16.4 Proposed Development

The proposed project description is described in detail in Chapter 4 of the EIAR.

16.4.1 Surface Water Network Proposal

The surface drainage proposal includes the use of green roofs for the three 15 no Unit apartment buildings. The green roof system allows for catchment and attenuation for the roof areas on the same level. The green roof provides a reduced rate of water runoff, improves the air quality in it's vicinity and supports biodiversity, among other benefits. It also provides an element of storage for critical storms, which can replace an underground attenuation tank in most cases.

The proposed green roof build-up will consist of soft landscape, 200mm deep biodiverse substrate, filter fleece, and 25mm drainage board and will contribute to limiting the roof discharge closer to their respective theoretical greenfield runoff rate (Qbar).

Therefore, we conclude that the blocks of buildings that are proposed to have the green roof system will not have a significant contribution to the storage volume in the proposed underground tanks.

As for the standard roofs on the development, the surface water runoff will discharge via rainwater down pipes to the underground surface water network, that will discharge into a proposed attenuation tank system.
On the ground level, the hard standing areas will drain to the bioretention/ rain gardens present around the site as shown in the drainage plan. The bioretention gardens will provide a small portion of storage and will also contribute to the quality of the water discharge through its filtering features. All bioretention gardens will be fitted with overflow pipes that will discharge to the new surface water network within the site and extra storage will also be provided in the attenuation tanks.

The development site is naturally divided into two hydrological catchments, each draining toward distinct outfall locations. As part of the proposed drainage strategy, surface water discharge will be managed separately for each catchment in accordance with best practice guidelines.

- **Western Catchment:** Surface water from the western portion of the site will discharge to the existing storm sewer network located within the Lady's Cross Estate. A hydraulic assessments has been undertaken to confirm the capacity of the existing infrastructure and to ensure that proposed discharge rates do not exceed pre-development greenfield runoff rates.
- **Eastern Catchment:** Surface water from the eastern section of the site will discharge to the unnamed stream situated along the site's eastern boundary. The stream provides a natural outfall, and appropriate measures will be incorporated to ensure controlled discharge, protect water quality, and prevent erosion.

The two-catchment approach reflects the site's topography and existing drainage patterns, and has been developed in consultation with the local authority to ensure that runoff is managed effectively, sustainably, and in line with planning policy.

Further details on the surface water discharge strategy are presented in the Engineering Report issued together with the planning application.

16.4.2 Foul Network Proposal

The foul drainage system for the proposed development has been designed as a fully separate network from the stormwater system, in line with best practice and Irish Water design standards. While separated, the foul network has been developed using a similar two-catchment approach as the stormwater system, reflecting the natural topography and drainage divides across the site.

Within the development, a network of foul sewers will collect wastewater discharges from all residential units, including houses and apartments. The internal network is designed to convey flows by gravity, directing them towards two main outfall locations:

- North-West Catchment: Foul flows from the western portion of the site will be collected and conveyed by gravity towards the north-west boundary, where it is proposed to connect to the existing foul sewer network within the Lady's Cross Estate. Capacity verification of the receiving network has been undertaken in consultation with Irish Water.
- North-East Catchment: Foul flows from the eastern portion of the site will also be conveyed via a gravity-fed sewer network towards the north-east. It is proposed to make a connection to the existing foul sewer along the N71 road, adjacent to the Clonakilty Enterprise Park.

The two-catchment foul drainage approach ensures efficient conveyance of wastewater and aligning with the overall site layout.
All design work will adhere to the requirements set out in Irish Water's Code of Practice for Wastewater Infrastructure, and appropriate wayleaves and easements will be secured where necessary to facilitate future maintenance access.

16.4.3 Water Network Proposal

The potable water supply for the proposed development will be provided via a new watermain network designed in accordance with Irish Water's Code of Practice for Water Infrastructure. The internal watermain layout has been designed to ensure an efficient, looped system where possible, providing a reliable and resilient supply to all residential units, including houses and apartments, as well as any associated amenities.

Water demand calculations have been carried out based on Irish Water design criteria, and adequate provision will be made for both peak domestic consumption and fire flow requirements. The development will be serviced by two connection points to the existing public water supply network:

- North-West Connection: A connection is proposed to the existing watermain within the Lady's Cross Estate to the north-west of the site. This will provide supply to the western catchment of the development.
- North-East Connection: A second connection is proposed along the N71 road to the north-east, providing supply to the eastern catchment area.

This dual-connection approach supports a looped water distribution system, enhancing pressure stability, reducing the risk of service interruption, and improving operational flexibility. All proposed connection points and pipe sizing have been confirmed through consultation with Irish Water and will be subject to a Connection Agreement. All infrastructure will be designed to facilitate future maintenance, with appropriate hydrants, valves, and meters incorporated in accordance with Irish Water standards.

16.4.4 Proposed Electrical Supply

The proposed development is to be served by the ESB via a new network connection. An underground LV network will be provided for by the developer along with the supply of mini pillars as required to serve all units within the development.

16.4.5 Proposed Telecommunications

The proposed development is to be served by a new telecommunications network. This network with be constructed in a series of underground cabling and chambers (located primarily within footpaths and under roads) All buildings will be connected to this system with appropriate ancillary ducting.

16.5 Potential Impacts of the Proposed Project

The potential impacts of the proposal are described for the construction and operation phases of the development works.

16.5.1 'Do Nothing' Effects

The 'Do Nothing' scenario refers to what would occur should the proposed development not be progressed. In this scenario, the impacts described in this chapter would not emerge meaning that the 'Do Nothing' scenario is considered to have a neutral effect with regards to utilities. The 'Do Nothing' scenario is therefore not addressed any further in this chapter.

16.5.2 Construction Phase

The bulk earthworks and excavations required within the development will result in both the importation and exportations of some material. Excavation for grading within the development will have a temporary impact to the site hydrology owing to the necessity to remove excessive rainwater ponding from the construction site and the potential disturbance to the surrounding road from construction spillage. The potential impacts are detailed based on the different water elements involved in the works.

16.5.3 Surface Water

The Water and Hydrology Chapter of the EIAR sets out the potential impacts on surface water during the construction phase. It is stated that the proposed excavations have the potential to cause local pollution by the spilling of spoil and use of fuels and hazardous materials in the construction process.

During construction, there might be potential pollutants including:

- Runoff and erosion from site earthworks and stockpiles increasing sediment loads;
- Uncured concrete can kill fish, plant life and macroinvertebrates by altering the pH of the water;
- Accidental spillages of hazardous substances associated with the operation of plant such as fuels and lubricants required for plant and equipment on site;
- Washing of construction vehicles and equipment in inappropriate locations can also pose a pollution risk to watercourses by increasing silt laden run off;
- Due to the nature of the works, the likely effect will be short-term and moderate.
- As the final point of discharge is an existing manhole located in the Lady's Cross Estate and the unnamed stream along the eastern boundary, no disruption of services is foreseen.

16.5.4 Foul Discharge

The construction phase should not have any impact on the existing foul sewer network, as there are no upgrades required to the existing network. The points of discharge are all existing manholes in the Lady's Cross Estate and on the N71 therefore, any disruption to the services is deemed not significant.

16.5.5 Water Supply

A Confirmation of Feasibility for the proposed development has been issued by Irish Water stating that the water connection is feasible subject to upgrade works

- Western Connection: In order to facilitate the proposed connection at the Development, the Uisce Éireann watermain network will have to be extended by approximately 90m. In addition to this extension, approximately 225m of watermain network upgrades will be required to provide the necessary additional network capacity.
- Eastern Connection: In order to accommodate the proposed connection, approximately 450m of watermain network upgrades will be required to provide the necessary additional network capacity. These upgrades would be located within third-party lands, presenting significant constraints in terms of access, timing, and approvals. As a result, it is now proposed to instead rely on a direct new watermain link from the internal network to the N71, routed entirely through lands under the applicant's control.

The potential impact of the upgrade works in the watermains would be a temporary disruption to other services and users. The potential impact is considered to be temporary and slight.

16.5.6 Electricity

The development site contains existing ESB Networks infrastructure, including medium voltage (MV) overhead lines traversing the site, as well as MV and low voltage (LV) distribution assets located to the north, east, and west. Construction activities such as site clearance, excavation, foundation works, and utility installation present potential risks to this infrastructure if not appropriately managed.

Risks include accidental contact with or damage to overhead lines by machinery or high-reach equipment, disturbance of underground cables during trenching, and potential service interruptions to surrounding properties. These risks may also pose safety hazards to site personnel and the public if not properly mitigated.

To address these issues, a comprehensive utility survey and asset verification process will be undertaken in consultation with ESB Networks prior to the commencement of works. In particular, the existing MV overhead lines traversing the site are proposed to be undergrounded as part of the development works. This will significantly reduce the long-term visual and physical impact of the electrical infrastructure on the site and enhance safety during and after construction. The undergrounding works will be carried out in accordance with ESB Networks specifications and in coordination with their engineering teams.

All construction activities in proximity to existing live electrical infrastructure will adhere to ESB Networks safety standards and the *Code of Practice for Avoiding Danger from Overhead Electricity Lines*. A Utility Management Plan and a Construction Stage Health & Safety Plan will include specific procedures for working near or modifying electrical assets, and all necessary permits and approvals will be obtained in advance.

Ongoing liaison with ESB Networks throughout the construction phase will ensure proper coordination, minimise service disruption to surrounding areas, and maintain a safe and compliant working environment. The potential impact is considered to be temporary and slight.

16.5.7 Telecommunications

There is existing telecommunications infrastructure located in proximity to the development site, including underground cables and overhead lines serving the surrounding area. Construction activities—such as excavation, utility installation, road construction, and groundworks—have the potential to impact this infrastructure if not properly managed.

Potential risks include accidental damage to underground telecom ducts or cables during trenching or utility crossings, interference with overhead lines from plant and machinery, and temporary service disruptions.

To mitigate these risks, a detailed utility survey will be undertaken prior to the commencement of construction to accurately locate all telecommunications assets. Coordination with relevant service providers (e.g., Eir, SIRO, Vodafone, etc.) will be carried out during the design and pre-construction phases to confirm asset locations and agree on protection or diversion strategies where required. Construction crews will be briefed on the presence of telecom infrastructure through a utility management plan, and appropriate permits and method statements will be developed for works near sensitive assets.

Ongoing liaison with telecommunications providers will continue throughout the construction phase to ensure protection of infrastructure and to minimise the risk of disruption to local services. The potential impact is considered to be temporary and slight.

16.6 Operational Phase

16.6.1 Surface Water

The transition from a greenfield site to a developed area will result in significant changes to the surface water runoff regime. In its natural state, the greenfield site would have allowed for high rates of infiltration, evapotranspiration, and natural attenuation of rainfall through vegetated and permeable surfaces. During the operational phase of the proposed development, the introduction of impermeable surfaces, such as roofs, roads, footpaths, and driveways, will increase both the volume and rate of surface water runoff.

- If unmanaged, these changes could lead to adverse impacts including:
- Increased risk of downstream flooding due to higher peak flows and reduced time to peak;
- Overloading of receiving watercourses or stormwater networks;
- Erosion and degradation of local watercourses;
- Reduction in groundwater recharge;
- Deterioration of water quality due to runoff carrying hydrocarbons, sediments, and other urban pollutants.

To mitigate these impacts, a Sustainable Urban Drainage System (SuDS) has been integrated into the surface water design strategy. This system replicates, as far as practicable, the site's natural hydrological characteristics. Measures proposed include:

- Attenuation systems to manage peak flows and restrict discharge to greenfield runoff rates;
- Bioretention/rain gardens in selected areas to promote infiltration and reduce runoff volume;
- Swales to slow and filter flows as well as promote infiltration;
- Oil/petrol interceptors and silt traps to treat runoff from trafficked surfaces before discharge;
- Controlled discharge points with flow control devices to limit outflow rates to pre-development levels.

Discharges from the site during the operational phase will occur at two locations—one to the existing storm sewer network in the Lady's Cross Estate (to the west), and one to the unnamed stream along the eastern boundary. Both discharge points have been assessed for capacity and ecological sensitivity, with measures included to protect water quality and maintain existing hydrological conditions.

In summary, while development over a greenfield site inherently alters the natural drainage regime, the proposed drainage strategy ensures that surface water impacts during the operational phase are mitigated through the implementation of SuDS, maintaining compliance with local authority and environmental guidelines.

16.6.2 Foul Discharge

The proposed development will increase the foul discharge to the existing sewer network. Estimation of foul sewage discharge is based on the Irish Water Code of Practice, calculating a volume of discharge on a pro-rata basis in relation to the number of units for the proposed development. The proposed development is to comprise 245 residential units and a creche.

The average daily foul discharge for the overall development is calculated as 112 m^3/day, and in terms of peak flow the discharge is estimated as 8 l/s on completion of the works.

Uisce Éireann was engaged with regards to the proposed foul layout and discharge for the development, and a Confirmation of Feasibility has been issued stating that the wastewater connection is deemed feasible subject to a further 330m of gravity sewer network upgrades and WWPS upgrade are required in the downstream network to provide additional network capacity. Uisce Éireann has issued a Statement of Design Acceptance verifying that the proposed development layout is in according to the Irish Water standards. Therefore, the potential impact on the existing foul sewer after completion of the works can be considered as not significant.

Details of the Confirmation of Feasibility and the Statement of Design Acceptance are presented in the Engineering Report issued together with the planning application.

16.6.3 Water Supply

The proposed development will increase the water demand to the existing network. The water demand for the proposed development can be estimated based on the Irish Water Code of Practice, calculating the volume on a pro-rata basis in relation to the number of units.

The average daily water demand for the overall development is calculated as 112 m3/day. In terms of peak flow, the water demand is estimated at 7.8 l/s on completion of the works.

Uisce Éireann, in partnership with Cork County Council, has implemented several projects to increase the water supply to Clonakilty and improve the reliability of the water network. These efforts include, a new trunk water main between Bandon and Clonakilty, upgrades to the Jones Bridge Water Treatment Plant, and the replacement of aging water mains.

- Bandon to Clonakilty Trunk Water Main: A new 13.5km trunk water main was constructed, connecting the Bandon water treatment plant to the Clonakilty water treatment plant via Baxter's Bridge and the N71. This project was completed in Q4 2023 and is intended to address current supply challenges and support future growth.
- Jones Bridge Water Treatment Plant Upgrade: The Jones Bridge Water Treatment Plant in Clonakilty is being upgraded to improve water quality and increase the reliability of the water supply. This project, expected to be completed in early 2025, includes upgrades to treatment processes, a new raw water monitoring system, and new flocculation tanks.
- Water Main Replacement: Uisce Éireann is actively replacing aging and problematic water mains in various parts of Clonakilty, including Inchinattin and Aghamilla. These replacements are part of Uisce Éireann's National Leakage Reduction Programme and aim to reduce leakage and improve the reliability of the water supply.

Uisce Éireann was engaged with regards to the proposed water supply connection for the development, and a Confirmation of Feasibility has been issued stating that the water connection is deemed feasible subject to localised extensions only. Uisce Éireann has issued a Statement of Design Acceptance verifying that the proposed development layout is in according to the Irish Water standards. Therefore, the potential impact on the existing foul sewer after completion of the works can be considered as not significant.

Details of the Confirmation of Feasibility and the Statement of Design Acceptance are presented in the Engineering Report issued together with the planning application.

16.6.4 Electricity

There will be an increase in demand on the existing power supply network during the operation of the proposed development. This increase will be phased in line with the construction sequencing. This will be discussed with ESB Networks on an ongoing basis. The development will incorporate energy efficient designs in line with Part L to ensure the demand is sufficient to cater for the new development and align with current building regulations and standards.

166.5 Telecommunications

A new ducting network shall be provided to the site to provide connectivity from Telecoms providers that are currently serving the area.

16.7 Mitigation Measures

16.7.1 Construction Phase

The roads surrounding the site shall undergo regular cleaning to remove any spoil spilt during excavation and removal off-site to mitigate the risk of blockage in the existing surface water network and ameliorate the quality of the surface water discharge.

At site setup and mobilisation, the appointed contractor will be obliged to ensure that full procedures for the management of water pollution will be established and installed. These will include

- the protection of surface water sewers and watercourses adjacent to the site. Surface water shall be directed to settlement ponds where topographically feasible. Where this is not practicable the surface water shall be allowed to percolate to ground and/or be removed by tanker to a designated waste-water treatment plant if excessive build-up of surface water on site occurs.
- Protection of surface water gullies or drains using silt fences.
- Minimal and short-term storage and the removal of excess materials (soil, stones, and construction wastes) off site in an efficient manner.
- Daily checks of surface water regime on site and logging of same.
- Works associated with excavations or earth moving not to be undertaken in periods of forecasted bad weather.
- Drainage channels beside construction roadways to direct surface water to settlement areas and allow for natural percolation to ground.
- Ensure good site management is maintained at all times during the construction phase including regular site clean-ups and use of appropriate bins.

In order to prevent the release of hazardous materials (fuels, paints, cleaning agents, etc.) during construction site activity, all hazardous materials should be stored within secondary containment designed to retain at least 110% of the storage contents. Temporary bunds for oil/diesel storage tanks will be used

on the site during the construction phase of the project. Safe material handling of all potentially hazardous materials should be emphasised to all construction personnel.

The upgrade works to the existing water network, shall be carried out according to the Irish Water code of practice. No other mitigation or reductive measures are considered necessary, apart from good practice in the hydraulics and engineering design and construction techniques of the services network.

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained throughout unless this has been agreed in advance with the relevant service provider and local authority.

All works near utilities will be carried out in ongoing consultation with the relevant utility company and/or local authority and will be in compliance with any requirements or guidelines they may have. These will include

- Risk assessment and method statements (RAMS): Prepare detailed RAMS specifically addressing the presence of overhead lines.
- Exclusion zones: Establish and clearly mark safe clearance distances from overhead cables, in line with regulatory guidance (e.g. ESB Networks standards in Ireland).
- Warning signage: Erect clear warning signs and barriers around the danger zone.
- Lookout personnel: Assign a banksman or spotter when machinery is operating near overhead lines.

For new services, the Contractor will apply to the relevant utility company for a connection permit where appropriate and will adhere to their requirements.

Service providers have been and will continue to be consulted throughout the design and construction process. Requirements for each service will be agreed with the respective provider and a representative of the service provider will be present on site as necessary during the works for monitoring purposes.

16.7.2 Operational Phase

As proposed in the surface water drainage plan, SuDS features are largely proposed in the drainage strategy and shall have appropriate maintenance in order to be effective in dealing with the water quality in the long term.

Water conservation measures such as the use of low flush toilets and low flow taps will be incorporated into the proposed dwellings to reduce water volumes entering the foul water network. This measure will also reduce the demand on the public water supply.

Any other impacts assessed in the operational phase were deemed not significant, and therefore no mitigation measures are proposed.

16.8 Residual Impacts

Following good construction practices and the proposed mitigation measures previously described in this chapter, the residual effects on services in the site area during construction can be considered as minimum.

The design of the proposed development follows all recommended guidelines, therefore, it is considered that there is no significant residual effect on the services of the proposed development during operational phase.

The residual effect on utility services is imperceptible.

The proposed development will have a long-term positive impact on the existing environment by creating high quality residential units to cater for the needs of a growing population and responding to a significant housing need and demand in the locality and the region, while occupying a presently underutilised zoned site at an appropriate location for sustainable development.

16.9 Monitoring

Proposed monitoring during the construction phase in relation to the underground services are as follows:

- Adherence to the Construction Environmental Management Plan (CEMP)
- Inspection of fuel / oil storage areas and continued maintenance by a suitably qualified sub-contractor
- Monitoring cleanliness of adjacent road network, implementation of dust suppression and vehicle wheel wash facilities
- A Site Foreman/Project Manager will be retained on the site to conduct periodic inspections of the construction site to ensure that any hazardous materials stored on the construction site are stored within appropriate secondary containment, and that any surface water discharged off site during the construction phase is free from excessive sediment.

If the suggested mitigation and control measures as described earlier are put in place and a risk assessment is carried out in advance of and during the works, the significance of these impacts will short term and slight during the construction phase.

16.10 Cumulative Impacts

The potential cumulative impacts of the relevant plan for the area were assessed, which is considered to be the Cork County Development Plan The potential cumulative impacts on material assets have been assessed having considered other permitted and planned developments in the surrounding area. The nearby proposed and permitted developments considered are as follows:

Application Reference	Location	Description	Possible Cumulative Impact
23/20, ABP-318260-23	The Miles Estate, the Miles Road, Clonakilty	Permission granted for the construction of 93no. dwellings and a single storey cheche.	No works have commenced as yet
18/605	The Miles Estate, the Miles Road, Clonakilty	Permission granted for the construction of 77 no. dwelling houses,	Construction completed.

		childcare facility and all ancillary site development works. This permission was extended under Application Register Reference 23/452.	
18/703	An Sruthean Beag, Cloheen, Clonakilty	Permission granted for the construction of 99no. dwellinghouses and a crèche, including all associated site works.	Construction completed.
	Pairc Thiar	Part 8 Development by Cork County Council for the construction of 52no. dwellings.	Construction completed.

Table 0.1 Permitted Developments In The Surrounding Area

Cumulatively with other surrounding, permitted, planned and existing development, it is predicted that the proposed development will contribute to the improvement of the overall urban structure and fabric and will benefit the surrounding area through improvements to the public realm and the provision of additional cyclist and pedestrian infrastructure. Where the mitigation measures referenced in this chapter have been implemented the cumulative effects of development on electrical supply, telecoms, wastewater, water supply and stormwater runoff are anticipated to be neutral in the long-term.

16.11 Difficulties Encountered in Compiling the Chapter

The lack of accurate record maps showing the surface water services in the area required a series of site visits and walkovers to locate routes and outfall locations of the network.

16.12 References

This chapter has been prepared in accordance with the overarching EIAR guidance and in accordance with, but not limited to, the following relevant guidelines:

Uisce Éireann Code of Practice for Water & Wastewater Infrastructure.
Department of Housing, Planning and Local Government (2019). Sustainable Urban Drainage Systems (SuDS) - Best Practice Guide. Government Publications, Dublin.
Cork County Council (2023). Record Maps and Local Drainage Plans.
ESB Networks Electricity Distribution Network Maps and Asset Data.
Eir, Virgin Media Telecommunications Network Maps and Infrastructure Data.
Gas Networks Ireland Network Infrastructure Maps
Environmental Protection Agency (EPA). EPA Online Mapping Service.
Geological Survey of Ireland (GSI). Online Mapping Service.
Office of Public Works (OPW) National Flood Hazard Mapping and CFRAM Studies.

BS 8582: Code of practice for surface water management for development sites.
Health and Safety Authority (2019). Code of Practice for Avoiding Danger from Overhead Electricity Lines.
CIRIA. Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors (C532).
Greater Dublin Strategic Drainage Study (GDSDS) (2005). Technical Guidance Document - Volume 2.

17.0 POPULATION AND HUMAN HEALTH

Contents

Figures, Plates and Tables

This page intentionally left blank.

17.1 Introduction

According to the European Commission's "Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report" (2017), human health is;

> *"a very broad factor that would be highly project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population."*

The Environmental Protection Agency (EPA) Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022) advise that:

> *"In an EIAR, the assessment of impacts on population & human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc."*

This chapter addresses potential effects of both the construction and the operation of the proposed residential development scheme at Cloheen, Clonakilty on population and human health. This chapter considers demographics, economic activity, tourism and recreation, community and amenities. Potential effects on population and human health arising from: traffic and transportation; air quality and climate; noise and vibration; landscape and visual; material assets, and; the risk of major accidents and/or disasters, are dealt with in the specific chapters in this EIAR dedicated to those topics.

17.2 Assessment Methodology

The application area and surrounds were visited on a number of occasions for the purposes of this assessment. The purpose of the site walkovers was to identify and characterise neighbouring land uses. Ordnance Survey maps and aerial photography were also examined to assist in this survey.

In addition, a desk-based study of information on employment, education, health, tourism, amenity, and community facilities was completed. Publications and other data sources consulted included;

- *Project Ireland 2040 – National Planning Framework* – First Revision (2025)
- *Housing for All - a New Housing Plan for Ireland* (2021)
- *Regional Spatial and Economic Strategy for the Southern Region* (2020)
- *Cork County Development Plan 2022-2028*
- Central Statistics Office (CSO) website: www.cso.ie
- Department of Education (DE) website: www.education.ie.

Information was gathered in respect of the demographic and employment characteristics of the resident population within the relevant catchment area, sourced from the 2022 Census. The data collected included information on population, structure, age profile and household size, number of persons at work and the unemployment profile.

This chapter has been prepared having regard to the following guidelines;

- Environmental Protection Agency (2022). *Guidelines on the information to be contained in Environmental Impact Assessment Reports*.
- Department of Housing, Planning and Local Government (2018). *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*.
- European Commission (2017). *Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report*.
- Housing Commission (2024). *Report of the Housing Commission.*

The effects section of this chapter follows the terminology (where applicable) used in the 2022 EPA Guidelines as set out in Chapter 1 of this EIAR.

This Population and Human Health Assessment has been undertaken in accordance with relevant Environmental Protection Agency's (EPA) Guidance, as follows:

- Assessment of baseline, including identification and assessment of receiving environment of receiving environment and relevant receptors;
- Identification of environmental design and mitigation measures included in the construction methodology;
- Identification of the potential impacts, and assessment of the magnitude of potential effects, and their significance;
- Consideration of mitigation measures; and,
- Assessment of residual effects.

Where relevant, assessment findings have been incorporated from the following chapters:

- Traffic and Transport (Chapter 7);
- Air Quality and Climate (Chapter 8);
- Noise and Vibration (Chapter 9);
- Land, Soils, Geology and Hydrogeology (Chapter 13); and
- Water (Chapter 14).

17.3 Baseline Conditions

The following provides a description of the receiving environment, with a focus on demography, land use and local amenity.

The subject site lies within the Cork County Council administrative area. The Government's 2025 National Planning Framework – First Revision (NPF) identifies Cork as being located within the Southern Region and sets out a targeted population growth of an additional 300,000 people in the Region by 2040.

17.3.1 Housing

The latest Government housing plan, *Housing for All*, was published in September 2021 and addresses the time period to 2030. The Plan sets out a strategy to achieve a steady supply of housing in the right locations. It estimates that the country will need an average of 33,000 new homes each year between 2021 and 2030.

According to the latest CSO New Dwelling Completions data (Q1 2025), there were 5,938 new dwelling completions between January, February, and March 2025, a rise of 2.0% on the same three months of 2024. In the south-west a rise of 4.8% was recorded. Scheme dwellings accounted for 50.9% of new dwelling completions, with 30.0% apartments and 19.1% single dwellings There were 30,330 new dwelling completions in the whole of 2024, a decrease of 6.7% from 2023 and below the Government's annual target of 33,000.

The Housing Commission Report (2024) estimates a deficit of between 212,500 and 256,000 homes in Ireland as of the 2022 Census and implies that a median of 55,000 to 60,000 homes per year will be required to be built.

According to the Department of Housing, Local Government and Heritage's latest Homeless Quarterly Progress Report (published April 2025), shows a total of 15,418 people homeless, an increase of 544 (3.7%) on the position at the end of Quarter 4 2024 and an increase of 1,552 (11.2%) on the total recorded at the end of Quarter 1 2024.

The Monthly Homelessness Report March 2025 records there were 688 (641 in Cork City and County) homeless adults recorded in the South-West Region during the week of 25-31 March 2025, an increase of 145 from the 2024 figures. The same latest homelessness report notes that 204no. children were recorded as being part of the 98no. families accessing emergency accommodation in the South-West Region at the end of March 2025, which is increase of 25.9% compared with the same period in 2024.

The NPF First Revision requires delivery of a baseline of 50,000 homes annually to 2040 (as referenced above, this is a further increase on the 33,000 target set out in *Housing for All* plan in 2021). To achieve the objective of compact growth, the NPF directs that 40% of future housing delivery is to be delivered within the existing footprint of built-up areas.

17.3.2 Land Use

The subject site is located within Clonakilty, and is zoned for new residential development (objective ZU 18-11). Therefore, the principle of residential development on the zoned lands is acceptable, subject to the consideration and acceptability of the site-specific matters.

Access to the proposed development is to be through lands to the east and west through sites zoned as Existing Residential/Mixed Residential and Other Uses where objective ZU 18-9 is: *to conserve and enhance the quality and character of established residential communities and protect their amenities.*

Lands in the vicinity of the site to the east and west are part of the existing built environment of Clonakilty and comprise residential uses in the form of single, semi-detached, and terraced houses as well as a small employment estate. Also to the east is the Clonakilty Park Hotel and an industrial estate to the north of this. To the immediate north are the Clonakilty Agricultural Grounds, earmarked for use as a town park. Beyond this, are a series of residential estates accessed from the N71 national road.

West of the site on the other side of Station Road is the natural eco-system of Ardamadane Wood proposed Natural Heritage Area (pNHA) Site Code: 001799. Ardamadane Wood pNHA comprises a dense riparian woodland strip along the River Martin.

To the east and south of the subject site the land is in agricultural use in the form of arable fields.

Further to the northeast of the site is the town centre of Clonakilty which contains a mix of land uses including convenience retail, retail services, commercial properties including hospitality and employment, and educational uses. Figure 17.1 provides an overview of the site location and context.

Figure 17.1. Site Location and Context (Source: Google Maps)

17.3.3 Demographic Profile

The profile of the area has been reviewed against the following matters:

- Demographics;
- Census Mapping Statistics (previously known as SAPmap/ Small Area Population map).; and
- Existing Facilities:

    - Education
    - Childcare
    - Health and Wellbeing
    - Public Open Space and Recreation
    - Community Service Facilities
    - Cultural Facilities
    - Faith and Worship

17.3.3.1 Demographics

The site is located to the southeast of Clonakilty town centre.

Presented in Figure 17.1 below is the catchment area of the development site assessed for the purposes of this chapter. The defined catchment area encompasses locations within a 2km radius of the site. A distance of 2km is typically accepted as the realistic distance from home that people will travel to access day-to-day community facilities and services, especially when travelling by sustainable modes such and public transport.

A 2km radius therefore represents the strongest zone of influence for the development in terms of social and community infrastructure.

Further to this, Clonakilty's location in West Cork is of relevance. Clonakilty is located c. 17.5km from Bandon, the nearest regional town and located c. 42km from Cork City Centre.

It is very likely that people currently living in Clonakilty travel to Cork City Centre and Bandon to access a range of services and facilities including, for example, largescale convenience retail stores, the cinema and arts theatres, to attend hospital and other primary health care services, and to attend third level education. In terms of accessing employment opportunities, it is also very likely that members of the current population of Clonakilty travel each day for this purpose.

However, it can be concluded that for the purpose of this SCA and in the context of the proposed development, there is a requirement for there to be sufficient community and social infrastructure within Clonakilty Town Centre to support the immediate day-to-day needs of existing and future residents.

Figure 17.2. SCA Catchment, outlined in yellow, as defined by a 2km radius from the site.

CSO interactive mapping for the Census 2022 also provides a boundary for Clonakilty. This is shown below in Figure 4. As indicated, the subject site is contained within this boundary.

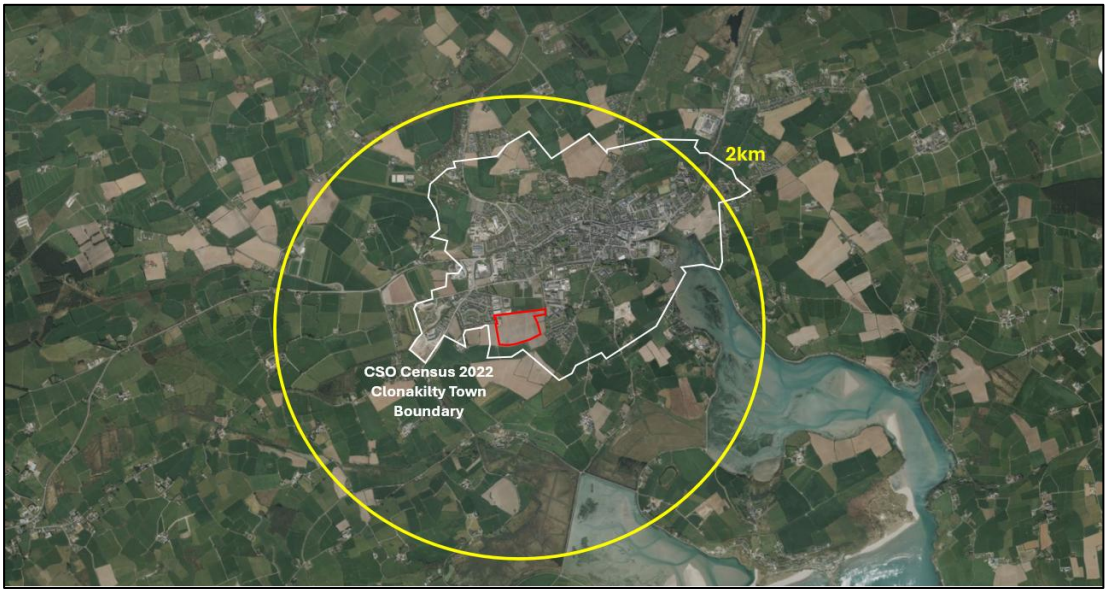

Figure 17.3. Site location outlined in red, SCA catchment area outlined in yellow, Census 2022 Clonakilty Boundary outlined in white.

The population of Clonakilty town, according to Census 2022 figures, was 5,112 people in 2022.

Outside of the town boundary but within 2km of the site, it is estimated that there are approximately 176 additional dwellings comprising of one-off houses and some small residential developments.

Census 2022 figures indicate that the average household size in Cork has decreased from 2.73 in 2016 to 2.72 in 2022. In the County area however the household size has seen a drop from 2.8 (pre administrative change area) to 2.79.

Given the local average household size is 2.79, the c. 176 houses in the catchment area which lie outside the boundary of Clonakilty town can be reasonably assumed to support a population of c. 491 people[11]. Therefore, the total population of the catchment area for this audit can be assumed to be c. 5,603.

Table 17.1 below presents the age profile of the population of Clonakilty town according to the 2022 Census.

Age Bracket	Population 2022	% of Population
0-4	**290**	5.7%
5-9	**338**	6.6%
10-14	**372**	7.3%
15-19	**329**	6.4%
20-24	**197**	3.9%
25-34	**599**	11.7%
35-44	**808**	15.8%
45-54	**732**	14.3%
55-64	**534**	10.4%
65+	**913**	17.9%

Table 17.2. Age profile of Clonakilty town, as per the 2022 Census.

A review of the age profile of Clonakilty reveals that the town has a relatively balanced, slightly ageing profile, with 28.3% of the population of the town being aged 55 years or older, and with 26% of the population between the ages of 0-19. It is assumed that the surrounding 176 households in the catchment area have a similar age profile.

17.3.3.2 Existing Facilities

This chapter assesses the existing community and social infrastructure within the defined catchment area of the site of the proposed development (as outlined and discussed in Section 17.3.3.1 above) under the following headings:

1. Education/Training
2. Childcare
3. Health
4. Sports/Recreation and Open Space
5. Social/Community Services
6. Arts and Culture
7. Faith
8. Other Features

Education/Training

There are 4no. existing primary schools and 2no. existing secondary school within and adjoining the catchment area (see Tables 17.2 and 17.3 below). There are a further 6no. primary schools in the wider catchment, in Ardfield, Rathbarry, Rossmore, Cruary, Knockskeagh and Lisavaird.

[11] 179 households x 2.72 = 478.72. Rounded up to 479.

Existing Primary Schools				
No.	**Name and Location**	**Girls**	**Boys**	**Total**
1	St. Joseph's Girls NS, Convent Road	210	-	210
2	Kilgariffe NS, Old Timoleague Road	24	27	51
3	Scoil na mBuachailli, O'Rahilly Street	1	253	254
4	Gaelscoil Chloich Na Coillte	201	185	386

Table 17.3. Primary schools located within the defined catchment area – source: School Days 2025.

Existing Post-Primary Schools				
No.	**Name and Location**	**Girls**	**Boys**	**Total**
1	Sacred Heart Secondary School, Convent of Mercy	538	-	555
2	Clonakilty Community College, Clonakilty	79	605	684

Table 17.4. Post-primary schools located within the defined catchment area – source: School Days 2025.

The provision of primary and post-primary school facilities in Ireland is determined on an area specific basis by the Department of Education, having regard to available school capacity, demographic projections, analysis of child benefit records, and local GIS travel pattern modelling. Enrolment numbers in both primary and secondary schools in the catchment dropped slightly between 2024 – 2025 indicating spare capacity within existing schools.

The *Cork County Development Plan 2022-2028,* includes projections for education needs in the Cork County Local Authority Area. The Plan does not identify the need for an additional school in Clonakilty.

There is 1no, third level educational facility within the study area, a centre of the Cork College of Further Education and Training in Clonakilty, which provides a number of further education routes for students.

Further to this, the catchment area is well connected to both Bandon and Cork City. The third level education facilities and institutions located in these areas are listed in Table 17.4. There is good access to these facilities from the site and catchment area due to the availability of public transport serving the area.

Existing Third-Level Education
Name and Location
1. Bandon Further Education and Training Centre (Cork ETB), Bank Place, Bandon
2. Cork Academy of Music, Technical Building, North Monastery Campus, North Monastery Road, Cork
3. Northside Community Enterprises (NCE)Education & Training Campus, Redemption Rd, Farranferris
4. Griffith College Cork Wellington Rd, Cork
5. CEC - Cork English College Saint Patricks Bridge, Cork
6. City North College of Further Education Harbour View Rd, Gurranabraher, Hollyhill, Co. Cork
7. Cork College of Commerce, Morrison's Quay.
8. The Cork College of Beauty Therapy, 85 South Main Street.

9. Joan Cashman Colour & Image Academy, 19 Academy Street.
10. IPICS Education, Unit 1dNorth Valley Business Park, Old Mallow Road, Cork
11. Irish College of Osteopathic Medicine, Unit 42A/B North Point Business Park, New Mallow Road, Cork
12. University College Cork
13. Munster Technological University

Table 17.5. Existing third-level education facilities (Sources: Websites of the various institutions).

Childcare

Based upon the Census 2022 data for Clonakilty town, it is assumed that there are c. 290no. children aged 0-4 living within the catchment area of the proposed development. Correspondence from Cork County Childcare Committee dated 10th July 2024 (enclosed in Appendix A of this SCA) indicates that there are 5no. existing early years childcare services in Clonakilty. Details of these childcare facilities, including maximum capacity, are presented in Table 17.5 below.

The Cork County Childcare Committee have advised that currently in Clonakilty there is only one facility which hosts full day services. All other services within the Town provide part time or sessional services.

	Facility Name and Location	Service Type	Maximum Capacity
1.	Clonakilty Creche and Playschool, Clonakilty Technology Park	Full Day/ Part Time and sessional	65
2.	Clonakilty Kindergarten, Lady's Cross, Clogheen	Part Time/ Sessional	22
3.	Grainnes Montessori, Western Road	Sessional	44
4.	Clonakilty Montessori, Kent Street	Part Time/ Sessional	22
5.	Old Brewery Montessori, Old Brewery Road	Sessional	55

Table 17.6. Existing TUSLA Registered Early Years Childcare Facilities (Source: Tusla, 2024).

It is also noted that only one facility provides services for children under the age of 2.

It is evident, therefore, that there is a deficiency in childcare spaces in the catchment area of the proposed development.

Health

Desktop research and site visits were employed to ascertain the number of health facilities and services located within the catchment area of the proposed development. The results of this research are presented in Table 17.6 below.

There are no national, regional or local standards for health provision in Ireland relating to the provision of primary care centres or the number of doctors in an area.

Description of Health Service/Facility	Name and Location
9no. Medical Centres	1. Clonakilty Community Hospital
	2. Clonakilty Primary Care Centre
	3. Clonakilty Family Health
	4. Clonakilty Health Centre
	5. Clonakilty Medical Clinic
	6. The Waterfront Medical Centre
	7. SouthDoc Clonakilty
	8. Clonakilty Diagnostic Clinic
	9. Western Road Medical Centre
3no. GP Practices	1. Dr Thomas Moloney
	2. Dr Fiona O'Reilly
	3. The Mill Surgery
6no. Dental Surgeries	1. Clonakilty Dental Centre
	2. Harte's Dental Surgery
	3. Richard Tarrant Dental Surgery
	4. Browne Orthodontics
	5. Crotty Orthodontics
	6. Joe Moloney BDS NUI
7no. Pharmacies	1. Clonakilty Pharmacy
	2. D&M Harrington Pharmacy
	3. Crowley's Pharmacy
	4. Gallwey's Pharmacy
	5. Waterfront Pharmacy
	6. Bluetts Pharmacy
	7. McLaughlins Pharmacy
4no. Physiotherapists	1. MaxPhysio
	2. Ufirst Physio
	3. Rotybosy Physiotherapy Clinic
	4. Finish Line Fitness and Neuromuscular Therapy
1no. Optician	1. Forristal Opticians

Table 17.6. List of health services and facilities in the defined catchment area of the proposed development.

The review of the health services and facilities in the defined catchment area indicates that the town is well served in respect of medical centres and GPs, in addition to the other key medical services indicated above.

Sports/Recreation and Open Space

Sports and recreation infrastructure refers to parks and playgrounds, dedicated public open space and amenity areas, sports centres and formal club facilities. Desktop research and multiple site visits were employed to ascertain the number and nature of sports/recreation facilities and open spaces located within the catchment area of the proposed development. The results of this research are presented in Table 17.7.

Description	Name and Details
2no. Playing Pitches	1. Clonakilty GAA Sports and Leisure Complex 2. Clonakilty Sports Complex
1no. Sports Club	1. Warrior Martial Arts Club
3no. Amenity Parks/ Playgrounds	1. Bennets Mill Field 2. Clonakilty Playground 3. Emmet Square

Table 17.7 Existing recreational and sports facilities and clubs in the defined catchment area of the proposed development.

There are a number of sports, recreation and open space facilities within the defined catchment, which cater to all cohorts.

Cork County Council have published a Draft Recreation and Amenity Policy, 2024. The *Sustainable and Compact Settlements Guidelines for Planning Authorities* (2024) state that the availability of accessible and high quality public open spaces within all settlements that are part of a wider Green and Blue Infrastructure network will be important in creating sustainable settlements.

The Guidelines further recommend that all residents within a settlement should have access to multifunctional public open space.

It is considered that the catchment area is well catered for in terms of open and recreational outdoor spaces in addition to the open space proposed on the subject site.

Social/Community Facilities

Social and community facilities are broad categories and can include general civic services as well as services targeted to specific sectors of the community. Desktop research was employed to ascertain the number and nature of social/community services located within the catchment area. The result of this research is presented in Table 17.8 below.

Description	Name and Location
5no. Civic Facilities and Services	1. Clonakilty Library 2. Garda Station 3. Clonakilty Fire Station 4. Clonakilty Community Resource Centre. 5. Local Enterprise Office
5no. Social/Community Organisations	1. Clonakilty Community Garden 2. Clonakilty Community Arts Centre 3. Samara Centre 4. Clonakilty Community Youth Centre 5. Little Treasures Baby and Toddler Play Group

Table 17.8. Existing social/community facilities and services located within the defined catchment area of the proposed development.

There are no national, regional, or local standards regarding the provision of social and community facilities and services. A simplistic standardisation which has been employed elsewhere in neighbourhood

planning is: 0.3 community facilities per 1,000 head of population[12]. However, this approach is somewhat crude, being based on the number of buildings/ facilities provided and does not account for the size or quality of individual facilities. Consequently, the use of this standard is applied with caution and as a benchmark only. It can be assumed, based on the information presented in Table 17.9 above, that the area is reasonably well served in terms of social and community facilities.

Arts and Culture

Desktop research was employed to ascertain the number and nature of arts and culture facilities located within the catchment area of the proposed development. The result of this research is presented in Table 17.9 below.

Description	Name and Location
9no. General/ Culture/ Music Facilities	1. Clonakilty Community Arts Centre 2. Spillers Lane Gallery 3. O'Connell Gallery 4. West Cork Model Railway Village 5. Michael Collins House Museum 6. Michael Collins Centre Museum 7. West Cork Regional Museum 8. Clonakilty Town Council Museum 9. Clonakilty Park Hotel Cinema

Table 17.9. Existing arts and culture facilities located within the defined catchment area of the proposed development.

West Cork has a long-established reputation as being a thriving centre for the arts and culture, with multiple festivals and initiatives taking place across the region. Table 17.9 indicates that Clonakilty is host to a number of different artistic and cultural institutions which can provide for the existing and future population.

Faith

There are 4no. centres of religious worship located within the catchment area. They are listed below in Table 17.10.

Details of Centres of Worship
1. Church of the Immaculate Conception
2. Clonakilty Islamic Cultural Centre
3. Clonakilty Methodist Church
4. Church of Ireland Kilgarriffe

Table 17.10. Existing centres of religious worship located within the defined catchment area of the proposed development.

There are no known national or other benchmarking standards for the provision of religious faith and worship social infrastructure. According to Census 2022, 66% of the population of Clonakilty town identify as Catholic, 3% as Church of England and a further 3% as Muslim. 18% of the population indicate as having no religious faith.

[12] See: Barton, H., Grant, M., and Guise, R. (2021). *Shaping Neighbourhoods: For Local Health & Global Sustainability*, *3rd edition*. London:

While the town is currently served by only 4no. places of worship, given number of residential units proposed and the existing population base in the town, it can be concluded that the town has sufficient places of worship to support the existing and future population base.

Other Social and Community Infrastructure
Clonakilty town centre a number of additional social and community assets including and not limited to a post office, Credit Union, 3no. banks and a social welfare branch.

Further to this, Clonakilty benefits from a significant retail presence in the town core. This includes a number of comparison retail uses such as clothes and bookstores. Additionally, the town is served by 4no. large supermarkets in the form of a Supervalu, Dunnes, Lidl and Aldi.

The town centre additionally hosts a number of hospitality uses including Cafes, restaurants and hotels.

17.4 Significant Likely Effects

This section of the assessment describes those effects that are likely to arise in the absence of mitigation. Section 17.5 of this chapter sets out the mitigation measures required to alleviate such effects and the assessment of impacts post mitigation is presented in the Residual Impact Section.

Potential effects are considered under the following headings:

- Land use
- Human Health Impacts
- Population & Economic Activity Impacts
- Local Amenity Impacts

In each case construction and operational effects are considered. It should be noted that the construction phase effects include the proposed demolition works.

17.4.1 Do Nothing Scenario

If the proposed development is not realised, it is anticipated that the subject site would remain in agricultural use. However, the site is zoned for new residential development. In terms of this subject matter, Population and Human Health, the chronic housing crisis is a critical factor. There is a serious under supply of housing in Cork County and in particular Clonakilty.

For the County Development Plan period to 2028, Clonakilty has a population target of 6,162 representing growth of 1,570 persons on the 2016 census figure. In order to accommodate this level of population growth, an additional 600 net new housing units are required.

The 2024 S.15 (2) Two-Year Progress Report on the Cork County Development Plan 2022 records that a total of 177no. housing units had been permitted since the Development Plan had been adopted, representing 30% of the Housing Target.

The only significant housing development of any scale that has been permitted in the scheme at The Miles for 93no. dwellings granted by An Bord Pleanála under appeal case reference ABP 318260-23.

There are currently no other planning applications in within the catchment area to deliver a residential development at a medium or large scale. Without the proposed development, the undersupply of housing in Clonakilty is likely to continue.

17.4.2 Construction Phase

Land Use

The proposed development complies with the statutory land use zoning. There will be no severance of land, loss of rights of way or amenities as a result of the proposed development. Development of the subject site is aligned with the objective to achieve compact growth contained within the NPF and will realise the efficient use of a zoned greenfield site within a development boundary with higher housing density, in a location close to Clonakilty town centre.

The effect is likely and will have a permanent significant positive effect that will achieve local and wider county, regional and national planning objectives.

Human Health

Construction sites pose potential risks to the health and safety of the public. However, access by the public would be considered trespassing on private property.

With mitigation in place, the effect is unlikely and neutral and not significant.

It should be noted that the potential for effects on human health during the construction phase are dealt with in this EIAR under the more specific topics of the environmental media by which they might be caused including air, traffic, and noise.

Population and Economic Activity

A key characteristic of the proposed development in terms of its potential economic impact relates to its capital value, of which a significant portion will be for the purchase of Irish sourced goods and services. The construction phase will provide a boost for the local construction sector in terms of employment generation and capital spend on materials and construction labour costs.

It is expected that during peak activities, approximately 40 people will be working directly on the construction site. The staff will comprise of managerial, technical, skilled and unskilled workers. As far as practicable local labour will be employed. It is unlikely that the proposed development will increase the population of the area as a result of the construction phase.

In addition to direct employment, there will be substantial off-site employment and economic activity associated with the supply of construction materials and provision of services such as professional firms supplying financial, architectural, engineering, legal and a range of other professional services to the project.

Revenue generated during the construction phase will have an associated benefit for the local area with respect to expenditure on local goods and services.

The impact of the construction phase will at least extend to the county in terms of the requirement for labour, goods, and services. The effect will be significant, positive, and short-term.

Local Amenities

Construction works and emergence of the new structures will be seen in the context of existing views of the existing built-up area of Clonakilty town, the local landscape and adjacent existing residential properties. The landscape plan, in particular the proposed planting buffer along the northern boundary will disguise the development to a large degree when viewed from the north. Please refer to **Chapter 12 – Landscape and Visual Impact** for the detailed descriptions and assessments of viewpoints in the vicinity of the site. In addition, the existing adjacent residential development will have the effect of backgrounding and contextualising the proposed works.

Works to the public road will require a road opening licence and temporary closures may be required. The impact of these works is neutral, not significant, and temporary.

Any effects will be slight, localised, and short-term in duration. Please refer to Chapters 5, 6, 8, 9 and 12 of this EIAR for information on the effects on landscape and visual, traffic, noise, and air quality.

17.4.3 Operational Phase

Land Use

The proposed development complies with the statutory land use zoning. It will deliver 246no. residential units.

Given the existing housing crisis, it is anticipated that a high-density development at this location would result in a likely significant positive impact with a permanent duration as it would realise the objectives of urban consolidation through the efficient use of a zoned and serviced landbank to provide *inter alia* much needed housing, together with high-quality amenities for future occupants.

Human Health

The proposed design provides for the segregation of pedestrians and traffic and incorporates the principles of universal access and the requirements of Part M of the Building Regulations so that the development will be readily accessible to all, regardless of age, ability or disability.

The integration of energy efficient measures into the design will provide for healthier living standards for future occupants and less dependence on fossil fuels for energy generation with a resultant improved air quality. Therefore, the impact is likely to be locally significant, positive and of permanent duration.

Adequate and appropriate exposure to light is critical for health and well-being. Light impacts human health and performance by enabling performance of visual tasks, controlling the body's sleeping and waking system and affecting mood and perception.

Having regard to the Architectural Design Statement prepared by Daly Barry Architects, and included with the planning application, it can be determined that there is no impact on residential uses in the vicinity and the proposed development can be concluded to meet and exceed BRE recommendations.

Insufficient physical activity has been identified by the World Health Organisation as the fourth leading risk factor for global mortality. Urban air pollution and traffic injuries are also responsible for a further 2.6 million deaths annually. The proposed scheme prioritises both pedestrians and cyclists and thus promotes active movements for future occupants. The health benefits of sustainable and active transport (walking and cycling combined with public transport) can prevent many of these deaths from physical inactivity.

The proposed open spaces and adjacency to the proposed town park will result in likely, significant positive effects on the health, both mental and physical, of residents of the scheme and those in the immediate area.

Population and Economic Activity

In terms of the operational phase, the potential employment opportunities will be limited, given the fact that residential is the predominant land use proposed. Notwithstanding this, there will be additional employment from the proposed creche element. The economic impact of the operational phase on the immediate area would therefore be likely, permanent, slight, and positive.

The provision of 246no. quality homes within the proposed development will have a likely significant permanent positive impact on the population of Cork County, and contribute to the town's growth in a compact manner. It is envisaged that the proposed development will accommodate a projected full-time residential population of approximately 686 persons[13]. This population will generate additional spending within the area which will likely have a permanent moderate positive impact on economic activity in Clonakilty. This increase in population will also support the ongoing and future enhanced provision of an efficient public transport system in Clonakilty.

Local Amenities and Services

The proposed layout provides for excellent public amenity and recreational facilities, including outdoor play areas and communal areas. The provision of amenity facilities within the development will be of benefit to future residents and existing residents in the local environs.

Using the average local family size of 2.75 persons per unit based on Census 2022 data, 246no. units will yield a population of 686no. persons. The proposed development would therefore likely result in an additional 86no. children (12.5%) of primary school going age in the settlement.

It is also illustrated that 5.4% of the population of the study area are in secondary school going age range (13-18 years). Using this percentage as a basis, it can be approximated that the proposed development will result in demand for an additional 37no. secondary school spaces being generated.

[13] Based on the average local household size of 2.79 people per household (CSO, 2022).

It is considered that there is adequate capacity within the existing schools to cater for the likely demand to be generated from the proposed development.

As identified, there is a deficit in the provision of early years childcare services in the area. As the proposed development includes provision of an onsite early years childcare facility, which has been designed following consultation with the Cork County Childcare Committee, The proposed development will have capacity to accommodate the childcare space demand it is likely to generate.

17.5 Mitigation Measures and Monitoring

17.5.1 Construction Phase

A site Construction and Environmental Management Plan (CEMP) will be prepared by the selected contractor prior to work commencing on site. The main purpose of a CEMP is to provide a mechanism for implementation of the various mitigation measures which are described in this EIAR. An outline Construction Management Plan prepared by DOSA Consulting Engineers is included with the planning application.

All personnel will be required to understand and implement the requirements of the CEMP and shall be required to comply with all legal requirements and best practice guidance for construction sites.

Project supervisors for the construction phase will be appointed in accordance with the Health, Safety and Welfare at Work (Construction Regulations) 2013, and a Preliminary Health and Safety Plan will be formulated during the detailed design stage which will address health and safety issues from the design stages, through to the completion of the construction phases.

Adherence to the construction phase mitigation measures presented in this EIAR will ensure that the construction of the proposed development will have an imperceptible and neutral impact in terms of health and safety.

17.5.2 Operational Phase

The proposed development has been designed to avoid negative impacts on population and human health through;

- Incorporating amenity facilities within the layout, including the provision of high quality packs and play areas, and provision for walking and cycling throughout the development;
- Landscaping to mitigate against issues arising from microclimate conditions;
- The inclusion of a comprehensive foul and surface water management system;
- Energy efficient measures; and,
- High quality finishes and materials.

No significant risks to population and human health have been identified in relation to the operational phase of the development. Accordingly, no further mitigation measures are required.

17.5.3 Monitoring

Measures to avoid negative impacts on population and human health are largely integrated into the design and layout of the proposed development. Compliance with the design and layout will be a condition of any permitted development.

Monitoring will be undertaken by the Building Regulations certification process and by the requirements of specific conditions of a planning permission.

Monitoring of compliance with Health & Safety requirements will be undertaken by the Project Supervisor for the Construction Process.

17.6 Interactions

During the construction phase, the following aspects would interact with population and human health and in the absence of mitigation may give rise to likely significant effects:

Traffic and Transportation: Traffic flow for construction vehicles in the locality has potential to impact upon road safety.

Noise & Vibration: There is potential for impact on human health associated with noise and vibration during the construction phase.

Water and Material Assets: There is the potential for stoppages of existing water supplies during the construction period.

Major Accidents and Disasters: There is the potential for accidents during the construction phase.

Air Quality: There is potential for impact on human health from dust associated with construction activities.

During the operational phase the potential interactions are:

Landscape: The landscape plan will impact on the quality of the private and public open spaces, which could impact on people's health and well-being.

Noise & Vibration: The increased population and activity in the area may result in increased noise and vibration for established residential areas in the vicinity of the proposed development site.

Traffic and Transportation: Traffic flows within the site has the potential to create safety risks for pedestrians and cyclists.

Major Accidents and Disasters: There is the potential for accidents, e.g., from fire, or wind, during the operational phase.

Air Quality: There is potential for impact on human health from a deterioration in air quality associated with emissions from vehicles.

The potential significant impact on population and human health have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant residual negative interactive effects are predicted.

17.7 Cumulative Effects

The most likely cumulative effect of the proposed development, with regard to population and human health, is the demand it will place on local infrastructure and services. As is demonstrated in the preceding sections, there is adequate capacity available to cater for the projected effect within the identified local schools and within the existing open spaces in the area as well as the proposed open spaces on site.

17.7.1 Cumulative Effects – Childcare

Cork County Childcare Committee were consulted regarding the proposed development. The Committee's response was there was demand for additional Full Day Care creche(s) in Clonakilty and with the addition of the proposed development, full day care childcare will be in high demand.

Given that the proposed development is for 246no. residential units and that the early years childcare facility being proposed on site is to cater for 65no. children, it is considered that the demand for childcare will be met by the proposed development.

17.7.2 Cumulative Effects – Education

Using the average local family size of 2.79 persons per unit based on County Council data, future residential development of c. 91no. units at The Miles will yield a population of 254 persons. Census 2022 data indicates that there are likely to be an estimated and additional 32no. (12.5%) children in the 5-12 (primary school going) age bracket in the study area. Including the proposed development therefore, future residential development in the Cloheen area would therefore likely result in an additional 118no. children of primary school going age in the settlement.

It is also illustrated that 5.4% of the population of the study area are in secondary school going age range (13-18 years). Using this percentage as a basis, it can be approximated that future residential development at Cloheen could result in demand for an additional 14no. secondary school spaces being generated. This would be in addition to the 37no. children of post-primary school going age likely to be living on site as a result of the proposed development.

Cumulatively, the proposed development, future residential development in the Cloheen area could result in an additional 118no. children of primary school going age and an additional 51no. children of post-primary school going age living in the study area.

Enrolment numbers in both primary and secondary schools in the catchment dropped slightly between 2024 – 2025 indicating spare capacity within existing schools.

The *Cork County Development Plan 2022-2028,* includes projections for education needs in the Cork County Local Authority Area. The Plan does not identify the need for an additional school in Clonakilty.

The issue of school places is kept under review by the Department of Education and Cork County Council are committed to work with relevant stakeholders to support the provision of school facilities in a timely manner where a need has been identified.

Under the Department's school development programme, the Sacred Heart School in the town is currently at preliminary design stage of a large scale redevelopment project.

There is good access from the catchment area to a wide range of high quality third level facilities in Cork City. It is anticipated that the growth of the area's population as a result of the proposed development can be catered for by these facilities. It is anticipated that this will also be the case of the increased population as a result of future development in the Cloheen area.

Therefore, this cumulative effect is considered to be not significant and neutral.

17.7.3 Cumulative Effects – Healthcare

The proposed development is likely to result in an increase in the population of Clonakilty by 686 persons. Future residential development at The Miles may result in an increase in the local of population of a further 254 persons. The cumulative effect of these developments would be an overall increase in population of 1,240 persons.

It is relevant in this regard that funding was recently allocated to enhance healthcare infrastructure in the existing community hospitals in Castletownbere, Clonakilty, Kanturk, Macroom, Millstreet, Fermoy and Skibbereen, through the HSE 2022 Capital Plan under Project Ireland 2040.

The review of the health services and facilities in the defined catchment area indicates that the town is well served in respect of medical centres and GPs, in addition to other key medical services.

17.7.4 Cumulative Effects – Open Space

The proposed development provides for 15% of the site as open space, including play areas. Future residential development in the area will be required to provide c.15% of the site for open space uses also. The Miles also provides for onsite open space uses.

While the study area is well-served by open spaces, , and while each individual development will provide open space on the respective sites, cumulatively an additional 1,240 persons living in Clonakilty is likely to give rise to the need for an additional public park to serve the town. In this regard it is noted that the site immediately north of the subject site are zoned for the development of a town park in the Development Plan.

The County Development Plan 2-year Progress Report notes that a series of amenity projects are being advanced in the town, including the development of the Gallanes Amenity Area Phase 2 – walkway

extension to connect town to Technology Park, Birdwatch Enhancement Project in Clonakilty Bay, Restoration and enhancement of Deasy's Quay South in Clonakilty Bay, Rejuvenation of Chateaulin Orchard Town Park, Clonakilty.

Given all of the above, and if a new town park is developed on the lands zoned for open space uses as intended in the Development Plan, the cumulative effect of the increase in Clonakilty's population regarding open space is considered significant and positive.

17.7.5 Cumulative Effects – Social and Community Facilities

The study area is reasonably well served in terms of social and community services, and an increase in Clonakilty's population by an additional 1,240 people is within the population increase of 1,570 persons targeted in the County Development Plan.

On balance, and with a new creche use provided as part of the proposed development, the cumulative effect of the increase in population with regard to social and community facilities is considered not significant and positive.

17.7.6 Cumulative Effects – Arts and Culture

No shortfall has been identified in the study area regarding the provision of arts and culture facilities. West Cork has a long-established reputation as being a thriving centre for the arts and culture, with multiple festivals and initiatives taking place across the region. Table 17.9 indicates that Clonakilty is host to a number of different artistic and cultural institutions which can provide for the existing and future population.

17.7.7 Cumulative Effects – Faith and Worship

According to Census 2022, 66% of the population of Clonakilty town identify as Catholic, 3% as Church of England and a further 3% as Muslim. 18% of the population indicate as having no religious faith.

Census 2022 figures indicate that, nationally, the increase in those stating they have no religion in the census has increased to over 14% of the population, with 69% of the national population identifying as Roman Catholic.

The local levels of religious identification in Clonakilty do not depart significantly from overall national trends, and it is likely that the demographic making up the cumulative population increase in the town of 1,240 persons will be culturally, ethnically and religiously diverse.

Notwithstanding the above, however, if 66% of the cumulative increase in population identify as Roman Catholic, this will mean an additional 818 people will be living in the town who may identify as Roman Catholic.

The most recent research about the number of Catholics who regularly attend mass in Ireland dates from 2011 and is contained in *Practice and Belief among Catholics in the Republic of Ireland: A summary of data*

from the European Survey Round 4 (2009/10) and the International Social Science Programme Religion III (2008/9).

In 2011, 42.1% of Catholics in the Republic of Ireland attended mass once per week. If this trend has remained constant over the intervening years, then it can be estimated that c. 344 of the cumulative increase in Clonakiltyy's population will seek to attend mass once per week.

It is considered that the existing Catholic centres of worship in the study area can accommodate this potential increase in numbers attending mass.

Therefore, the cumulative effect of the increase to the population of Clonakilty is considered to be slight and neutral regarding the availability of faith and worship facilities.

17.7.8 Cumulative Effects – Other services

With regard to the provision of retail and other services, with the cumulative effect of an increase in population of 1,240 persons, it is likely that additional retail and other services will be required in the area in the future.

From a planning and sustainable development perspective, the most appropriate location for such uses is on lands zoned urban town centre, district or neighbourhood centre, or for mixed use development.

The Cork County Development plan advises that small-scale convenience shops are also open for consideration on lands zoned for residential uses. Future development of residentially zoned lands in the Cloheen area could therefore include a small convenience retail use.

In such a case, the overall cumulative effects of the increase to the population of Clonakility would be not significant and neutral.

17.8 Residual Effects

It is anticipated that the proposed development will realise positive overall economic and social benefits for the local community and the wider rural area.

Strict adherence to the mitigation measures recommended in this EIAR will ensure that there will be no negative residual impacts or effects on population and human health from the construction and operation of the proposed scheme. Indeed, the delivery of much needed housing and a childcare service will realise a likely positive effect for the local area.

17.8.1 Worst Case Scenario

The worst-case scenario where mitigation measures failed for a development of the type proposed is considered to be the risk of an accident during the construction phase. This is considered highly unlikely and indeterminable.

17.9 References

Central Statistics Office (CSO) website: www.cso.ie.

Childcare Facilities (Guidelines for Planning Authorities) (June 2001).

Cork County Development Plan 2022-2028.

S.15 (2) Two-Year Progress Report on the Cork County Development Plan 2022.

Cork Metropolitan Area Transport Strategy 2040 (National Transport Authority, 2020).

Department of Education and Sciences (DES) website: www.education.ie.

Department of Housing, Local Government and Heritage, (2025). *Quarterly Homeless Report 2025*.

Department of Housing, Local Government and Heritage, (2025). *Monthly Homelessness Report, March 2025*

Sustainable and Compact Settlement Guidelines for Planning Authorities. (Department of Housing, Local Government and Heritage, 2024).

Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017).

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).

Housing for All: A new Housing Plan for Ireland. (Department of Housing, Local Government and Heritage, 2021).

National Planning Framework, Ireland 2040 – First Revision (Government of Ireland, 2025).

Practice and Belief among Catholics in the Republic of Ireland: A summary of data from the European Survey Round 4 (2009/10) and the International Social Science Programme Religion III (2008/9). (Eoin O'Mahony Social Researcher, the Council for Research & Development, Irish Catholic Bishop's Conference, 2011).

Regional Spatial and Economic Strategy for the Southern Region (2020).

Sustainable Urban Housing: Design Standards for New Apartments (Guidelines for Planning Authorities) (Department of Housing, Planning and Local Government, 2022).

This page intentionally left blank.

18.0 MAJOR ACCIDENTS AND DISASTERS

Contents

Figures, Plates and Tables

This page intentionally left blank.

18.1 Introduction

This chapter describes the likely significant negative effects arising from the vulnerability of the proposed development to risks of major accidents and/or disasters. This assessment has been carried out in compliance with the EIA Directive 2014/52/EU of the European Parliament and the Council of 16th April 2017 (amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment) which states the need to assess:

> *"the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned"*

The underlying objective of this assessment is to ensure that appropriate precautionary actions are taken for any development projects which *"because of their vulnerability to major accidents and/or natural disasters, are likely to have significant adverse effects on the environment"*.

The following paragraphs are set out in the EIA Directive in relation to major accidents and/or disasters.

Recital 15 of the EIA Directive states that:

> *"In order to ensure a high level of protection of the environment, precautionary actions need to be taken for certain projects which, because of their vulnerability to major accidents, and/or natural disasters (such as flooding, sea level rise, or earthquakes) are likely to have significant adverse effects on the environment. For such projects, it is important to consider their vulnerability (exposure and resilience) to major accidents and/or disasters, the risk of those accidents and/or disasters occurring and the implications for the likelihood of significant adverse effects on the environment. In order to avoid duplications, it should be possible to use any relevant information available and obtained through risk assessments carried out pursuant to Union legislation, such as Directive 2012/18/EU of the European Parliament and the Council and Council Directive 2009/71/Euratom, or through relevant assessments carried out pursuant to national legislation provided that the requirements of this Directive are met."*

Note: Directive 2012/18/EU is the directive on the control of major-accident hazards involving dangerous substances, referred to as the COMAH or Seveso III Directive.

Article 3 of the EIA Directive provides that the EIAR shall identify, describe, and assess in the appropriate manner, the direct and indirect significant effects on population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and landscape deriving from (amongst other things) the "*vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned*".

Specifically, the information relevant to major accidents and/or disasters to be included in the EIAR is set out in Section 8 of Annex IV of the EIA Directive as follows:

"(8) A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies".

Based on the requirements of the EIA Directive, this chapter seeks to determine:

- The relevant major accidents and/or disasters, if any, that the proposed development could be vulnerable to,
- The potential for these major accidents and/or disasters to result in likely significant adverse environmental effect(s), and
- The measures that are in place, or need to be in place, to prevent or mitigate the likely significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.

18.2 Assessment Methodology

18.2.1 Categorisation of the Baseline Environment

A desk-based study has been undertaken to establish the baseline environment on which the risk assessment is being carried out, as this will influence both the likelihood and the impact of a major accident and/or disaster. This assessment has considered the following guidance:

- Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022)
- The Framework for Major Emergency Management and associated protocol and guidance documents; preparing a major emergency plan and risk assessment (Government of Ireland, 2010)
- The National Risk Assessment (Government of Ireland 2019)

18.2.2 Impact Assessment Methodology

General

The scope and methodology of this assessment is centred on the understanding that the proposed development will be designed, built and operated in line with best international current practice and, as such, the vulnerability of the proposed development to risks of major accidents and/or disasters is considered low.

Current EIA practice already includes an assessment of some potential accidents such as pollution incidents to ground and watercourses as well as assessment of flooding events. These are addressed in detail in the relevant EIAR assessment chapters (refer to **Chapter 13 – Land, Soils, Geology & Hydrogeology** and **Chapter 14 – Water** for further detail).

Site Specific Risk Assessment Methodology

This section identifies the potential of unplanned but potential events that could occur during construction and operation of the proposed development. Risks are set out according to the classification of risk, taken from the Guide to Risk Assessment in Major Emergency Management (2010).

Ranking	Classification	Likelihood
1	Extremely Unlikely	May occur only in exceptional circumstances; once every 500 or more years
2	Very Unlikely	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or very few incidents in associated organisations, facilities or communities; and / or little opportunity, reason or means to occur; may occur once every 100-500 years.
3	Unlikely	May occur at some time; and /or few, infrequent, random recorded incidents or little anecdotal evidence; some incidents in associated or comparable organisation's worldwide; some opportunity, reason or means to occur; may occur once per 10-100 years.
4	Likely	Likely to or may occur; regular recorded incidents and strong anecdotal evidence and will probably occur once per 1-10 years
5	Very Likely	Very likely to occur; high level of recorded incidents and/or strong anecdotal evidence. Will probably occur more than once a year.

Table 18.1: Risk Clarification Table - Likelihood

Classification of Consequence

The risks are then tested in terms of consequences. It should be noted that when categorising the Consequence Rating, the rating assigned assumes that all proposed mitigation measures and safety procedures have failed to prevent the major accident and/or disaster. In addition, Cork County Council have in place a 'Major Emergency Plan' which, if implemented as intended, will work to reduce the effect of any major accident or disaster.

Ranking	Consequence	Impact	Description
1	Minor	Life, Health, Welfare Environment Infrastructure Social	Small number of people affected; no fatalities and small number of minor injuries with first aid treatment. No contamination, localised effects <€0.5M Minor localised disruption to community services or infrastructure (<6 hours).
2	Limited	Life, Health, Welfare Environment	Single fatality; limited number of people affected; a few serious injuries with hospitalisation and medical treatment required.

		Infrastructure Social	Localised displacement of a small number of people for 6-24 hours. Personal support satisfied through local arrangements. Simple contamination, localised effects of short duration €0.5-3M Normal community functioning with some inconvenience.
3	Serious	Life, Health, Welfare Environment Infrastructure Social	Significant number of people in affected area impacted with multiple fatalities (<5), multiple serious or extensive injuries (20), significant hospitalisation. Large number of people displaced for 6-24 hours or possibly beyond; up to 500 evacuated. External resources required for personal support. Simple contamination, widespread effects or extended duration €3-10M Community only partially functioning, some services available.
4	Very Serious	Life, Health, Welfare Environment Infrastructure Social	5 to 50 fatalities, up to 100 serious injuries, up to 2000 evacuated Heavy contamination, localised effects or extended duration €10-25M Community functioning poorly, minimal services available
5	Catastrophic	Life, Health, Welfare Environment Infrastructure Social	Large numbers of people impacted with significant numbers of fatalities (>50), injuries in the hundreds, more than 2000 evacuated. Very heavy contamination, widespread effects of extended duration. >€25M Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support.

Table 18.2: Risk Classification Table – Consequence

The impact ratings are taken from the Guide to Risk Assessment in Major Emergency Management (Department of the Environment, Heritage & Local Government, 2010).

Likelihood Rating	Very Likely	5					
	Likely	4					
	Unlikely	3					
	Very Unlikely	2					
	Extremely Unlikely	1					
			Minor	Limited	Serious	Very Serious	Catastrophic
			1	2	3	4	5
			Consequence Rating				

Table 18.3: Risk Matrix

18.3 Baseline Environment

18.3.1 Disasters

Ireland's geographic position means it is less vulnerable to natural disasters such as earthquakes or tsunamis, which might pose risk to projects of this nature and scale in other locations. Whilst there has

been no natural disaster of relevance in recent years, there has been an increase in the number of extreme weather events in the country, particularly those leading to severe weather conditions including flash flooding, snow and strong wind gusts. With regard to disasters, severe weather conditions pose a plausible potential risk to the proposed development.

18.3.2 Major Accidents

According to Cork County the Major Emergency Plan County Cork has a strong industrial base, particularly in the Cork Harbour area where a high number of chemical, pharmaceutical and petrochemical companies are based primarily in Ringaskiddy, Little Island, Carrigtwohill and Whitegate. Cork County Council - Risk Assessment in Major Emergency Management provides detailed assessment of the characteristics of the area.

The Plan records that a number of Major Emergencies and large-scale serious incidents have occurred within County Cork or off the Cork coast over the years including:

- Glounthaune Bus Crash, 1978
- Whiddy Island Disaster, 1979
- Buttevant Rail Crash, 1980
- Air India, 1985 (off south-west coast)
- Hickson's Pharmachem Fire, Ringaskiddy, 1993
- Manx2 Air-crash, Cork Airport, 2011

It also notes that Cork County Council has undertaken a Risk Assessment in accordance with the *Framework for Major Emergency Management* and *A Guide to Risk Assessment in Major Emergency Management*. A Regional Risk Assessment has also been undertaken by the Principal Response Agencies in the South Region and approved by the Regional Steering Group.

The Major Emergency Plan also contains specific sub-plans such as the Severe Weather Plan, Flood Emergency Response Plan, Drinking Water Incident Response Plan and External Emergency Plans for Upper Tier Establishments coming under the Seveso Regulation

Licenced Facilities - Seveso sites

The European Communities (Control of Major Accident Hazards involving Dangerous Substances) Regulations, 2015 (SI 209 of 2015) implement the requirements of the Council Directive 2012/18/EU on the control of major accident hazards involving dangerous substances.

These Regulations require operators of establishments where dangerous substances are used or stored in large quantities to take all measures necessary to prevent and mitigate the effects of major accidents to man and the environment.

Establishments which fall under the remit of the Seveso III Regulations are classified as either "lower tier" or "upper tier" sites. There are 13no.Upper Tier and 11no. Lower Tier Seveso sites within the Cork County functional area. None of these Seveso sites are located near the proposed development.

Upper Tier	Establishment Name	Establishment Address
1	BASF Ireland Ltd.	Little Island, Co. Cork
2	Calor Teoranta	Whitegate, Co. Cork
3	Eli Lilly Kinsale Ltd	Dunderrow, Kinsale, Co. Cork
4	Irish Distillers Ltd.	Ballynona, Dungourney. Co. Cork
5	Irish Distillers Ltd.	Midleton Distilleries, Park North, Midleton, Co. Cork
6	Irving Oil Whitegate Refinery Ltd.	Whitegate, Co. Cork
7	Marinochem Irl Ltd	Marino Point, Cobh, Co. Cork
8	Murphy Transport	Anchor Business Park, Courtstown, Little Island, Co Cork
9	Pfizer Ireland Pharmaceuticals	Ringaskiddy API Plant, Ringaskiddy, Co. Cork
10	Portfolio Concentrate Solutions UL	Kilnagleary, Carrigaline, Co. Cork
11	Sterling Pharma Ringaskiddy Ltd. (formerly Novartis)	Ringaskiddy, Co. Cork
12	Sunoco Bantry Bay Terminal Ltd.	Whiddy Island, Bantry Bay, Co. Cork
13	Thermo Fisher Scientific Cork Ltd	Currabinny, Carrigaline. Co. Cork
Lower Tier	**Establishment Name**	**Establishment Address**
1	BOC Gases Ireland Ltd.	Little Island Co. Cork
2	Carbery Food Ingredients Ltd.	Ballineen, Co Cork
3	Carbon Chemicals Group Ltd	Raheens, Ringaskiddy, Co. Cork
4	Electricity Supply Board	Aghada Power Station, Whitegate, Co. Cork
5	Hovione Limited	Loughbeg, Ringaskiddy, Co. Cork
6	Janssen Pharmaceutical Services UC	Little Island, Cork
7	LPG Cylinder Filling Ltd	Quartertown Industrial Estate, Mallow, Co. Cork
8	Merck Millipore Ltd.	Tullagreen, Carrigtwohill, Co. Cork
9	Tervas Ltd	Knockburden,Ovens,Co.Cork
10	Upjohn Manufacturing Ireland Unlimited	Little Island Active Pharmaceutical Ingredient Plant, Little Island Co. Cork
11	West Cork Distillers Limited	Marsh Road, Skibbereen, Co. Cork

Table 18.4: Seveso Sites in Cork County

The nearest facility to the proposed development is the Lower Tier Establishment West Cork Distillers in Skibbereen. The proposed development is not within the consultation distance for Grassland Agro.

The nearest sites to the proposed development which have a licence issued by the EPA is the wastewater discharge licence issued to Uisce Éireann for the treatment plant located c.1km to the east of the subject site and the Clonakilty Waste Transfer Station, located c.50m to the north within the Clonakilty Industrial Estate.

18.4 Likely Significant Effects

18.4.1 Do Nothing

If the proposed development does not proceed, there will be no increase in the likelihood of major accidents occurring, or indeed the consequences should a major accident occur. There will be no change to the likelihood or consequences of a disaster, therefore the site would remain the same as it is currently.

18.4.2 Direct Effects

Construction

A risk register will be developed which contains the risks specific to the construction phase of the proposed development and possible causes. An outline of the relevant considerations is presented in Table 18.5**.**

Risk ID	Potential Risk	Possible Cause
Potential to cause major accidents and/or disasters		
C1	Structural collapse and/or damage to existing structures	Vehicle collision / accidental damage to existing structures Vibration from ground works/ excavations
C2	Contamination of water courses (surface and ground water)	Uncontrolled discharge of pollutants due to fuel spill / leaks Equipment and/or power failure
C3	Collison of construction vehicles with members of the public	Collisions with other road users, pedestrians, cyclists due to increase in construction traffic entering and leaving site.
C4	Fire/ Explosion	Construction vehicle or machinery collision Ignition of fuels on site Strikes to underground services
C5	Incident at IE licenced site leading to fire/explosion or pollution of water courses and/or release of harmful substances into the atmosphere.	- Equipment or power failure - Vehicle / plant machinery collision

Table 18.5: Risk Register – Direct Effects during Construction Phase

Operation

A risk register will be developed which contains the identified risks specific to the operational phase of the proposed development. These are presented Table 18.6 and discussed in detail below.

Risk ID	Potential Risk	Possible Cause
Potential to cause major accidents and/or disasters		
Op1	Explosion/fire	- Electrical faults - Use of flammable/combustible materials
Op2	Pollution of water courses – surface and ground water	- Equipment failure or power outage leading to uncontrolled discharge
Op3	Collision with vehicles/pedestrians/ cyclists etc	- Increase in operational traffic
Op4	Personal injury	- Effects of severe winds

Table 18.6: Risk Register – Direct Effects during Operational Phase

18.4.3 Indirect Effects

Construction and Operational Phase

A risk register will be developed which contains the common indirect risks specific to the construction and operation phases of the proposed development and possible causes. An outline of these is presented in Table 18.7.

Risk ID	Potential Risk	Possible Cause
C5 & Op4	Incident at IED site leading to fire/explosion or pollution of water courses and/or release of harmful substances into the atmosphere.	- Equipment or power failure - Vehicle / plant machinery collision - Sabotage/arson leading to ignition of fuel and/or explosion
C1 & Op4	Extreme weather events affecting infrastructure.	- Flooding - High winds/ storms - Extreme temperature (primarily low temperatures giving rise to adverse snow/ice conditions)

Table 18.7: Risk Register- Potential indirect effects during Construction & Operational Phase

Risk Assessment

Table 18.8 categorises each of the potential risks by their 'risk score.' A corresponding risk matrix is provided in Table 18.9, which is colour coded, the red zone represents 'high risk scenarios', the amber zone represents 'medium risk scenarios' and green represents 'low risk scenarios'.

Risk ID	Potential Risk	Likelihood Rating	Consequence Rating	Risk Score
C1	Structural collapse and/or damage to existing structures including quay walls	1	4	4
C2	Contamination of water courses (surface and ground water)	2	2	6
C3	Collison of construction vehicles with members of the public	2	2	4
C4	Fire/ Explosion	1	3	3
C5	Incident at IE facility	1	3	3
Op1	Explosion/fire	1	3	3
Op2	Pollution of water courses – surface and ground water	1	2	2
Op3	Collision with vehicles/pedestrians/cyclists etc	2	2	4
Op4	Personal injury	1	4	4

Table 18.8: Risk Scores for Construction Phase (C) and Operational Phase (Op)

Likelihood Rating							
	Very Likely	5					
	Likely	4					
	Unlikely	3		**C2**			
	Very Unlikely	2		**C3**			
	Extremely Unlikely	1	**C1, C4, C5, Op1, Op2, Op4**	**Op3**			
			Minor	Limited	Serious	Very Serious	Catastrophic
			1	2	3	4	5
			Consequence Rating				

Table 18.9: Risk Matrix – Construction and Operational Phase

No plausible potential risks were identified which would result in the proposed development causing a major accident or disaster on or outside of the proposed development.

18.5 Mitigation Measures and Monitoring

18.5.1 Mitigation

Mitigation during Construction

All potential risks, direct and indirect, identified during the construction phase were determined to be 'low risk scenarios'. A detailed CEMP will be prepared by the contractor and implemented throughout the works. The CEMP will be a live document and continuously updated to ensure that potential risks of major accidents and/or disasters are identified, avoided, and mitigated as necessary.

Mitigation during Operation

The fire risk mitigation for the apartments and duplexes and creche building will comprise all fire safety measures necessary to comply with the requirements of Part B (Fire) of the Second Schedule to the Building Regulations 1997-2017. It is noted that these measures will be validated under the Building Control Act 1990-2007 through the obtaining, in due course, of statutory Fire Safety Certificates under Part III of the Building Control Regulations 1997-2024 from Cork County Council/Cork County Fire Brigade.

Otherwise, the proposed development will be designed and built and managed in line with best international current practices and as such mitigation against the risk of major accidents and/ or disasters will be embedded throughout the design stage. All potential risks, direct and indirect, identified during the operation phase were determined to be 'low risk scenarios'.

18.5.2 Monitoring

Monitoring during Construction

Aside from the monitoring measures to be carried out by the contractor, as outlined in the CEMP (e.g., site inspections and audits) and throughout the EIAR, no additional monitoring is considered necessary during the construction phase of the proposed development.

Monitoring during Operation

No additional monitoring is considered necessary during the operational phase of the proposed development.

18.6 Residual Effects

18.6.1 Residual Effects during Construction

The risk of a major accident and/or disaster during the construction of the proposed development is considered 'low' in accordance with the risk evaluation methodology. It is considered that the proposed development will not give rise to significant residual effects.

18.6.2 Residual Effects during Operation

The risk of a major accident and/or disaster during the operation of the proposed development is considered 'low' with regards the risk evaluation methodology. It is therefore considered that there is no significant residual effect(s) during the operation of the proposed development.

18.7 Cumulative Effects

A number of local developments have the potential to give rise to cumulative adverse effects on the environment as a result of a major accident and/ or disaster.

Other permitted or proposed developments considered include the following:

The Miles Estate, Miles Road

Application Register Reference 23/20 and ABP-318260-23: Permission granted for the construction of 91no. dwellings and a single storey crèche. No works have commenced as yet.

A number of other housing developments in the area have been completed.

The potential for the accident scenarios considered in this chapter affecting these other projects was considered, and the overall conclusions regarding risk and consequence remains as described in the detailed risk score tables.

18.8 References

Cork County Council (2021) Cork County Major Emergency Plan 2021

Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations (OJ L 172, 2.7.2009, p.18)

Department of the Environment Heritage and Local Government (2010) A Guide to Risk Assessment in Major Emergency Management. Available from: http://mem.ie/wp-content/uploads/2015/05/A-Guide-to-Risk-Assessment.pdf

Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment

Directive 2012/18/EU of the European Parliament and the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC (OJ L 197, 24.7.2012, p. 1).

Directive 2014/52/EU of the European Parliament and the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment

Environmental Protection Agency (2014) Guidance on Assessing and Costing Environmental Liabilities. Available from: https://www.epa.ie/pubs/advice/licensee/EPA_OEE%20Guidance%20and%20Assessing%20WEB.pdf

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

Environmental Resources Management Ireland Ltd (2005) Public Safety Zones Report. Available from: http://www.dttas.ie/aviation/publications/english/ermpublic-safety-zones-report

European Commission (2017) Environmental Impact Assessment of Projects- Guidance on the preparation of the Environmental Impact Assessment Report

Government of Ireland (2006) A Framework for Major Emergency Management. Available from: http://mem.ie/wp-content/uploads/2015/05/A-Framework-For-Major-Emergency-Management.pdf

Government of Ireland (2018) 2018 National Risk Assessment: Overview of Strategic Risks. Available from: https://www.taoiseach.gov.ie/eng/publications/publications_2018/national_risk_assessment_2018_-_overview_of_strategic_risks_-_final.pdf

Government of Ireland (2019) Documents and Reports. Available from: http://mem.ie/documents-reports/

Health and Safety Authorisation (2015) Control of Major Accident Hazards involving Dangerous Substances. Available at: https://www.hsa.ie/eng/Chemicals/COMAH/

National University of Ireland Maynooth (2019) Airo Mapping – Environmental Sensitivities. Available from: http://airomaps.nuim.ie/id/ESM/?mobileBreakPoint=400/

This page intentionally left blank.

19.0 CUMALATIVE AND INTERACTIVE EFFECTS

Contents

Figures, Plates and Tables

This page intentionally left blank.

19.1 Introduction

This chapter has been prepared by Coakley O'Neill Town Planning Ltd. The lead author is Dave Coakley, Director, Coakley O'Neill Town Planning Ltd, who graduated as a town planner from the University of West England in 2005, and holds the qualifications of BA (Hons), MPhil, MTCP, MIPI, and has worked in the public and private sector in Cork since 2001. Dave has over 24 years professional experience in the field of planning, which has included providing consultancy services in respect of several urban development, infrastructural development, and tourism development including EIA.

This chapter summarises the residual effects that have been identified in Chapters 7 – 18 and determines whether they give rise to cumulative and/or interactive effects based on best scientific knowledge. Accordingly, when a topic is not mentioned, the authors have concluded that there are no likely residual significant effects that could give rise to cumulative and/or interactive effects. Cumulative effects are changes to the environment that are caused by an action in combination with other actions. They can arise from and this EIAR will look at:

- the interaction between all of the different permitted and planned projects in the same area in combination with this proposed development; and
- the interaction between the various effects within this proposed development.

Cumulative effects will consider whether the addition of many minor or significant effects of the proposed development itself or the cumulation of effects of other permitted or planned projects have the potential to result in larger, more significant effects when combined with the effects of the proposed development. Interactive effects will consider the interaction between the various environmental aspects, for example the interaction between noise and ecology.

19.2 Assessment Methodology

19.2.1 Overview

The assessment of cumulative effects has been undertaken on a qualitative basis by each of the environmental topic leads based on best scientific knowledge. The approach has aligned with the overarching EIA guidance as outlined in Section 1.3.3 of Chapter 1 (including the EPA guidance (2022) and EC guidance) as well as per the methodology adopted for each environmental factor as described in Chapters 7 – 18. A summary of these effects is provided herein based on best scientific knowledge.

19.2.2 Cumulative Effects

The EIAR has considered and assessed cumulative effects arising from the construction and operation of the proposed development. A cumulative assessment has been undertaken based on best scientific knowledge in accordance with Part 5(e) of Annex IV of the EIA Directive:

> *"e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;*

At the initial stage of preparing the EIAR for the proposed development, the potential for significant cumulative impacts were examined and any potential effects were identified. These potential effects were included in the scope and addressed in the baseline and impact assessment studies for each of the relevant environmental factors.

Likely significant cumulative effects of the proposed development in-combination with other existing and/or approved projects for each of the environmental factors were initially identified, considered, and assessed in respective chapters of the EIAR.

19.2.3 Interactive Effects

The EIAR has considered and assessed the interactive effects arising from the construction and operation of the proposed development based on best scientific knowledge. Interactive effects (or interactions), as defined in Section 19.1 above specifically refer to any direct or indirect effects caused by the interaction of environmental factors as outlined in Part 1(e) in Article 3 of the EIA Directive which states:

> *"The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:*
>
> *(a) population and human health;*
>
> *(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
>
> *(c) land, soil, water, air and climate;*
>
> *(d) material assets, cultural heritage and the landscape;*
>
> *(e) the interaction between the factors referred to in points (a) to (d)."*

19.3 Cumulative Effects

19.3.1 Overview

The assessment of cumulative effects has considered likely significant effects that may arise during the construction and operation of the proposed development.

Cumulative effects were assessed to a level of detail commensurate with the information that was available at the time of assessment based on best scientific knowledge.

The assessment specifically considers whether any of the proposed and/or recently approved schemes in the local area have a potential to exacerbate (i.e., alter the significance of) effects associated with the proposed development based on best scientific knowledge.

Proposed and existing developments in close proximity to the proposed development site which are most likely to result in cumulative effects arising from the construction and operation of the proposed development are outlined in Table 19.1. Any other existing projects not identified in this chapter, do not have the potential to exacerbate effects.

Number	Location	Description	Status
1.	The Miles Estate, the Miles Road, Clonakilty	Application Register Reference 23/20 and ABP-318260-23: Permission granted for the construction of 93no. dwellings and a single storey cheche.	No works have commenced as yet
2.	The Miles Estate, the Miles Road, Clonakilty	Application Register Reference 18/605: Permission granted for the construction of 77 no. dwelling houses, childcare facility and all ancillary site development works. This permission was extended under Application Register Reference 23/452.	Construction completed.
2.	An Sruthean Beag, Cloheen, Clonakilty	Application Register Reference: 18/703: Permission granted for the construction of 99no. dwellinghouses and a crèche, including all associated site works.	Construction completed.
3.	Pairc Thiar	Part 8 Development by Cork County Council for the construction of 52no. dwellings.	Construction completed.

Table 19.1: Cumulative Projects.

19.3.2 Cumulative Effects During Construction

Possible cumulative effects during construction are outlined in the individual assessment chapters of this EIAR – Chapter 7 through Chapter 18. It is concluded that should the construction of the development at The Miles Estate mentioned in Table 19.1 above occur concurrently, the potential cumulative construction effects are not considered significant, given the implementation of standard construction environmental measures, the Construction Environmental Management Plan for the proposed development and a Construction Traffic Management Plan.

19.3.3 Cumulative Effects During Operation

Possible cumulative effects during operation are outlined in the individual assessment chapters of this EIAR – Chapter 7 through Chapter 18.

Potential cumulative operational effects are not considered significant.

19.4 Potential Interactions

19.4.1 Traffic and Transportation

During the construction phase, the following aspects would interact with traffic and transportation and in the absence of mitigation may give rise to likely significant effects:

Noise & Vibration: Construction traffic may give rise to localised noise and vibration effects.

Air Quality: Emissions from construction traffic may impact local air quality and climate in terms of increased emissions of greenhouse gases from vehicles.

During the operational phase, potential interactions are:

Air Quality: Emissions from traffic associated with future occupants may impact local air in terms of increased emissions of greenhouse gases from vehicles.

The potential significant impacts of traffic and transportation have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant residual negative interactive effects are predicted.

19.4.2 Air Quality

During the construction phase, the following aspects would interact with air quality in the absence of mitigation may give rise to likely significant effects:

Population & Human Health: There is potential for impact on human health from dust associated with construction activities.

Traffic & Transport: Emissions from construction traffic may impact local air quality in terms of increased emissions of greenhouse gases from vehicles.

During the operational phase the potential interactions are:

Population & Human Health: There is potential for impact on human health from a deterioration in air quality associated with emissions from vehicles.

Biodiversity: Air quality can potentially impact ecosystems; however, this assessment demonstrated that the emissions to air from the Proposed Development will have no negative impacts on ecosystems.

Traffic & Transportation: Emissions from traffic associated with future occupants may impact local air quality in terms of increased emissions from vehicles.

Climate: Potential emissions associated with vehicle movement onsite can influence GHG emissions associated with the Proposed Development.

19.4.3 Climate

During the construction phase, the following aspects would interact with air quality in the absence of mitigation may give rise to likely significant effects:

Material Assets: The built services have an interaction with climate in the availability and use of non-greenhouse gas reliant power and heat sources. The potential significant impacts on climate have been

considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant residual negative interactive effects are predicted.

During the operational phase the potential interactions are:

Biodiversity: Climate Change has the potential to impact ecosystems. However, the effects of GHG emissions associated with the Proposed Development were determined as not likely and not significant.

Water: Climate Change can have a direct impact on water shown to be influencing the Proposed Development. The frequency of extreme rainfall events is expected to increase under changing climate conditions. The impact of Climate Change on the Proposed Development, with respect to flooding, was considered to be not likely and not significant.

Materials Assets: Traffic and Transport: Climate Change is directly linked to GHG emissions, with road traffic considered one of the highest contributors to national emissions. The assessment of GHG emissions from vehicle movements associated with the Proposed Development has determined effects to be not likely and not significant.

19.4.4 Noise and Vibration

During the construction phase, the following aspects would interact with noise and vibration and in the absence of mitigation may give rise to likely significant effects:

Population & Human Health: There is potential for impact on human health associated with noise and vibration generated during the construction phase.

Traffic & Transport: Construction traffic may give rise to localised noise and vibration effects.

No potential operational interactions were identified.

Biodiversity: Noise can influence fauna, through disturbance of animals. Effects of the Proposed Development on specific species have been outlined in Chapter 6 Biodiversity where relevant. The modelling shows no significant noise effects beyond the local environment therefore no noise impact at the SAC or SPAs identified within 15km.

The potential significant impacts of noise and vibration have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant residual negative interactive effects are predicted.

19.4.5 Biodiversity

During the construction phase, the following aspects would interact with biodiversity and in the absence of mitigation may give rise to likely significant effects:

Land & Soils: Site preparatory works have the potential to cause impact on the biodiversity of the site, through removal and disturbance of habitats and species.

Water: Any negative impact on water quality arising from accidental spillages etc. may impact biodiversity.

Noise and Vibration: There is the potential for disturbance of species as a result of construction noise.

During the operational phase the potential interactions are:

Air Quality: Air quality can potentially affect sensitive habitats through deposition of dust are nutrients in the form of NOx, nitrogen or ammonia.

Landscape & Visual: They quality of the landscaping plan and appropriateness of the species may significantly impact biodiversity.

Water: Any negative impact on water quality arising from accidental spillages during the operational phase etc. may impact biodiversity. Aquatic ecological diversity is strongly linked to water quality and how this might change in light of the proposed developed. With the effective implementation of the design and mitigation measures outlined negative impacts to water quality were not predicted.

The potential significant impacts of biodiversity have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant residual negative interactive effects are predicted.

19.4.6 Archaeology and Cultural Heritage

During the construction and operational phases no potential interactions are identified.

19.4.7 Landscape and Visual

During the construction phase, the following aspects would interact with visual and in the absence of mitigation may give rise to likely significant effects:

Land & Soils: There is potential for impact on landscaping from the earth remodelling works during the construction phase.

Biodiversity: Landscape delivers new green infrastructure for the site which has the potential to enhance the biodiversity of the site and linkages with off-site green infrastructure.

Archaeology: Landscape design needs to take account of site sensitivities associated with and archaeological analyses and influences.

During the operational phase the potential interactions are:

Architecture: The architectural engineering design strategy delivers the housing and spatial framework for the site along with the access infrastructure and materiality of the buildings. Landscape's interaction with this is important to the quality of the spaces achieved.

Population & Human Health: The nature and extent of the proposed development will have a visual impact on the local population's views and perceptions of their environment. The landscape plan will impact on the quality of the private and public open spaces, which will impact on people's health and well-being.

Biodiversity: The landscaping has significant interaction with biodiversity in relation to the planting.

The potential significant impacts of landscape and visual have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant residual negative interactive effects are predicted.

19.4.8 Land, Soils Geology and Hydrogeology

During the construction phase, the following aspects would interact with land and soils and in the absence of mitigation may give rise to likely significant effects:

Water: Surface water effects are directly linked with hydrogeology or groundwater effects, with surface water pathways leading to groundwater and vice versa. Surface water runoff can also have an effect on soil quality in the area, with chemicals or suspended solids having an effect on soil fertility and contamination.

Traffic and Transportation: The removal of material from the site will require vehicles using the road network in the area. It is concluded that no significant effects are anticipated from traffic and transport during the demolition and construction phases.
Biodiversity: Site preparatory works have the potential to cause impact on the biodiversity of the site, through removal and disturbance of habitats and species and the spread of hazardous materials or contaminated land.

Material Assets: The material assets on site (surface and stormwater drainage) have been designed in accordance with SUDS and the Greater Dublin Strategic Drainage Study. The potential for effects on groundwater from these assets is considered to be imperceptible and neutral.

No potential operational interactions have been identified.

The potential significant impacts of land and soils have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant residual negative interactive effects are predicted.

19.4.9 Water

During the construction phase, the following aspects would interact with water and hydrology and in the absence of mitigation may give rise to likely significant effects:

Material Assets: The construction of the proposed services (water supply, drainage and IT etc.) may affect the local hydrological and hydrogeological environment as there is a risk of suspended solids run off. Construction vehicles moving on site during the construction phase could result in hydrocarbons entering the surface water drainage system, leading to effects downstream.

Land & Soils: Surface water effects are directly linked with hydrogeology or groundwater effects, with surface water pathways leading to groundwater and vice versa. Surface water runoff can also have an effect on soil quality in the area, with chemicals or suspended solids influencing soil fertility, aeration and contamination.

Biodiversity: Effects on water quality or hydrology can have further effects on biodiversity and ecology, through the mobilisation of silts, dusts, suspended solids, oils, or chemicals.

During the operational phase the potential interactions are:

Material Assets: There will be an increased demand on potable water supply and on the municipal drainage system, as well as an increase in surface water flow.

Climate: There is potential for an increase in frequency of rainfall in the future as a result of climate change. This will result in greater pluvial flooding risk at the site. The drainage and layout design include adequate attenuation and drainage to account for climate change effects

The potential significant impacts of water and hydrology have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant residual negative interactive effects are predicted.

19.4.10 Resource and Waste Management

During the construction phase, the following aspects would interact with resource and waste management and in the absence of mitigation may give rise to likely significant effects:

Land & Soils: During the construction phase excavated soil and stone) will be generated from the excavations. It is envisaged that surplus volume of the excavated soils and stones will be reused on site. It will be taken for reuse or recovery, where practical, with disposal as last resort. Adherence to the mitigation measures in Chapter 13 of this EIAR and the requirements of the C&D WMP, will ensure the effect is long-term, imperceptible, and neutral.

Biodiversity: The improper handling and storage of waste during the Construction and Operational Phases could negatively impact on biodiversity

Water): The improper handling and storage of waste during the Construction and Operational Phases could negatively impact on Hydrology and Hydrogeology.

During the operational phase the potential interactions are:

Traffic and Transportation: Waste collection activities at the Proposed Development have the potential to impact upon traffic movements in the surrounding area.

19.4.11 Population and Human Health

During the construction phase, the following aspects would interact with population and human health and in the absence of mitigation may give rise to likely significant effects:

Traffic and Transportation: Traffic flow for construction vehicles in the locality has potential to impact upon road safety.

Noise & Vibration: There is potential for impact on human health associated with noise and vibration during the construction phase.

Water and Material Assets: There is the potential for stoppages of existing water supplies during the construction period.

Major Accidents and Disasters: There is the potential for accidents during the construction phase.

Air Quality: There is potential for impact on human health from dust associated with construction activities.

During the operational phase the potential interactions are:

Landscape: The landscape plan will impact on the quality of the private and public open spaces, which could impact on people's health and well-being.

Noise & Vibration: The increased population and activity in the area may result in increased noise and vibration for established residential areas in the vicinity of the proposed development site.

Traffic and Transportation: Traffic flows within the site has the potential to create safety risks for pedestrians and cyclists.

Major Accidents and Disasters: There is the potential for accidents, e.g., from fire, or wind, during the operational phase.

Air Quality: There is potential for impact on human health from a deterioration in air quality associated with emissions from vehicles.

The potential significant impact on population and human health have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant residual negative interactive effects are predicted.

19.4.12 Material Assets

During the construction phase, the following aspects would interact with built services and in the absence of mitigation may give rise to likely significant effects:

Population & Human Health: Connections to existing services may require a temporary interruption to existing services in the local area.

Water: The construction of the proposed services (water supply, drainage and IT etc.) may affect the local hydrological and hydrogeological environment as there is a risk of suspended solids run off.

Land & Soils: There is a correlation between Municipal Waste and Land and Soils, particularly concerning the quantity of material to be removed from the site.

During the operational phase the potential interactions are:

Water: There will be an increased demand on water supply.

Climate: The built services have an interaction with climate in the availability and use of non-greenhouse gas reliant power and heat sources.

The potential significant impacts of material assets have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant residual negative interactive effects are predicted.

19.5 References

Cork County Council (2025) Search for a Planning Application Available at: http://planning.corkcoco.ie/ePlan/SearchTypes

Department of Housing, Planning and Local Government (2018) Circular PL05/2018 -Transposition into Planning Law of Directive 2014/52/EU amending Directive 2011/92/EU on the effects of certain public and private projects on the environment (the EIA Directive);

Department of Housing, Planning, Community and Local Government (2017) Key Issues Consultation Paper on the Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems;

Department of Housing, Planning, Community and Local Government (2017) Circular PL 1/2017 - Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the Administrative Provisions in Advance of Transposition;

Department of the Environment, Community and Local Government (2013) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment;

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

European Commission (2017) Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report; and

Government of Ireland (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018).

This page intentionally left blank.

20.0 SUMMARY OF MITIGATION MEASURES, MONITORING & RESIDUAL EFFECTS

Contents

This page intentionally left blank.

20.1 Introduction

This chapter has been prepared by Coakley O'Neill Town Planning Ltd. The lead author is Dave Coakley, Director, Coakley O'Neill Town Planning Ltd, who graduated as a town planner from the University of West England in 2005, and holds the qualifications of BA (Hons), MPhil, MTCP, MIPI, and has worked in the public and private sector in Cork since 2001. Dave has over 22 years professional experience in the field of planning, which has included providing consultancy services in respect of several urban development, infrastructural development, and tourism development including EIA.

A key objective of the Environmental Impact Assessment (EIAR) process is to identify likely significant environmental impacts at the pre-consent stage and where necessary to propose measures to mitigate or ameliorate such impacts. This chapter of the EIAR summarises the proposed mitigation measures set out in Chapters 7-18.

It is proposed that the appointed contractor will develop a site-specific Construction and Environmental Management Plan (CEMP) prior to works commencing on-site. All the mitigation measures proposed within the individual specialists' assessments will be incorporated into the plan.

20.2 Summary of Mitigation and Monitoring Measures

Traffic and Transportation	**Mitigation and Monitoring During Construction Phase** Traffic impacts during the construction stage will be mitigated through the implementation of a Construction Traffic Management Plan (CTMP), which will be agreed with CCC. A Framework CTMP, which sets out the principles to be followed, is included as part of the application package. The following measures will reduce the magnitude of HGV impacts on the adjoining road network: • HGV deliveries will be scheduled (as far as possible) outside of peak periods on the network, which have been identified as 08:00 – 09:00 and 16:30 – 17:30. • Wheel washing facilities will be provided on site, which will reduce the amount of dust and debris transferred to local roads. In addition, a road sweeper will be employed as required to ensure that the local road network is not unduly affected. • Signs will be placed along the length of the route, warning all road users, and local residents, of the presence of slow moving and turning HGV traffic. In addition, warning signs will be placed in advance of the Site Access junction, to warn drivers approaching from both directions. **Mitigation and Monitoring During Operation** A Mobility Management Plan has also been prepared by Hegsons Design Consultancy Ltd and is included as part of the planning

application submission, as a 'best practice' measure, to accompany the planning application.

The aim of the Mobility Management Plan is to minimise the proportion of single occupancy vehicle trips and address the forecast transport impacts of the end-users of the subject site. These mobility measures will also support and enable those residents who may be living 'car-free' providing them with a range of sustainable mobility options and negating the need to own a car. These measures are primarily focussed on encouraging walking, cycling and the use of public transport and can be broadly summarized as follows:

- Appointing a Mobility Management Coordinator.
- Provision of a Welcome Travel Pack for residents.
- Measures to encourage walking, such as the provision of clear signage and maps throughout the site.
- Measures to encourage cycling, including the provision of bike hire hubs on the site, and the provision of cycling signage and maps, showing cycle times to key destinations.
- Measures to encourage Public Transport use, including liaising with local bus operators regarding bus scheduling, routes and school travel.

A fundamental part of any Mobility Management Plan requirement is a commitment to fund and monitor it to determine its progress, identifying problem areas and initiating corrective measures to ensure targets are met.

A Mobility Coordinator will be appointed from within the management company to ensure the implementation and monitoring of the Mobility Management Plan. They will act as a point of contact for residents for all mobility and access related issues. The coordinator, in collaboration with the steering group, should carry out regular performance monitoring. The procedure would consist of:

An inventory of the various infrastructure and promotional measures introduced, with commentary on their uptake and success.

- Surveys of residents of the proposed development to determine baseline demographic and travel behaviour information;
- Re-survey of residents of the proposed development for comparison each year;
- Analysis of the survey results to determine if targets are being met;
- Review and amend measures set out in the Mobility Management Plan;

	• Controlling the achievement of the different targets; • Devise corrective measures if needed; and • Inform all concerned, including the Council Officers about the implementation and progress of the Mobility Management Plan. At the end of the first year of the implementation of the plan, a full travel survey of all residents and visitors for the proposed development will be undertaken to determine current travel behaviours and to inform the travel strategy for future years. Monitoring will also be undertaken on an annual basis to assess performance against the targets. The results of the travel survey and the monitoring can then be used to modify the targets and actions contained within the plan to ensure that it is an ongoing process. By continually reviewing the plan it will help to develop and improve it and ensure that the measures introduced are consistent with the occupier's requirements.
Air Quality & Climate	**Mitigation and Monitoring During Construction Phase** In order to ensure that dust nuisance does not occur, a series of preventative measures and a dust management plan will be formulated for the construction phase of the project. This are outlined further in the Construction & Environmental Management Plan. **Air Quality** The site will be managed in accordance with the CRWMP to minimise the potential effects on air quality from construction. Monitoring will be undertaken throughout the construction period to enable proactive management of dust and PM_{10} levels, employing Best Practicable Means. Measures will be put in place to minimise the impact of dust generated from the works with reference to best practice guidance such as the Control of Dust from Construction and Demolition Activities document. These measures will include: • During periods of dry weather, the site access routes will be kept damp to minimise dust generation from construction traffic. • Street sweepers will be employed to ensure the adjacent R474 is maintained free of dust. • Establishing a 10 km/hr speed limit for vehicles on site. • Minimisation of extent of working areas at any one time. • Netting and/or hard surface hoarding around the perimeter of the site will minimise dust migration from the site at low levels.

	• Stockpiling of imported materials will be limited to the volumes required to practically meet the construction schedule. • Excavated materials will be removed from site as soon as possible to minimise potential for stockpiles to create windblown dust; and • Daily inspections by the main contractor will be carried out to identify potential sources of dust generation along with implementation measures to remove causes where found. • All machinery will be suitably maintained to ensure that emissions of engine- generated pollutants shall be kept to a minimum in accordance with Measures Against the Emission of Gaseous and Particulate Pollutants from Internal Combustion Engines to be Installed in Non-Road Mobile Machinery (2002/88/EC) and Emissions of Pollutants from Diesel Engines (2005/21/EC) • Vehicles will not be left unnecessarily idling on the site and trucks removing demolition waste from the site will turn off engines during loading. • Pre-start checks on all machinery will be conducted on a daily basis prior to commencement of activities. • Low emission fuels will be used insofar as possible; • Mains power will be used for small plant and equipment, where possible, in preference to generators **Effective material storage and handling** • Handling and storage areas will be sited as far away as is reasonably and practically possible from public/residential areas. • Handling and storage areas will be actively managed and fine, dry material will be stored inside enclosed shield/coverings or within a central storage area. • Any storage areas that are not enclosed will be covered/sheeted. • Prolonged storage of debris on site will be avoided. • Vehicles carrying dusty materials into or out of the site shall be sheeted down to prevent any escape of materials **Construction Plant** • Site plant and equipment will be kept in good repair and maintained in accordance with the manufacturer's specifications. Allowing for economic constraints, the plant will be selected on the basis of which has the least potential for dust and other emissions; • Plant will not be left running when not in use (i.e. no idling); • Plant with dust arrestment equipment will be used where practical; • Where practical, cleaner fuels will be employed for construction plant; and

	• Enclosures will be erected around major construction plant items as appropriate and where practical. **Vehicle Movements** • Wheel washing facilities close to the site entrance to prevent mud from construction operations being transported on to adjacent public roads; • Any spillages from vehicles leaving the site will be promptly removed; • Damping down of site haul roads by water bowser during prolonged dry periods; • Regular cleaning of hard-surfaced site entrance roads; • Ensuring that dusty materials are transported appropriately (e.g. sheeting of vehicles carrying spoil and other dusty materials); • Confinement of vehicles to designated haul routes within the site; • Restricting vehicle speeds on haul roads and other unsurfaced areas on the site; • All vehicles will be maintained to minimise exhaust emissions; • Hoarding and gates to prevent dust breakout; and • Appropriate dust site monitoring will be included within the site management practices to inform site management of the success of dust control measures used. **Dust** • Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary. • Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. • Site operations will be planned to take into account local topography, prevailing wind patterns and local sensitive receptors e.g., schools, residences and ecological designated sites; • Burning of materials on site will be prohibited; • Loading and unloading will only be permitted in designated hard standing areas; • Provision of water sprays and wind/dust fences where possible, particularly in dust sensitive locations;

	• Stockpiles of soil, arising or other granular material will be sheeted, covered and/or treated to prevent dust raising that may cause risk to health or nuisance to the public; • Hoarding will be erected around construction activities to minimise dust blow from site; • An appointed person will oversee/control activities and handle complaints; **Mitigation and Monitoring During Operation** Given the proposed use for this development, there are no direct sources of dust or other emissions that could give rise to nuisance or contravene any air quality standards. Modelling of link roads from the traffic impact assessment considered the increase in traffic as a result of the development in opening and design years, the proximity of sensitive receptors and the baseline air quality. The project will have negligible impact on dust and NO2 emissions once the project is completed.
Noise and Vibration	**Mitigation and Monitoring During Construction Phase** It is proposed that various practices be adopted during general construction activities including: • Establishing channels of communication between the contractor / developer, Local Authority and residents. • Appointment of a site representative responsible for matters relating to noise. Furthermore, it is envisaged that a variety of practicable noise control measures will be employed. These should include: • Provision of 2.4m high perimeter hoarding at the site boundary with the residential development to the northwest. • Selection of plant with low inherent potential for generation of noise. • Erection of barriers as necessary around items such as generators or high duty compressors. • Placement of noisy plant as far away from sensitive properties as permitted by site constraints. • Avoiding unnecessary revving of engines and switch off idling engines / equipment when not in use. • Restricting construction activities to daytime periods only. It is also recommended that when construction activities are carried out in the vicinity of the residential dwellings near the northwest corner, that they be managed / coordinated with local residents of these

	dwellings in order to minimise potential noise impact as far as practicable. **Mitigation and Monitoring During Operation** The only mitigation considerations that would be deemed as being required in this instance are as follows: • Heat pump / ventilation duct systems are designed such that radiated sound pressure levels at a distance of 1m from their external facade openings will be of the order of 45dB(A) (or have mitigation measures incorporated to achieve same). • A noise assessment should be carried out by a suitably qualified acoustic consultant during the design stage to confirm compliance of the design with the established criteria limits and that there are no tonal or impulsive elements present.
Biodiversity	**Mitigation and Monitoring During Construction Phase** The mitigation measures outlined below aim to ensure that a best practice approach to minimising ecological disturbance during the construction phase is implemented and that the design of the project's operational phase avoids significant effects the surrounding ecology. • An Ecological Clerk of Works (ECoW) as well as a Project Landscape Architect will be appointed prior to the commencement of construction. The ECoW will be an ecologist with experience of baseline ecological surveys, pre-construction surveys and construction phase supervision. The ECoW will be responsible for completing pre-construction surveys and supervising construction works where necessary and advising on the implementation of woodland enhancement measures. • The construction phase of the project will adhere to best practice guidance, particularly the CIRIA guidance document C532 Control of water pollution from construction sites. During site operations key requirements for control of pollution risk will include measures that will be put in place for the safe storage of potentially polluting materials and the collection, filtration and treatment of surface water runoff prior to discharge from the site. These measures will include features outlined in the following bullet points:

	• Silts & Fines – a silt fence will be installed along the eastern boundary of the site adjacent to the drainage channel crossing. The silt fence will be returned west along the northern boundary of the site and will be returned west along the south side of the proposed entrance route to the site. Silt fencing will also be provided on the east side of the drainage channels. The silt fence will be installed as per the silt fence specifications detailed in Section 18.6.12 of the CIRIA guidance document "Control of Water Pollution from Linear Construction Projects, Technical Guidance (C648)". The geotextile/fabric membrane will be buried in a trench (measuring 100mm X 100mm) to ensure that water does not flow under the silt fence barrier. The purpose of this membrane will be to prevent any sediment discharge from draining north towards the drainage ditch. • Silt & Fines: Maintenance – maintenance of the silt fence will be undertaken throughout the duration of site operations which will be for a period of up to 8 years. Site management will be required to monitor the integrity of the silt fence on a routine basis and where required will make all necessary repairs and replacements to the silt fence such that its integrity and effectiveness to entrain silt and fines is sustained throughout the duration of the project. • Where excavations become inundated with rainwater, this water will be pumped to a settlement pond treatment train on site via a lay flat. The pumped water will be allowed to settle in the settlement pond treatment train, which will comprise a series of 3 no. interlinked settlement pond cells. Clean settled water from the final settlement pond will be allowed to discharge from the pond via a buffered outfall over vegetation ground cover. All settlement ponds and associated clean settled water outfalls will be situated a minimum distance of 75m from the drainage channels along the eastern boundary of the project. • The settlement pond will be bounded to the north and east by an earthen berm that will provide an additional barrier to the surface water runoff in the direction of the drainage channel along the eastern boundary. • Temporary construction compound – the temporary construction compound will be moved as each phase of the proposed development is complete. However in order to eliminate the potential for activities within the temporary construction compound to result in a pollution risk to the un-named stream along the eastern boundary of the site, the

	minimum distance required to be implemented between the temporary construction compound and the drainage channels along the eastern boundary of the project site will be 75m. • Storage – potentially polluting construction materials, such as fuels, oils, cementitous materials and chemicals will be stored on impervious bases and within a secured bund of 110% of the storage capacity, within a designated lay down in this area of the site compound. The storage of such materials on an impervious base will eliminate the potential for their discharge to ground and groundwaters during the construction phase. • The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall also be tested and demonstrated. • Refuelling of vehicles and machinery will be carried out on an impermeable surface in designated areas, well away from any surface drain at the southern end of the site compound as detailed under the first bullet point above. • All fuel oil fill areas will have an appropriate spill apron and spill kits will be provided on site. • Vehicles and refuelling – standing machinery will have drip trays placed underneath to prevent oil and fuel leaks causing pollution. The project requires a new bridge crossing of the existing drainage channels along the eastern boundary. The installation of the clear span bridge will not require in-stream works. The bridge construction will first require the installation of the bridge foundations, followed by the abutments and then the placement of the bridge deck. The following mitigation measures will be implemented during works associated with the installation of the clear span bridge: • Inland Fisheries Ireland/OPW will be consulted on the proposed bridge design for agreement. Bridge construction will follow current guidelines on work in the riparian zone, including IFI (2016) and NRA (2005). • A Method Statement of the bridge construction works has been prepared (See Appendix 10.1) and has been issued to IFI. All bridge works will be implemented in accordance with the Method Statement. Prior to the commencement of works, the Method Statement will be reviewed and in the event of any amendments the Method Statement will be issued to the

	IFI for comment and approval in advance of the commencement of works. • The bridge abutment is set back 2.3m from the stream bank therefore direct interference with the stream is avoided. • In advance of bridge construction works a protective silt fence will be installed in the c. 2m buffer zone along the bankside between the abutment and the channel. The purpose of the silt fence will be to entrain any suspended solids that may become mobilised in surface water runoff from the footprint of bridge works flowing towards the channel bankside. The silt fence will be installed in accordance with CIRIA specifications. The silt fence will be maintained for the duration of the construction phase. • The material excavated from trial pits will be replaced back into the excavation in reverse sequence. Trial-pits will be restored immediately after completion once all the necessary data and samples are collected. The surface vegetative layer will be placed right-way-up to restore the trial pit to original ground condition. Silt fencing/sandbags/ strawbales will be erected between the stream and excavation as required. • It is noted that the construction of the bridge will require Section 50 consent from the OPW (a process to ensure that the structure doesn't interfere with river hydraulics). • Plant and machinery can access both banks of the stream. Crossing of the stream with plant and machinery is therefore avoided. • Silt fencing will be erected downgradient of all construction work. • If temporary access roads are needed for the construction of the bridge silt fencing will be erected along the alignment of the road at the downgradient side. The access road will be constructed with permeable material, so runoff is minimised. • Concrete pours will occur in contained areas using shuttering. Rinsing down of concrete trucks will be done at a dedicated location on site–adjacent to the construction site compound, or at a suitable alternative location, a minimum distance of 75m from any watercourse. Signage will be erected at each concrete pour location directing drivers to the rinse down area. This rinse down area will be removed at the end of the construction phase. The level of the bridge deck over the c. 2.3m of land buffering the bridge abutment from the channel bankside will be c. 1m. Given the relatively low clearance height it is expected that all existing surface

	vegetation within this buffer area will not be sustained and the ground will become denuded. In order to prevent the occurrence of denuded cover adjacent to the bankside and to prevent wash out etc. in the future during potential flood events it is proposed to installed boulder rock armour within the buffer area under the deck between the abutment and the bankside. The rock armour will be put in place following the construction of the abutment and prior to the installation of the bridge deck. A Method Statement for the works associated with the bridge installation has been prepared as part of the planning application documentation. The Method Statement is provided as Appendix 10.1. All measures set out in the Method Statement for the approach to the works will be implemented in full. The instream works associated with the installation of the surface water outfall and the realignment of the drainage channels upstream of the proposed bridge crossing will be completed in accordance with the Inland Fisheries Ireland guidance document *Guidelines on the Protection of Fisheries during Construction Works in and adjacent to Waters*. All instream works associated with the project, including the installation of rock armour upstream of the bridge crossing will be limited to the time of year spanning July to September inclusive. All instream works to be completed during this period will be carried out in the dry using overpumping or fluming. No concreting of the stream bed or bankside will be undertaken. A pre-cast headwall will be used for the proposed surface water outfall to the drainage channel at the eastern boundary of the site. All works associated with the surface water outfall headwall will be completed in a contained dry working area. which will be established by sandbagging and lining an enclosed working area at the headwall location. Immediately following sealing the headwall working area any standing water trapped within the working area will be inspected by the project ecologist for the presence of fish. In the event that fish are present in the waters trapped within the sealed working area, the project ecologist will hand net all fish and translocate them to the adjacent drainage channel. Once the trapped water is confirmed to be free of fish, the water will be pumped from the sealed working area and discharged via a lay flat over vegetated ground to the west of the drainage channel.

Pumps will be provided during instream works to maintain a dry working area for the works associated with the surface water outfall and realignment. Any water pooling in the dry and sealed working areas will be pumped via a lay flat to adjacent vegetated ground cover. Water discharging from the lay flat will be allowed to drain to ground.

Mitigation and Monitoring During Operation

All wastewater generated during the operation phase will be directed to the Irish Water sewer network prior to being pumped to the municipal WWTP. A pre-connection enquiry has been made with Irish Water.

The project will result in the loss of arable land and spoil and bare ground habitats on site as well as severing the existing landscaped corridor along the eastern boundary of the Clonakilty Park Hotel.

A landscape masterplan has been prepared for the project and this provides for the retention and enhancement of the existing hedgerow along the northern boundary of the project site. It also provides for the provision of a pocket of woodland planting at the north east corner of the site that ties in with the proposed bridge crossing. Native species, comprising oak, alder birch, hawthorn, Scot's Pine and cherry will be used as part of the tree planting mix to enhance the northern boundary and to provide the pocket woodland at the northeast corner of the site.

New additional hedgerow planting is also to be provided along the southern boundary and western boundary of the proposed development (see Landscape Drawing No. L105). The new hedgerow planting will amount to a total length of c. 460 linear metres of new hedgerow along the southern and eastern boundary. A total of c. 510 trees and 410 shrubs will be planted along the boundaries. The planting for the hedgerow will be comprised of 3 no. layers of native species as follows:

Layer 1 = 40 no. Quercus robur, 40 no. Alnus glutinosa, 20 no. Pinus sylvestris, 60 no. Betula pubescens
Layer 2 = 50 no. Crataegus monogyna, 60 no. Prunus avium, 50 no. Corylus avellana, 100 no. Ilex aquifolium, 40 no. Malus sylvestris
Layer 3 = 50 Prunus spinosa, 50 no. Sambucus nigra, 80 no. Euonymus europaea, 80 no. Rosa canina, 200 no. Viburnum opulus

	Underground attenuation tanks will be positioned at the northeast of the site. These will be covered by grassland habitat which will be treated as a dry meadow, pollinator rich grassland habitat. The grassland over the attenuation tanks will be subject to a mowing regime that promotes the establishment of species rich meadow grassland. Such a mowing regime will consist of an early cut in March and a late cut in late September/October with all cutting to be lifted and removed from the grassland. An example of the provision of a species rich sward over attenuation tanks is shown on the project Landscape Masterplan. This area of grassland will tie in with the northern hedgerow and treeline corridor as well as the eastern corridor. Within the site SuDS swales will be provided and these will be treated as a landscape biodiversity corridor. Example images of the SuDS swale biodiversity corridor are shown on the project Landscape Masterplan. The swale corridors will be approximately 9m in width and will be fringed by wildflowers and native trees and shrubs. The SuDS swale biodiversity corridor will run through the length of the proposed development site, connecting the southern boundary of the site to the northern boundary, representing the provision of an additional green infrastructure corridor in the area. A green-roof will be installed on the apartment blocks. This provision of this SuDS feature will also increase the footprint of green infrastructure within the site and provide habitat for invertebrate and contribute to the foraging resource for other species such as birds. In order to minimise the impact of the operation phase to bats, the public lighting for the project will be designed to avoid light spill on to existing woodland habitats that will surround the project to the east and north. Light columns will be positioned and designed to ensure that the minimum 2 lux[14] contour is located outside the footprint of the woodland to the east and north of the project site. This will ensure that the lighting provided by the project will not result in a change in night time lighting in woodland habitats bounding the project site. The proposed public lighting design has been informed by best practice guidelines with respect to bats as published by the Institute of Lighting Professionals (ILP) Bats and Artificial Light at Night Guidance Note 08/23. Examples of the sensitive approach to the public lighting design include the positioning of luminaires away from the

[14] Full moonlight often produces lux levels in the region of 0.5 – 2 lux ILP, 2023) as such a minimum 2 lux is set given these natural background levels as well as the absence of light sensitive bat species at the project site

	northern hedgerow boundary, such that the distance between the hedgerow and the luminaires is maximised. The final lighting design will follow this design rationale and be informed by the Guidance Note 08/23 of ILP regarding Bats and Artificial Lighting. LED type Lanterns will be used throughout the development. LED fittings do not emit any ultraviolet or infra-red radiation which is desirable for bat habitats as they do not attract insects in the same manner that traditional SON/SOX fittings do. Light levels will be minimised as much as possible for this type of development and overspill to adjacent woodland habitats will be avoided. All plant and equipment employed on the construction site (e.g. excavator, footwear, etc.) must be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the introduction and spread of high impact invasive plant species such as Japanese knotweed, Rhododendron and Himalayan Balsam (all of which currently do not occur at the project site). All works during the construction phase will be carried out in accordance with the following guidelines: • The Management of Invasive Alien Plant Species on National Roads – Technical Guidance (TII, 2020); • NRA (2008). Guidelines for the Management of Waste from National Road Construction Project. National Roads Authority; • Biosecurity protocols available for aquatic and riparian species available on the Control of Aquatic Invasive Species and Restoration of Natural Communities in Ireland (CAISIE) www.caisie.ie, and • All maintenance operators will carry out their works under the guidance of the Inland fisheries Ireland Biosecurity Protocol for Field Survey Work. (2011) to ensure no negative impacts are caused to other watercourses. http://www.fisheriesireland.ie/fisheries-research-1/73-biosecurity-protocol-for-field-survey-work-1. All Buddleja davidii will be removed from site prior to the commencement of the construction phase. The felling of these species will be completed during the winter season when viable seed is not present on the plants. The felling operations will also coincide with the non-breeding bird season and will therefore not have the potential to result in disturbance to active nests and chicks. The root stock of Buddleja davidii will be removed from the ground during the felling operations. Felled trees shall be stockpiled locally in the vicinity of felling to minimise movement throughout the site. All *B. davidii*

	material will be stockpiled separate to other vegetation cleared on site and shall be removed from site for disposal.
Archaeology and Cultural Heritage	**Mitigation and Monitoring During Construction Phase** Licenced archaeological monitoring during construction, will be carried out for the remainder of the previously untested area at the southern end of the proposed development site. Should archaeological features or deposits be revealed, both the National Monuments Service and the Planning Authority will be consulted. All newly identified archaeological sites will be preserved *in situ* or by record and sufficient time and resources will be allowed to resolve all archaeological matters. Preservation *in situ* will require the relocation of the element of the development beyond the area of archaeological sensitivity. Preservation by record will require the excavation of the archaeological material and such material will be fully resolved to professional standards of archaeological practice (Policy Guidelines on Archaeological Excavation – Department of Arts, Heritage, Gaeltacht, and the Islands). This work will be funded by the developer. **Mitigation and Monitoring During Operation Phase** No significant effects are anticipated during the operational phase. Therefore, no mitigation measures have been proposed.
Landscape & Visual Assessment	**Mitigation and Monitoring During Construction Phase** The central SuDS / Biodiversity basin should be constructed during the first phase of construction and planted minimum 6 months prior to its use as stormwater attenuation, to ensure soil settlement and vegetation are establishment. The top 350mm of existing soil shall be salvaged, stored on adjacent lands and used within the scheme for landscape completion. Salvaged topsoil should not be stored more than 8 months if kept in piles more than 1m high. Rotate stockpiling to fit this time period, to ensure healthy aerated soil for use in the completed development**.**
Land, Soils, Geology and Hydrogeology	**Mitigation and Monitoring During Construction Phase** The CEMP also includes site-specific measures to mitigate potential effects on land and soils, including groundwater. These are outlined below.

Chemical Pollution

Mitigation measures for the protection of groundwater and soils from chemical pollution involve environmental operating plans, chemical storage, and Emergency Response Procedures.

At construction stage, the following mitigation measures are proposed:

- Appropriate bunding, storage and signage arrangements for all deleterious substances (e.g., fuels, oils, and chemicals) will be used.
- Fuels, lubricants, and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice (Enterprise Ireland BPGCS005).
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Site for disposal or recycling.
- Diesel tanks, used to store fuel for the various items of machinery, will be self-contained and double-walled.
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the Site and properly disposed of.
- Refuelling will be carried out from tanks or delivery vehicles on a designated impermeable surface and will not be left unattended.
- Plant will not be left running when not in use (i.e., no idling) and plant with dust arrestment equipment will be used where practical.
- The fuel storage area will be properly secured to prevent unauthorised access or vandalism and all triggers will be locked when not in use. Spill kits and drip trays will be used during refuelling to collect any potential spills or overfills. No vehicles or containers will be left unattended during refuelling.
- Mobile fuel bowsers may be used for refuelling heavy equipment. Bowsers used will be double skinned and spill kit/drip tray equipment will be used during refuelling which will take place away from any nearby drains or watercourses and from any surface water drainage gulleys.

Silt and suspended solids

Mitigation measures for the protection of groundwater quality from silt and suspended solids on site involve silt control, particularly at any drains or open excavations.

	At construction stage, the following mitigation measures will be implemented: • The contractor will construct a site compound at a location remote from any drains. Positioned at a location that is a minimum of 75m set back from the nearest point of the existing drainage channels along the eastern boundary of the project site. • All soil stockpiles will be covered (vegetated or with tarpaulins/similar material) to minimise the risk of rain runoff/wind erosion. Vegetation will be established as soon as possible on all exposed soils. • A variety of silt control methods, e.g., Check dams and / or straw bales, silt fencing and silt bags, silt traps, dewatering, silt sumps, shall be put in place downstream of exposed soils or soil stockpiles to contain surface water runoff from the site, in accordance with Section 6 of the CEMP. **Import and Export of Soil** Fill material will be tested and imported from a licensed facility to ensure no external contamination is introduced to the soil and geological environment. The contractor will be required to carry out a waste characterisation of the material that will be taken off site for disposal. A waste acceptance criteria (WAC) analysis and asbestos levels shall be determined on any material that will be taken off site for disposal. The acceptance of material at a licenced soil recovery facility will be subject to the approval of the facility operator. During construction, Level platforms will be excavated for each residential building. Disturbed subsoil layers will be stabilised as soon as practicable (e.g., backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping). Stockpiles of subsoil material shall be located separately from topsoil stockpiles. These stockpiles will be monitored throughout the construction phase. Monitoring of ground conditions and stability of excavations will be monitored on an on-going basis. Once the earthworks and landscaping are completed, the risk of sediment loading of water courses is significantly reduced The main areas of potential impact with respect to earthworks are as follows: -

	• Excessive Dust deposition • Increased sediment loading in the surface water runoff from the site and entering the adjoining stream. • Potential spillage of oil and diesel used on site for plant and equipment **Mitigation and Monitoring During Operation Phase** No significant effects are anticipated during the operational phase. Therefore, no mitigation measures have been proposed.
Water	**Mitigation and Monitoring During Construction Phase** Mitigation measures during the construction phase are discussed below. These mitigation measures have been developed with the source-pathway-receptor links above in mind and are designed to break this link either by removing the source or disrupting the pathway for pollution. **Best Practice Construction Methods** A Construction Environmental Management Plan (CEMP) has been prepared for the proposed development by DOSA and will be put in place by the appointed contractor. The CEMP was prepared in accordance with the following: • National and International Legislation; • Environment Liability Regulations; and • Best Management Guidelines. The CEMP will be used by the contractor to prevent and minimise environmental effects during construction. It includes the below to mitigate impacts on water: **Fine Sediment Pollution** Mitigation for the protection of surface and groundwater quality from runoff carrying fine sediments and urban pollutants involves silt control measures. These include proper planning of works, site compound construction, storage management and excavation plans, as follows: • The CEMP will include the mitigation measures outlined in this EIAR to address sediment control during construction and the potential risk of sediments and various pollutants release into local watercourses. This includes silt fencing, runoff control and measures to prevent contaminant entering the stormwater by proper storage of hazardous materials and waste management practice;

	• Adherence to best practice guidance for pollution prevention and sediment management measures (e.g., use of drip trays, spill kits, and silt fences etc.) will be applied. • The contractor will construct a site compound at a location remote from any drains, in a minimum distance of 75m; • Storage locations and topsoil piles will be placed in appropriate places, distant to existing drains/sewerage with a minimum distance of 75m; • All soil stockpiles will be covered (i.e., with a tarpaulin or vegetated) to minimise the risk of rain/wind erosion. Vegetation will be established as soon as possible on all exposed soils; • In the event of an extended dry period, stockpiles will be dampened using water to minimise the risk of airborne particles entering watercourses; • Excavations will remain open for as little time as possible before the placement of fill to minimise the potential of water ingress into excavations; • Management/Response plans will be implemented to identify mobilisation of soil particles/pollution and initiate the interception and treatment of pollution/silt run-off; • Silt fencing or other appropriate measures will be put in place downstream of exposed soils or soil stockpiles. • Silt fences will be installed along the eastern stream. **Accidental Spills and Leaks** To avoid and manage accidental spills and leaks a series of measures listed below will be implemented. The main contractor and sub-contractors will be responsible for ensuring their implementation: • Refuelling of site plant will take place at the site compound at a concrete refuelling pad adjacent to the fuel storage tank. There will be no refuelling of mobile plant within 50m of any sensitive receptors, i.e., watercourses; • No vehicles will be left unattended when refuelling and a spill kit including an oil containment boom and absorbent pads will be on site at all times; • Any fuel needed to be stored on the site will be stored appropriately and at a location that is set back from the river. All other construction materials will be stored in this compound. The compound will also house the site offices and portable toilets. This compound will either be located on ground that is not prone to flooding or will be surrounded by a protective earth bund to prevent inundation;

	• All vehicles will be regularly maintained and checked for fuel and oil leaks; • All liquids, solids and powder containers will be clearly labelled and stored appropriately in sealable containers. Storage of fuels and oils will be in the main contractor's compound only; • Spill protection equipment such as spill kits, absorbent mats, oil booms, and sand will be available for use in the event of an accidental spill. These will be disposed of correctly if used and replaced with new ones immediately. Disposal records for used absorbent materials will be retained by the Site Manager; • The contractor will implement measures for the regular inspection of bunds and emptying of rainwater (when uncontaminated). Bunding must have a minimum capacity of 110% of total capacity. Bunding will be impermeable to the substance that is being stored in the tank; • The use of settlement ponds with outflow control measures will be used for the interception of surface water or groundwater pumped from an active working area; • If a spillage of a hazardous material to groundwater occurs, the groundwater will be contained and pumped to a tank or holding vessel prior to shipment off site for disposal. The contractor will maintain disposal records. The contractor will identify the cause of the spillage and mitigation measures and controls will be put in place to prevent a repeat. The CEMP for the site will be updated and contractors and sub-contractors will be made aware of the amendments; • The Contractor will clean equipment prior to delivery to the site. The Contractor will avoid using any equipment which leaks fuel, hydraulic oil, or lubricant. The Contractor will maintain equipment to ensure efficiency and to minimise emissions; • No excavation will take place below the water-table on the site; • Management/Response plans will be implemented to identify mobilisation of soil particles/pollution and initiate the interception and treatment of pollution/silt runoff; and • Precast concrete elements will be used where possible, to reduce the need for wet concreting. **Instream Works** To reduce the potential impacts from instream works the following mitigation measures are proposed: • All instream works will be supervised by an Ecological Clerk of Works (ECoW), and safe concreting measures during construction will be implemented;

	• All measures that alter the channel bed via installation of concrete foundations or aprons must reinstate the natural bed material to the existing grade line of the river following construction. • To mitigate impacts to any fauna or flora as a result of instream works, including fish passage, refer to Chapter 10 Biodiversity. During construction, visual and chemical monitoring of treated surface water will take place to ensure that water draining from the site is not affected by the proposed development. This will take place during the regular site audits during the construction process. Surface water collected in sumps will be monitored prior to discharge. Samples will be taken and the pH, conductivity, chemical oxygen demand, total petroleum hydrocarbons, and suspended solids levels will be recorded. The monitoring results will be compared to the allowable limits given in the Surface Water Regulations. If the results show an exceedance in the allowable levels, then the appointed contractor will review the mitigation measures and remedy them to lower the levels of the pollutant. A record of these upgrades/changes to the mitigation measures will be recorded. The contractor is required to monitor the weather forecasts to inform the programming of earthworks and stockpiling of materials. If the mitigation measures in place during construction are observed to be insufficient or inefficient (i.e., elevated suspended solids, pH, conductivity, chemical oxygen demand, or total petroleum hydrocarbons are detected during monitoring prior to discharge), the discharge will be halted, and the mitigation measures will be revised and reimplemented. Further sampling will verify the success of the revised/updated surface water management. The affected water will be conveyed to the revised/updated treatment train and put through a hydrocarbon interceptor and settlement tanks to ensure compliance with the required levels in the treated water. **Mitigation and Monitoring During Operation Phase** The inclusion of the proposed SuDS features, as per the Engineering Design Report prepared by DOSA Consulting Engineers, will help to mitigate against additional surface water runoff and pollution. During the operational phase, regular visual inspection of the silt traps and hydrocarbon interceptors should be carried out to ensure they are operating correctly. No additional mitigation measures are required.

	Once operational, silt traps and hydrocarbon interceptors will be visually inspected on a regular or annual basis. Any spillages onsite will be acted upon immediately. No other monitoring measures are required during the operational phase.
Resources and Waste Management	**Mitigation and Monitoring During Construction Phase** It is estimated that a total fill volume of 68,000 m^3 of soil will be excavated for the overall site. From this total volume, about 26,000 m^3 is expected to be top soil, which will be suitable for re-using on site for landscaping. A further 21,000m3 will be reused onsite as structural/non-structural fill. The remaining volume is proposed to be removed from the site and disposed to an appropriately licenced facility or, wherever suitable, removal as by-products that meet the legislative requirements of Article 27 of the European Communities (Waste Directive) Regulations, 2011 (S.I. No 126 of 2011). It is proposed that all excavated material that is not suitable for re-use on site will be removed from the site and transported to an appropriately licenced facility. Appropriate environmental measures will need to be employed to ensure that the excavated and other construction materials do not become a source of pollution. For instance, all hazardous materials should be stored within secondary containment designed to retain at least 110% of the storage contents, temporary bunds for oil/diesel storage tanks shall be used on the site, and safe material handling of all potentially hazardous materials shall be emphasized to all construction personnel. Dust emissions on site are to be managed through the implementation of a dust minimisation plan which is to be submitted for approval. Due to the nature of the activities undertaken on a large construction site, there is potential for noise generation. Noise levels as set out by Cork County Council will be adhered to. More details in the Construction & Environmental Management Plan (CEMP). During the construction phase, a Site Waste Management Plan (SWMP) will be developed and implemented, with regular monitoring of waste types, quantities generated, and destinations (reuse, recycling, recovery, or disposal). Contractors will be required to maintain waste records, including waste transfer documentation, in accordance with the Waste Management (Collection Permit) Regulations 2007 (as amended) and the Waste Facility Permit and Registration Regulations 2007 (as amended). These records will be subject to review and audit to verify compliance.

	Mitigation and Monitoring During Operation Phase Operational stage mitigation measures have been designed into the proposed development, as described below. • Waste Storage Areas have been allocated in the design of all apartment buildings and have been strategically located in close proximity to the main entrances to minimise the distances the residents have to travel to access them. • Each dwelling shall incorporate a designated waste storage area within the curtilage of the site, providing sufficient space for the segregation and storage of wheelie bins for residual, recyclable, organic waste, and glass in accordance with best practice guidelines and local authority requirements. Residents and staff at the creche will be required to segregate waste into the following main waste streams: • Mixed dry recyclables, • Non-recyclables; • Organic waste, • Glass; Residents will be required to deposit their segregated waste into the appropriate bins. The communal waste storage areas will be designed and fitted-out to meet the requirements of relevant design standards, including: • Be fitted with a non-slip floor surface; • Provide ventilation to reduce the potential for generation of odours; • Provide suitable lighting; • Be easily accessible; • Be restricted to access by nominated personnel only; • Be supplied with hot or cold water for disinfection and washing of bins; • Be fitted with suitable power supply for power washers; • Have a sloped floor to a central foul drain for bins washing run-off; • Have appropriate signage placed above and on bins indicating correct use; The implementation of an Operational Waste Management Plan (OWMP) will ensure a high level of recycling, reuse and recovery of waste from landfill, wherever possible. The OWMP also seeks to provide guidance on the appropriate collection and transport of waste to

	prevent issues associated with litter or more serious environmental pollution. The waste strategy presented in this OWMP will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated communal areas for waste storage will provide sufficient room for the required receptacles in accordance with the details of this strategy. Ongoing monitoring of household waste generation and segregation practices will be undertaken by the facilities management company or relevant body corporate, where applicable. This includes periodic checks to ensure that residents are using designated bin storage areas appropriately and that waste is being presented for collection in accordance with Cork County Council bye-laws and the requirements of licensed waste collectors. Where necessary, awareness measures and information campaigns may be implemented to promote proper segregation and reduce contamination in recycling and organic waste streams. All monitoring activities will support the broader goals of the National Waste Management Plan for a Circular Economy, ensuring that the development continues to contribute positively to national recycling and recovery targets, while minimising adverse environmental impacts related to waste generation and management.
Material Assets	**Mitigation and Monitoring During Construction Phase** The roads surrounding the site shall undergo regular cleaning to remove any spoil spilt during excavation and removal off-site to mitigate the risk of blockage in the existing surface water network and ameliorate the quality of the surface water discharge. At site setup and mobilisation, the appointed contractor will be obliged to ensure that full procedures for the management of water pollution will be established and installed. These will include • the protection of surface water sewers and watercourses adjacent to the site. Surface water shall be directed to settlement ponds where topographically feasible. Where this is not practicable the surface water shall be allowed to percolate to ground and/or be removed by tanker to a designated waste-water treatment plant if excessive build-up of surface water on site occurs. • Protection of surface water gullies or drains using silt fences.

	• Minimal and short-term storage and the removal of excess materials (soil, stones, and construction wastes) off site in an efficient manner. • Daily checks of surface water regime on site and logging of same. • Works associated with excavations or earth moving not to be undertaken in periods of forecasted bad weather. • Drainage channels beside construction roadways to direct surface water to settlement areas and allow for natural percolation to ground. • Ensure good site management is maintained at all times during the construction phase including regular site clean-ups and use of appropriate bins. In order to prevent the release of hazardous materials (fuels, paints, cleaning agents, etc.) during construction site activity, all hazardous materials should be stored within secondary containment designed to retain at least 110% of the storage contents. Temporary bunds for oil/diesel storage tanks will be used on the site during the construction phase of the project. Safe material handling of all potentially hazardous materials should be emphasised to all construction personnel. The upgrade works to the existing water network, shall be carried out according to the Irish Water code of practice. No other mitigation or reductive measures are considered necessary, apart from good practice in the hydraulics and engineering design and construction techniques of the services network. The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained throughout unless this has been agreed in advance with the relevant service provider and local authority. All works near utilities will be carried out in ongoing consultation with the relevant utility company and/or local authority and will be in compliance with any requirements or guidelines they may have. These will include: • Risk assessment and method statements (RAMS): Prepare detailed RAMS specifically addressing the presence of overhead lines. • Exclusion zones: Establish and clearly mark safe clearance distances from overhead cables, in line with regulatory guidance (e.g. ESB Networks standards in Ireland). • Warning signage: Erect clear warning signs and barriers around the danger zone.

- Lookout personnel: Assign a banksman or spotter when machinery is operating near overhead lines.

For new services, the Contractor will apply to the relevant utility company for a connection permit where appropriate and will adhere to their requirements.

Service providers have been and will continue to be consulted throughout the design and construction process. Requirements for each service will be agreed with the respective provider and a representative of the service provider will be present on site as necessary during the works for monitoring purposes.

Proposed monitoring during the construction phase in relation to the underground services are as follows:

- Adherence to the Construction Environmental Management Plan (CEMP)
- Inspection of fuel / oil storage areas and continued maintenance by a suitably qualified sub-contractor
- Monitoring cleanliness of adjacent road network, implementation of dust suppression and vehicle wheel wash facilities
- A Site Foreman/Project Manager will be retained on the site to conduct periodic inspections of the construction site to ensure that any hazardous materials stored on the construction site are stored within appropriate secondary containment, and that any surface water discharged off site during the construction phase is free from excessive sediment.

If the suggested mitigation and control measures as described earlier are put in place and a risk assessment is carried out in advance of and during the works, the significance of these impacts will short term and slight during the construction phase.

Mitigation and Monitoring During Operation Phase

As proposed in the surface water drainage plan, SuDS features are largely proposed in the drainage strategy and shall have appropriate maintenance in order to be effective in dealing with the water quality in the long term.

Water conservation measures such as the use of low flush toilets and low flow taps will be incorporated into the proposed dwellings to reduce water volumes entering the foul water network. This measure will also reduce the demand on the public water supply.

	Any other impacts assessed in the operational phase were deemed not significant, and therefore no mitigation measures are proposed.
Population and Human Health	**Mitigation and Monitoring During Construction Phase** Proposed monitoring during the construction phase in relation to the underground services are as follows: • Adherence to the Construction Environmental Management Plan (CEMP) • Inspection of fuel / oil storage areas and continued maintenance by a suitably qualified sub-contractor • Monitoring cleanliness of adjacent road network, implementation of dust suppression and vehicle wheel wash facilities • A Site Foreman/Project Manager will be retained on the site to conduct periodic inspections of the construction site to ensure that any hazardous materials stored on the construction site are stored within appropriate secondary containment, and that any surface water discharged off site during the construction phase is free from excessive sediment. If the suggested mitigation and control measures as described earlier are put in place and a risk assessment is carried out in advance of and during the works, the significance of these impacts will short term and slight during the construction phase. **Mitigation and Monitoring During Operation Phase** As proposed in the surface water drainage plan, SuDS features are largely proposed in the drainage strategy and shall have appropriate maintenance in order to be effective in dealing with the water quality in the long term. Water conservation measures such as the use of low flush toilets and low flow taps will be incorporated into the proposed dwellings to reduce water volumes entering the foul water network. This measure will also reduce the demand on the public water supply. Any other impacts assessed in the operational phase were deemed not significant, and therefore no mitigation measures are proposed.
Major Accidents and Disasters	**Mitigation and Monitoring During Construction Phase** All potential risks, direct and indirect, identified during the construction phase were determined to be 'low risk scenarios'. A detailed CEMP will be prepared by the contractor and implemented throughout the works. The CEMP will be a live document and continuously updated to ensure that potential risks of major accidents and/or disasters are identified, avoided, and mitigated as necessary.

	Aside from the monitoring measures to be carried out by the contractor, as outlined in the CEMP (e.g., site inspections and audits) and throughout the EIAR, no additional monitoring is considered necessary during the construction phase of the proposed development. **Mitigation and Monitoring During Operation Phase** The fire risk mitigation for the apartments and duplexes and creche building will comprise all fire safety measures necessary to comply with the requirements of Part B (Fire) of the Second Schedule to the Building Regulations 1997-2017. It is noted that these measures will be validated under the Building Control Act 1990-2007 through the obtaining, in due course, of statutory Fire Safety Certificates under Part III of the Building Control Regulations 1997-2024 from Cork County Council/Cork County Fire Brigade. Otherwise, the proposed development will be designed and built and managed in line with best international current practices and as such mitigation against the risk of major accidents and/ or disasters will be embedded throughout the design stage. All potential risks, direct and indirect, identified during the operation phase were determined to be 'low risk scenarios'. No additional monitoring is considered necessary during the operational phase of the proposed development.

20.3 Summary of Residual Effects

Traffic and Transportation	With the implementation of a Construction Traffic Management Plan and Mobility Management Plan in place, the residual impact of the Proposed Development will be 'not significant', in terms of the development in isolation.
Air Quality & Climate	Measures will be put in place as part of the Construction & Environmental Management Plan to minimise the impact of dust generated from the works with reference to best practice guidance such as the Control of Dust from Construction and Demolition Activities document. This will minimise any impact on the local community. Normal routine operational impacts from this installation will not be significant and in line with EU Air quality standards. A summary of the residual impacts from the operational and construction phase of the development is detailed in Table 8.34 below. While the operational phase may result in impacts that are characterised as long-term, localised and negative, it is important to emphasise that

	these effects are deemed imperceptible. Through appropriate design measures and adherence to regulatory standards, these impacts can be effectively managed and mitigated.
Noise and Vibration	During the construction phase of the project, there is not expected to be any significant noise impact on most of the noise sensitive receptors in the vicinity. The only noise impact from the construction phase of any significance is expected to occur at the three or four residential dwellings directly overlooking the site at the northwest corner. Noise emission levels of this order are predicted to be ≤ 2dB(A) above the 65dB L_{Aeq} daytime criterion and therefore could impart a slight noise impact on these receptors when construction activities are being carried out on the development dwellings situated adjacent to them. As stated in Section 6.1, construction activities are typically expected to impact significant impacts on noise sensitive receptors when carried out in close proximities with receptors that are immediately adjacent to the proposed development. In this instance, it is worth noting that these slight noise impacts will only occur when construction works are being carried out on the dwellings located in close proximity to these receptors. Once the development dwellings in these areas are constructed, construction noise emission levels will decrease significantly due to shielding from the other constructed buildings and significantly increased distances away from these receptors. However, it is still recommended that when construction activities are carried out in their vicinity that they be managed / coordinated with local residents of these dwellings in order to minimise potential noise impact as far as practicable. Limiting the hours of noisy operations and implementation of appropriate noise control measures detailed in this report will also serve to minimise noise impact as far as practicable in this instance. The predicted noise levels associated with building services are within the 45 / 50dB $L_{Aeq,T}$ night time / daytime criteria at all nearby residential receptors to the proposed development. The predicted noise levels associated with the proposed development creche external play area are within the 45dB $L_{Aeq,T}$ daytime criteria at all nearby residential receptors to the proposed development. The predicted noise levels associated with additional vehicular traffic on public roads are negligible.

	The predicted vibration emission associated with both the construction and operational phases of the proposed development are expected to be negligible. The Inward noise level ranges of 31 - 44dB L_{den} that were considered for daytime periods and 31 - 39dB $L_{Aeq,8hr}$ for night time periods would be within the 'Negligible' magnitude range. Ambient noise levels in the ''Negligible' range indicate that the application for the site need not normally be delayed on noise grounds. Note also that these levels are also below the thresholds for residential criteria detailed in all Environmental Protection Agency and *BS 8233* guidance. It is clear from these results that the ambient noise level environment at the proposed development site is quiet and well below the thresholds for further assessment from a noise impact standpoint.
Biodiversity	The project site will not result in any residual impacts to designated conservation areas. There will be no residual loss of habitat of conservation value as a result of the project. The application of mitigation measures will ensure that the construction phase will result in imperceptible residual effects to fauna supported by the project site.
Archaeology and Cultural Heritage	Following a comprehensive assessment, the residual effects of the proposed development on the cultural heritage environment are assessed as not significant. There are no registered archaeological monuments or architectural structures within the proposed development site. A geophysical survey under licence 20R0083, followed by targeted archaeological testing undertaken in 2022 and 2025 under licences 22E0218 and 22E0218Ext, respectively, revealed no archaeological features or finds within the proposed development site. The results of these investigative works indicate that the overall archaeological potential of the site is low and the associated effects of the proposed development are therefore considered to be imperceptible to slight negative.

	There will be no direct or indirect effects on any Protected Structures (PS), National Inventory of Architectural Heritage (NIAH), listed buildings, or Architectural Conservation Areas (ACA's). Due to the subsurface character of nearby archaeological sites, the lack of visual connectivity and the presence of intervening development and vegetation, the potential visual impact of the proposed development on the surrounding registered archaeological and architectural sties is considered as not significant. Licenced archaeological monitoring of the remainder of the previously untested area at the southern end of the proposed development site will be conducted during the construction phase. This will serve as an effective mitigation measure, ensuring that any unexpected archaeological material encountered is appropriately addressed.
Landscape & Visual Impact	It could be anticipated that this development may expedite evolution of the open space zoning north of the site. The planting of native woodland corridors combined with meadows and improved stormwater management will provide long-term improvement to local habitat beyond the site boundary and result in a greater diversity of flora and fauna. This is assessed even in the context of development, as the long-term use of lands for arable crops imposes its own habitat limitations and environmental impacts. The loss of agricultural land within the town development boundary may receive mixed public commentary. Some may perceive it as a logical land use evolution and some may see it as a degradation of local character. By providing an extremely robust SuDS solution within the estate, the system can be monitored for effectiveness and potentially referenced as a best-practice built example for nature-based stormwater solutions in West Cork.
Land and Soils	Following implementation of the proposed mitigation measures, the residual effects of the proposed development on land, soils, and hydrogeology will be minimised. Following the implementation of the mitigation measures, the effects during the construction phase will be short-term, slight, negative, reducing to imperceptible over time.

	The design of the scheme has been such that there are no predicted effects on the water and hydrogeological environment during the operational phase of the development. Overall, the long-term effects of the proposed development will be neutral and imperceptible.
Water	The design of the scheme has been such that there are no predicted effects on the water and hydrogeological environment during the operational phase of the development. The proposed discharge rate does not exceed the existing greenfield runoff rate, while the proposed drainage design includes measures for the attenuation of surface water. Once operational, the proposed development will not lead to a deterioration of water status of either the surface waterbodies, nor will it jeopardise the attainment of good water status for either of these waterbodies. Overall, the operational effects of the proposed development will be long-term, neutral and imperceptible.
Resources and Waste Management	The implementation of the mitigation measures proposed during construction, and operational stages will ensure that a high rate of reuse, recovery and recycling is achieved. No residual effects are therefore anticipated from either the construction phase or operational phase.
Material Assets	Following good construction practices and the proposed mitigation measures previously described in this chapter, the residual effects on services in the site area during construction can be considered as minimum. The design of the proposed development follows all recommended guidelines, therefore, it is considered that there is no significant residual effect on the services of the proposed development during operational phase. The residual effect on utility services is imperceptible. The proposed development will have a long-term positive impact on the existing environment by creating high quality residential units to cater for the needs of a growing population and responding to a significant housing need and demand in the locality and the region, while occupying a presently underutilised zoned site at an appropriate location for sustainable development.

Population and Human Health	It is anticipated that the proposed development will realise positive overall economic and social benefits for the local community and the wider rural area. Strict adherence to the mitigation measures recommended in this EIAR will ensure that there will be no negative residual impacts or effects on population and human health from the construction and operation of the proposed scheme. Indeed, the delivery of much needed housing and a childcare service will realise a likely positive effect for the local area.
Major Accidents and Disasters	The risk of a major accident and/or disaster during the construction of the proposed development is considered 'low' in accordance with the risk evaluation methodology. It is considered that the proposed development will not give rise to significant residual effects. The risk of a major accident and/or disaster during the operation of the proposed development is considered 'low' with regards the risk evaluation methodology. It is therefore considered that there is no significant residual effect(s) during the operation of the proposed development.