

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 also meets the requirement for assessment of 'Human Beings' as per Schedule 6 of the Planning and Development Regulations 2001-2017. This chapter of the EIAR was prepared by Paul Turley, BA, MRUP, Dip Environmental & Planning Law, MIPI.

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.

This chapter of the EIAR document has been prepared by John Spain Associates, Planning & Development Consultants.

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 Draft Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA in August 2017 and the Key Issues Consultation Paper on the Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems, published by the Department of Environment, Community and Local Government in May 2017.

A site visit was 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 Department of Environment, Community and Local Government provide a proposed approach to reflect the requirements of the 2014 EIA Directive in relation to Population and Human Health in their Key Issues Consultation Paper. Firstly, the paper states that *'it is considered that the change from "human beings" to*

“population and human health” in relation to EIA is primarily clarificatory and to ensure consistency with, in particular, the SEA Directive’. Secondly, in terms of practical implications as regards the assessment of effects the paper states that ‘it is intended that the consideration of the effects on populations and on human health should focus on health issues and environmental hazards arising from the other environmental factors, for example water contamination, air pollution, noise, accidents, disasters, and not requiring a wider consideration of human health effects which do not relate to the factors identified in the Directive’.

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; and
- Health & Safety.

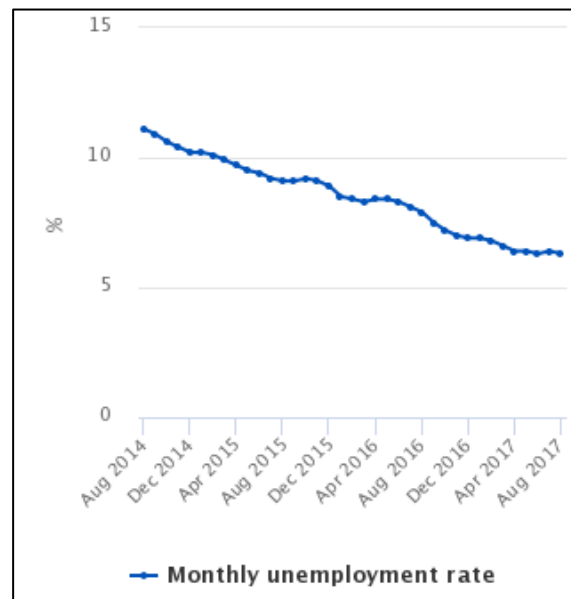
3.3.2 Economic Activity

The CSO’s Quarterly National Household Survey for Q1 2017, published in May 2017 identifies that unemployment decreased nationally by 33,200 (-18.5%) in the year to Q1 2017 bringing the total number of persons unemployed to 146,200. This is the nineteenth quarter in succession where unemployment has declined on an annual basis.

There was an annual increase in employment of 3.5% or 68,600 in the year to the first quarter of 2017, bringing total employment to 2,045,100.

According to the same CSO document, the long-term unemployment rate decreased from 4.7% to 3.6% over the year to Q1 2017. Long-term unemployment accounted for 53.8% of total unemployment in Q1 2017 compared with 56.1% a year earlier and 59.7% in the first quarter of 2015.

Dun Laoghaire Rathdown County Council had the lowest unemployment rate in the state, at 7.4%, at the time of Census 2016, and the County has continued to attract and retain high quality companies, both domestic and international, in the technology, pharmaceutical and the financial services sectors.



Source: CSO Ireland

In their quarterly economic commentary published in Spring 2017, the ESRI forecast that 2017 will see a further fall in unemployment and forecast it to reach 5.6 per cent by the end of 2018. The ESRI note that employment growth in the construction sector saw sizeable increases in 2016 in line with the increased activity in the sector in general, and that the expected increase in construction related activity will lead to further reductions in the unemployment rate going forward.

Table 3.1	2014	2015	2016	2017	2018
Unemployment Rate (as % of Labour Force)	11.3	9.4	7.9	6.4	5.6

Source: ESRI Quarterly Economic Commentary, Spring 2017

The ESRI forecasts that GDP growth will be 3.8 per cent in 2017 and 3.6 per cent in 2018. Domestic sources continue to be the driving force of growth with investment and consumption set to make strong positive contributions to GDP over the forecast period.

The above sources demonstrate that the national economy and employment levels are expected to improve further through 2017 and into 2018. This in turn results in increased demand for residential dwellings particularly within the Dublin region.

The proposal is for a residential development of 927 no. residential units, a neighbourhood centre containing a childcare facility with a GFA of 607 sq.m and 2 no. retail units each with a GFA of 85 sq.m.

The development of Phase 2 of the Clay Farm lands has the potential to provide significant additional residential accommodation, including family housing, in the area to meet the growing market demand, to consolidate the existing pattern of development and capitalise on the site’s location adjacent to two Luas stops, and will assist in delivering the strategic long term growth objectives of both Dun Laoghaire Rathdown and the Greater Dublin Area.

3.3.3 Social Patterns

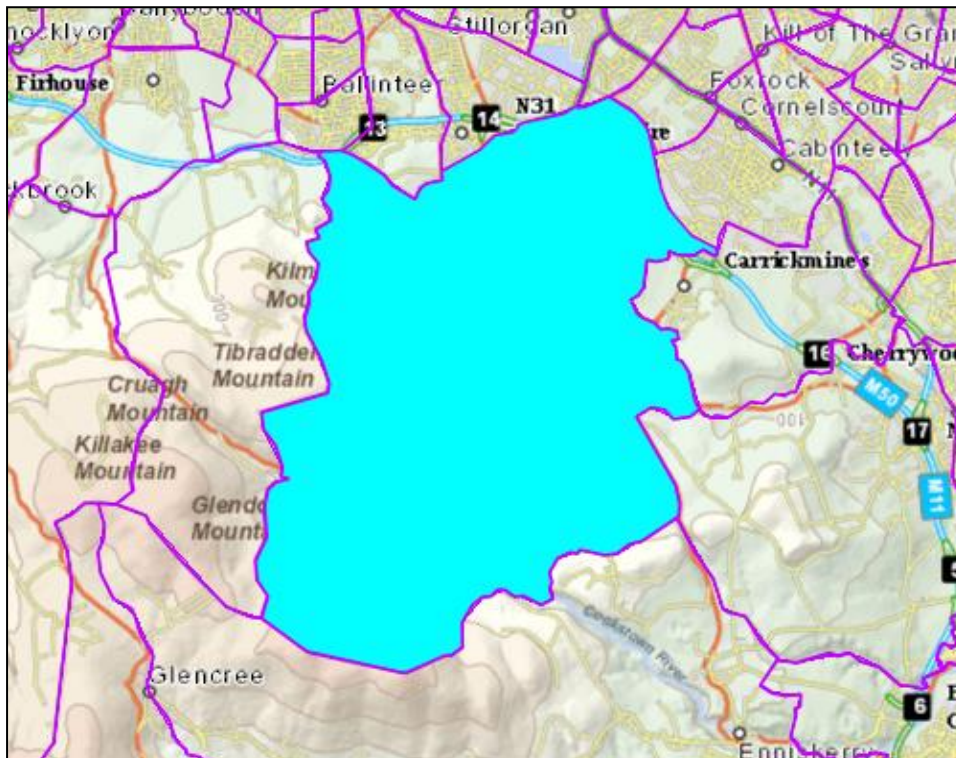
The Central Statistics Office (CSO) provides information on population and socio-economic aspects of the population residing within the Electoral District (ED) of Glencullen, which the subject lands are located within the administrative area of Dun Laoghaire Rathdown County Council. The most recent census of population by the CSO was undertaken in 2016. The census provides demographic trends for the Country, region, county, town and local levels. The CSO population statistics relevant to this EIAR are set out in Table 3.2 below.

Table 3.2: Population Change in the State, Dun Laoghaire Rathdown and ED Level 2011 - 2016 (Source: CSO)

Area	Number of Persons		
	2011	2016	% change 11-16
Ireland - State	4,588,252	4,757,976	3.7
Dun Laoghaire Rathdown	206,261	217,274	5.3
Glencullen	17,381	19,773	13.7

Source: Central Statistics Office 2011 and 2016

Figure 3.1: Image of the Electoral Area of Glencullen (Source Pobal.ie)



The CSO data illustrates that the population of the Irish State increased between 2011 and 2016 by 3.7%, bringing the total population of the Irish State to 4,757,976. 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. 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.

Growth within the County was higher than the national average with a growth rate of 5.3%. However, growth within Glencullen was significantly higher with the population of this ED increasing by approximately 13.7% over the last intercensal period.

The substantial growth in the area is 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 site is located within the administrative area of Dun Laoghaire Rathdown County Council and is therefore subject to the land use policies and objectives of the County Development Plan 2016-2022. The lands are zoned objective A which seeks “To protect and-or improve residential amenity” under the Dun Laoghaire Rathdown County Development Plan 2016-2022. The lands are also located within the c. 150 ha boundary of the Stepside Action Plan which was adopted in June 2000, and which is superseded by the current Development Plan.

The predominant land use immediately surrounding the subject site consists of a mix of residential, commercial, light industrial and undeveloped agricultural / amenity lands. The site is bounded to the north by the permitted Clay Farm Phase 1 which is currently under construction, to the east by the County Council lands which include the former Ballyogan landfill (planned Jamestown Park), to the south-east by Stepside Public Golf Course, to the south and south west by residential developments Cruagh Wood and Stepside Park and to the west by Clay Farm House and undeveloped lands.

The residential development in this area graduates from lower density 2 storey housing of Glencairn and Glenbourne, to medium-higher density housing at Stepside Park, Kilgobbin Heights (to the south and south west) and Clay Farm Phase 1 under construction to the north. The boundary treatments are a mix of individual trees and hedgerows. The Phase 2 site is located on elevated rising ground south of the Ballyogan Stream and has a gradual south to north slope towards the stream. The fields in the southern section of the site close to Cruagh Wood have a flatter profile. The Phase 2 lands are currently in agricultural use and consist of a number of large fields, divided by mature hedgerows and areas of treeline.

A significant landscape feature influencing the site is the Ballyogan stream which flows through the Clay Farm Phase 1 lands to the north and will be encompassed by the proposed Ecopark in Phase 1.

The site includes possible linear earthworks (DU026-087), a Recorded Monument.

It is stated in the Development Plan that a key strand of the overall settlement strategy is the promotion of sustainable development through encouraging consolidation and densification of the existing urban built form and maximizing efficiencies from existing physical and social infrastructure. The proposed development of Phase 2 at Clay Farm, Ballyogan Road, Dublin 18, will deliver a new residential development within the established Stepside / Ballyogan community in close proximity to the Luas Green Line and Leopardstown Valley Neighbourhood Centre, and will benefit from existing and planned social and community infrastructure (including

the Samuel Beckett Civic Campus, the adjacent Gaelscoil and Jamestown Park). The development will consolidate the existing urban built form and the proposed density of 55 units per hectare makes efficient use of these valuable residential zoned lands. The Planning Report which accompanies this application addresses land use zoning in more detail.

3.3.5 Employment

The CSO's Quarterly National Household Survey for Q1 2017, published in May 2017 identifies that unemployment decreased nationally by 33,200 (-18.5%) in the year to Q1 2017 bringing the total number of persons unemployed to 146,200. There was an annual increase in employment of 3.5% or 68,600 in the year to the first quarter of 2017, bringing total employment to 2,045,100. This compares with an annual increase of 3.3% or 65,100 in employment in the previous quarter and an increase of 2.4% or 46,900 in the year to Q1 2016.

According to the same CSO document, the long-term unemployment rate decreased from 4.7% to 3.6% over the year to Q1 2017. Long-term unemployment accounted for 53.8% of total unemployment in Q1 2017 compared with 56.1% a year earlier and 59.7% in the first quarter of 2015. The total number of persons in the labour force in the first quarter of 2017 was 2,191,400, representing an increase of 35,400 (+1.6%) over the year. This compares with an annual labour force increase of 13,600 (+0.6%) in Q1 2016.

Dun Laoghaire Rathdown County Council had the lowest unemployment rate in the state, at 7.4%, at the time of Census 2016, and the County has continued to attract and retain high quality companies, both domestic and international, in the technology, pharmaceutical and the financial services sectors.

The population of Dun Laoghaire Rathdown grew by 5.7 per cent over the five years, compared to Dublin City at 5.1%.

3.3.6 Health & Safety

The surrounding context consists of a mix of residential, commercial, light industrial and undeveloped/ agricultural lands. 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. The former Ballyogan Landfill site to the east is intended to be utilised as a public park once fully rehabilitated (planned Jamestown Park).

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 proposed environment that could arise. For this chapter the potential impact on Population and Human Health is discussed.

A full description of the proposed development is provided in Section 2 of this EIAR document. In summary the proposal is for a residential development of 927 no. residential units, a neighbourhood centre containing a childcare facility with a GFA of 607 sq.m and 2 no. retail units each with a GFA of 85 sq.m, and includes the associated section of the Clay Farm Loop Road from the bridge link with Phase 1 to the south western site boundary, associated internal roads, pedestrian and cycle paths, and all associated site and infrastructural works on a site area of 20.5 hectares.

The residential component of the development consists of 365 no. houses two and three storeys in height and 562 no. apartments ranging from three to six no. storeys in height.

A total of 1,478 no. car parking spaces including 730 no. spaces for the houses, 732 no. spaces for the apartment blocks and 14 no. spaces for the creche and 2 no. spaces for the commercial units at the neighbourhood centre are proposed. The associated site and infrastructural works include foul and surface water drainage, attenuation tanks, open space including playgrounds, a MUGA (multi-use games area) and exercise units, landscaping, boundary walls and fences, internal roads, cyclepaths and footpaths.

The application site includes, but does not affect, the possible linear earthworks (DU026-087), a Recorded Monument, which is partially located within the Valley Park.

The proposed development comprises the second phase of the overall development of the applicant's c. 32.5 ha landholding at this location.

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 8 – Water, including an exclusion zone along the watercourse. A method statement will be prepared outlining how to mitigate the risk of contaminating watercourses.

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 by approximately 375.4m³/day. As such additional water quantities would need to

be treated at Dun Gaoithe 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.

The proposed development will result in an increase of impermeable areas, however there will be no increase in runoff rate as post-development rates will match greenfield values through the use of SuDS and attenuation storage. Therefore the 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. It is not expected that the predicted short-term increase in HGV movements associated with the construction phase of the development will have an adverse impact on the existing noise climate of the wider area or on local receptors. The construction noise levels will be of relatively short term duration and will only occur during daytime hours which will serve to minimise the noise impacts at local existing receptors, and therefore minimise potential impacts on human health and population.

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 10-year period, there will be slight to moderate impacts on existing residents in Cruagh and Stepside Park and on the future residents of Clay Farm Phase 1 and Phase 2 properties constructed in the early phases of the development. However, the proposed construction phase noise mitigation measures as detailed in Chapter 10 - Noise 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 impact neighbouring residential receptors and potentially human health, is road traffic noise associated with the development.

It is expected that there will be an approximate 10% increase in traffic volumes on Ballyogan Road from the proposed development. The UK Design Manual for Roads and Bridges 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 along Ballyogan Road for all year scenarios will result in a traffic noise increase of significantly less than 1dBA. There will be an imperceptible impact on residents within the surrounding residential estates due to road traffic alterations as a result of the proposed development, and therefore a negligible impact on population and human health in this regard.

In terms of impact on residential amenity the sound insulation requirements of the residential units have been assessed to ensure that external noise from traffic movements along Ballyogan Road, M50 traffic, traffic movements within the development, Luas tram movements along Ballyogan Road and from noise generated at

the ESB facility located to the east of the site do not have an adverse impact on internal noise levels, and therefore there will be no adverse impact on human health in this regard.

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. Mitigation measures are outlined in Chapter 9 – 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.

Construction equipment will also give rise to some exhaust emissions, and construction traffic to and from the site will generate additional hydrocarbon and particulate emissions from the vehicle exhausts.

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.

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 the green corridor which extends through the site 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.

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 9 – 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.

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 a greenway, playgrounds, a mixed-use games area (MUGA), kickabout area and the Ecopark provided in Phase 1 will help provide a high quality residential environment with provision for exercise and play, and will be a valuable amenity resource to surrounding residential areas.

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

3.5.5 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.

Phase 2 construction of the proposed 927 no. residential units, a childcare facility and 2 no retail units and associated physical infrastructure will result in a construction period of approximately 9-10 years and will consequently enhance economic activity during this period.

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 an estimated 9 to 10-year time 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 9 & 10 of the EIAR, in the Traffic and Transportation Assessment, Construction 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 927 residential units, a childcare facility and 2 no. retail units. This will provide accommodation for approximately 2,502 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.

3.5.6 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 9 - Air Quality and Climate and Chapter 10 - 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 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 transport and the Leopardstown Valley Neighbourhood Centre. As set out in Section 2 of the Planning Report there 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 family dwellings, in this area of the County, which will help cater for rising demand in the GDA.

3.5.7 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 are assessed in greater detail in Chapter 6.

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, over a 9 to 10-year period which will moderate the potential impacts on adjoining land use. The Construction 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 retail and a childcare facility.

3.5.8 Employment

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

3.5.9 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 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 site is within Flood Zone C as defined by the Guidelines and based on the PFRAMS mapping. Therefore, the development of housing on the subject site is appropriate for the site's flood zone category and a justification test is not required. It is considered that the flood risk mitigation measures outlined in the SSFRA once fully implemented are sufficient to provide a suitable level of protection to the proposed development and the population therein.

The proposed development will not result in any additional flood risk impacts on the site or elsewhere as a result of the proposed development and therefore will not have 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.

3.6 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, in particular the construction and eventual occupation of the Phase 1 Clay Farm development which is located to the immediate north of the Phase 2 lands.

The cumulative impact of the proposed development will be a further increase in the population of the wider Ballyogan area, particularly in conjunction with the Phase 1 development. The previously green-field Clay Farm lands will (upon the completion of both phases of development) provide for c. 1,350 residential units across a variety of unit and tenure types. This will have a significant impact on the population (human beings) in the area, which is planned for under the Dun Laoghaire Rathdown County Development 2016-2022, which has been the subject of Strategic Environmental Assessment. 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 public transport, and the high demand for new housing in the metropolitan area.

With regard to human health, the cumulative impact of the proposed Phase 2 development in conjunction with the Phase 1 development will include the provision of a high quality and sizeable new neighbourhood which will include the provision of a large quantum of green space (including areas for active and passive recreation) and improved connectivity and permeability from the Stepside area to Ballyogan, and vice versa. 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 link to a high quality, high frequency public transport nodes.

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 green-field and 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 two number Luas stops, 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.

Failure to deliver the proposed residential units would result in a growing need for additional residential units within the area not being met. The new pedestrian and cycling links, retail units, childcare facility, open space and greenway 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 14 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 full Construction 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 significant positive impacts on human beings in relation to the provision of additional residential units and high quality open space to cater for the demands of a growing population in accordance with the 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 three sub-phases spanning 8 to 10 years, 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 out of an increase in employment and economic activity. 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 retail units 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 a greenway, kickabout area, multi-use games area and a playground.

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 Draft Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA in August 2017 and the Key Issues Consultation Paper on the Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licencing Systems, published by the Department of Environment, Community and Local Government in May 2017. Therefore in line with the guidance documents referred, 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 this EIAR document.

3.14 REFERENCES

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