

4.0 POPULATION AND HUMAN HEALTH

4.1 INTRODUCTION

This chapter evaluates the impacts (direct and indirect significant effects) of the proposed transmission line on population and human health.

In accordance with the Draft EPA *Guidelines on the Information to be contained in Environmental Impact Assessment Reports* (2017), this chapter has considered Employment, Human Health and Amenity with regard to the proposed transmission line.

Issues examined in this section include:

- Demography
- Population
- Employment
- Social Infrastructure
- Landscape, Amenity and Tourism
- Natural Resources
- Air Quality
- Noise & Vibration
- Material Assets
- Traffic
- Health and Safety

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

4.2 METHODOLOGY

The effects of the proposed development on the adjacent population and the health of that population are analysed in compliance with the previously referenced EPA guidelines (2017).

This assessment is conducted by reviewing the current population and employment status in the areas close to the proposed development. In the case of the proposed development, this is the Electoral Division (ED) of Priorswood A (Area Code ED 02080), Priorswood B (Area Code 02081), Balgriffin (Area Code 04005) and nearby Turnapin (Area Code 04042). Reference is made to the most recent census data available from the Central Statistics Office (CSO) which is the 2016 census.

Identification of principal potential receptors and an analysis of impacts of the project on these receptors has been conducted. It is noted that no specific guidance on the meaning of the term 'Human Health' has been provided in the Directive 2014/52/EU (Directive on the Assessment of Public and Private Projects on the Environment). However, the European Commission's Strategic Environmental Assessment (SEA) Directive (2001/42/EC) indicates that human health should be considered in the context of environmental pathways which may affect health such as air quality, noise, water and soil quality. All can contribute to negative effects on human health by facilitating the transport of contaminants or pollutants. An evaluation of the effects of these pathways on health, by considering the accepted standards of safety in dose, exposure or risk of

air quality and noise levels for example, is considered appropriate, as these standards have been arrived at via scientific and medical research¹.

4.3 RECEIVING ENVIRONMENT

The proposed development is described in chapter 2.

The potential human receptors within the environs of the proposed development include residential developments, e.g. Priorswood, which is located alongside parklands adjacent the R139, St. Michael's House on the R139, the Clayton Hotel and adjacent petrol station located just off the R139 on Stockhole Lane, stand-alone housing opposite the Clayton Hotel on Stockhole Lane, other industrial and commercial businesses in the Clonshaugh Business & Technology Park, as well as the Airways Industrial Estate to the west across the M50 and the Turnapin residential development immediately beside the Airways Industrial Estate at the M50/M1 interchange.

Immediately to the north of the proposed transmission line in the Fingal County Council area are undeveloped greenfield lands.

4.3.1 Population and Employment

4.3.1.1 Population

The most recent population census was carried out by the Central Statistics Office (CSO) on 24th April 2016. The latest census data shows that the population in the Dublin City Council (DCC) and Fingal County areas grew by 5.1% and 8% respectively between the years 2011 and 2016 compared with only 3.8% nationally. The adjacent electoral divisions saw a smaller population growth in the same period, with the exception of Balgriffin, which has seen significant growth (Table 4.1).

Area	2011	2016	% Change 2011-2016
State	4,588,252	4,761,865	+3.8%
Dublin City Council area	527,612	554,554	+ 5.1%
Priorswood A	1,562	1,618	+ 3.6%
Priorswood B	2,673	2,728	+ 2%
Fingal County	273,991	296,020	+ 8.0%
Balgriffin	1,966	3,113	+ 58%
Turnapin	1,683	1,700	+ 1.0%

Table 4.1 Population change at national, Local Authority and Electoral Division level from 2011 – 2016 (Source: www.cso.ie)

¹ EPA (2017) Guidelines on the Information to be contained in Environmental Impact Assessment Report – Draft August 2017.

4.3.1.2 Employment

Table 4.2 presents the employment statistics in 2016 compared with 2011. The data shows that unemployment decreased significantly in both Local Authority areas, as well as nationally, reflecting the economic recovery in recent years.

The figures also show that the reduction in unemployment has not been as significant in Priorswood B as it has been in the other Electoral Divisions, in Local Authority areas and nationally.

	At Work	Looking for first regular job	Unemployed having lost or given up previous job	Ratio of people at work to people unemployed/looking for work
2011 Census Data				
State	1,807,360	34,166	390,677	4.3 : 1
Dublin City Council Area	227,429	5,086	46,613	4.4 : 1
Priorswood A	638	22	165	3.4 : 1
Priorswood B	731	60	456	1.4 : 1
Fingal County Area	119,276	2,224	20,416	5.3 : 1
Balgriffin	893	7	93	8.9 : 1
Turnapin	701	17	125	4.9 : 1
2016 Census Data				
State	2,006,641	31,434	265,962	6.7 : 1
Dublin City Council Area	265,670	4,686	34,514	6.8 : 1
Priorswood A	708	14	99	6.3 : 1
Priorswood B	804	30	427	1.8 : 1
Fingal County Area	133,971	1,850	13,565	8.7 : 1
Balgriffin	1,464	14	84	14.9 : 1
Turnapin	822	13	66	10.4 : 1

Table 4.2 Employment statistics nationally, at Local Authority and Electoral Division level in 2011 and 2016 (Source: www.cso.ie)

4.3.2 Social Infrastructure

Residential Dwellings

The closest residential properties, Clara Court and Tara Lawns, are located alongside the R139 opposite the proposed access route for the transmission line to the Belcamp Substation. The proposed grid line will also run approximately 78m in distance from an

apartment complex located close to the junction of the R139 and Clonshaugh Road. There are also one-off residential dwellings located alongside Stockhole Lane opposite the Clayton Hotel, the closest of which is approximately 89m from the proposed transmission line on the R139.

Sensitive receptors including schools and health care facilities within a 1-2 km area of the proposed transmission line are presented below.

Schools

There are a number of primary and secondary schools in the vicinity of the proposed gridline including:

- St. Francis Senior and Junior Primary Schools in Priorswood c.1.3km from the Darndale substation;
- St. Joseph's Primary School in Coolock c.1.8 km to the south-east from the Darndale substation;
- Gaelscoil Cholmcille Primary School in Kilmore c. 1.4km to the south of the Darndale substation;
- Scoil Fhursa Primary School in Kilmore c.1.4 km south-east of the Darndale substation;
- Coláiste Dhúlaigh Secondary School in Kilmore c.1.4 km south-east of the Darndale substation; and
- Our Lady's Immaculate Senior School c.1km to the south-east of the Belcamp substation.

The closest third level institutions in the area are Dublin City University (DCU) main campus located c. 2.7km to the south-west and DCU St. Patrick's located c. 4km to the south-west.

Health

The nearest hospital is Beaumont Hospital located c. 1.8km from the Darndale substation. The Coolock Health Centre is also located c.1.5 km south-east of the proposed route of the proposed development on the R104. St. Michael's House Leisure Centre and Swimming Pool, providing community based services for people with intellectual disabilities, is located along the southern boundary of the R139 opposite the Belcamp Substation.

Security

There is a Garda station located on the R104 in Coolock c. 2.1km south-east of the Darndale substation and a fire station on Raheny Road in Kilbarrack (c. 4km to the south-east).

Shops

Kennards' Costcutters and Absolute Nutrition and Fitness, situated in a small group of retail units in Priorswood, are c. 0.7 km south of the Belcamp Substation. Northside Shopping Centre is c. 1.5 km to the south east of the Darndale substation. Darndale/Belcamp Village Centre including shops and Darndale Boxing Club are c. 1.1 km from the Belcamp Substation.

4.3.4 Landscape, Amenity and Tourism

In terms of landscape amenity, the local landscape setting is generally flat with no prominent landscape features located near the site. The primary areas of landscape amenity in the immediate vicinity include the following recreational parks:

- Coolock Lane Park (c. 1km to the south of the final destination of the proposed gridline);
- Santry Park (c. 1.4km to the south-west); and
- Belcamp Park which runs alongside the R139, parallel to the proposed gridline route.

Coolock Lane Astro Pitches are c. 1.2km from the Darndale substation. Primary amenity areas such as Dublin Bay and Phoenix Park are located c. 7km south-east and c. 7.5km south-west of the site, respectively. Immediately north of the proposed gridline route along the R139 to the Belcamp Substation, the adjoining landscape is primarily greenfield.

Tourism is not a major industry in the immediate environs of the site, however Butlers Chocolate Experience is located within the Clonshaugh Technology and Industrial Park and attracts visitors and tourists. The Clayton Hotel Dublin Airport is located on the northern boundary of the R139 at the Clonshaugh Roundabout. There are a number of other accommodation providers in the surrounding area due to the proximity to Dublin Airport, which is approximately 2km to the northwest of the final gridline destination at Darndale substation.

4.4 IMPACTS OF THE DEVELOPMENT

4.4.1 Impacts on Human Beings

It is not expected there will be any impact on local residential population figures in association with the construction of the proposed underground gridline connecting the two substations. At some point in the future there may be an impact in terms of increased available electricity supply, should it be required, to facilitate future potential industrial activities. In this context, it could have an imperceptible effect in terms of increased housing/accommodation demand for potential future workers who wish to locate in the area.

There will be a temporary, imperceptible, positive effect on local business with the limited presence of a very small number of construction workers using local facilities during the construction phase. However, the main potential impacts on human beings associated with the proposed gridline will be in relation to air quality, noise and visual effects during the construction stage. The potential impacts are assessed within the corresponding chapters of this EIA Report and are summarised below. These are short term impacts.

4.4.2 Impacts on Human Health – Air Quality

As outlined in Chapter 8 Air Quality and Climate, National and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or “Air Quality Standards” are the protection of human health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set (see Chapter 8, Table 8.1). The standards for human health have designed to avoid harmful effects to health.

4.4.2.1 Construction Phase

As detailed in Chapter 8 Air Quality & Climate, best practice mitigation measures are proposed for the construction phase of the proposed project 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 project 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, the impact of construction of the proposed development is likely to be short-term and imperceptible with respect to human health.

4.4.2.2 Operational Phase

Due to the nature of the proposed project, the effects on human beings during the Operational Phase are considered to be neutral.

4.4.3 Impacts on Human Health from Noise & Vibration

Noise and Vibration impacts associated with the development have been fully considered within Chapter 9 of the EIAR. Commentary on the impact assessment and related noise levels are summarised below with respect to potential environmental health impacts.

4.4.3.1 Construction Phase

As detailed in Chapter 9 Noise and Vibration, noise emissions associated with the construction phase of the development are expected to be less than the prevailing ambient noise level at the nearest sensitive locations. As a result, the existing noise environment is not expected to change significantly because of the temporary to short-term construction phase. In addition, due to the distance between the site and the nearest sensitive locations, vibration impacts generated during construction are expected to be negligible. Therefore, the noise and vibration impact of the construction phase of the proposed development is likely to be short-term and not significant with respect to human health because of the temporary to short-term construction phase.

4.4.3.2 Operational Phase

The proposed transmission cable will be underground and will not generate any perceptible levels of vibration or noise during operation and therefore there will be no impact from noise emissions or vibrations on human health.

4.4.4 Impacts on Local Amenities and Tourism

There will be no impact on the local parks or the larger amenity areas of Dublin Bay and Phoenix Park.

It is not anticipated that the transmission cable will have any impact on local tourism or shopping amenities.

The proposed transmission cable will not create any wastewater discharge which could have a potential impact on local amenities or the local population.

Should any discharge of construction water (collected stormwater) be required during the construction phase, discharge will be to the storm water/foul sewer drainage system or collected and removed, following appropriate treatment for sediment removal.

The underground nature of the proposed development, together with the low sensitivity receiving environment and the existing land use and land use zoning, is such that

residual landscape and visual impacts are considered to be imperceptible and neutral. Further discussion is presented in Chapter 10 Landscape and Visual.

4.4.5 Impacts from Additional Traffic

An assessment of the additional traffic movements and short term diversions associated with the proposed development during the construction phase is presented in Chapter 12 Traffic and Transportation.

The predicted impact of the development on human beings and in particular road users will be *temporary, negative* and *not significant* for the construction phase and *long-term, neutral* and *imperceptible* for the operational phase. Any significant construction works will take place out side of main commuter hours and at worst case a single lane carriageway will remain operational. There is no impact during operation.

4.4.6 Impacts on Health and Safety

The proposed underground transmission cable will be implemented in accordance with the Safety, Health and Welfare at Work Act 2005 (No. 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 the potential for an impact on the health and safety of workers employed during the construction phase. The activities of the applicant's 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) to minimise the likelihood of any impacts on workers' health and safety.

The 2014 EIA Directive and associated Draft EPA EIA Guidelines require that the vulnerability of the project to major accidents and/or natural disasters (such as earthquakes, landslides, flooding, sea level rise etc.) is considered in the EIA Report.

The site has been assessed in relation to the following external natural disasters; landslides, seismic activity, volcanic activity and sea level rise/flooding as outlined below. The potential for major accidents to occur at the facility has also been considered with reference to Seveso/Control of Major Accident Hazards (COMAH) Regulations.

There is a negligible risk of landslides occurring at the site and in the immediate vicinity due to the topography and soil profile of the site and surrounding areas. There is no history of seismic activity in the vicinity of the site. There are no active volcanoes in Ireland so there is no risk of volcanic activity.

The potential risk of flooding on the site was also assessed. A Stage 1 Flood Risk Assessment was carried out and it was concluded that the development is not at risk of flooding. Furthermore, the proposed development design has no potential impact on flood risk for other neighbouring properties.

There is little potential impact on the receiving environment as a result of minor accidents/leaks of fuel/oils during the construction phase as no bulk fuel storage required. However, the implementation of mitigation measures for management of localised construction equipment leaks set out in the EIA Report will ensure the risk of a minor/accident is low and that the residual effect on the environment is imperceptible.

Once operational the underground transmission cable will form part of ESB Networks' infrastructure. ESB Networks are the licensed operators of the electricity distribution system in the Republic of Ireland. ESB Networks is responsible for building, operating, maintaining and developing the electricity network and serving all electricity customers across the country. Eirgrid is a state-owned body responsible for operating the flow of power on the grid. Both bodies are experienced in the management and operation of the national electricity grid, with appropriate environmental, health and safety management systems in place.

4.5 REMEDIAL AND MITIGATION MEASURES

The impacts on the local population are considered to be temporary, positive and imperceptible due to the expected temporary employment of a small number of construction workers directly employed to work on the construction of the transmission line and in turn creating a small amount of indirect additional business from using local businesses during the construction phase. The availability of the transmission cable installation will support current power demand and future growth within the Clonsaugh area which will support employment in the area.

Mitigation measures proposed to minimise the potential effects on human health in terms of air quality and climate and noise and vibration during construction are discussed in the relevant sections of Chapters 8 and 9, respectively.

Chapter 12 Traffic and Transportation addresses mitigation measures proposed to reduce the effect of traffic management during construction.

4.6 RESIDUAL IMPACTS

It is expected that the proposed transmission cable development will have a positive and long-term effect on the immediate hinterland through facilitating the provision of adequate electricity supply that could potentially facilitate in turn future employment opportunities.

There are no predicted adverse residual effects primarily due to the development being underground and primarily either within or alongside the already developed R139 or t

A health and safety management plan will be place to ensure the health and safety of all site personnel during construction. The experience of ESB Networks and the systems in place as outlined in the same section will minimise any health and safety risks during operation of the transmission line.

Interactions are addressed in Chapter 16 of this EIA Report. Cumulative impacts are address in Chapter 15 of this EIA Report.