Chapter 3:

Population and Human Health

3.0 POPULATION AND HUMAN HEALTH

3.1 INTRODUCTION

The 2014 EIA Directive (2014/52/EU) has updated the list of topics to be addressed in an EIAR and has replaced 'Human Beings' with 'Population and Human Health'. This chapter of the EIAR was prepared by Paul Turley, BA, MRUP, Dip Environmental & Planning Law, MIPI, of John Spain Associates, Planning & Development Consultants.

Population and Human Health comprise an important aspect of the environment to be considered. Any significant impact on the status of human health, which may be potentially caused by a development proposal, must therefore be comprehensively addressed.

Population and Human Health is a broad ranging topic and addresses the existence, activities and wellbeing of people as groups or 'populations'. While most developments by people will affect other people, this EIAR document concentrates on those topics which are manifested in the environment, such as new land uses, more buildings or greater emissions.

3.2 STUDY METHODOLOGY

At the time of writing there is no guidance from the EU Commission on the 2014 EIA Directive to indicate how the new term 'Human Health' should be addressed. Therefore this chapter of the EIAR document has been prepared with reference to recent national publications which provide guidance on the 2014 EIA Directive including the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018) and the Draft Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA in August 2017.

The 2018 EIA Guidelines published by the DHPLG state that there is a close interrelationship between the SEA Directive and the 2014 EIA Directive. The Guidelines state that the term 'Human Health' is contained within both of these directives, and that a common interpretation of this term should therefore be applied.

To establish the existing receiving environment / baseline, several site visits were undertaken to appraise the location and likely and significant potential impact upon human receptors. Desk based study of published reference documents such as Central Statistics Office Census data, the ESRI Quarterly Economic Commentary, the Regional Planning Guidelines for the Greater Dublin Area 2010-2022 and the Dun Laoghaire Rathdown County Development Plan 2016-2022 was also carried out.

It should be noted that there are numerous inter-related environmental topics described throughout this EIAR document which are also of relevance to Population and Human Health. Issues such as the potential likely and significant impacts of the proposed development on landscape and visual impact, biodiversity, archaeology, architectural and cultural heritage, air quality and climate, noise and vibration, water, land and soils, material assets including traffic and transport impacts, residential amenity etc. are of intrinsic direct and indirect consequence to human health. For detailed reference to particular environmental topics please refer to the corresponding chapter of the EIAR.

The Draft Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA states that '*in an EIAR, the assessment of impacts on population & human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc'.*

This chapter of the EIAR document focuses primarily on the potential likely and significant impact on Population, which includes Human Beings as required under the Schedule 6 of the Regulations, and Human Health in relation to health effects/issues and environmental hazards arising from the other environmental factors. Where there are identified associated and inter-related potential likely and significant impacts which are more comprehensively addressed elsewhere in this EIAR document, these are referred to. The reader is directed to the relevant environmental chapter of this EIAR document for a more detailed assessment.

3.3 THE EXISTING RECEIVING ENVIRONMENT (BASELINE SCENARIO)

3.3.1 Introduction

A description of the relevant aspects of the current state of the environment (baseline scenario) in relation to population and human health is provided below. Specific environmental chapters in this EIAR provide a baseline scenario relevant to the environmental topic being discussed. Therefore, the baseline scenario for separate environmental topics is not duplicated in this section; however, in line with guidance provided by the EPA and the Department, the assessment of impacts on population and human health refers to those environmental topics under which human health effects might occur, e.g. noise, water, air quality etc.

An outline of the likely evolution without implementation of the project as regards natural changes from the baseline scenario is also provided.

The existing environment is considered in this section under the following headings:

- Economic Activity;
- Social Patterns;
- Land-Use and Settlement Patterns;
- Employment;
- Health & Safety; and
- Risk of Major Accidents and Disasters.

3.3.2 Economic and Employment Activity

The CSO's Quarterly Labour Force Survey (which has now replaced the Quarterly Household Survey) for Q1 2018, indicated that there was an annual increase in employment of 2.9 % or 62,100 in the year to the first quarter of 2018, bringing total employment to 2,220,500. This compares with an annual increase of 3.1% or 66,800 in the year to Q4 2017, 2.2% or 48,100 in employment in the previous quarter and an increase of 3.8% or 79,200 in the year to Q4 2016.

The increase in total employment of 62,100 in the year to Q1 2018 was represented by an increase in full-time employment of 72,000 (+4.3%) and a decrease in part-time employment of 9,900 (-2.1%), representing an improvement in the quality and quantity of employment in the economy.

Unemployment decreased by 30,500 (-18.6%) in the year to Q1 2018 bringing the total number of persons unemployed to 132,900. The CSO state that this is the twenty third quarter in succession where unemployment has declined on an annual basis.

Employment increased in eleven of the fourteen economic sectors over the year (excluding *Not stated*). The largest rates of increase were recorded in the *Public administration and defence; compulsory social security* (+10.4% or 9,800) and the *Administrative and support service activities* (+10.1% or +9,200) sectors.

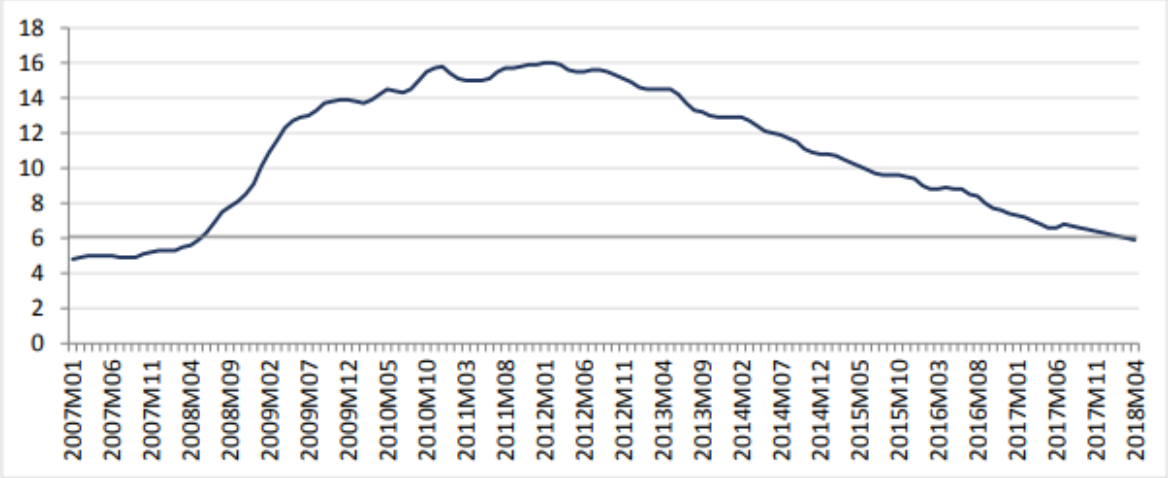
The overall unadjusted unemployment rate decreased from 7.1% to 5.7% over the year to Q1 2018. The total number of people unemployed was 132,900, an annual decrease of -30,500.

The ESRI Quarterly Economic Commentary for Summer 2018 states that full-time employment now accounts for 79.2 per cent of total employment, this compares with 81.1 per cent in the Q4 2007 peak and 74.8 per cent in the Q3 2013 downturn. On the other hand, part-time employment fell by 23,000 (-4.7 per cent) to 461,500 and now accounts for 20.7 per cent of total employment.

The ESRI further state:

"As the Irish economy is approaching full employment (around 5 per cent) we continue to expect the unemployment rate to decline, but at a slower pace than in the previous quarters. Given the latest review of the CSO labour market figures, we believe that the unemployment rate will average 5.6 per cent through 2018 and 5.0 per cent through 2019. Employment is set to exceed 2.25 million by the end of 2018 and to increase to 2.29 million by the end of 2019."

The above sources demonstrate that the national economy and employment levels were expected to improve further through 2018 and beyond into 2019, with the Government faced with the challenge of sustaining economic activity and competitiveness during a period of likely full employment. This in turn results in increased demand for residential dwellings particularly within the Dublin region.



Source: Labour Force Survey, Central Statistics Office.

Table 3.1: Unemployment rate in Ireland by quarter (Q1 2011 – Q1 2018) (%) *CSO Labour Force Survey*

The ESRI Quarterly Commentary further indicates that household consumption is set to continue benefitting from elevated levels of consumer sentiment and an improved labour market over the next two years. It is expected that consumption expenditure to grow by 2.4 per cent this year and to grow at a slightly faster pace of 2.5 per cent in 2019.

The ESRI Quarterly Commentary notes strong growth in the domestic economy of 7.8 percent in 2017, however this headline growth figure is tempered by the fact that a small number of multinational firms operating in the Irish jurisdiction likely have a distorting impact on the growth rate of the national economy. This makes it difficult to accurately benchmark or forecast the growth rate of the Irish economy at present. Revised measurements for the growth rate of the national economy are under preparation by the CSO.

3.3.3 Social Patterns

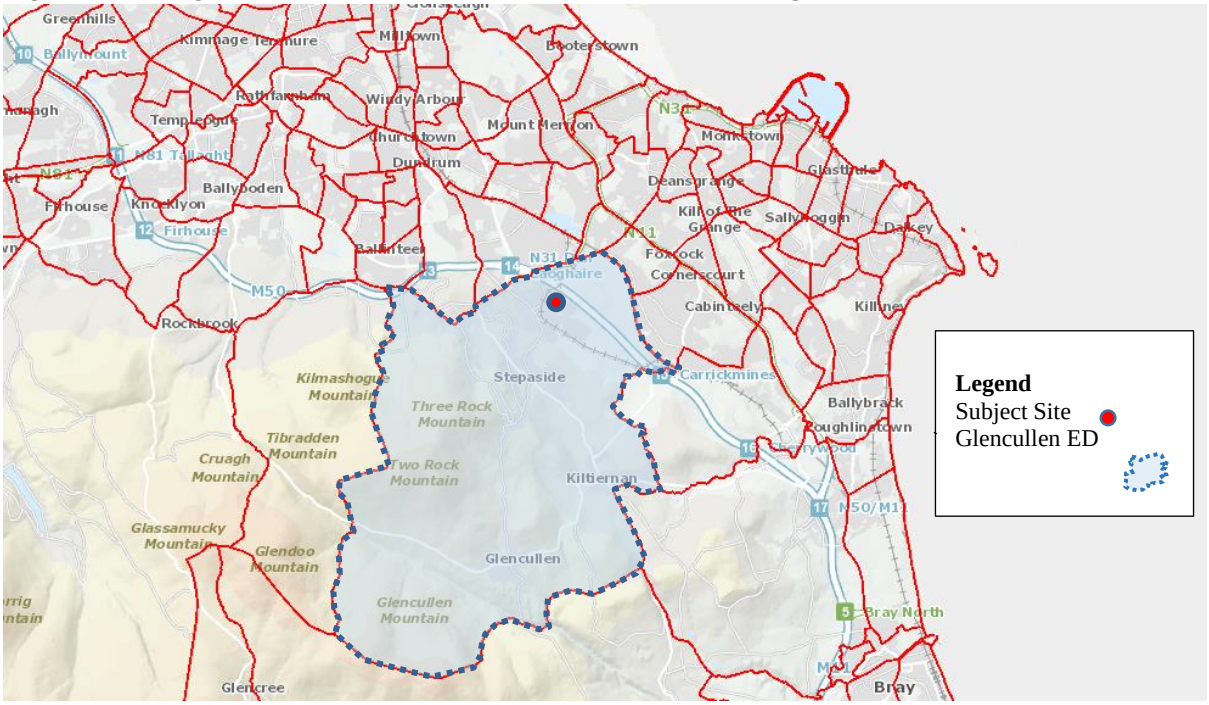
The CSO data illustrates that the population of the Irish State increased between 2011 and 2016 by 3.8%, bringing the total population of the Irish State to 4,761,865. The rate of growth slowed from 8.1% in the previous census, attributable to the slower economic activity in the early part of the census period resulting in a reduced level of immigration, albeit offset to a degree by strong natural increase.

The economy has recovered in recent years with consequent population growth predominantly attributed to natural increase, greater economic activity, increased job opportunities and continued immigration.

Table 3.2: Population change in the State, Dublin County, and Glencullen ED 2011-2016 (Source: CSO)

Area	Number of Persons		
	2011	2016	% change 11-16
Ireland - State	4,588,252	4,761,865	3.8
Dublin County	1,273,069	1,347,359	5.8
Dun Laoghaire Rathdown County	206,261	218,018	5.7
Electoral Division of Glencullen	17,381	19,773	13.7

Figure 3.1: Image of the Glencullen electoral division indicating site location



The CSO data provided above illustrates that the population of the Irish State increased between 2011 and 2016 by 3.8%, bringing the total population of the Irish State to 4,761,865. The rate of growth slowed from 8.1% in the previous census, attributable to the slower economic activity, particularly in the early part of the census period.

Notably, the population of the Glencullen electoral division increased at a significantly greater rate than the state as a whole, Dublin County or Dun Laoghaire Rathdown County over the 2011-2016 intercensal period. This can be attributed to continued residential development in areas such as Belarmine, Stepaside Village, Aiken's Village, and Cruagh Manor – all of which fall within this large electoral division. The substantial growth in the area is also likely to be attributable to the designation of growth areas in this part of the County, the availability and provision of physical and social infrastructure, including the Luas, and the associated significant level of residential development that has progressed in this area in recent years.

3.3.4 Land Use & Settlement Patterns

The subject site of the SHD application is greenfield in nature. The SHD site is adjacent to and surrounds a property which accommodates the residence of the ambassador of Great Britain in Ireland (Glencairn House), which is also a protected structure under RPS Ref. No. 1643. The boundary of the Ambassador's residence

with the subject site will be defined by a new boundary wall and security gates permitted under DLR Reg. Ref.: D17A/0913 (which also provided for a new pavilion dwelling for security staff within the walled garden of Glencairn House, revised car parking arrangements and associated works).

To the south of the application and Glencairn House is an existing residential area known as 'The Gallops', consisting primarily of detached and semi-detached houses. The application site is bound by a linear green space and a pedestrian / cycle greenway which forms part of The Gallops along part of its southern boundary. The site is bound to the west by Murphystown Way and the Luas light rail line, and the Glencairn Luas stop is located adjacent to the subject site at its southwestern corner. The M50 motorway runs to the north of the site. To the east / southeast of the subject site is the Orby Avenue and Orby View area of The Gallops residential area, consisting primarily of semi-detached, two storey houses.

The Leopardstown Valley neighbourhood centre and Holy Trinity National School are located to the south east, and directly accessible via the pedestrian / cycle greenway to the south of the application site. Thus, these greenfield lands, on which a Strategic Housing Development is now proposed, are located within an established built-up area, are served by high quality public transport services and provide for ease of access to all necessary amenities.

The subject site is located within the administrative area of Dun Laoghaire Rathdown County Council and is therefore subject to the objectives and policies contained within the Dun Laoghaire Rathdown County Development Plan 2016-2022.

Figure 3.2: Extract from CDP zoning map 6 illustrating the subject site and its surroundings

The majority of the site is zoned Objective A – '*to protect and-or improve residential amenity*' under the Dún Laoghaire-Rathdown Development Plan 2016-2022. Part of the site is zoned Objective F – *'to preserve and provide for open space with ancillary active recreational amenities'*. The site also includes an objective to retain mature trees.

A specific local objective is noted on the Development Plan zoning map (Specific Local Objective no. 135). This objective relates to the preparation of a Local Area Plan for Ballyogan and Environs. A Draft LAP for Ballyogan

and Environs has not yet been published, however a pre-draft issues paper has been published for public consultation, and submissions were invited until the 25th of May 2018.

Given that the subject lands are zoned Objective 'A' rather than 'A1- subject to LAP' it is appropriate to bring forward a residential development on the subject lands in advance of the LAP (this approach has been established and accepted elsewhere within the future LAP area (for example Clay Farm Phases 1 and 2).

The land use zoning map also indicates that a recorded monument is located to the northwest of the subject site, adjacent to the Luas Line. This recorded monument is listed under RMP Ref. No. 023-025), as a "Castle - Tower House" according to the Record of Monuments and Places and National Monuments Service and is known as Murphystown Castle. Courtney Deery have been engaged to advise on the archaeology strategy for this development in respect to the subject lands, please refer to Chapter 4- Archaeology and Cultural Heritage for further information.

The land use zoning map also includes an objective '*To protect and preserve Trees and Woodlands'* on the subject site. BSM and Arborist Associates have been engaged to advise in respect to Arboricultural, landscape and ecology matters for the proposed development.

A tree survey has been undertaken and the key mature trees / group of trees for protection have been identified and the layout and design responds to these particular site constraints.

Figure 3.3: Aerial view of the subject site

3.3.5 Health & Safety

The surrounding context consists of a mix of residential, transport- related, recreational and amenity related land uses. It does not include any man-made industrial processes (including SEVESO II Directive sites (96/82/EC & 2003/105/EC) which would be likely to result in a risk to human health and safety.

3.3.6 Risk of Major Accidents and Disasters

The 2018 EIA Guidelines state that an EIAR must include the expected effects arising from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project.

In this respect, taking cognisance of the other chapters contained within this EIAR document, it is not considered that the proposed development site presents risks of major accidents or disasters, either caused by the scheme itself or from external man made or natural disasters.

3.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

Consideration of the characteristics of the proposed development allows for a projection of the level of impact on any particular aspect of the environment that could arise. In this chapter the potential impact on population and human health is assessed.

A full description of the proposed development is provided in Section 2. In summary the proposed development consists of the demolition of an existing house on site and provision for the construction of 341 no. residential units, a childcare facility with a GFA of 300 sq.m., open space and all associated site and infrastructural works on a site of c. 9.59 hectares. The proposal also seeks to relocate the existing entrance portal to a location within the subject site, on the new access avenue to Glencairn House, and provides for the preservation and a new landscape setting for Murphystown Castle.

3.5 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

3.5.1 Introduction

This section provides a description of the specific, direct and indirect, impacts that the proposed development may have during both the construction and operational phases of the proposed development. As stated, guidance documents from the EPA and the Department outline that the assessment of impacts on population and human health should focus on health issues and environmental hazards arising from the other environmental factors, and does not require a wider consideration of human health effects which do not relate to the factors identified in the EIA Directive.

Additionally, this section addresses the socio-economic and employment impacts of the proposed development. For a more detailed assessment of potential impacts please refer to specific chapters of the EIAR which assess the environmental topics outlined in the EIA Directive.

3.5.2 Water

Construction Phase

Provision of water infrastructure for the proposed development would involve construction activities within the subject lands mainly involving trench excavations conducted in parallel with the other services. The potential impact on the local public water supply network would be short term and imperceptible. Therefore the impact on human health and population in this regard is considered to be insignificant.

During the construction phase there is potential for weathering and erosion of the surface soils from precipitation and run-off and surface water runoff may also contain increased silt levels or pollutants from the construction processes. The discharge of these contaminants, such as concrete and cement, which are alkaline and corrosive, to the Ballyogan Stream has the potential to cause pollution and consequential impacts to human health and population. A number of mitigation measures are outlined in Chapter 9 – Water. A detailed

Construction and Environmental Management Plan which details mitigation measures for the above issues has been prepared by DBFL and is included under separate cover.

Operational Phase

The impact of the operational phase of the proposed development on the public water supply will increase the demand on the existing supply. The estimated peak demand from the development will be 10.2 l/s with the average daily demand being 138.1 m^3.

It will be necessary to service the development with a reliable and safe water supply. A connection will be made to the existing 150mm diameter watermain currently located in Orby Way.

A new metered water main distribution network will be constructed for the individual dwellings and apartment blocks.

As such additional water quantities would need to be treated at the reservoir and supplied through the existing network to the site. This will require extra cost as well as increasing abstraction volumes from the existing source. The impact on human health and population in this regard is considered to be insignificant.

Surface water run-off discharge rates from the development sites may be increased because of increase in impermeable surfaces, shorter flow paths through pipes and reduced roughness co-efficient, however the implementation of SuDs features would aim to maintain runoff rates as close as possible to existing greenfield runoff rates.

SUDs will be implemented in accordance with the recommendations of the GDSDS and Dun Laoghaire Rathdown County Council requirements. In addition, the 'The Planning System and Flood Risk Management Guidelines for Planning Authorities' will be adhered to.

Therefore, the potential impact on population and human health in this regard is considered to be insignificant.

3.5.3 Noise

Construction Phase

During the construction phase there will be extensive site works, involving construction machinery, construction activities on site, and construction traffic, which will all generate noise. The highest noise levels will be generated during the general construction activities and during pneumatic breaking and piling works. The construction noise levels will occur over an approximate 3 year period and will only occur during daytime hours which will serve to minimise the noise impacts at local existing receptors over the course of the construction phase.

It is predicted that the construction phases shall result in a short term increase in noise levels in the area as well as introducing tonal and impulsive noise as a result of construction activities such as pneumatic breaking, cutting, excavating, vehicle movements and general manual construction activities.

Due to the phased nature of the development which will occur over an approximate 3 year period, there will be slight to moderate impacts on existing residents in adjacent and adjoining residential estates and on Glencairn House. However, the proposed construction phase noise mitigation measures as detailed in the Noise and Vibration chapter of this EIAR shall ensure that all construction activities are controlled and managed and audited by an independent acoustic consultant to confirm that the mitigation measures are implemented throughout the construction phase.

Operational Phase

The main potential for altering the noise environment once the development is operational, and thus impacting neighbouring residential receptors, is road traffic noise associated with the development.

The UK Design Manual for Roads and Bridges (DMRB, Volume 11, Section 3, Part 7) states that it takes a 25% increase or a 20% decrease in traffic flows in order to get a 1dBA change in traffic noise levels. On this basis, the traffic flow increases associated with the development for all year scenarios will result in a traffic noise increase of approximately 1dBA. There will be an imperceptible impact on existing ambient noise levels at existing residential development in proximity to the existing roads and junctions within the surrounding area as a result of road traffic alterations associated with the proposed development.

The subject development includes the provision of surface and undercroft car parking spaces for the residential units. Vehicles using car parking areas generally travel at speeds <20kmph which result in relatively low noise levels. On site car parking within the proposed development will have no impact on adjacent residential developments.

Within the proposed development, sounds generated by everyday domestic activities including waste facilities, pedestrians, children, and use of open spaces, are part of everyday living, and are not considered "noise" in the sense of a potential nuisance. This activity noise would not have any potential for impact beyond the boundaries of the site. In particular, the design of the proposed development has ensured that waste management facilities will not result in impacts on adjacent sensitive receptors.

3.5.4 Air Quality & Climate

Construction Phase

During the construction phase, site clearance and ground excavation works have the potential to generate dust emissions rising from the operation and movement of machinery on site. This has a potential impact on population and human health.

Construction equipment including generators and compressors will also give rise to some exhaust emissions. However, due to the size and nature of construction activities, exhaust emissions during construction will have a negligible impact on local air quality. CO2 will be released into the atmosphere as a result of the movement of construction vehicles and use of plant. However, emissions associated with such activities will not be significant.

Construction traffic to and from the site shall result in a short-term increase in the volume of diesel fuelled HGV's along the local road network which will generate additional hydrocarbon and particulate emissions from the vehicle exhausts. However, the activities detailed above will result in an imperceptible impact on local air quality and sensitive receptors.

Mitigation measures are outlined in Chapter 10 – Air Quality and Climate including avoiding unnecessary vehicle movements and manoeuvring and limiting speeds on site so as to minimise the generation of airborne dust, and spraying surfaces with water and wetting agents to control dust emissions.

Various elements associated with the construction phase of the proposed development have the potential to impact local ambient air quality, however the potential construction phase impacts shall be mitigated as detailed in Chapter 10 to ensure there is a minimal impact on ambient air quality for the duration of all construction phase works. It is predicted that the operational phase of the development will not generate air emissions that would have an adverse impact on local ambient air quality or local human health.

It is predicted that the activities detailed above will result in an imperceptible impact on local air quality and sensitive receptors. Therefore, the potential impact on human health and population in this regard is considered negligible.

Operational Phase

The operational phase of the proposed development will result in a slight impact on local air quality primarily as a result of the requirements of new buildings to be heated and with the increased traffic movements associated with the development.

The extensive landscaping schemes including areas of woodland to be retained will include native trees, grasses and shrubs which will also contribute albeit in a minor way to the adsorption of Carbon Dioxide from the atmosphere and the release of Oxygen to the atmosphere.

The proposed development includes structures which will have a minor impact on the local micro-climate by means of wind shear effects. There will however be no unacceptable impact within the overall site as detailed in the Wind Micro Climate study as detailed within the Wind chapter of this EIAR, which has been prepared by ARUP Consulting Engineers.

It is predicted that the operational phase of the development will not generate air emissions that would have an adverse impact on local ambient air quality or local human health, as stated in Chapter 10 – Air Quality and Climate.

3.5.5 Landscape and Visual Impact

Construction Phase

The construction phase will have short term landscape and visual impacts. The impacts are not considered significant on population and human health, particularly given the level of screening to site boundaries and the setting back of the main residential elements of the scheme from adjacent sensitive land uses.

Operational Phase

The operational phase of the proposed development has the potential to lead to positive impacts on population and human health as a result of the significant quantity of open space and recreational provision including some woodland areas, playground, the newly accessible remains of Murphystown Castle, all of which will help provide a high quality residential environment with provision for exercise and play, and will be a valuable amenity and cultural resource to surrounding residential areas.

The proposed development incorporates design principles such as permeability, shared surfaces / homezones and a layout which prioritises walking and cycling and therefore has the potential to positively impact on population and human health.

Please refer to Chapter 7- Landscape and Visual Impact and the accompanying photomontages for the a more detailed assessment.

3.5.6 Economic Activity

Construction Phase

The construction phase of the proposed development is likely to result in a positive net improvement in economic activity in the area of the proposed development site particularly in the construction sector and in associated

and secondary building services industries. The construction sector (including associated services) was documented as one of the most adversely impacted sectors of the Irish economy following the economic downturn in 2008. The sector has recovered in recent years and this development will help to further enhance growth.

The construction of 341 no. residential dwellings, a childcare facility and all associated infrastructure will precipitate a positive impact on construction-related employment for the duration of the construction phase.

It is difficult to estimate the number of employees who will be engaged on a phased residential development such as this. A considerable amount of the work will be undertaken by sub-contractors who will also work elsewhere on a phased basis over the construction period.

The construction phase will also have secondary and indirect 'spin-off' impacts on ancillary support services in the area of the site, such as retail services, together with wider benefits in the aggregate extraction (quarry) sector, building supply services, professional and technical professions etc. These beneficial impacts on economic activity will be largely temporary but will contribute to the overall future viability of the construction sector and related services and professions over the phased construction period.

The proposed development could have a slight negative impact on the surrounding area during construction phase due to traffic and associated nuisance, dust and noise. These issues and appropriate mitigation measures are addressed in Chapters 10 & 11 of the EIAR, in the Traffic and Transportation Assessment, Construction and Environmental Management Plan and the Waste Management Plan which accompany the application. The Traffic and Transportation Assessment recommends that a Construction Traffic Management Plan be implemented for the site which will minimise disruption to the surrounding road network.

Operational Phase

The operational phase of the proposed development will result in the provision of 341 no. residential units, a childcare facility and associated open space. This will provide accommodation for approximately 921 persons, based upon the existing average occupancy rate of 2.7 persons per household within Dun Laoghaire Rathdown.

This increase in occupancy in the area will enhance local spending power and will assist with the delivery of a critical mass of population which will support a wide range of additional local businesses, services, transport infrastructure and employment opportunities.

3.5.7 Social Patterns

Construction Phase

The construction phase of the proposed development is unlikely to have any significant impact on social patterns within the surrounding area. Some additional temporary additional local populations may arise out of construction activity. However, these impacts are imperceptible, temporary in nature and therefore not considered significant.

It is acknowledged that the construction phase of the project may have some short-term negative impacts on local residents. Such impacts are likely to be associated with construction traffic and possible nuisances associated with construction access requirements. These impacts are dealt with separately and assessed elsewhere in the EIAR, including Chapter 2 - Project Description and Alternatives Examined, Chapter 10 - Air Quality and Climate and Chapter 11 - Noise and Vibration and also in the Traffic and Transportation Assessment report.

Such impacts will be short term and in the longer term, the completed scheme will have beneficial impacts for local businesses, residents and the wider community. Any disturbance is predicted to be commensurate with the normal disturbance associated with the construction industry where a site is efficiently, sensitively and properly managed having regard to neighbouring activities. The construction methods employed and the hours of construction proposed will be designed to minimise potential impacts to nearby residents. A Construction Management Plan has been prepared and is submitted with this planning application.

Operational Phase

The addition of new residents to the area will improve the vibrancy and vitality of the area and will help to support existing community and social infrastructure. The subject lands are located adjacent to public in the form of the Glencairn Luas stop on Murphystown Way. As set out within the Planning Report there are is also a considerable range of existing and planned community and social infrastructure in this area of the County, which the proposed development will be able to avail of. The proposed development will provide much needed homes, including a range of family dwelling types and sizes, in this area of the County, which will help cater for the considerable pent up and consistent demand in the GDA, which is not being met at present.

The issue of existing school capacity and planned school delivery in this area of the County is addressed in detail in Section 2 and Appendix 1 of the Statement of Consistency accompanying this application. The assessment demonstrates that there is substantial primary school provision in this area of the County and Stepaside Educate Together Secondary School operates from temporary accommodation on the grounds of Kiltiernan Rugby Club / De La Salle Palmerston FC, Enniskerry Road. There is a 1,000 pupil secondary school planned for the area.

3.5.8 Land-Use & Settlement Patterns

Construction Phase

The construction phase of the proposed development will primarily consist of site clearing, excavation and construction works, and has the potential to impact adversely and result in the temporary degradation of the local visual environment on a short-term basis. The visual impacts precipitated by the proposed development are assessed in greater detail in Chapter 7.

Secondary land use impacts include off-site quarry activity and appropriate disposal sites for removed spoil. Construction works are likely to take place on a phased basis, which will moderate the potential impacts on adjoining land use. The Construction Environmental Management Plan addresses these issues in more detail.

The construction phase may result in a marginally increased population in the wider area due to increased construction employment in the area, however, this would be temporary in nature and the impact would be imperceptible.

Operational Phase

The operational phase of the proposed development will result in the introduction of a residential land use to the subject site which will provide much needed housing for the growing population of the immediate area and the GDA in general. In addition, a significant quantity of open space consisting of recreational and amenity space is also provided in addition to other land uses such as a childcare facility.

3.5.9 Employment

The impact of the proposed development in relation to employment has been discussed under economic activity.

3.5.10 Health & Safety

Construction Phase

The construction phase of the proposed development may give rise to short-term impacts associated with construction traffic, migration of surface contaminants, dust, noise and littering. Secondary impacts may include resulting increased traffic arising from hauling building materials to and from the proposed development site which are likely to affect population and human health distant from the proposed development site, including adjacent to aggregate sources and landfill sites.

Construction impacts are likely to be short term and are dealt with separately in the relevant chapters of this EIAR document and will be subject to control through a Construction and Environmental Management Plan. The construction methods employed and the hours of construction proposed will be designed to minimise potential impacts. The development will comply with all Health & Safety Regulations during the construction of the project. Where possible, potential risks will be omitted from the design so that the impact on the construction phase will be reduced.

Operational Phase

The operational stage of the development is unlikely to precipitate any significant impacts in terms of health and safety. The design of the proposed development has been formulated to provide for a safe environment for future residents and visitors alike. The paths, roadways and public areas have all been designed in accordance with best practice and the applicable guidelines. Likewise the proposed residential units and childcare facility accord with the relevant guidelines and will meet all relevant safety and building standards and regulations, ensuring a development which promotes a high standard of health and safety for all occupants and visitors.

The proposed development will not result in any significant impacts on human health and safety once completed and operational. The proposed development therefore is unlikely to result in negative impacts in relation to population and human health in this regard.

3.5.11 Risk of Major Accidents or Disasters

Construction Phase

Having regard to the topography, geology and location of the subject site, and its low risk of flooding as established in the DBFL Site Specific Flood Risk Assessment submitted with the application, it is not considered likely that there will be any impact related to a major accident or disaster during the construction phase of the proposed development, stemming internally from within the development, or externally.

The works proposed in proximity to roadways and the Luas line will be governed by best practice and appropriate safety procedures, ameliorating any risk of a major accident in those contexts.

Operational Stage

The proposed development will be located on land which is not at any significant risk of flooding. The entrance arrangements have been designed so as to avoid any risk of a major accident associated with the surrounding road network and the Luas line adjacent to the site.

For further details in relation to the junction and entrance layout please refer to the TTA and associated documentation prepared by DBFL Consulting Engineers. Therefore, it is considered that there is no significant risk related to major accidents or disasters, external or internal, man-made or natural in respect of the proposed development.

3.6 POTENTIAL CUMULATIVE IMPACTS

The potential cumulative impacts of the proposed development on population and human health have been considered in conjunction with the ongoing changes in the surrounding area.

The cumulative impact of the proposed development will be a further increase in the population of the wider area. The previously green-field lands will provide for 341 no. new residential units across a variety of unit and tenure types. This will have a moderate impact on the population (human beings) in the area. This impact is likely to be long term and is considered to be positive, having regard to the zoning objective for the subject lands, and their strategic location in close proximity to high quality, high frequency public transport, and the high level of demand for new housing in the area.

With regard to human health, the cumulative impact of the proposed development in conjunction with other nearby developments will provide for the introduction of high quality new neighbourhoods in the area with a high level of accessibility and amenity. The overall cumulative impact of the proposed development will therefore be long term and positive with regard to human health, as residents will benefit from a high quality, visually attractive living environment, with ample opportunity for active and passive recreation and strong links and pedestrian permeability, with a direct and convenient link to high frequency public transport modes.

3.7 'DO NOTHING' IMPACT

In order to provide a qualitative and equitable assessment of the proposed development, this section considers the proposed development in the context of the likely impacts upon the receiving environment should the proposed development not take place.

A *'do nothing'* impact would result in the subject lands remaining in a green-field state and substantially undeveloped. This would be an underutilisation of the site from a sustainable planning and development perspective, particularly considering the location of the lands adjacent to high quality public transport, and within an area which is identified as a Key Growth Area within the Dublin Metropolitan Area. The status of the environmental receptors described throughout this EIAR document would be likely to remain unchanged. The potential for any likely and significant adverse environmental impacts arising from both the construction and operational phases of the proposed development would not arise.

In terms of the likely evolution without implementation of the project as regards natural changes from the baseline scenario, it is considered there would be limited change from the baseline scenario in relation to population (human beings) and human health.

However, similarly the potential for any likely and significant positive environmental impacts arising from both the construction and operational phases of the proposed development would also not arise. The site is zoned for residential and open space purposes within the Dun Laoghaire Rathdown Development Plan 2016-2022 with an objective to *"protect and-or improve residential amenity*", and the proposed use of the site is considered to be in accordance with the proper planning and sustainable development of the area.

A 'do nothing' scenario would involve the subject site, which is zoned for residential development, remaining in its current predominantly green-field state, and remaining underutilised.

The local economy would not experience the direct and indirect positive effects of the construction phase of development, including employment creation. The local construction sector and associated industries and services would be less viable than they might otherwise be.

Failure to deliver the proposed residential units would result in existing housing need and demand remaining unmet. The new pedestrian and cycle links, childcare facility, and public open spaces to be provided in the development and serving the wider area would also not be provided.

3.8 AVOIDANCE, REMEDIAL & MITIGATION MEASURES

Avoidance, remedial and mitigation measures describe any corrective or mitigative measures that are either practicable or reasonable, having regard to the potential likely and significant environmental impacts.

Construction Phase

A range of construction related remedial and mitigation measures are proposed throughout this EIAR document with reference to the various environmental topics examined and the inter-relationships between each topic. These remedial and mitigation measures are likely to result in any significant and likely adverse environmental impacts on population and human health during the construction phases being avoided. Readers are directed to Chapter 15 of this EIAR document which summarises all of the remedial and mitigation measures proposed as a result of this EIA.

POP & HH CONST 1: In order to protect the amenities enjoyed by nearby residents, premises and employees a Construction and Environmental Management Plan (including traffic management) should be prepared by the contractor and implemented during the construction phase.

Operational Phase

The operation phase is considered to have likely positive impacts on human beings in relation to the provision of additional residential units and high quality open space and pedestrian/cyclist facilities to cater for the demands of a growing population and encourage active travel modes in accordance with the principles of sustainable development and residential zoning objectives pertaining to the site.

3.9 PREDICTED IMPACTS OF THE PROPOSED DEVELOPMENT

This section allows for a qualitative description of the resultant specific direct, indirect, secondary, cumulative, short, medium and long-term permanent, temporary, positive and negative effects as well as impact interactions which the proposed development may have, assuming all mitigation measures are fully and successfully applied. It should be noted that in addition to remedial and mitigation measures, impact avoidance measures have also been built in to the EIA and project design processes through the assessment of alternatives described in Chapter 2 of this EIAR document.

Construction Phase

The construction phase of the proposed development will primarily consist of site clearance, excavation and construction works, which are likely to take place over two phases spanning the 5 year duration of the planning permission, which will be largely confined to the proposed development site. Notwithstanding the implementation of remedial and mitigation measures there will be some minor temporary residual impacts on population (human beings) and human health most likely with respect to nuisance caused by construction activities.

It is anticipated that subject to the careful implementation of the remedial and mitigation measures proposed throughout this EIAR document any adverse likely and significant environmental impacts will be avoided. Positive impacts are likely to arise due to an increase in employment and economic activity associated with the construction of the proposed development. As outlined above, the construction phase will have both direct and secondary positive economic impacts in this regard.

The overall predicted likely and significant impact of the construction phase will be short-term, temporary and likely to be neutral.

Operational Phase

The proposed development will result in a generally positive alteration to the existing undeveloped site in terms of the provision of residential units and a childcare facility to serve the growing population of the area in accordance with the objectives of the Dun Laoghaire Rathdown Development Plan 2016-2022.

Positive impacts on population and human health will include health benefits associated with the provision of a significant quantity of open space, a highly permeable layout which encourages walking and cycling, amenity and recreational facilities including forest areas, a playground, accessible heritage site with interpretive aids (Murphystown Castle) and the retained lime avenue.

The implementation of the range of remedial and mitigation measures included throughout this EIAR document is likely to have the impact of limiting any adverse significant and likely environmental impacts of the operational phase of the proposed development on population and human health.

3.10 MONITORING

In relation to the impact of the development on population and human health it is considered that the monitoring measures outlined in regards to the other environmental topics such as water, air quality and climate and noise etc. sufficiently address monitoring requirements.

3.11 REINSTATEMENT

While not applicable to every aspect of the environment considered within the EIAR, certain measures may be proposed to ensure that in the event of the proposal being discontinued, there will be minimal impact to the environment.

There are no reinstatement works proposed specifically with respect to population and human health.

3.12 INTERACTIONS

As noted above, there are numerous inter-related environmental topics described in detail throughout this EIAR document which are of relevance to human health. This chapter of the EIAR has been instructed by updated guidance documents reflecting the changes within the 2014 EIA Directive. These documents are the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018) and the Draft Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA in August 2017. Therefore, in line with the guidance documents referred to, this chapter of the EIAR focuses primarily on the potential likely and significant impact on Population and Human Health in relation to health effects/issues and environmental hazards from the other environmental factors and interactions that potentially may occur.

Where there are identified associated and inter-related potential likely and significant impacts which are more comprehensively addressed elsewhere in this EIAR document, these are referred to. However, the reader is directed to the relevant environmental topic chapter of this EIAR document for a more detailed assessment.

3.13 DIFFICULTIES ENCOUNTERED IN COMPILING

No significant difficulties were experienced in compiling this chapter of the EIAR document.

3.14 REFERENCES

Regional Planning Guidelines for the Greater Dublin Area 2010-2022.
Dun Laoghaire Rathdown County Development Plan 2016-2022.
2018 Labour Force Survey Q1 – www.cso.ie .
2017 Labour Force Survey Q4 – www.cso.ie.
ESRI Quarterly Economic Commentary, Spring 2018.
ESRI Quarterly Economic Commentary, Summer 2018.
Central Statistics Office www.cso.ie.
Pobal.ie.