5 POPULATION & HUMAN HEALTH

5.1 INTRODUCTION

This Chapter of the EIAR has been prepared by Stephen Little and Associates Chartered Town Planners and Development Consultants to assess the likely impacts associated with Population and Human Health during the Construction and Operational Phases of the Proposed Development in the Townlands of Maynetown and Portmarnock, Portmarnock, Co. Dublin and partially located in the townland of Stapolin, Baldoyle, Dublin 13. This chapter evaluates the impacts of the Proposed Development on demographic profile and human health.

In accordance with the EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022) and EPA Draft Advice Notes for EIS (2015), this chapter has considered the *"existence, activities and health of people"* with respect to *"topics which are manifested in the environment such as employment and housing areas, amenities, extended infrastructure or resource utilisation and associated emissions"*.

The proposed development will comprise 296 No. Residential units consisting of 42 No. Duplex / apartments and 254 No. Houses ranging in height between 1.5 and 3 storeys; public open space including southern Monument Park which formed part of the Racecourse Park development permitted under ABP Reg. Ref. JP06F.311315; vehicular access to serve the development is proposed off Monument View; and all associated and ancillary site development, infrastructural, landscaping and boundary treatment works.

The proposed development will also comprise a new (temporary) rising main to serve this phase and previous development phases (1A to 1E inclusive), c.1.7km long, running from the interim St. Marnock's Pumping Station at Station Road/The Avenue (constructed under ABP Reg. Ref. 300514-17 & upgraded under ABP Reg. Ref. 312112-21) connecting to the North Fringe Sewer in the south via Phase 1E (permitted under FCC Reg. Ref. LRD0002/S3), Racecourse Park North and South (permitted under ABP Reg. Ref. JP06F.311315) including crossing under both Moyne Road and Mayne River; upgrade of pumping station and storage as required and all associated and ancillary site development and reinstatement. The proposed rising main and interim St. Marnock's Pumping Station will be decommissioned and these lands will then discharge by gravity to a proposed new Uisce Éireann Pumping Station adjacent to Portmarnock Bridge when same is completed.

In accordance with the EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022), this chapter has considered 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."*

The Guidelines also note: -

> *"The transposing legislation does not require assessment of land-use planning, demographic issues or detailed socioeconomic analysis. Coverage of these can be provided in a separated Planning Application Report to accompany an application for planning permission"*

The environmental aspects examined in this Chapter include the following: -

- Chapter 9: Climate (Air Quality).
- Chapter 10: Climate (Climate Change).
- Chapter 12: Air (Noise and Vibration).
- Chapter 13: Landscape & Visual Impact Assessment.
- Chapter 14: Material Assets (Transportation).

Where these environmental aspects have been assessed. Issues examined in this chapter include: -

- Demography.
- Population.

- Employment.
- Air Quality.
- Noise & Vibration.
- Material Assets.
- Traffic.
- Health and Safety.

Where these topics are dealt with in further detail elsewhere in this EIAR, the relevant chapters have been cross referenced.

This chapter has been prepared by Richard Kealey, Senior Planner and Ana Jovanovic of Stephen Little & Associates. Richard has c. 9 years' professional experience in the planning in both the public sector and private consultancy, has a BSc in Geography and a MSc in Sustainable Development. Ana has c. 1 year of professional experience in the planning field, has a Bachelor of Science (Honours) (City Planning & Environmental Policy, MRUP (Regional & Urban Planning).

5.2 ASSESSMENT METHODOLOGY

As per Article 3 of Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 2014/52/EU: -

> "*1. The environmental impact assessment shall identify, describe, and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:*
>
> > *(a) population and human health;*
> >
> > *(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
> >
> > *(c) land, soil, water, air and climate;*
> >
> > *(d) material assets, cultural heritage and the landscape;*
> >
> > *(e) the interaction between the factors referred to in points (a) to (d).*
>
> *2. The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned.*"

EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022), considered that: -

> *"A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape."*
>
> *"Some types of factors are particularly vulnerable to unplanned events that have the potential to cause significant sudden environmental effects. Unplanned events can include spill from traffic accidents, floods or landslides affecting the site, fire, collapse or equipment failure on the site. Topics such as human health, air and water, for example, should ensure that consideration extends beyond construction and operational activities – to include consideration of such unplanned events."*
>
> *"The potential for a project to cause risks to human health, cultural heritage or the environment due to its vulnerability to external accidents or disasters is considered where such risks are significant, e.g. the potential effects of floods on sites with sensitive facilities. Where such risks are significant then the specific assessment of those risks in the form of a Seveso Assessment (where relevant) or Flood Risk Assessment may be required"*

This chapter will follow these guidelines, and will examine the health effects relevant to the Proposed Development as they relate to a relevant, defined study area. The effects of the Proposed Development on the population and human health are analysed in compliance with the requirements of the EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022).

Assessment of Significance & Sensitivity

The assessment of significance is a professional appraisal based on the sensitivity of the receptor and the magnitude of effect.

Within any area, the sensitivity of individuals in a population will vary. As such, it would be neither representative of the population, nor a fair representation of the range of sensitivities in a population, were an overall sensitivity classification assigned to the population in question. As such, the precautionary principle has been adopted for this assessment, which assumes that the population within the study area is of a uniformly high sensitivity.

5.2.1 Magnitude of Impact

The magnitude of predicted impacts has been quantified in this assessment using the terms outlined in Table 5.1 below: -

Magnitude	Description of Magnitude
High	Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would result in a **major change** to existing baseline conditions (adverse or beneficial)
Medium	Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would result in a **moderate change** to existing baseline conditions (adverse or beneficial)
Low	Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would result in a **minor change** to existing baseline conditions (adverse or beneficial)
Negligible	Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would not result in change to existing baseline conditions at a population level, but may still result in an individual impact (adverse or beneficial)
No change	No change would occur as a result of the Proposed Development which would alter the exiting baseline conditions (adverse or beneficial)

Table 5.1: Description of magnitude of predicted impacts.

5.2.2 Significance of Effects

The assessment of significance of effects in this assessment is a professional appraisal and has been based on the relationship between the magnitude of effects (Section 5.2.2) and the sensitivity of the receptor. Table 5.2 below provides a matrix on the measure of the significance of effects based on these parameters.

Magnitude of Impact		Negligible	Low	Medium	High
Sensitivity of Receptor	Negligible	Negligible	Negligible or Minor	Negligible or Minor	Minor

	Low	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
	Medium	Negligible or Minor	Minor	Moderate	Moderate or Major
	High	Minor	Minor or Moderate	Moderate or Major	Major

Table 5.2: Matrix illustrating the significance of effects as determined by the relationship between the magnitude of impact and the sensitivity of receptors.

5.3 RECEIVING ENVIRONMENT

The subject site represents the next phase of a plan led phased development in this part of Portmarnock. The application site is located in the townlands of Portmarnock and Maynetown, Portmarnock, Co. Dublin. The wider landbank is generally bounded by Station Road to the north, Coast Road and the Baldoyle Road to the east, Moyne Road to the south and the Dublin – Belfast Train Line to the west.

The gross area of the application site in this case is approximately 12.3 Ha ("the Site"). The extent of the subject site for the 296no. proposed housing units is generally bounded by the permitted Phase 1D (ABP Ref. ABP-312112-21 refers), permitted Phase 1E (FCC Reg. Ref. LRD0002/S3), permitted Phase 1B (ABP Ref. ABP-300514-17), existing agricultural land to the south, the Recorded Monument (RMP Ref. DU015-055) to the southeast.

Figure 5.1: Outline of the subject site (red line overlay by SLA). We refer to Site Layout dwgs. 6158D-PP-005 & 6158D-PP-006, prepared by Burke-Kennedy Doyle Architects.

5.3.1 Proposed Development

The 'Study Area' selected for the assessment of the impact on the demographic profile and human health as a result of the Proposed Development was defined as the Electoral Divisions (ED) of Portmarnock South (ED 04032) as detailed in Census 2022, published by the Central Statistics Office (CSO).

Figure 5.2: Extract from CSO website with Portmarnock South Electoral Division filled in yellow and indicative location of Proposed Development identified with a yellow star (Overlay by SLA).

5.3.2 Existing Baselines Conditions

5.3.2.1 Population and Demographics

The most recent Census of population was carried out by the CSO on the 3 April 2022. The previous Census was completed on the 24 April 2016, before that on 10 April 2011 and before that on 23 April 2006. The Census compiles data for the whole state as well as smaller individual areas including counties, cities, towns and electoral divisions. Taking into consideration the location of the Proposed Development, the Census information on population, age profile, employment and social class, has been analysed in relation to the Fingal County.

According to the 2016 census results there are c. 3,621no. people living within the study area. National health trends were consulted to give an overall indication of the general wellbeing of the population.

Census data shows that the population in the Fingal County area grew by 8% between the years 2011 and 2016 compared with 3.8% nationally. The electoral division for the Site, Portmarnock South, saw a lower rate of growth with an increase of 4.4%

The latest Census data shows that the population in the Fingal County area grew by 11.6% between the years 2016 and 2022 compared with 8.1% nationally. The ED in which the Site is located saw an increase of 30.6% in the rate of growth of (Table 5.3). This population increase would correlate with the development of the previous phases of development in the wider Portmarnock landbank (Phase 1B and 1C occupied) which would not have been captured in Census 2016. Projections for the national and the county populations are predicted to continue this trend of moderate to high population growth into the short-term future.

Area	2011	2016	2022	% Change 2011 - 2016	% Change 2016 – 2022
State	4,588,252	4,761,865	5,149,139	+ 3.8%	+8.1%
Fingal County	273,991	296,020	330,506	+ 8%	+11.6
Portmarnock South	3,465	3,621	4,729	+ 4.4%	+30.6%

Table 5.3: Population change at national, primary and secondary hinterland level from 2011 – 2022 (Source: www.cso.ie).

Age Profile

The age profile of the population in the area is an important parameter as it provides a good insight into the potential labour force, the demand for schools, amenities, other facilities and the future housing demand. Table 5.4 shows the age profiles nationally for 2022.

Area	0 – 14	15 – 24	25 – 44	45 – 64	65+	Total Persons
State	19.7%	12.5%	27.6%	25.1%	15.1%	5,149,139
Fingal County	22.4%	12.7%	29.6.%	24.2%	11%	330,506
Portmarnock South	21.7%	7.4%	32.6%	19.3%	19%	4,729

Table 5.4: Age profile at National and County level in 2022 (Source: www.cso.ie).

This table shows that both nationally and in the Fingal County area, the dominant age grouping is 25 – 44 at 27.6% and 29.6% of the total population, respectively. Similarly, in the Portmarnock South ED, the 25 – 44 age group contains the largest percentage of the population with 32.6%. The figures for both Fingal County and the Study Area indicate a young working age population in the area which is above the national level. This is in keeping with Census data from 2016 and 2011.

5.3.2.2 Socio-Economics

Employment

Table 5.5 presents the employment statistics in 2022 when compared with 2011 and 2016. The data shows that unemployment decreased significantly in the County, as well as nationally, reflecting the economic recovery in recent years.

	At Work	Looking for First Regular Job	Unemployed Having Lost or Given Up Previous Job	Total in Labour Force	% Unemployment
2011 Labour Force					
State	1,807,360	34,166	390,677	3,608,662	11.8
Fingal County	119,276	2,224	204,16	141,916	16.1
2016 Labour Force					
State	2,006,641	31,434	265,962	3,755,313	7.9
Fingal County	133,971	1,850	13,565	149,386	10.3
2022 Labour Force					
State	2,320,297	34,526	176,276	2,632,500	8
Fingal County	165,814	2,299	13,050	168,113	9.1

Table 5.5: Employment statistics Nationally and at County level in 2011, 2016 and 2022 (Source: www.cso.ie).

The 2022 Census data shows that the majority of people in employment in the Fingal County area are in 'Non-Manual' employment (38.8%) with the least represented social class being 'Farmers' at (0.41%).

At a local level, the dominant social class in the Portmarnock South ED is 'Managerial and Technical' labour (43.9%) with 'Unskilled' being the lowest representative (1%).

Labour Force Survey

The Labour Force Survey (LFS) is a large-scale, nationwide survey of households in Ireland carried out every three months. It generates labour force estimates which include the official measure of employment and unemployment for the state.

The results Nationally for Q1 2023 showed that there were 2,608,500 no. people employed in the State with the monthly figures showing 110,700no. people registered as unemployed. This represents a c. 4.1% increase in employment between Q1 2022 and Q1 2023.

The Economic & Social Research Institute (ESRI)'s Quarterly Economic Commentary for Spring 2024 forecasts that, Irish GDP is expected to increase by 2.5% in 2024, with unemployment expected to fall to 4.3% by the end of 2024 (McQuinn et al., 2024).

Education

Census data presenting the highest level of education completed by people living in the Study Area community and Fingal County is presented in Table 5.6. The data show that there are higher levels of educational attainment in the Study Area than in Fingal County.

Area	No Formal Education	Primary Education	Upper Secondary	Honours Bachelor's Degree, Professional Qualification or Both	Postgraduate Diploma or Degree	Total Persons
Fingal County	1.7%	4.7%	18.6%	15.3%	13.4%	202,630
Portmarnock South	0.9%	4.2%	15.8%	19.8%	20.9%	3,246

Table 5.6*:* Highest level of education completed locally and at County level in 2022 for key educational levels. (Source: www.cso.ie) (Note: the table presents key milestone education levels and excludes lower secondary, technical or vocational qualification, advanced certificate / completed apprenticeship, higher certificate, ordinary bachelor degree / national diploma, Ph.D. / higher or where information was not stated).

Health

The 'The Healthy Ireland Survey 2024' was carried out by the Health Service Executive (HSE) as part of an EU wide health survey. A summary of the main findings included: -

- Students (90%) and people in employment (88%) are significantly more likely to report good or very good health compared to people who are unemployed (78%). Reported good or very good health has increased by 7-points since 2023 among people who are unemployed (71%).
- The prevalence of long-lasting conditions or difficulties increases with age with just a quarter (25%) of those aged 15-24 reporting a long-lasting condition or difficulty, compared to 66% of people aged 75 and over.
- Majority of persons (75%) report no limitations in everyday activities due to a health problem.

Deprivation

Deprivation in small areas is mapped using the Pobal HP Deprivation Index. This Index draws on data from censuses and combines three dimensions of relative affluence and deprivation: Demographic

Profile, Social Class Composition and Labour Market Situation. Figure 5.3 below shows graphical representation of how the concepts of Demographic Growth, Social Class Composition and Labour Market Situation are measured by ten key socio-economic indicators from the Census of Population. In this EIAR, the Relative Index Score is considered as the measure for deprivation, as these Relative Index Scores are rescaled such that the mean is 0 and standard deviation is 10 at each census wave. This allows for the provision of descriptive labels with the scores, which are grouped by standard deviation as seen in Table 5.9 below.

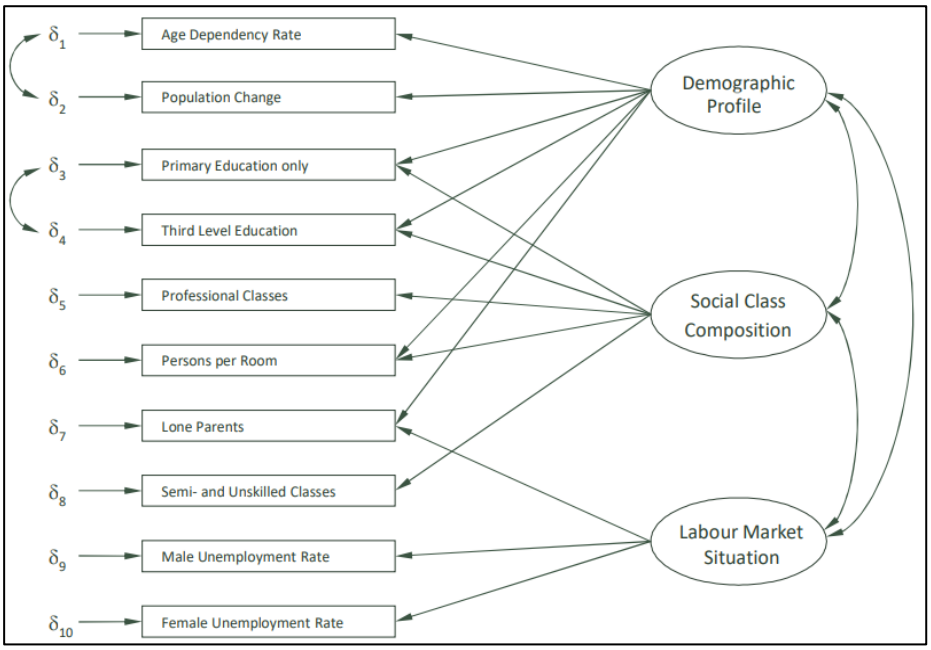


Figure 5.3: Graphical representation of how the concepts of Demographic Growth, Social Class Composition, and Labour Market Situation are measured by ten key socio-economic indicators from the Census of Population.

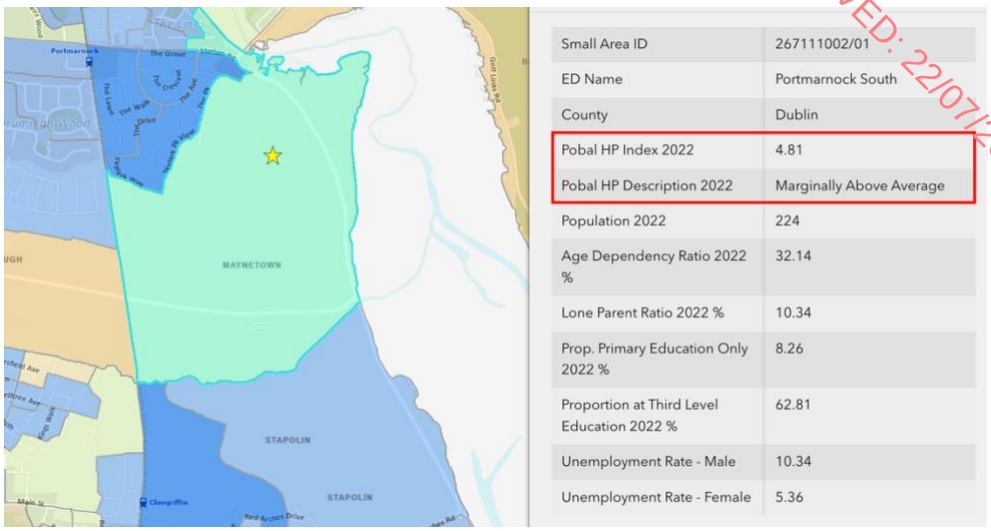
Relative Index Score	Standard Deviation	Label
> 30	> 3	Extremely affluent
20 – 30	2 – 3	Very affluent
10 – 20	1 – 2	Affluent
0 – 10	0 – 1	Marginally above average
0 – -10	0 – -1	Marginally below average
-10 – -20	-1 – -2	Disadvantaged
-20 – -30	-2 – -3	Very disadvantaged
< -30	< -3	Extremely disadvantaged

Table 5.9: Pobal HP Index Relevant Index Score labels (Source: Pobal HP Deprivation Index).

The data in Table 5.10 show that the population living within the Study Area are generally classified as 'marginally above average', with a Relative Index Score of 4.81. By comparison, the population within County Dublin (including Fingal) is generally classified as 'marginally above average' with a Relative Index Score of 2.69. Figure 5.4 below presents the Pobal HP Index map illustrating the Study Area.

Area	Relative Index Score	Pobal HP Description 2022
County Dublin (including Fingal)	2.69	Marginally above average
Portmarnock South ED	4.81	Marginally above average

Table 5.10: Pobal HP Index Relevant Index Score Figures at a Local and County level (Source: Pobal HP Deprivation Index).



Small Area ID	267111002/01
ED Name	Portmarnock South
County	Dublin
Pobal HP Index 2022	4.81
Pobal HP Description 2022	Marginally Above Average
Population 2022	224
Age Dependency Ratio 2022 %	32.14
Lone Parent Ratio 2022 %	10.34
Prop. Primary Education Only 2022 %	8.26
Proportion at Third Level Education 2022 %	62.81
Unemployment Rate - Male	10.34
Unemployment Rate - Female	5.36

Figure 5.4: Extract from www.pobal.ie with Portmarnock South Electoral Division outlined in blue and indicative location of Proposed Development identified with a yellow star (Overlay by SLA).

5.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The Proposed Development subject of this LRD planning application will comprise generally of the following: -

- 296no. units (254no. houses and 42no. apartments/duplexes ranging from 1.5 – 3 storeys in height).
- Provision of public open space, including southern Monument Park (which also formed part of Racecourse Park development permitted under ABP Ref.: JP06F.311315
- A total of 289no. car parking spaces and 1455no. bicycle parking spaces.
- Vehicular access to serve the development will be provided from Station Road via existing road serving St. Marnock's Bay ('Monument View') and 3no. permitted roads serving St. Marnock's Bay ('Skylark Park Court', 'Skylark Park Drive' and an extension of 'Monument View') permitted under ABP Ref. ABP-312112-21 as amended by FCC Reg. Ref. LRD0037/S3, and also a new existing permanent road to the south which connects to Moyne Road (permitted under Phase 1D ABP Ref. ABP-312112-21, as amended by FCC Reg. Ref. LRD0037/S3
- A new (temporary) rising main to serve this phase and previous development phases (1A to 1E inclusive) c. 1.7km long, running from the interim St. Marnock's Pumping Station at Station Road/The Avenue (constructed under ABP Reg. Ref. 300514-17 & upgraded under ABP Reg. Ref. 312112-21) passing through the Racecourse Park development permitted under ABP Ref.: JP06F.311315 and connecting to the North Fringe Sewer at a point which is located south of Moyne Road and the Mayne River within the townland of Stapolin, Baldoyle, Dublin 13
- Upgrade of interim St. Marnock's Pumping Station and storage at Station Road/The Avenue as required and all associated and ancillary site development and reinstatement.
- All associated and ancillary site development, infrastructural, landscaping and boundary treatment works.

5.5 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

5.5.1 Proposed Development

5.5.1.1 Construction Phase

Population

The Construction Phase is considered unlikely to result in a significant increase or decrease to the local population. Construction workers would be anticipated to travel from their existing residence as opposed to using temporary accommodation in the local area. There will, however, be a short-term increase in the local working population during the Construction Phase of Proposed Development.

The LRD planning application will be accompanied by a Construction & Environmental Management Plan (CEMP) which will seek to ensure the impact of the Construction Phase on the local population is mitigated. During the construction works there will be an increase in the number of people working in the local area before, during and after the anticipated site working hours. There is also the potential for some of the construction workers to move into the area to be closer to their workplace. The number of workers is expected to be greater than 100no. and therefore the number present during these hours or that move to the area will not be a high proportion of the total population and therefore is not likely to lead to a significant increase in the number of people in the area. Therefore, the increase in population numbers during the Construction Phase is not likely to be significant.

It is expected that the proposed development will have a positive impact on the local population through the provision of a new accommodation and the completion of residential accommodation at the location, together with the provision of a local services centre which they will directly benefit from. No likely significant impacts are considered to occur.

Economy

The construction of the Proposed Development will result in direct employment within the construction and related sectors throughout the construction period. This is likely to lead to direct and indirect benefits for the local area as the increase in the number of workers will result in more people being in the area during the daytime. These workers are likely to increase the level of consumption in the area and therefore it is likely there will be a modest increase in income for local shops and services during this time.

As a secondary effect this increase in income may lead to an increase in spending by these businesses in the local area therefore sharing the incoming spending. However, the number of construction workers and new jobs is not likely to be a significant proportion of the existing population of the area. Therefore, the amount of new trade and therefore spending is likely to be small and insignificant as a proportion of standard turnover levels. Therefore, the effects on employment and economic activity during the Construction Phase are likely to lead to a slight positive effect over a small area which is temporary and short term in duration.

Human Health

There is a potential for negative impacts to health during the Construction Phase of the Proposed Development relating to increases in noise levels, air quality emissions and vehicle movements. These are discussed in more detail in each respective chapter.

Climate (Air Quality)

As detailed in Chapter 9: Climate (Air Quality), best practice mitigation measures are proposed for the Construction Phase of the Proposed Development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the Proposed Development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, in the absence of mitigation there is the potential for

imperceptible, negative, short-term impacts to human health as a result of the Proposed Development. Dust emissions from the Construction Phase of the proposed development have the potential to impact human health through the release of PM10 and PM2.5 emissions. As per section 9.3.3 the surrounding area is of low sensitivity to dust related human health impacts. Ut was determined that there is an overall low risk of dust related human health impacts as a result of the Construction Phase of the proposed development (Table 9-16).

Climate (Climate Change)

Chapter 10: Climate (Climate Change) sets out that there is the potential for release of a number of greenhouse gas (GHG) emissions to atmosphere during the Construction Phase. GHG emissions associated with the Proposed Development are predicted to be a small fraction of Ireland's Industrial sector or Residential Buildings sector 2030 emissions ceilings. Construction materials make up the majority of carbon emissions for the proposed development making up c. 77% of the total Construction Phase embodied carbon emissions across the different buildings and the relevant infrastructure. As per the assessment criteria in Table 10-3 the impact of the proposed development in relation to GHG emissions is considered long-term, minor adverse and not significant in EIA terms provided the final design and Construction Phase take account of GHG mitigation measures set out in Section 10.7.1 and local and national Climate Action Plans.

Air (Noise & Vibration)

Exposure to Excessive noise is becoming recognised as a large environmental health concern. According to the 2015 European Commission report 'Noise Impacts on Health', (European Commission, 2015), the most common effects of noise on the vulnerable include: -

- Annoyance.
- Sleep Disturbance.
- Heart and circulation problems.
- Quality of Life.
- Cognitive Process.
- Hearing.

It is acknowledged that humans are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern. In the case of road traffic, vibration is perceptible at around 0.5mm/s and may become disturbing or annoying at higher magnitudes.

It is predicted that the construction programme will create typical construction activity related noise on site. During the Construction Phase of the Proposed Development, a variety of items of plant will be in use, such as excavators, lifting equipment, dumper trucks, compressors and generators.

Chapter 12: Air Noise & Vibration identifies that in terms of the numbers of noise-sensitive location in the Proposed Development surroundings, in the majority of cases, the construction noise impact is Not Significant. At location N1 (dwellings located on Monument View adjacent northwest portion of the Site) a negative, slight to significant and temporary effect is likely depending, with the most significant effects occurring when works take place at the closest boundary to the receptor. However, this would only be during the worst case and would be temporary in nature.

Traffic

The potential impact caused by the traffic generated during the Construction Phase of the Proposed Development is assessed in Chapter: 14 Material Assets (Transportation). The World Health Organisation Report 'Health Effects and Risks of Transport Systems: The Hearts Project' (World Health Organisation, 2006) states that road traffic is a major cause of adverse health effects – ranking with smoking and diet as one of the most important determinants of health in Europe. The Report states:-

"Traffic-related air pollution, noise, crashes and social effects combine to generate a wide range of negative health consequences, including increased mortality, cardiovascular, respiratory and stress-related diseases, cancer and physical injury. These affect not only transport users but also the population at large, with particular impact on vulnerable groups such as children and elderly people, cyclists and pedestrians."

Construction traffic generated during the Construction Phase tends to be outside of peak hours. The traffic generated by the Construction Phase will not be higher than the peak hour predicted volumes for the Operational Phase. Therefore, impact of construction traffic is assessed as negligible and noted that all construction traffic will be directed south to Moyne Road, thus avoiding Station Road.

According to the CEMP, throughout the course of the construction of the proposed development, ongoing visual inspections and monitoring of the haul roads will be undertaken to ensure any damage caused by construction traffic is recorded and that the relevant local authority is notified. Arrangements will be made, by the Main Contractor , and at their own cost, to repair any such damage to an appropriate standard (as required by the LA) in a timely manner such that any disruption is minimised.

Townscape & Visual

The Report *'Health Impacts on the Built Environment: A Review'* (The Institute of Public Health in Ireland, 2006) states that deteriorating physical features of the urban environment can harm health. Architecture Ireland have also shown the link between the Built Environment and Mental Health (Architecture Ireland, 2015). The World Health Organisation (WHO) has undertaken research that show urban environments that are aesthetically pleasing and landscaped encourage people to explore and access their local community by foot or bicycle when compared to the same urban space prior to renovations (WHO, 2016).

There will be some degree of visual impacts during the Construction Phase of the Proposed Development due to the use of scaffolding, hoardings, general site works etc., however, these will be short term in duration (lasting 1 to 7 years). The Construction Phase will involve removal of a short isolated section of low blackthorn hedgerow with a slight negative impact. No other trees or hedgerows are impacted.

The Site is limited in extent and in part has been previously disturbed by construction and related works associated with Phase 1E. Construction works will be most visible from properties within the adjoining Phases 1E, 1B, 1C, & 1D at St. Marnock's Bay and from the adjoining ecological and landscape buffer lands to the south and east, as well as from more distant viewpoints on coast road and east of Baldoyle Bay. Views of similar construction activity is already a feature of these views.

Further discussion of visual impacts are included in Chapter 13: Landscape & Visual Impact Assessment.

The sensitivity of the receiving landscape environment is assessed as being Low and the Magnitude of Change is considered Medium. The landscape impact of the Construction Phase is assessed as being of Slight to Moderate Negative Short-term Significance.

The sensitivity of the receiving visual environment and the Magnitude of Change are considered Medium. The visual impact of the Construction Phase is assessed as being of Moderate Negative Short-term Significance.

5.5.1.2 Operational Phase

Population

The Operational Phase of the Proposed Development will result in a development of 195no. residential units. The Proposed Development will provide accommodation for approximately 588no. persons in the area. This amount was calculated by multiplying the occupancy rate (3.03) [1] by the total number of proposed dwellings. The Proposed Development will accommodate a portion of the planned population growth of Portmarnock South. The Proposed Development will therefore have a positive, significant and permanent impact on the local population. The associated additional local spending will likely have a positive, moderate and long-term impact on the economic activity in the area.

Economy

The Proposed Development will result in a significant and positive impact to local residents in the area. The provision of the 296no. residential units will substantially add to the residential accommodation availability of the area and cater to the increasing housing demand. There will be a varied mix of residential opportunities provided which will be of direct benefit, allowing a diverse range of community to work and live within the town.

It is predicted that there will be a positive impact on local business activity during the Operational Phase with residents of the Proposed Development availing of local facilities.

Therefore, the Proposed Development is likely to have a long term, moderate positive effect on the local area in relation to employment and economic activity.

Human Health

During the Operational Phase of the Proposed Development, existing and new residents will have access to a high-quality environment with an increase in services available in the immediate area. This can bring benefits to physical health through additional opportunities for exercise and spending time outdoors. Links to more sustainable forms of transport can also lead to a decrease in the levels of air pollution therefore further aiding the effects on physical health.

Increased access to open space and services can also lead to benefits for mental health and wellbeing with increased links to nature granted by the formalised access to through the Site and recreational opportunities.

The Operational Phase of the Proposed Development will therefore have a long term, moderate positive effect on residents and visitors.

Climate (Air Quality)

Traffic related air emissions have the potential to impact air quality which can affect human health. However, the change in traffic associated with the Proposed Development was not of the magnitude to require detailed air dispersion modelling as there is no potential for significant impacts. Therefore, traffic emissions are predicted to be below the ambient air quality standards set for the protection of human health. It can be determined that the impact to human health during the Operational Phase is long-term, neutral and imperceptible. Further discussion of visual impacts are included in Chapter 9: Climate (Air Quality & Climate Change).

Climate (Climate Change)

[1] Identified in the Fingal County Council Development Plan 2023 – 2029 which implemented the population projections set out in the Regional Spatial and Economic Strategy for the Eastern and Midland Regional Assembly.

The Proposed Development has been designed to reduce the impact on climate where possible once operational. The Proposed Development will comply with the NZEB standards and has aims to achieve an energy efficient design. Once mitigation measures are put in place, the effect of the proposed development in relation to GHG emissions is considered long-term, minor adverse and not significant.

The following climate hazards have been considered in the context of the proposed development: flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; wildfire; drought; extreme wind; lightning, hail landslides and fog. The sensitivity of the proposed development to the above climate hazards is assessed irrespective of the project location. Table 10-10 details the sensitivity of the proposed development on a scale of high (3), medium (2) and low (1). The proposed development has a worst-case medium vulnerability to wind, drought, extreme heat and extreme cold. The Site-Specific Flood Risk Assessment (SSFRA) carried out by Egis Consulting Engineers and submitted with this planning application states that the Site is located in Flood Zone C with an annual probability of flooding (fluvial) and coastal of less than 0.1% AEP. Adequate attenuation and drainage in accordance with relevant standards have been incorporated into the design of the development which allows for additional rainfall as a result of climate change thereby reducing the risk for the site.

The sensitivity of the Proposed Development was assessed against various climate hazards and, when combined with the potential exposure to these hazards, results in a vulnerability risk score. The Proposed Development is predicted to have at most low vulnerabilities to the various climate hazards and therefore climate change risk is not considered significant.

Air (Noise & Vibration)

The main potential noise outward noise impact to the surrounding will be from additional vehicles on the surrounding road network and building services and mechanical plant serving the Proposed Development. The effects are considered neutral, not significant and permanent.

With regard to inward noise, at detailed design stage, glazing and vent specifications fulfilling the requirements in Section 12.2.1 of Chapter 12: Air (Noise & Vibration) will ensure suitable internal noise levels. It is predicted that the construction programme will create typical construction activity related noise on site. During the Construction Phase of the proposed development, a variety of items of plant will be in use, such as excavators, lifting equipment, dumper trucks, compressors and generators.

In the absence of the Proposed Development being constructed, the noise environment at the nearest noise sensitive locations and within the development site will remain largely unchanged resulting in a neutral impact in the long-term.

Traffic

As outlined in Chapter 14: Material Assets (Transportation), the impact of the Proposed Development on junctions assessed will be minor. The Proposed Development will have a positive impact on the pedestrian and cycle amenities in the area. It is also proposed to promote a Mobility Management Plan i.e. a long-term management strategy which identifies a package of measures to encourage residents and visitors to use sustainable forms of transport such as walking, cycling and public transport and therefore to reduce dependency on private car single-occupancy use.

Townscape & Visual

Completed housing areas and open space would have a maintenance regime in place to maintain all landscaped areas. Replacement planting would be installed as required during the defects liability period and thereafter by the local management of the development.

The Proposed Development will have a positive impact on the emerging local character, and will not adversely impact on sensitive landscape characteristics, e.g. coastal setting and character or views to

and from this landscape. It is considered that the Operational Phase of the Proposed Development will make a continued positive contribution to the emerging residential community of the wider area. Further discussion of visual impacts are included in Chapter 13: Landscape & Visual Impact Assessment.

5.5.1.3 Do-Nothing Impact

If the Proposed Development were not to proceed, no construction would take place on the site, and there would be no potential for the positive impacts of increased housing supply, and there would be a neutral effect on the environment. If the Proposed Development were not to proceed it is likely that the lands would be developed in time for another development in line with the zoning of the site. The Construction and Operation Phase impacts would be the same as set out in Section 5.5.1.1 and 5.5.1.2 above.

5.5.2 Cumulative Development

In relation to townscape and visual impact, the cumulative effect of the Proposed Development alongside other development due to take place in the area will be long term, significant and positive. The sensitivity of the receiving wider landscape and visual environment is assessed as being Medium and the Magnitude of Change is considered Medium. The cumulative landscape and visual impact of the Construction Phase is assessed as being of Moderate Negative Short-term Significance.

With mitigation measures (as per Section 9.6.1.1) in place, there are no significant cumulative impacts to air quality predicted for the Construction Phase.

In relation to traffic impacts, there will be minor impacts on the safety or operation of the road network as a result of the Construction Phase of all phases of the Portmarnock Development. All construction related traffic will be outside the morning and evening peak hours, and will not have a significant impact the operation of the adjoining junctions.

5.5.3 Health & Safety

The Proposed Development has been designed in accordance with the Safety, Health and Welfare at Work Act 2005 (S.I. 10 of 2005) as amended and the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. 299 of 2007) as amended and associated regulations. The Proposed Development has been designed by skilled personnel in accordance with internationally recognised standards, design codes, legislation, good practice and experience based on a number of similar existing facilities operated by the operator.

The Proposed Development has the potential for an impact on the health and safety of workers employed on the Site, particularly during the Construction Phase. The activities of contractors during the Construction Phase will be carried out in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013), as amended to minimize the likelihood of any impacts on workers' health and safety.

5.6 MITIGATION MEASURES (AMELIORATIVE, REMEDIAL OR REDUCTIVE MEASURES)

Mitigation measures relating to health impacts arising from the construction and operation of the Proposed Development which are based on other technical disciplines within this EIAR are outlined in each respective chapter. Standard best practice and mitigation measures are recommended throughout in order to ensure any impacts are minimised as far as possible.

Mitigation measures proposed to minimise the potential impacts on human health in terms of air quality, landscape & visual impact and noise & vibration are discussed in the relevant sections of Chapters 9: Climate (Air Quality), Chapter 10: Climate (Climate Change), Chapter 12: Air (Noise & Vibration) and Chapter 13: Landscape & Visual Impact respectively.

Chapter 14: Material Assets (Transportation), addresses mitigation measures proposed to reduce the impact of additional traffic movements to and from the Proposed Development.

5.7 RESIDUAL IMPACT OF THE PROPOSED DEVELOPMENT

5.7.1 Proposed Development

In relation to population, the residual impacts of a large population increase are long term and positive. For Human Health, the potential for improvements in health relate to the improved access to open space and services.

5.7.1.1 Construction Phase

Effects on population and health during the Construction Phase are expected under different environmental topics and will be mitigated as described in the other relevant chapters throughout this EIAR. Once mitigation measures have been implemented the residual effects are expected to be limited to minor or insignificant levels as described in other associated residual impacts sections relating to the Construction Phase.

5.7.1.2 Operational Phase

The effects for an increase in population as a result of the Operational Phase are expected to be positive, long term and significant. No mitigation measures are expected during operation of the Proposed Development that would alter the anticipated impacts therefore they remain as described.

As above, potential effects to human health are considered elsewhere in this EIAR and the discussion will not be repeated in this chapter. Following the implementation of the mitigation measures described in the respective chapters, the operational effects on human health are not expected to be significant.

5.7.1.3 Worst Case Impact

The precautionary principle has been applied throughout this assessment and as such the worst-case scenario has been accounted for.

5.8 MONITORING

There is no specific monitoring required for Human Health during the Construction or Operational Phase of the Proposed Development. Where monitoring is required for any environmental aspect, this is addressed in the individual chapters of the EIAR, as appropriate.

5.9 REINSTATEMENT

This is not applicable to this chapter of the EIAR.

5.10 DIFFICULTIES ENCOUNTERED

There were no difficulties encountered during the production of this chapter of the EIAR.