workers and other staff attending site (see Chapter 13 (Traffic and Transportation) for further information on potential impacts and mitigation measures; and
- The generation of construction waste materials from excavation works and other construction waste (see Chapter 15 (Waste Management) for further information on potential impacts and mitigation measures).

Construction Environmental Management Plan

Atkins Realis have prepared an *Outline Construction Management Plan (CMP)* (2025). This outlines and explains the construction techniques and methodologies which will be implemented during construction of the Proposed Development. The CMP incorporates mitigation measures outlined in the EIA report as they relate to the construction phase. The CMP includes emergency response procedures in the event of a spill,

leak, fire or other environmental incident related to construction. This is an active document which is continuously updated to manage risk during the construction programme.

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The CMP will be implemented and adhered to by the Construction Contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager and Environmental Clerk of Works where relevant. All personnel working on the Site will be trained in the implementation of the procedures.

Resource Waste Management Plan

Chapter 15 contains a detailed description of waste management relating to construction of the Proposed Development. A site-specific Resource Waste Management Plan (RWMP) is included as Appendix 15.1 of this EIA Report. This RWMP will be implemented to ensure best practice is followed in the management of waste from the Proposed Development.

2.6 Operation Of the Proposed Development

The Technology Park will operate 24 hours a day, 7 days a week. The Data Centre equipment and supporting infrastructure will be monitored by site staff and faults identified and remedied as required. Staff are primarily required onsite for security, ongoing monitoring and maintenance of plant and equipment. The Village Centre businesses will have varying hours of operation but residences will be accessible 24 hours a day, 7 days a week.

The new village centre aims to be the first new village centre in Ireland to be 100% fossil fuel free. This will be achieved by integrating renewable energy solutions and pioneering waste heat recovery systems, adopting a circular approach to energy efficiency and resource management. Waste heat will be captured for reuse in the proposed village centre.

The Technology Park is committed to running its business in the most environmentally friendly way possible. The proposed development has been designed to take into account these policies with energy efficiency central to the decision-making process, minimising power and water consumption.

An Energy Statement has been prepared by Homan O Brien Engineers to accompany the planning application to address the relevant sustainability and energy related policies of the WCC Development Plan 2022-2028.

The use of renewable energy generation on site has been maximised. The proposed development includes a solar farm with a targeted capacity of 29MW. Roof mounted solar PV is also proposed to be deployed on the ICT building roofs, warehouse building roofs and where required in the village centre to meet TGD Part L & NZEB requirements.

It is also planned to seek planning permission for a 220 kV substation on the proposed site as part of a separate SID planning application which will also act as the landfall point for an offshore windfarm off the coast of Waterford.

2.7 Potential Impacts During Operation and Mitigation Measures

The main potential impacts during the operational phase which require design and mitigation are:

- Management of stormwater run-off water by attenuation and SUDs measures to protect water quality and negate off site flooding, see Chapter 6 (Hydrogeology and Hydrology) for further information on potential impacts and mitigation measures);
- A small area of compensation flood storage is provided within the river flood zone for an area of embankment encroachment for the datacentre building.

- Stack heights have been determined by modelling to manage air emissions, see Chapter 8 (Air Quality) for further information potential impacts and mitigation measures;
- Acoustic attenuation solutions will be deployed where required to mitigate potential impacts on human beings in terms of nuisances due to plant noise and vibration from equipment see Chapter 10 (Noise and Vibration) for further information on potential impacts and mitigation measures;
- The embedded design features and landscaping ensure that, for its type, the development would be of appreciably high quality and some visual interest. See Chapter 11 (Landscape and Visual) for further information on potential impacts and mitigation measures incorporated in the landscape design;
- Effects on the road network due to staff and customers attending site, see Chapter 13 (Traffic and Transportation) for further information on potential impacts and mitigation measures; and
- The generation of operational waste materials see Chapter 15 (Waste Management) for further information on potential impacts and mitigation measures.

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2.8 Decommissioning

It is intended that the Proposed Development will have a long lifespan. Regular maintenance and upgrading of the facility over time will enable it to continue to meet future demands.

Upon closure of the Technology Park, it is anticipated that the facility will be suitable for re-use or sold to a third party as would any other industrial site. All plant and equipment would simply be decommissioned, removed and recycled/disposed as appropriate. The costs associated with the closure of the facility will be met by the Applicant. Closure of the licenced facility would be undertaken in accordance with the EPA licence for the facility.

The expected operational lifespan for the Solar farm is 30 years. A decommissioning plan is provided in Appendix 2.3 of this EIAR.

2.9 Potential Cumulative Developments

As part of the assessment of the impact of the proposed development, account has been taken of relevant related developments that are currently permitted, or under construction within the area surrounding the Proposed Development site. The potential for cumulative impacts arising from these related projects has been addressed within each specialist chapter of this EIA Report (Chapter 4 – 15).

3. ALTERNATIVES

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3.1 Introduction

The requirement to consider alternatives within an EIAR is set out in Annex IV (2) of the EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU), and in Schedule 6 of the Planning and Development Regulations, 2001, as amended ("the Regulations"), which states:

> *A description of the **reasonable alternatives** studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.*

This chapter prepared by AWN provides an outline of the reasonable alternatives examined during the design phase. It sets out the main reasons for choosing the development as proposed, taking into account and providing a comparison on the environmental effects.

3.2 Do Nothing Alternative

There is an established statement of need for all the various elements of the Proposed Development in Ireland within a National, regional and local strategic planning context. In the event that the Proposed Development does not proceed, the specific need for renewable energy, energy support infrastructure, IT infrastructure and housing would still exist.

If the Proposed Development does not proceed, the existing Kilmeaden factory site would remain as an undeveloped brownfield site and the remainder of the site would remain as a greenfield site all of which would result in a neutral impact on the environment.

Therefore, opting for the '*do-nothing* scenario would be underutilising this strategically positioned site, would not result in the opportunity for the Village Centre and energy infrastructure supports, and would contravene existing plans and policies.

3.3 Alternative Project Locations

The current location of the Proposed Development within Kilmeaden was decided by a number of preceding plans, policies and circumstances all of which pre-determined that a location in the vicinity of Kilmeaden offers an ideal project location in terms of planning, sustainability and the environment (section 3.2) and is in accordance with the relevant policies and objectives of the WCCDP.

Within the Kilmeaden area, the Kilmeaden site meets the requirement of the CRU as it is not in a constrained area, as defined by EirGrid. Furthermore, the capacity for the land bank to incorporate 29MW of offset renewable solar power, and a further 216MW of offset power arising from the on-site Energy Centre and energy storage, in addition to the proximity to other nearby solar farms and the landing site for future offshore windfarms makes the site suitable as consumption is located close to current and future generation, alleviating potential transmission constraints.

The landbank chosen is located on, and adjacent to, an existing brownfield site where the data centres and the warehousing and commercial interests associated with the village centre are compatible with the form of employment previously offered at the site.

3.4 Alternative Layout/Design

The project design team undertook a comprehensive design process to determine an effective and efficient layout for the Proposed Development, which has regard for the operation requirements, planning

requirements and the environmental sensitivities of the site and the surrounding context. This was further informed by a pre-planning meeting with the Planning Department of WCCC dated 4th February 2025.

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Alternative layouts for the Proposed Development were curtailed principally by the need for a Village Centre congruous with the existing main street, topography constraints, adjacent land uses and visual impact, rectangular buildings, pedestrian and traffic flows, and provision/preservation of green open space all of which informed the sitting and layout of the Proposed Development.

The design process was an iterative one, which was ultimately driven by the need to provide for a sustainable masterplan that maximised the potential of this strategic landbank while prioritising the regeneration of brownfield areas in a manner that augments Kilmeaden village and its streetscape. This was also influenced by the following environmental criteria:

- To confine the most "industrial" aspect of the Proposed Development closest to the prior industrial (brownfield) lands without dominating the Kilmeaden streetscape, and to capitalise upon adjacent availability of electricity, foul and potable water sources, and pedestrian access.
- To maximise the positive climate impacts to be gained from reuse of waste heat in district heating by the location of the Data Centres and the Village Centre in close proximity to each other; thus minimizing heat loss in the transfer of this heat.
- To reduce visual impact by confining the bulkiest portions of the Proposed Development to the northern (lower elevation) extents of the site, stepping down the site by berming and tree planting, thereby affording greater opportunity for screening.
- To avoid where possible known archaeological and ecological features and maintain a riparian zone.
- Preserve both native and non-native woodlands associated with Whelan's Bridge River and to restrict, where possible, any construction works that may affect both the Whelan's Bridge River and the freshwater ponds associated with the old factory integrated wetland treatment beds.
- Preserve as far as possible the existing hedgerows both internally and along the boundaries of the site.
- To seek the opportunities to maintain other wooded/scrub areas and to provide further Green Infrastructure (GI) where feasible.
- Reduce the amount of excavation and geotechnical works on site.

3.5 Alternative Processes and Technologies

In terms of the Proposed Development processes, the various layout options considered will generally necessitate the same power requirements, and result in the same waste and environmental emissions. The Proposed Development is guided by the applicant's standard specifications, and the flexibility to select alternative processes is limited for this type of development as opposed to an activity that has more complex equipment and processes.

The use of renewable energy generation on site has been maximized for all areas both residential, industrial and commercial that are intended for human occupancy. The reuse of Data Centre heat presents an opportunity for energy conservation that will be maximised via the use of waste heat plate heat exchanger technology within the Data Centre buildings. The heat plates will remove waste heat from the facility side chilled water system before it is exhausted to the atmosphere, distributing this captured waste heat to the village centre through a hydraulic flow and return piped water distribution system. The proposed technology will facilitate generation of approximately 1000 MWhs of annual energy / peak demand of 1.7MW to sufficiently meet the village centre heat demand.

At the outset consideration was given towards Combined Cycle Gas Turbine (CCGT) technology for the Energy Centre as opposed to Open Cycle Gas Turbine (OCGT) technology. Due to the ability to capture waste heat from the turbine exhaust in a CCGT system to generate additional electricity via a steam turbine the overall electrical efficiency of a combined-cycle power system is typically in the range of 50–60% as

opposed to a typical 33% energy efficiency associated with an OCGT[1]. However CCGT technology is more suited to, and at its most efficient when utilised in a continuous operation mode. CCGT also requires long start up times, typically 30 minutes to at least several hours before it can be of service, and also before it reaches peak efficiency. The purpose of the Energy Centre is to provide grid support and as such will only operate intermittently and will need to be able to provide a rapid response. Because OCGT operates with a single stage gas turbine this technology can be fully operational within as little as 5 minutes and can also operate and respond to carrying loads very quickly. In light of the better suitability of the OCGT technology for the required purpose OCGT technology is being proposed.

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3.6 Alternative Mitigation

The EIA process for the Proposed Development involved a team of specialists, each with expertise in a specific aspect of the environment. For each aspect of the environment, each specialist has considered the existing environment, likely impacts of the Proposed Development and reviewed feasible mitigation measures to identify the most suitable measures appropriate to the environmental setting of the Proposed Development. In making a decision on the most suitable mitigation measure the specialist has considered relevant guidance and legislation.

Where relevant, a comparison of environmental effects was made, and the specialist has reviewed the possible mitigation measures available and considered the use of the mitigation in terms of the likely residual impact on the environment. The four established strategies for mitigation of effects have been considered: avoidance, prevention, reduction and offsetting (not required in this development). Mitigation measures have also been considered based on the effect on quality, duration of impact, probability and significance of effects.

3.7 Conclusions

Based on the assessment of reasonable alternatives (in relation to location, scale, design, technology, mitigation) relevant to the Proposed Development and its specific characteristics as set out in this chapter, the selected site is considered to be a suitable location for the Proposed Development from an environmental, strategic and planning perspective.

In conclusion it is considered that the proposed site has capacity for development and is highly suitable for the Proposed Development.

[1] Section 12.2.2 Homan O'Brien (2025) Dub 50 Kilmeaden, County Waterford Energy Statement.

4. POPULATION AND HUMAN HEALTH

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4.1 Introduction

This chapter has been prepared by AWN to assess the likely significant impacts on Population and Human Health in respect of the Proposed Development.

Human health should be considered in the context of environmental pathways which may affect health such as air quality, noise, water and soil quality. All can contribute to negative effects on human health by facilitating the transport of contaminants or pollutants. An evaluation of the effects of these pathways on health, by considering the accepted standards of safety in dose, exposure or risk of air quality and noise levels for example, is considered appropriate, as these standards have been arrived at via scientific and medical research. Where these topics are dealt with in further detail elsewhere in this EIA Report, the relevant chapters have been cross referenced in this Chapter to provide the Planning Authority with a context for their determination.

4.2 Baseline Environment

Population Health Sensitivity

In a desk-based assessment of Population Health Sensitivity, the use of Electoral Divisions (ED) was used to analyse the population statistics withing the study area. The area selected for the assessment of the impact on human health has been defined as the EDs containing the Proposed Development site only. No other EDs are located within the study area of 1 km from the Proposed Development site. The Proposed Development site is in the Local Authority Area of Waterford City & County Council (WCCC), and in the electoral division (ED) of Reisk and Kilmeaden. These two EDs are entirely located within the Republic of Ireland, County Waterford. The two EDs within the study area have seen an overall population growth between the 2016 and 2022 census, with Reisk presenting a higher growth percentage when compared to average National rates. The Pobal HP Deprivation Index shows both EDs as 'Marginally Above Average'. There is a low age dependency ratio, with a lower age dependency ratio when compared to ROI, representing a a sizable proportion of the population within working age, thus considered as largely independent and judged to be not sensitive to change. A high proportion (55.91% to 60.66%) describes their health status as 'Very Good' and a low proportion (0.13% to 1.3%) as 'Bad' or 'Very Bad'. Reisk ED has a lower % of the population with a disability than the national average, and Kilmeaden a higher percentage when compared to ROI; As Reisk ED has a larger population compared to the Kilmeaden ED, the data indicates that for most of the population within the study area there are relatively limited restrictions on daily activity. The population within the study area is relatively low sensitivity to change, with a ranking of low sensitivity.

Location and Character of the Local Environment

While a general study area of ED within 1 km from the site location is included for population statistics, the wider area of 2.5 km from the site location has been used to inform the baseline description of the area. To its northern portion, the site is designated under the zoning category "RV - Rural Village" under the Waterford City & County Development Plan 2022 – 2028, with objective of "*Protect and promote the character of the Rural Village and promote a vibrant community appropriate to available physical and community infrastructure*", and Zoning Objective No. DO1 *"to facilitate and encourage the development of new industrial/ enterprise/ employment uses on this site which do not detract from the amenity of the existing village"*. The nearest sensitive receptors to the Proposed Development are the dwellings located on the immediate north and east of the site.

The area is predominantly agricultural, characterized by a dispersed settlement pattern with the majority of residential units being single, standalone structures spread across the landscape. There are only a few

educational centres, healthcare services and commercial businesses within the 2.5km study area. There are no industries, secondary schools, higher education institutions, hospitals, Garda Stations or Fire Stations within the study area. A few recreational facilities and green infrastructure are available within the 2.5 from Proposed Development.

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In terms of landscape amenity, the site comprises lands previously developed for the Kilmeaden Cheese Factory (brownfield) and undeveloped greenfield lands. The topography rises from east to west with site levels range from 13.7m to 89m.

There are three recorded archaeological sites or monuments within the Proposed Development lands that will not be directly impacted by the Proposed Development. There are no recorded architectural heritage sites within the Proposed Development lands.

There are no active quarries and mineral localities within the study area, however, there is a one Geological Heritage site, the N25 Road Cuttings, located c. 0.7km northeast from Proposed Development site. The N25 Road Cuttings is a road cutting excavated on the n25 into slaty sedimentary rocks.

There are no protected Recreational Waters or Bathing Waterbodies within the Study Area and nearest waterbody is the WHELAN'S BRIDGE STREAM_010, located within Proposed Development site. There are no Groundwater Source Protection Areas or Group Schemes within the Study Area.

The Proposed Development site is not at significant risk of any major accidents, hazards of natural disasters.

4.3 Potential Impacts of the Proposed Development

4.3.1 Construction Phase

The main potential impacts on population and human health from the Proposed Development are related to employment, potential for spills/leaks, air emissions, noise, visual, and traffic impacts:

- Construction will have an indirect positive effect on support industries such as builder suppliers, construction material manufacture, maintenance contracts, equipment supply, landscaping and other local services and creating employment opportunities with a ***slight, short term*** *and* ***positive*** impact.
- During the construction stage, landscape character will be affected by increased construction traffic and the visible presence of construction rigs and cranes from various locations. Overall, without mitigation measures the impact on the local landscape will be ***negative, moderate,*** and ***short-term*** with a ***negative, significant*** and ***short-term*** visual impact at the most sensitive visual receptor***.***
- Construction activities can generate significant noise, dust, and air pollution. These factors can negatively impact the amenity and tranquillity of the surrounding environment. Therefore, in the absence of mitigation the impact in relation to the construction phase is ***direct, short-term, negative*** and ***slig*****ht**.
- A reduction in soil quality via historical or unmitigated pollutants entering the soil has the potential to lead to negative impacts on human health during construction. In the absence of mitigation measures the potential impacts to human health during the construction phase are ***negative***, ***not significant*** and ***short-term.***
- The key elements of construction of the proposed development with potential impacts on populations and human health from air quality and climate impacts are dust soiling effects, dust (PM_{10} and $PM_{2.5}$) emissions, engine emissions from construction traffic and changes in traffic flows on nearby road links. In the absence of mitigation, dust impacts on Human Health are predicted to be ***direct, short-term, negative*** and ***imperceptible*** to ***slight.***
- As detailed in Chapter 10 (Noise and Vibration), noise levels during construction phase are predicted to cause ***direct, short-term, negative*** and ***slight*** impacts to human health as a result of the Proposed Development.

- As detailed in Chapter 13 (Traffic and Transportation), During construction, there will be temporary local disruption to pedestrian, cyclists, and vehicular traffic users along the Amberhill Road. It is considered that the predicted increases in traffic during the construction phase will have a ***slight, negative,*** and ***short-term*** impact on human health.
- The risk of major accidents at the facility is negligible due to the absence of nearby permitted Seveso/Control of Major Accident Hazards (COMAH) Regulation sites and the flood risk for Proposed Development is considered to be minimal. The potential effect is therefore ***imperceptible***, and unlikely, respect of Major Accident Hazards or Natural Disasters on Population and Human Health during the Construction Phase of the Proposed Development.

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4.3.2 Operational Phase

The main potential impacts on population and human health from the Proposed Development are related to employment, potential for spills/leaks, air emissions, noise, visual, and traffic impacts:

- With reference to Chapter 11 (Landscape and Visual), it is considered that the overall impact of the Proposed Development on the local landscape will be ***moderate and neutral*** during operation. Visual impacts and amenity impacts perceived by individual persons are highly subjective and difficult to characterise however, the visual impacts considered will be ranging from ***neutral, not significant to slight and adverse*** due to the operation of the Proposed Development.
- With reference to Chapter 5 (Land, Soils and Geology), during the operational phase of the Proposed Development there is no potential for impact on human health and populations due to changes in land, soil, and geology. In the absence of mitigation, the potential impacts are ***neutral***, ***imperceptible*** and ***long term***.
- As outlined in Chapter 8 (Air Quality) air dispersion modelling of operational traffic emissions was undertaken to assess the impact of the development with reference to National and European ambient air quality standards which are based on the protection of human health and indicate pollutant emissions will be in compliance with the assessment criteria. Impact will be ***localised, direct, long-term, negative*** and ***not significant***. Detailed air dispersion modelling of emissions of NO2 from the technology park also determined that pollutant concentrations will be in compliance with the relevant limit values and emissions from the Proposed Development will have a ***direct, long-term, negative, slight*** and ***not significant*** impact.
- As detailed in Chapter 10 (Noise and Vibration), the main potential noise impacts associated with the operation of the Proposed Development are noises related building services, emergency site operations, and additional vehicular traffic on the public roads. The expected health effect due to noise from the Proposed Development is classified as ***neutral***, ***not significant*** and ***long-term***.
- An assessment of the additional traffic movements associated with the Proposed Development during the construction and operational phases is presented in Chapter 13 (Traffic and Transportation). The traffic modelling results show that development traffic will have a ***neutral, imperceptible*** and ***long-term*** impact on queue and delays, in comparison to the baseline scenario.
- The risk of major accidents at the facility is negligible due to the absence of nearby permitted Seveso/Control of Major Accident Hazards (COMAH) Regulation sites and the flood risk for Proposed Development is considered to be minimal. The potential effect is therefore ***imperceptible,*** and unlikely, in respect of Major Accident Hazards or Natural Disasters on Population and Human Health during operations.

4.4 Mitigation and Residual Effects (Post-Mitigation)

4.4.1 Construction Phase

The mitigation measures to address the potential impacts on Population and Human Health from the construction phase of the Proposed Development and post-mitigation residual effects include:

- With reference to Chapter 11 (Landscape and Visual Impact), the implementation of the CEMP, retention of boundary hedgerows and tree protection measures along with the implementation of standard best practice construction site management (e.g., erection and maintenance of site hoarding, orderly storage of materials and vehicles, etc.) will mitigate against potential impacts. Overall, it was considered that the magnitude of landscape impact during construction will be no greater than a ***substantial-moderate*** significance and ***negative*** in quality, whilst the significance of construction stage visual impacts is deemed to be no greater than ***moderate*** with a ***negative*** quality in the immediate surrounds of the site
- All mitigation measures outlined within the Chapter 5 (Land, Soils, Geology) and Chapter 6 (Hydrology) will be implemented in accordance with Construction Environmental Management Plan (CEMP), as well as any additional measures required pursuant to planning conditions which may be imposed. Impacts on the land, soils, geology and hydrological environment will be ***short-term, imperceptible*** and ***neutral***
- As outlined in Chapter 8 (Air Quality), a suite of best practice dust mitigation measures appropriates for sites with a medium risk of dust impacts will be implemented throughout the duration of the construction phase. The dust mitigation measures proposed in Chapter 8 will reduce dust emissions and thus dust-related human health effects and residual impact will be ***direct, short-term, negative*** and ***not significant***..
- Mitigation measures proposed to minimise the potential effects on human health in terms of noise and vibration during the construction phase are set out in Chapter 10 and in the CMP. Mitigation measures for the construction phase include carrying our works during daytime periods only, appointing a noise liaison officer to manage notifications to nearby noise-sensitive locations about upcoming disruptive activities and handle any noise-related complaints. The contractor will implement several general measures: avoiding unnecessary engine revving, switching off equipment when not in use, maintaining haul roads to high standards, avoiding steep gradients, minimizing the drop height of materials, and starting plant equipment sequentially rather than simultaneously. Best Practicable Means (BPM) will be applied to ensure the use of the quietest equipment available, with enhanced sound reduction methods such as enclosures where necessary. Equipment will be positioned as far as possible from noise-sensitive areas, and regular maintenance by trained personnel will help minimize noise and vibration. Additionally, high-noise and vibration activities will be restricted to certain hours to reduce disruption. A site representative will be appointed to oversee noise and vibration management before construction begins.
- The development will adopt off-peak arrival and departure times for the construction staff to ensure construction flows do not overlap with the surrounding road network peak periods. The contractor will also develop a detailed Logistics Plan to identify the delivery schedule requirements for every delivery, and implement a detailed Construction Traffic Management Plan. The impact of the traffic increase on human health and populations will remain ***negative***, ***slight*** and ***short-term***.

4.4.2 Operational Phase

The mitigation measures to address the potential impacts on Population and Human Health from the operational phase of the Proposed Development and post-mitigation residual effects include:

- With reference to Chapter 11 (Landscape and Visual), mitigation for landscape effects is integrated into the layout and design, with no additional measures needed to reduce impacts to an acceptable level. Key strategies include structure planting to screen views, designing buildings to match the horizontal mass of nearby structures, and setting the layout back from sensitive receptors. Landscape impacts will evolve as the landscape matures, resulting in a cohesive site characterized by mature trees, shrubs, and colourful wildflower meadows. Regarding visual effects, during the operational phase all views will remain within acceptable levels of impact, with no further mitigation required.
- There are no source pathway linkages to potable water supplies or water amenities. As such the **implementation** of the design measures will continue to ensure that the residual impacts during the operational phase in respect of the environmental factor of Soils, Geology, Hydrogeology and Hydrology is ***imperceptible-neutral***.

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- No additional mitigation measures are proposed for the operational phase of the Proposed Development. As demonstrated by the dispersion modelling results, pollutant concentrations with the Proposed Development operational are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant impact on human health. The impacts to human health are predicted to be ***direct, long-term*** and ***not significant***.
- low-noise equipment and or specific attenuation measures will be will selected to achieve the operational noise outputs detailed in Chapter 10 (Noise and Vibration) be used. This approach, integrated into the detailed design process, will ensure that the site operates within the noise limits established by best practice guidance. Noise mitigation measures for traffic generated during the operational phase of the development are not considered necessary.
- As outlined in Chapter 13 (traffic and Transportation), a Mobility Management Plan (MMP) will be developed to mitigate the anticipated increase in traffic volumes. A MMP Manager will be appointed by the developer as the main point of contact and coordinator of MMP activities for monitoring and achieving sustainable travel targets. it is anticipated that the effects of the proposed development both on the local road network and on human beings will continue to be ***neutral***, ***imperceptible*** and ***long-term***.

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4.5 Cumulative Impact of the Proposed Development

4.5.1 Construction Phase

In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase and contribute to additional impacts in terms of traffic, dust, and noise.

Contractors for the Proposed Development will be contractually required to operate in compliance with a project-specific CEMP and Construction Traffic Management Plan which will include the mitigation measures outlined in this EIA Report. The construction phase for the overall development of the applicant owned lands would be restricted by the binding limits for noise, dust, and emissions to water.

The implementation of mitigation and monitoring measures detailed in Chapter 6 as well as the compliance of permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change in surface water during the construction phase of the Proposed Development. The residual cumulative impact of the Proposed Development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible*** and ***short-term***.

4.5.2 Operational Phase

The potential cumulative impacts of the Proposed Development during the operational phase in terms of air emissions and noise generation in the context of the Permitted Development have been considered in Chapter 8 (Air Quality) and Chapter 10 (Noise and Vibration).

There is the potential for cumulative impacts to air quality during the operational phase due to traffic associated with other existing and permitted developments within the area. The traffic data supplied for the operational phase assessment included data for cumulative development within the area. The effect on air quality during the operational phase of the Proposed Development, including the cumulative effect, will be ***direct, long-term, negative*** and ***not significant***.

The potential for cumulative impact of the emissions from the proposed technology park with Industrial Emissions (IE) licenced or Integrated Pollution Control (IPC) installations has been considered, in line with the methodology of AG4 (EPA, 2020). The closest IPC or IE licenced facilities are over 6 km from the Proposed Development. At this distance it is unlikely that the emission plumes from the Proposed Development and the licenced sites would significantly interact. Therefore, the potential for cumulative

impacts is not predicted and a detailed cumulative air dispersion modelling assessment has been scoped out.

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5. LAND, SOILS AND GEOLOGY

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5.1 Introduction

AWN has prepared this assessment of Land, Soils & Geology is contained within Chapter 5 of the EIAR. This chapter of the EIAR evaluates the likely significant effects, if any, which the proposed development will have on Land, Soils and Geology. This chapter contains necessary information as defined in the Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2023).

The chapter initially provides a description of the receiving environment of the site and the potential impacts of the development. When assessing the potential impacts, this assessment considers the significance of the environmental attributes, and the predicted scale, and duration of the likely effects.

The chapter also outlines the proposed mitigation and design measures that will reduce or eliminate the identified potential impacts and defines the residual effects of the proposed development (the effect after the implementation of mitigation measures). effect after the implementation of mitigation measures).

5.2 Baseline Environment

The proposed development covers an area of c. 110.233 hectares of which c. 27.187 hectares is the proposed Technology Park and Village Centre, and the remainder is the proposed solar panel farm. The site is surrounded primarily by agricultural land to the north south and west and is bounded by Kilmeaden village to the east.

The 'Kilmeaden Cheddar Cheese' factory was constructed in 1965 and comprised the main factory building in the eastern portion of site which included the cheese production area, boiler house fueled by natural gas and offices. The raw milk intake silos for this factory were located to the south of the building with an associated truck wash area. Cheese production was carried out at the 'Cheddar Cheese' factory from 1965 to 2005.

The approximate topographical levels for the proposed site range between 89.0AoD to 15.0mAOD. The site contains a hill with the highest point of 89.0mAoD in the center and the lowest point 15mAoD to the northeast where the main entrance to the old Cheese Factory is located. The site slopes to the north-east towards the Whelanbridge Trib 1 (European Code: IE_SE_16W010400) and Whelanbridge River (European Code: IE_SE_16W010400).

Based on a review of GSI online mapping, the proposed development is predominantly underlain by tills from acidic volcanic rocks subsoils while the northeastern section of the site is underlain by tills from Devonian sandstone subsoils. Alluvium was identified along the northern and eastern boundary of site in the vicinity of the Whelanbridge River and its tributary. The central and western section of the site is shown to have hilly terrain and it's described to be underlain by bedrock outcrop and subcrop.

According to GSI (2025), it was identified that majority of the site is underlain by In Campile Formation which is described as Felsic and Intermediate Volcanic rocks. The northeastern section of the site is underlain by Dark grey slate with thin Siltstone of Ross Member Formation. Bedrock outcrops can be seen predominantly along the northern and western boundary of the site.

No geological heritage areas are identified with the site boundary (GSI, 2025).

The GSI presently classifies the aquifer underlying the proposed development site with several vulnerability classifications. The eastern section of the proposed development site is classified by the GSI as having 'Moderate' (M) to 'High' (H) vulnerability. The western portion of the proposed development site is classified as having 'Extreme' (E) to 'Rock at or Near Surface or Karst' (X), where a higher elevation is encountered and bedrock outcrops.

A landslide susceptibility map identifies areas which are subject to landslides and is measured from low to high.

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5.3 Potential Impacts of the Proposed Development

5.3.1 Demolition Phase

The development contains some demolition of former factory site building (24,100 sq.m). Approximately 0.5 m deep across the area of the former factory site will be excavated and removed from site) 12,050 cu.m soil for disposal.

The likelihood of significant effects on the land, soils and geology during the demolition phase is minimal due to the demolition works of the proposed development being limited to near surface-level activities and removal of infill material for the most part. The absence of excavation works means that there is no disturbance to the natural soil structure, preventing potential soil erosion or compaction. As a result, the impact on the land and soils is minimal and no significant effects on the land's composition, stability, or fertility are anticipated.

Overall, the surface-level demolition works will have a negligible impact on the land, soils and geology preserving their integrity and minimizing any potential environmental consequences. In the absence of mitigation, the effect on land, soils and geology is likely to be ***short-term, imperceptible*** and ***negative.***

5.3.2 Construction Phase

In absence of mitigation measures, the construction phase would present potential impacts associated to the following activities:

- Excavation and Infilling.
- Accidental Spills, discharges, and Leaks

There will be soil, stones, made ground and clay excavated to facilitate construction of new foundations, basement and the installation of underground services. The development engineers (Atkins Realis Ireland Limited) have estimated that c. 244,048m^3 of material will need to be excavated to do so. This material will need to be removed offsite due to the limited opportunities for reuse on site. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

Without the consideration and employment of mitigation measures the potential impacts during the construction phase on land, soils and geology, hydrogeology (groundwater) are ***negative, imperceptible*** and ***short term***.

5.3.3 Operational Phase

In absence of mitigation methods but with design measures in place (including paving, bunding of HVO tank, stormwater design and oil interceptors), the operational phase would present potential impacts associated to the following activities:

- Spills of HVO during filling of tanks.
- Slight increase in hardstanding.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on land, soils, geology and hydrogeology are ***negative, imperceptible***, and ***long-term.***

5.4 Mitigation and Residual Effects (Post-Mitigation)

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5.4.1 Demolition Phase

The demolition works for the proposed development are limited to surface-level activities with no excavation, resulting in minimal impact on land and soils. The process involves dismantling structures without disturbing the natural soil structure or landscape, thereby preventing soil erosion or compaction. Waste materials will be managed according to regional and national legislation.

A carefully planned approach to waste management during the demolition phase will ensure that the impact on land, soils, and the geological environment is ***short-term, imperceptible, and neutral***. The magnitude of the impact is considered ***negligible.***

5.4.2 Construction Phase

In order to reduce impacts on the soils, geological and hydrogeological environment, a number of mitigation measures will be adopted as part of the construction works on site.

- Implementation of a Construction Management Plan (CMP);
- Control of soil excavation;
- Sourcing of fill and aggregates
- Surface water management during construction
- Fuel and chemical handling.

The predicted impact on the geological and hydrogeological environment during the construction phase is ***neutral, imperceptible*** and ***short-term,*** the magnitude of impact is considered ***negligible***.

5.4.3 Operational Phase

A number of design measures will be put in place to minimise the likelihood of any spills entering the soil and groundwater environment to include the design of the car park with hydrocarbon interceptors. In the event of an accidental leakage of HVO or car leak oil spill from the parking areas, this will be intercepted by the drainage infrastructure proposed.

The proposed surface water drainage system comprises multiple design measures to protect ground and surface water quality (interception system, petrol inceptors, settlement tanks, SuDS measures, etc.). No further mitigation measures are to be required during the operational phase.

The predicted impact on the geological and hydrogeological environment during the construction phase is ***neutral, imperceptible*** and ***long-term,*** the magnitude of impact is considered ***negligible.***

5.5 Cumulative Impact of the Proposed Development

5.5.1 Demolition Phase

Any developments proposed in the area will have to adhere to their own CEMP and Mitigation plans. There are no pathway connecting the sites in terms of land, soils and geology.

Overall, the surface-level demolition works will have a negligible impact on the land, soils and geology environment, preserving their integrity and minimizing any potential environmental consequences. The implementation of mitigation measures outlined in Section 5.6 will ensure the residual effect on the land, soils and geology environment during the demolition phase is likely to be ***short-term-imperceptible-neutral.***

5.5.2 Construction Phase

RECEIVED: 08/09/2025

All developments will have to incorporate measures to protect soil and water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016). As a result, there will be minimal cumulative potential for change in soil quality. The likely cumulative impact is considered to be ***short-term, neutral*** *and* ***imperceptible.***

5.5.3 Operational Phase

All developments are required to manage groundwater discharges in accordance with S.I. 9 of 2010 and S.I. 266 of 2016 amendments. As such, there will be no cumulative impact to groundwater quality and, therefore, there will be no cumulative impact on the soils or underlying aquifer. The operation of the proposed development is concluded to have a ***long-term***, ***imperceptible*** with a ***neutral*** impact on soil and groundwater in combination with other developments in the surrounding area.

6. HYDROLOGY AND HYDROGEOLOGY

RECEIVED: 05/09/2025

6.1 Introduction

AWN has prepared this chapter which assesses and evaluates the likely significant effects of the development on the hydrological aspects of the site and surrounding area. In assessing likely potential and predicted effects, account is taken of both the importance of the attributes and the predicted scale and duration of the likely effects.

6.2 Baseline Environment

The site is surrounded primarily by agricultural land to the north south and west and is bounded by Kilmeaden village to the east.

The approximate topographical levels for the proposed site range between 89.0AoD to 15.0mAOD. The site containing a hill known as the Blackknock Hill with the highest point of 89.0mAoD in the centre and the lowest point 15mAoD to the northeast where the main entrance to the old Cheese Factory is located. The site slopes to the north-east towards the Whelanbridge Trib 1 (European Code: IE_SE_16W010400) and south-west towards the Whelanbridge River (European Code: IE_SE_16W010400).

The entire area was greenfield until 1965 when the 'Kilmeaden Cheddar Cheese' factory was constructed on part of the site. This development comprised the main factory building in the eastern portion of site which included the cheese production area, boiler house fuelled by natural gas and offices. The raw milk intake silos for this factory were located to the south of the building with an associated truck wash area. Cheese production was carried out at the 'Cheddar Cheese' factory from 1965 to 2005. The proposed development site is located within the former Eastern River Basin District (ERBD) (now the Irish River Basin District), as defined under the European Communities Directive 2000/60/EC, establishing a framework for community action in the field of water policy – this is commonly known as the Water Framework Directive (WFD). The proposed development site is located in the South Eastern River Basin District (IESE) (Hydrometric Area No. 16).

The current EPA watercourse mapping shows two watercourses flowing adjacent to the proposed development site. The Whelanbridge Trib 1 (European Code: IE_SE_16W010400) is located along the north-eastern boundary, flowing in a northerly direction before discharging to the Whelanbridge River c. 330m north-east (linear distance) and c. 520m downstream of the proposed development site.

The Whelanbridge River flows north before discharging to the lower Suir Estuary Transitional Waterbody (European Code: IE_SE_100_0600) c. 2.12km downstream. The Upper Suir Estuary Transitional Waterbody is located entirely within the Lower River Suir SAC (Site Code: 002137).

The site comprises multiple fields enclosed and separated by boundaries and internal hedgerows. Site drainage is towards the existing settlement ponds on site and ultimately to the Whelanbridge River.

Site walkovers identified features associated with the historical management of milk waste products, previously treated through a series of integrated constructed wetlands. Following the closure of the 'Kilmeaden Cheddar Cheese' factory, the functionality of these water management systems has diminished. Over time, many of these ponds have dried out, transitioning into areas dominated by scrub vegetation. However, two ponds still retain water. The first pond is situated to the southwest of Blacknock Hill, adjacent to the farm trackway, and is bordered by gorse scrub and improved dry grassland. The second pond is located to the southeast of Blacknock Hill.

A review of the Environmental Protection Agency's (EPA) online mapping that includes the Register of Protected Areas (RPA) under the Water Framework Directive (WFD) has shown that there are no Recreational Waters or Bathing Waterbodies or public water supplies located in the vicinity of the site.

A Site-Specific Flood Risk Assessment (SSFRA) has been undertaken for the proposed development by Atkins Realis in April 2025. The majority of the site is located entirely within the CFRAM Flood Zone C i.e. the probability of flooding is low (less than 0.1% AEP or in 1 in 1000 chance a year) for river and coastal flooding while a small portion of the development (earthwork embankments within the floodplain) is constructed in flood zones A & B. The development includes the implementation of SUDS and an attenuation system. The design includes a climate change allowance.

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Currently there is no existing foul sewer on the site. There is an existing 225mm diameter foul sewer located outside the east boundary of the site, on R680. There is also another unknown diameter foul sewer located to the north of the site.

6.3 Potential Impacts of the Proposed Development

6.3.1 Demolition Phase

The development contains existing buildings to be demolished. The likelihood of significant effects on hydrology and hydrogeology during the demolition phase is minimal due to the demolition works of the proposed development being limited to surface-level activities and do not involve any significant excavation works.
Overall, the surface-level demolition works will have a negligible impact on the hydrology and hydrogeology preserving their integrity and minimizing any potential environmental consequences. In the absence of mitigation, the effect on hydrology and hydrogeology is likely to be ***short-term, imperceptible*** and ***negative.***

6.3.2 Construction Phase

In absence of mitigation measures, the construction phase would present potential impacts associated with the following activities:

- Increased surface run-off and sediment loading in run-off.
- Accidental spills, discharges and leaks impacting surface water quality.
- Impact on off site drainage ditch due to crossing for foul sewer construction
- Potential impact due to bridge construction for access.

Without the consideration and employment of mitigation measures, the potential impacts during the construction phase on surface water and groundwater quality are ***negative***, ***slight,*** and ***short term***.

6.3.3 Operational Phase

The operational phase includes design measures to manage water quality and run-off in relation to:

- Slight increase in hardstanding reducing recharge to aquifer.
- Runoff from car park area with potential small traces of hydrocarbons
- Accidental leak of HVO during filling procedures

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase are ***negative, imperceptible***, *and* ***long-term***.

6.4 Mitigation and Residual Effects (Post-Mitigation)

6.4.1 Demolition Phase

The demolition works for the proposed development are limited to surface-level activities with no excavation, resulting in minimal impact on hydrology and hydrogeology. The process involves dismantling

structures without disturbing the natural soil structure or landscape, thereby preventing soil erosion or compaction. Waste materials will be managed according to regional and national legislation.

A carefully planned approach to waste management during the demolition phase will ensure that the impact on hydrological and hydrogeological environment is ***short-term, imperceptible, and neutral***. The magnitude of the impact is considered ***negligible.***

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6.4.2 Construction Phase

In order to reduce impacts on the soils, geological and hydrogeological environment, a number of mitigation measures will be adopted as part of the construction works on site.

- Implementation of a Construction Management Plan (CMP).
- Fuel and chemical handling.
- Method statement for bridge construction including no instream works for bridge construction
- Compensation storage provided for embankment located in flood plain
- Silt reduction measures on site will include a combination of silt fencing and settlement measures (silt traps, attenuation pond) and use of riparian zone along river and buffer zones around ponds

The predicted impact on the hydrological and hydrogeological environment with mitigation during the construction phase is ***neutral, imperceptible*** and ***short-term,*** the magnitude of impact is considered ***negligible***.

6.4.3 Operational Phase

The design has taken account of the potential impacts of the development on surface water and groundwater quality; measures have been incorporated in the design to mitigate these potential impacts.

The proposed development stormwater drainage network design includes sustainable drainage systems (SuDS). These measures by design ensure the stormwater leaving the site is to be attenuated and treated within the new development site boundary to ensure suitable quality, before being discharged. The surface water drainage strategy integrates various measures, including porous asphalt in car parks, filter drains and swale drains in open spaces, permeable paving (Grasscrete) around the buildings, attenuation ponds, infiltration tanks, and a rainwater harvesting system. These features will effectively manage surface water flows, directing them to the attenuation ponds and infiltration tanks to maximize their storage potential. The flow control devices will be installed downstream of the ponds outlet pipes to ensure the surface water runoff is stored maximising storage potential, prior to entering the network downstream i.e. the Whelanbridge Trib 1 located along the eastern boundary of the site.

No further mitigation measures are to be required during the operational phase.

The predicted impact on the hydrological environment during the construction phase is ***neutral, imperceptible*** and ***long-term,*** the magnitude of impact is considered ***negligible***.

6.5 Cumulative Impact of the Proposed Development

6.5.1 Demolition Phase

Any developments proposed in the area will have to adhere to their own CEMP and Mitigation plans.

Overall, the surface-level demolition works will have a negligible impact on the hydrological and hydrogeological environment, preserving their integrity and minimising any potential environmental consequences.

The implementation of mitigation measures outlined in Section 5.6 will ensure the residual effect on the hydrological and hydrogeological environment during the demolition phase is likely to be ***short-term-imperceptible-neutral***.

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6.5.2 Construction Phase

The works contractors for other planned or permitted developments as set out in Chapter 2, Section 2.8 and Appendix 2.1 of this EIA Report. will be obliged to ensure that measures are in place to protect water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009 and S.I. 77 of 2019).

As a result, there will be minimal cumulative potential for change in the natural hydrological regime. The cumulative impact is considered to be ***short-term, neutral*** and ***imperceptible***.

6.5.3 Operational Phase

All the operational cumulative developments are required to manage discharges in accordance with S.I 272/2009 and 77/2019 amendments. The implementation of mitigation and monitoring measures detailed in Section 6.6.1; and 6.7.1 of this EIA as well as the compliance of the other permitted developments with their respective planning conditions, will ensure there will be minimal cumulative potential for change in surface water during the operational phase of the proposed development. As such there will be no cumulative impact to surface water and groundwater quality and therefore there will be no cumulative impact on the surface waterbody status.

The operation of the proposed development is concluded to have a ***long-term***, ***imperceptible*** significance with a ***neutral*** impact on surface water and groundwater quality.

7. BIODIVERSITY

RECEIVED: 09/09/2025

7.1 Introduction

Forest, Environmental Research and Services (FERS) Ltd. has prepared this EIAR chapter to assess the Biodiversity resource present within the receiving environment of the proposed development and evaluate any likely potential impacts on Biodiversity during the construction and operational phases of the proposed development. Mitigation measures have been prescribed to minimise impacts to a negligible level.

7.2 Baseline Environment

The biodiversity resource occurring was assessed through the undertaking of surveys of flora and fauna during the period September 2024 to June 2025 inclusive. In conjunction with desk-top studies, these surveys identified Key Ecological Receptors, permitting a comprehensive assessment of potential ecological constraints and/or impacts (including cumulative impacts) associated with the proposed development. Where potential significant negative impacts on Key Ecological Receptors were identified, mitigation measures were prescribed such as to minimise any such impacts to a negligible level.

7.3 Potential Impacts of the Proposed Development

7.3.1 Construction Phase

The construction of the Proposed Development could have ***significant negative impacts*** on Key Ecological Receptors occurring, primarily through degradation of water quality (including impacts associated with Alien Invasive Plant Species).

7.3.2 Operational Phase

During the operation of the proposed development the design has incorporated design measures (e.g. use of HVO rather than diesel, buffer zones and use of SuDs measures) to ensure that there is minimal potential for release of contamination or suspended solids to water. As such there is ***no significant*** potential for impact on Key Ecological Receptors during the operational phase.

7.4 Mitigation and Residual Effects (Post-Mitigation)

7.4.1 Construction Phase

The primary mitigation measures prescribed minimise impacts on water quality (including those associated with occurrence/spread of Alien Invasive Plant Species), and are outlined in detail in Chapter 7 of the EIAR.

Following implantation of mitigation measures there will be ***no significant residual effect*** on Key Ecological Receptors.

7.4.2 Operational Phase

Following implantation of mitigation measures there will be ***no significant residual effect*** on Key Ecological Receptors.

7.5 Cumulative Impact of the Proposed Development

RECEIVED: 09/09/2025

7.5.1 Construction Phase

Adjacent forestry operations, Land spreading of organic waste by farmers in the locality, Part 8's, Current and future planning permissions, Quarrying activities such as water abstraction and discharge could have ***long term, negative, in combination*** impacts on KERS within the zone of influence.

Following implantation of mitigation measures there will be ***no significant cumulative impact*** on Key Ecological Receptors.

7.5.2 Operational Phase

Following implantation of mitigation measures there will be ***no significant cumulative impact*** on Key Ecological Receptors.

8. AIR QUALITY

RECEIVED: 08/09/2025

8.1 Introduction

This chapter of the EIAR was prepared by AWN to assess the likely significant effects on air quality as a result of the proposed development at Kilmeaden, Co. Waterford.

8.2 Baseline Environment

Baseline data and data available from similar environments indicates that levels of nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($PM_{2.5}$) and are generally in compliance with the current National and European Union (EU) ambient air quality standards.

8.3 Potential Impacts of the Proposed Development

8.3.1 Construction Phase

An assessment of the potential dust impacts as a result of the construction phase of the proposed development was carried out based on the UK Institute for Air Quality Management 2024 guidance document *'Guidance on the Assessment of Dust from Demolition and Construction'*. This established the sensitivity of the area to impacts from construction dust in terms of dust soiling of property and human health effects. The surrounding area was assessed as being of high sensitivity to dust soiling and of low sensitivity to dust-related human health effects.

The sensitivity of the area was combined with the dust emission magnitude for the site under four distinct categories: demolition, earthworks, construction and trackout (movement of vehicles) in order to determine the mitigation measures necessary to avoid significant dust impacts. It was determined that there is a high risk of dust related impacts associated with the proposed development. In the absence of mitigation there is the potential for ***direct, short-term, negative*** and ***slight*** impacts to air quality which is overall ***not significant.***

In addition, construction phase traffic emissions have the potential to impact air quality, particularly due to the increase in the number of HGVs accessing the site. Construction stage traffic did not meet the scoping criteria for a detailed modelling assessment outlined in Transport Infrastructure Ireland's 2022 guidance document *'Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106'.* As a result a detailed air assessment of construction stage traffic emissions has been scoped out and the construction stage traffic emissions will have a ***direct, short-term,*** and ***neutral*** impact on air quality, which is overall ***not significant*** in EIA terms.

8.3.2 Operational Phase

Operational phase traffic has the potential to impact air quality due to vehicle exhaust emissions as a result of the increased number of vehicles accessing the site. Operational stage traffic emissions were calculated at representative worst-case receptors in the area and it was determined that concentrations of NO_2, PM_{10} and $PM_{2.5}$ will increase by an imperceptible amount as a result of the proposed development. Operational stage traffic emissions will have a ***long-term, direct, localised, negative*** and ***not significant*** impact on air quality.

Air dispersion modelling of operational phase emissions from the installation of a gas turbine and back-up generators associated with the development was carried out using the United States Environmental Protection Agency's regulatory model AERMOD. The aim of the study was to assess the contribution of operational emissions of nitrogen dioxide (NO_2), from the proposed development operating to off-site

levels of this pollutant. The results of the modelling assessment determined that emissions from the proposed emission points on site will be in compliance with the ambient air quality standards for NO_2. The effect of proposed operations NO_2 emissions on air quality is considered ***direct, long-term, negative*** and ***not significant***.

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8.4 Mitigation and Residual Effects (Post-Mitigation)

8.4.1 Construction Phase

Detailed dust mitigation measures are outlined within Section 8.6.1 of Chapter 8 to ensure that no significant nuisance as a result of construction dust emissions occurs at nearby sensitive receptors. Once these best practice mitigation measures, derived from the Institute for Air Quality Management 2024 guidance '*Guidance on the Assessment of Dust from Demolition and Construction'* as well as other relevant dust management guidance, are implemented the impacts to air quality during the construction of the proposed development are considered, ***short-term, direct, negative*** and ***not significant***, posing no nuisance at nearby sensitive receptors (such as local residences).

8.4.2 Operational Phase

The 60 no. back-up generators associated with the ICT facilities will have a NO_X reduction system in place, selective catalytic reduction (SCR) or similar system, to ensure NO_X emissions are minimised to within the concentrations specified within Table 8.11 of Chapter 8. This is to ensure emissions from the proposed development are in compliance with the ambient air quality standards which are set for the protection of human health and the environment. The impact to air quality has been assessed as ***direct, long-term, negative, slight*** and ***not significant***.

8.5 Cumulative Impact of the Proposed Development

8.5.1 Construction Phase

There is the potential for cumulative impacts to air quality should the construction phase of the proposed development coincide with that of other developments within 500m of the site. A review of proposed/permitted developments in the vicinity of the site was undertaken to determine the potential for cumulative impacts.

The dust mitigation measures outlined in Section 8.6.1 of Chapter 8 will be applied during the construction phase which will avoid significant cumulative impacts on air quality. With appropriate mitigation measures in place, the predicted cumulative impacts on air quality associated with the construction phase of the proposed development and the permitted cumulative developments are deemed ***short-term, direct, negative*** and ***not significant***.

8.5.2 Operational Phase

The traffic data supplied for the operational phase assessment included data for cumulative developments within the area. The traffic was reviewed and a detailed air quality assessment of vehicle exhaust emissions was conducted. The effect on air quality during the operational phase of the proposed development, including the cumulative effect, will be ***direct, long-term, negative*** and ***not significant.***

It is unlikely that the emission plumes from the proposed development and the closest licenced sites (over 6km away) would significantly interact. Therefore, the potential for cumulative impacts is not predicted and a detailed cumulative air dispersion modelling assessment has been scoped out

9. CLIMATE

RECEIVED: 08/09/2025

9.1 Introduction

AWN has prepared this assessment of Climate.

9.2 Baseline Environment

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Regulation (EU 2018/842). National total emissions for 2024 are 57.64 Mt CO_2eq (see Table 9.6 of Chapter 9), thus 2021 to 2024 have used 82.5% of the 295 Mt CO_2eq Carbon Budget for the five-year period 2021-2025. This leaves 17.5% of the budget available for 2025, requiring a 10.3% average annual emission reduction in 2025 to stay within budget.

9.3 Potential Impacts of the Proposed Development

The potential impacts on climate have been assessed in two distinct ways – a greenhouse gas assessment (GHGA) and a climate change risk assessment (CCRA). The GHGA quantifies the GHG emissions from a project over its lifetime and compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude. The CCRA considers a projects vulnerability to climate change and identifies adaptation measures to increase project resilience.

9.3.1 Construction Phase

Construction traffic would be expected to be the dominant source of greenhouse gas emissions during this phase of the Proposed Development. Construction vehicles and machinery will give rise to CO_2 and N_2O emissions during construction of the Proposed Development. The Institute of Air Quality Management document '*Guidance on the Assessment of Dust from Demolition and Construction*' (IAQM, 2024) states that site traffic and plant is unlikely to make a significant impact on climate.

It is important to note that the potential impacts associated with the construction phase of the Proposed Development are short-term in nature. When the mitigation measures are implemented, GHG emissions from the site will not be significant. Due to the duration and nature of the construction activities, CO_2 and N_2O emissions from construction vehicles and machinery will have a ***short-term*** and ***imperceptibly negative*** impact on climate and thus have a ***not significant*** impact.

9.3.2 Operational Phase

Traffic emissions associated with vehicles accessing the site during the operational phase have been screened out of a detailed assessment as the traffic changes are not considered significant.

The Proposed Development has the potential, in the absence of mitigation, to release significant quantities of GHG emissions during the operational phase of the project. However, as the capacity of the Proposed Development is greater than 20 MW rated thermal input, a greenhouse gas emission permit will be required for the facility which will be regulated under the EU-wide Emission Trading System (ETS) which necessitates offsetting GHG emissions through the purchase of 'carbon credits'. Thus, the Proposed Development will operate under a system where GHG emissions will become increasingly costly and will encourage GHG emission reductions.

In addition, the proposed development has been designed so as to reduce impacts to climate once operational where possible. With a reduction in residual emissions through best practice and the implementation of a series of adaptive design measures, the net impact of the Proposed Development is not significant. Given that the use of electricity to power the facility will achieve net zero by 2050 and the

intention to meet all interim fossil fuel derived GHG emissions associated with the Proposed Development by the purchase of Corporate Power Purchase Agreements (CPPAs) the predicted impact to climate is deemed to be ***indirect, long-term, negative*** *and* ***minor adverse***.

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A CCRA was conducted to consider the vulnerability of the proposed development to climate change, as per the TII 2022 PE-ENV-01104 guidance. This involves an analysis of the sensitivity and exposure of the development to future climate hazards which together provide a measure of vulnerability. The hazards assessed included flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; drought; extreme wind; lightning, hail, fog, wildfire and landslides. The likelihood of extreme weather and flooding impacting the proposed development was assessed to be of low sensitivity and with a low or medium exposure leading to a finding of low vulnerability and thus a ***non-significant*** impact.

9.4 Mitigation and Residual Effects (Post-Mitigation)

9.4.1 Construction Phase

A number of best practice mitigation measures are proposed for the construction phase of the proposed development to ensure that impacts to climate are minimised. Design mitigation has been considered when assessing the vulnerability of the development to future climate change. The effect of the proposed development in terms of climate will be ***direct, short-term, negative*** and ***not significant***.

A detailed climate assessment of the construction stage traffic has been scoped out and it can therefore be determined that the construction stage traffic will have a residual ***direct, short-term, negative*** and ***not significant*** effect on climate.

9.4.2 Operational Phase

The proposed development will result in some impacts to climate through the release of GHGs. TII state that the crux of assessing significance is *"not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050"*. The proposed development has been designed to reduce the impact on climate where possible during operation.

In addition, it is the intention of the applicant that measures be implemented in line with "best practice" as outlined in the IEMA guidance (IEMA, 2022). The Open Cycle Gas Turbines (OCGTs) will be dual-fuel with an ability to run with Hydrotreated Vegetable Oil (HVO). The phasing of the development and the period taken to reach full capacity within each planned phase will result in the 'ramping up' of demand associated with the project over a number of years during the lifetime of the permission and thus the GHG emissions in the early years of the project will be an overestimation of reality. In addition, the project intends to facilitate Corporate Purchase Power Agreement (CPPA) between renewable energy projects and Project's tenants, which would offset residual GHG emissions associated with the Proposed Development. Once mitigation measures are put in place, the effect of the proposed development in relation to GHG emissions is considered ***long-term, negative*** and ***slight,*** which is overall ***not significant*** in EIA terms.

In relation to climate change vulnerability, it has been assessed that there are no significant risks to the proposed development as a result of climate change. The residual effect of climate change on the proposed development is considered ***direct, long-term, negative*** and ***imperceptible***, which is overall ***not significant*** in EIA terms.

9.5 Cumulative Impact of the Proposed Development

In relation to climate, all global cumulative GHG sources are relevant to the effect on climate change. As a result, the effects of GHG emissions from specific cumulative projects therefore in general should not be individually assessed. This is due to the fact that there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other (IEMA, 2022).

10. NOISE AND VIBRATION

RECEIVED: 08/09/2025

10.1 Introduction

Awn has prepared this assessment of Noise and Vibration.

10.2 Baseline Environment

There are a number of dwelling houses clustered to the northwest of the site at distances of 5 to 20m, to the northeast at distances of 5 to 110m, to the southeast at distances of 5 to 50m and to the west and south at distances of 35 to 610m.

Based on a noise survey carried out for the application, daytime noise levels at noise survey locations are in the range 49 to 63 dB L_{Aeq} and 38 to 55 dB L_{A90}. Night-time noise levels were in the range 40 to 53 dB L_{Aeq} and 31 to 36 dB L_{A90}.

10.3 Potential Impacts of the Proposed Development

10.3.1 Construction Phase

The construction assessment has determined that whilst there will be increased construction related noise at the closest noise sensitive locations to the proposed development, the majority of works can be controlled to within the adopted construction noise thresholds. The exceptions to this statement are during construction of the village centre, solar farm and data centre (and associated energy centre), when the construction noise levels are predicted to exceed the threshold for significant impact within 15m of general site works and 20m of excavation works for the village centre, within 20m of general site works and 35m of excavation works for the solar farm, and within 20m of general site works for the data centre.

There are no construction vibration sources that will give rise to any significant vibration impacts.

The application of binding noise limits, hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact are minimised.

10.3.2 Operational Phase

The primary sources of outward noise in the operational context are long term and will comprise noise the associated the cooling plant at the ICT facilities, the gas turbines and transformers at the energy centre and the air source heat pumps from village centre.

Detailed computer-based noise modelling of the site shows that the noise levels at noise-sensitive locations are within the noise criteria taking the ICT facilities, energy centre, village centre and the permitted data into account.

In the context of the surrounding road network the Proposed Development will not generate significant additional traffic noise.

The resultant noise effect is stated to be ***negative, slight*** to ***moderate*** and ***long term.***

10.4 Mitigation and Residual Effects (Post-Mitigation)

10.4.1 Construction Phase

Subject to the appropriate noise management practices described in the Chapter 10, the associated effect is stated to be ***negative, not significant*** to ***moderate*** and ***short-term.***

10.4.2 Operational Phase

Based on the assessment of operational noise the overall effect is ***negative, slight*** to ***moderate*** and ***long-term.***

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10.5 Cumulative Impact of the Proposed Development

10.5.1 Construction Phase

Once the mitigation measures outlined for the Proposed Development are implemented, the cumulative impact with other developments would be negligible. As such the overall impact during construction will be ***negative*** and ***moderate*** i.e. as assessed for the Proposed Development itself.

10.5.2 Operational Phase

Given the nature of the potentially cumulative developments, it is not expected that any significant cumulative impact may arise. As such the overall impact during operation will be ***negative*** and ***moderate*** i.e. as assessed for the Proposed Development itself.

Overall, no significant noise and vibration impacts are predicted during the construction or operational phases of the Proposed Development or cumulative development.

11. LANDSCAPE AND VISUAL IMPACT

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11.1 Introduction

The landscape assessment has been prepared by KTLA. The purpose of this chapter is to analyse the existing landscape and to assess the likely potential visual impacts arising from the proposed development and overall masterplan on the existing landscape and any mitigation measures proposed. The subject lands were assessed in relation to their surrounding environment to identify a study area in which both visual and landscape character impacts would be perceivable. Important landscape features on subject lands and in the wider area were identified as part of this process.

11.2 Baseline Environment

The subject lands are located in the small village of Kilmeaden, which sits approximately 10km west of Waterford City. The lands are located to the south-west of the regional road R680, which forms the main transitory route through the village of Kilmeaden. It's bordered to the north, south and east by local roads and laneways, while to the west, the boundary is formed by a large tree belt and stream. The surrounding landscape is agricultural, being used for both pastoral and arable farming and with hedgerow field boundaries typical of a traditional Irish agricultural landscape. The most built-up part of the local landscape is Kilmeaden Village and it's extents. The commercial part of the village is small and consists of a cluster of local shops and commercial and industrial units which are located to the north and east of the subject lands along the R680. The village has seen some expansion in recent years with the construction of housing developments in the southern part of the village such as Clochan and Fan Glas. There is also some scattered residential development along the R680 and local laneways which bound the subject lands. Adamstown Water Treatment Station and the Waterford City Bypass or N25 are located to the north-east of the site.

The current site mostly consists of agricultural land with traditional field boundary hedgerows. There is a dense belt of vegetation along the stream and flood zone to the eastern site boundary with Kilmeaden Village. The northern corner of the subject lands is the site of a former and disused factory with remnants still remaining. In the western part of the site, an existing farmyard site on the slopes of Blackknock Hill, the main topographical feature on the subject lands, and one generally visible in the local landscape. There are a number of constructed wetlands and ponds which were used for water treatment during the operation of the former factory. This part of the site is also dominated by farmland. There are also various areas of native scrub and non-native commercial forestry throughout this part of the site. The various parts of the site can be accessed via existing farm tracks throughout the landscape. The Whelansbridge River and associated vegetation define the western boundary.

11.3 Potential Impacts of the Proposed Development

11.3.1 Construction Phase

- Visual impacts due to the introduction of new structures, access roads, machinery, materials storage, associated earthworks, car parking, lighting and hoarding.
- Change of character due to the change in use.
- Visual impacts due change in ground levels and earthworks.
- Visual and landscape character impacts due to the removal of existing vegetation.

11.3.2 Operational Phase

- Visual impacts due to the introduction of new roads, parking, mechanical plant and lighting.
- Visual impacts due to the introduction of services and waste handling areas and litter.
- Change of character due to the change in use.

- Visual impact of landscape proposals – planting, lighting, hard surfaces etc.
- Landscape and visual impacts due to the removal of existing vegetation
- Landscape and visual impacts due to the installation of trees and vegetation

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Table 11.1 Summary of Effects of the Proposed Development on Sensitive Visual Receptors during operation and before mitigation[2]

View	Relevant Receptors	Receptor Sensitivity	Quality	Significance	Probability	Duration
01	1 & 2	Low	Negative	Slight	Likely	Long-term
02	4 & 6	Low-Medium	Negative	Moderate	Likely	Long-term
03	4	Medium	Negative	Slight	Likely	Long-term
04	7	Low	Positive	Slight	Likely	Long-term
05	12	Low	Positive	Slight	Likely	Long-term
06	16	Medium	Negative	Significant	Likely	Long-term
07	19, 20 & 21	Low-High	Negative	Significant	Likely	Long-term
08	24	High	Negative	Moderate	Likely	Long-term
09	26 & 27	Low-High	Negative	Slight	Likely	Long-term
12	34	Medium	Negative	Moderate	Likely	Long-term
13	29	Medium	Negative	Slight	Likely	Long-term

11.4 Mitigation and Residual Effects (Post-Mitigation)

11.4.1 Construction Phase

Mitigation by Avoidance and Design

- Development of a construction management plan as an integral part of the design process, with control of construction activity, traffic, materials storage and lighting with due consideration for neighbouring residences and surrounding area
- A site planning design strategy to retain boundary hedgerows and tree protection measures was designed and implemented as part of the design process

Mitigation by Prevention

- Site hoarding shall be erected to screen view of construction activity
- Tree protection measures will be installed to ensure vegetation to be retained is fully protected during the construction process

Mitigation by Reduction

- Monitoring of construction management plan and tree protection measures throughout the construction phase

[2] Assessment takes account of integrated design mitigation measures only

11.4.2 Operational Phase

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Mitigation by Avoidance and Design

- The architectural design of the building aims to reduce the visual mass through its form and choice of materials.
- The retention of existing native hedgerows will assist the visual integration of the building into the landscape and mitigate the visual impact.
- The landscape proposals include green links, trees, hedgerows, wetlands, SUDS features, woodland blocks and wildflower meadow. These elements will assist the visual integration of the building into the landscape and mitigate the visual impact.
- The inclusion of native coniferous tree species within the planting design will aid in the visual screening of the development throughout the whole year.

Mitigation by Prevention

- Creation of new hedgerows and tree belts in locations where they will aid visual integration of the scheme and reduce negative visual impacts.
- The retention of the existing landscape and exclusion zones around the solar panels will aid with their visual integration.

Mitigation by Reduction

- Periodic tree surveys and implementation of a tree management plan for the mature trees on site to ensure their continued sustainability.
- The implementation and monitoring of a landscape management plan for the full duration of the defects liability period to ensure successful establishment of the proposed planting scheme and trees.

Table 11.2 Summary of Residual Effects of the Proposed Development on Sensitive Visual Receptors[3]

View	Relevant Receptors	Receptor Sensitivity	Quality	Significance	Probability	Duration
01	1 & 2	Low	Negative	Not significant	Likely	Long-term
02	4 & 6	Low-Medium	Negative	Slight	Likely	Long-term
03	4	Medium	Negative	Not significant	Likely	Long-term
04	7	Low	Positive	Moderate	Likely	Long-term
05	12	Low	Positive	Moderate	Likely	Long-term
06	16	Medium	Negative	Moderate	Likely	Long-term
07	19, 20 & 21	Low-High	Negative	Moderate	Likely	Long-term
08	24	High	Negative	Slight	Likely	Long-term
09	26 & 27	Low-High	Negative	Not significant	Likely	Long-term
12	34	Medium	Negative	Slight	Likely	Long-term
13	29	Medium	Negative	Not significant	Likely	Long-term

[3] After prevention and reduction mitigation measures

11.5 Cumulative Impact of the Proposed Development

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There are a number of permitted developments in the local landscape which share typologies with the proposed development. There are two permitted housing schemes, WCC Reg. Ref 21214 and WCC Reg. Ref 22507, to the east of the subject lands. Both are partially completed and are referenced in Section 11.3 as Fan Glas and Clochan. The developments consist mostly of detached, semi-detached and terraced housing, but also include apartment blocks.

A number of permitted Solar Farm schemes also exist in close proximity to the subject lands, one in the townland Loughdeheen, to the south of the subject lands, and the other in the townland of Amberhill, to the west of the subject lands.

Furthermore, the existing development in Kilmeaden Village includes a number of industrial and commercial units such as garages, shops, garden centres, storage yards, mixed-use commercial buildings and, in the more external parts of the village, agricultural buildings.

11.5.1 Construction Phase

The construction activities associated with the construction of the neighbourhood centre and residential part of the site will be of a similar scale, duration and typology as the permitted and partially constructed residential developments described above. Similarly, the construction of the solar farm element of the site will have the same impacts as the permitted solar farm schemes in the local landscape.

Furthermore, the activities carried out in local warehouses, agricultural buildings, garages, etc., although not as intrusive, would have a similar impact on landscape character and a similar visual impact as the construction activities which will be carried on the subject lands.

With the above considered, the impacts of the proposed development would not be out of place in the local landscape and the surrounding existing and permitted developments would decrease the impact on landscape character and visual impact of the proposed development.

11.5.2 Operational Phase

During operation, the visual impacts caused by the proposed development will predominantly be of a similar nature as to that of the existing and permitted developments mentioned above. The neighbourhood centre and apartment blocks have been designed to slot into the existing fabric of the village, both through form and finish. This part of the proposed development will therefore read as an extension of the existing residential and commercial development through Kilmeaden. Similarly, the more industrial parts of the proposed development, the data halls and energy centre, will appear as an extension of existing industrial units, warehouses and so on, that can be found in the village. The proposed development is however a larger scale development, and the initial impact will be negative and moderate. As the landscape scheme matures, the impact will reduce and the development will become much less prominent in the local landscape. The historical context of the site should also be considered, particularly the northern section of the site which was a factory and had an industrial use. Many remnants of the former factory still exist on site in a state of dereliction, therefore the public realm proposals and landscape scheme will have a very positive impact on both landscape character and visual amenity.

12. ARCHAEOLOGY, ARCHITECTURAL AND CULTURAL HERITAGE

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12.1 Introduction

This chapter prepared by CRDS assesses the predicted impacts of the Proposed Development on archaeological, architectural and cultural heritage. The Proposed Development is located in the townlands of Blackknock and Adamstown, Co. Waterford (ITM E. 651552m, N. 608589m).

12.2 Baseline Environment

There are three recorded archaeological sites or monuments within the Proposed Development lands, as listed in the Record of Monuments and Places. Two are ringforts (SMR numbers WA016-033---- and WA016-034----) and have no visible surface expression, and one is a redundant record (a rock outcrop with natural impressions recorded in local folklore; WA016-075----). A further four recorded sites are located just outside of the eastern portion of the Proposed Development boundary; St Martin's Well, a castle (site of), a church (site of) and boundary stone (SMR numbers WA016-035----, WA016-036----, WA016-037----, WA016-122---- respectively). It is important to note that there is no visible trace of these sites above ground, and their exact locations and extent, should elements of them survive sub-surface, is not known. There are an additional nineteen recorded archaeological sites within c. 500m of the Proposed Development lands. A portion of the townland boundary between Adamstown and Blackknock runs through the Proposed Development lands.

A desk-top survey of the lands proposed for development, did not highlight any additional, previously unrecorded, archaeological features. However, the archaeological sites in the study area, coupled with the results of archaeological excavations are indicative of the landscape having been populated since early prehistory and throughout the Medieval and Post-Medieval periods.

There are no recorded architectural heritage sites within the Proposed Development lands, as listed in the National Inventory of Architectural Heritage. There are four recorded NIAH sites within c. 500m of the Proposed Development lands, two of which are listed in the Record of Protected Structures for Co. Waterford.

12.3 Potential Impacts of the Proposed Development

12.3.1 Construction Phase

None of the above mentioned recorded archaeological sites will be directly impacted on by construction works relating to the Proposed Development. The Proposed Development will directly impact in the zones of notification of the holy well (SMR number WA016-035----) and castle (WA016-036----). As noted above, the exact location and extent of these recorded sites is unknown, and therefore there is the potential for construction works to negatively impact on them.

There is also the potential for previously unrecorded archaeological material to be uncovered during the course of development works. If this occurs, they will be negatively impacted.

Therefore, the potential impact of the Proposed Development on the archaeological, architectural and cultural heritage is deemed to be ***negative, slight*** and ***permanent***.

12.3.2 Operational Phase

No direct impacts on archaeological, architectural and cultural heritage are expected as a result of the operational phase of the Proposed Development.

12.4 Mitigation and Residual Effects (Post-Mitigation)

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12.4.1 Pre-Construction Phase

To mitigate against the potential impacts of the Proposed Development on archaeological heritage, the following will be required:

A suitably qualified archaeological consultant should be retained to oversee the archaeological and architectural mitigation strategy for project from design through to planning and construction phase.

At pre-construction phase, should ground conditions permit, a geophysical survey should be undertaken under license to the National Monuments Service, of areas that will be subject to development or construction-related impacts. Archaeological geophysics is a non-invasive survey, using a variety of techniques (typically high-resolution magnetometry and advanced multichannel fluxgate gradiometery), to investigate sub-surface archaeological features. The aim of the survey will be to determine the location, form and extent of the recorded archaeological sites within the footprint of the Proposed Development, and to identify previously unrecorded sub-surface features of archaeological potential.

Also at pre-construction phase, licensed archaeological testing should be undertaken of anomalies identified by the geophysical survey. Further test excavation of areas where no features were positively identified should also be undertaken, to alleviate the risk of them being uncovered during the construction phase(s).

Any archaeological features identified positively by testing in areas where they will be impacted on, directly or indirectly, by the development, will require permission from National Monuments for the excavation (preservation by record) of these remains.

Sufficient time will be required for the archaeological team to complete their site investigations, and if required, excavations. If archaeological excavations are required, it may be possible to undertake the works in phases to allow construction works to be phased, i.e. it may be possible to commence construction is areas of the site where archaeological features have been excavated and the areas stripped of topsoil and assessed. However, this will require specific permission from National Monuments.

Should these mitigation measures be implemented, the potential impact of the Proposed Development on the archaeological, architectural and cultural heritage is deemed to be ***negative, not significant*** and ***permanent***.

Please note that the recommendations given here are subject to the approval of the National Monuments Service, Department of Housing, Local Government and Heritage.

12.4.2 Construction Phase

Dependent on the results of the geophysical survey and archaeological testing undertaken at pre-construction, in consultation with the National Monuments Service, a programme of archaeological monitoring may be required during the construction phase.

Suitable exclusion zones should be put in place around the recorded archaeological sites within or adjacent to the Proposed Development, to alleviate the risk of accidental impact on these sites due to construction works:

- The two ringforts (SMR numbers WA016-033---- and WA016-034----)
- The redundant record (SMR number WA016-075----)
- St Martin's Well (SMR number WA016-035----)
- The castle (site of) (SMR number WA016-036----)
- The church (site of) (SMR number WA016-037----), and

- The boundary stone (SMR number WA016-122----).

12.4.3 Operational Phase

No mitigation measures are required for archaeological, architectural and cultural heritage during the operational phase of the Proposed Development.

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12.5 Cumulative Impact of the Proposed Development

12.5.1 Construction Phase

Of the ten archaeological investigations undertaken in advance of or during previous development works, seven have yielded archaeological features dating from the Bronze Age to the Post-Medieval Period. Should archaeological features be uncovered during testing or monitoring of the Proposed Development, these will be archaeologically excavated, and the knowledge added to the academic record.

The academic knowledge gained from the excavation of these features, has resulted in a net cumulative ***permanent***, ***significant***, ***positive*** impact.

12.5.2 Operational Phase

During operation there is no potential for cumulative impact as there will be no disturbance to ground.

13. MATERIAL ASSETS – TRAFFIC AND TRANSPORTATION

RECEIVED: 08/09/2025

13.1 Introduction

Atkins realis has prepared the traffic and transportation assessment. The section provides a summary of the traffic-related impact of the proposed Kilmeaden Village Development in County Waterford. A detailed assessment is included in the Environmental Impact Assessment Report.

13.2 Baseline Environment

The assessment examined potential effects on nearby road junctions and identified necessary mitigation strategies. It considered traffic projections for the development's opening year (2029), as well as five and fifteen years into the future (2034 and 2044), using national traffic assessment standards and tools such as LINSIG.

The site's location supports sustainable travel, being well-connected by public transport and close to the Waterford to Dungarvan Greenway. The layout promotes a "live-work" lifestyle, with homes near workplaces, shops, and community facilities. As a result, 80% of trips between residential and commercial areas are expected to be made by walking or cycling, with all trips to local amenities assumed to be internal.

13.3 Potential Impacts of the Proposed Development

13.3.1 Construction Phase

Regarding construction-related impacts, it is anticipated that during peak construction activity, approximately 750 staff and 120 heavy vehicles will be involved. Since construction will occur between 7 a.m. and 6 p.m., most construction trips are expected to fall outside general network peak hours. Heavy vehicle movements will be restricted between 10 a.m. and 4 p.m. Therefore, these trips are not expected to have a major impact during peak periods, and a separate analysis is not required.

The impact of the construction trips would be ***"Slight and Not significant"***. Additionally, the impact of the construction traffic is expected to be ***short-term.***

13.3.2 Operational Phase

During the operational phase, around 60 trips are expected to arrive during the AM peak, with 35 departing during the same period. During the evening peak, approximately 65 trips are expected to depart, with around 34 arriving. These additional trips are not expected to exceed 10% of the baseline traffic volume at nearby junctions, except for the R680/Amberhill Road junction. This junction is currently a priority-controlled intersection; however, for pedestrian and cyclist safety, it is recommended to be upgraded to a signal-controlled junction. The analysis showed that the junction is expected to operate within capacity, with a reserve capacity of over 23% observed across all scenarios. Therefore, the impact of operational trips was found to be "***imperceptible***."

13.4 Mitigation and Residual Effects (Post-Mitigation)

13.4.1 Construction Phase

A detailed Construction Traffic Management Plan (CTMP) will be developed by the contractor to minimize disruption and ensure safety throughout the construction period.

It is anticipated that the construction traffic effects on both the local road network and on human beings will continue to be ***slight***, ***negative*** and ***short-term.***

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13.4.2 Operational Phase

The development will feature extensive parking facilities, including 441 car spaces—110 more than required—along with 89 EV charging points and 36 accessible spaces, both exceeding minimum standards. It will also provide 267 bicycle parking spaces, 65 more than required, distributed across residential, commercial, and technology park areas. These will use covered Sheffield stands and support shared use across different land uses, aligning with the Waterford City and County Development Plan 2022–2028.

To support sustainable travel during the operational phase, a Mobility Management Plan will also be implemented. This plan will promote the use of public transport, walking, and cycling through initiatives such as the "Cycle to Work Scheme" and the "Taxsaver Commuter Ticket Scheme." These efforts aim to ensure that the development's impact on traffic remains neutral and barely noticeable over time.

It is anticipated that the effects of the proposed development both on the local road network and on human beings will continue to be ***neutral, imperceptible*** and ***long term.***

13.5 Cumulative Impact of the Proposed Development

13.5.1 Construction Phase

The proposed development at Kilmeaden does not result in any cumulative impacts on the local or strategic road network during the construction phase.

13.5.2 Operational Phase

For cumulative impact, trips from a nearby permitted development recently granted planning permission were included. The proposed development at Kilmeaden results in ***'Imperceptible'*** cumulative impacts on the local or strategic road network during the operational phase.

14. MATERIAL ASSETS – UTILITIES

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14.1 Introduction

Coyle Environmental has prepared this chapter which assesses material assets specifically utilities, which have not already been addressed elsewhere in this EIA Report. The associated utilities services in the vicinity of the site are summarised in the following sections; further detail is provided within the planning application documentation.

14.2 Baseline Environment

The site is located The proposed development location lies to the south of the R680, within the townlands of Ballyduff east, Amberhill and Blacknock, Co Waterford.The site is located south of the R680. The main site is currently accessible via the existing access to the disused Kilmeaden Cheese Factory, which is located off a local unnamed road which runs along the northeast of the redline boundary before joining the R680. Another public unnamed road divides the two land banks of the proposed development (north – south) A private road leads off this road to the hilly lands in the west.

The site contains existing services Uisce Éireann (UÉ), Gas Networks Ireland (GNI), Electricity Supply Board (ESB) and Eir. There are several water supply pipes passing through the site and a diversion application to relocate those watermains away from the new development has been submitted to UÉ (ref. DIV24393). Regarding the foul sewer record map from UÉ, no existing foul network is shown inside the site boundary, with the exception of a wastewater treatment plant at the south. The record maps from GNI, show an installation at the northeast part of the site, with a high-pressure transmission pipe and two low pressure distribution pipes. The record maps from ESB identify several LV, MV and HV overhead lines. The record maps from Eir identify several telecom ducts near the area of the old Cheese Factory.

14.3 Potential Impacts of the Proposed Development

14.3.1 Demolition Phase

The demolition area of existing factory will give rise to waste. The excavation can cause negative effects such as potential contamination to surface water through run off. Mitigation measures will be put in place and best practice techniques used in construction as per the CEMP.

The demolition phase will be short lived and is not expected to have a long term lasting impact on the environment.

14.3.2 Construction Phase

The use of the lands proposed for the development site will not result on a negative impact on land use, property or access. The potential impact associated with land use and property for the construction phase will be ***localised, neutral, imperceptible*** and ***short term.***

It is anticipated that the construction of the facility will be completed during the working hours of 07:00 to 19:00 Monday to Friday. However, it is possible that the contractor may wish to carry out certain operations outside these hours i.e. half days on Saturdays or evenings during long summer days etc. These opportunities will be kept to minimum and will take place over a short timeframe. It is anticipated that this is unlikely to cause a disturbance impact.

The total construction population on site will be a maximum of c.750 staff for the duration of construction. Staff include site management, engineers' construction workers, foremen, supervisors and indirect subcontractors

Welfare facilities will be provided for the construction workers on site during the construction works and wastewater will be sanitary waste only. The potential impact on foul drainage for the construction phase is ***neutral, imperceptible*** and ***short term.***

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A potable water supply will be provided from the existing estate services in the existing estate road mains. The potential impact on potable water supplies and infrastructure during the construction phase is ***neutral, imperceptible,*** and ***short term.***

There is a potential for the proposed traffic, access points and volume of site personnel to give rise to additional noise and dust due to site activity.

Temporary storage of spoil will be managed to prevent accidental release of dust emissions and uncontrolled surface water run-off which may contain sediment and solid matter.

Construction materials will be brought to site by road. Refuelling will be completed in accordance with the best standard practice refuelling procedure. To support the construction of proposed roads, car parks, and buildings, additional fill material may need to be imported. Therefore, this will minimise the likelihood of contaminating surface waters.

The power requirements for the construction phase will be relatively minor and therefore the power demand for the construction phase will have a ***neutral, imperceptible*** and ***short-term.***

14.3.3 Operational Phase

In summary, the site power demand will be met by 100% renewable power. The BESS supply "banks" with 144MW for 3.5 hours autonomy. Data centres will be powered sustainably. This means reduced strain on overburdened grid infrastructure in the short term, while enabling renewable energy and investing in alternative energy sources in the medium and long terms. The solar farm solely does not have the capacity to offset the power demand. Without this design in place the proposed village centre will have an increasing demand on the national grid, potentially having a ***negative, moderate, long term*** effect on the grid connection.

The potential impact on telecommunications infrastructure during the operation phase in the absence of mitigation measures is ***neutral, imperceptible*** and ***long term.***

The projected heat demands for Waterford City south of the River Suir which falls within the 10km radius of the proposed site is estimated at 385 GWh's, based on this initial assessment of the heat atlas map. It should be noted that these figures are unscreened, and it may be impractical to connect many of the heat loads included within these figures to a heat network in that area. There will be no impact associated with heat demand for the proposed development

Rainwater harvesting is proposed for use in the cooling process. Adequate supply demand has been forecasted, and the proposed UE connection will be in place in place to compensate in dry weather with a decrease in rain harvested.

As per the Flood Risk Assessment that has been undertaken for the site, store water attenuation and run off has been considered in detail for the proposed development given that impermeable surfaces (buildings and roadways) are increased compared with the existing site. An attenuation pond is included in the design as part of the proposed development. Stormwater will be attenuated on site for the 1:1000yr flood event.

No significant flood evets have been identified in the accompanying Flood Risk Assessment carried out by Atkins January 2025. There is localised flooding to the north of the site around the Wheelanbridge tributary. It should be noted that the only construction proposed in this area is the construction of earth embankments and that appropriate compensation storage has been provided. It is concluded that there is no significant residual risk from this.

14.3.4 Decommissioning Phase

The decommissioning stage of the proposed project carries a potential risk of plant machinery and HGV traffic associated with the alteration of any utilities onsite. However, with the implementation of planned mitigation measures during decommissioning, the development is not expected to cause any significant harm to the surface water quality in the area.

Taking into account the mitigation measures set out in this EIA Report, there remains a residual negative interaction between utilities, and traffic and transport during the decommissioning and construction phase. The interaction is considered to be ***neutral, imperceptible,*** and ***short term.***

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14.4 Mitigation and Residual Effects (Post-Mitigation)

14.4.1 Demolition/Construction Phase

The works contractor will be obliged to put best practice measures in place and work in accordance with the CEMP. The implementation of mitigation measures within each chapter of this EIA and detailed in Section 14.6.1 and 14.6.2 will ensure that the residual impacts on the material assets utilities considered in this chapter during the construction phase will be ***neutral, imperceptible***, and ***short term.***

Post mitigation residual effect associated with utilities on the proposed development are limited .

Mitigation measures have been put in place for the protection of surface water. In order to remediate any further impact on the environment, monitoring should be undertaken. A surface water inspection programme should be put in place. These should include daily visual inspections to ensure surface water management measures as set out in the CEMP are effective.

- residual impacts on surface water are expected to be negligible. The development has been designed to ensure compliance with national standards and long-term sustainability of utility services

The implementation of the mitigation and monitoring measures detailed in Section 14.6.2 and 14.7.1, will ensure that the potential impacts on underground and overground utilities on construction workers health and safety during the construction phase are adequately mitigated. Procedures are put in place and details in the CEMP and will be planned for in the contractor's work methodologies.

- The residual effect on underground and overground utilities on construction workers health and safety during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term.***

The implementation of the mitigation and monitoring measures detailed in Section 14.6.2 and 14.7.1, will ensure that the potential impacts associated with traffic relating to utilities construction during the construction phase are adequately mitigated.

The implementation of the mitigation and monitoring measures detailed in Section 14.6.2 and 14.7.1, will ensure that the potential impacts associated with foul drainage relating to utilities construction during the construction phase are adequately mitigated.

- The residual effect on foul drainage relating to utilities construction during the construction phase is considered to be ***neutral, imperceptivble*** and ***short-term.***

The implementation of the mitigation and monitoring measures detailed in Section 14.6.2 and 14.7.1, will ensure that the potential impacts associated with excavation near underground electrical services during the construction phase are adequately mitigated.

The residual effect on excavation near underground electrical services relating to utilities construction during the construction phase is considered to be ***negative, slight*** and ***short-term*** after mitigation has been put in place.

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14.4.2 Operational Phase

The implementation of the mitigation and monitoring measures detailed in Section 6.6.3 and 6.7.2, will ensure that the potential impacts on surface water and groundwater quality once the proposed development is constructed and operational are adequately mitigated.

- The residual effect on surface water quality during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term.***

The implementation of the mitigation and monitoring measures detailed in Section 6.6.3 and 6.7.2, will ensure that the potential impacts on process water discharge once the proposed development is constructed and operational are adequately mitigated.

- The residual effect on process water discharge during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term.***

The implementation of the mitigation and monitoring measures detailed in Section 6.6.3 and 6.7.2, will ensure that the potential impacts on foul drainage once the proposed development is constructed and operational are adequately mitigated. Foul draining from the village enter will remain connected to the EU foul mains. A discharge licence will be required. Monitoring and mitigation and maintenance measures will be associated with this licence.

- The residual effect on process water discharge during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term.***

The implementation of the mitigation and monitoring measures detailed in Section 6.6.3 and 6.7.2, will ensure that the potential impacts on electrical demand, for the proposed development is constructed and operational are adequately mitigated. Electrical demand associated the village centre will be met with a surplus. Backup generators are in place should there be a failure to the connection. An additional planning proposal for an offshore wind farm with connections to this site will subsidise this grid demand further.

- The residual effect on electrical demand during the operational phase is considered to be ***neutral, slight*** and ***long-term.***

14.4.3 Decommissioning Phase

Potential impacts associated with decommissioning are linked to the excavation and removal of utility services. The result of plant activity on site can impact the quality of run off connecting to surface waters. Attenuation will be in place a decommissioning plan will outline mitigation measures and best practice during this phase. The residual impact is anticipated to be ***short term, neutral*** and ***imperceptible.***

14.5 Cumulative Impact of the Proposed Development

14.5.1 Demolition Phase

There are few existing residential and commercial developments in the area. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the demolition phase.. Similar grid demands, foul capacity and water demand would be generated by all of the developments. Other developments in the area will be required to manage utilities in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with

power and electrical and foul connection demands. As such the cumulative effect will be ***short-term, imperceptible*** and ***neutral.***

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14.5.2 Construction Phase

There are few existing residential and commercial developments in the area. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase. Due to the demand on grid connections, and network connections for foul and water, other developments in the area will be required to manage compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated grid demand and water and foul capacity. As such the cumulative effect will be ***short-term, imperceptible*** and ***neutral.***

14.5.3 Operational Phase

There are few existing commercial and residential developments close by. All of the current and potential developments will generate similar demand for grid connection and water demand during their operational phases. An increased density of development in the area is likely improve the addition of the a proposed wind farm in a separate planning application would increase the supply to the grid. Other developments in the area will be required to manage grid and water demands in compliance with national and local legislation, policies and plans which will mitigate any potential cumulative impacts associated with utility demand. As such the cumulative effect will be a ***long-term, imperceptible*** and ***neutral.***

14.5.4 Decommissioning Phase

There are few existing residential and commercial developments in the area. In a worst-case scenario, multiple developments in the area could be decommissioned concurrently or overlap. Due to the lifespan of residential and commercial developments it is unlikely that existing developments will be decommissioned concurrently or overlap also. Due to the excess of exaction and removal and alteration of utility services such as water mains, this can give rise to potential pollution to surface water through run off. Similar excavations would take place on other developments. Other developments in the area will be required to manage the demolition not to impact on surface water through runoff in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the cumulative effect will be ***short-term, imperceptible*** and ***neutral.***

15. MATERIAL ASSETS – WASTE MANAGEMENT

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15.1 Introduction

Coyle environmental has prepared this chapter which assesses waste management for a proposed development located at Kilmeaden, Co. Waterford on behalf of Crag Rathnew DC Limited and Kent Homes Limited. The receiving environment is largely defined by Waterford County Council as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

15.2 Baseline Environment

There is currently no waste generated at the proposed development site.

15.3 Potential Impacts of the Proposed Development

15.3.1 Demolition Phase

During the demolition phase the mismanagement of waste, including the inadequate storage of waste, inadequate handling of hazardous waste, the use of inappropriate or insufficient segregation techniques, and the use of non-permitted waste contractors, would likely lead to negative impacts such as waste unnecessarily being diverted to landfill, litter pollution which may lead to vermin, runoff pollution from waste, fly tipping and illegal dumping of waste. In the absence of mitigation, the effect on the local and regional environment is likely to be ***long-term, significant*** and ***negative.***

15.3.2 Construction Phase

During the construction phase the mismanagement of waste, including the inadequate storage of waste, inadequate handling of hazardous waste, the use of inappropriate or insufficient segregation techniques, and the use of non-permitted waste contractors, would likely lead to negative impacts such as waste unnecessarily being diverted to landfill, litter pollution which may lead to vermin, runoff pollution from waste, fly tipping and illegal dumping of waste. In the absence of mitigation, the effect on the local and regional environment is likely to be ***long-term, significant*** and ***negative.***

15.3.3 Operation Phase

The potential impacts on the environment during the operational phase of the proposed development would be caused by improper, or lack of waste management. In the absence of mitigation, the effect on the local and regional environment is likely to be ***long-term, significant*** and ***negative.***

15.3.4 Decommissioning Phase

The potential impacts on the environment of improper, or a lack of, waste management during the decommissioning phase of the Technology Park would be a diversion from the priorities of the waste hierarchy which would lead to small volumes of waste being sent unnecessarily to landfill. In the absence of mitigation, the effect on the local and regional environment is likely to be ***indirect, short-term, significant*** and ***negative.***

15.4 Mitigation and Residual Effects (Post-Mitigation)

15.4.1 Demolition Phase

During the demolition phase, typical construction waste materials will be generated which will be source segregated on-site into appropriate skips/containers, within designated waste storage areas and removed

from site by suitably permitted waste contractors as required, to authorised waste facilities, by appropriately licensed waste contractors. While the accurate keeping of waste records will be undertaken. All waste leaving the site will be recorded and copies of relevant documentation maintained. This will all be overseen by the main contractor. All construction staff will be provided with training regarding the waste management procedures on site. In the absence of mitigation, the effect on the local and regional environment is likely to be ***indirect, short-term, neutral*** and ***imperceptible.***

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15.4.2 Construction Phase

During the construction phase, typical construction waste materials will be generated which will be source segregated on-site into appropriate skips/containers, within designated waste storage areas and removed from site by suitably permitted waste contractors as required, to authorised waste facilities, by appropriately licensed waste contractors. While the accurate keeping of waste records will be undertaken. All waste leaving the site will be recorded and copies of relevant documentation maintained. This will all be overseen by the main contractor, who will appoint a construction phase Resource Manager to ensure effective management of waste during the excavation and construction works. All construction staff will be provided with training regarding the waste management procedures on site. A carefully planned approach to waste management and adherence to the site-specific Resource and Waste Management Plan (Appendix 15.1) and Chapter 15 during the construction phase, this will ensure that the effect on the environment will be ***short-term, neutral*** and ***imperceptible.***

15.4.3 Operational Phase

Once operational, it is anticipated that a very small amount of waste will be generated at the proposed development by staff during their inspections and maintenance works. Waste generated at the proposed development will be managed in line with the waste management strategy for the wider development site, which comprises data centres, infrastructure, roads and landscaping. Waste will be collected from designated waste collection areas by permitted waste contractors and removed off-site for re-use, recycling, recovery and/or disposal. All recyclable materials will be segregated at source where possible to reduce waste contractor costs and ensure maximum diversion of materials from landfill. Provided the mitigation measures in Chapter 15 are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be ***long-term, neutral*** and ***imperceptible.***

15.4.4 Decommissioning Phase

During the decommissioning phase, typical construction waste materials will be generated which will be source segregated on-site into appropriate skips/containers, within designated waste storage areas and removed from site by suitably permitted waste contractors as required, to authorised waste facilities, by appropriately licensed waste contractors. While the accurate keeping of waste records will be undertaken. All waste leaving the site will be recorded and copies of relevant documentation maintained. This will all be overseen by the main contractor. All construction staff will be provided with training regarding the waste management procedures on site. In the absence of mitigation, the effect on the local and regional environment is likely to be ***indirect, short-term, neutral*** and ***imperceptible.***

15.5 Cumulative Impact of the Proposed Development

15.5.1 Demolition Phase

There are few existing residential and commercial developments in the area. In a worst-case scenario, multiple developments in the area could be demolished concurrently or overlap in the demolition phase. Due to the high number of waste contractors in the Waterford region, as provided from the National Waste Collection Permit Office and the EPA, there would be sufficient contractors available to handle waste generated from a large number of these sites simultaneously, if required. Similar waste materials would

be generated by all of the developments. Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the cumulative effect will be ***short-term, imperceptible*** and ***neutral.***

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15.5.3 Operational Phase

There are few existing commercial and residential developments close by. All of the current and potential developments will generate similar waste types during their operational phases. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste and non-recyclables. An increased density of development in the area is likely to improve the efficiencies of waste collections in the area. Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate any potential cumulative impacts associated with waste generation and waste management. As such the cumulative effect will be a ***long-term, imperceptible*** and ***neutral.***

15.5.4 Decommissioning Phase

There are few existing residential and commercial developments in the area. In a worst-case scenario, multiple developments in the area could be decommissioned concurrently or overlap. Due to the lifespan of residential and commercial developments it is unlikely that existing developments will be decommissioned concurrently or overlap also. Due to the high number of waste contractors in the Waterford region, as provided from the National Waste Collection Permit Office and the EPA, there would be sufficient contractors available to handle waste generated from a large number of these sites simultaneously, if required. Similar waste materials would be generated by all of the developments. Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the cumulative effect will be ***short-term, imperceptible*** and ***neutral.***

16. INTERACTIONS

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This chapter of the EIA Report in accordance with the guidance, the potential interactions and inter-relationships between the environmental factors discussed in the preceding chapters. This covers both the construction and operational phase of the Proposed Development.

Directive 2011/92/EU, as amended by Directive 2014/52/EU, and section 171A of the Planning and Development Act, as amended, both provide that an EIA shall identify, describe and assess in an appropriate manner, in the light of each individual case, the interaction between the following factors:

- human beings, fauna and flora population and human health;
- biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
- land, soil, water, air and climate and landscape;
- material assets, cultural heritage and the landscape.

In summary, the interactions between the environmental factors and impacts discussed in this EIAR have been assessed and the majority of interactions are neutral or negative interactions. Negative interactions are generally associated with the construction phase and will be short term in nature. There are some long term positive interactions associated with the operation of the Proposed Development.

There are no significant negative impacts predicted from the interactions of the constituent elements of the Proposed Development when viewed in the light of their associated mitigation measures.