13.2.3.1.1 Local Settlement and Land-Use

Blanchardstown Town Centre is located approximately 10km north-west of Dublin City Centre and approximately 1km north of the village of Blanchardstown. Blanchardstown is the largest urban area in the County of Fingal and serves as a service centre for the county along with Swords. The subject site is currently a surface car park site and multistorey carpark, separated by the Blanchardstown Centre Ring Road, and is located within the existing Blanchardstown Town Centre complex. The centre is currently surrounded by large retail parks and surface car-parking. Townlands in the area include Mulhuddart to the north, Corduff to the east, Coolmine to the west and Castleknock to the south.

Blanchardstown Town Centre is zoned 'MC – Major Town Centre' under the Fingal Development Plan 2017-2023 (Fingal County Council, 2016). The objective of the MC zoning is to '*Protect, provide for and/or improve major town centre facilities*' through the future development of these centres by densification of appropriate commercial and residential developments ensuring a mix of commercial, recreational, civic, cultural, leisure, residential uses, and urban streets, while delivering a quality urban environment which will enhance the quality of life of resident, visitor and workers alike, and ensuring priority for public transport, pedestrians and cyclists. The lands surrounding the Proposed Development Site are zoned 'MC' Major Town Centre, 'RS' Residential, 'OS' Open Space and 'CI' Community Infrastructure under the Fingal County Development Plan 2017-2023 (Fingal County Council, 2016).

Blanchardstown Town Centre has evolved to become the commercial, civic, recreational and transportation hub of the area. It provides for a significant opportunity for consolidation and densification and delivery of residential development through the redevelopment of the existing surface car parks, and this proposed development is the first step in the process by the new owners.

13.2.3.2 Land-use History

The Proposed Development Site was historically used for agricultural purposes. The Blanchardstown Town Centre was built on a green field site.

Historical mapping and aerial photography available from the Ordnance Survey of Ireland website (OSI, 2021) were reviewed and key observations on-site and off-site are summarised in Table 13-24.

Table 13-24: Historical Land Use

Date	Information Source	Site Description
1837-1842	**OSI map 6inch**	**On-site:** The Proposed Development Site is shown as predominantly agricultural fields and a dwelling. **Off-site:** The Proposed Development Site is shown to be bound by open fields, Coolmine House and Gardens, the Old Navan Road and the Tolka River.
1888-1913	**OSI map 25inch**	**On-site:** No significant changes. **Off-site:** No significant changes.
1830-1930	**OSI Cassini map 6inch**	**On-site:** No significant changes. **Off-site:** No significant changes.

Date	Information Source	Site Description
1995	**OSI Aerial photography**	**On-site:** Development of Blanchardstown Town Centre is underway on the subject site. **Off-site:** There are still fields surrounding the site itself, and housing estates have been developed to the north, east, south and west. The Navan Road road has been developed into the N3, a dual carriageway with roundabouts and slip-roads. Coolmine House has been demolished and Coolmine Community School and Coolmine Sports and Leisure Centre are in place on the land.
2000	**OSI Aerial photography**	**On-site**: Blanchardstown Town Centre is complete and open for business. The subject site is a surface level carpark. Further development has taken place in the adjoining fields. **Off-site:** Further development has taken place in the adjoining fields northwest and southeast of the site. The housing developments north, west and south of the Blanchardstown Town Centre have increased in size.
2005	**OSI Aerial photography**	**On-site:** The subject site has been developed into a multistorey car park and a retail unit divided by a road. **Off-site:** More development has been constructed in the surrounding lands. Another housing development has been constructed northeast of the site. The majority of the land north of the site remains as greenfield agricultural pastureland.
2005-2013	**OSI Aerial Photography**	**On-site:** No significant changes. **Off-site:** An additional carpark has been built to the northwest of the Town Centre, a hotel has been built on the northern side of the Town Centre, Blanchardstown Court House and Fingal Co Co Offices have been developed to the South West of the Town Centre.
2021	**Google Maps Photography** *©2021 Infoterra Ltd & Bluesky, Landsat/Copernicus, Maxar Technologies*	**On-site:** No significant changes **Off-site:** No significant changes.

13.2.3.3 Electricity Supply

13.2.3.3.1 Local Supply & Grid Connection

Electricity to local businesses in the area is mainly supplied by underground cables from the nearby existing Clonee (or Corduff) 220kV Station. There are a number of overhead lines in the immediate vicinity north of the Site of the Proposed Development however there are no overhead lines crossing the Site.

Eirgrid is responsible for planning and development of the electricity transmission system and operate the grid in North Dublin. The East Meath to North Dublin Network reinforcement Project (CP1021) commenced in Autumn 2020 and reflects the increased demand for power in the region from large energy users located at or near the existing substations at Clonee,

Corduff, Finglas and Belcamp[6]. In addition, demand from new housing, commercial and SME developments has consistently increased within the region. There is a limited number of existing electricity transmission circuits, (overhead lines and underground cables) to supply these areas, and power flows on these existing electricity circuits are expected to reach capacity as the demand in the region continues to increase and as Ireland transitions to a more sustainable electricity grid supported by 70% electricity consumption via renewable energy sources by 2030.

13.2.3.3.2 Onsite Supply and Consumption

Existing electricity supply is in place at the site of the Proposed Development. The Proposed Development includes the construction of two (2No.) ESB sub-stations and switchrooms to service the Development.

13.2.3.3.3 Gas supply

Gas Networks Ireland builds, develops and operates Ireland's gas infrastructure, maintaining over 14,521 km of gas pipelines and two sub-sea interconnectors. The distribution infrastructure is typically operated at 4 bar g and less than 100 mbar g for inner city networks. Gas Networks Ireland is responsible for connecting all new gas customers to the network, and for work on service pipes and meters at customers' premises, on behalf of all gas suppliers in Ireland.

13.2.3.3.4 Information and Communications Technology (ICT)

The Department of the Environment, Climate and Communications have developed an interactive map which details the progress of the rollout of the National Broadband Plan. The High-Speed Broadband map identifies locations and premises as amber or blue and the map is updated on a quarterly basis. Amber areas depict target areas for the State intervention of the National Broadband Plan. Blue areas indicated that commercial operators have instated or are in the process of delivering high speed broadband services. The Site of the Proposed Development is located within a blue area and high-speed broadband is available.

In terms of mobile telecommunication for transmission and reception, the closest mobile/ICT communications masts (3 and Meteor; Vodafone) are located at the Town Centre c. 150m north and northwest of the Site of the Proposed Development.

As the Blanchardstown Town Centre is a well serviced and fully operational, IT infrastructure for operations and administration is established and in place. The Proposed Development will seek to extend and connect into this infrastructure.

13.2.3.3.5 Water Supply and Demand

The Proposed Development Site is located within an area serviced by mains water supply and there are no groundwater sources located at the Proposed Development Site or identified on the GSI database (GSI, 2021). The closest public water supply is the Dunboyne PWS which

[6] https://www.eirgridgroup.com/site-files/library/EirGrid/EirGrid-CP1021-East-Meath-North-Project-Brochure.pdf (accessed 24/01/2022)

supplies for Dunboyne, Clonee and their surrounds. The Dunboyne PWS is located approximately 6.45km northwest of the Proposed Development Site. Existing public water supply infrastructure (300mm diameter ductile iron watermain) is located to the north-east of Site B and to the south-west and south-east of Site C i.e., adjacent to the existing access road within Blanchardstown Town Centre.

Fire water supply at the Proposed Development Site is provided via fire hydrants. The proposed water main layout is arranged such that all buildings are a maximum of 46.0m from a hydrant in accordance with the Department of the Environment's Building Regulations "Technical Guidance Document Part B Fire Safety". All new fire hydrants will comply with the requirements of BS 750:2012 and will be installed in accordance with Irish Water's Code of Practice and Standard Details.

13.2.3.4 Local Hydrology and Hydrogeology

The closest surface water feature is named locally and recorded on the EPA database (EPA, 2022) as the Tolka River (IE_EA_09T010800) which is located approximately 0.45km northeast of the Proposed Development Site and flows eastwards, discharging into Dublin Bay, approximately 17.9km southeast of the Proposed Development Site.

The Proposed Development Site is mapped by the EPA (EPA, 2019) as within the WFD Catchment of the Liffey and Dublin Bay, Hydrometric Area (HA09), the Tolka Sub-catchment (SC_09_4) and the Tolka WFD River Sub Basin (IE_SE_09T011000).

The River Waterbody WFD quality status for the Tolka River has been classified by the EPA (EPA, 2022) as "Poor" for the period of 2013-2018 and is identified as being "At Risk" of not achieving the Water Framework Objectives for the WFD Cycle 2 and Cycle 3 (EPA, 2022).

13.2.3.5 Surface Water Drainage

Existing private (owned by the applicant) surface water drainage infrastructure (525mm diameter) is located to the north-east of Site B and to the south-west and south-east of Site C, running along a grass verge adjacent to the existing access road within Blanchardstown Town Centre. This 525mm diameter surface water drain outfalls to the north-east along access roads within Blanchardstown Town Centre.

13.2.3.6 Foul Water Management

Existing 225mm diameter private (owned by the applicant) foul drainage infrastructure is located to the north-east of Site B and to the south-west and south-east of Site C, running along a grass verge adjacent to the existing access road within Blanchardstown Town Centre. This drainage line outfalls to an existing private (also owned by the applicant) 450mm diameter foul sewer, which in turn discharges to Irish Water's 9C trunk sewer.

The existing 225mm diameter private foul drainage network in the immediate vicinity of the site is at capacity, therefore upgrades to the private foul drainage network are required in order to facilitate the Proposed Development.

13.2.3.7 Waste Management

The subject site is currently a multi storey car park and a surface level carpark of a Major Town Centre. Waste management strategies are in place for the Blanchardstown Town Centre and waste types generated at the Town Centre reflect typical municipal wastes. Contracts are currently in place for premises within the Town Centre that are operational, with experienced and appropriately authorised waste management service providers who have the skills and expertise to manage the various waste types generated. All waste contractors are appropriately permitted to collect and transport waste under the National Waste Collection Permit Office (NWCPO) and all wastes are transported to appropriately licenced or permitted waste recovery/disposal facilities.

13.2.4 Characteristics of the Proposed Development

The applicant, Blanche Retail Nominee Limited, seeks to apply for planning permission for a Proposed Mixed-Use Development on two sites, Site B (the Library Carpark Site) and Site C (the Blue Carpark Site) separated by a roadway at Blanchardstown Town Centre, Coolmine, Dublin 15. The Proposed Development includes residential accommodation, resident amenity floorspace, commercial units, a community facility and all ancillary services as summarised below:

- 352 no. apartments (comprising 44 no. studios, 132 no. 1 bed apartments, 155 no. 2 bed apartments, and 21 no. 3 bed apartments) and ancillary resident amenity floorspace, 5 no. commercial units (for Class 1-Shop, or Class 2- Office / Professional Services or Class 11- Gym or Restaurant / Café use, including ancillary takeaway use), and 1 no. community facility, in 6 no. buildings (Blocks A, B, C, D, J and K), ranging from 5 no. to 13 no. storeys in height. Blocks J and K are proposed on the Library Car Park site (Site B) and Blocks A, B, C and D are located on the Blue Car Park site (Site C).
- The Proposed Development includes for an extension of the existing multi storey car park (the Blue Carpark) from 4 no. levels to 6 no. levels and associated alterations to the existing multi storey car park to facilitate the development to provide replacement car parking for the surface car parking to be removed from the application site and associated car parking provision for the Blocks A, B, C, D, J and K.
- The proposals include a new entrance, reconfiguration of parking spaces and internal circulation routes, provision of cores and associated alterations to the existing multi storey car park.
- The proposal also includes new walls and elevations treatment and to the south and east elevations of the existing car park to facilitate the adjacent residential blocks.
- Surface parking spaces are provided adjacent to Block A and adjacent to Block K and car parking spaces are also provided in an undercroft floor level within Blocks J and K to serve the residential units within those blocks.
- The proposal includes road, pedestrian and cycle upgrades and associated alterations to the road infrastructure within the application site boundary. The proposal includes vehicular accesses, a loading bay, and new road infrastructure adjacent to Block J and K up to the site boundary.
- Provision of telecommunications infrastructure at roof level comprising of 6 no. 0.3m microwave link dishes enclosed within GRP radio friendly shrouds, mounted on 3 no.

steel support poles (2m in height above the lift shaft overrun) together with all associated equipment.

- The Proposed Development includes public open space, communal courtyards and external roof terraces, landscaping and public realm improvements, cycle parking, 2 no. ESB substations and associated switchrooms, bin stores and plant rooms, green roofs and PV panels at roof level. The associated site and infrastructural works include site clearance and excavation, provision of utilities and associated civil works, foul and surface water drainage and public lighting, along with all ancillary works.

13.2.4.1 Construction Phase

The duration of the Construction Phase of the Proposed Development will be approximately 24 to 30 months. The Construction Phase will include all necessary site clearance and preparation work, site development and construction. The Construction Phase will involve the excavation of soil and bedrock for the construction of building foundations, carparking areas, access roads and filter drains, the surface / foul water drainage network and all ancillary works.

13.2.4.2 Operational Phase

The Operational Phase of the Proposed Development will consist of the normal day-to-day operations necessary for the management of multistorey car parks, retail space, such as offices, a gym or food outlets, and the ongoing maintenance of residential units and public and communal amenity space.

13.2.5 Potential Impact of the Proposed Development

This section assesses the impact of the Proposed Development on the Material Assets of the area during the Construction and Operational Phases.

13.2.5.1 Local Settlement

It is noted that specific issues relating to Population and Human Health associated with the Proposed Development are set out in Chapter 4 of this EIAR, while specific issues relating to traffic are dealt with in Chapter 12a Material Assets - Traffic.

13.2.5.1.1 Construction Phase

Residents in nearby developments and local businesses may experience a *temporary, negative* nuisance disturbance during the Construction Phase of the Proposed Development due to noise, additional traffic, and any temporary disruption to services and utilities. The construction phase will create construction employment in the area which will have a *positive* effect on local businesses who might benefit from increased custom to their services. The increased employment will also enhance the local economy within the area which will have a *short-term, positive* impact on local settlement as a result.

13.2.5.1.1.1 Air Quality

It is noted that specific issues relating to Air Quality associated with the Proposed Development are set out in Chapter 8 of this EIAR. The greatest potential impact on air quality during the Construction Phase is from dust emissions and the potential for nuisance dust.

Appropriate mitigation measures, including a dust minimisation plan and dust monitoring will be employed to further reduce the risk of such impacts occurring.

According to the Traffic and Transport Assessment for the Proposed Development (*Clifton Scannell Emerson Associates, 2022*), traffic-related impacts during the Construction Phase are expected to be short-term, negative, and insignificant.

13.2.5.1.1.2 Visual Impact

It is noted that specific issues relating to Visual Impact associated with the Proposed Development are set out in Chapter 11 of this EIAR. During the Construction Phase of the Proposed Development there will be intense construction-related activity within and around the Site of the Proposed Development, including on the approach roads. Construction Phase impacts on the townscape character will be negative and short-term, and the context of this construction activity is within a suburban, retail, and commercial setting where the construction of multi-storey buildings has been long established.

13.2.5.1.1.3 Noise and Vibration Impact

It is noted that specific issues relating to Noise and Vibration associated with the Proposed Development are set out in Chapter 9 of this EIAR. The assessment has concluded that additional noise associated with the Construction Phase will not create any significant negative impacts beyond the Site boundary.

13.2.5.1.2 Operational Phase

The lands surrounding the Proposed Development Site are zoned 'MC' Major Town Centre, 'RS' Residential, 'OS' Open Space, 'CI' Community Infrastructure and 'HT' High Technology under the Fingal County Development Plan 2017-2023 (Fingal County Council, 2016).

The Site of the Proposed Development is within Ireland's fastest growing local authority area. The Proposed Development aims to provide an additional 352 residential dwellings in a densely populated area. It is likely that the Proposed Development will impact on residential property prices within the area due to the established nature of the subject site environs and the lack of available residential dwellings in the vicinity of the Site.

The Department of Housing, Local Government and Heritage's (DoHLGH) Plan '*Housing for All – A New Housing Plan for Ireland*' (2021) states that Ireland needs an average of 33,000 homes to be constructed per annum until 2030 to meet targets set out for additional households. The Proposed Development seeks to achieve the objectives of the 'Housing for All' plan by:

- Supporting homeownership and increasing affordability,
- Eradicating homelessness, increasing social housing delivery, and supporting social inclusion,
- Increasing new housing supply; and
- Addressing vacancy and efficient use of existing stock.

Hence, it is likely that there will be a *positive, moderate, medium-term* impact on property values as a result of the Proposed Development.

Once operational, the retail units in the Proposed Development, along with the maintenance and management of the Proposed Development, will have the potential to create employment within the area which is in line with the land-use zoning objectives for the area. The Proposed Development will also provide additional housing options for those already employed in the area, which will reduce commute times. There will be a *positive, major, permanent* impact on local settlement as a result of the Proposed Development.

There are no protected views, rights of way or planned pieces of strategic infrastructure or any important tourist sites effected in any way by the Proposed Development. Overall, it is not considered there will be any significant long-term impacts on the built services and infrastructure as a result of the Proposed Development.

13.2.5.2 Electricity Supply

13.2.5.2.1 Construction Phase

The electricity requirement for the Construction Phase will initially be powered by onsite mobile diesel generators until a connection to the local electrical supply is established. The Proposed Development will include new connections to the existing electricity supply in the area. There may be some disturbances to the local electricity supply during the Construction Phase however due to the temporary nature of the works, the impact is considered to be *neutral* in the absence of mitigation.

13.2.5.2.2 Operational Phase

Electricity will be required to provide public lighting, domestic lighting, power supply and heating for each individual unit for the Proposed Development. The impact of the Operational Phase of the Proposed Development on the electricity supply network is likely to be to increase demand to the existing supply. The Proposed Development includes 2 no. ESB substation buildings to service the site.

The potential impact from the Operational Phase on the electricity supply network is likely to be long term and moderate.

The Applicant, Blanche Retail Nominee Limited, are committed to incorporating energy conservation measures as fundamental elements of their new apartment development. These measures will be taken with regard to all aspects of the Proposed Development, including the apartments, resident amenity spaces, commercial units and the basement car park elements.

The strategy aims to:

- Reduce energy demands by using high performance construction materials which will maximise air tightness in the buildings.
- Produce energy savings through the introduction of energy efficient lighting, lighting controls, heat-recovery ventilation, as well as high efficiency heating and hot water generation.

- Introduce renewable energy systems to the project, such as Exhaust Air Heat Pumps, Air Source Heat Pumps for hot water generation and Photovoltaic (PV) Panels.

Additionally, the proposed commercial units and resident amenity spaces will all be constructed to the same high standard as the apartments. In addition to the measures described above, there will also be a provision of EV chargers throughout the car park to exceed the council minimum requirement *Energy Statement (NZEB & Part L Planning Compliance), Axiseng Consulting Engineers, 2022*).

13.2.5.3 Gas Supply

13.2.5.3.1 Construction Phase

No impacts on the local and national gas supply are foreseen during the Construction Phase of the Proposed Development as there are no gas requirements for this phase and there will be no connections made to the natural gas network as part of the Proposed Development.

13.2.5.3.2 Operational Phase

The Proposed Development will not be connected to the natural gas network. Space heating will be provided by electric radiators and air to water heat pumps will be used for generating hot water. Hence there will be no impact to the local and national gas supply from the Operational Phase of the Proposed Development.

13.2.5.4 Information and Communications Technology (ICT)

13.2.5.4.1 Construction Phase

A specific Telecommunications Report was compiled by Independent Site Management (2022) regarding the telecommunication channels (such as microwave links) at the Site of the Proposed Development to satisfy the criteria of Section 3.2 of the Building Height Guidelines (2018). The Telecommunications Report reviewed the Proposed Development together with the proposed allowances to retain relevant telecommunication channels in the context of the immediate surrounding registered and documented telecommunication sites. The report concluded that the Proposed Development and allows for the retention of important telecommunication channels and satisfies the criteria of Section 3.2 of the Building Height Guidelines (2018).

Telecommunications infrastructure will be installed at roof level comprising of 6 no. 0.3m microwave link dishes enclosed within GRP radio friendly shrouds, mounted on 3 no. steel support poles (2m in height above the lift shaft overrun) together with all associated equipment.

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

due to the temporary and phased nature of the Construction Phase the potential impact of the Construction Phase on the local telecoms network is considered *temporary* and *neutral*.

13.2.5.4.2 Operational Phase

The impact of the Operational Phase of the Proposed Development on the telecoms network is likely to be a marginal increase in demand. The potential impact from the Operational Phase on the telecoms network is likely to be *long term* and *low*.

13.2.5.5 Water Supply and Demand

Chapter 7 (Hydrology) of this EIAR and the Infrastructure Design Report (*DBFL, 2022*) which has been prepared for the Proposed Development contain further detail and specific information pertaining to the potential impacts of the Proposed Development on water supply and demand.

13.2.5.5.1 Construction Phase

The Proposed Development will include new connections to the existing Irish Water potable water supply infrastructure, a 300mm diameter ductile iron watermain. The existing watermain is located to the north-east of Site B and to the south-west and south-east of Site C, adjacent to the existing access road within Blanchardstown Town Centre. There may be some disturbances to the local water supply during the Construction Phase, however due to the nature of the works, the impact is considered to be *negative, non-significant* and *temporary*.

13.2.5.5.2 Operational Phase

Water supply during the Operational Phase will be operated in accordance with the appropriate statutory consents. A pre-connection enquiry was submitted to Irish Water in May 2021 and a confirmation of feasibility letter was received from Irish Water in October 2021 (Reference No. CDS21003456). Irish Water have advised that provision of a water connection is "feasible without infrastructure upgrade by Irish Water".

The total operational peak hour water demand of 11.3 l/sec has been calculated by DBFL (*Infrastructure Design Report, 2022*) for the Proposed Development, in accordance with the guidelines outlined in Irish Water's Code of Practice for Water Infrastructure.

13.2.5.6 Local Hydrology and Hydrogeology

Chapter 7 (Hydrology) of this EIAR, the Infrastructure Design Report (*DBFL, 2022*) and the Construction Environmental Management Plan (*DBFL, 2022*) that have been prepared for the Proposed Development contain further detail and specific information pertaining to the potential impacts of the Proposed Development on local hydrology and hydrogeology.

13.2.5.6.1 Construction Phase

The following measures are to be implemented during the Construction Phase in order to mitigate risks to the water and hydrogeological environment.

Accidental Spills and Leaks

- All oils, fuels and other chemicals will be stored in a secure bunded hardstand area (within the construction compound)
- Refuelling and servicing of construction machinery will take place in a designated hard-stand area (within the construction compound) which is also remote from any surface water inlets (when not possible carry out such activities off site)
- A response procedure will be put in place to deal with any accidental pollution events, spillage kits will be available and construction staff will be inducted with regard to the emergency procedures / use of spill kits

Concrete

- Concrete batching will take place off site, wash down and wash out of concrete trucks will take place off site and any excess concrete is not to be disposed of on site
- Pumped concrete will be monitored to ensure there is no accidental discharge
- Mixer washings are not to be discharged into surface water drains

Wheel Wash Areas

- Debris and sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility

13.2.5.6.2 Operational Phase

There will be no risk to local hydrology and hydrogeology with the Operational Phase of the Proposed Development. It is considered that the design of the Proposed Development including the implementation of the surface water management and SuDS strategy, along with the foul water management strategy are in line with the objectives of the Water Framework Directive (2000/60/EC).

13.2.5.7 Surface Water Drainage

Chapter 7 (Hydrology) of this EIAR and the Infrastructure Design Report (*DBFL, 2022*) which has been prepared for the Proposed Development contain further detail and specific information pertaining to the potential impacts of the Proposed Development on surface water drainage.

13.2.5.7.1 Construction Phase

It is anticipated that groundwater will be encountered during trench excavations for the construction of foundations and utility infrastructure (i.e., attenuation tanks), and that groundwater dewatering will be required at the Site of the Proposed Development. Any groundwater removed during excavations will be discharged into the public sewer in accordance with the necessary consent/licence issued under Section 16 of the Local Government (Water Pollution) Acts and Regulations which will be obtained from Irish Water / Fingal County Council. All groundwater and surface water runoff will be managed during the

Construction Phase and there will be no unauthorised discharge of groundwater or surface water runoff to ground, drains or water courses during the Construction Phase of the Proposed Development. Therefore, as the necessary permits or authorisation for discharge of any water from the Site will be undertaken in accordance with Local Government (Water Pollution) Act 1977 (as amended) the potential impacts will have been adequately assessed and mitigated as part of the statutory consent and there will be 'neutral', 'imperceptible' and 'temporary' impact on the receiving water environment.

13.2.5.7.2 Operational Phase

The design of the Proposed Development incorporates a number of Sustainable Drainage System (SuDS) measures including:

- Green and blue roofs,
- Permeable paving,
- Bioretention areas,
- Road gullies draining via tree pits,
- Hydrobrake flow control device and associated attenuation storage.

Full retention fuel / oil separators will contribute to water treatment through the removal of metals, hydrocarbons and suspended solids from the surface water runoff at the Site of the Proposed Development.

Hence, it is considered that, once operational, the SuDS drainage measures for the Proposed Development, which are in line with the objectives of the Water Framework Directive (2000/60/EC), the Fingal Development Plan 2017-2023, and the requirements of the Greater Dublin Strategic Drainage Strategy (GDSDS), will result in an overall positive, slight, long-term impact on the quality of surface water drainage, and in turn, on the receiving surface water and groundwater quality.

13.2.5.8 Foul Water Management

Chapter 7 (Hydrology) of this EIAR and the Infrastructure Design Report (DBFL, 2022) which has been prepared for the Proposed Development contain further detail and specific information pertaining to the potential impacts of the Proposed Development on foul water management.

13.2.5.8.1 Construction Phase

During the Construction Phase a construction site compound will be set up to accommodate construction workers. The welfare facilities that will be installed for the Construction Phase will include a self-contained chemical toilet and a portacabin for canteen / site office. The chemical toilet will be emptied by an approved contractor as part on a maintenance contract.

The Infrastructure Design Report (*DBFL, 2022*) has identified that the existing 225mm diameter private foul drainage network in the immediate vicinity of the site is at capacity. It is therefore proposed to construct a new foul water drainage network to serve the Proposed

Development (Site B & C) as well as facilitating potential future development in the vicinity of Blanchardstown Town Centre. The new foul sewer network will discharge to the existing private 450mm diameter foul sewer located to the north-east of the site, which in turn outfalls to Irish Water's 9C trunk sewer. A confirmation of feasibility letter was received from Irish Water in October 2021. Irish Water have advised that provision of a foul drainage connection is "feasible subject to upgrades". These upgrades relate to completion of the "9C Duplication Project". Irish Water have advised that this project is currently at construction stage and is scheduled for completion in Q3 2022.

There may be some disturbances to the local foul water network during the Construction Phase, however the impact is considered to be temporary and not significant.

13.2.5.8.2 Operational Phase

The foul water drainage from the 352 No. units of the Proposed Development will be collected in the new foul water drainage network as described in Section 13.5.8.1. During the Operation Phase there will be an increased demand on Irish Water's 9C trunk public sewer, which is undergoing upgrades. The Infrastructure Design Report (*DBFL, 2022*) estimates that the Proposed Development shall produce foul water discharge at a peak rate of 11.9 l/s during the Operational Phase.

Foul water from the Blanchardstown Town Centre is ultimately discharged to Ringsend Wastewater Treatment Plant (WwTP). An in-depth study of the foul water treatment infrastructure in the Greater Dublin Area was ordered by the Dublin Region Local Authorities in 2005, which identified the Ringsend WwTP as overloaded and not in compliance with the EU's Urban Wastewater Treatment Directive.

A major upgrade is now underway at the Ringsend WwTP to increase the treatment capacity of the facility from 1.6 million Population Equivalent (PE) to 2.4 million PE. The upgrade works will allow (on a phased basis) the facility to treat the increasing volumes of wastewater while achieving the standards of the Urban Wastewater Treatment Directive, enabling future housing and commercial development in the Greater Dublin Area. Additionally, a proposed WwTP at Clonshaugh will, in the future, reduce the dependency on the Ringsend WwTP.

The increase in foul water the at the Ringsend WwTP as a result of the Proposed Development is considered to be insignificant in terms of the overall scale of the facility. The increased load does not have the capacity to alter the effluent released from the WwTP to such an extent as to result in likely significant effects on its receiving waters (Dublin Bay). Therefore, the impact on the foul water network as a result of the Operational Phase of the Proposed Development is considered to be neutral, imperceptible and long term.

13.2.5.9 Resource and Waste Management

The Construction and Demolition Waste Management Plan (CDWMP) (*Enviroguide Consulting, 2022*), which has been prepared for the Proposed Development, contains further detail and specific information regarding resource and waste management during the Construction Phase of the Proposed Development. The Operational Waste Management Plan (OWMP) (*Enviroguide Consulting, 2022*) contains further detail and specific information

regarding resource and waste management during the Operational Phase of the Proposed Development.

13.2.5.9.1 Construction Phase

The Construction Phase will give rise to the requirement to remove and bring quantities of various materials to and from the Site of the Proposed Development. Construction and demolition related resources and wastes will be created during the Construction Phase. This has the potential to impact on the local waste management network. The potential impact from the Construction Phase on waste recovery and disposal is likely to be short-term and moderate.

A Construction environmental Management Plan (CEMP) has been prepared by DBFL Consulting. The Construction Environmental Management Plan (CEMP) will be reviewed and updated, as necessary, by the Contractor once appointed and in advance of Site works beginning. Site clearance activities will occur in accordance with the CEMP. A Construction and Demolition Waste Management Plan (CDWMP) has been prepared for the Proposed Development by Enviroguide Consulting (*March 2022*) and has been submitted with this planning application.

As the Proposed Development is planned to be built on an existing surface level carpark and a pre-existing multistorey carpark, there will be very little demolition or clearance associated with the Proposed Development. Stripping of asphalt and concrete from hard paved areas, and the excavation of soil and bedrock will be required during the Construction Phase to achieve the required formation levels for the Proposed Development, including building foundations, roads, drainage and other infrastructure. The volume of soils and subsoils generated as part of the site clearance works have been quantified by DBFL Consulting Engineers (2022) as 9,700m^3 and further details are provided in Chapter 6, Land and Soils, of this EIAR. There is limited potential for reuse of excavated soil and stone as part of the Proposed Development, however, up to 1,000m^3 of asphalt and concrete surfacing and 2,500m^3 of soil and stone excavated at the Proposed Development Site will be reused onsite as granular material beneath road pavement, under floor slabs, for drainage and utility bedding / surrounds and construction phase haul routes etc.

Offsite removal of soils will be undertaken in accordance with the CDWMP and relevant waste management legislation. The offsite re-use of material will be prioritised to minimise the potential loss of valuable good quality soil and subsoil to landfill as a waste. The re-use of soil offsite will be undertaken in accordance with all statutory requirements and obligations including where appropriate re-use as by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (SI No. 126 of 2011) as amended (referred to hereafter as Article 27). Any soil not suitable for re-use as a by-product and other waste materials arising from the Construction Phase will be removed offsite by an authorised contractor and sent to the appropriately authorised (licensed/permitted) receiving waste facilities. As only authorised facilities will be used, the potential impacts at any authorised receiving facility sites will have been adequately assessed and mitigated as part of the statutory consent procedures.

During construction activities, waste will also be produced from construction of units at the Site. There will be a surplus of material such as off-cuts of timber, broken concrete blocks,

plasterboard, tiles etc. Packaging waste is also expected to be produced. The waste materials will be segregated at source and stored in suitably size receptables within the contractors compound and transferred offsite for appropriate processing, recycling and recovery. Waste materials generated from the construction phase that are unsuitable for reuse or recovery shall be separately collected. Disposal of construction generated wastes will be considered a last resort once recycling or recovery options have been ruled out. Waste will be collected as appropriate by suitably qualified and permitted nominated waste management contractors.

It is not envisaged that there will be any hazardous waste generated throughout the construction works however if generated, on-site storage of any hazardous wastes produced (i.e., waste fuels/chemicals) will be kept to a minimum, with compliant removal off-site organised on a regular basis. Offsite removal of hazardous waste will be undertaken in accordance with the CDWMP and relevant waste management legislation by an authorised contractor and sent to the appropriately authorised (licensed/permitted) receiving waste treatment facilities. As only authorised facilities will be used, the potential impacts at any authorised receiving facility sites will have been adequately assessed and mitigated as part of the statutory consent procedures.

Waste will also be generated from construction workers e.g., organic/food waste, dry mixed recyclables (wastepaper, newspaper, plastic bottles, packaging, aluminium cans, tins and cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided onsite during the construction phase. Waste printer/toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices. Office and canteen waste, including food waste, will be stored in wheelie bins on site and it will be collected by an appropriately authorised waste collector. All wastes generated on site will be sent for recycling, recovery, or disposal to a suitably licensed or permitted waste facility. As the quantity of waste that will be generated is small in scale, it is not considered that there will be any impact on waste management in the area.

In the absence of mitigation, the site clearance works could have a temporary major negative effect on local land-use, surface water quality and waste management resources in the locality.

13.2.5.9.2 Operational Phase

An Operational Waste Management Plan (OWMP) has been prepared by Enviroguide Consulting and has been submitted with this planning application.

The impact of the Operational Phase of the Proposed Development on municipal waste disposal will result in an increase in demand for waste collections and waste treatment in the area. Anticipated wastes arising from the day-to-day operations at the site are summarised below:

Waste Type	List of Waste Code
Mixed Municipal Waste (commercial & industrial non process)	20 03 01
Mixed Dry Recyclables	20 03 01
Biodegradable Kitchen and Canteen Waste	20 01 08
Municipal Wood	20 01 38
Municipal Plastics	20 01 39

Municipal Metals	20 01 40
Waste Electrical and Electronic Equipment	20 01 35, 20 01 36

Municipal waste is made up of household waste and commercial waste that is compositionally comparable to household waste. It includes residual, recyclables, organic, bulky and waste electrical and electronic equipment.

A weekly collection system will operate for the apartments, and to accommodate this it has been calculated within the OWMP that storage for 9 no. 1,100 Litre bins for mixed municipal (non-recyclable) waste, 24 no. 1,100 Litre bins for dry mixed recyclables, 8 no. 660 Litre bins for organic/food waste bins and 3 no. 360 Litre bins for glass will be required.

Any additional household wastes such as glass, bulky waste, WEEE, batteries, textiles etc. must be brought to a local recycling facility. There is a large Civic Amenity Centre in Coolmine, approximately 1km southwest of the Site of the Proposed Development servicing the Fingal area, with 4 no. bring banks within a 1km radius of the Site for glass and aluminium recycling.

To ensure that residents segregate their waste properly in the apartments, adequate space has been allocated in the design of the kitchen area to accommodate a three-compartment bin for waste segregation at source. Additionally, the OWMP states: "*the Management Company will be responsible for the provision of a leaflet to all new tenants encouraging good waste segregation and pictorial information detailing the waste streams that can be placed in each bin. In addition to this, clauses that support waste segregation targets will be included in relevant legal documentation e.g., tenancy agreements where possible.*"

The potential impact from the Operational Phase on municipal waste disposal is therefore likely to be *long term* and *moderate.*

13.2.5.10 Potential Cumulative Impacts

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

A review of other off-site developments and proposed developments was completed as part of this assessment. The following projects and plans were reviewed and considered for possible cumulative effects with the Proposed Development:

Table 13-25 details the existing, proposed and granted planning permissions on record in the area. The following relatively large-scale developments have been permitted:

Table 13-25 Potential Cumulative Impacts

Planning Ref No.	Development Name	Summary of Development	Cumulative Impact Assessment
FW22A/0010	**Green Mall (Also known as the Central Mall) & Yellow Mall**	A planning application was registered on 28th January 2022 at the existing Green Mall, awaiting final decision: "The proposal relates to the identification of three external mobile food stall zones to provide for the placing of a total of 7 no. food stalls or vans and associated seating at the Green Mall Entrance, the Yellow Mall Entrance and to the front of Unit 418 and Unit 419 (currently occupied by Homestore and More and Woodies DIY, respectively) at Retail Park 2. The proposed development will include the following: •Area A adjacent to the Green Mall Entrance, comprises a mobile food stall zone and seating area to accommodate 4 no. food stalls or vans and associated seating; •Area B adjacent to the Yellow Mall Entrance, comprises a mobile food stall zone and seating area to accommodate 2 no. food stalls or vans and associated seating. The existing bicycle / trolley bay is to be removed and replaced by a new bicycle shelter; •Area C to the front of Unit 418 and Unit 419 at Retail Park 2, comprises a mobile food stall zone to accommodate 1 no. food stall or van. The proposed use of the individual mobile food stalls or vans is to be Restaurant / Café use, including take-away use. The proposed development includes for typical signage and lighting affixed to the individual mobile food stalls or vans, and all other works in connection with the proposed use."	Due to the nature of this Proposed Development, no potential cumulative impacts have been identified or are anticipated if this development is granted planning permission.

FW18A/0168	**Blue Mall**	A planning application was granted permission on the 11th of September 2019 for the following development at the existing Blue Mall within the Blanchardstown Centre: "The demolition of 369 sq.m of existing floorspace to provide for an extension of the Blue Mall over two levels, with plant at roof level, and an internal mall plaza area, resulting in an additional GFA of 4,559 sq.m. The extension includes the provision of 9 no. café/restaurant units ranging in size from 105 sq.m to 827 sq.m, provision of a retail unit with a GFA of 63 sq.m (to provide for the relocation of Unit 309) and associated signage zones. A new Blue Mall entrance comprising a large entrance portico, glass canopy and centre signage which is flanked on either side by the proposed café/restaurant units and terraces with outdoor seating areas. A public plaza containing seating and public art/sculpture, landscaping and ancillary improvement works. The re-alignment of the northern lane of Road D, the provision of new pedestrian crossings and the upgrade of the existing pedestrian crossing at the Blue Mall entrance to include shared surfaces on Road D and on the slip road south of Road D. The reconfiguration of part of the existing Leisureplex car park to incorporate a proposed taxi stacking area to provide for the relocation of the existing taxi rank. The proposal includes associated changes to car parking areas, provision of 28 no. additional bicycle parking spaces, an ESB double substation and switchroom, lighting, landscaping, site development and ancillary works."	There is potential for cumulative effects on the local water network in the absence of mitigation. This collective management is described within the SuDS and Surface Water Management Masterplan. It is predicted that the Proposed Development will have positive cumulative effects on urban settlements in the form of employment, access and transport infrastructure by allowing movement through a previously impermeable area. The cumulative effects of the Proposed Development with other developments in the surrounding area on foul and surface water disposal, potable water supply, natural gas supply, electrical supply, telecoms and waste are anticipated to be negligible.
FW20A/0030 **(Amendment to the permitted Blue Mall extension Reg. Ref.: FW18A/0168)**	**Blue Mall**	A planning application was granted permission on the 2nd July 2020 at the existing Blue Mall for the following development: "Provision of two internal kiosk zones of 62 sq.m each to accommodate retail/commercial kiosk units along with all associated signage, storage, service areas, kiosk seating, queuing, circulation and all other site development works within the mall areas (Level 2) of the permitted Blue Mall extension."	Planning has been granted for the development of The Blue Mall. Development works have been completed.

FW20A/0018 **(Amendment to the permitted Blue Mall extension Reg. Ref.: FW18A/0168)**	**Blue Mall**	A planning application was granted permission on the 2nd July 2020 at the existing Blue Mall for the following development: "Provision of an additional café / restaurant unit with a GFA of 90sq.m at ground floor level (Level 2) adjacent to permitted Unit 724 and existing Unit 311, including relocation of existing ATM unit and omission of a permitted secondary entrance to the internal mall. Associated alterations to internal mall seating and modifications to fenestration. Alterations to permitted landscape treatment to the northwest of the main Blue Mall entrance. All associated and ancillary works."	Therefore, there are no potential cumulative impacts. This development has been considered within the baseline assessment for the Proposed Development.
FW17A/0147	**Red Mall**	A planning application was granted permission on the 28th November 2017 at the existing Red Mall for the following development: "The application site relates to The Red Mall area of the Blanchardstown Centre including existing unit numbers 183-184, 185,188, 189,190, 191, 191A, and 196 on Level 1 and existing unit numbers 188, 189 190, 217,219-221, 222 and 500 on Level 2, and includes the existing service yard and part of the surface car park. The proposed development involves the demolition of the internal and external walls, service yard walls and associated structures, to provide for an extension of the Red Mall over two levels , resulting in a total addition GFA of 3,359 sq.m with a plant area and 21 sq. m plant room proposed at roof level. The proposal results in an additional gross retail area of 2,270 sq.m consisting of 1,066 sq. m at Level 1 (Units 184,185 and MSU (Medium Sized Unit) and 1,204 sq. m at Level 2 (Units 181,216,276-289 and MSU) and includes an extension of the internal mall at Level 2 to connect to the existing Cental Mall. The proposal removes the existing service yard area to provide a MSU retail unit, with external signage proposed on the north-east and south-east elevation. The service yard is proposed to be relocated north west of the proposed MSU and will include a switchroom, substation, bins and storage units. The proposal involves the removal of 55 no. car parking spaces, the provision of 26 no. bicycle parking spaces and associated landscaping works and boundary treatments, and the provision of 1 no. electric car charging station."	Planning has been granted for the development of The Red Mall. Development works have been completed. Therefore, there are no potential cumulative impacts. This development has been considered within the baseline assessment for the Proposed Development.
18/4206	**Red Mall**	A planning application was granted permission on the 17th October 2018 at the existing Red Mall for the following development: "It is proposed to extend the existing Red Mall within Blanchardstown Town Centre by constructing 3 new units and rearranging the existing mall entrance."	Planning has been granted for the development of The Red Mall. Development works have been completed.

FW18A/0143	**Red Mall**	A planning application was granted permission on the 30th January 2019 at the existing Red Mall for the following development: "The proposed development includes the demolition of internal and external walls, service yard walls and associated structures, to provide for a single level extension of the Red Mall, resulting in an additional gross floor area of 2,064 sq.m. The proposed development will provide a single level retail unit (including off-licence use) with a GFA of 2,066 sq.m and associated service yard, a café unit (GFA 63 sq.m), a shop mobility unit (GFA 44 sq.m) and an entrance extension (GFA 52 sq.m). The proposal includes the demolition and upgrade of the existing Red Mall entrance to include a new canopy and integrated vertical entrance structure and centre signage. A signage zone is proposed on the south-east elevation of the proposed retail extension and on the café / mobility unit. The proposal includes the re-configuration of the existing service yard area and car park area, including a net removal of 87 no. car parking spaces. The proposal includes the provision of 2 no. electric car charging spaces, the re-location of existing bicycle parking spaces and provision of 22 no additional bicycle parking spaces providing a total of 60 no. bicycle parking spaces to be located within a bicycle shelter, the provision of a new pedestrian crossing on Road C and all associated landscaping and ancillary works. The proposed development supersedes the Red Mall extension scheme permitted under Reg. Ref.: FW17A/0147."	Therefore, there are no potential cumulative impacts. This development has been considered within the baseline assessment for the Proposed Development.

FW19A/0017	**Red Mall**	A planning application was granted permission on the 30th April 2019 at the existing Red Mall for the following development: "We, Blanche Retail Nominee Limited, intend to apply for planning permission for amendments to the development permitted under Reg. Ref.: FW18A/0143 at the Red Mall, Blanchardstown Town Centre, Coolmine, Dublin 15. The application site relates to the Red Mall area of the Blanchardstown Centre, including the existing entrance and unit number 191 on Level 1, the existing service yard, part of the surface car park and a section of the public footpath and Road C to the south east of the Red Mall. Permission is sought to amend Conditions No. 2(i), 4(i), and 12 and omit Condition No. 11 of the above referenced permission as follows. •Amend Condition No.2(i) to include reference to the off-licence use within the single-level retail unit as referenced in the development description under Reg. Ref.: FW18A/0143; •Amend Condition No.4(i) to refer specifically to the signage zone for the retail unit and mobility unit; •Omit Condition 11 which relates to the control of delivery hours; •Amend Condition 12 to extend the trading hours of the retail unit and the cafe unit to the following: • Monday - Friday: 08.00 (8 am) to 22.00 hours (10 pm) • Saturday: 08.00 (8 am) to 21.00 hours (9 pm) • Sunday and Bank Holidays: 09.00 (9 am) to 21.00 hours (9 pm)."	Planning has been granted for the development of The Red Mall. Development works have been completed. Therefore, there are no potential cumulative impacts. This development has been considered within the baseline assessment for the Proposed Development.
dac/145/19	**Red Mall**	A planning application was granted permission with conditions on the 4th December 2019 at the existing Red Mall for the following development: "Internal fit out of a shell unit (No 196) Red Mall, Blanchardstown Shopping Cent"	Planning has been granted for the development of The Red Mall. Development works have been completed. Therefore, there are no potential cumulative impacts. This development has been considered within the baseline assessment for the Proposed Development.
19/4224	**Red Mall**	A planning application was granted permission with conditions on the 12th March 2020 at the existing Red Mall for the following development: "The fitting out of a shell unit (Unit 196) which is part of an extension to the existing Red Mall at Blanchardstown Shopping Centre for use as a licensed convenience foodstore with associated storage and loading facilities."	

FW17A/0074	**Green Mall (Also known as the Central Mall)**	A planning application was granted permission with conditions on the 31st July 2017 at the existing Green Mall for the following development: "The proposed development involves the demolition of internal walls, service yard walls and associated structures, to provide for an extension of the Central Mall over three levels, resulting in a total additional GFA of 2,901 sq.m, with a screened tenant plant area proposed at roof level. The proposal results in an additional gross retail area of 2,666 sq.m, consisting of 784 sq.m at Level 1 (Unit 114/116 and 117), 702 sq.m at Level 2 and 1,180 sq.m at Level 3 (an additional floor level) (Unit 206-207, 208, 211-212 at Level 2 and 3). The proposal part infills the existing service yard and extends the service yard area, which includes a relocated switchroom, substation, telecoms room (all within a utilities building), plant and refuse storage areas, into the adjacent car park. The proposal involves the removal of 46 no. car parking spaces in the adjacent car park (Green), the provision of 30 no. bicycle parking spaces and associated landscaping works and boundary treatments."	Planning has been granted for the development of The Green Mall. Development works have been completed. Therefore, there are no potential cumulative impacts. This development has been considered within the baseline assessment for the Proposed Development.
FW18A/0105	**Green Mall (Also known as the Central Mall)**	A planning application was granted permission with conditions on the 16th October 2018 at the existing Green Mall for the following development: "intend to apply for planning permission for amendments to the development permitted under Reg. Ref.: FW17A/0074 at Blanchardstown Town Centre, Coolmine, Dublin 15. The application site relates to the Central Mall (also known as Green Mall) area of the Blanchardstown Centre, including existing unit numbers 114, 115/116, 206, 208, 211 and 212, and includes the adjacent service yard and part of the surface car park. The proposed modifications to the permitted Central Mall scheme (Reg. Ref.: FW17A/0074), will consist of the omission of level three, to provide a two level extension of the Central Mall, with a proposed reduction in the total additional GFA from 2,901 sq.m to 1,486 sq.m. The proposal results in an additional gross retail area of 1,419 sq.m, consisting of 746 sq.m at Level 1 (Unit 114/116) and 673 sq.m at Level 2 (Unit 206, 208, 211-212). A screened tenant plant area is proposed at roof level. The proposed development includes part infill of the service yard area, and provision of an extended service yard with all associated structures, the removal of 46 no. car parking spaces, the provision of 16 no. bicycle parking spaces, associated landscaping and boundary treatments, and all associated development works."	Planning has been granted for the development of The Green Mall. Development works have been completed. Therefore, there are no potential cumulative impacts. This development has been considered within the baseline assessment for the Proposed Development

FW18A/0116	**Green Mall (Also known as the Central Mall)**	A planning application was granted permission with conditions on the 31st October 2018 at the existing Green Mall for the following development: "Demolition and upgrade of the existing Green Mall entrance to include a new canopy and integrated vertical entrance structure, centre signage, and a cafe unit (GFA 59 sq.m) and associated signage zone. The proposal includes associated landscaping and ancillary works."	Planning has been granted for the development of The Green Mall. Development works have been completed. Therefore, there are no potential cumulative impacts. This development has been considered within the baseline assessment for the Proposed Development
18/4234	**Green Mall (Also known as the Central Mall)**	A planning application was granted permission with conditions on the 31st October 2018 at the existing Green Mall for the following development: "Proposed changes relate to the extension of the green mall at Blanchardstown Shopping Centre. A new cafe will be constructed as an extension to the existing centre, and the existing centre entrance will be modified."	
FW18A/0011	**Yellow, Green, Central, Red and Blue Malls.**	A planning application was granted permission with conditions on the 22nd May 2018 at the existing Yellow, Green, Central, Red and Blue Malls for the following development: "The proposal relates to the identification of a Kiosk Zone (relating to a total floor area of c. 5,534 sq.m.) in the mall area of Level 1 and Level 2 of the Blanchardstown Centre, encompassing the Yellow, Green, Central, Red and Blue Malls. The proposed kiosk zone could accommodate a maximum of 54 no. retail/commercial kiosk units of a range of sizes, with the maximum cumulative GFA of the kiosks not exceeding a total of 979 sq.m, and all associated signage, storage, service areas, kiosk seating, queuing, circulation areas and all site development works. The potential maximum kiosk GFA of 979 sq.m represents a potential net increase of kiosk GFA of 516 sq.m, based on the total GFA of existing kiosks of c. 463 sq.m. The development of individual kiosks within the Kiosk Zone will adhere to the design parameters set out in the Kiosk Design Guidelines which accompany this application. The proposed use of individual kiosks to be for retail or commercial use in accordance with the definition of Class 1 (Shop) or Class 2 (Services) use, Part 4 of Schedule 2 of the Planning & Development Regulations 2001-2017, or for use primarily as a restaurant, café or food takeaway."	This planning has been granted for the development of The Green Central, Red and Blue Malls. Development works have been completed. Therefore, there are no potential cumulative impacts. This development has been considered within the baseline assessment for the Proposed Development

F07A/1416/E1	**Site Known As Yellow Car Park, Adj. To Yellow Entrance Of Blanchardstown Centre, Bordered By Rds Known As E & D & On Site Known As White Car Park, Bordered By Roads E, G & Blanch Rd, Blanchardstown Centre, Coolmine, Dublin 15**	Demolition of Entrance Pavilion and removal of 380 No. car parking spaces, to provide for the Construction of: 3 storey development totaling 32,082 m² excluding carparking; and consisting of 25,286m² of Retail/Restaurant units, including 12,918 m². Major Store Unit over 3 storyes, 17 No. Internal Retail Units, 8 No. External Retail/Restaurant Units and a food court, over two storeys; 1457 m² of Mall as an extension to the existing Yellow Mall; 5,339 m² of associated Plant and Services space; all over 2 No. Underground Levels of Carparking containing a total of 749 underground car spaces adjacent to underground service tunnel; Glazed Entrance Link from underground Carpark to Street outside new proposed Entrance to Yellow Mall 5 No. ESB Sub Stations; Revised Signal Controlled Crossroads incorporating Pedestrian Crossings to replace existing roundabout at junction of Roads known as E, G, D, including new road between proposed revised crossroads and Blanchardstown Road South, incorporating access and egress ramps and associated tunnel to proposed underground Carpark. Associated entrances and works to existing White Carpark adjacent to Retail Park 3, the removal of 250 No. Car parking spaces and the provision of 227 No. Car parking spaces resultant in the provision of a net gain of 344 number Car parking spaces when combined with basement carparking and removal of spaces from existing Yellow Carpark; all associated hard and soft landscaping, signals and signage. An EIS will be submitted to the Planning Authority with the planning application.	Extension Of Duration Of Permission was granted. However this planning grant has now expired. Therefore there are no potential cumulative impacts from this planning application.

13.2.5.11 "Do Nothing" Impact

A "Do-Nothing" scenario would result in the Site remaining as a surface car park site and a multistorey carpark. If the Proposed Development were not to proceed, the existing Site would continue to be present and operational.

13.2.5.12 Avoidance, Remedial & Mitigation Measures

13.2.5.12.1 Construction Phase

The appointed contractor will be required to review and update the Construction Environmental Management Plan (CEMP), as necessary, which will define aspects such as construction phasing, connection to site utilities, shut off contingencies and diversions as necessary to prevent any negative effects on material assets. The CEMP will be implemented for the duration of the Construction Phase and, along with the RWMP, they will cover all construction and waste management activities required during the Construction Phase.

All works will be undertaken in accordance with the requirements of the CEMP and having regard to the relevant industry standards (e.g. Guidance for Consultants and Contractors, CIRIA - C532', CIRIA, 2001).

The following mitigation measures are proposed for the construction phase of the proposed development with reference to Material Assets:

- Waste materials will be separated at source and should follow the Construction Environmental Management Plan (MEA, 2021).
- Prior to commencement a detailed calculation on the quantities of topsoil and subsoil waste will be prepared.
- Soils will be tested to confirm they are clean, inert or non-hazardous.
- A suitably competent and fully permitted waste management company will be employed to manage all waste arising for the Construction Phase. The appointed waste contractor shall have the relevant authorisations for the collection and transport of waste materials office. Waste Permitting, Licences & Documentation under the Waste Management (Collection Permit) Regulations 2007, as amended, a collection permit to transport waste, which is issued by the National Waste Collection Permit Office (NWCPO), must be held by each waste collection contractor.
- Similarly, all waste will be transported to an appropriately authorised facility (Local Authority COR/WFP or EPA licenced facility)
- All waste quantities and types will be recorded and quantified with records retained onsite for the duration of the Construction phase.

- Refuelling of plant and machinery on-site will be by mobile tanker in a designated area with appropriate containment measures in place.

13.2.5.12.2 Operational Phase

Mitigation measures relating to site drainage and stormwater management in the Proposed Development are detailed within Chapter 7, Hydrology.

As outlined in the OWMP for the Proposed Development, it is intended to ensure that the highest possible levels of waste reduction, waste reuse and waste recycling are achieved for the Proposed Development. Specifically, the OWMP aims to achieve waste prevention, maximum recycling and recovery of waste with a focus on diversion of waste from landfill wherever possible.

The typical wastes that will be generated during the Operational Phase of the Proposed Development will include the following:

- Dry Mixed Recyclables – These materials could potentially catch fire, and this would have a significant effect on the local environment with a short-term impact. This risk is mitigated by the design of a safe and secure bin storage area with adequate space for waste storage.
- Organic waste – These materials could attract vermin if it is not appropriately stored, and the stores maintained. The appointed Management Company will be responsible for ensuring that there is adequate vermin control in place.
- Glass – No significant environmental concerns have been identified for the storage of domestic glass waste at the Proposed Development.
- Mixed Municipal (Non-Recyclable) Waste – These materials could attract vermin if it is not appropriately stored and the stores maintained. The appointed Management Company will be responsible for ensuring that there is adequate vermin control in place.

No further mitigation measures are considered necessary during the Operational Phase. The existing utilities and services will facilitate the required needs of the development without impacting on any existing utilities within the locality.

13.2.5.13 "Worst Case" Scenario

The worst-case scenario would be if the subject lands remained undeveloped, resulting in the need for additional residential units within the Dublin Metropolitan Area not being met and potentially necessitating the development of greenfield lands more remote from the city centre and from established services in the transport, education, social and commercial sectors in an area that is less suitable.

13.2.5.14 Residual Impacts

Residual Impacts are defined as '*effects that are predicted to remain after all assessments and mitigation measures*'. They are the remaining '*environmental costs*' of a project and are the final or intended effects of a development after mitigation measures have been applied to avoid or reduce adverse impacts. Potential residual impacts from the Proposed Development were considered as part of this environmental assessment.

With consideration to mitigation measures proposed within the EIAR, no significant residual impacts on Material Assets are anticipated. The implementation of the mitigation measures as outlined above and in other Chapters of this EIAR will ensure that there will be no significant adverse residual impacts associated with the Proposed Development.

13.2.5.15 Monitoring

There are no specific monitoring measures proposed in relation to Material Assets - Utilities and Waste. The project design of the Proposed Development has facilitated the improvements required to service the site without negatively impacting the local existing utilities.

The monitoring of construction dust during the Construction Phase of the Proposed Development is recommended to ensure that impacts are not experienced beyond the Site boundary. Monitoring of dust can be carried out by using the Bergerhoff Method. Dust monitoring details are discussed in Chapter 8, Air Quality.

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

13.2.5.16 Interactions

Material Assets, Utilities and Waste interact with other environmental attributes as follows:

- Air Quality: In the event of nuisance dust being created during the Construction Phase, this could impact on local settlement and human health. Potential impacts on Population and Human Health, and Air Quality are addressed in Chapters 4 and 8 respectively.

- Land and Soil: In the event of spillage/leaks from waste storage areas, this could negatively impact on the land and soil. Potential impacts on land and soils are addressed in Chapter 6.
- Surface and Ground Water): Surface water runoff from Site may become contaminated during construction activities. This could negatively impact on the surface water and groundwater quality. Potential impacts from the Construction Phase on local hydrology and surface and ground water are addressed in Chapter 7, Hydrology.
- Foul Water: There may be some disturbances to the local foul water network during the Construction Phase, however the impact is considered to be temporary and not significant.

13.2.5.17 Difficulties Encountered When Compiling

No difficulties were encountered in the preparation of this Chapter.

13.2.5.18 References

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14 RISK MANAGEMENT

14.1 Introduction

This chapter of the EIAR sets out the assessment of the vulnerability of the Proposed Development to risks of major accidents and/or disasters. It assesses the expected effects of the project to risk of major accidents and disasters relevant to the project. It includes the methodology used for the assessment. This chapter was prepared by Enviroguide Senior Environmental Consultant Nikita Coulter. Nikita Coulter has a B.Sc. in Zoology (Hons) from University College Dublin, an M.Sc in Biodiversity and Conservation and a Postgraduate Diploma in Environmental Engineering from Trinity College Dublin, and a NEBOSH accredited International Diploma in Environmental Risk Management. Nikita has 8 years professional experience as an Environmental Compliance Specialist in the Irish waste management industry, dealing with municipal and hazardous waste management and energy recovery.

The Interactions and Mitigation and Monitoring Measures are included in Chapters 14 and 15, respectively.

14.2 Study Methodology

14.2.1 Scope and Context

The relevant legislation to which this chapter applies is Statutory Instrument (SI). No. 296/2018 - European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 and in particular Schedule 6 – Information to be contained in EIAR. The following paragraphs of Schedule 6, Paragraph 2(e)(i)(IV), specifically refers "*a description of the likely significant effects on the environment of the proposed development resulting from … the risks to human health, cultural heritage or the environment (for example due to accidents or disasters),*"

Paragraph 2(h) further expands with "*a description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment 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, emergencies arising from such events.*"

14.2.2 Guidelines and Reference Material

The assessment, of major accidents and disasters is a relevantly new requirement in legislation and, as a result, national guidelines are not yet available. Regard has been taken of the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA Draft, August 2017). Although this document predates the 2018 legislation it follows the requirements laid out in the Directive 2014/52/EU.

Specifically, the EPA Guidelines state that the EIAR must take account of "*the vulnerability of the project to risk of major accidents and /or disasters relevant to the project concerned and that the EIAR therefore explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined in the EIAR should be guided by an assessment of the likelihood of their occurrence (risk)… The potential for a project to cause risks to human health, cultural heritage or the environment due to its vulnerability to external accidents or disasters is considered where such risks are significant, e.g. the potential effects of floods on sites with sensitive plants. Where such risks are significant then the specific assessment of those risks in the form of a Seveso Assessment (where relevant) or Flood Risk Assessment may be required. The EIAR should refer to those separate assessments while avoiding duplication of their contents.*"

Reference has also been made to the Office of Emergency Planning, Department of Defence (DOD) Publication *'A National Risk Assessment for Ireland 2020'*. A consolidated list of national hazards for Ireland identified in the DOD document are identified in Table 14-1.

Table 14-1: Consolidated List of National Hazards (Source: A National Risk Assessment for Ireland (2020) Department of Defence)

Hazard: Civil	**Hazard: Natural**
• Large Crowd Event • Pandemic • Water Supply Distribution and Contamination • Food Chain Contamination • Animal Disease • Terrorist Incident	• Storm • Snow and Ice (Including prolonged low temperature) • Flooding (Including pluvial, fluvial and coastal)
Hazard: Transportation	**Hazard: Technological**
• Maritime Incident • Air Incident • Transport Hub (Includes Airports, Ports and Rail Stations)	• Structural Collapse (Including Dam, Tunnel, Bridge and Building) • Nuclear Incident (Abroad) • Cyber Incident • Disruption of Energy Supply (Including oil, gas, electricity and communications)

14.2.3 Risk Assessment Methodology

The risk assessment methodology has been supported by general risk assessment methods. Hazard analysis and risk assessment are accepted internationally as essential steps in the process of identifying the challenges that may have to be addressed by society, particularly in the context of emergency management. Mitigation as a risk treatment process involves reducing or eliminating the likelihood and/or the impact of an identified hazard.

Table 14-2: Classification of National Likelihood Criteria (Source: A National Risk Assessment for Ireland (2020) Department of Defence)

National Likelihood Criteria		
Rating	Classification	Average Recurrence Interval
1	Extremely Unlikely	500 or more years between occurrences
2	Very Unlikely	100-500 year between occurrences
3	Unlikely	10-100 years between occurrences
4	Likely	1-10 years between occurrences
5	Very Likely	Less than 1 year between occurrences

14.3 Predicted Impacts

The EIAR chapters within this report identify that the Proposed Development has been designed in accordance with best practice and that the Proposed Development can be safely undertaken without risk to health.

In order to understand the potential consequences and predicted impacts of any major accident or disaster due to the Proposed Development and the vulnerability of the project a desk study was undertaken. The assessment reviewed:

- The vulnerability of the project to major accidents or disasters.
- The potential for the project to cause risks to human health, cultural heritage and the environment, as a result of that identified vulnerability.

A methodology has been used including the following phases:

Phase 1 Assessment:

The DOD Consolidated List of National Hazards was used to identify a preliminary list of potential major accident and disasters. Receptors covered by legislation were not included within the assessment e.g. construction workers.

Phase 2 Screening:

The list was screened and major events such as volcanoes were not included given the unlikely event of one occurring. Elements already addressed as a key part of the design e.g. risks of building collapse, are not repeated.

Phase 3: Mitigation and Evaluation

In the event that mitigation measures included did not mitigate against the risk, then, the potential impacts on receptors are identified in the relevant chapter. Table 14-3 lists the major accidents and/or disasters reviewed.

Table 14-3: Major Accidents and/or Disasters Reviewed

Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Civil				
Large Crowd Event	N	Not considered vulnerable	N/A	N/A
Pandemic	Y	COVID-19 is an illness that can affect your lungs and airways. It is caused by a virus called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). SARS-CoV-2 is spread in sneeze or cough droplets. The Proposed Development poses no additional COVID-19 risk. It is anticipated that there will be 450 workers directly employed during the construction phase of the project. The Governments 'Work Safely Protocol' and the Construction Industry Federation 'Back to Work Resource Pack ' will be adhered to. During the construction phase of this Proposed Development HSE guidelines will be adhered to in relation to social distancing, cough and sneeze etiquette and hand washing. Appropriate welfare facilities will be provided at the construction compound. Frequently touched objects and surfaces such as door handles, machine steering wheels and gear levers will be cleaned and disinfected frequently. There will be approximately 50 workers directly employed during the operational stage. All workers directly and indirectly employed during the operational phase of the Proposed Development will comply with the relevant Government protocols that will be in place at that point in time in relation to COVID-19.	Local businesses, construction workers	Chapter 4 (Population and Human Health) of this report addresses the Pandemic.

Water Supply Contamination	Y	Waterborne diseases can be caused by consuming contaminated drinking water. No public health issues have been identified for the Construction Phase or Operational Phase of the Proposed Development. Appropriate industry standard and health and safety legislative requirements will be implemented during the Construction Phase that will be protective of site workers in particular associated with the dewatering works. The existing water supply for the Proposed Development will be via connection to the public supply. There are no downgradient groundwater sources identified on the GSI database that would be potentially at risk in the unlikely event of any potential contamination arising at the Site receptors and therefore no potential human health issues associated with groundwater quality.	Local water users	Chapter 7 (hydrology) of this report identifies the control measure required to avoid contamination of water supplies during construction works.
Food Chain Contamination	Y	Potentially relevant to the Proposed Development in the Operational Phase. Food premises in the retail units would have to register the premises with the HSE and would need to adhere to food safety legislation and traceability requirements.	Consumers/Producers	N/A
Animal Disease	N	Not relevant to the Proposed Development	N/A	N/A
Terrorist Incident	N	Not considered vulnerable due to the nature of the Proposed Development,i.e., residential/commercial development.	N/A	N/A
Transportation				
Maritime Incident	N	Not considered vulnerable. The Site of the Proposed Development is approximately 13km from the nearest coastline at Dublin Port.	N/A	N/A
Air Incident	N	Not considered vulnerable. The closest commercial airport is Dublin Airport, which is approximately 9.6km northeast of the Site of the Proposed Development. The closest Public Safety Zone (PSZ) associated with the runaways at Dublin Airport is located approximately 3km north of the Site of the Proposed Development.	N/A	Section 13.4.2 of this Chapter (Risk Management) assess the vulnerability of the Proposed Development to air incidents.

		The closest domestic airport is Weston Airfield, which is located approximately 7.5km southwest of the Site of the Proposed Development. Casement Aerodrome, Baldonell is a military airbase located approximately 9.7km southwest of the Site of the Proposed Development.		
Transport Hub (Includes Airports, Ports and Rail Stations)	N	Not considered vulnerable as the Site of the Proposed Development is not defined as a Transport Hub. The closest rail station is Castleknock Train Station, which is approximately 1.6km east of the Site of the Proposed Development. The closest maritime port is Dublin Port, which is approximately 13km east of the Site of the Proposed Development. *For airports see above.*	N/A	N/A
Natural				
Cultural, Archaeological and Architectural Heritage	Y	A historic hedgerow has been identified on the southern boundary of the site, and a historic townland boundary has been identified on the south-eastern boundary of the site. These boundaries will be retained as much as possible as detailed in the Landscape Report by Cameo.	Cultural Heritage	Chapter 10 Landscape and Visual Impact and the Landscape Report by Cameo.
Landslides	N	There are no recorded landslides at the Site, and two (2no.) recorded within 2km of the Proposed Development Site recorded on the GSI database. The Proposed Development Site is located within an area with a 'Low' landslide susceptibility classification.	Proposed Development	Chapter 6 (Land, Soils and Geology) of this EIAR assesses the vulnerability of the Proposed Development to landslides.
Sinkholes	N	The GSI (GSI, 2022) records for karst features indicate that there are no karst features (e.g., cave, enclosed depression, swallow hole, turlough) within 2km of the Proposed Development Site and therefore there are no identified risks associated with karst features, such as sinkholes, for the Proposed Development Site. This Geology is not prone to sinkholes and no karst is mapped nearby.	Proposed Development	Chapter 6 (Land, Soils and Geology) of this EIAR assesses the vulnerability of the Proposed Development to karst features, such as sinkholes.

Earthquakes	N	Earthquakes are not likely to occur in the vicinity of the Site at a sufficient intensity to pose a risk for the Proposed Development.	Proposed Development	Chapter 6 (Land, Soils and Geology) of this EIAR assesses the vulnerability of the Proposed Development to seismic activity.
Floods	N	The Office of Public Works – National Flood Hazard Map does not identify any reoccurring flood events within a 2km radius of the Proposed Development Site. The findings of the Site-Specific Flood Risk Assessment (DBFL Consulting Engineers, January 2022a) concluded that the Proposed Development Site is located within Flood Zone C where the probability of flooding from rivers and the sea is low (less than 0.1%AEP or 1 in 1000) for both river and coastal flooding and is considered suitable for development.	Proposed Development	Chapter 7 (Hydrology) of this report identifies the vulnerability of the Proposed Development to flooding.
Storm surge/tidal flooding	N	The Site of the Proposed Development is approximately 13 In the event of km from the nearest coastline. The findings of the Site-Specific Flood Risk Assessment (DBFL Consulting Engineers, January 2022a) concluded that the Proposed Development Site is located within Flood Zone C where the probability of flooding from the sea is low (less than 0.1%AEP or 1 in 1000) and is considered suitable for development	Proposed Development	Chapter 7 (Hydrology) of this report identifies the vulnerability of the Proposed Development to flooding.
Severe weather such as storms, blizzards, droughts, tornados, heatwaves	Y	In the event of severe weather events, the national meteorological service, Met Éireann, provides advance notice of severe weather, usually several days in advance. When appropriate, colour-coded weather warnings are issued. The Office of Emergency Planning works with the government departments and other key public authorities in order to ensure the best possible use of resources and compatibility across different emergency planning requirements.	Residents / workers	Chapter 9 of this EIAR deals with Microclimate, with particular focus on Ground Level Wind Safety
Air Quality events	Y	Dust emissions and the potential for nuisance dust during the Construction Phase. Not relevant for the Operational Phase.	Residents / workers	Chapter 8 of this EIAR identifies the impact of the construction and operation of the development on ambient air quality. Mitigation measures are proposed.
Wildfires	N	Not relevant due to the urban location of the Site.	N/A	N/A
Dam, Bridge or Tunnel Failure	N	None present	N/A	N/A

Flood defence failure	N	No flood defence measures have been considered necessary as detailed in the SSFRA. Therefore, not considered relevant to the Proposed Development.	N/A	Chapter 7 (Hydrology) of this report identifies the vulnerability of the Proposed Development to flooding.
Fire	Y	There is a risk of fire on-site which might lead to loss of life and environmental pollution. The buildings have been designed in accordance with all relevant building and fire safety standards. Fire safety infrastructure and measures will be implemented at the Site during both the Construction and Operational Phases of the Proposed Development.	Construction workers / Residents / Employees	Section 14.4.1 of this Chapter deals with Fire Safety and Emergency Response
Invasive species	N	Not relevant	N/A	Chapter 5 Biodiversity identifies the vulnerability of the project to invasive species.
Technological				
Structural Collapse (Building)	N	This has been taken into consideration in the building design. All buildings have been designed to modern standards. No further assessment is required.	N/A	The design criteria of the buildings are in accordance with all relevant building design standards.
Structural Collapse (Dam, Bridge, Tunnel)	N	Not considered vulnerable as no dams, bridges or tunnels are proposed as part of the development.	N/A	N/A
Nuclear incident	N	Not considered vulnerable. There are no nuclear power stations near the Proposed Development. The closest is Trawsfynydd Nuclear Power Station, which is located approximately 170km east of the Site of the Proposed Development in Wales.	N/A	N/A
Cyber incident	N	Not considered vulnerable, as this is a predominantly residential development. The retail units may opt to have cyber protection in place when operational, however this will be at the discretion of the unit operators.	N/A	N/A
Disruption of energy supply (oil, gas, electricity)	N	ESB Networks maintain the electricity network in Ireland. Gas Networks Ireland maintain the natural gas network in Ireland.	N/A	Chapter 13 (Material Assets) contains information on energy supply.
Utilities failure (communications)	N	In Ireland, the fixed-line communications market is dominated by Eir; while Eir, Three, and Vodafone own Ireland's mobile telecommunications infrastructure.	N/A	Chapter 13 (Material Assets) contains information on telecommunications.

Utilities failure (water supply)	Y	There have been times when water supply restrictions have been introduced in the Greater Dublin Area in order to avoid water supply failure. Irish Water is responsible for the delivery of water services to the Site of the Proposed Development. Irish Water have produced a chart which outlines what customers can expect from different levels of water restriction. Restrictions include rotational shut offs, low pressures, no supply at night.	Hydrogeology and Water	Chapters 7 (Hydrology) and 13 (Material Assets) contains information on water supply and demand.
Utilities failure (wastewater, sewage)	N	Not considered vulnerable. Irish Water has sole responsibility for the cleaning and maintenance of the public sewer network. Irish Water also operate a network of wastewater treatment plants across Ireland.	N/A	Chapters 7 (Hydrology) and 13 (Material Assets) contains information on wastewater management.
Utilities failure (solid waste)	N	A Construction, Demolition and Waste management Plan has been prepared for the Construction Phase of the Proposed Development and an Operational Waste Management Plan has been prepared for the Operational Phase of the Proposed Development. The Site of the Proposed Development is located in the Eastern-Midlands Waste Region (EMWR). Several waste collection companies operate in the EMWR and the region hosts a number of permitted and licensed waste facilities for management of construction and demolition (C&D), and municipal waste.	N/A	Chapter 13 (Material Assets) contains information on solid waste management.
Industrial accidents (defence, energy, oil and gas refinery, food industry, chemical industry, manufacturing, quarrying, mining)	N	There are no Upper Tier Seveso sites near the Proposed Development. The closest is located approximately 2.25 km from the Proposed Development at Contract & General Warehousing Ltd., Westpoint Business Park, Parslickstown, Navan Road, Dublin 15.	N/A	N/A

14.4 Management Plans

14.4.1 Fire Safety and Emergency Response

The design criteria of the buildings are in accordance with all relevant building and fire safety standards. Smoke ventilation, fire alarms and emergency lighting will be fitted on all buildings and a sprinkler system will be fitted in the apartment buildings. A fire evacuation strategy will be put in place in advance of dwelling occupancy. Fire safety checks and fire drills will be employed by the management company once the Proposed Development is operational.

14.4.2 Public Safety Zones

Public Safety Zones (PSZs) are mapped out around airport runways to protect the public on the ground from possible aircraft crashes in populated area. PSZs are used to prevent inappropriate use of land where the risk to the public is greatest, e.g., by limiting the type and allowable height of buildings and structures within the zones.

Two individual risk factors relating to chance of death by aircraft crash have been assessed in determining appropriate Public Safety Zones (PSZs) at Dublin Airport. The inner PSZ risk value is 1 in 100,000 per year and the outer PSZ risk value is 1 in 1,000,000 per year, for each runway.

The Site of the Proposed Development is located approximately 9.6km to the southwest of Dublin Airport. There are no PSZs directly over the Site of the Proposed Development at Blanchardstown Town Centre. The nearest outer PSZ is an outer PSZ which is located approximately 3 kilometres to the north of the Site of the Proposed Development. The PSZs at Dublin Airport and the location of the Site of the Proposed Development are shown in Figures 14-1 and Figures 14-2.

Based on the PSZs, an aircraft strike disaster is not considered relevant to this Proposed Development.

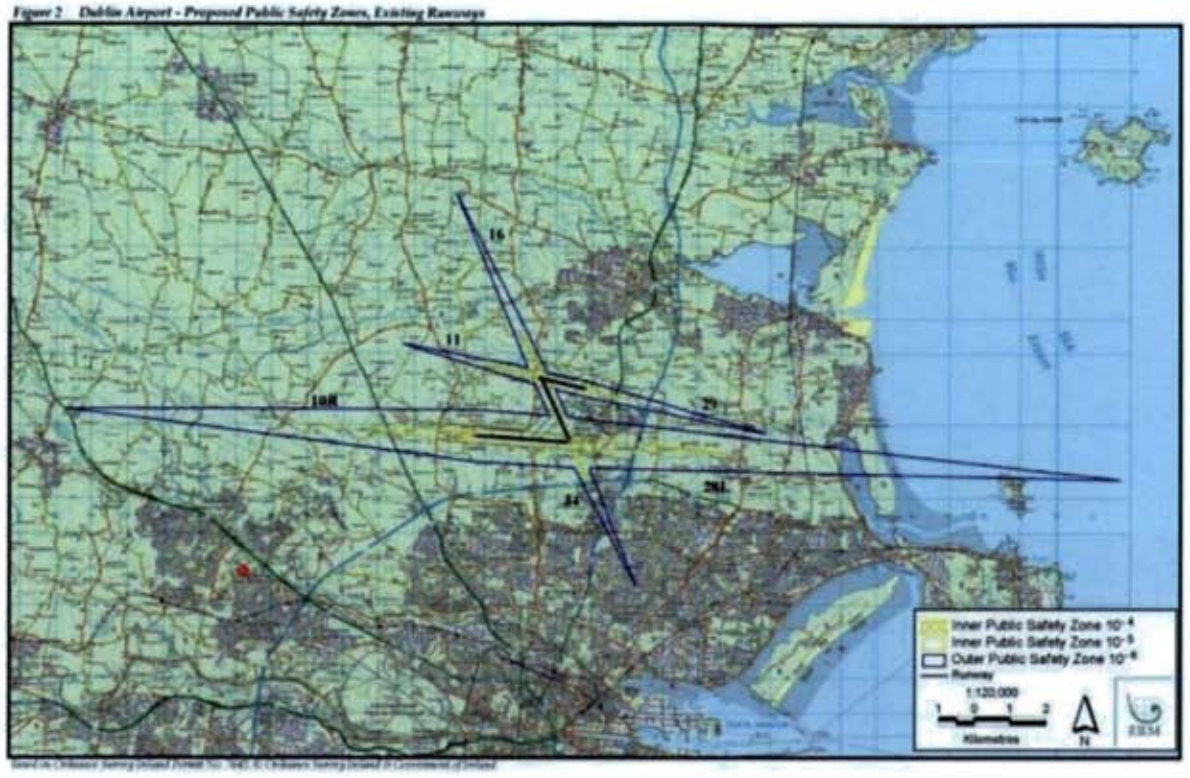


Figure 14-1: Dublin Airport Public Safety Zones Existing Runways (Blanchardstown Town Centre Sites B&C are represented by a red dot)

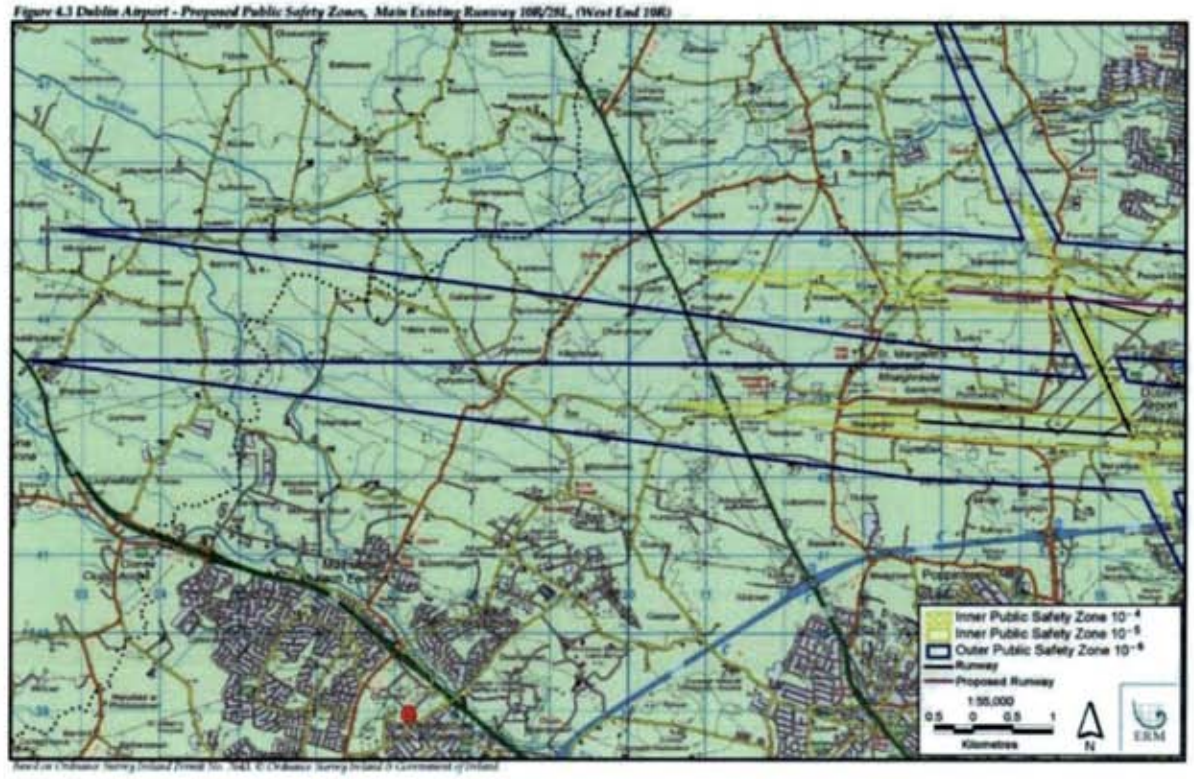


Figure 14-2: Dublin Airport Public Safety Zones Existing Runway 10L/28R (Blanchardstown Town Centre Sites B&C are represented by a red dot)

14.4.3 Potential Major Emergency Management Sites

Along with the Upper and Lower Tier Seveso sites, 10 No. potential Major Emergency Management sites have been identified on the Seveso Site Locations Web Map in the Dublin Metropolitan Region (DMR) West, including Blanchardstown Shopping Centre.

Figure 14-3: Potential Major Emergency Management sites in DMR West (Seveso Sites Ireland)

Under the Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S. I. No. 209 of 2015), the Health Service Executive, An Gárda Síochána and the relevant Local Authority or Local Authorities are each designated as a Local Competent Authority (LCA). The three agencies are charged with developing External Emergency Plans (EEPs) for establishments covered by the act. The EEPs are designed to mitigate the effects to the surrounding area of an accident occurring at any of these establishments as part of the planning process, it is incumbent on the three LCAs to consult within the public in regards to the development of the EEPs.

14.5 Residual Impacts

Control measures observed for health and safety and environmental management as per relevant code of practices (Code of Practice for Inspecting and Certifying Buildings and Works) and relevant legislation including Building Control Act 1990 (No. 3 of 1990), as amended and

Building Control Regulations 1997, as amended. The residual impacts will be negligible once all control, mitigation and monitoring measures have been implemented.

14.6 Monitoring

There is no monitoring required with regards to risk management. All monitoring proposals for the interacting chapters have been detailed in the relevant technical chapters and are included in Chapter 16 Mitigation Measures and Monitoring.

14.7 Difficulties Encountered When Compiling

No difficulties were encountered in completing this Risk Chapter.

14.8 References

- Chapter 4-13 of Volume 2 of this EIAR
- Environmental Resources Management Ireland Ltd (2005) Public Safety Zones Report
- EPA (2017) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Draft).
- Garda Mapping Section – Seveso Sites Ireland WebMap [Viewed Online 03.02.2022] https://www.arcgis.com/home/item.html?id=a01b5a0a6ff24f10adff30beaa3b6fd0
- Irish Water Greater Dublin Area water restrictions chart [Viewed Online 03.02.2022] https://www.water.ie/help/supply/water-shortages/
- Office of Emergency Planning (2020) 'A National Risk Assessment for Ireland 2020' Department of Defence Publication
- Statutory Instrument (SI). No. 296/2018 - European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018

15 INTERACTIONS

15.1 Introduction

As a requirement of Planning Regulations and the Environmental Protection Agency's '*Guidelines on information to be contained in Environmental Impact Assessment Reports*' (2017), interrelationships between various environmental aspects must be considered when assessing the impact of the Proposed Development, as well as individual significant impacts. The significant impacts of the Proposed Development and the proposed mitigation measures have been detailed in the relevant chapters of this report. However, as with all developments that pose potential environmental impacts, there also exists potential for interactions/interrelationships between the impacts of different environmental aspects. The results may exacerbate or ameliorate the magnitude of impacts. This chapter of the EIAR addresses the interactions between the various environmental factors of the Proposed Development.

The following Section is directed by Article 3 section 1(e) of the EIA Directive. The EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (Draft, 2017) and Advice Notes for Preparing Environmental Impact Statements (Draft, September 2015) were also considered.

Article 3 of the Directive states:

1. The environmental impact assessment will 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)

15.2 Study Methodology

The interactions between impacts on different environmental factors have been addressed throughout this EIAR. Close co-ordination and management with the EIAR team was carried out to ensure that all likely relevant interactions were addressed at the scoping stage of the EIAR and interactions have been adequately assessed.

Following an assessment of the EIAR, a matrix was produced to display where interactions between impacts on different factors have been addressed. This has been carried out by use of chapter headings included in the EIAR and details of any interaction during all phases of the Proposed Development.

15.3 Interactions

The following matrix has been produced to show where potential significant interactions between effects on different factors have been addressed, see Table 15-1.

As this EIAR has been prepared by a number of specialist consultants, an important aspect of the EIA process was to ensure that interactions between the various disciplines have been taken into consideration. The principal interactions requiring information exchange between the environmental specialists and the design team are summarised below in Table 15-2 to Table 15-10

Table 15-1: Interactions between Factors

Interaction	4. Population and Human Health	5. Biodiversity	6. Land and Soils	7. Hydrology	8. Air Quality & Climate	9. Noise & Vibration	10. Landscape & Visual Amenity	11. Archaeology, Architecture & Cultural Heritage	12. Material Assets	13. Risk Management
Population and Human Health										
Biodiversity										
Land and Soils										
Hydrology										
Air Quality and Climate										
Noise & Vibration										
Landscape & Visual Amenity										
Archaeology, Architectural and Cultural Heritage										
Material Assets										
Risk Management										

	No Interaction or intra relationship
	Interaction or intra relationship
	N/A

Table 15-2 Population and Human Health

Population and Human Health	
Summary	
Chapter 4 of this EIAR, *Population and Human Health*, details the direct and indirect effects of the Proposed Development on Population and Human Health; and sets out any required mitigation measures where appropriate. The population in the vicinity of the Site of the Proposed Development has been assessed in terms of demography, economic activity and employment, tourism and amenity, landscape and visual, human health and social health.	
Interactions	
Air Quality	Interactions between Air Quality and Population and Human Health have been considered as the Operational Phase has the potential to cause health issues as a result of impacts on air quality from dust nuisances and potential traffic derived pollutants. However, the mitigation measures employed at the Proposed Development will ensure that all impacts are compliant with ambient air quality standards and human health will not be affected. The Air Quality and Climate Chapter notes that the impact of the Proposed Development on air quality and climate is predicted to be negligible with respect to the Operational Phase in the long term. Furthermore, traffic-related pollutants which may affect Population & Human Health have been deemed as negligible, therefore are not expected to have a significant impact on population and human health.
Hydrology	Hydrology has been fully assessed in Volume 2, Chapter 7 of this EIAR. No public health issues associated with the water (hydrology and hydrogeology) conditions at the Site have been identified for the Construction Phase or Operational Phase of the Proposed Development. Appropriate industry standards and health and safety legislative requirements will be implemented during the Construction Phase that will be protective of site workers.
Noise	Noise is fully assessed in Volume 2, chapter 10. The nearest noise sensitive receptors are 190m from the Site. The impact assessment of noise and vibration has concluded that additional noise associated with the operation of the facility will not create any noise nuisance beyond the Site boundary. The Proposed Development Site is suitable for mixed use development subject to the provision of the noise control recommendations as outlined

	within the Noise chapter of this report. Mitigation and monitoring measures will be incorporated to further reduce the potential for noise generation from the Proposed Development. No human health impacts are anticipated as a result of noise during the Operational Phase of the Proposed Development.
Landscape	There are no protected views, rights of way or planned pieces of strategic infrastructure or any important tourist sites effected in any way by the Proposed Development. Overall, it is not considered there will be any significant long-term impacts on the Landscape and Visual as a result of the Proposed Development.
Traffic	There can be a significant interaction between population and human health and traffic. This is due to traffic-related pollutants that may arise. The Proposed Development will have no significant impact on traffic volumes in the local network, and therefore traffic will not result in any significant impact on Population and Human Health.
Conclusions	
The Proposed Development is considered to have a slight positive impact during both the Construction and Operational Phase of the development, both directly and indirectly, to the local economy and employment. Adverse impacts on Population and Human Health are not expected to occur and any potential interactions with impacts of other environmental aspects, as outlined in this EIAR, are insignificant.	

Table 15-3 Biodiversity

Biodiversity	
Summary	
Chapter 5 of this EIAR, *Biodiversity*, details the direct and indirect effects of the Proposed Development on the local flora and fauna; and sets out any required mitigation measures where appropriate.	
Interactions	
Hydrology	The receiving surface water drainage network links to the River Tolka and so potential impacts to ecological receptors downstream of the Site are considered. Again, the potential for the construction phase to impact on receiving waterbodies and ecology in the vicinity of the Site is addressed via the mitigation measures proposed in these chapters.
Land and Soils	In terms of Land and Soils, there is overlap with the biodiversity chapter in that the potential impacts of the construction works, through excavation, construction etc., have the potential to adversely affect the receiving environment; both geological and ecological. The mitigation measures in both chapters overlap somewhat as they deal with protecting the receiving environment from the construction works e.g., protecting waterbodies and drains from pollution and sedimentation.
Landscape and Visual	The proposed landscaping of the Site interacts with its biodiversity and ecology; through the changes that will occur to the existing habitats and flora at the Site. The landscaping proposals will entail losses and contributions in terms of vegetation at the Site, which in turn will affect the ecology of the Site. The Site in its current condition is not of high ecological value, and the proposed landscaping will not result in significant adverse effects in this regard.
Conclusions	
A suite of mitigation measures have been outlined and provided all these mitigation measures are implemented in full, and remain effective throughout the lifetime of the Development, no significant negative impacts on the local ecology or on any designated nature conservation sites are expected from the Proposed Development.	

Table 15-4 Land and Soil

Land and Soil	
Summary	
Chapter 6 of this EIAR, *Land and Soil*, details the direct and indirect effects of the Proposed Development on the local land, soils, and geology; and sets out any required mitigation measures where appropriate. There are a number of potential pollutants associated with the Construction Phase of the Proposed Development which have the potential to impact on the environment with respect to land, soils and geology such as: • Importation of potentially contaminated materials for infill activities during the Construction Phase; • Potential release of cementitious material during construction works for foundations, pavements and infrastructure; • Accidental release of deleterious materials including fuels and other materials being used on-site during the Construction Phase; and • Potential for uncontrolled release of (i.e., fuels from vehicles on-site), through failure or rupture of the drainage system during the Operational Phase.	
Interactions	
Population and Human Health	No public health issues associated with the land, soil, geology conditions at the Site have been identified for the Construction Phase or Operational Phase of the Proposed Development. Appropriate industry standard and health and safety legislative requirements will be implemented during the Construction Phase of the Proposed Development that will be protective of site workers. Specific issues relating to Public Heath associated with the Proposed Development are set out in Chapter 4 of this EIAR.
Hydrology and Hydrogeology	An assessment of the potential impact of the Proposed Development on the hydrological and hydrogeological environment is included in Chapter 7 of this EIAR. Procedures for protection of receiving water environment are set out in Chapter 7 of this EIAR.

Material Assets: Waste and Traffic	The Proposed Development will include the removal off-site of up to 7,450m^3 surplus soil and stone for reuse/recovery/disposal. An assessment of the potential impact of the Proposed Development on the material assets including built services, infrastructure and waste management is included in Chapter 13 of this EIAR.
Biodiversity	An assessment of the potential impacts of the Proposed Development on the Biodiversity of the Proposed Development Site, with emphasis on habitats, flora and fauna which may be impacted as a result of the Proposed Development are included in Chapter 5 of this EIAR. It also provides an assessment of the impacts of the Proposed Development on habitats and species, particularly those protected by national and international legislation or considered to be of particular conservation importance and proposes measures for the mitigation of these impacts.
Landscape and Visual	The landscape at the Proposed Development Site will undergo a change from commercial land use (i.e., carparking) to a mixed use residential (i.e., apartment blocks) and retail / commercial land use (i.e., retail shops, office use, gym, restaurant or café) with extensive landscaping. An assessment of the potential impact of the Proposed Development on the receiving landscape is included in Chapter 11 of this EIAR.
Air Quality and Climate	The excavation of soils across the Proposed Development Site and the temporary stockpiling of soils pending reuse or removal off-site has the potential to generate nuisance impacts (i.e., dust). An assessment of the potential impact of the Proposed Development on air quality and climate are included in Chapter 8 of this EIAR.

Conclusions

The mitigation measures outlined the CEMP and CDWMP and the respective Chapters outlined above, will ensure that there will be no significant adverse impacts on the receiving land, soil and geology associated with the Construction Phase and the Operational Phase of the Proposed Development. The Construction Environmental Management Plan (CEMP) will be reviewed and updated, as necessary, by the contractor once appointed and prior to any construction activities commencing on-site.

The Proposed Development will have an overall 'imperceptible' impact on the receiving land, soil and geological environment. There will be a 'positive' and 'slight' impact on the soil quality associated with the excavation of made ground, including some soils impacted with low levels of anthropogenic contamination (i.e., petroleum hydrocarbons), and removal offsite during the Construction Phase of the Proposed Development. The potential impacts on the underlying soils are unavoidable, however the Proposed Development is permitted in principle under the current 'MC' Major Town Centre Technology zoning objective.

Table 15-5 Hydrology and Hydrogeology

Hydrology and Hydrogeology	
Summary	
Chapter 7 of this EIAR, provides an assessment of the potential impacts of the Proposed Development on hydrology and hydrogeology and sets out any required mitigation measures where appropriate. There are a number of potential pollutant linkages associated with the Proposed Development which have the potential to impact on the environment with respect to hydrology and hydrogeology, such as: • Potential for release of sediment or other potentially contaminating compounds to public surface water / foul sewer during groundwater dewatering; • Potential release of cementitious material during the construction of foundations, pavements, and other structures; • Accidental release of deleterious materials including fuels and other materials being used on-site, through the failure of secondary and tertiary containment or a materials handling accident; and • Potential for uncontrolled release of (i.e., fuels from vehicles on-site), through failure or rupture of the drainage system during the Operational Phase.	
Interactions	
Population and Human Health	No public health issues associated with the water (hydrology and hydrogeology) conditions at the Proposed Development Site have been identified for the Construction Phase or Operational Phase of the Proposed Development. Appropriate industry standard and health and safety legislative requirements will be implemented during the construction phase that will be protective of site workers. It is noted that specific issues relating to Public Heath associated with the Proposed Development are set out in Chapter 4 of this EIAR.
Material Assets: Water	An assessment of the potential impact of the Proposed Development on the Material Assets including built services, infrastructure, traffic, and waste management has been set out in Chapter 13 of this EIAR. Any discharges to the public foul sewer and water supply to the Proposed Development will be under consent from Irish Water.
Land, Soil, Geology and Hydrogeology	An assessment of the potential impact of the Proposed Development on the existing land, soils and geological environment during the Operational

	Phase of the Proposed Development is set out in Chapter 6 Land, Soil and Geology.
Biodiversity	An assessment of the potential impacts of the Proposed Development on the Biodiversity of the Site, with emphasis on habitats, flora and fauna which may be impacted a result of the Proposed Development are included in Chapter 5 of this EIAR. It also provides an assessment of the impacts of the Proposed Development on habitats and species, particularly those protected by national and international legislation or considered to be of particular conservation importance and proposes measures for the mitigation of these impacts.

Conclusions

The mitigation measures outlined the CEMP and CDWMP and the respective Chapters outlined above, will ensure that there will be no significant adverse impacts on the receiving land, soil and geology associated with the Construction Phase and the Operational Phase of the Proposed Development. . The Construction Environmental Management Plan (CEMP) will be reviewed and updated, as necessary, by the contractor once appointed and prior to any construction activities commencing on-site.

The proposed surface water management strategy incorporates a number of measures incorporated in the overall drainage design including green roofs / blue roofs, permeable paving, bioretention areas, road gullies draining via tree pits, Hydrobrake flow control device / associated attenuation storage and full retention fuel / oil separators that will contribute to treatment of water quality through removal of metal, hydrocarbon and suspended solids that may be entrained in surface water runoff at the Proposed Development Site. It is considered that the SuDS drainage scheme for the Proposed Development will result in an overall positive impact on receiving surface water quality.

Overall, there will be no significant adverse impacts as a result of the Proposed Development on the receiving groundwater and surface water environment. The Proposed Development will have an overall 'imperceptible' impact on the receiving hydrological and hydrogeological environment.

Table 15-6 Air Quality and Climate

Air Quality and Climate	
Summary	
Chapter 8 of this EIAR, *Air Quality and Climate*, provides an assessment of the potential impacts of the Proposed Development on ambient air quality and climate, and sets out appropriate mitigation measures where necessary. The greatest potential effect on air quality associated with the Proposed Development is from dust and traffic-related air emissions. The primary sources of dust identified include soil excavation works, demolition, bulk material transportation, loading and unloading, stockpiling materials, cutting and filling, and vehicular movements (HGVs and on-site machinery). Operational traffic will use regional and local roads to access the facility with potential increases of traffic flow on some roads and subsequent associated emissions of VOCs, nitrogen oxides, sulphur dioxides and increased particulate matter concentrations.	
Interactions	
Population and Human Health	Interactions between Air Quality and Population and Human Health have been considered as the Operational Phase has the potential to cause health issues as a result of impacts on air quality from dust nuisances and potential traffic derived pollutants. However, the mitigation measures employed at the Proposed Development will ensure that all impacts are compliant with ambient air quality standards and human health will not be affected. Furthermore, traffic-related pollutants have been considered and determined as negligible, therefore air quality impacts from the Proposed Development are not expected to have a significant impact on population and human health.
Traffic	There can be a significant interaction between air quality, climate and traffic. This is due to traffic-related pollutants that may arise. In the current assessment, traffic derived pollutants which may affect Air Quality and Climate have been deemed as negligible. Therefore, the impact of the interaction between air quality and climate is insignificant.
Conclusions	
Appropriate mitigation measures have been recommended and will be implemented at the Site in order to minimise the risk of dust emissions arising during the Construction Phase. These mitigation measures have been outlined in the Construction Environmental Management Plan (CEMP) (DBFL Consulting Engineers) for the Site, and provided such measures are adhered to, it is not considered that significant air quality impacts will occur.	

Operational traffic will use regional and local roads to access the facility with potential increases of traffic flow on some roads and subsequent associated emissions of VOCs, nitrogen oxides, sulphur dioxides and increased particulate matter concentrations. As per the Traffic and Transport Assessment (Section 12.1), an Air Quality Assessment is not required and it is therefore considered unlikely for significant air quality impacts to occur as a result of increased traffic flow.

Table 15-7 Noise and Vibration

Noise and Vibration	
Summary	
Chapter 10 of this EIAR, *Noise and Vibration*, provides a description and assessment of the likely impact of the proposed activities from noise, and sets out appropriate mitigation measures where necessary. The primary noise impacts associated with this Proposed Development is noise due to construction activities and vehicular traffic. The noise-generating activities associated with the Site are as follows: • Site clearance, including excavation works; • Building construction works; • Trucks entering and exiting the Site.	
Interactions	
Population and Human Health	The impact assessment of noise and vibration has concluded that additional noise associated with the operation of on-site machinery will be intermittent and will not create any major negative impacts beyond the Site boundary. Mitigation and monitoring measures will be incorporated to further reduce the potential for noise generation from the Proposed Development. No human health impacts are anticipated as a result of noise from the Proposed Development.
Traffic	The Proposed Development will have no significant impact on traffic volumes in the local network, and therefore traffic will not result in any significant increases of noise at sensitive receptors.
Biodiversity	It is not considered that the Noise and Vibration effects of the Proposed Development will have an adverse impact on biodiversity in the local area. While the proposed Construction Phase will result in a temporary increase in noise and vibration, it is considered that this would not cause a significant disturbance to the local fauna including birds due to the existing established urban environment.
Conclusions	
The Construction Phase has the greatest potential for noise and vibration impacts on the surrounding environment; however this phase will be of short-term impact. A detailed construction programme has not been developed and the Proposed Development is to be constructed in two stages to minimise any potential impacts.	

During the Operational Phase of the development, no significant sources of noise or vibration are expected. No traffic routes are predicted to experience increases of more than 25% in total traffic flows during the Operational Phase. Due to the urban location of the Site, it is highly unlikely that noise generated by the Construction Phase will be audible to an extent which would result in significant adverse impacts at the nearest noise sensitive locations. The impact of noise from operational traffic will be unnoticeable and will not have a negative impact on any Noise Sensitive Locations (NSLs) or biodiversity in the local area.

Table 15-8 Landscape and Visual Assessment

Landscape and Visual Assessment	
Summary	
Chapter 11 of the EIAR, *Landscape and Visual Assessment*, provides a description and assessment of the likely impact of the Proposed Development on the landscape and visual amenities of the area.	
Interactions	
Population	It is not considered that the Proposed Development by virtue of its visual appearance and in the context of the proposed zoning of the Site of the Proposed Development and the urban and industrial nature of the surrounding landscape, will cause any impacts on the residential local population.
Biodiversity	The proposed landscaping of the Site interacts with its biodiversity and ecology through the changes that will occur to the existing habitats and flora at the Site. The landscaping proposals will entail losses and contributions in terms of vegetation at the Site, which in turn will affect the ecology of the Site. The Site in its current condition is not of high ecological value, and the proposed landscaping will not result in significant adverse effects in this regard. It is noted that, although largely being retained, a break in the western hedgerow will be required in its southernmost point; to facilitate an internal access roadway to the major town centre lands to the south. This will be offset by the proposed tree, hedge and shrub planting to be carried out at the Site.
Archaeology	As there are no known archaeological or architectural remains found during the desk top survey as well as the walkover survey, it is not predicted that any changes in landscape or visual impact will affect in any way the archaeology of the area. It is noted that, although largely being retained, a break in the western hedgerow will be required in its southernmost point; to facilitate an internal access roadway to the Major Town Centre zoned lands in use by a Sports & Leisure Club. This hedgerow is an historic hedgerow and is of cultural heritage significance. This is discussed further in Chapter 12 of this EIAR.
Conclusions	
Subject to implementation of all mitigation measures detailed in Chapter 12, there will be no negative residual impacts upon the landscape and visual resources.	

Table 15-9 Archaeology and Cultural Heritage

Archaeology and Cultural Heritage	
Summary	
Chapter 12 of the EIAR, *Archaeology and Cultural Heritage*, provides information on the known architectural, archaeological and cultural heritage sites in the study area in relation to Proposed Development at Blanchardstown Town Centre.	
Interactions	
Landscape and Visual	It is not predicted that any changes in landscape or visual amenities will significantly affect the archaeology and cultural heritage of the area. The vegetation present on the southern boundary is typical of an historic hedge-row boundary. This hedgerow will be retained as much as possible but a break in the hedgerow will have to be created to accommodate the new proposed access road.
Conclusions	
Subject to implementation of all mitigation measures detailed in Chapter 11, there will be no negative residual impacts upon the archaeological or cultural heritage resource.	

Table 15-10 Material Assets, Traffic. Waste and Utilities

Material Assets, Traffic, Waste and Utilities	
Summary	
Chapter 13 of the EIAR, *Material Assets*, provides an assessment of the potential impacts of the Proposed Development on Material Assets including traffic, built services and infrastructure.	
Interactions	
Land and Soil	In the event of spillage/ leaks from waste storage areas, this could negatively impact on the land and soil. Potential impacts on land and soils are addressed in Chapter 6.
Air Quality	In the event of nuisance dust being created during the Construction Phase, this could impact on local settlement and human health. Potential impacts on Population and Human Health, and Air Quality are addressed in Chapters 4 and 8 respectively.
Hydrology and Hydrogeology	• Surface and Ground Water: Surface water runoff from Site may become contaminated during construction activities. This could negatively impact on the surface water and groundwater quality. Potential impacts from the Construction Phase on local hydrology and surface and ground water are addressed in Chapter 7, Hydrology. • Foul Water: There may be some disturbances to the local foul water network during the Construction Phase, however the impact is considered to be temporary and not significant.
Conclusions	
Subject to implementation of all mitigation measures, there will be no negative residual impacts upon the Material Assets, Traffic, Waste and Utilities.	

15.4 References

EIAR Chapters 4 to 13 inclusive.

16 Mitigation and Monitoring Measures

16.1 Introduction

This EIAR has assessed the impacts and resulting effects likely to occur as a result of the Proposed Development on the various aspects of the receiving environment.

The Proposed Development will be operated in a manner that will ensure that the potential impacts on the receiving environment are avoided where possible. In cases where impacts or potential impacts have been identified, mitigation measures have been proposed to reduce the significance of particular impacts. These mitigation recommendations are contained within each chapter exploring specific environmental aspects.

This chapter of the EIAR collates and summarises the mitigation commitments made in Chapter 4 to Chapter 13.

16.2 Summary of Mitigation Measures

16.2.1 Population and Human Health

16.2.1.1 Construction Phase

16.2.1.1.1 Mitigation

During the Construction Phase of this Proposed Development any Government or HSE guidelines that are applicable at the time, will be adhered to in relation to social distancing, cough and sneeze etiquette, face masks and hand washing. Appropriate welfare facilities will be provided at the facility. Frequently touched objects and surfaces such as door handles, machine steering wheels and gear levers will be cleaned and disinfected frequently.

The Governments 'Work Safely Protocol' and the Construction Industry Federation 'Back to Work Resource Pack ' will be adhered to. All construction staff will complete the relevant HSA Return to Work Safely Online Courses prior to commencing work on-site.

No specific mitigation measures are required during the Construction Phase of the Proposed Development in relation to population and settlements, given the lack of direct effects resulting from the Proposed Development. However, where required, mitigation measures in relation to air emissions (dust), noise, traffic, waste etc. are identified in their respective chapters in this EIA Report.

16.2.1.1.2 Monitoring

No specific monitoring measures are proposed or required in relation to Population and Human Health for the Construction Phase of the Proposed Development.

Monitoring activities proposed for the Construction Phase in accordance with the CEMP submitted with the planning application. The Construction Environmental Management Plan (CEMP) will be reviewed and updated, as necessary, by the contractor once appointed and before any construction works commence on-site.

The monitoring of construction dust during the Construction Phase of the Proposed Development is recommended to ensure that impacts on air quality are not experienced beyond the Site boundary and human health is not affected.

A full traffic assessment has been completed as part of Chapter 13 (Material Assets) and a Noise Impact Assessment as part of Chapter 10 (Noise and Vibration). Please refer to these specific Chapters for any proposed monitoring.

16.2.1.2 Operational Phase

16.2.1.2.1 Mitigation

All appropriate Government guidelines published to protect against the spread of COVID-19 that are in force at the time, will be adhered to during the operational phase of the Proposed Development. These guidelines may relate to social distancing, cough and sneeze etiquette, face masks and hand washing. Appropriate welfare facilities will be provided at the facility. Frequently touched objects and surfaces such as door handles, machine steering wheels and gear levers will be cleaned and disinfected frequently.

All workers employed during the operational phase of the Proposed Development will comply with the relevant HSE guidelines and any Government protocols that will be in place at that point in time in relation to Covid-19.

No specific mitigation measures are required in relation to population and settlements, given the lack of direct effects resulting from the Proposed Development. However, where required, mitigation measures in relation to air emissions, noise, traffic etc. are identified in their respective chapters in this EIA Report.

16.2.1.2.2 Monitoring

No specific monitoring measures are required in relation to population and settlements, given the lack of direct effects resulting from the proposed development. However, where required, monitoring in relation to air emissions, water, noise and traffic are identified in their respective chapters in this EIA Report.

16.2.2 Biodiversity

16.2.2.1 Construction Phase

16.2.2.1.1 Mitigation

Mitigation 1: Timing of Vegetation Clearance

To ensure compliance with the Wildlife Act 1976 as amended, the removal of areas of vegetation will not take place within the nesting bird season (**March 1st to August 31st inclusive**) to ensure that no significant impacts (i.e., nest/egg destruction, harm to juvenile birds) occur as a result of the Proposed Development. Where any removal of vegetation within this period is deemed unavoidable, a qualified Ecologist will be instructed to survey the vegetation prior to any removal taking place. Should nesting birds be found, then the area of habitat in question will be noted and suitably protected until the Ecologist confirms the young have fledged, or a derogation licence is obtained from the NPWS.

The following table provides guidance for when vegetation clearance is permissible. Information sources include the British Hedgehog Preservation Society's *Hedgehogs and Development* and The Wildlife (Amendment) Act, 2000.

The preferred period for vegetation clearance is within the months of September and October as per the above table. Vegetation should be removed in sections working in a consistent direction to prevent entrapment of protected fauna potentially present (e.g., Hedgehog). Where this seasonal restriction cannot be observed, a check for active roosts and nests will be carried out immediately prior to any Site clearance by an appropriately qualified ecologist /ornithologist and repeated as required to ensure compliance with legislative requirements.

Mitigation 2: Good Site Hygiene

As best-practise all construction-related rubbish on site e.g., plastic sheeting, netting etc. should be kept in a designated area and kept off ground level so as to prevent small mammals such as hedgehogs from entrapment and death.

Table 5-5 above should be referred to when planning any clearance of scrub and hedgerow/ treeline habitats, to reduce the potential for mortality to hibernating small mammal should they be present onsite.

Table 16-1: Seasonal restrictions on vegetation removal. Red boxes indicate periods when clearance works are not permissible.

<table>
<tr><th>Ecological Feature</th><th>January</th><th>February</th><th>March</th><th>April</th><th>May</th><th>June</th><th>July</th><th>August</th><th>September</th><th>October</th><th>November</th><th>December</th></tr>
<tr><td>Breeding Birds</td><td colspan="2">Vegetation clearance permissible</td><td colspan="5"><u>Nesting bird season</u>
No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of nesting birds by an ecologist.</td><td colspan="4">Vegetation clearance permissible</td></tr>
<tr><td>Hibernating mammals (namely Hedgehog, excluding bats)</td><td colspan="2"><u>Mammal hibernation season</u>
No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of hibernating mammals by an ecologist.</td><td colspan="6">Vegetation clearance permissible</td><td colspan="4"><u>Mammal hibernation season</u>
No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of hibernating mammals by an ecologist.</td></tr>
<tr><td>Bats</td><td colspan="6">Tree felling to be avoided</td><td colspan="3">Preferred period for tree-felling</td><td colspan="3">Tree felling to be avoided</td></tr>
</table>

Mitigation 3: Noise Control

A number of measures will be included in the CEMP as set out in *BS 5228-1: A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*, that will be put in place during the Construction Phase of the Proposed Development. These will ensure that the level of noise caused by the proposed works will be controlled/reduced where possible so as to minimise the potential disturbance impact on local bird species.

These measures will include but are not limited to:

- Selection of plant with low inherent potential for generating noise.

- Avoid unnecessary revving of engines and switch off plant items when not required.
- Keep plant machinery and vehicles adequately maintained and serviced.
- Proper balancing of plant items with rotating parts.
- Keep internal routes well maintained and avoid steep gradients.
- Minimise drop heights for materials or ensure a resilient material underlies.
- Use of alternative reversing alarm systems on plant machinery.
- Where noise becomes a source of resonating body panels and cover plates, additional stiffening ribs or materials should be safely applied where appropriate.
- Limiting the hours during which site activities likely to create high levels of noise are permitted.
- Appointing a site representative responsible for matters relating to noise.
- Monitoring typical levels of noise during critical periods and at sensitive locations.

These measures will ensure that any noise disturbance to local birds or any other fauna species in the vicinity of the Site of the Proposed Development will be reduced to a minimum.

Mitigation 4: Pre-felling Bat Surveys

It is noted that, although largely being retained, a break in the western hedgerow will be required in its southernmost point; to facilitate an internal access roadway to the Major Town Centre zoned lands in use by a Sports & Leisure Club. It is recommended that prior to the removal of any trees along this western Site boundary treeline/hedgerow, a pre-felling bat survey of any trees to be removed should be conducted by a suitably qualified specialist. Should bats be present, a derogation will be required from National Parks and Wildlife Service (NPWS) before such trees can be removed. (felling of a confirmed bat roost without a licence is an offence under the Wildlife Act 1976 as Amended).

Mitigation 5: Construction Phase Surface Water Management

To prevent contaminated construction related surface waters entering existing surface water drains within or near the Site, the measures listed below will be put in place. These measures will be included as part of the contractor's Construction Environmental Management Plan (CEMP).

- Prior to construction commencing, all storm drains and curb inlets etc., within the Site area, and in close proximity, will be identified by the contractor and suitably protected from potential sediment/contaminant input. This can be accomplished by using temporary storm drain filters that come in a variety of forms e.g., porous fabric barriers such as curb inlet filters and drain guards (e.g., https://ssienvironmental.ie/product/drain-guard/. Other makes are available).
- The above drain protection measures will be checked, cleaned and maintained for efficacy throughout the Construction Phase, with checks carried out daily for damage or sediment loading and cleaning carried out as required.

- Concrete batching will take place off site, wash down and wash out of concrete trucks will take place off site and any excess concrete is not to be disposed of on site.
- Pumped concrete will be monitored to ensure there is no accidental discharge and will be carried out in dry weather.
- Mixer washings are not to be discharged into surface water drains and will be collected and disposed of at a suitably licenced facility.
- Debris and sediment captured by vehicle wheel washes will be collected and disposed off-site at a licensed facility.
- All oils, fuels and other chemicals will be stored in a secure bunded hardstand area (within the construction compound) and away from any drains or surface water inlets.
- Refuelling and servicing of construction machinery will take place in a designated hardstanding area (within the construction compound) which is also remote from any surface water inlets (when not possible carry out such activities off-site).
- A response procedure will be put in place to deal with any accidental pollution events, spillage kits will be available and construction staff will be inducted with regard to the emergency procedures/ use of spill kits.

16.2.2.1.2 Monitoring

As mentioned, a pre-felling bat survey will be carried out by a suitably qualified bat specialist prior to the felling of any trees along the western boundary treeline. Should bats be present, a derogation will be acquired from NPWS before such trees can be removed (felling of a confirmed bat roost without a licence is an offence under the Wildlife Act 1976 as Amended).

16.2.2.2 Operational Phase

16.2.2.2.1 Mitigation

Mitigation 6: Bat Friendly Lighting

There is little to know suitable bat foraging habitat at the Site of the Proposed Development in its current condition (largely hardstanding carparking areas). Bats could potentially forage along the western hedgerow/treeline. This feature is largely being retained in the project design and thus impacts to bats are not envisaged. As a precautionary measure to protect this feature, operational site lighting will be designed to face away from the treeline and limit any lightspill onto same.

Habitat enhancement: Swift Boxes

It is recommended that Swift Boxes or Bricks are incorporated into the Proposed Development where possible. The incorporation of Swift Boxes or Bricks would help recover the declining swift population, which are now Red Listed in Ireland (Gilbert et al., 2021). The following recommendations are extracted from "Saving Swifts" by Birdwatch Ireland .

Swift bricks/boxes:

- should be constructed of long-lasting material and securely fixed in position.
- should be erected at least five metres above ground level

- should be erected in sheltered cool areas out of the sun, or under an overhang and /or under the eaves. Bricks can be placed at any aspect, however, as they tend not to overheat the way that externally fitted boxes can.
- should have a clear airspace in front for access
- should be grouped (side by side in rows) as swifts are colony nesters
- should avoid sites which can be accessed by predators- cats, squirrels, magpies, rats.
- should avoid sites near plate glass windows because they are a known collision hazard for birds.
- should not be placed directly above ledges or other obstructions. Swifts drop before taking flight and can collide with obstacles below the nest entrance.
- should not be one above the other.
- should not be near spotlights or later fit spotlights near them.

It is advised to install a Swift calling system to attract Swifts and encourage them to take up residence at a new site. The placement and location of swift boxes/bricks should be decided based on consultation with a suitably qualified ecologist/ornithologist.

In a scenario where surface water drains are not protected during the Construction Phase, and a large fuel/chemical spill were to occur, hydrocarbons could enter the receiving drainage network and subsequently the River Tolka; leading to impacts on fish species therein.

16.2.2.2.2 Monitoring

As mentioned, a pre-felling bat survey will be carried out by a suitably qualified bat specialist prior to the felling of any trees along the western boundary treeline. Should bats be present, a derogation will be acquired from NPWS before such trees can be removed (felling of a confirmed bat roost without a licence is an offence under the Wildlife Act 1976 as Amended).

Land and Soils

16.2.2.3 Construction Phase

16.2.2.3.1 Mitigation

A Construction Environmental Management Plan (CEMP), Construction Demolition Waste Management Plan (CDWMP) have been prepared as part of this application with detailed construction phasing and methods to manage and prevent any potential emissions to ground having regard to the relevant industry standards (e.g., Guidance for Consultants and Contractors, CIRIA - C532', CIRIA, 2001).

The appointed Contractor will review and update the Construction Environmental Management Plan (CEMP), as necessary, to provide detailed construction phasing and methods to manage and prevent any potential emissions to ground having regard to the relevant industry standards (e.g., Guidance for Consultants and Contractors, CIRIA - C532', CIRIA, 2001).

The CEMP and CDWMP will be implemented for the duration of the Construction Phase, covering construction and waste management activities that will take place during the Construction Phase of the Proposed Development.

Exportation of Soil

Prior to excavation, a detailed review of the final cut and fill model will be carried out to confirm cut and fill volumes. Detailed quantities of material to be excavated will be verified through accurate survey techniques and detailed in the CDWMP (Enviroguide Consulting, March 2022) which will be further developed by the appointed Contractor in advance of works commencing.

All surplus materials and any waste will be removed off-site in accordance with the requirements outlined in the CDWMP (Enviroguide Consulting, 2022) and will be managed in accordance with all legal obligations.

The removal of soils and materials off-site for recovery / disposal will be undertaken in accordance with the soil waste classification presented in the O' Callaghan Moran & Associates, September 2021 waste classification report and where appropriate reused as a by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (SI No. 126 of 2011) as amended.

It will be the Contractor's responsibility to either; possess a waste collection permit or, to engage specialist waste service contractors who will possess the requisite authorisations, for the collection and movement of waste off-site. Material will be brought to a facility which currently holds an appropriate waste facility permit or licence for the specified waste types. Accordingly, there will be no impact on any off-site destination site associated with the Construction Phase of the Proposed Development.

Materials and waste will be documented prior to leaving the Proposed Development Site. All information will be entered into a waste management register kept on the Proposed Development Site.

Reuse of Soil and Stone

The reuse of excavated soil and stone for the Proposed Development (i.e., for landscaping) will be subject to testing for contaminants, invasive species and other anthropogenic inclusions and assessment of the suitability for use in accordance with engineering and environmental specifications for the Proposed Development.

Management and Control of Soils and Stockpiles

Segregation and storage of soils for re-use on-site or removal off-site and waste for disposal off-site will be segregated and temporarily stored on-site pending removal or for reuse on-site in accordance with the CEMP and the CDWMP.

Where possible, stockpiling of soil and stone on-site will be avoided. However, in the event that stockpiling is required, stockpiled materials, pending removal off-site or reuse on-site, will be located in sheltered regions of the Proposed Development Site and away from the location of any sensitive receptors.

For any excavated material identified for removal off-site, while assessment and approval of acceptance at a destination reuse site or waste facility is pending, excavated soil for recovery/disposal shall be stockpiled as follows:

- A suitable temporary storage area shall be identified and designated;
- All stockpiles shall be assigned a stockpile number;
- Soil waste categories will be individually segregated; and all segregation, storage & stockpiling locations will be clearly delineated on the Proposed Development Site drawings;
- Erroneous pieces of concrete shall be screened from the stockpiled soils and segregated separately;
- Soil stockpiles will be sealed to prevent run-off from the stockpiled material generation and/or the generation of dust; and
- Any waste that will be temporarily stored / stockpiled only impermeable surface high-grade polythene sheeting, hardstand areas or skips to prevent cross-contamination of the soil below or cross contamination with soil.

The location and moisture content of storage piles are important factors which determine their potential for dust emissions.

- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the Proposed Development Site; and
- Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust.

Waste will be stored on-site, including concrete, asphalt and soil stockpiles, in such a manner as to:

- Prevent environmental pollution (bunded and/or covered storage, minimise noise generation and implement dust/odour control measures, as may be required);
- Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and

Prevent hazards to site workers and the general public during construction phase (largely noise, vibration and dust

Import of Fill Materials

Contract and procurement procedures will ensure that all imported materials (e.g., aggregates and topsoil) required for the Proposed Development will be sourced from reputable suppliers operating in a sustainable manner and in accordance with industry conformity/compliance standards and statutory obligations. The importation of aggregates will be subject to management and control procedures to ensure the suitability for use in accordance with engineering and environmental specifications for the Proposed Development. Therefore, any unsuitable material will be identified prior to unloading / placement on-site.

Concrete Works

Pre-cast concrete will be used where technically feasible to meet the design requirements for the Proposed Development. Where cast-in-place concrete is required, all work will be carried out to avoid any contamination of the receiving geological environment through the use of appropriate design and methods implemented by the appointed Contractor and in accordance with industry standards.

All ready-mixed concrete shall be delivered to the Proposed Development Site by truck. Concrete mixer trucks will not be permitted to wash out on-site with the exception of cleaning the chute into a container which will then be emptied into a skip for appropriate compliant removal off-site.

Handling of Fuels and Hazardous Materials

Any diesel, fuel or hydraulic oils stored on-site will be stored in bunded storage tanks in a dedicated impermeable area a least 30m from watercourses. The bunded area will have a volume of at least 110% of the volume of the stored materials as per best practice guidelines (Enterprise Ireland, BPGCS005) and will be properly secured against unauthorised access or vandalism. There will be clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.

Waste oils and hydraulic fluids will be collected in bunded containers and removed from the Proposed Development Site for disposal or re-cycling.

A procedure will be drawn up which will be adhered to during refuelling of on-site vehicles. This will include the following:

- All re-fuelling will take place in a designated impermeable area. In addition, oil absorbent materials will be kept on-site in close proximity to the re-fuelling area;
- Fuel will be delivered to plant on-site by dedicated tanker or in a delivery bowser dedicated to that purpose;
- All deliveries to on-site oil storage tanks will be supervised and records will be kept of delivery dates and volumes;
- In the case of a bowser, the driver or supervising foreman will check the delivery bowser daily for leakage;
- The driver will be issued with, and will carry at all times, absorbent sheets and granules to collect any spillages that may accidentally occur; and
- Where the nozzle of a fuel pump cannot be placed into the tank oil storage tank then a funnel will be used.

The appointed Contractor for the Construction Phase of the Proposed Development will ensure that all plant and equipment utilised on-site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Proposed Development Site. Only emergency breakdown maintenance will be carried out onsite. Drip trays and spill kits will be available on-site to ensure that any spills from vehicles are contained and removed off-site.

There may also be the requirement for use of portable generators or similar fuel containing equipment during the Construction Phase of the Proposed Development, which will be placed on suitable drip trays. Regular monitoring of drip tray content will be undertaken to ensure sufficient capacity is maintained at all times.

Emergency Procedures

Emergency procedures will be developed by the appointed Contractor in advance of works commencing and spillage kits will be available on-site including in vehicles operating on-site. Construction staff will be familiar with emergency procedures for in the event of accidental fuel spillages. Remedial action will be immediately implemented to address any potential impacts in accordance with industry standards and legislative requirements.

- Any required emergency vehicle or equipment maintenance work will take place in a designated impermeable area within the Proposed Development Site;
- Emergency response procedures will be put in place, in the unlikely event of spillages of fuels or lubricants;
- Spill kits including oil absorbent material will be provided so that any spillage of fuels, lubricants or hydraulic oils will be immediately contained;
- In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the Proposed Development Site and compliantly disposed off-site. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures and standards;
- All construction works staff will be familiar with emergency procedures for in the event of accidental fuel spillages; and
- All construction works staff on-site will be fully trained on the use of equipment.

This procedure will be undertaken in accordance with industry best practice procedures and standards. These measures will ensure that there is minimal risk to the receiving hydrological and hydrogeological environment associated with the Construction Phase of the Proposed Development.

Welfare Facilities

Portaloo's and/or containerised toilets and welfare units will be used to provide facilities for site personnel. All associated waste will be removed from the Proposed Development Site by a licensed waste disposal contractor.

16.2.2.3.2 Monitoring

During the Construction Phase of the Proposed Development the following monitoring measures will be considered:

- Inspections and monitoring will be undertaken during excavations, piling and other groundworks to ensure that measure that are protective of water quality are fully implemented and effective;
- Discharges to surface water / foul sewers will be monitored where required in accordance with statutory consents (i.e., discharge licence);
- Routine monitoring and inspections during refuelling, concrete works to ensure no impacts and compliance with avoidance, remedial and mitigation measures; and
- Materials management and waste audits will be carried out at regular intervals to monitor the following:
    - Management of soils onsite and for removal offsite;
    - Record keeping;
    - Traceability of all materials, surplus soil and other waste removed from the Proposed Development Site; and
    - Ensure records are maintained of material acceptance at the end destination.

16.2.2.4 Operational Phase

16.2.2.4.1 Mitigation

There is no requirement for mitigation measures for the Operational Phase taking account of the design measures for the Proposed Development.

16.2.2.4.2 Monitoring

There are no monitoring requirements specifically in relation to land, soil and geology during the Operational Phase of the Proposed Development.

16.2.3 Hydrology

16.2.3.1 Construction Phase

16.2.3.1.1 Mitigation

A Construction Environmental Management Plan (CEMP) (DBFL Consulting Engineers, March 2022) and CDWMP (Enviroguide Consulting, March 2022) have been prepared as part of the planning application. The appointed Contractor will review and update the Construction Environmental Management Plan (CEMP), as necessary, to provide detailed construction phasing and methods to manage and prevent any potential emissions to ground having regard to the relevant industry standards (e.g., Guidance for Consultants and Contractors, CIRIA - C532', CIRIA, 2001).

The CEMP and CDWMP will be implemented for the duration of the Construction Phase, covering construction and waste management activities that will take place during the Construction Phase of the Proposed Development.

Mitigation measures will be adopted as part of the construction works on the Proposed Development Site. The measures will address the main activities of potential impact which include:

- Control and Management of Water and Surface Runoff;
- Management and control of works adjoining water courses and instream ;
- Management and control of imported soil and aggregates from off-site sources;
- Fuel and Chemical handling, transport, and storage; and
- Accidental release of contaminants – notify relevant statutory authorities.

As part of the overall construction methodology, sediment and water pollution control risks arising from construction-related surface water discharges will be considered. All works carried out as part of these infrastructure works will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990 and the contractor will cooperate fully with the Environment Section of Fingal County Council in this regard.

Control and Management of Water and Surface Runoff

There will be no discharges to groundwater or surface water during the Construction Phase.

Temporary dewatering will be managed through robust dewatering and water treatment methodologies in accordance with best practice standards (CIRIA – C750), the CEMP, CDWMP and regulatory consents. Any groundwater removed will be discharged into the public sewer in accordance with the necessary consent/licence issued under Section 16 of the Local Government (Water Pollution) Acts and Regulations which will be obtained from Irish Water (IW) / Fingal County Council.

There will be no unauthorised discharge of water (groundwater or surface water runoff) to ground, drains or water courses during the Construction Phase of the Proposed Development and sandbagging of gullies may be required during specific works in the vicinity of existing Proposed Development Site drainage.

A monitoring programme will be implemented to ensure that water quality criteria set out in the discharge licence are achieved prior to discharging to the sewer. The monitoring programme shall be designed by an appropriately qualified Environmental Consultant.

There may be a temporary increase in the exposure of the underlying groundwater during earthworks due to the temporary removal of hardstanding areas. Stormwater runoff will be prevented from entering open excavations with sandbags or other approved methods proposed by the Contractor.

A regular review of weather forecasts of heavy rainfall will be conducted by the contractor, and a contingency plan will be prepared for before and after such events to minimise any potential nuisances. As the risk of the break-out of silt laden run-off is higher during these weather conditions, no work will be carried out during such periods where possible.

Stockpile Management:

Where possible, stockpiling of soil and stone on-site will be avoided. However, in the event that stockpiling is required, stockpiled materials pending removal off-site or reuse on-site will be located in in designated areas only and there will be no storage of materials within 10m of any surface water gullies. Where necessary, stockpiles will be surrounded with silt fencing to filter out any suspended solids from surface water arising from these materials.

Concrete Works

The use of cementitious grout used during the Construction Phase of the Proposed Development will avoid any contamination of the receiving hydrogeological environment through the use of appropriate design and methods implemented by the appointed Contractor and in accordance with industry standards.

Pre-cast concrete will be used where technically feasible to meet the design requirements for the Proposed Development. Where cast-in-place concrete is required (i.e., building foundations), all work must be carried out in dry conditions and be effectively isolated from any groundwater.

All ready-mixed concrete shall be delivered to the Proposed Development Site by truck. Concrete mixer trucks will not be permitted to wash out on-site with the exception of cleaning the chute into a container which will then be emptied into a skip for appropriate compliant removal off-site in accordance with all relevant waste management legislation.

Handling of Fuels and Hazardous Materials

Any diesel, fuel or hydraulic oils stored on-site will be stored in bunded storage tanks in a dedicated bunded area a least 30m from watercourses. The bunded area will have a volume of at least 110% of the volume of the stored materials as per best practice guidelines (EPA, 2004 Storage and Transfer of Materials for Scheduled Activities and Enterprise Ireland, BPGCS005) and will be properly secured against unauthorised access or vandalism. There will be clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.

Waste oils and hydraulic fluids will be collected in bunded containers and removed from the proposed development for disposal or re-cycling.

A procedure will be drawn up which will be adhered to during refuelling of on-site vehicles. This will include the following:

- All re-fuelling will take place in a designated impermeable area. In addition, oil absorbent materials will be kept on-site in close proximity to the re-fuelling area;
- Fuel will be delivered to plant on-site by dedicated tanker or in a delivery bowser dedicated to that purpose;
- All deliveries to on-site oil storage tanks will be supervised and records will be kept of delivery dates and volumes;
- In the case of a bowser, the driver or supervising foreman will check the delivery bowser daily for leakage;
- The driver will be issued with, and will carry at all times, absorbent sheets and granules to collect any spillages that may accidentally occur; and
- Where the nozzle of a fuel pump cannot be placed into the tank oil storage tank then a funnel will be used.

Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Proposed Development Site. Only emergency breakdown maintenance will be carried out on-site. Drip trays and spill kits will be available on-site to ensure that any spills from vehicles are contained and removed off-site.

There may also be the requirement for use of portable generators or similar fuel containing equipment during the Construction Phase of the Proposed Development, which will be placed on suitable drip trays. Regular monitoring of drip tray content will be undertaken to ensure sufficient capacity is maintained at all times.

Emergency Procedures

Emergency procedures will be developed by the appointed Contractor in advance of works commencing and spillage kits will be available on-site including in vehicles operating on-site. Construction staff will be familiar with emergency procedures for in the event of accidental fuel spillages. Remedial action will be immediately implemented to address any potential impacts in accordance with industry standards and legislative requirements.

- Any required emergency vehicle or equipment maintenance work will take place in a designated impermeable area within the Proposed Development Site;
- Emergency response procedures will be put in place, in the unlikely event of spillages of fuels or lubricants;
- Spill kits including oil absorbent material will be provided so that any spillage of fuels, lubricants or hydraulic oils will be immediately contained;
- In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the Proposed Development Site and compliantly disposed off-site. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures and standards;
- All construction works staff will be familiar with emergency procedures for in the event of accidental fuel spillages; and
- All construction works staff on-site will be fully trained on the use of equipment.

This procedure will be undertaken in accordance with industry best practice procedures and standards. These measures will ensure that there is minimal risk to the receiving hydrological and hydrogeological environment associated with the Construction Phase of the Proposed Development.

Welfare Facilities

Portaloo's and/or containerised toilets and welfare units will be used to provide facilities for site personnel. All associated waste will be removed from Proposed Development Site by a licenced waste disposal contractor.

Boreholes

Existing boreholes (i.e., TP/WS/RC16) that are no longer required at the Proposed Development Site will be decommissioned in accordance with the specifications outlined in EPA Advice Noted 14 (EPA, 2013). This will remove any potential direct conduit for contaminants to enter the groundwater directly.

16.2.3.1.2 Monitoring

During the Construction Phase of the Proposed Development the following monitoring measures will be considered:

- Inspections and monitoring will be undertaken during excavations, piling and other groundworks to ensure that measure that are protective of water quality are fully implemented and effective;
- Discharges to surface water / foul sewers will be monitored where required in accordance with statutory consents (i.e., discharge licence);
- Routine monitoring and inspections during refuelling, concrete works to ensure no impacts and compliance with avoidance, remedial and mitigation measures; and
- Materials management and waste audits will be carried out at regular intervals to monitor the following:
    - Management of soils onsite and for removal offsite;
    - Record keeping;
    - Traceability of all materials, surplus soil and other waste removed from the Proposed Development Site; and
    - Ensure records are maintained of material acceptance at the end destination.

16.2.3.2 Operational Phase

16.2.3.2.1 Mitigation

Ongoing regular operational monitoring and maintenance of drainage and the SuDS measures as specified the Infrastructure Report (DBFL Consulting Engineers, March 2022) in accordance with CIRIA SuDS Manual C753 (AECOM, 2022b) which will be incorporated into the overall management strategy for the Proposed Development. This will be incorporated into the overall management strategy for the Proposed Development.

There is no other requirement for mitigation measures for the Operational Phase of the Proposed Development.

16.2.3.2.2 Monitoring

Ongoing regular operational monitoring and maintenance of drainage and the SuDS measures will be undertaken throughout the lifetime of the Operational Phase of the Proposed Development.

16.2.4 Air Quality

16.2.4.1 Construction Phase

16.2.4.1.1 Mitigation

It is not expected that adverse air quality impacts are likely to occur as a result of the Proposed Development due to the lack of sensitive receptors. However, appropriate mitigation measures, as outlined within the CEMP for the Site, will be employed to further reduce the risk of such impacts occurring:

- The Contractor shall prepare a dust minimisation plan (including a documented system for managing site practice with regard to dust and specification of effective measures to deal with any complaints received) which shall be communicated to all site staff;
- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic;
- Any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions;
- Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly (on any un-surfaced site road, this will be 20 kph and on hard surfaced roads as site management dictates);
- Vehicles delivering material with dust potential (soil, aggregates etc.) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- Public roads outside the site will be inspected on a daily basis for cleanliness and cleaned as necessary;
- Debris, sediment, grit etc. captured by road sweeping vehicles is to be disposed off-site at a licensed facility;
- Vehicles exiting the site shall make use of a wheel wash facility where appropriate prior to entering onto public roads;
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods;

- During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

16.2.4.1.2 Monitoring

The monitoring of construction dust during the Construction Phase of the Proposed Development is recommended to ensure that impacts are not experienced beyond the Site boundary. Monitoring of dust can be carried out by using the Bergerhoff Method. This involves placing Bergerhoff Dust Deposit Gauges at a strategic locations along the Site boundaries for a period of 30 +/- 2 days. The selection of sampling point locations should be carried out in consideration of the requirements of *VDI 2119* with respect to the location of the samplers relative to buildings and other obstructions, height above ground, and sample collection and analysis procedures. After the exposure period is complete, the Gauges should be removed from the Site; the dust deposits in each Gauge will then be determined gravimetrically and expressed as a dust deposition rate in $mg/m^2/day$ in accordance with the relevant standard.

16.2.4.2 Operational Phase

16.2.4.2.1 Mitigation

It has been determined that the Operational Phase air quality impact is negligible and therefore no Site-specific mitigation measures are proposed.

16.2.4.2.2 Monitoring

Due to the negligible impact on air quality and climate from the Operational Phase of the Proposed Development, no specific monitoring is recommended.

16.2.5 Microclimate

16.2.5.1 Construction Phase

16.2.5.1.1 Mitigation

No avoidance, remedial or mitigation measures will be required during the construction phase.

16.2.5.1.2 Monitoring

It is not considered necessary to undertake any formal wind speed and direction monitoring during the Construction Phase.

16.2.5.2 Operational Phase

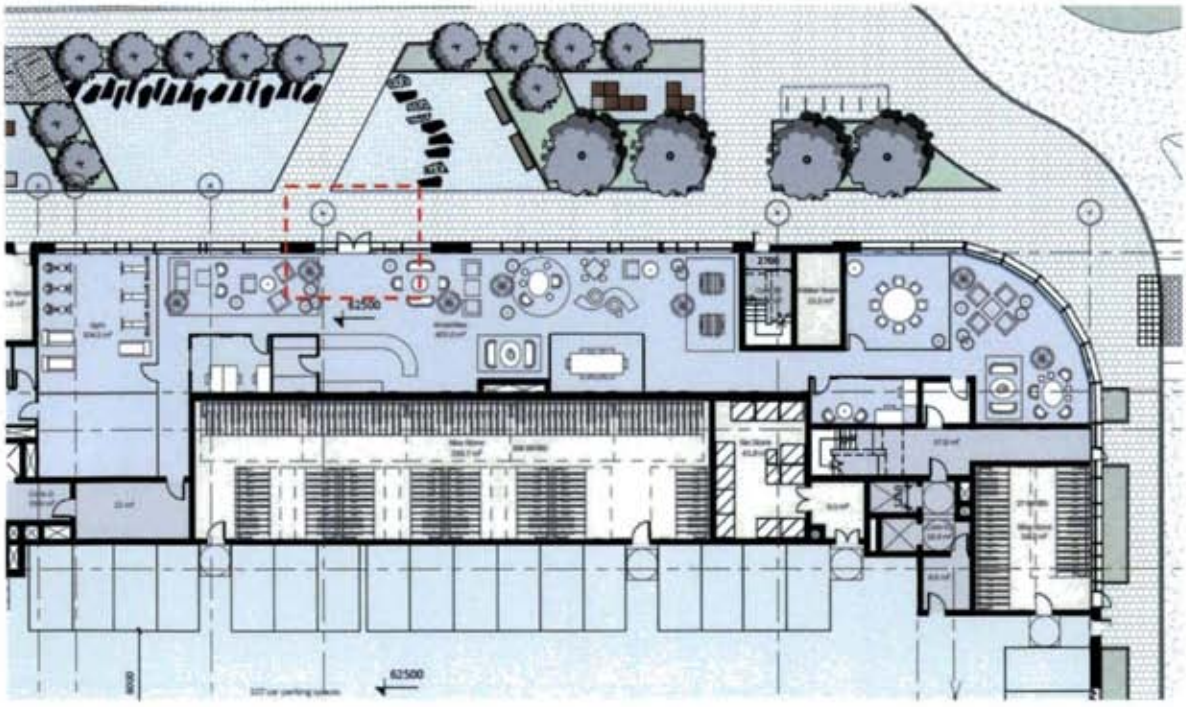
16.2.5.2.1 Mitigation

Regarding Microclimate, during the operational phase, mitigation will be required for the following adverse wind impact:

- Conditions one category too windy for the amenity entrance on the north-east elevation of Site B.

Site B Amenity Entrance

The Site B amenity entrance is highlighted in red. It is recommended that a recessed lobby is incorporated into this entrance, to create a buffer region between internal and external wind conditions.



16.2.5.2.2 Monitoring

It is not considered necessary to undertake any formal wind speed and direction monitoring during the Operational Phase.

16.2.6 Noise & Vibrations

16.2.6.1 Construction Phase

16.2.6.1.1 Mitigation

In order to control likely noise impacts caused by external operations in both the Construction and Operational Phases, mitigation measures as set out in *BS 5228-1: A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise* will be adopted;

- Selection of plant with low inherent potential for generating noise.
- Siting of plant as far away from sensitive receptors as permitted by site constraints.
- Avoid unnecessary revving of engines and switch off plant items when not required.
- Keep plant machinery and vehicles adequately maintained and serviced.
- Proper balancing of plant items with rotating parts.
- Keep internal routes well maintained and avoid steep gradients.
- Minimise drop heights for materials or ensure a resilient material underlies.
- Use of alternative reversing alarm systems on plant machinery.
- Where noise becomes a source of resonating body panels and cover plates, additional stiffening ribs or materials should be safely applied where appropriate.
- Limiting the hours during which site activities likely to create high levels of noise are permitted.
- Appointing a site representative responsible for matters relating to noise.
- Monitoring typical levels of noise during critical periods and at sensitive locations.

During the works the contractor will comply with the requirements of BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014 (Code of Practice for Noise and Vibration Control on Construction and Open Sites) as well as Safety, Health and Welfare at Work (General Application) Regulations 2007, Part 5 Noise and Vibration. In particular, the following practices, as outlined within the Construction Environmental Management Plan (CEMP), will be implemented during the construction phase:

- Erection of a barrier (e.g. Standard 2.4m high construction hoarding) to remove direct line of sight between noise source and receiver when construction works are being carried out in proximity to noise sensitive receivers.

- Establishing channels of communication between the contractor, local authority and residents.

- Appointing a site representative responsible for matters relating to noise.

- A noise and vibration monitoring specialist will be appointed to periodically carry out independent monitoring of noise and vibration during random intervals and at sensitive locations for comparison with limits and background levels.

- Selection of plant with low inherent potential for generation of noise.

- Siting of noisy plant as far away from sensitive properties as permitted by site constraints and implementation of noise reduction measures such as acoustic enclosures.

- Avoid unnecessary revving of engines and switch off plant when idle.

- All vehicles and mechanical plant used for the purpose of the works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order. In addition, all diesel engine powered plant shall be fitted with effective air intake silencers.

- All ancillary pneumatic percussive tools shall be fitted with mufflers or silences of the type recommended by the manufacturers, and where commercially available, dampened tools and accessories shall be used.

There will be vehicular movements to and from the Site of the Proposed Development that will make use of the existing roads and site access points. However, no traffic routes are predicted to experience increases of more than 25% in total traffic flows during the construction phase, therefore, no detailed assessment is required (DMRB Guidelines). Refer to Chapter 12 of the EIAR.

16.2.6.1.2 Monitoring

As outlined within the CEMP for the Site, a noise and vibration monitoring specialist will be appointed to carry out independent monitoring of noise and vibration during random intervals and at sensitive locations for comparison with limits and background levels

Noise limits as outlined in Section 10.2.2 of will be complied with.

16.2.6.2 Operational Phase

16.2.6.2.1 Mitigation

During the Operational Phase of the Proposed Development, the design and layout of the facility buildings will serve as mitigation by virtue of the fact that the majority of onsite machinery and equipment will be located within fully enclosed buildings. This phase of the development is not expected to notably increase noise in the surrounding environment.

16.2.6.2.2 Monitoring

As outlined within the CEMP for the Site, a noise and vibration monitoring specialist will be appointed to periodically carry out independent monitoring of noise and vibration during random intervals and at sensitive locations for comparison with limits and background levels

Noise limits as outlined in Section 10.2.2 will be complied with.

16.2.7 Landscape & Visual

16.2.7.1 Construction Phase

16.2.7.1.1 Mitigation

The key landscape and visual mitigation measures used during the Construction Phase have been incorporated into the layout of the site and design of the proposed buildings.

The following mitigation measures are proposed to ensure the trees and hedgerows are fully protected in accordance with 'BS5837 (2012) Trees in relation to the Design, Demolition and Construction – Recommendations' or as may be updated.

In order to avoid physical damage to the roots during demolition or construction the following mitigation measures are proposed:

- Careful manual excavation using hand-held tools will be carried out around the Root Protection Areas (RPAs). Soil may be washed off roots as an alternative. Approximately 85% of roots will be expected to be in the top 600mm.
- Exposed roots will be protected to prevent drying out or damage from temperature changes. Roots will be protected immediately on exposure with hessian sacking or similar. The excavation will be backfilled as soon as possible once the protection has been removed.
- All root protection works will be completed under supervision of a suitably qualified Arborist.
- Individual roots and clumps of less than 25mm width can be pruned without further consultation, if necessary, making a clean cut. Roots and clumps greater than 25mm in width will only be cut if agreed by the supervising Arborist.
- Root Protection Zones will be protected from machinery/scaffolding access with scaffolding boards or similar to spread point loads.
- Backfill around retained roots will be with topsoil or uncompacted sharp sand, or other loose inert granular fill.

A Hedgerow Management Plan will be put in place to ensure the long-term survival of the hedgerow by the Arborist that will be appointed to oversee the construction phase of the Proposed Development.

16.2.7.1.2 Monitoring

A detailed Landscape Plan has been prepared (Cameo Partners Landscape Architects, Feb 2022), to ensure that the landscape work is implemented in accordance with the design. This document will include tree work procedures, soil handling, planting and maintenance. The contract works will be supervised by a suitably qualified landscape architect. The planting works will be undertaken in the planting season after completion of the main civil engineering and building work.

16.2.7.2 Operational Phase

16.2.7.2.1 Mitigation

The key landscape and visual mitigation measures used during the Operational Phase have been incorporated into the layout of the site and design of the proposed buildings. The

buildings will be clad in a similar neutral coloured material as the existing and will have a similar horizontal emphasis. The set back of the buildings from the site boundary and the positioning of the new buildings along extensions of existing building lines helps to link the Proposed Development with the existing and localises the visual and landscape impacts.

16.2.7.2.2 Monitoring

All planting will be carried out in accordance with the Landscape Management Plan. Replacement trees, replacement planting and pruning measures will be captured in landscape maintenance plans. All landscape works will be in an establishment phase for the initial three years from planting. A landscape maintenance plan accompanies the planning application. Prior to completion of the landscape works, a competent landscape contractor will be engaged and a detailed maintenance plan, scope of operation and methodology will be put in place.

16.2.8 Archaeology and Cultural Heritage

16.2.8.1 Construction Phase

16.2.8.1.1 Mitigation

It is possible that excavation works associated with the Proposed Development may have an adverse impact on small or isolated previously unrecorded archaeological feature or deposits that have the potential to survive beneath the current ground level. If any archaeological remains are discovered during this project, all works will cease and an expert archaeologist will be brought to Site and all future works will be carried out under the supervision of the archaeologist.

16.2.8.1.2 Monitoring

No specific monitoring measures are required in relation to archaeology and cultural heritage given the fact that it is not predicted that the Proposed Development will have any adverse impacts on any archaeological features or deposits.

16.2.8.2 Operational Phase

16.2.8.2.1 Mitigation

Since no known archaeological, architectural or cultural heritage remains were found during the desk top survey, it is likely that there are no further mitigation measures required for this development.

16.2.8.2.2 Monitoring

No specific monitoring measures are required in relation to archaeology and cultural heritage given the fact that it is not predicted that the Proposed Development will have any adverse impacts on any archaeological features or deposits.

16.2.9 Materials Assets

16.2.9.1 Waste and Utilities

16.2.9.1.1 Construction Phase

16.2.9.1.1.1 Mitigation

A Construction Environmental Management Plan (CEMP) (DBFL Consulting Engineers, March 2022) and CDWMP (Enviroguide Consulting, March 2022) have been prepared as part of the planning application. The appointed Contractor will review and update the Construction Environmental Management Plan (CEMP), as necessary, which will define aspects such as construction phasing, connection to site utilities, shut off contingencies and diversions as necessary to prevent any negative effects on material assets.

The CEMP and CDWMP will be implemented for the duration of the Construction Phase, covering construction and waste management activities that will take place during the Construction Phase of the Proposed Development.

The following mitigation measures are proposed for the construction phase of the Proposed Development with reference to Material Assets:

- Waste materials will be separated at source and should follow the Construction Environmental Management Plan (MEA, 2021).
- Prior to commencement a detailed calculation on the quantities of topsoil, subsoil and green waste will be prepared.
- Soils will be tested to confirm they are clean, inert or non-hazardous.
- A suitably competent and fully permitted waste management company will be employed to manage all waste arising for the Construction Phase. The appointed waste contractor shall have the relevant authorisations for the collection and transport of waste materials office. Waste Permitting, Licences & Documentation under the Waste Management (Collection Permit) Regulations 2007, as amended, a collection permit to transport waste, which is issued by the National Waste Collection Permit Office (NWCPO), must be held by each waste collection contractor.
- Similarly, all waste will be transported to an appropriately authorised facility (Local Authority Certificate of Registration COR, Waste Facility Permit WFP, or Environmental Protection Agency licenced facility)
- All waste quantities and types will be recorded and quantified with records retained onsite for the duration of the Construction phase.
- Refuelling of plant and machinery on-site will be by mobile tanker in a designated area with appropriate containment measures in place.

16.2.9.1.1.2 Monitoring

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

16.2.9.1.2 Operational Phase

16.2.9.1.2.1 Mitigation

Mitigation measures relating to site drainage and stormwater management in the Proposed Development are detailed within Chapter 7, Hydrology.

As outlined in the OWMP for the Proposed Development, it is intended to ensure that the highest possible levels of waste reduction, waste reuse and waste recycling are achieved for the Proposed Development. Specifically, the OWMP aims to achieve waste prevention, maximum recycling and recovery of waste with a focus on diversion of waste from landfill wherever possible.

No further mitigation measures are considered necessary during the Operational Phase. The existing utilities and services will facilitate the required needs of the development without impacting on any existing utilities within the locality.

16.2.9.1.2.2 Monitoring

There are no specific monitoring measures proposed in relation to Material Assets - Utilities and Waste. The project design of the Proposed Development has facilitated the improvements required to service the site without negatively impacting the local existing utilities.

16.2.9.2 Traffic

16.2.9.2.1 Construction Phase

16.2.9.2.1.1 Mitigation

During the construction phase of the development, the following measures will be put in place to reduce the impact on the surrounding environment:

- The contractor will be required to provide wheel cleaning facilities, and regular cleaning site access will be carried out.
- Temporary car parking facilities for the construction workforce will be provided within the site and the surface of the car park will be prepared and finished to a standard sufficient to avoid mud spillage onto adjoining roads.
- Monitoring and control of construction traffic will be ongoing during construction works.

16.2.9.2.1.2 Monitoring

No specific monitoring measures have been proposed in relation to Material Assets – Traffic for the Construction Phase of the proposed development.

16.2.9.2.2 Operational Phase

16.2.9.2.2.1 Mitigation

Vehicular Traffic

Modifications to the road network in the vicinity of the site are proposed with the delivery of this development in order to ensure DMURS compliance, efficiently flow of traffic and safety of pedestrians and cyclists. These changes have been listed in section of this Chapter.

Site vehicular accesses, pedestrians/cyclists facilities, and road network will be design in accordance with the standards stablished in the Design Manual for Urban Roads and Streets

(DMURS), with appropriate corner radii, lane with, and visibility splay to ensure safety of all users.

Active Modes

During the operational phase of the development the following measures will be put in place to improve pedestrian and cyclist facilities:

- Internal road markings through the carparks to highlight pedestrian routes.
- Dropped kerbs at building entrances to enable easier access.
- A total of 730 no. high quality cycle parking spaces will be provided at ground level.

16.2.9.2.2.2 Monitoring

No specific monitoring measures have been proposed in relation to Material Assets – Traffic for the Operational Phase of the proposed development.

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