5. POPULATION & HUMAN HEALTH

5.1 Introduction

This chapter examines the potential socio-economic impact of the construction and operation of the proposed residential development on those residing and working in the vicinity of the proposed development.

Issues associated with human beings are varied and covers a broad spectrum of topics associated with the existence, activities and wellbeing of people as groups or 'populations'. Whilst most developments will affect people in some form or way, this chapter of the EIAR focuses on those topics which are manifested in the environment, such as demographic change, impacts on community facilities, and on the economy. Actual and perceived impact of the proposed development on human beings and human health may also arise from a number of elements of the proposal. These impacts are dealt with throughout the EIAR, and in particular, the following chapters:

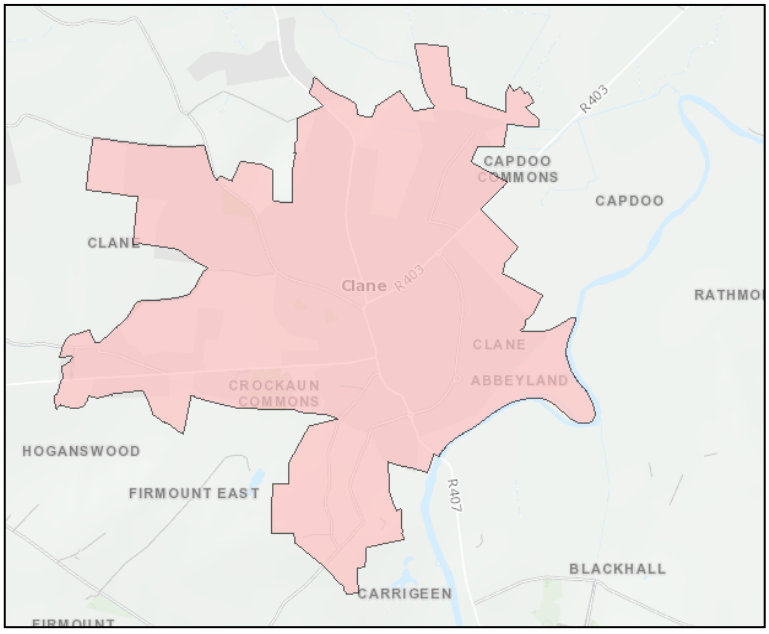
- Landscape & Visual;
- Roads & Traffic;
- Air Quality & Climate;
- Noise & Vibration; and
- Material Assets.

5.2 Methodology

5.2.1 Study Area

The study area upon which the socio-economic impact of the proposed development is assessed on, is based on the settlement Clane.

Figure 5.1 Study Area – Settlement of Clane



(Source: CSO, Census 2016 Small Area Population Statistics Interactive Map)

5.2.2 Socio Economic Characteristics

Assessments of key demographic and socio-economic characteristics of the residential population within the study area were undertaken. This was completed in order to build up profiles of the communities that would likely be directly impacted upon by the proposed development. The desk-based assessment has been undertaken based on information from the following principal data sources:

- Central Statistics Office (CSO) Census of Population including Preliminary CSO Results 2016
- Regional Planning Guidelines for the Greater Dublin Area 2010-2022
- Eastern & Midland Regional Assembly Draft Regional Spatial & Economic Strategy 2018
- Kildare County Development Plan 2017-2023
- Clane Local Area Plan 2017-2023

A desk-based assessment of socio-economic aspects considered relevant to the proposed housing development was carried out as part of the assessment. A site visit to the subject site and the surrounding area was also undertaken.

5.3 Receiving Environment – The Baseline Situation

This section describes the receiving environment in terms of the existing context, character, significance and sensitivity, which forms the baseline for assessing the likely potential effects of the proposed development.

5.3.1 Site Location & Context

Clane is a historic town developed from a compact linear core along a Main Street with residential development predominantly outwards to north, east and west of the settlement. Clane has a wide variety of community facilities, services and groups spread throughout the town. A number of regional roads connect the town to the wider county and Dublin City. Located adjacent to the River Liffey, the surrounding area is mostly rural in character. The town is served by a range of social, civic and commercial facilities. A cluster of industries are located in the north of the town and various commercial activities spread out in various locations.

The site is an infill urban consolidation site on the northern side of Clane. The site is irregular in shape and comprises an area of 11.442ha. The site comprises of predominantly agricultural lands laid out in a number of fields with a house and farmyard complex located to the east. The southern portion of the site is comprised of three fields which originally formed part of 3 long rear gardens associated with properties to the east. The boundaries of the site generally comprise of mature hedgerows and trees.

The northern boundary of the site benefits from two areas of road frontage of approximately 70m each separated by two dwellings which do not form part of the application site. The balance of the northern boundary is characterised by one-off dwellings which are generally single or dormer properties on large sites. The eastern boundary is similarly characterised by the rear of one-off dwellings save for a sort section of boundary with a local road to the east. The southern boundary is characterised by the Capdoo Park residential development and the western boundary adjoins residential properties on College Road East and Mainham Woods and the R407. The lands directly adjoin the road serving properties on College Road East.

The local road to the north of the site is rural in character and is constrained in width and alignment. This road continues eastwards for approximately 600m before turning into un-metaled track to which access is restricted. The Local Road to the east is also rural in character, is significantly constrained in width and alignment, and does not have a centre line. Informal passing bays have been created on both roads at existing entrances in order to facilitate two vehicles passing. The R407, Kilcock-Clane Road, is to the west of the site.

5.3.2 Population Trends for the Local Area

The Central Statistics Office (CSO) provides data on population and socio-economic aspects of the population at different levels from the entire state, county level and individual Electoral Districts within each County.

The subject site falls within the Electoral District (ED) of Clane within the administrative area of Kildare County Council. The most recent census of population by the CSO was undertaken in 2016. The census provides demographic trends for the region, county, town and local levels.

The CSO population statistics relevant to this EIS are set out in the table below.

Table 5.1: Population Change 1996-2016

Area	Number of Persons								
	1996	2002	% Change	2006	% Change	2011	% Change	2016	% Change
Ireland - State	3,626,087	3,917,203	8.00%	4,239,848	8.2%	4,588,252	8.2%	4,761,865	3.8%
Co. Kildare	134,992	163,944	21.4%	186,335	13.7%	210,312	12.9%	222,504	5.8%
Clane	3,058	4,417	44.4%	4,968	12.5%	6,702	34.9%	7,280	8.6%

* 80 legal towns were abolished under the Local Government Reform Act 2014. Census towns which previously combined legal towns and their environs have been newly defined using the standard census town criteria (with the 100 metres proximity rule). This has resulted in a change of the area and population of the town, compared with previous computations.

According to the 2016 Census of Population, the population of the state showed a steady growth of around 8.2% from its 2002 level until 2011, with a significant reduction in growth during the period between 2011 and 2016 to 3.8%. It is noted that population growth within County Kildare was significantly higher than that for the state in 2002 at 21.4% and in 2006 and 2011 at around 13%, with a similar reduction in growth between 2011 and 2016 to 5.8%. Clane has experienced two periods of much higher growth than both Kildare County and the State; 44.4% in 2002 and 34.9% in 2011. Between 2011 – 2016 Clane experienced 8.6% growth, higher than both Kildare County and the State but a much lower rate than previously. 2006 was the only year Clane experienced slower growth than Kildare County at 12.5%, still higher than the State average. The changes in growth in Clane coincides with higher or lower building outputs, with very little new development occurring between 2011-2016 due to the economic downturn.

Strong population growth for County Kildare is indicative of its neighbouring location to the Greater Dublin Metropolitan Area, alongside significant employment opportunities in the county as a whole. Primarily this growth can be attributed to greater economic activity, increased job opportunities and continued migration.

The population of Clane has grown considerably by over 138% since 1996. There were two periods of significant growth, c.2002 and c.2011 with population growth otherwise being comparable with Kildare County. Kildare County and Clane have usually experienced higher levels of growth than the State as a whole, likely because of its connections to Dublin and other economic centres. Since the economic downturn there has been a significant reduction in the growth of Clane, which could be attributed to some extent to the lack of housing delivery in the area over this period, with growth in population during this time likely to be attributed to development outside the town boundary.

5.3.3 Population Structure

The 2016 Census results for Clane are compared to that of the State and County Kildare in terms of population structure by age in Table 5.2 below.

Table 5.2: Population by Age Group as % of Total Population

Geographic Area	State		Co. Kildare		Clane	
Age Group	No. of Persons	% of Total	No. of Persons	% of Total	No. of Persons	% of Total
00-04	331,515	6.96	17,314	7.78	691	9.49
05-09	355,561	7.47	19,124	8.59	642	8.82
10-14	319,476	6.71	17,122	7.70	504	6.92
15-19	302,816	6.36	15,479	6.96	474	6.51
20-24	273,636	5.75	12,478	5.61	369	5.07
25-29	297,435	6.25	12,246	5.50	448	6.15
30-34	361,975	7.60	17,030	7.65	688	9.45
35-39	389,421	8.18	19,422	8.73	734	10.08
40-44	357,460	7.51	18,693	8.40	639	8.78
45-49	326,110	6.85	16,235	7.30	578	7.94
50-54	299,935	6.30	13,916	6.25	458	6.29
55-59	270,102	5.67	11,611	5.22	310	4.26
60-64	238,856	5.02	9,820	4.41	214	2.94
65-69	211,236	4.44	8,333	3.75	199	2.73
70-74	162,272	3.41	5,869	2.64	148	2.03
75-79	115,467	2.42	3,573	1.61	94	1.29
80-84	81,037	1.70	2,270	1.02	47	0.65
85+	67,555	1.42	1,969	0.88	43	0.59
Totals	**4,761,865**		**222,504**		**7,280**	

(Source: CSO, Census 2016)

Based on age comparisons of the 2016 Census, Clane has a high proportion of its population in younger age groups. Clane has a higher proportion of its population in the 0-4 and 5-9 age groups than either Kildare County or the State. Between 10-14 and 15-19, the proportion of Clane's population is higher than the State but lower than the county average for Kildare.

Compared with the State and County Kildare, Clane has a higher proportion of adults in the 30-49 age group. Significantly, the 30-39 age group where Clane has a proportion of population at 19.53% compared to 16.38% in County Kildare and 15.78% in the State. Between the 20-29 age group, the proportion of Clane's population is lower or in line with State and County figures. Between 55-85+ the proportion of the population in all of the age brackets in Clane is lower than both the State and County, most significantly between 55-69 where the difference is at least 1%. Clane has an over 65 years of age population of 7.29% compared to 9.9% in County Kildare and 13.39% in the State.

Based on the foregoing, it is of note that Clane has a higher proportion of population between the ages of 30-49 and a much lower proportion of population 65 years and over. It is considered that Clane has a much younger population compared to County Kildare and the State and has done well in attracting cohorts of younger families, likely looking for affordable family accommodation within commuting distance of Dublin City and other economic centres.

5.3.4 Economic Activity

Following more than a decade of sustained economic growth (quantitative expansion in Gross National Product (GNP)), the Irish economy suffered a considerable economic downturn from 2008. The ESRI publication 'Ireland's Recovery from Crisis' by John Fitzgerald describes the situation as follows:

'The crisis that broke in the Irish economy in 2008…. had developed over the previous five years, which was financed by inflows of capital into the domestic banking system. The high expected returns from investment in housing in Ireland had evoked a huge supply response. The number of dwellings built in Ireland at the height of the boom was approximately 100,000. Today the number being built is less than 10,000. This meant that a very substantial part of the economy was devoted to building and construction in 2007…

When the crisis hit, the building and construction sector collapsed resulting in a fall in GDP from peak to trough of just under 10 percent and a fall in GNP of over 15 percent.2 The unemployment rate rose very rapidly. Between 2007 and 2012 it had increased by 10 percentage points…

…While it is reasonably clear from the data for GDP that the economy peaked in 2007 and that output (and employment) levels fell precipitously in 2009, it is much less clear when the recovery actually began…

…in the case of GDP the trough was in 2010 and there was very slow growth in 2012 and 2013. While GNP, unadjusted for redomiciled plcs., stabilised in 2010, it only returned to significant growth in 2012. Probably the best measure of domestic welfare is GNP, adjusted to exclude the redomiciled plcs. This aggregate suggests that the recession in Ireland continued through 2010 and 2011, with recovery only beginning in 2012.

The clearest signal of what is happening in the economy is probably the growth in employment (Figure 3). Beginning with the last quarter of 2012, there have been five consecutive quarters where seasonally adjusted employment grew, quarter-on-quarter, by over 0.6 percent. This suggests a very similar turning point to the GNP data – some time in 2012. Since late 2012, there has also been a significant increase in hours worked.'

The Economic and Social Research Institute (ESRI) review the most recent national and internal economic trends and emerging patterns on a quarterly basis. The Spring Quarterly Economic Report from ESRI states that:

2018 saw the Irish economy register another sizeable increase in activity with GDP estimated to have risen by 6.7 per cent. While some of this increase is due to the disproportionate activities of a select number of multinational firms, the underlying performance of the economy is still remarkably strong.

The Quarterly Report forecasts that the economy will continue to grow, in terms of real GDP, in 2019 and 2020 but cautions that different Brexit scenarios will have varying impacts on the Irish Economy. The Quarter Report provides that:

'Overall, this results in a baseline real GDP forecast of 3.8 per cent for the Irish economy in 2019 and 3.4 per cent in 2020. However, under a no-deal exit for the UK with significant disruptions, Irish GDP is expected to grow by just 1.2 per cent in 2019 and 2.5 per cent in 2020.'

The Clane LAP states that it is an objective to attract more industry and employment opportunities to Clane based on its locational advantages. A specific aim of this strategy is to reduce long distance travel times.

Clane is located 29km from Dublin City Centre and benefits from a reasonable level of connectivity to the City Centre, the wider City Region and its international ports and airports via the M4 and M7 multimodal transport corridor, served by high capacity rail and road networks. The M4 and M7 Motorways are accessed via regional roads to the North and South of the town. Public transport in Clane is limited to two bus services connecting Clane with Dublin, Naas and Newbridge.

The economic profile of Clane reflects its locational strengths. The working population of Clane in 2016 was 3,380 persons with managerial and technical being the largest sector, employing 35.22% of the working population, followed by non-manual employing 17.76% of the working population.

The Clane LAP notes that commuting time for residents of Clane is higher than county average with much of the population leaving Clane for work. 34% of the population have a commute between 15-30 minutes with 17% experiencing a commute of 30-45 minutes.

As indicated in Table 5.3, Clane has a higher proportion of the population over the age of 15 years at work than the either the State or the County levels. Furthermore, as per Table 5.4 a higher proportion of the population are employed in managerial, technical and professional services when compared to both the County and the State.

Table 5.3 Employment Status

Geographic Area	State		Kildare County		Clane	
Employment Status	**No. of Persons**	**% of Total**	**No. of Persons**	**% of Total**	**No. of Persons**	**% of Total**
At work	2,006,641	53.43	95,947	56.79	3,380	62.10
Looking for first regular job	31,434	0.84	1,395	0.83	42	0.77
Unemployed having lost or given up previous job	265,962	7.08	10,902	6.45	336	6.17
Student	427,128	11.37	20,559	12.17	624	11.46
Looking after home/family	305,556	8.14	14,478	8.57	440	8.08
Retired	545,407	14.52	18,890	11.18	425	7.81
Unable to work due to permanent sickness or disability	158,348	4.22	6,255	3.70	190	3.49
Other	14,837	0.40	518	0.31	6	0.11
Total	**3,755,313**	**100**	**168,944**	**100**	**5,443**	**100**

(Source: CSO, Census 2016)

Table 5.4 Population by Social Class

Geographic Location	State		Kildare County		Clane	
Social Class	No. of Persons	% of Total	No. of Persons	% of Total	No. of Persons	% of Total
Professional workers	386,648	8.12	18,792	8.45	625	8.59
Managerial and technical	1,336,896	28.08	70,239	31.57	2,564	35.22
Non-manual	837,145	17.58	40,520	18.21	1,293	17.76
Skilled manual	671,890	14.11	31,313	14.07	1,069	14.68
Semi-skilled	501,103	10.52	21,458	9.64	618	8.49
Unskilled	170,391	3.58	7,620	3.42	172	2.36
All others gainfully occupied and unknown	857,792	18.01	32,562	14.63	939	12.90
Total	**4,761,865**	**100**	**222,504**	**100**	**7,280**	**100**

(Source: CSO, Census 2016)

Table 5.5 Highest Level of Education Achieved

Geographic Location	State		Kildare County		Clane	
Education Level	No. of Persons	% of Total	No. of Persons	% of Total	No. of Persons	% of Total
No Formal Education	52,214	1.69	2,018	1.47	39	0.89
Primary Education	334,284	10.79	11,700	8.50	228	5.19
Lower Secondary	449,766	14.52	18,958	13.77	520	11.83
Upper Secondary	573,643	18.52	26,837	19.49	769	17.50
Technical or Vocational qualification	271,532	8.77	12,731	9.25	420	9.56
Advanced Certificate/Completed Apprenticeship	182,318	5.89	8,809	6.40	309	7.03
Higher Certificate	153,351	4.95	7,635	5.55	300	6.83
Ordinary Bachelor Degree or National Diploma	237,117	7.66	11,576	8.41	433	9.85
Honours Bachelor Degree Professional qualification or both	331,293	10.70	16,024	11.64	557	12.68
Postgraduate Diploma or Degree	284,107	9.17	13,375	9.71	503	11.45

Doctorate(Ph.D) or higher	28,759	0.93	1,297	0.94	34	0.77
Not stated	198,668	6.41	6,714	4.88	282	6.42
Total	**3,097,052**	**100**	**137,674**	**100**	**4,394**	**100**

(Source: CSO, Census 2016)

Table 5.5 shows the population of Clane have achieved university qualifications at a higher rate than both the State and County Kildare. Of note, a much higher percentage of the population has a postgraduate diploma or degree.

5.3.5 Existing Social and Community Facilities in Clane

Sport and Recreation Facilities

Clane is well served by a range of sporting and recreational facilities including:

- Clane GAA Club (includes pitches, a clubhouse with bar and café and function rooms)
- Clane Athletic Club (new track to be completed in 2019)
- Clane Lawn Tennis Club
- Clane Rugby FC
- Clane United Soccer Club

To the south-east the River Liffey borders the town, providing amenity and facilitating the Liffey Walk and Liffeyside Nature Park. A new children's playground has been installed at Clane Stream Park and Millicent Golf Club is located less than 1km out of the town.

Health Care Provision

In terms of Primary Health Care provision, there are currently 8 GP's operating in Clane, serving a population of approximately 7,300. Clane also has a Primary Care centre, nursing home and a private hospital within the town.

Other Community Facilities

Clane Library is located prominently in the village in the Woods Centre along with the Woods Surgery. The Abbey Community Centre is located adjacent to the ruined Friary and cemetery, with a garden of remembrance providing a community hall, stage, kitchen facilities and other amenities.

- Scoil Mhuire Clane offers a range of adult day and night course on a full or part time basis ranging from hobbies to skills or languages.
- Hazel Hall Nursing Home is located on Prosperous Road and provides residential care services.
- The Clane Project Centre aims to stimulate enterprise in the town and runs a range of programmes including the Clane Youth Project, providing programmes on bullying and youth leadership for

people between 11-25, the Clane Coder Dojo, encouraging youths into coding and the Clane Mens Shed. Through their Thomson Enterprise Centre they also offer workspace and incubation units.

- Clane Post Office is located on Main Street, Clane, County Kildare

5.3.6 Education Facilities

There are currently 10 (registered private facilities) no. **childcare facilities** in the Clane Area providing in the order of 400 no. childcare spaces.

There are 3 no. **primary schools** in Clane:

- Scoil Bhríde Girls' National School, Prosperous Road - approximately 496 pupils attending
- Scoil Phádraig Boys' National School, Prosperous Road - approximately 520 pupils attending
- Hewetson School, Millicent Road - approximately 91 pupils attending

There are 1 no. **post primary schools** in Clane:

- Scoil Mhuire Community School, Prosperous Road - approximately 1155 pupils attending
- Clongowes Wood College SJ, Cappolis Road – approximately 445 pupils attending

The Clane LAP states that each school has been granted permission for extensions of various sizes ranging from 3 classrooms to 10 classrooms, facilitating the requirements of a growing population. There are no **third level institutions** in Clane, requiring students to utilise the public transport or the road network to travel to institutions such as NUI Maynooth, located circa 11km to the north of the proposed development. Public transport to Maynooth University and to other third level institutions located in Dublin is facilitated by bus services in Clane.

5.4 Potential Impacts on Population

This section provides a description of the specific, direct and indirect, impacts that could potentially result from the proposed development, both during the construction and operational phases of the proposed project. These potential impacts are described with reference to both the characteristics of the receiving baseline environment and characteristics of the proposed development. The potential impacts are described in terms of their (i) magnitude and intensity, (ii) integrity, (iii) duration and (iv) probability of impacts. Impact assessment addresses direct, indirect, secondary, cumulative, short, medium and long-term permanent, temporary, positive and negative effects as well as impact interactions.

Actual and perceived impacts of the proposed development on human beings may arise from a number of elements of the proposal. These impacts from Landscape and Visual, Roads and Traffic, Air Quality and Climate, Noise and Vibration and Material Assets are addressed in the appropriate chapters. The impacts identified below are in addition to those other impacts.

Impact Interactions & Cumulative Impacts

Cumulative impacts are identified as impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the proposed development. There are no significant extant or ongoing planning applications in the vicinity of the application site. It is noted that part of KDA-3, located west of the site between the Kilcock Road and the Ballinagappa Road, is subject to ongoing development under various permissions for in the order of 200 no. units.

Section 5.9 considers interactions between impacts on population and human health with different environmental factors.

5.4.1 Population

Construction Phase:

Due to the construction works, there will be an increase in the number of persons working in the immediate area on a daily basis. Whilst some construction workers may move into the area to be closer to work this is likely to be short term and transient. The proposed development will have a **Slight Positive, Short Term** impact on population arising from the construction phase of the development.

Operation Phase:

The construction of 366 no units will provide critical housing infrastructure for Clane and the wider hinterland and Greater Dublin Area. The additional population for Clane will contribute positively to the community by reinforcing and strengthening the services and function of the town and by increasing housing supply in line with national housing policy. The proposed development will have a **Significant Positive Long Term Impact**.

Cumulative Impact

Future residential development of the subject site, in combination with recent residential applications/proposals in the vicinity, would increase the population of the Town in accordance with the Development Plan and the LAP and would therefore have a **Significant Positive Long Term Impact** of the population of Clane.

5.4.2 Community & Facilities

Construction Phase:

Proposed upgrades to the public roadways will cause disruption to vehicles, cyclists and pedestrians while these works are being undertaken. Similarly, construction traffic arising from this proposal will utilise the existing road network and the distributor road that is currently under construction, and will therefore impact upon those members of the community using these roadways. A **Temporary Slight Negative Impact** is likely due to the restricted access once construction of junction upgrades to the existing public road network commences.

Operational Phase:

The proposed residential development will contribute additional population to the Clane community. This will contribute to the consolidation of the urban area and will assist in creating a more active, vibrant town with the critical mass to support a wide range of facilities and services.

The proposed development encompasses high quality open spaces, which will open formal pedestrian and cycle route ways and a childcare facility that will be available to all members of the community. The proposed development provides for significant road infrastructure which will facilitate improved access and permeability for residents of Clane and will provide greater access between residential areas and the town centre.

The proposed development will have a **Significant Positive Long Term Impact** on the community and in particular in terms of improving permeability of the area.

Cumulative Impact

It is envisaged that the future population in combination with recent residential applications/proposals in the vicinity of these lands will enliven the town through engagement in local sports clubs and associations. The proposed childcare facility will increase the availability of services to the existing community. The proposed development will significantly improve permeability and access from future residential populations on the Kilcock Road to local facilities on the Celbridge Road. In combination with recent residential applications/proposals in the vicinity, would have a **Significant Positive Long Term Impact** on the community and facilities of Clane.

5.4.3 Economic Activity and Employment

Construction Phase:

The provisions of direct employment (full and part-time employment) within the construction and related sectors over the course of the construction phase are likely to bring benefits to the local the local economy in the form of increases in consumption in the locality and through the additional supply of goods and services required over the duration of the construction phase. This may also result in the creation of secondary employment opportunities. This will be a direct **Moderate Positive Short Term impact.**

Operational Phase:

Local retail and businesses are likely to see a positive impact in the long term. The additional housing will likely lead to increased expenditure by new residents in the local community. This will have a **Long Term Moderate Positive Impact**.

The availability of high quality housing is important in terms of attracting and retaining domestic and international businesses and commercial entities. The proposed development will provide a range of suitable housing for the employees of new or expanding businesses. This will have a **Long Term Moderate Positive Impact** on the economic functioning of the wider area.

Cumulative Impact

In addition, the future population of the subject site and the nearby lands will create an enlarge customer base for existing commercial entities in Clane. In this way, it is considered that the cumulative impact of future development on employment and economic activity in Clane will be a **Long Term Moderate Positive Impact**.

5.5 Predicted Impacts on Human Health

5.5.1 Air Quality

This section has been informed by Chapter 9 'Air, Dust and Climatic Factors' prepared by TMS Environmental Ltd.

Construction Phase

In the assessment of the impacts of the construction phase of the proposed development on Air, Dust and Climatic Factors, it is stated in Chapter 9 of this EIAR that 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.

The assessment undertaken by TMS Environmental Ltd. concluded that the impact of construction of the proposed development is likely to be **temporary** and **not significant** with respect to human health.

Operation Phase

No air quality impacts are predicted during the operational stage of the proposed development.

The operational phase of the future residential was assessed in its potential impacts on Air Quality and Human Health. The overall magnitude of the impact of the operational stage on Human Health is **long-term, imperceptible** and **not significant**.

Cumulative Impact

It is predicted that future development in the vicinity of the subject site would have a similar impact as the modelled future residential scheme at the proposed site, which would have an imperceptible impact on air quality. It is further stated that any larger developments in the vicinity of the site would need to be the subject of EIA to ensure that no significant impacts on air quality arise.

5.5.2 Noise and Vibration

This section has been informed by Chapter 8 'Noise and Vibration' prepared by TMS Environmental Ltd..

Construction Phase

During the construction phase, the appointed contractor will be required to comply with the Safety, Health and Welfare at Work (General Application) Regulations 2007 (Statutory Instrument No. 299 of 2007) provide

appropriate noise exposure mitigation measures where necessary. The predicted noise and vibration impacts on the receiving environment during the construction phase are considered to be **moderate** and **temporary** and only affecting a small number of properties over a short time-period

It is considered that the construction phase of the proposal will not have a significant effect on Human Health.

Operation Phase

No significant noise impacts are expected from the operational phase of the proposed development. As such, there is no anticipated risk of long term exposure to noise or vibration on human health resulting from the proposed development. No significant sources of vibration were considered to arise during the operational phase of the development.

It is considered that the operational phase of the proposal will have **no significant effect** on Human Health.

Cumulative Impact

It is noted that there are no significant redevelopment opportunities in the immediate vicinity of the subject site and therefore it is unlikely that there will be large construction sites operating at the same time in the immediate environs. Due to the location of the site in respect of noise sensitive locations and surrounding lands, it is concluded that that there is minimal risk of cumulative construction noise emissions resulting in an exceedance of the relevant criteria.

5.5.3 Water: Hydrology and Hydrogeology

This section has been informed by Chapter 7 'Water: Hydrology and Hydrogeology' prepared by DBFL Consulting Engineers. The predicted impacts on human health in relation to hydrology and hydrogeology have been considered with reference to local water quality; aquifer vulnerability; and, flooding.

Construction Phase

The mitigation measures proposed means that there are no likely significant impacts on human health arising from the construction phase. As such the predicted impact is considered to be **short-term, imperceptible** with a **neutral impact on quality**.

Operation Phase

No likely significant impacts to human health were identified during the operational phase in terms of water (hydrology & hydrogeology). The potable water supply will be delivered in new pipework infrastructure in accordance with Irish Water's specification. Therefore, the risk to human health through the water supply network in operation will be **long term, imperceptible** with a **neutral impact on quality**.

Cumulative Impact

With regard to cumulative impacts, this, and other future developments at the site and in surrounding areas, will be designed in accordance with best practice and relevant guidelines. Therefore, no cumulative impacts are anticipated in respect of risks from surface waters or flooding.

5.5.4 Land, Soil and Geology

This section has been informed by Chapter 6 'Land, Soil and Geology' prepared by DBFL Consulting Engineers. The predicted impacts on human health in relation to land, soils and geology have been considered with reference to land take; and movement of soils during construction works.

Construction phase

There are no likely significant impacts to human health during the construction phase in terms of land, soils and geology due to the mitigation measures proposed. As such, the predicted impact is considered to be **short-term, imperceptible with a neutral impact** on quality.

Operational phase

There are no likely significant impacts to human health during the operational phase in terms of land, soils and geology due to the mitigation measures proposed. As such, the impact is considered to be **long term, imperceptible with a neutral impact** on quality.

Cumulative Impact

With regard to cumulative impacts, it is stated in Chapter 7 that with the implementation of mitigation measures proposed, the potential for cumulative effects on the local land, soils and geology environment with any adjacent developments is determined to be **insignificant**. It is noted that in respect of land-take, the existing agricultural lands will be removed from agricultural use and will become more urban. However, there is similar agricultural land availability within the local region and the area is zoned for residential development.

5.5.5 Material Assets – Utilities

Construction phase

A risk to the human health of the installer from built services can occur as a result of any excavation work in areas where built services exist, through coming into contact with live electricity lines or damaging live gas or watermains. All such works will be coordinated with the relevant utility provider and carried out by approved contractors in accordance with industry standards. On this basis, there are no likely significant impacts to human health during the construction phase in terms of utilities due to the mitigation measures proposed. As such, the predicted impact is considered to be **short-term, imperceptible with a neutral impact** on quality.

Operational phase

From the perspective of the end user of the networks the risks to human health include potential gas leaks or explosions or loss of supply. With respect of gas leaks or explosions, the installation of services will be tightly monitored and controlled by Gas Networks Ireland to ensure the protection of human health. With respect of loss of supply, it is considered that This is a managed process that is the responsibility of the individual utility supplier and emergency plans will be in place. Therefore, the risk of effect on human health likely to be **imperceptible.**

Cumulative Impact

With regard to cumulative impacts, it is considered that with the implementation of mitigation measures proposed in Chapter 13, the potential for cumulative effects on the material assets - utilities with any adjacent developments is determined to be **insignificant**.

5.5.6 Unplanned Events

Unplanned events which may impact on human health during the construction and operational phase of the proposed development. This section has been in informed by Chapters 6, 7, 8, 9 and 12 of this EIAR.

To prevent direct run-off from the subject site to watercourses, or infiltration to groundwater from accidental spillages, it is stated in Chapter 7 that mitigation measures will be put in place during the construction phase of this proposed development. These mitigation measures include, storage of paints, oils and fuels in designated bunded areas, refuelling of vehicles either off site or in designated areas away from surface water gullies or drains, the use of double skinned tanks to transport. In addition, emergency response procedures will be clearly outlined in the Construction Environmental Management Plan for the site. All personnel working on the site will be suitably trained in the implementation of the procedures included in same.

It is stated in Chapter 8 that best practise control measures for noise and vibration will be put in place to protect construction workers and nearby sensitive locations. Anticipated methods of construction will not give rise to signification vibration emissions, while worst case scenario noise emissions, where all machinery is operating simultaneously, are considered moderate. During the operational phase, only the proposed pumping station has the capacity to produce unplanned levels of noise or vibration however, this will be designed and maintained to meet maximum noise criteria.

It is stated in Chapter 9 that alterations to Air and Climate as a result of climate change may increase the potential of extreme weather events and increased risk of flooding. Therefore, the proposed development has been designed with sufficient capacity for such extreme events.

It is noted in Chapter 12 that the risk of increased road traffic accidents as a result of the proposed development is low, due to the relatively minor increases in traffic arising from the proposed scheme. It is noted that the proposed works to provide a new Link Road, removing traffic from Main Street, and the provision of dedicated pedestrian and cycle routes, will improve pedestrian and cyclist safety and act to calm traffic locally, thereby helping to reduce the likelihood of accidents.

It is stated in Chapter 13 that the proposed infrastructure is designed in accordance with the relevant regulations, codes of practice and guidelines to provide sufficient capacity for the expected loading. Accidents and disasters involving built services during construction could potentially give rise to a serious incident putting people at risk including excavation works coming into contact with live electricity lines or causing damage and leaks to gas mains. With the implementation of the stated mitigation measures, the likelihood of such events occurring would be local and not significant. The potential risk of gas explosions during the operational phase could give rise to a serious incident putting end users at risk. The installation of services is tightly monitored and controlled by Gas Networks Ireland. Therefore, the residual risk is not considered significant

5.5.7 Human Health and Safety

Construction Phase:

Like most substantial development projects, the construction phase of the proposed development is likely to have some short-term adverse impacts on local residents. These impacts are likely to result from construction traffic movements to and from the site together with other possible health and safety impacts, such as nuisances associated with construction access requirements, pollution spillages, migration of surface contaminants, dust, noise and littering. Secondary impacts may result from increased construction traffic hauling building materials to and from the proposed development site which are likely to affect humans in a variety of potential locations distant from the proposed development site, such as residents near aggregate sources and landfill sites.

Typically, these impacts are short lived and are dealt with in more detail under relevant chapters of this EIAR. The construction methods employed and the hours of construction proposed on site will be undertaken in such a manner to mitigate any adverse resulting effects.

Operational Phase:

The proposed development is unlikely to result in any significant adverse impacts on human health and safety considerations once completed and operational. Environmental impacts of the proposed development (operational phase) and their relationship to human health is dealt with under the relevant noise and vibration, air and climate and traffic sections of the EIAR. There will not be significant impacts on human health as a result of the operation of the proposed development.

5.6 Proposed Remedial and Mitigation Measures

The mitigation measures outlined in this section will minimise and/or eliminate the potential adverse impacts on the local community and amenities.

5.6.1 Construction Phase Measures

A range of construction related remedial and mitigation measures are proposed throughout this EIAR document with reference to the various environmental topics discussed under each. These measures seek to ensure that any likely significant adverse environmental impact on humans during the construction phases are either ameliorated to have an acceptable level of impact or avoided altogether.

In order to minimise impacts during the construction phase, the following mitigation measures are recommended:

- A construction management plan will be prepared to minimise impacts on adjacent residents.
- A construction traffic management plan will be prepared to mitigate against any potential traffic delays and the facilitate the existing patterns of vehicular movement.
- The mitigation measures in relation to construction, traffic, noise, air quality and landscaping as set out in this EIS will be carried out in full to minimise impacts on adjacent residencies.

5.6.2 Operation Phase Measures

All operational phase remedial and mitigation measures included throughout this EIAR document (and listed in Chapter 16) with reference to all environmental topics will be implemented.

5.7 Residual Impact

5.7.1 Construction Phase

Some minor temporary residual impacts on human beings are likely to result during the construction phase. These impacts are mostly related to construction activities and include impacts such as nuisance through noise and air pollution through the creation of dust. However, it is anticipated that subject to the careful implementation of proposed remedial and mitigation measures proposed throughout EIAR any likely adverse and significant environmental impacts will be avoided.

5.7.2 Operation Phase

The delivery of the 366 no. units will significantly contribute to the housing stock available in this area. The proposed high quality open spaces and childcare facility together with improved accessibility will be available to all members of the public. Not only will this new population contribute to the critical mass of population required for the provision of services in Clane but they will also boost the trade of local shops and businesses. In this way, no residual negative impacts would be expected.

5.7.3 'Do Nothing' Impact – Status Quo

A 'do nothing' approach would result in the status quo of the subject lands as an agricultural landholding being retained in perpetuity and the status of the environmental receptors, as described throughout this EIS remain unchanged. Thus, the likelihood of any significant adverse impacts on population or human health arising from either the constructional or operational phases of the proposed development would not arise.

The delivery of an additional 366 no. residential dwellings will significantly contribute to fulfilling a range of objectives relating to delivering housing at a local, regional and national level. The subject site is zoned for new residential development and has been designated as a Key Development Area under the Clane Local Area Plan 2017-2023. Failure to deliver the proposed residential development would result in appropriately zoned and designated lands not realising its potential to meet growing demand for housing.

5.8 Reinstatement

No reinstatement measures are proposed with respect to Human Beings.

5.9 Interactions

The impact of the proposed development on human beings is addressed throughout the EIAR, in a number

of chapters. In addition to those impacts set out in this chapter, other aspects that affect human beings include the following.

5.9.1 Human Beings / Air Quality and Climate

Exposure to particulates and other emissions from construction traffic and the construction works (e.g. ground excavations and movement of soils) are potential impacts on human beings which are addressed in Chapter 9 of the EIAR. In particular, dust emissions during construction are identified as a potential impact on communities in close proximity to the proposed development. No further mitigation measures are proposed.

5.9.2 Human Beings / Noise and Vibration

Mitigation measures to reduce the impact of noise and vibration on nearby residents during the construction of the proposed development are discussed in Chapter 8 of this EIAR. Of note are the adjoining residents that may be subjected to noise nuisances due to construction activities and the presence of works vehicles. No further mitigation measures are proposed.

5.9.3 Human Beings / Landscape and Visual

During the construction phase, the community is likely to experience visual impact due to the new buildings in the landscape. In the longer term, the development will alter the perception of the site for both the local and visiting communities. The impact of the proposed development on landscape and visual aspects is addressed in Chapter 11 of the EIAR. No further mitigation measures are proposed.

5.9.4 Human Beings / Traffic and Transportation

The impact of the proposed development on the surrounding roads are addressed in Chapter 12. Therefore, no further mitigation measures are proposed.

5.9.5 Human Beings / Water Infrastructure

The impact of the additional dwellings on drainage infrastructure (surface and foul sewers) are considered in Chapter 13 (Material Assets). No further mitigation measures are proposed.

5.10 Difficulties Encountered

No significant difficulties were experienced in compiling this Chapter of this EIS document.