Future Analytics

Environmental Impact Assessment Report (EIAR)

Volume 1 Non Technical Summary (NTS)

for a Strategic Housing Development (SHD)
at Holybanks, Swords, Co. Dublin

On behalf of

CAIRN HOMES PROPERTIES LTD.

March 2022

2-373 RPT Holybanks SHD_EIAR

1. Introduction

This Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) prepared for a proposed Strategic Housing Development (SHD) application made to An Bord Pleanála in relation to a site of 14.17ha at Holybanks, Swords, Co. Dublin. The proposed scheme consists of the development of a total of 621 no. residential units comprising 349 no. apartments, 118 no. houses, 154 no. duplexes, a c.506.5 sq.m childcare facility, the provision of public open space, upgrade works to existing Irish Water Infrastructure, upgrade works to peripheral roads, all associated ancillary works including site development works, hard and soft landscaping and car and bicycle parking including at surface and basement level.

The purpose of the NTS is to summarise and explain in non-technical language the likely direct and indirect environmental impacts arising from the proposed development. The EIAR has been prepared in accordance with the requirements of Planning and Development Act (as amended) and the Planning and Development Regulations 2001(as amended) which adapts Environment Impact Assessments (EIA) regulations under EU Directives.

1.1 Requirement for an EIAR

Annex I of the EIA Directive 85/337/EC requires as mandatory the preparation of an EIA for all development projects listed therein. Schedule 5 (Part 1) of the *Planning & Development Regulations* 2001 (as amended) transposes Annex 1 of the EIA Directive directly into Irish land use planning legislation. The Directive prescribes mandatory thresholds in respect to Annex 1 projects. Annex II of the EIA Directive provides EU Member States discretion in determining the need for an EIA on a case-by-case basis for certain classes of project having regard to the overriding consideration that projects likely to have significant effects on the environment should be subject to EIA. Schedule 5 (Part 2) of the *Planning & Development Regulations* 2001 (as amended) set mandatory thresholds for each project class.

Class 10(b) (i) and (iv) addresses 'Infrastructure Projects' and requires that the following class of project be subject to EIA:

(b) (i) Construction of more than 500 dwelling units.

Furthermore, Category 10(b)(iv) refers to:

'*Urban development which would involve an area greater than 2 hectares in the case of business district, 10hectares in the case of other parts of a built-up area and 20 hectares elsewhere.'*

The requirement for an Environmental Impact Assessment Report was subject to informal screening with Fingal County Council over the course of the pre-planning consultation. The required to carry out an Environmental Impact Assessment for the proposed development is mandatory with respect to the relevant thresholds, with particular reference to urban development exceeding '*10 hectares in the case of other parts of a built-up area' and the potential impacts on the receiving environment'* and with respect to the '*Construction of more than 500 dwelling units'.*

1.2 Project Team

This EIAR has been prepared by KPMG Future Analytics Consulting (FAC) and various competent specialist sub-consultants on behalf of Cairn Homes Properties Ltd. The list below presents the subject matter experts who contributed to the preparation of the report and their qualifications:

Environmental Aspect	Company Name	Person Responsible	Qualification
EIAR Manager	KPMG Future Analytics	Maria Rochford	BSc (Hons.) MSc MIPI
EIAR Reviewer	KPMG Future Analytics	Stephen Purcell	BSc. (Hons) MRUP MSc. MIPI FSCSI FRICS
Air Quality and Climate Factors	AWN	Niamh Nolan	BSocSci (Hons) in Social Policy and Geography

Noise and Vibration	AWN	Alistair Maclaurin	BSc PGDip MIOA
Biodiversity	Openfield	Pádraic Fogarty	BSc, MSc, IEMA
Archaeology and Cultural Heritage	IAC	Faith Bailey	MA, BA (Hons), MCIfA, MIAI
Architectural Heritage	Historic Building Consultants	Rob Goodbody	BA (MOD), DIP ENV P, DIPABRC, MUBC, MA
Landscape and Visual Impact	Cunnane Stratton Reynolds	Evelyn Sikora Declan O'Leary	BA Landscape Architecture, MA Planning and Sustainable Development (UCC), MILI B.Agr Sc. Land. Hort., Dip LA., CLI, MILI
Land, Soils and Geology	Waterman Moylan	Joe Gibbons	Dip Eng CEng MICE MIEI
Water	Waterman Moylan	Joe Gibbons	(As above)
Population and Human Health	KPMG Future Analytics	Maria Rochford Sandra Eapen Stephen M. Purcell	(As above)
Material Assets: Waste Management	AWN	Chonaill Bradley	BSc ENV AssocCIWM
Material Assets: Traffic and Transport	Waterman Moylan Independent Transport Consultant	Emma Caulwell Joe Gibbons Derry O'Leary	CEng MICE (As above) CEng
Material Assets: Utilities	Waterman Moylan	Joe Gibbons Niall Coughlan	(As above) CEng
EIAR Manager	KPMG Future Analytics	Maria Rochford	BSc (Hons.) MSc MIPI

2. Background to the Scheme

The subject landholding consists of a disused agricultural land with an approximate gross area of c.14.17ha within Estuary West Lands at Holybanks, Swords, Co. Dublin. The site is located to the north of the Glen Ellan Road, and directly west of the former Celestica site (Balheary Demesne/ Balheary Industrial Park). Jugback Lane/Terrace runs parallel with the western boundary of the site, while the Broad Meadow River runs east-west to the north of the site boundary.

Figure 2.1 Aerial view of the site and its environs

With its location on the northern edge of the built-up area of Swords, the proposed scheme is ideally positioned within convenient access of a broad range of community facilities and services spanning healthcare, education, recreation, and amenity. The surrounding lands are predominantly residential and commercial in nature. The Balheary Industrial Park is located to the east of the subject site. The neighbouring site directly to the east of the subject landholdings contains the former Celestica factory access to which is from the Glen Ellan Road.

Figure 2.2 Map showing site location with road upgrade works to the south shown in insert image

The total red line application site boundary would encompass a gross area of c.14.17ha which includes proposed Broadmeadow Riverside Park extension to the north of the site; and minor road infrastructure upgrade works at Balheary/Glen Ellan Road Junction and R132/R125 junction. The principal development site consists of lands under the ownership of Cairn Homes Properties Ltd. excluding any public wayleave and proposed future school reservation site (0.46ha). This developable site measures 8.92ha.

The site has an irregular shape and comprises scrubland to the most part. There are no structures or buildings contained within the boundaries of the site. The site is relatively flat and slopes gently towards the Broadmeadow River. The land is dissected by a hedgerow through the centre of the site.

To the west the site is bound by Jugback Lane/Terrace, and beyond which lies the Applewood residential estate. This estate comprises of a mix of housing types and apartments and is serviced by the Applewood neighbourhood centre. The Applewood neighbourhood centre provides a range of services including a medical centre, cafes, restaurants, butchers, vet, local spar, hairdresser and beautician. Broadmeadow Centre also provides a large gym and swimming pool and a creche directly accessible from Jugback Lane and adjacent to the site.

3. Description of Scheme

The proposed development is described as follows in the statutory notices:

Cairn Homes Properties Limited, intend to apply to An Bord Pleanála for a 7-year permission for a strategic housing development (SHD) on a c.14.17 ha (gross) site located within the Estuary West Lands at Holybanks, Swords, Co. Dublin. The main SHD site is bound by Glen Ellan Road to the south, Jugback Lane/Terrace to the west, the former Celestica factory site to the east and the Broadmeadow River to the north. A stormwater storage tank, detailed below, is proposed to be located on a corner site at the junction of Glen Ellan road and Balheary road. Junction and road improvement works are proposed to the Glen Ellan road / Balheary Road junction and the R132 Dublin Road / R125 Seatown West Roundabout.

The proposed development will consist of a residential scheme of 621 no. units (145 no. 1-bed units, 278 no. 2-bed units, 187 no. 3-bed units and 11 no. 4-bed units) along with ancillary childcare facility (506.5 sq.m) and a range of residential amenity facilities (573 sq.m) including gym, concierge, meeting room and multi-purpose room. The development will include the construction of:

- 118 no. houses comprising: 8 no. 1-bed maisonettes contained within 4 no. 2 storey units; 99 no. 2-storey, 3-bed units (18 no. mid-terrace and 81 no. semi-detached) and 11 no. 2-storey, 4-bed units (semi-detached).
- 349 no. apartment units (137 no. 1-bed units, 201 no. 2-bed units, and 11 no. 3-bed units) provided within 2 no. blocks ranging in height from 1 no. to 7 no. storeys (over basement level) to the south side of the site along Glen Ellan Road. A single level basement has been provided for Block B and an under-croft area is provided within Block A incorporating parking areas, waste management areas, plant rooms and other ancillary services.
- 154 no. duplex units that are arranged within 14 no. 3-storey blocks comprising of 77 no. 2-bed units (ground floor) and 77 no. 3-bed units.
- Apartments and duplexes are provided with balconies/terraces along all elevations and dedicated services / bin store areas.
- The development will also provide for an ancillary childcare facility (506.5 sq.m), and residential amenity facilities (573 sq.m) including gym, concierge, meeting room and multi-purpose room within the ground floor of Block B.
- Provision of 705 no. car parking spaces, 856 no. bicycle parking spaces and 21 no. motorbike parking spaces (within basement, under-croft and at surface levels);
- The landscape proposal includes extensive public open space (10,008 sq.m.), in addition to a new public park measuring 29,400 sq.m as an extension of Broadmeadow Riverside Park to the north of the site.

- Principal vehicular access to the site is from Glen Ellan Road, with an additional new secondary site entrance provided from Jugback Lane/Terrace. New pedestrian connections are provided to the site from Jugback Lane/Terrace, Glen Ellan Road and the proposed Broadmeadow Riverside Park extension to the north of the site. Further, a segregated pedestrian/cycle path is proposed along a central green spine, connecting Glen Ellan Road in the south with Broadmeadow Riverside Park extension in the north.
- Junction and road improvement works are proposed to the Glen Ellan road / Balheary Road junction and the R132 Dublin road /R125 Seatown West Roundabout. This will include widening of Balheary Road (South), upgrade works to cycle/pedestrian facilities and for the partial signalisation of R132/R125 junction.
- The application also contains proposals to upgrade existing Irish Water infrastructure including the construction of a stormwater storage tank proposed to be located on a corner site at the junction of Glen Ellan road and Balheary Road, and an overflow outfall gravity sewer along Balheary Road to the Broadmeadow River.
- All associated site development works above and below ground including hard and soft landscaping, roads/footpaths/cycle paths, play areas, public art, boundary treatments, lighting, SuDs, pumping station, EV charging points, green roofs, ESB substations and services to facilitate the development.
- As part of the proposed development, temporary permission (3 no. years) is sought for a single-storey Marketing Suite and associated signage (including hoarding) during the development construction stage.

4. Alternatives Considered

This chapter of the EIAR provides an outline of the reasonable alternatives examined throughout the design and consultation process under the following headings:

- Alternative Locations
- Do Nothing Alternative
- Alternative Land Uses
- Design Alternatives
- Alternative Processes

The chosen layout was a result of the detailed design process, which included various design iterations and stages of detailed assessments. The scheme has advanced in response to the feedback received during pre-application consultation from Fingal County Council and An Bord Pleanála. The proposed layout is the optimal response to subject lands and its surroundings, acclimatized to the site constraints posed by Flood Risk, public wayleave etc. and showcasing existing features of cultural and ecological significance. The proposed level of residential density satisfies the requirements set within Estuary West (Part D) Masterplan, while also protecting existing residential amenity of neighbouring lands.

The tallest built forms are located along Glen Ellan road to provide strong urban edge to this façade. Developments here are set back by over 25m on average, at a significant distance from any sensitive receptors. The scheme also provides substantial public open space over 28.5% of the total site area benefitting the locality and both existing and future residents of the area. The scheme also includes proposals to upgrade existing Irish Water infrastructure and road network improving the existing services while also unblocking future developments to this area. Therefore, the proposed development represents significant planning gain for the locality.

5. Air Quality and Climatic Factors

This chapter provides an assessment of the likely impact on air quality and climate associated with the proposed strategic housing development at Holybanks, Swords, Co. Dublin.

In terms of the existing air quality environment, baseline data and data available from similar environments indicates that levels of nitrogen dioxide, carbon monoxide, particulate matter less than

10 microns and less than 2.5 microns and benzene are generally well below the National and European Union (EU) ambient air quality standards.

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). The EPA estimate that Ireland had total GHG emissions of 57.70 Mt CO2eq in 2020 with 44.38 MtCO2eq of emissions associated with the ESD sectors for which compliance with the EU targets must be met. This is 6.73 Mt CO2eq higher than Ireland's annual target for emissions in 2020. Emissions are predicted to continue to exceed the targets in future years.

Impacts to air quality and climate can occur during both the construction and operational phases of the proposed development. With regard to the construction stage, the greatest potential for air quality impacts is from fugitive dust emissions impacting nearby sensitive receptors. Impacts to climate can occur as a result of vehicle and machinery emissions. In terms of the operational stage, air quality and climate impacts will predominantly occur as a result of the change in traffic flows or congestion on the road links impacted by the proposed development. Any potential construction phase dust impacts can be mitigated through the use of best practice and minimisation measures which are outlined in Chapter 5 of this EIAR. Therefore, dust impacts will be short-term and imperceptible at all nearby sensitive receptors. It is not predicted that significant impacts to climate will occur during the construction stage due to the nature and scale of the development.

The operational phase local air quality modelling assessment concluded that levels of traffic-derived air pollutants resulting from the development will not exceed the ambient air quality standards either with or without the proposed development in place. Using the assessment criteria outlined in Transport Infrastructure Ireland's guidance document 'Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes' the impact of the development in terms of PM10 and NO2 is long-term and imperceptible. This approach is considered best practice. The proposed development is not predicted to significantly impact regional air quality and climate during the operational stage. Increases in traffic derived levels of CO2 have been assessed against Ireland's obligations under the EU Targets and are deemed imperceptible and long-term. In addition, the proposed development has been designed to minimise the impact to climate where possible during operation. Including aiming to be a "Near Zero – Energy Building" meaning it will have a very high energy performance.

As the National and EU standards for air quality are based on the protection of human health, and concentrations of pollutants for both the construction and operational stages of the proposed development are predicted to be significantly below these standards, the impact to human health is predicted to be imperceptible and not significant in the short and long term.

No significant impacts to either air quality or climate are predicted during the construction or operational phases of the proposed development.

6. Noise and Vibration

AWN Consulting Limited has assessed the noise and vibration impacts associated with the construction and operational phases of the proposed strategic housing development at Holybanks, Swords, Co. Dublin.

When considering the potential impacts, the key sources will relate to the short-term construction phase and the long-term impacts associated with the development as a whole once operational.

The existing noise climate in the vicinity of the proposed development has been surveyed. Prevailing noise levels are typically dominated by road traffic.

The construction phase will involve site preparation, foundation construction, general construction works and landscaping. The assessment has determined that the construction activities will give rise to noise emissions high enough such that a short-term, potentially significant impact will occur at the

nearest noise sensitive locations. However, when works take place at 50 m or more from receptors then the assessment has determined no potentially significant impact is found to occur.

Vibration impacts during the construction phase will not be significant and will be controlled through the adherence to strict limit values.

During the operational phase, the assessed change in noise levels associated with additional traffic in the surrounding area of the development is found to be of imperceptible impact along the existing road network. In the context of the existing noise environment, the overall contribution of induced traffic is considered to be of neutral, imperceptible and permanent impact to nearby residential locations.

The operational noise from the development will be designed to ensure the prevailing background noise environment is not increased by a significant level such that potential adverse noise impacts are avoided. Once noise emissions from operational plant and activities are designed in accordance with BS 4142 Methods for Rating and Assessing Industrial and Commercial Sound, resultant residual noise impact from this source will be of negative, not significant, permanent impact.

The potential for inward noise impact on the proposed development has been assessed. The assessment was carried out with reference to the guidance contained in Professional Practice Guidance on Planning & Noise (ProPG), BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings (BSI); and the Dublin Agglomoration Noise Action Plan Volume 3 Fingal County Council, 2018 - 2023. The assessment has identified facades where upgraded acoustic glazing and ventilation will be required.

7. Biodiversity

A review of the biodiversity of the site was carried out which included a study of existing information from the area and a series of site surveys. Site surveys were carried out in August 2017, November 2018, May 2020, April 2021 and March 2022. August, May and April are within the optimal season for surveying habitats while March, May and April are optimal for surveying badgers. otters and breeding birds. November and March are within the optimal period for surveying Badgers and wintering birds. Dedicated bat surveys were carried out by Dr Tina Aughney within the optimal period for such surveys.

It was found that the site is not within or adjacent to any area that is designated for nature conservation at a national or international level. There are no plants recorded from the site that are listed as rare or of conservation value. There are no habitats that are examples of those listed on Annex I of the Habitats Directive. There are no alien invasive plant species as listed on Schedule 3 of SI No. 477 of 2011. The site can be described as former agricultural fields with traditional hedgerow and treeline boundaries. Former agricultural habitats are now predominantly dry meadow with small areas of scrub. Hedgerows and treelines were assessed as of ‘higher significance’ using methodology from the Heritage Council. The site is close to the River Broadmeadow, which is of fisheries value and is of county value to biodiversity. This is associated with a band of broadleaved woodland. Open habitats on the site have been evaluated as ‘low local value’ although the woodland, treelines and hedgerows are of ‘high local value’. The site contains suitable roost locations for bats in mature trees however no roosts were found. Five species were recorded using the area for foraging and/or commuting. There was no evidence of Badgers using the site. No evidence of Otters was recorded although they are known to use the River Broadmeadow. Breeding bird surveys in 2020, 2021 and 2022 found that a number of species are nesting on the site but that none of these is of high conservation concern.

It is estimated that 760m of ‘higher significance’ hedgerow and treeline are to be removed leaving substantial lengths of treeline and woodland to be retained. Good site management practices will ensure that pollution to water courses does not occur during the construction phase. Surface water will be attenuated on site so that there will be no change to the quality or quantity of the discharge during the operational phase. A new surface water holding tank and overflow pipe to the River Broadmeadow is proposed which will reduce the frequency and intensity of existing combined overflows to the River Ward. This aspect of the project will contribute to improvements in water quality status in the Malahide Estuary.

Additional landscaping will compensate for the loss of habitat that will occur and this will include new amenity areas within the development as well as wildlife-friendly planting to augment existing hedgerows and woodland habitat along the River Broadmeadow. Special attention has been paid to retaining the ecological value of the woodland corridor although there will be some short-term impacts. Lighting was reviewed with the bat ecologist to ensure that negative effects are minimised. With the suggested mitigation in place, the ecological impacts by this proposed development will be neutral or, at worst, minor negative.

The River Broadmeadow leads to the Malahide Estuary which is a designated within the Natura 2000 network as a Special Area of Conservation and a Special Protection Area. A Screening Report for Appropriate Assessment concluded that significant effects to these sites could not be ruled out due to the potential for construction pollution to affect high value habitats and species. A Natura Impact Statement has been prepared which contains mitigation measures for the avoidance of pollution and which are incorporated into the EIAR. This concludes that with the implementation of these mitigation measures, no effects to the integrity of Natura 2000 sites will occur.

8. Archaeology, Architectural and Cultural Heritage

The proposed development is located within Holybanks townland and part of Newtown townland, in the Parish of Swords and Barony of Nethercross. The core of the proposed development comprises two large rectangular fields mostly covered in dense overgrowth on the southern banks of the Broadmeadow River.

A recorded monument, ring-ditch DU011-080, was identified on a 1992 aerial photo in the northern half of the proposed development in Holybanks townland. No above-ground evidence was noted for this site during field inspection. A geophysical survey was carried out within all available areas of the proposed development in December 2018 under licence 18R0256 (Leigh 2018). In the east of the application area, a circular geophysical response measuring c. 11.5m in diameter was identified and interpreted as a possible ring-ditch. The survey included the recorded ring-ditch (DU011-080) but no archaeological responses were recorded.

Archaeological testing was then carried out in February 2019 under licence 19E0053 (Kavanagh and Tobin 2019). The trenches targeted the zone of notification for recorded monument DU011-080, geophysical anomalies and open green space, in order to fully investigate the archaeological potential of the proposed development. Testing revealed three areas of archaeological significance, which have been designated as Archaeological Areas (AA) 1–3. These comprise: AA 1 - a previously unrecorded ring-ditch containing burnt and unburnt bone, AA 2 - two sub-circular pits, and AA 3 - a linear feature. No archaeology was identified at ring-ditch DU011-080. It is possible that the original ring-ditch noted in the RMP was mis-identified as an archaeological site in 1992, or the site found in testing (AA 1) represents the actual location of the site, which may have been incorrectly plotted by the National Monuments Service.

The site of the recorded ring-ditch DU011-080 was targeted by geophysical survey and six trenches. These investigations did not identify any trace of a monument at this location, which may have originally been mis-identified as an archaeological site, or incorrectly plotted in the RMP following the identification of the site in 1992. Based on the results of this assessment, no significant impacts are predicted on this monument as it does not exist at this location and no mitigation is required.

No direct or indirect impacts are predicted upon the remaining recorded archaeological sites located within the study area of the proposed development. This is due to the fact that the closest site (DU014-079) has been fully developed and DU014-157-9 represent ex-situ artefacts currently stored at the National Museum storage facility to the east. Ringfort and field system (DU014-107 and 078), located c. 230m to the north, will not be affected due to the distance from the development area to these sites, which possess no upstanding remains.

The three areas of archaeological potential within the proposed development, designated AA 1–3, will be subject to a significant direct negative (permanent) impact (prior to the application of mitigation). This will be caused by groundworks associated with the proposed development. It is acknowledged that preservation in-situ of archaeological remains is the preferred option for the conservation of the archaeological resource. Due consideration was given by the Design Team to the preservation in-situ of ring-ditch identified in AA 1 and associated remains. The design on this site has strived to create a balance between built and unbuilt, rather than maximise the development potential of the site; only 26% of the net site area will be taken up by residential development and an area is being protected for a future Bus Connects corridor. For these reasons preservation by record is ultimately being proposed. Given the design and planning rationale as detailed above, coupled with the truncated nature of the identified archaeological remains on site, preservation by record of the features in AA 1–3 will be carried out prior to the commencement of construction. This will be undertaken by a license eligible archaeologist in consultation with the National Monuments Service of the DoHLGH.

There is potential for disturbance to occur to the riverbed and river bank at the location of the proposed outfall into the River Broadmeadow, which will be caused by groundworks associated with the outfall installation. Direct impacts (prior to the application of mitigation) have the potential to range from moderate to very significant negative (permanent), dependent on the nature, extent and significance of any archaeological remains that are identified. An archaeological wade survey, including metal detection, will be carried out at the location of the outfall into the River Broadmeadow. This will be undertaken by a license eligible archaeologist in consultation with the National Monuments Service of the DoHLGH.

Ground disturbances associated with the proposed development may have a direct, negative (permanent) impact on isolated or small-scale archaeological features that may survive within the proposed development, outside the footprint of the excavated trenches. Impacts (prior to the application of mitigation) have the potential to range from moderate to significant negative (permanent) dependent on the nature, extent and significance of any archaeological remains that are identified. All topsoil stripping associated with the proposed development will be monitored by a suitably qualified archaeologist. If any features of archaeological potential are discovered during the course of the works further archaeological mitigation may be required, such as preservation in-situ or by record. Any further mitigation will require approval from the National Monuments Service of the DoHLGH.

One structure is recorded in the Record of Protected Structures and the NIAH Survey, Newtown Bridge (RPS 907, NIAH 11335017), crossing the Broadmeadow River to the immediate northeast of the proposed development. In addition, one further structure is listed in the NIAH only, Newtown House (NIAH 11335009), c. 50m to the east of the site. The house dates to the mid-18th century and was gutted by fire in 2011. No other structures of built heritage merit are located within the proposed development or study area. It is noted that there are no windows in the rear of this house as it now stands. Given the derelict condition of the house and its much-denuded demesne setting; its removal from the Record of Protected Structures and the separation between the house and the proposed development, no negative direct or indirect impacts are predicted on the character or setting of the house.

The former demesne of Newtown House has been partially developed for warehousing, with access roads and extensive car parking. The part of the demesne that lies within the application site is overgrown and has lost any designed characteristics. No negative direct or indirect impacts on the former demesne is predicted as a result of the proposed development.

Newtown Bridge lies close to the north-eastern boundary of the proposed development and is a protected structure. The part of the site in the vicinity of the bridge is to be laid out as open space and no buildings are proposed in the vicinity of the bridge. The pipeline associated with the proposed development will go through the existing wall that leads up to Newtown Bridge, but this wall is not part of the protected structure. There may be an indirect slight negative impact (permanent) upon the bridge, due to the alteration of the existing adjacent wall to facilitate the pipeline. The intervention to the wall leading to the protected structure of Newtown Bridge will be reconstructed using materials recovered from the original wall.

The former demesne of Balheary House that lies to the south of the Broadmeadow River has been developed for commercial purposes, leaving a small field in the north-eastern part close to Newtown Bridge and on the opposite side of Balheary Road from the development area. The only part of the development area within view of the former demesne will be laid out as open space. No negative direct or indirect impacts on the former demesne are predicted as a result of the proposed development.

Two extant townland boundaries are present, dividing the site on a north-south axis (Holybanks/Newtown) and forming the western development limit (Holybanks/ Broadmeadow). It is proposed to remove these boundaries to enable construction of the residential development, which represents a direct, moderate negative (permanent) impact upon the cultural heritage resource. During the course of topsoil stripping a written and photographic record describing the form of the townland boundaries to be impacted upon will be included in the monitoring report.

As it is proposed to monitor construction activity and preserve any identified archaeological features by record, no residual impacts are predicted upon the archaeological, architectural or cultural heritage resource.

9. Landscape and Visual

The Landscape and Visual Impact Assessment (LVIA) was informed by a desktop study and a survey of the site and receiving environment in October 2018, July 2019 and January 2022. The assessment is in accordance with the methodology prescribed in the Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA) published by the UK Landscape Institute and the Institute for Environmental Management and Assessment and Guidelines on the information to be contained in Environmental Impact Assessment Reports (Draft August 2017, EPA).

Landscape Character of Site

The site is a large area of open fields and areas of vegetation, which is surrounded by some form of built development on two sides- the Applewood/ Thornleigh area to the west and Glen Ellan Road and the South Bank residential area to the south.

One of the site's main features is the Broadmeadow River running along the site's northern boundary, and the character of this area ranges from somewhat overgrown areas which are difficult to access, to more open areas in the northeast of the site near Newtown Bridge.

The two large fields of the site are relatively open in character, and slope towards the river. The north-south treeline and hedgerow which divides these fields is a feature of the site, as is the hedgerow which divides the site from Jugback Lane, and the trees clumps close to the eastern boundary. These mature trees frame the views, and, provide a contrast to the large open fields, built form, and give some sense of enclosure. The built form to the west of the site and some to the south is evident but views to the east and north of the site are restricted by vegetation.

Policy Context

The site is within the Swords town boundary, and is zoned ME, Metro Economic Corridor. The Estuary West Masterplan has been prepared for this area by Fingal County Council. Although a non-statutory plan, the Masterplan includes guidance on building density and height, and also proposes to extend and connect the Broadmeadow River Park with Glen Ellan Road via two north-south green corridors, with pedestrian and cycle connectivity to be provided in these north-south links and in the Broadmeadow River Park. Existing trees and hedgerows are to be retained, protected and enhanced. Tree planting is proposed along streets. Thus, the Masterplan sets out a prescriptive approach to areas of open space, connections, surface water management, and areas of built form.

The County Development Plan contains a number of objectives relating to the Broadmeadow Valley Park, including extending the park and connecting to the new Oldtown Regional Park, and providing

pedestrian and cycle connectivity to Swords village and to Ward River Valley Park. A Landscape and Recreation Strategy for the Broadmeadow River Valley Park is also proposed.

The nearest protected view in the County Development Plan is located approximately 1.1 kilometres west of the proposed development in the direction of the town. Views and prospects in the County Development Plan are unlikely to be affected.

Landscape Effects

The landscape and built form design incorporate avoidance and mitigation measures to reduce adverse impacts, and where possible, to enhance the natural elements of the existing landscape. Therefore, the assessment of effects included these measures, and the residual effects. The site is subject to the Estuary West masterplan and the proposed development has been designed in accordance with the layout proposed in the masterplan.

The changes to the physical landscape of the site will result in a Slight landscape effect. This reflects the relatively few sensitive landscape receptors on site, and the retention and enhancement of these elements which include tree and vegetation retention and enhancement along the north-south spine of the site, and along the banks of the Broadmeadow river.

The quality of the effect on the physical landscape features on site is, in the main, considered beneficial, as these spaces are enhanced, and opened up with greater permeability between the site and its surrounds, and an increase in passive surveillance. Parts of the site which are currently open grassland and which are subject to anti-social behaviour are considered to undergo a change which is beneficial. The removal of some trees and hedgerow along Jugback lane can be seen as an initially adverse effect, however this is mitigated by the proposed tree and shrub planting as this establishes over time.

The proposed development will result in a Moderate effect on the landscape character. The more pronounced effects are on the overall character of the site as it changes from semi-rural to urban, and the effect of the higher buildings on the immediate surrounds of the site.

This change is consistent with policies for the site set out in County Development Plan and the Estuary West Masterplan. The lower buildings adjacent to Jugback Lane result in a low level of change in character to their surroundings. The lower buildings adjacent to Jugback Lane result in a low level of change in character to their surroundings. The larger buildings along Glen Ellan Road, are not considered characteristic of the area in its current form. They introduce a new element to the character of the road and the immediate vicinity to the south of Glen Ellan Road. This area will experience a change in character which is considered Moderate, and localised. The quality of the effect ranges from neutral to the west of the site, to adverse to the south of the site. It is considered that effects on the area north of the site along the Broadmeadow are beneficial.

The landscape elements of the scheme which help mitigate impacts, would take time to establish and the landscape receptors would, in places, take time to appreciate their presence, Whilst effects may remain of Moderate Significance across the scheme in the long term, post-maturing of the landscape vegetation the Residual Impacts would revert to Neutral as the new “place” softens and integrates in its setting.

Visual Effects

A total of 13 photomontages were taken from locations in the vicinity of the site, to the north, south, east and west. Visual Effects as illustrated by the Photomontages 1-4 show no significant visual effects (Not Significant to Slight and neutral) in the Applewood area to the west of the site.

The viewpoints along Glen Ellan Road range from Not Significant to Moderate and neutral in quality. One view from the Southbank residential area was considered Significant. The visual effects are expected to be more pronounced in close proximity to the taller apartment buildings along the Glen Ellan Road, however these effects are relatively localised.

Viewpoints to the north show little change in the views and effects range from None to Not Significant.

As with the residual landscape effects whilst effects may remain of Significant in places in the long term, post-maturing of the landscape vegetation the Residual Impacts would revert to Neutral as the new "place" softens and integrates in its setting.

10. Land, Soils and Geology

This chapter assesses the likely impact of the proposed development on land, soils and geology of the subject site during the construction and operation phases.

The proposed development consists of 621 no. units (145 no. 1-bed units, 278 no. 2-bed units, 187 no. 3-bed units and 11 no. 4-bed units) comprising 349 no. apartments, 118 no. houses and 154 no. duplex units. Building heights range from 1 no. to 7 no. storeys (over basement level). The scheme provides for public open space, communal open space areas, a crèche, residential amenities (including concierge, multi-purpose room, meeting room and gym), a new public park to the north of the site as an extension to Broadmeadow Riverside Park and services/bin store areas. The development provides for a total of 705 no. car park spaces (including houses), 856 no. secure bike parking spaces and 21 no. motorbike spaces at basement, under-croft, and surface level.

The proposed development also includes a Stormwater storage tank, located on the Celestica site to the east of Holybanks together with an outfall to the Broadmeadow River which will be laid along the Balheary Road. Upgrades to both the Glen Ellan Road, Balheary Road Junction and The Estuary Roundabout are also proposed as part of the development proposals.

In line with best practice, in determining the impact of the proposed development on the prevailing geological conditions, key sources of information were consulted, including the Map of the Bedrock Geology of Ireland. 3 No. extensive site investigation (SI) were carried out within the proposed development site. The purpose of the site investigation was to investigate subsurface conditions. The ground is generally made up of a thin layer of topsoil over approximately 300 to 500 mm above a layer of deposits described as firm to stiff grey brown sandy slightly gravelly silly clay with low cobble content. Beneath that layer, a stratum of very stiff to hard black sandy slightly gravelly clay with low cobble is found to a depth ranging from 2.5 to 5m.

The laboratory tests of the cohesive soils confirm that CLAY soils dominate the site with low to intermediate plasticity indexes. Soakaway tests were carried out at 11 number locations. These tests were performed at shallow depths to investigate the infiltration properties of the upper soil layer. Results of these tests show that the drainage of the soil on site is very poor.

The existing ground will be stripped and excavated as part of the proposed development. As a result, the exposed subsoil and bedrock will be exposed to weathering and the lack of subsoil may give rise to dust after particularly dry periods. Excavation for structural piling could give rise to increased noise levels.

On completion of the construction phase and following replacement of topsoil and a planting program, no further impacts on the soil environment are envisaged except for the possibility of contamination of soil from foul water effluent or oil/chemical spills.

Mitigation measures such as wheel wash and road cleaning to prevent the build-up of soils from the development site on the existing blacktop roads will be implemented. Dampening down with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works. Noise attenuation will be used to reduce noise levels.

Due to the proposed mitigation measures during construction, the impact on land and soils is considered not significant.

11. Water

The assessment was conducted for the likely impact of the proposed development on the surrounding hydrological (surface water) and hydrogeological (groundwater) environment both during the construction and operation phases. The impact of the surface water drainage proposed as part of the development is also assessed in this chapter.

The proposed development consists of 621 no. units (145 no. 1-bed units, 278 no. 2-bed units, 187 no. 3-bed units and 11 no. 4-bed units) comprising 349 no. apartments, 118 no. houses and 154 no. duplex units. Building heights range from 1 no. to 7 no. storeys (over basement level). The scheme provides for public open space, communal open space areas, a crèche, residential amenities (including concierge, multi-purpose room, meeting room and gym), a new public park to the north of the site as an extension to Broadmeadow Riverside Park and services/bin store areas. The development provides for a total of 705 no. car park spaces (including houses), 856 no. secure bike parking spaces and 21 no. motorbike spaces at basement, under-croft, and surface level.

The proposed development also includes a Stormwater storage tank, located on the Celestica site to the east of Holybanks together with an outfall to the Broadmeadow River which will be laid along the Balheary Road. Upgrades to both the Glen Ellan Road, Balheary Road Junction and The Estuary Roundabout are also proposed as part of the development proposals.

In terms of surface water, the site currently drains at an unrestricted rate to the Broadmeadow river located at the northern boundary of the subject site. Furthermore, a review of the Environmental Protection Agency (EPA) website database classifies the groundwater risk on the subject lands as “Not at Risk”. However, EPA classifies the Broadmeadow River as being at risk of not achieving its Water Framework Directive objectives. It is proposed, as part of the development to restrict the surface water runoff from the site to greenfield rates via a Hydrobrake on site, in line with Fingal County Council standards and National Guidelines.

A Flood Risk Assessment has been prepared by JBA Consulting Engineers and has been submitted under a separate cover as part of this application. A review of the available historic information confirms that areas to the north and west of the site have experienced historic flooding. A site-specific hydraulic model has been developed to investigate further the flood risk to the site and includes the assessment of climate change and residual risks. In summary, the key areas of the proposed site are located within Flood Zone C and therefore suitable for the development of residential and commercial buildings as there is no history of or expected flooding on site.

In order to minimise the potential impact of the construction and operational phase on the surrounding water environments of the development, mitigation measures will be applied. At the construction stage, a Construction and Environmental Management Plan (CEMP) would be prepared by the appointed contractor. In terms of the operation phase SUDS systems have been designed in order to minimise the impact on the hydrology and hydrogeology aspects of the development lands.

Appropriate mitigation measures such as bunding of fuel and chemical stores to prevent spillages entering the Broadmeadow River and providing silt control measures to prevent run off from entering the river must be implemented during the construction stage.

During the operational stage, appropriate storage of surface water with flow control devices will limit the discharge of surface water from site, reducing the risk of downstream flooding

Due to the proposed mitigation measures in both construction and operational phase, the impact on the surface and groundwater is considered not significant and not likely, alone or in combination with any other plans or projects, to have a significant effect on the environment

12. Population and Human Health

This chapter of the EIAR assess any potential impacts the proposed development may have on Population and Human Health in accordance with the requirements set out within the EIA legislation and guidance on preparation (detailed in Section 12.2 below) and content of EIAR.

The assessment of potential impacts of the proposed development on the Population and Human Health of residents in the Study Area are based on local population information sourced from the Central Statistics Office (CSO) Census data captured in the previous Censuses of 2011 and 2016. Data sets analysed in this assessment include: Population data, household data, data on general human health, economic activity and employment data. To provide further context to the social and demographic assessment, a similar data analysis exercise, at a broader scale, was performed on the Fingal County Council (FCC) administrative area, Dublin City and the State. Furthermore, an assessment of the current provision of social infrastructure was conducted through spatial analysis.

Population and Human Health

The construction of the proposed development may give rise to short term impacts to the locality, such as construction traffic and surface contaminants, dusts, exhaust emissions and noise. Residents of homes situated on Jugback Lane/Terrace are most likely to experience effects arising from the development – construction and/or operational phase. Where relevant, these impacts have been considered in the relevant chapters of the EIAR and will be minimised or mitigated where appropriate. It is unlikely that these impacts will be of a scale to either encourage people to move from the area or discourage people from moving to the area.

The operational phase of the proposed development will result in the provision of 621 no. residential units, a creche facility and significant public open space. This will provide accommodation for approximately 1,708 persons, based upon an estimated occupancy rate of 2.75 persons per unit. The uplift in local population generated by the proposed development will contribute to the compact development targets set out in the National Planning Framework i.e. at least 50% of all new homes within or contiguous to the existing built up area in Dublin and 30% in other settlements. On consideration of the above, the propose development will have a significant permanent positive impact on the population and households in the area.

The operational stage of the development is unlikely to cause any adverse impacts on the existing and future residents of the locality in terms of human health. The design of the development has been formulated to provide for a safe environment for the future residents and visitors alike. The paths, roadways and public realm have been designed in accordance with the best practice and applicable guidelines. All open areas have been designed to be inviting, safe and conveniently located. A neutral, not significant impact has been determined.

Economic Activity and Employment

The construction of the proposed development is likely to have a slight, positive effect on the local economy. The development in the short term will provide for increased construction related employment. During the construction phase, businesses directly involved in the sector and those indirectly involved in the supply chain will generate economic benefits that will provide a positive net impact on the economy.

The operational phase of the proposed development will provide accommodation for approximately 1,708 persons, based upon an estimated occupancy rate of 2.75 persons per unit. Considering the number of people in employment in the area (60%), it can be expected that circa 1,044 of the population generated will be working. This increase in occupancy in the area will enhance local spending power and will contribute to a critical mass of population to support a wide range of employment generating opportunities. In particular, the new residential community created by the proposed development will bring positive benefits in supporting the local retail environment at Applewood, while also supporting

other commercial developments in the locality. Collectively, it is considered that the development will have a moderate, positive impact on economic activity and employment.

Educational Institutions

Potential for temporary impacts arising from the construction stage on childcare and educational facilities within 1km of the site, relate to noise, dust, and traffic. he quality and significance of effects is determined in the relevant chapters of this EIAR, alongside mitigation measures proposed to ameliorate any adverse impacts.

The proposed development includes a creche facility that can accommodate up to 100 child places. 621 no. residential units are proposed as part of the development. The Planning Report accompanying this application establishes that this is an appropriate capacity for the proposed créche facility. In any event, the proposed scheme's inclusion of a créche facility is considered to be of sufficient scale to satisfy the childcare requirements of the future occupied development. As such, existing childcare services will not be impacted on. Conversely, the provision of a new créche facility, while predominately catering for the new residential base generated by the proposed development, may also offer capacity to satisfy wider demand from the local community. In this regard, there proposed development will give rise to a positive, moderate impact.

In consultation with the Department of Education and Skills, the applicant has agreed to reserve a 0.46ha site within their ownership (but outside the application area) to accommodate a future school sufficient to cater for the provisions of the Masterplan. In response to a request by the Department of Education and Skills, an access route to the school via the proposed development site has been established as part of this application. Accordingly, the proposed development will have a positive, significant impact with regard to primary and post primary school provision.

Healthcare

The provision of healthcare within the study area is considered to be of a sufficient scale, with 32 healthcare services and facilities in total, 10 of which are available within the 1km of the site, to serve the occupied development. The quality-of-life benefits for residents, and neighbouring communities arising from the improved access to the Broadmeadow Riverside park and the public amenities it contains, may have a positive knock on effect in terms of public health. As such, the proposed scheme is anticipated to have a **positive, slight effect** on social infrastructure and its impact on population and human health.

Access and Transport

The cycling and pedestrian environment surrounding the site will not be impacted on by the proposed works. No road closures are anticipated to be required as a result of the construction works. Some potential for traffic congestion is envisaged during the construction phase, however the duration for this impact is considered to be temporary to short term and of a neutral and not significant impact.

New pedestrian connections are provided to the site from Jugback Lane/Terrace, Glen Ellan Road and the proposed Broadmeadow Riverside Park extension to the north of the site – all of which will allow for convenient access to the Broadmeadow Riverside Park from surrounding communities. Furthermore, a segregated pedestrian/cycle path is proposed along the central green spine, connecting Glen Ellan Road in the south with Broadmeadow Riverside Park extension in the north. There will be a direct access from the existing Thornleigh Playground to the park facilitating continuity of the wider park lands along the Broadmeadow River. This new connection will also allow convenient accessibility from the Thornleigh and Applewood communities through the pleasant surroundings of the riverside park onto the east, and to the proposed Metrolink Park and Ride Station at Estuary West. The pedestrian and cyclist infrastructure proposed will greatly enhance connectivity of surrounding neighbourhoods to the Broadmeadow Riverside Park which will result in a positive, significant impact.

Other social infrastructure

The construction phase is not anticipated to give rise to perceptible impacts on the local retail environment or on other local social infrastructure such as healthcare and community facilities. The Applewood Village Centre is situated at sufficient distance to ensure imperceptible, neutral impacts. The provision of healthcare within the study area is considered to be of a sufficient scale, with 32 healthcare services and facilities in total, 10 of which are available within the 1km of the site, to serve the occupied development. The quality of life benefits for residents, and neighbouring communities arising from the improved access to the Broadmeadow Riverside park and the public amenities it contains, may have a positive knock on effect in terms of public health. As such, the proposed scheme is anticipated to have a positive, slight effect on social infrastructure and its impact on population and human health.

The proposed scheme will bring positive benefits in terms of recreational amenity and provision. By opening up accessibility through the site for pedestrians and cyclists, the ambitions for the Broadmeadow riverside park set out in local planning policy, will be largely enabled through delivery of the 'HA - High Amenity' lands owned by Cairn Homes Properties Ltd, and in doing so, will bring a notable community gain to the area. By enhancing the amenity value of the green corridor along the Broadmeadow and opening up access for the wider community, the proposed scheme is delivering on a key ambition set out in the Estuary West Masterplan, May 2019 - to bring this underutilised asset into functional use, and contribute to public open space provision available to the people of north Swords. Accordingly, positive, significant impacts on recreational amenity and provision are identified.

13. Material Assets – Traffic and Transport

This chapter assesses the likely impact of the proposed development in terms of vehicular, pedestrian and cycle access during the construction and operational phases of the proposed development.

The proposed development consists of 621 no. units (145 no. 1-bed units, 278 no. 2-bed units, 187 no. 3-bed units and 11 no. 4-bed units) comprising 349 no. apartments, 118 no. houses and 154 no. duplex units. Building heights range from 1 no. to 7 no. storeys (over basement level). The scheme provides for public open space, communal open space areas, a crèche, residential amenities (including concierge, multi-purpose room, meeting room and gym), a new public park to the north of the site as an extension to Broadmeadow Riverside Park and services/bin store areas. The development provides for a total of 705 no. car park spaces (including houses), 856 no. secure bike parking spaces and 21 no. motorbike spaces at basement, under-croft, and surface level.

The proposed development also includes a Stormwater storage tank, located on the Celestica site to the east of Holybanks together with an outfall to the Broadmeadow River which will be laid along the Balheary Road. Upgrades to both the Glen Ellan Road, Balheary Road Junction and The Estuary Roundabout are also proposed as part of the development proposals.

As part of the Traffic and Transport Assessment, five junctions in the vicinity of the site have been analysed. The expected volume of traffic and the impact that traffic will have on the operation capacity of the junctions has been assessed.

The junctions are located to the soith of the proposed site, along Glen Ellan Road and Balheary Road including the rounabout between R125 and the R132. There is currently a cycle lane along Glen Ellen Road to the south of the development and additional cycle lanes to the east of the subject site along Balheary Road. Further details can be found in the Transport and Traffic Assessment.

The subject site will be accessed via a new priority controlled T-junction on Glen Ellan Road to the south of the proposed development It is proposed to re-configure the alignment of this access road to improve the junction layout and forward visibility. A secondary vehicular access will be provided from west via Jugback Lane/Terrace. This additional access will be constructed to primarily provide connectivity to the adjacent Applewood Village and all its associated services/amenities.

On 01 March 2022, Waterman Moylan undertook a survey of the capacity in the Bus Network which would directly serve the subject site. This capacity study was undertaken adjacent to the development site and also at the stop in Swords before the buses join the M1 motorway. The survey was undertaken during the peak morning hours and it was found that all busses were operating at approximately 50% capacity or less.

The potential impacts of the proposed development from a transport perspective at construction and operational stages are outlined in this report. Main impacts during the construction stage include noise and dust from heavy good vehicles serving the site and from general earthwork activities. There is also potential for traffic congestion, due to increased heavy good vehicles on the road network. To assess the potential impact of the proposed development at an operational stage, a detailed traffic and transport assessment has been prepared and is included with this application. From the traffic assessment it is determined that the potential traffic arising from the proposed development at the operation stage will be accommodated on the surrounding road network with no major impact.

To minimise the potential impact of the construction and operational phase on the surrounding road network of the development, mitigation measures will be applied. A Construction Stage Mobility Management Plan shall be implemented by the appointed contractor. Moreover, adequate signposting will be located on site to ensure safety of all road users and construction workers and a dedicated construction site access/egress system will be implemented. During the operational phase, to reduce traffic impact and to promote more sustainable modes of transport a Mobility Management Plan will be prepared for the development.

Due to the proposed mitigation measures outlined above, the impact of the proposed development will be temporary and minimised during the construction stage. In terms of the operational stage, there will be a slight increase in the use of the road network by private vehicles and pedestrians/cyclists. However, the Traffic and Transport Assessment demonstrates that the existing network can accommodate these additional trips.

14. Material Assets – Waste Management

AWN Consulting Ltd. carried out an assessment of the potential impacts associated with waste management during the construction and operational phases of the proposed development. The receiving environment is largely defined by Fingal County Council as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

During the construction phase, typical C&D waste materials will be generated which will be source segregated on-site into appropriate skips/containers, where practical and removed from site by suitably permitted waste contractors to authorised waste facilities. Where possible, materials will be reused on-site to minimise raw material consumption. Source segregation of waste materials will improve the re-use opportunities of recyclable materials off-site. Excavation of the basement and construction of new foundations along with the installation of underground services will require the excavation of c.75,800m3 of material, it is anticipated that 23,300m3 of this excavated material will be able to be reused onsite. The remaining balance of excavated materials (52,500m3), which is either unsuitable for use as fill, or not required for use as fill, will be exported off site. Excavated material which is to be taken offsite will be taken for offsite reuse, recovery, recycling and/or disposal.

A carefully planned approach to waste management and adherence to the site-specific Construction and Demolition Waste Management Plan (Appendix 14.1) and the mitigation measures in chapter 16 are implemented during the construction phase will ensure that the effect on the environment will be short-term, neutral and imperceptible.

During the operation phase, waste will be generated from the residents as well as the commercial tenants. Dedicated communal waste storage areas have been allocated throughout the development for residents. The residential waste storage areas have been appropriately sized to accommodate the estimated waste arisings in both apartments and shared residential areas. The commercial tenants will

allocate space within their own unit for the storage of waste receptacles. The waste storage areas have been allocated to ensure a convenient and efficient management strategy with source segregation a priority. Waste will be collected from the designated waste collection areas by permitted waste contractors and removed off-site for re-use, recycling, recovery and/or disposal.

An Operational Waste Management Plan has been prepared which provides a strategy for segregation (at source), storage and collection of wastes generated within the development during the operational phase including dry mixed recyclables, organic waste, mixed non-recyclable waste and glass as well as providing a strategy for management of waste batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil and furniture (Appendix 14.2). The Plan complies with all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development.

Provided the mitigation measures provided in the Operational Waste Management Plan (Appendix 14.2) and in Chapter 14 are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be long-term, neutral and imperceptible not significant.

15. Material Assets – Utilities

This chapter of the EIAR assesses the likely impact of the proposed development on the material assets serving the subject lands relating to water supply, foul sewerage, electricity, gas and telecommunications.

The proposed development consists of 621 no. units (145 no. 1-bed units, 278 no. 2-bed units, 187 no. 3-bed units and 11 no. 4-bed units) comprising 349 no. apartments, 118 no. houses and 154 no. duplex units. Building heights range from 1 no. to 7 no. storeys (over basement level). The scheme provides for public open space, communal open space areas, a crèche, residential amenities (including concierge, multi-purpose room, meeting room and gym), a new public park to the north of the site as an extension to Broadmeadow Riverside Park and services/bin store areas. The development provides for a total of 705 no. car park spaces (including houses), 856 no. secure bike parking spaces and 21 no. motorbike spaces at basement, under-croft, and surface level.

The proposed development also includes a Stormwater storage tank, located on the Celestica site to the east of Holybanks together with an outfall to the Broadmeadow River which will be laid along the Balheary Road. Upgrades to both the Glen Ellan Road, Balheary Road Junction and The Estuary Roundabout are also proposed as part of the development proposals.

There is an existing 300mm diameter watermain to the northwest of the subject within the Applewood development together with a 250mm diameter watermain on Glen Ellen Road to the south of the subject site. A pre-Connection Enquiry form was submitted to Irish Water which outlined our proposals for the provision of water supply and the response stated that they can facilitate a connection to serve the proposed development from the existing 250mm diameter watermain to the south. Water demand will increase as a result of the proposed development. However, there is sufficient capacity available in the public water supply network to cater for the increased demand.

There is an existing 600mm diameter foul sewer along Glen Ellen Road to the south of the subject site. Despite the depth of the existing foul sewer on Glen Ellen Road it is not possible to drain the entire site by gravity. In this regard, a portion of the site will have to be pumped to facilitate an outfall to the existing foul sewer network. A Pre-Connection Enquiry form was submitted to Irish Water and a response has been received stating that to accommodate the proposed connection to the Irish Water network at the premises, a storage tank will be required in the future to manage the impacts of excessive rainfall in the sewer network downstream of the development. In this regard, following consultation with Irish Water, it is proposed to include as part of this application a Stormwater Storage Tank. The proposed tank will be located on the junction of the Glen Ellan Road and Balheary Road, Swords, Co. Dublin, approximately 280m east of the development. As outlined in the Storm Water Tank Report submitted as part of this application under a separate cover, the proposed tank will alleviate constraints within the

Irish Water foul water system, that occur during times of heavy or prolonged rainfall, resulting from surface water and foul water infiltration.

Gas Networks Ireland maps show that there are existing gas pipes in the vicinity of the site in the form of medium pressure (4bar) mains pipework. There are no existing services with the footprint of the proposed site.

If gas is adopted as the fuel source of choice for the heating systems in the scheme, a new gas connection be made to the existing network, the most likely connection point will be the 125 diameter 4 bar main in Jugback Lane. As is standard practice, the exact extent and location of these connections will be agreed upon with Gas Networks Ireland during the design stage of the project.

There is an extensive Eir Network in the roads surrounding the site, the most significant of which is a ducted service with multiple access chambers running along both the northern and southern sides of the Glen Ellan Road. There are also existing Virgin Media services in the residential schemes to the west and south of the proposed site. New connections will be made to the existing Eir and Virgin Media networks at the boundary of the site and services will be distributed throughout the site as required. The exact extent and location of these connections will be agreed upon with Eir and Virgin Media during the design stage of the project.

There is a risk to all services during the construction phase of the project. Appropriate mitigation measures such as scanning for all services during excavation to prevent a strike of services must be implemented during the construction stage.

During the operational stage, there will be an increased demand for all the services which can be accommodated by the service provider.

Due to the proposed mitigation measures in both construction and operational phase, the impact on the utilities is considered not significant.

16. Interrelationships, Interactions and Indirect Effects

This chapter deals with likely interactions between effects predicted as a result of the proposed development. The chapter has been prepared by KPMG Future Analytics in accordance with the requirements set out within the Planning and Development Regulations 2001 to 2020 and the EPA's Draft Guidelines on Information to Be Contained in Environmental Impact Assessment Reports (2017) to summarise the interactions and interrelationships between key factors identified and assessed.

Impact interactions and inter-relationships have been considered throughout in the preparation of the individual, topic specific chapters of this EIAR so that it can take into account the broader picture of how the proposed scheme may affect the various environmental media. All environmental topics are interlinked to a degree such that interrelationships exist on numerous levels. It is general practice, to evaluate interaction of effects as a matrix between effects and key factors assessed, accompanied by brief text describing the interactions identified. This chapter has been compiled to list in one location of all of the interactions identified in the assessment of impacts set out in Chapters 5 to 15. The likely significant interactions between factors arising from the proposed development are set out in the matrix provided as Table 16.1 below.

Table 16.1 Table showing interaction between key factors assessed

Some interaction ✔ No interaction x	Air Quality &		Noise & Vibration		Biodiversity		Archaeology& Cultural Heritage		Landscape & Visual		Land & Soils		Water		Population & Human Health		Traffic & Transport		Waste Mngt		Utilities	
	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.	Con.	Ope.
Air Quality & Climate			x	x	x	x	x	x	x	x	✔	x	x	x	✔	✔	✔	✔	x	x	x	x
Noise & Vibration	x	x			x	x	x	x	x	x	x	x	x	x	✔	x	✔	✔	x	x	x	x
Biodiversity	x	x	x	x			x	x	✔	x	✔	x	✔	✔	✔	✔	x	x	x	x	x	x
Architectural & Cultural	x	x	x	x	x	x			✔	x	x	x	x	x	x	x	x	x	x	x	x	x
Landscape & Visual	x	x	x	x	✔	x	✔	x			x	x	x	x	✔	✔	x	x	x	x	x	x
Land & Soils	✔	x	x	x	x	x	x	x	x	x			✔	x	x	x	x	x	✔	x	x	x
Water	x	x	x	x	✔	✔	x	x	x	x	✔	x			x	x	x	x	x	x	✔	✔
Population & Human Health	✔	x	✔	x	✔	x	x	x	✔	✔	x	x	x	x			✔	✔	x	✔	x	✔
Traffic & Transport	✔	✔	✔	✔	x	x	x	x	x	x	✔	x	x	x	✔	✔			✔	x	✔	x
Waste Management	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✔	✔	x	x			x	x
Utilities	x	x	x	x	x	x	x	x	x	x	x	x	✔	✔	✔	✔	x	x	x	x		

17. Summary of Mitigation Measures and Residual Impacts

This chapter provides a complete summary of mitigation measures and predicted residual impacts on the environment proposed in Chapters 5 to 15. The appointed contractor is required to adhere to the mitigation measures provided here to avoid or reduce significant effects and ensure sustainable development.

The EPA Guidelines on information to be contained in EIARs (2017) established four main strategies for mitigation of effects avoidance, prevention, reduction, and offsetting. Residual Impacts, according to the Draft EPA Guidelines (2017, p.3) are: - "*The final or intended effects which occur after the proposed mitigation measures have been implemented.*"

This chapter provides a detailed assessment of the mitigation measures and predicted residual impacts as follows:

- Air Quality and Climatic Factors
- Noise and Vibration
- Biodiversity
- Archaeological, Architectural and Cultural Heritage
- Landscape and Visual
- Land, Soils and Geology
- Water
- Population and Human Health
- Material Assets – Traffic and Transport
- Material Assets – Waste Management
- Material Assets – Utilities