RESIDENTIAL DEVELOPMENT CRATLOE ROAD – PROPOSED PHASE 4

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Main Report & Non – Technical Summary

APPLICANT
Riverpoint Construction Limited
August 2023

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chartered town planning consultants

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Title:	Environmental Impact Assessment Report for Residential Development Cratloe Road – Proposed Phase 4	
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ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Part A – Non-Technical Summary

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1.0 INTRODUCTION

This Environmental Impact Assessment Report (EIAR) has been prepared on behalf of Riverpoint Construction Limited for a proposed residential development for a residential development on land located between the Old Cratloe Road and Pass (Meelick) Road in the western environs of Limerick City. Planning permission is sought to construct 54 no. residential units on a planning application site of 2.56 hectares. The full extent of the site is detailed in Figure 1.1.

This EIAR has been prepared in response to a further information request issued under Article 103(1)(b)ii of the Planning and Development Regulations 2001 as amended (the Regulations) by Limerick City & County Council under planning reference 22/959. The further information requested that,

> *"Information as specified in Schedule 7A of the Planning and Development Regulations 2001 for the purposes of EIA Screening determination is required. The information should include the results of the Article 33 request which concerned the potential for cumulative impact considerations having regard to existing and or permitted development".*

A Screening Assessment of the development proposal, including the proposed masterplan was undertaken having regard to the information required under Schedule 7A, taking into account, where relevant, the criteria set out in Schedule 7 of the Regulations. The cumulation of the impact with the impact of other existing development the subject of a consent for proposed development for the purposes of Section 172(1A(b) of the Act was considered and in particular the cumulative impact arising from the overall masterplan proposal which will provide for a total of 448 no. residential units, childcare facility and neighbourhood centre (4 no. commercial units) on an overall site of 22.53 hectares. The proposed residential development of 54no. residential units on a site of 2.56 hectares does not exceed the criteria set out for mandatory Environmental Impact Assessment (EIA).

Section 172 of the Planning & Development Act 2000, as amended, does set out the basis for EIA for developments which do not equal or exceed, the relevant quantity, area or other limit specified in Part 2 of Schedule 5, i.e., "sub-threshold development". Cumulatively, when the proposed development is considered in conjunction with previous phases of development (only Phase 1 has been granted permission), the extent of the overall phased masterplan proposal exceeds the mandatory EIA threshold of 10 hectares in a built-up area. Accordingly, it was deemed appropriate to consider the potential for significant effects on the environment and to prepare an EIAR in relation to the subject development, to ensure that the proposed development, in its own right and when considered in conjunction with the overall masterplan, would not negatively impact on the environment.

1.1 Proposed Development

The development as described in the public notices is set out hereunder.

> *Planning permission for the construction of 54 residential units comprising of the following: 30 No. 3 storey, 5 bed, semi-detached units; 2 No. 2 storey, 4 bed, semi-detached units; 14 No.2 storey 3 bed semi detached units; 4 No. single storey 2 bed, end of terrace units and 4 No. single storey 2 bed, mid terrace units. Installation of all necessary and associated site works to include vehicular and pedestrian connections onto Old Cratloe Road (L3102), roadways, footpaths, green spaces, landscaping and boundary treatments, together with all associated drainage connection works and all ancillary site works.*

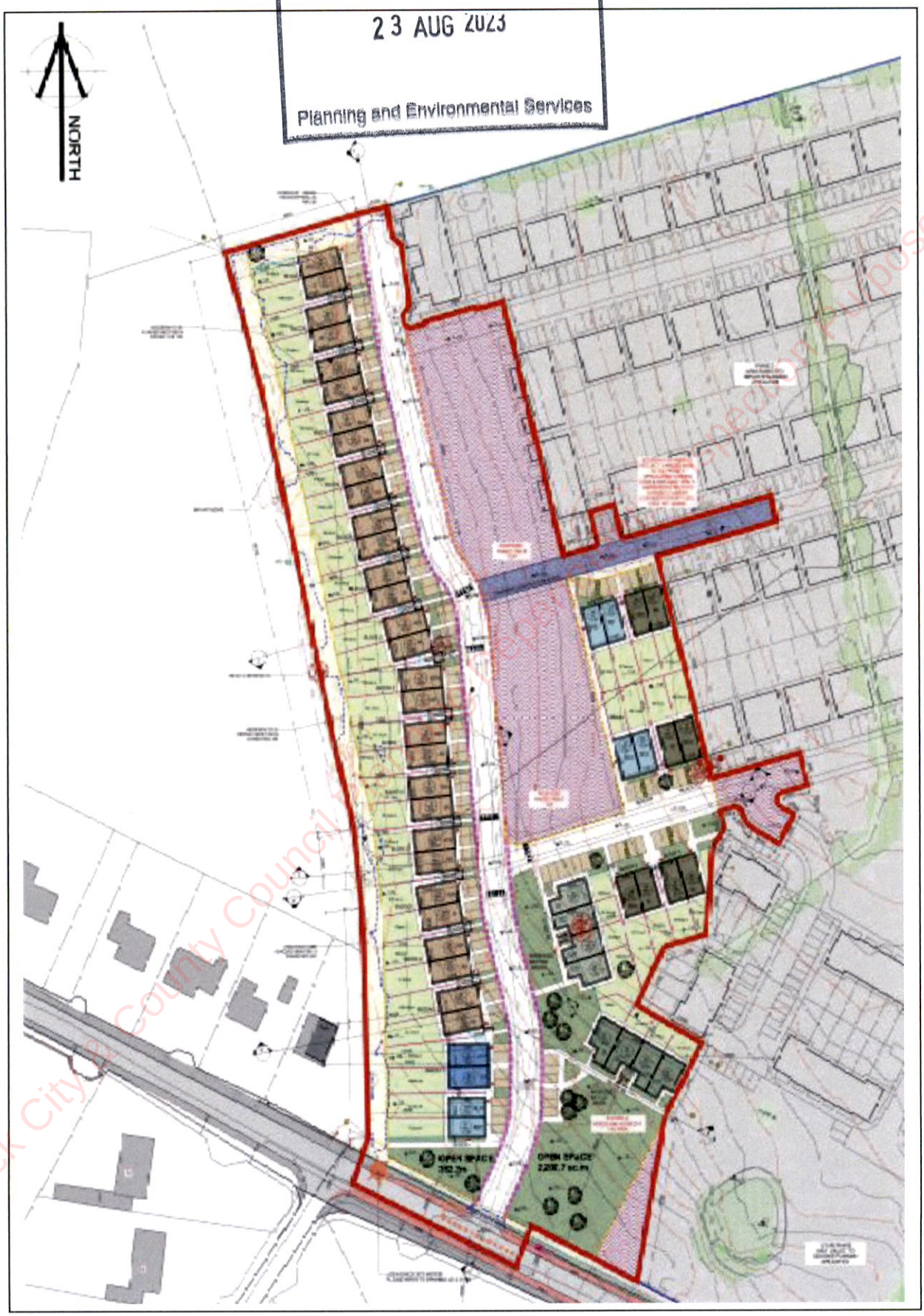

Figure 1.1 Site Extent as Defined in Red in Context of Masterplan Site

1.2 Function of the Environmental Impact Assessment Report

This EIAR is a statement of the potential significant effects that the proposed development may have on the receiving environment. The primary objective of the EIAR is to identify the baseline environmental context of the proposed development, predict potential beneficial and/or adverse effects of the development and propose appropriate mitigation measures where necessary.

The EIAR has been prepared following the logical analysis of the development proposal in relation to the receiving environment. This process of environmental impact 'assessment' and the preparation of this EIAR has been an evolving process which commenced at the project design stage and informed the overall design of the development so that potential adverse effects were omitted, reduced or off-set by design modification.

1.3 The Indicative Masterplan

Whilst the proposed development comprises an application site of 2.56 hectares, the applicant owns and is proposing development on an overall site of 22.53 hectares. A holistic approach to development has been adopted and an overall masterplan has been prepared for 22.53 hectares of land with capacity to deliver circa 448 no. residential units, a childcare facility and neighbourhood centre (4 no. commercial units) and a significant Biodiversity area as detailed in Figure 1.2. However, this total number is likely to change and can only be finally determined once planning permission has been secured for each phase of development. In terms of infrastructure and planning for future development, the roads and water services have been planned to ensure adequate capacity to serve the entire masterplan area.

Delivery 1, 2, 3 and 5 and Phase 1, 2 & 3 of the overall development has been granted planning permission for 99 no. residential units, 86 no. units, 98 no. residential units and a creche facility. Table 1.1 clarifies the intent of the overall development site in terms of a phased approach to development and the delivery of units within each phase of development as detailed in Figure 1.2. This is provided as an indication of future development on site but could be subject to change as each development proposal is advanced and planning permission is sought.

Delivery	Development	Gross Site Area defined by red line boundary	Status	Plan Ref. No.
Delivery 1	Phase 1 - 99 residential units	3.4 ha.	Planning permission granted on appeal to An Bord Pleanála	P21/1800
Delivery 2	Childcare Facility.	0.43 ha.	Granted Permission	P22/790
Delivery 3	Phase 2 - 86 residential units	2.19 ha.	Granted Permission	P22/817
Delivery 4	12 residential units & neighbourhood facility	1.49 ha.	Clarification of Further Information Request	P22/917
Delivery 5	Phase 3 - 98 residential units	9.45 ha.	Planning permission granted on appeal to An Bord Pleanála	P22/959
Delivery 6	Phase 4 - 54 residential units	2.55 ha.	Further Information Request	P22/1114
Delivery 7	Phase 5 - 99 residential units	3.02 ha.	Future development	

Table 1.1 Phased Approach within Overall Masterplan

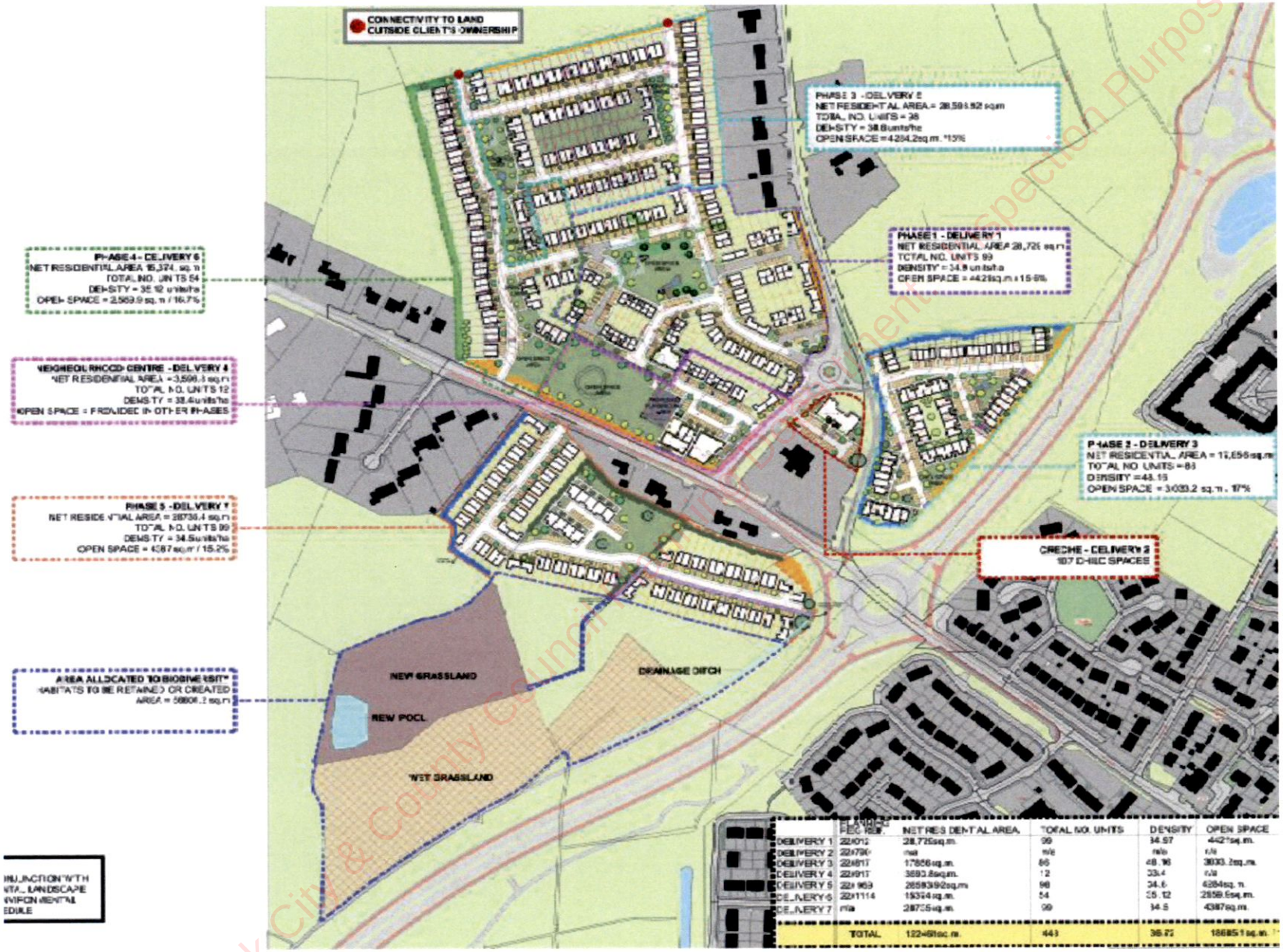

Figure 1.2

Masterplan Layout

1.4 Statutory Requirement for Environmental Impact Assessment Report

Proposed development which falls within one of the categories of development specified in Schedule 5 of the Planning and Development Regulations 2001, as amended, which equals or exceeds, a limit, quantity or threshold prescribed for that class of development must be accompanied by an EIAR.

The subject development does not fall within development classes set out in Part 1 of Schedule 5. Whilst the proposed development of 54 no. units does not in itself fall within a development class set out in Part 2 of Schedule 5, the overall masterplan of 448 no. units on 22.53 hectares of land does and the applicable category is 10(b)(iv).

> *(iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere. (In this paragraph, "business district" means a district within a city or town in which the predominant land use is retail or commercial use.)*

The proposed development comprises 9.45 hectares (as defined by red line boundary) and is therefore sub-threshold mandatory EIA. The application site is located within the edge of the built up area of the western environs of Limerick City. A threshold of 10 hectares applies to a built-up area. The overall masterplan site comprises 22.53 hectares. The proposed development, when considered in conjunction with the previous phases of development, will cumulatively exceed the 10 hectares threshold. Having regard to development which has already occurred within the masterplan area and future residential development, which is likely to be delivered, a non-mandatory EIAR has been prepared in the interests of the proper planning and sustainable development of the area.

1.5 Preparation of the Environmental Impact Assessment Report

The effects on the receiving environment are measured as the likely natural or physical changes in the environment resulting directly or indirectly from the development processes. Consideration of these effects was undertaken by assessing the proposed development against the defined environmental variables set out in the Planning and Development Regulations 2001, as amended and the Environmental Protection Agency (EPA) 'Guidelines on the Information Contained in Environmental Assessment Reports', 2022

In order to ensure an effective and conclusive environmental assessment consistent with best practice, the assessment of potential effects on the environment examines; the effects arising from the physical characteristics of the proposed residential development of 54 no. units (for which planning permission is sought) and also; the collective cumulative effects of the overall proposed masterplan development if and whenever it is implemented. The examination of the 'all phase' development scenario for the site is consistent with best practice in order to examine a 'worst-case' scenario of the project effects.

1.6 Technical Difficulties or Lack of Data

The compilation of the information necessary for the EIAR did not present any significant difficulties. Survey work has been undertaken to complement data from official sources in order to provide up-to-date base line information on which to undertake the environmental assessments. This EIAR has been prepared on the best available information and in accordance with current best practice and guidelines published by the Environmental Protection Agency.

1.7 Competencies of the Team

The preparation of this EIAR has been project managed by HRA | PLANNING Chartered Town Planning Consultants. The project management team hold recognised professional qualifications in Town Planning, Environmental Impact Assessment Management, and in Ecological Assessment. The assessment has been prepared with other specialist professional inputs as specified Table 1.2.

Chapter of EIAR	Author(s)	Company	Subject Area	Qualification
Part A	Mary Hughes	HRA Planning	Non-Technical Summary	BA (Hons) MSc PGDip EIA Mgmt. MIPI Town Planning Consultant
Part B				
Chapter 1	Mary Hughes	HRA Planning	Introduction	BA (Hons) MSc PGDip EIA Mgmt. MIPI
Chapter 2	Mary Hughes	HRA Planning	Project Description	BA (Hons) MSc PGDip EIA Mgmt. MIPI
Chapter 3	Mary Hughes	HRA Planning	Residential Need & Spatial Planning Policy	BA (Hons) MSc PGDip EIA Mgmt. MIPI
Chapter 4	Mary Hughes	HRA Planning	Project Scoping & Consultation	BA (Hons) MSc PGDip EIA Mgmt. MIPI
Chapter 5	Mary Hughes	HRA Planning	Examination of Alternatives	BA (Hons) MSc PGDip EIA Mgmt. MIPI
Chapter 6	Mary Hughes	HRA Planning	Population & Human Health	BA (Hons) MSc PGDip EIA Mgmt. MIPI
Chapter 7	Jane Russell – O'Connor	Russell Environmental	Biodiversity	PhD, P.G.C.E, BSc.
Chapter 8	Brian Lahiff	Garland Engineering	Land & Soils, Geology & Hydrogeology	BE, PGradDip.CEng MIEI
Chapter 9	Brian Lahiff	Garland Engineering	Hydrology – Surface Water & Flooding	BE, PGradDip.CEng MIEI
Chapter 10	Ciara Nolan	AWN Consulting	Air Quality & Climate	BSc. MSc. AMIEnvSc, AMIAQM
Chapter 11	Leo Williams	AWN Consulting	Noise & Vibration	BAI MAI PgDip MIOA
Chapter 12	Brian Coakley	Coakley Consulting Engineers	Material Assets - Traffic & Transport	
Chapter 13	Brian Lahiff Mary Hughes	Garland Engineering CSD Engineers HRA Planning	Material Assets – Built Services	BE, PGradDip.CEng MIEI BA (Hons) MSc PGDip EIA Mgmt. MIPI
Chapter 14	Brian Lahiff Mary Hughes	Garland Engineering HRA Planning	Material Assets – Waste Management	BE, PGradDip.CEng MIEI BA (Hons) MSc PGDip EIA Mgmt. MIPI
Chapter 15	Martin McGonigle & Tony Cummins	John Cronin & Associates	Cultural Heritage - Archaeology	BA Msc BA MA
Chapter 16	Kevin Fitzpatrick	Kevin Fitzpatrick Landscape Architecture	The Landscape – LVIA	
Chapter 17	Mary Hughes	HRA Planning	Interaction with the Foregoing	BA (Hons) MSc PGDip EIA Mgmt. MIPI
Chapter 18	Mary Hughes	HRA Planning	Summary of Mitigation Measures	BA (Hons) MSc PGDip EIA Mgmt. MIPI

Table 1.2 Competent Persons Preparing the EIAR

2.0 PROJECT CHARACTERISTICS

2.1 Site Description

Masterplan Site

The site is located approximately 3.5km from Limerick City centre, in the western environs of the city, adjoining the built-up area and existing residential development. The general area comprising the masterplan site has a rural feel, notwithstanding significant residential and educational developments immediately to the east.

The proposed masterplan site is ideally located and is surrounded by an existing and future road network (currently under construction) with easy access to Limerick city centre, the national road network and the TUS (Technological University Shannon) campus formerly LIT. A well-lit roadside footpath and other pedestrian facilities extends from the site towards the city centre on the Old Cratloe Road. A 6 minute walk from the site to the bus stop provides connectivity across the city via bus route No.302 on the Old Cratloe Road.

The masterplan site is bound by the Old Cratloe Road to the south and the Meelick Road to the east, both of which are being upgraded and realigned as part of the Coonagh–Knockalisheen Distributor Road scheme which is currently on site and expected to be complete by 2025/25. This part of the city is the gateway from the west, containing many housing developments from the 1960s all of which are low rise, in keeping with their surroundings.

The topography of the overall masterplan site is undulating with some localised peaks. The overall site has a high point of +18.00mAOD (Malin Head) in the north east corner. From here the land falls away to the Southeast, South and West. The ground profile falls to a low point of +5.00mAOD (Malin Head) along the southern boundary of the site. The land has typical gradients of 2.3% to the Southeast, 2.9% to the South and 7.7% to the West. Currently, the site comprises a parcel of agricultural land. The area proposed for development is set within a former golf course which was still in use in the 1990s but reverted back to agricultural use by 2000.

The masterplan lands benefits from three different land use zonings, with the primary land use comprising 'New Residential Use'. The objective of this landuse is "to provide for new residential development in tandem with the provision of social and physical infrastructure". The other landuse zonings are positioned fronting onto the Old Cratloe Road, including 'Open Space Use' (surrounding an existing archaeological monument) and a 'Local Centre Use'. Whilst the objective of the open space use is "to protect, provide for and improve open space, active and passive recreational amenities", the objective of local centre use is "to protect and provide local centre facilities to serve the needs of new/existing neighbourhoods and residential areas".

Application Site

The 2.56 hectares application site sits within a wider undeveloped greenfled site for which a masterplan has been prepared. The application site is located wholly on lands zoned for 'New Residential Use'. The purpose of this zoning is intended primarily for new high quality housing development.

The topography of the site is undulating and falls from east to west. Existing site levels within the development lands are between 6.0 m and 18.0 m AOD. There are boundary hedgerows to the north and west of the site of the site and a stream / drainage ditch also runs along the western boundary. A number of detached, one off houses fronting onto the Old Cratloe Road adjoins the western site boundary.

The Zone of Notification (ZoN) for one recorded archaeological site (as recorded by the Archaeological Survey of Ireland (ASI)) is located within the red line boundary of the application site, Children's burial ground (LI005-007---). The archaeological monument is to be preserved in situ and all development is removed from the ZoN surrounding it. Chapter 12.0 of this EIAR deals further with archaeology and cultural heritage

Based on the OPW CFRAMs Map, the site is located outside Flood Risk Zones A and B and is, therefore located in Flood Risk Zone C. The 1 in 1000 year coastal and fluvial flood levels in this area are at 2.90m and 2.15m respectively. Existing site levels within the development lands are between 6.0 m and 18.0 m AOD more than 3m above the 1 in 100 year flood levels. The issue of flooding is dealt with further in Chapter 9.0.

The site is located within an area of built development and agricultural land, is currently grazed by horses and ponies and so is comprised of low value biodiversity habitats. Biodiversity is dealt with further in Chapter 7.0 of this EIAR.

The land is not located within or adjoining any Natura 2000 designated sites. There is a drainage ditch in the field (outside of the application site) to the west which connects with the Lower River Shannon Special Area of Conservation (SAC) and River Shannon and River Fergus Estuaries Special Protection Area (SPA) some 1.7km distant from the site. Given the local hydrological pathways links between the site and these designated areas to these areas, a Natura Impact Statement (NIS) has been undertaken and accompanies the planning application for development.

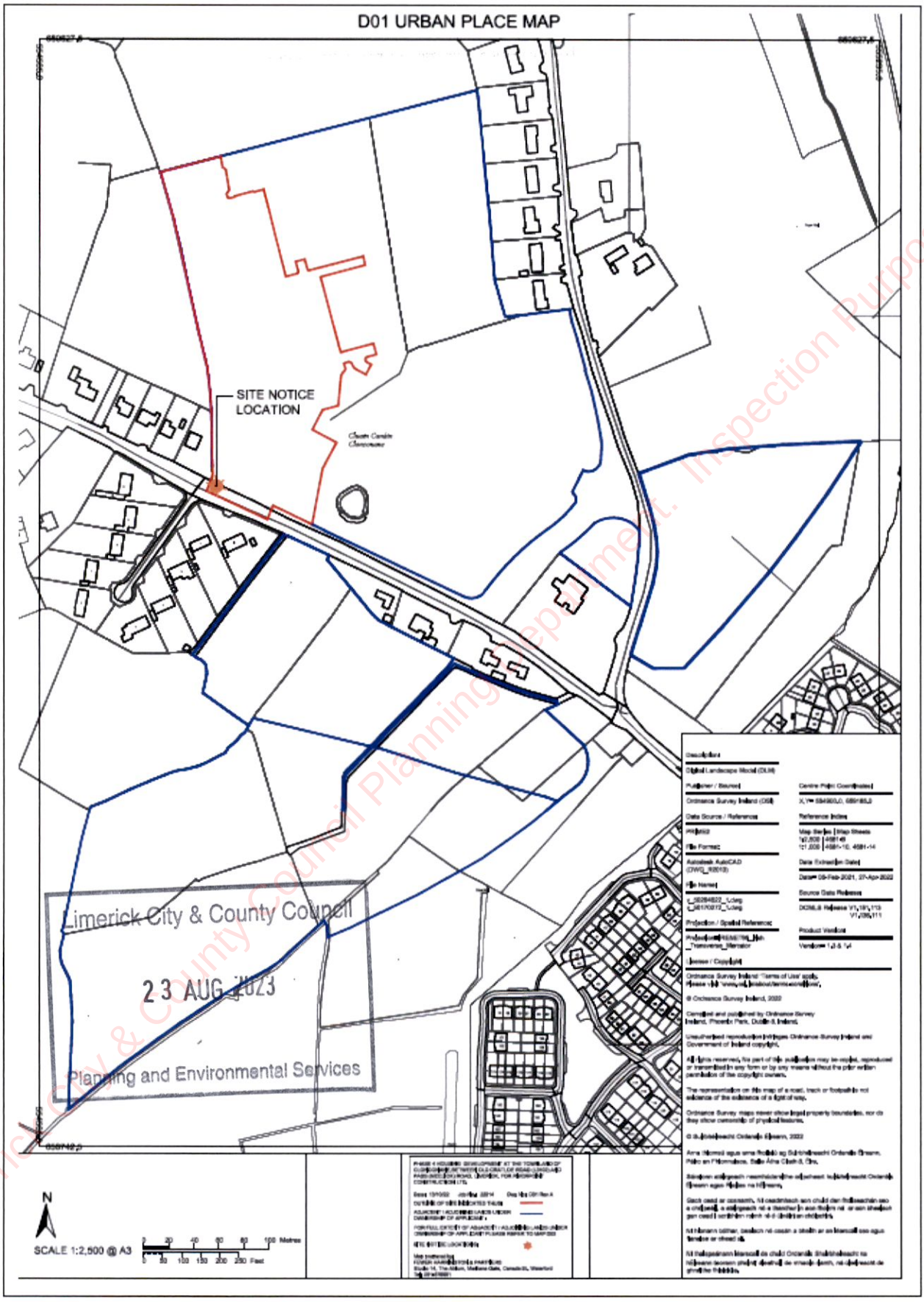

Figure 2.1 Site Location Map – Application Site Defined in Red

2.2 Proposed Development

Based on the key principles set out in the Limerick Development Plan 2022 - 2028, Fewer Harrington Architects have developed a comprehensive design for the overall masterplan site and the planning application site. Full details of the proposed development can be found in the plans and drawings accompanying the planning application. The Site Layout comprising the development proposal is detailed in Figure 2.1 and seeks to achieve a high quality landscaped park style environment, in accordance with the requirements of the Development Plan.

Development Statistics				
	Application Site		**Indicative Masterplan Site**	
No. of Units	54 units		448 units	
Unit Mix	Number	Percentage	Number	Percentage
2 bed house	8	10.1%	81	18%
3 bed house	14	42.9%	150	33.4%
4 bed house	2	47%	118	26.3%
5 bed house	30	0	30	6.6%
1 bed apartment	0	0	26	5.8%
2 bed apartment	0	0	44	9.8%
Site Area Gross	2.56 hectares gross		22.53 hectares	
Site Area Net	1.8 hectares		12.25 hectares	
Density	35.1 units per hectare		37.3 units per hectare	
Gross Floor Area	7,757.7sqm		TBC	
Building Height	1 & 2 & 3 storey		1 & 2 & 3 storey	
Public Open Space	16.7% of net residential area		13.6% proposed plus zoned open space area results in total of 17.9%	
Creche	No		Yes – 107 no. children & 8 no. staff capacity	
Local Centre	No		Yes – 2 no. retail units, coffee shop & foodstore	

Table 2.1 Development Statistics

The Masterplan lands will be accessed at three separate locations including, the recently constructed roundabout on the realigned Pass /Meelick Road and two separate standard DMURS compliant property 'T' junctions located on the southern and northern side of the upgraded section of the Old Cratloe Road which has been designed as part of the Coonagh – Knockalisheen Distributor Road Scheme which is expected to be completed by 2025 / 26. The upgraded Old Cratloe Road immediately south of the site and the realigned Meelick Road to the east, will comprise a 6.6m carriageway with footpaths and cycle lanes on both sides.

The subject lands comprising Phase 4 will primarily be accessed via the proposed junction to the west on the Old Cratloe Road. It is estimated that 70% of construction traffic (staff/misc. via cars, etc) will arrive/depart via the proposed roundabout junction to the east and 30% of construction traffic (deliveries via HGV) will arrive/depart via a new proposed junction to the west on the Old Cratloe Road.

The design of the scheme provides for a row of houses along the eastern site boundary, directly overlooking a central area of open space proposed as part of Phase 3 development. The proposed development has been designed to tie into Phase 3 with views throughout the development looking

towards the central communal open space for this phase and subsequent phases, thereby accommodating legibility within the site and contributing towards enhanced urban design within the overall scheme.

The row of houses along the western site boundary largely comprising three storey semi-detached units with two storey units at the southern end defining the entrance to the site and neighbouring existing two storey houses on adjoining land. Provision has also been made for a number of two storey houses on the opposite side of the proposed access road, flanking the area of proposed open space at the entrance to the development.

A large area of public open space area is positioned on the eastern boundary of the application site, intended to serve the proposed development and the wider masterplan site. This open space area was also proposed within the Phase 3 development on adjoining land and is overlooked by housing within Phase 3 and the proposed Phase 4 developments. The development is distinct in character and will use a number of contrasting brick tones and a plastered finish. A consistent built form and design approach through the proposed development and future phases facilitates a sense of identity and place.

As part of Phase 3 of the masterplan, to the south of the application site, on the southern side of the Cratloe Road, it is proposed to develop and maintain an area of biodiversity of some 5.68 hectares in area.. The area primarily comprises wet grassland and it is proposed to develop a new grassland area with a water pool. It is intended that the habitats that will be lost as a result of the overall Masterplan development will be replaced with the proposed habitat area that have the potential to be of higher conservation value and therefore the overall evaluation of the biodiversity will be that of net gain (See Chapter 7.0 for further detail)). The habitat to be created is clearly identified on the Landscaping Plan accompanying the planning application.

3.0 NEED & SPATIAL PLANNING POLICY

This chapter of the EIAR demonstrates that the proposal is in compliance with the provisions of national, regional and local planning policy and that it is consistent with relevant Ministerial Guidelines in relation to the development of apartment units and denser development. The proposed development and wider Masterplan will provide a significant number of housing units on a site which is located in proximity to Moyross, a defined regeneration area, Technology University Shannon and Thomond Park.

The proposed development complies with a number of the NPO's within the ***National Planning Framework*** with particular regard to development within the existing built up footprint of a settlement. Specifically, the NPF notes that Limerick has the potential to generate and be the focus of significant employment and housing growth to 2040. It is necessary for Limerick to further strengthen its position as the principal focus within the Region and to continue to address the legacy of regional growth having occurred outside the City area. This requires growing and diversifying the City's employment base and attracting more people to live in the City, both within the City Centre and in new, accessible green-field development areas. This means improving housing choice, supported by facilities and infrastructure.

The NPF further notes in National Policy Objective 10 "*There will be a presumption in favour of development that encourages more people, jobs and activity within existing urban areas, subject to development meeting appropriate planning standards and achieving targeted growth*".

Rebuilding Ireland – Action Plan for Housing and Homelessness (2016) was launched in 2016 with the aim of addressing ongoing supply issues for residential accommodation in Ireland. The overarching aim of the Action Plan is to increase the delivery of housing from its current undersupply across all tenures and to help individuals and families meet their housing needs. The Action Plan provides a target to double the number of residential dwellings delivered annually by the construction sector and to provide 47,000 social housing units in the period up to 2021.

The ***Sustainable Urban Housing Design Standards for New Apartment (2022)*** provides for an update on guidance on apartment developments in response to the National Planning Framework and Rebuilding Ireland. These Guidelines seek to promote high density apartment development on residentially zoned land in appropriate locations in line with the above referenced NPF overarching policies in relation to encouraging residential development within existing urban settlements.

The Urban Design Manual – A Best Practice Guide (2009) notes 12 no. criteria that should be used to facilitate assessment of planning applications and should, therefore, be used as a guide to steer best design practice for residential proposals. As detailed in the Design Statement prepared by the project architects Fewer Harrington & Partners, the proposed development has been designed taking into account the 12 no. detailed design principles.

Delivering Homes, Sustaining Communities (2007) provides the overarching policy framework for an integrated approach to housing and planning. It notes that demographic factors will continue to underpin strong demand for housing, which in turn will present considerable challenges for the physical planning of new housing and the provision of associated services. Sustainable neighbourhoods are areas where an efficient use of land, high quality design, and effective integration in the provision of where people want to live in.

The ***Sustainable Residential Development in Urban Areas Guidelines 2009*** advocate the use of 'Universal Design', whereby a development is accessible and usable by as many people as possible, regardless of abilities or age. The Guidelines encourage the sustainable and efficient use of land and seek to ensure that sustainable travel patterns are encouraged. A 6 minute walk from the site to the bus stop provides connectivity across the city via bus route No.302 on the Old Cratloe RoaD. It recommends a number of qualitative standards regarding open space provision, design, accessibility, shared use and SUDs. All of these elements have been incorporated into the proposed design approach.

A key objective of the ***Design Manual for Urban Roads and Streets (DMURS)*** is to achieve safe, attractive and vibrant streets by balancing the needs of all users, and prioritising alternatives to car journeys. The manual advocates a design-led approach, which takes account of both the physical and social dimensions of place and movement. Pedestrian and cycling connectivity both within and external to the site have been key design considerations, in particular linkages with the creche and proposed local neighbourhood centre.

The ***Climate Action Plan 2023 (CAP23)*** is the second annual update to Ireland's Climate Action 2019 and is fundamental in implementing the Climate Action and Low Carbon Development (Amendment) Act 2021. Key measures of the plan include ambitious home and business retrofitting and climate-based construction, and 500,000 homes retrofitted to BER B2 by 2030. Energy, sustainability and climate action are key considerations influencing the design of housing on the site. The development is being designed to NZEB (Nearly Zero Energy Buildings) standards. Passive design measures include the use of the building fabric to take advantage of the site constraints/orientation to maximise the daylight factors, natural ventilation and solar benefits. Natural daylight factors in accordance with BRE and CIBSE recommendations have been targeted.

The ***Regional Spatial and Economic Strategy for the Southern Region 2020*** confirms that the city of Limerick is a very important driver of national growth, a key regional centre that requires significant investment and growth. Limerick – Shannon is identified as a Metropolitan Area on the settlement typology. The MASP for Limerick – Shannon highlights the need to increase residential density in Limerick City and Shannon through a range of measures including reductions in vacancy, re-use of existing buildings. A dynamic approach to land-use within the footprint of existing settlements is sought by the RSES in order to maximise the opportunity of urban regeneration and infill sites to contribute to sustainable compact growth and revitalisation of our existing settlements of all scale.

The ***Mid-West Area Strategic Plan (MWASP)*** **proposes** measures to deliver population growth, infrastructure and job creation in specific areas targeted in the RPGs and to achieve balanced regional development to promote sustainable urban and rural development. An objective set out in this strategy is to strengthen the role of Limerick City and its Environs as the core economic driver for the Region.

In the ***Limerick County Development Plan 2022 (CDP)*** the subject land and site is identified as part of Limerick City and Suburbs, identified for significant growth as Level 1 in the Settlement Hierarchy. Located in an area defined as the 'Suburban Edge' in the CDP, the subject land actually adjoins the 'Intermediate Urban Location'. The CDP expects the city and suburbs of Limerick to grow with the provision of 11,054 residential units between 2022 – 2028. The land is located within Urban Character Area O5 (Thomondgate/Moyross/Caherdavin/Ennis Road) where it is a specific objective to promote infill and brownfield development; retain existing green spaces; and to respect and reinforce the landmark status of Thomond Park.

The proposed development has been designed taking the aforementioned objectives into account. Located on primarily residential zoned land, the proposed development in the context of the overall masterplan has been advanced on the basis of higher densities, with an overall density of 37.3 units per hectare across the masterplan site (estimated 448 no. units on 22.53 hectares of land). The proposed application site (Phase 4) has a density of 35.12 units per hectare.

The ***Limerick 2030 Spatial and Economic Plan*** sets a framework for public sector action and private sector investment until 2030. The first element of the 2030 Plan is an Economic Strategy which identifies how Limerick needs to be positioned in order to best take advantage of economic opportunities. The second element is a Spatial Plan focused on revitalising and redeveloping Limerick City Centre. There is little emphasis in the outer lying areas such as Cratloe in this plan. The final element is a Marketing Plan which aims to use Limerick's unique and positive attributes to change perceptions of how Limerick is viewed.

The ***Limerick Shannon Metropolitan Area Transport Strategy (LSMATS)*** has been prepared by the National Transport Authority (NTA), in collaboration with Limerick City and County Council, Clare County Council and Transport Infrastructure Ireland (TII). The strategy provides a framework for the planning and delivery of transport infrastructure and services in the Limerick Shannon Metropolitan Area over the medium to long term. LSMATS provides for the delivery of Bus Connects along the Old Cratloe Road fronting the site, ensuring a bus service and connectivity to the city centre every 10 minutes

4.0 SCOPING

The project was initially scoped with the applicant and within the design team based on the expertise and past experience of the EIAR contributors for similar projects. Existing activities and features on site and similar developments in other locations also informed the process, including previous and current planning applications adjacent to the subject site and within the overall masterplan site.

A total of 15 no. environmental aspects were assessed as part of the scoping process and justification provided on whether the environmental aspect was to be included and considered within the EIAR. Only 2 no. environmental aspects were omitted from consideration including Daylight & Sunlight and Major Accidents & Disasters.

In respect of Daylight & Sunlight it was considered that the scale of the development at only two and three stories is reflective of the scale of development in the general area. Accordingly, it is considered that the scale of the development will not result in adverse impacts from a daylight, sunlight and / or overshadowing perspective. In respect of Major Accidents & Disasters, the subject site is not located within any consultation distances of any Serveso II sites. As a result, there is no expected impact arising from major accidents or disasters in respect of the proposed development.

A pre-planning meeting was held with Limerick City & County Council on the 06th June 2021 and again on the 02nd June 2022 in respect of the proposed development for the entire masterplan site. Representatives from the Planning Department were present. The nature and extent of the proposed development in the context of the overall masterplan was presented at the meeting. A number of issues were raised and discussed with the planning authority in respect of the proposed development which have informed the overall design and have been comprehensively accommodated within the overall masterplan. The design rationale seeks to create a sustainable and successful development, providing a new sense of place with new services and facilities, but all within easy distance of the city centre. The development seeks to make the most efficient use of new road infrastructure in the area which has been delivered to facilitate development and open up lands for development purposes.

5.0 EXAMINATION OF ALTERNATIVES

This chapter provides an outline of the main alternatives examined throughout the design and consultation process. This serves to indicate the main reasons for choosing the development proposed, taking into account and providing a comparison of the environmental effects. In order to meaningfully consider alternatives relating to the proposed development of 99 no. units, consideration must be given to the evolution of the overall masterplan for the site. Once this has been considered then the logic for

the development proposal becomes obvious, as it is just part of an overall intended scheme of development.

Prior to the acquisition, the site's ability to satisfy environmental criteria was considered by the applicant and it was found to offer the following attributes;

- The subject site offered the opportunity to bring a vacant greenfield site adjoined by existing residential development and educational uses into productive use, thus promoting the principles of compact growth.
- The site's location within a 6 minute walking distance of a bus stop on bus route No.302 on the Old Cratloe Road, along with its proximity to the Technological University Shannon (TUS) which has the potential to promote a modal shift from the private car to more sustainable forms of transport. This in turn would assist with achieving overarching environmental objectives such as improved air quality (CO2, NO2 and particulate emissions) and a reduction in noise pollution.
- The proximity of the site to significant employment nodes such as TUS, Thomond Park, Coonagh Cross, and Clondrinagh Industrial Estate would facilitate sustainable living in proximity to the workplace.
- The site is not subject to any statutory nature conservation designation and although there is a hydrological pathway via a drainage ditch which feeds into the flow network to a Designated European Site (Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA, any potential impacts can be mitigated through appropriate design measures.
- Given the site is zoned for development, and adjoins existing urban development to the east, including new road infrastructure, its capacity to absorb development without significantly effecting the existing landscape and visual characteristics of the surrounding area is high.
- The site is not located within an area identified as susceptible to flooding.

The key environmental and practical considerations which influenced the design of the proposed development and alternative locations and layouts on the subject lands included the following:

- The need to achieve sustainable densities in accordance with national guidelines Sustainable Residential Development in Urban Areas and the policies of the Limerick Development Plan 2022 - 2028, given the location of the subject site in proximity to services and facilities but also having regard to the existing public transport network on the Old Cratloe Road, which is due for improvement and upgrade under the Limerick Strategic Metropolitan Area Transport Strategy.
- The topography of the subject site and existing site features, including the Children's Burial Ground (archaeological site), significant hedgerows and neighbouring landuses.
- The need to ensure any residential development provides a good mix of housing types which meet current market demands and which are deliverable in the short to medium term.
- The need to provide for high quality open space.
- Protection of existing trees and hedgerows where possible to enhance the amenity and biodiversity of the area.
- The quality of the urban environment to be delivered and the associated impact on human health.

- Access, permeability and connectivity with surrounding areas and land uses.

The subject proposal has evolved during the design phase in response to input from the appointed EIAR team and advice received from Limerick City & County Council at pre-planning stage. This iterative process inter alia highlighted environmental matters that informed the consideration of alternative layouts and designs including; open space provision, addressing the issues of population and human health in a city environment, biodiversity, and transportation, up to the formalisation of the final scheme which is being submitted to Limerick City & County Council for approval.

In light of the foregoing and following consideration of environmental and planning factors at a high level, it is considered that the subject site is an appropriate site for residential development from an environmental perspective.

EFFECTS ON THE ENVIRONMENT

Consideration of environmental impacts in the EIAR were generally restricted to areas that initial scoping had indicated could be impact upon by the proposed development. These included:

- Population & Human Health
- Biodiversity
- Land & Soils, Geology & Hydrogeology
- Hydrology – Surface Water & Flooding
- Air Quality & Climate
- Noise & Vibration
- Material Assets - Traffic & Transport
- Material Assets – Built Services
- Material Assets – Waste Management
- Cultural Heritage - Archaeology
- The Landscape – LVIA

Each of the above was considered in detail, having regard to both the environment as it currently exists prior to development, the likely impacts that a development of this kind would have, and the means of reducing the impacts of the development when it is in operation.

6.0 POPULATION & HUMAN HEALTH

The baseline information was gathered using desk top analysis of available mapping and aerial images; visits to the site and the surrounding area; analysis of census of population data; review of relevant documents; and a review of comments from statutory bodies and the public during the consultation process.

In order to assess the likely significant impacts of the proposed development on population and human health, an analysis of recent Census data was undertaken relating to the economic, demographic and social characteristics of the study area. For the purposes of this demographic analysis, the study area comprises 2 No. distinct enumeration area. These enumeration areas are identified in Figure 6.1 and provide demographic information for the local and regional populations which are likely to be impacted

by the subject development. Where relevant, information with relation to the national averages in each demographic area is also provided.

The total population of the study area according to the 2022 census is 20,542. The breakdown of population 2022 had not been published at the time of authoring. Based on the 2016 Population, the 15 – 19 age cohort and the 20 – 24 age group comprise 15% of the overall population. The next largest age group at 6% is those that fall within the 55 – 59 year age group. 20% of the overall population falls within the 30 – 44 year age group. This is significant in terms of service provision and has significant implications for housing provision and demand.

The Pobal Deprivation Index is Ireland's most widely used social gradient metric, which scores each small area (50 – 200 households) in terms of affluence or disadvantage. The index uses information from Ireland's census, such as employment, age profile and educational attainment to calculate this score. Whilst the subject site, located in Limerick North Rural ED is described as being 'marginally below average', the general study area also encompasses a 'very disadvantaged area' (Ballynanty) and also an 'Affluent area' (Farranshone).

Figure 6.1 Extent of CSO enumeration areas utilised in demographic analysis. Subject Site identified by red dot.

Within Limerick City & Suburbs, there has been a forecasted need for 11,054 households between 2022 – 2028, to facilitate a total population of 123,242 in 2028. Accordingly, 259 hectares of land is zoned to accommodate housing growth, including the subject land.

The Limerick City North Electoral Area, in which the subject site is located had only 5% vacancy rate in 2022, in contrast to the 7.7% vacancy rate across Limerick city and county.

The general area comprising the masterplan site has a rural feel, notwithstanding significant residential and educational developments immediately to the east. The majority of site is surrounded by green fields apart from low density dwellings and Willow Grove development to the north and west, and the county club bar on the Old Cratloe Road - Pass Road junction. Further to the east, developments such as Thomond Village, Clonile and Shannonvale lie next to the site and mark the edge of the built up area of the Limerick suburbs.

A growing and developing suburban area to the north west of Limerick City, the character of the area is dominated by mid – low density residential development with clusters of commercial development interspersed at nodal locations. The settlement pattern is varied, dominated by individual 'housing estates' with little permeability and connectivity.

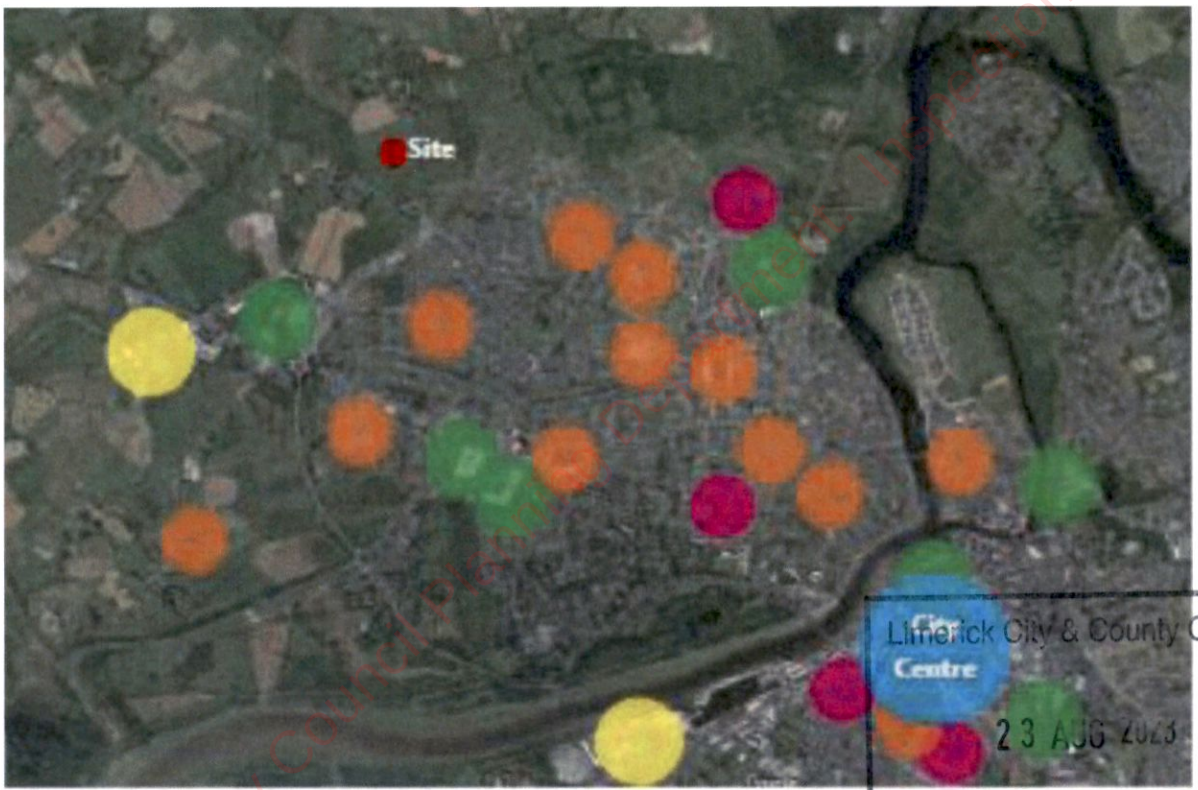

Figure 6.2 Typologies & Landuse

6.1 Operational Impacts

The proposed development will consist of 54 no. residential units/households. Using the average household size of 2.7 the proposed development is likely to result in a projected population of approximately 146 no. persons.

Having regard to the potential of the overall masterplan site to accommodate 448 no. units, including the subject site, the potential is for the masterplan to result in a projected population of approximately 1,210 people. This will result in a sizeable new community within the area. This is considered significant, permanent and positive, particularly in the context of current housing demand, but it will place significant additional strains on existing community facilities and services in the area and in the city. The important consideration is that the potential population generated from the proposed development has already been planned for in the context of the Limerick Development Plan 2022 - 2028 and the projected

household growth in Limerick city of an additional 11,054 residential units between 2022 – 2028. The new Limerick Development Plan was adopted in 2022 with adequate planned provision made for supporting services and facilities over the plan period.

The proposed development will result in a generally positive alteration to the existing undeveloped site in terms of the provision of residential units, to serve the growing population of the area in accordance with the objectives of the Limerick Development Plan 2022 – 2028, the associated growing population and the evidential need and demand for housing in the area. The proposed creche facility will complement existing creche operators in the area and the proposed local neighbourhood centre will provide local convenience shopping and other services, not only accommodating the proposed development, but also servicing existing residents in the area.

The Social Infrastructure Audit undertaken for the purpose of the EIAR confirms the proximity of the site to existing community support facilities including local and district shops, health facilities, employment opportunities and schools. These existing facilities within the vicinity of the site have the capacity to be shared and further utilised. They also have the potential to be augmented / expanded with additional facilities and services to serve a growing community.

Enrolment for both primary schools within the area appear to be growing, whilst the last year saw a decline for secondary schools. There are no proposals detailed in the Development Plan to increase primary school capacity in the area, although there are a number of policies which proactively support future growth and expansion.

The subject site is served by public transport with bus links to Limerick City Centre and its range of higher order shops and services. Furthermore, the masterplan site provides for the development of a creche facility and local neighbourhood facilities in advance of the proposed development (Phase 3) thereby ensuring adequate services in the immediate area to serve the development.

6.2 Construction Impacts

Potential construction impacts arise from a range of issues discussed elsewhere in this EIAR: Traffic & Transport (Chapter 12.0); Noise and Vibration (Chapter 11.0); Air Quality and Climate (Chapter 10.0); and Biodiversity (Chapter 7.0). Construction impacts resulting from the delivery of the overall masterplan site are likely to be of medium effect, adverse and temporary in nature.

The construction phase of the proposed development will primarily consist of site clearance, excavation and construction works. Within the overall masterplan site, these works are likely to take place over seven different phases with a potential completion timeframe of five years. Given the extent of the subject site and the phased approach to development works, direct impacts are most likely to be experienced within the masterplan site itself and within those houses that will be occupied upon completion prior to another phase commencing.

Chapter 11.0 of this EIAR sets out a number of noise mitigation measures. Whilst there is potential for temporary noise impacts on nearby noise sensitive properties due to noise emissions from site activities during construction, the application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration

impact is kept to a minimum as far as practicable. For the duration of the construction period, construction noise impacts will be short-term, negative, slight to significant.

Within the subject site, the works will be undertaken in one phase over a 9 month timeframe. The works will largely be confined to the proposed development site. Notwithstanding the implementation of remedial and mitigation measures there will be some minor temporary residual impacts on population (human beings) and human health most likely with respect to nuisance caused by construction activities, particularly relating to noise and dust. The houses to be constructed immediately to the south east of the site and those existing one off houses adjoining the site on the Old Cratloe Road, will most likely be impacted. For the duration of the 9 month construction period, construction noise impacts will be short-term, negative, slight to significant.

It is anticipated that subject to the careful implementation of the remedial and mitigation measures proposed throughout this EIAR document any adverse likely and significant environmental impacts will be avoided. Positive impacts are likely to arise due to an increase in employment and economic activity associated with the construction of the proposed development, which is likely to have between 50 – 60 workers on site at any one time. As outlined above, the construction phase will have both direct and secondary positive economic impacts in this regard.

Potential impacts could occur as a result of inadequate site management or accidental spillage during construction, which could enter the local drainage ditches which have a hydrological connection with the a drainage ditch in the field (outside of the application site) to the west which connects with the Lower River Shannon Special Area of Conservation (SAC) and River Shannon and River Fergus Estuaries Special Protection Area (SPA) some 1.7km distant from the site. However, the likelihood of this happening is low given the design measures introduced as part of the development and detailed in Chapter 9.0 of this EIAR.

The visual landscape will change once construction commences and it will take time for the proposed landscaping treatment to mature. These impacts further detailed in Chapter 16.0 Landscape, are likely to be moderate and short term in nature.

The overall predicted likely and significant impact of the construction phase for the application site will be short-term, moderate and likely to be neutral. Although the construction timeframe for the overall masterplan will be longer and more likely to be in the region of five years, the construction will be undertaken on a phased basis such that impacts will continue to be short-term, moderate and neutral in effect.

The EIA Guidelines 2022 state that an EIAR must include the expected effects arising from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project. In this respect, taking cognisance of the other chapters contained within this EIAR document, it is not considered that the proposed development site presents risks of major accidents or disasters, either caused by the scheme itself or from external man made or natural disasters.

7.0 BIODIVERSITY

The ecology and biodiversity assessment has evaluated the importance of the ecological resources present and defined the degree of significance of potential impacts resulting from the MS of the proposed development. The assessment approach has followed the Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) and the EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022) as well as the NRA Guideline for the Assessment of Ecological Impacts of National Road Schemes (2009). The assessment has also taken into consideration the national planning policy, the EU Habitats and Bird Directives (2000) and protected species legislation in identifying appropriate avoidance, mitigation (including design mitigation) and compensation measures.

Measures to mitigate the potential impacts on defined key ecological receptors are proposed. The assessment involved a desk study and field surveys by suitably qualified ecologists including specialists in botany, breeding birds and mammal ecology.

The Masterplan Site (MS) footprint is predominantly comprised of open grassland with scattered trees and associated hedgerows/treelines. The presence, or potential presence, of species on the MS was identified from the desk study and walkover field surveys.

The main ecological features on the MS are hedgerows/treelines, drainage ditches and wet grassland, that are all of Local Importance (Higher Value) in accordance with the ecological resource valuations presented in the NRA Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA/TII, 2009). The MS is dominated by agricultural fields both grazed by either cattle or horses and ponies and are of Local Importance (Lower Value) and are not considered to be sensitive ecological receptors.

No features of significance for roosting bats are present within the MS, however bat species have been recorded in the vicinity of the site and therefore the lands may be of significance for commuting and foraging bats. The hedgerows/treelines within and around the MS are all of importance for nesting birds. The development at Old Cratloe Road will involve the removal of the agricultural fields, however the majority of the hedgerows/treelines will be retained, therefore reducing the impact at a local level. Furthermore, new native hedgerows will be planted to replace any hedgerows/treelines removed as part of the development. Hence, although the loss of hedgerows/treelines is a significant impact at a local level, the measures to provide native replacement hedgerows that will cover a length greater than those lost, will compensate for the loss of biodiversity and therefore there will be biodiversity net gain for this habitat type.

The two drainage ditches, which are also of Local Importance (Higher Value), will not be directly impacted as a result of the MS development and site specific measures will be implemented to ensure that there is no indirect impact as a result of the construction phase and a surface water and storm water infrastructure has been designed, complete with SuDs measures, to ensure that there is no reduction in biodiversity as a result of the MS development or the hydrologically connected European Sites, during the operation phase.

The remaining Local Importance (Higher Value) habitat is that of wet grassland, which will not be directly involved in the MS development and to compensate for the loss of agricultural grassland an additional

area will be left to develop as a wet grassland, together with the creation of a new pool. This is conjunction with an ecological based landscape plan, whereby a number of standard native or pollinator friendly tree species will be planted and green areas will be seeded with native wild flower and grass species mixture overall enhancing the biodiversity of the MS development. In addition bat and insect friendly lighting has been designed to minimise the impact on foraging or commuting species.

The habitats to be directly affected consist primarily of modified habitats of reasonable ecological value and classified as Local Importance (Lower value). The impact on these habitats will be long term and significant. However measures have been implemented to reduce the impact by creating replacement habitats. The impacts on those habitats that are classed as Local importance (Higher Value) will be short term and imperceptible, provided mitigated measures are employed. The ecological effect from dust generation during construction will be short term and imperceptible.

The mitigation measures to protect the drainage ditch will be required for this phase to ensure that there is no pathway to ecological receptors both locally and to the hydrologically connected European Sites during the construction phase. Soakaways have been designed as part of the drainage infrastructure to capture and allow for percolation of the surface water and storm water runoff as well as permeable paving and porous asphalt, in addition to the aforementioned bio-retention strip for the operation phase. The overall ecological assessment has concluded that although a number of a habitats will be directly affected by the proposed masterplan development, compensation measures will be implemented to offset any biodiversity net loss, thus enhancing the overall biodiversity of the MS.

Risks to hydrological receptors will be minimised by construction best practice mitigation measures and site specific mitigation measures. The operation risks will be removed by the implementation of a surface water and storm water infrastructure, including SuDs, to be implemented across the whole Master Plan site (including Phase 3).

The enhancement measures within and adjacent to the proposed masterplan development aim to enhance and improve the habitat quality for nature conservation and will create new opportunities for flora and fauna.

8.0 LAND & SOILS

The Land & Soils assessment involved a desktop study of soils, subsoils, bedrock and groundwater, a review of existing site investigation data and the interpretation and reporting of data.

The lands are highest at the north east corner. The lands generally fall to the Southeast, South and West. The lowest point of the lands is at the Southern Boundary.

The ground conditions consist of glacial till derived from limestones on bedrock. A bedrock outcrop is located within the lands and bedrock is shallow. The underlying bedrock of the site is Visean Limestone.

The underlying groundwater body is the Limerick City Northwest groundwater body (GWB). The masterplan lands are located in an aquifer classified as "Lm": (A Locally Important Aquifer which is generally moderately productive) and comprise a moderately permeably subsoil overlain by a well-

drained soil. The vulnerability of the aquifer is defined as "High" and "Moderate" across the study lands. The "High" area is located within the northern central lands.

There are no recorded waste disposal or contaminated sites located on or in proximity to the proposed site. The site is not within or directly adjacent to any Natura 2000 area. There are no recorded geological heritage sites in the close proximity to the study area. There are no quarries in the close vicinity of the study area. There are no regional groundwater supplies or Source Protection Areas (SPA) identified within this area.

There were no detections of contaminated soils or other contaminated material recorded during site investigations to date, the previous use of the lands as a golf course, quarry and possible well may have resulted in some localised filling of the lands with potential for contamination and routes to sensitive receptors.

The identified potential construction and operational stage impacts on sensitive receptors (i.e. site geology, construction operatives, future site users and off-site residents) predominantly relate to ensuring that the land and groundwater is not contaminated which could act as a pathway to downstream sensitive receptors. Mitigation measures proposed to ensure predicted impacts are slight to imperceptible include:

- Minimize excavation and disturbance to soil structure and bedrock to reduce backfill and material removal. Retain topsoil for re-grading. Reuse soils and bedrock on site where possible. Remove excess material to licenses facilities.
- Investigate and plan for the possibility of encountering contaminants during construction.
- Monitor groundwater quality before, during, and after construction to ensure compliance with waste management plans.
- Store waste containers and ancillary equipment in a secondary containment system, and keep spill kits on hand.
- Source imported soils and stones from licensed facilities with documentation confirming their inertness and suitability.
- Implement runoff and sediment control measures to protect subsoils and groundwater aquifers during construction.
- Store waste fuels and materials in designated areas isolated from surface water drains, use fuel interceptor tanks, and avoid storing fueling, lubrication, and site offices within 25m of drainage ditches or open excavations.
- Maintain and check construction vehicles, plant, and machinery to avoid spillages, and use secondary containment, drip trays, and impermeable refuelling areas.
- Store potentially hazardous materials securely on site.
- Install adequate security measures on the construction site, including fencing, site access, plant and equipment security, warning signage, and lighting.
- Monitor the cleanliness and prevention of oil and diesel spillages, runoff control of potential stockpiles, protection of topsoil, and cleanliness of the surrounding road network during construction.
- Assess excavated materials for contamination and treat contaminated material in accordance with waste management regulations, and dispose of excess fill and unacceptable material appropriately.
- Undertake top-soiling and landscaping as soon as finished levels are achieved.

- Provide wheel wash facilities close to the site entrance to reduce the deposition of mud and other substances on the surrounding road network.

Potential risks during the operational phase of development relate to potential impacts from the surface water drainage system in relation to contaminants, and reduced infiltration to the subsurface GWB. The proposed drainage system is designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS) and the CIRIA SUDS Manual. It will ensure a sufficiently high level of treatment of runoff prior to discharge. These design measures will ensure the residual impact on surface waters during the operational phase will be imperceptible.

9.0 WATER HYDROGEOLOGY HYDROLOGY & FLOOD RISK

The assessment involved a desktop study of sensitive hydrological receptors in the area and the interpretation and reporting of data. It also included flood risk study.

The lands are highest at the north east corner. The lands generally fall to the Southeast, South and West. The lowest point of the lands is at the Southern Boundary. The lands lies within the North Ballycannan sub-basin catchment of the River Shannon and just outside of the Crompaun East sub-basin. Over half of the lands drain to an open watercourses to the West. Lands to the East are drained by a swale recently constructed in connection with the Coonagh to Knockalisheen Distributor Road project. The lands to the South discharge to open drains. All existing swales and drains discharge to OPW maintained channels into the River Crompaun East and ultimately to the River Shannon.

The development lands are located at levels in excess of having a 1 in 1000 change of flooding.

The main risks to surface waters during the construction stage of the proposed development include the storage of fuel on site, the possibility of encountering buried contaminated materials and the subsequent release of contaminants into watercourses and general construction / excavation activities.

Mitigation measures proposed to ensure predicted impacts are imperceptible include:

- Back-up plans to deal with contamination or fuel spills
- Contingency plans for discovery of contaminated waste materials to be developed.
- Waste containers and equipment to be stored within a secondary containment system.
- Chemical analysis to be carried out on fill material to assess risk.
- Imported fill material to be sourced from approved/licensed facilities and confirmed as inert.
- Silt fencing and dams along with an attenuation pond to be installed to prevent silt-laden water leaving the site.
- Drainage ditches to be installed to intercept surface water and pumped water to be treated prior to discharge.
- Monitoring of surface and groundwater quality before, during and post construction works to be undertaken.
- Waste fuels and materials to be stored in designated areas isolated from surface water drains or open waters.
- Wash-out areas to be located greater than 50m from any natural watercourse and properly designed with an impermeable liner.

- All waste material generated to be temporarily stored in secure bunded areas.
- Adequate security measures to be installed on the construction site.
- Construction vehicles, plant and machinery to be maintained and precautions taken to avoid spillages.

Potential risks during the operational phase of development relate to potential impacts from the surface water drainage system in relation to contaminants of surface water bodies. The proposed drainage system is designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS) and the CIRIA SUDS Manual. It will ensure a sufficiently high level of treatment of runoff prior to discharge. These design measures will ensure the residual impact on surface waters during the operational phase will be imperceptible.

10.0 AIR QUALITY & CLIMATE

In terms of the existing air quality environment, baseline monitoring data available from similar environments indicates that levels of nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($PM_{2.5}$) are generally well below the National and European Union (EU) ambient air quality standards.

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Regulation 2018/842. The EPA state that Ireland had total ESR GHG emissions of 46.16 Mt CO_2eq in 2021. This is 2.71 Mt CO_2eq higher than Ireland's annual target for emissions in 2021.

Impacts to air quality and climate can occur during both the construction and operational phases of the proposed development. With regard to the construction stage the greatest potential for air quality impacts is from fugitive dust emissions impacting nearby sensitive receptors. Impacts to climate can occur as a result of vehicle and machinery emissions. In terms of the operational stage air quality and climate impacts will predominantly occur as a result of the change in traffic in the local areas associated with the proposed development.

There are a number of high sensitivity receptors (residential properties) in close proximity to the site at which dust impacts may occur. The area was assessed as having a medium sensitivity to dust soiling impacts and a low sensitivity to dust related human health impacts. There is at most a medium risk of dust soiling impacts associated with the construction stage of the proposed development in the absence of mitigation. Provided the dust mitigation measures outlined in Section 10.6.1 of Chapter 10 are implemented, dust emissions are predicted to be short-term, negative and imperceptible and will not cause a nuisance at nearby sensitive receptors.

The best practice dust 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, the impact of construction of the proposed development will be short-term, localised, negative and imperceptible with respect to human health.

Potential impacts to air quality and climate during the operational phase of the proposed development are as a result of a change in traffic flows and volumes on the local road network. The operational phase air quality and climate modelling assessments determined that there is no potential for significant impacts as a result of traffic related to the proposed development. It can therefore be determined that the impact to air quality and climate as a result of altered traffic volumes during the operational phase of the proposed development is localised, neutral, imperceptible and long-term in relation to air quality and climate. In addition, the proposed development has been designed to reduce the impact to climate where possible during operation.

As the National and EU standards for air quality are based on the protection of human health, and concentrations of pollutants in the operational stage of the proposed development are predicted to be significantly below these standards, the impact to human health is predicted to be imperceptible, neutral and long term.

No significant impacts to either air quality or climate are predicted during the construction or operational phases of the proposed development.

11.0 NOISE AND VIBRATION

An assessment of noise and vibration impacts on the surrounding environment during the construction and operational phases of the proposed development was undetaken. When considering the potential impacts, the key sources will relate to the short-term phase of construction and the long-term impacts associated with the development as a whole once operational.

The existing and future noise and vibration environments across the development site and in the vicinity of the nearest existing NSLs are dictated by transportation sources in the study area and the surrounding road network including the Old Cratloe Road, Pass Road and the future Coonagh to Knockalisheen Distribution Road.

The construction phase will involve site clearance including rock breaking, building construction works and landscaping, the assessment has determined that there is the potential for moderate to significant short term noise impacts when works are undertaken within close proximity (30 - 40m) of the receptor locations. At distances of 50m and greater there is potential for a negative, moderate impact. However, these occurrences will only be temporary, and the vast majority of the construction works will take place at large distances from the receptors, and therefore no significant impacts are predicted i.e. the construction noise criterion will be complied with. Construction vibration impacts are negative, not significant and temporary.

The use of best practice noise control measures, hours of operation, scheduling of works within appropriate time periods, strict construction noise limits and noise monitoring (where required) during this phase will ensure impacts are controlled to within the adopted criteria. Similarly, vibration impacts during the construction phase will be well controlled through the use of low impact equipment and adherence to strict limit values.

During the operational phase, the predicted change in noise levels associated with additional traffic in the surrounding area required to facilitate the development is predicted to be of negligible impact along

the existing road network. In the context of the existing noise environment, the overall contribution of induced traffic is considered to range from imperceptible and long-term to negative, moderate significance and long-term for nearby residential locations.

In addition, the potential for inward noise effect on the proposed development has been assessed. The assessment was carried out with reference to the guidance contained in *Professional Practice Guidance on Planning & Noise* (ProPG), BS 8233:2014 *Guidance on Sound Insulation and Noise Reduction for Buildings* (BSI); and the local and national Noise Action Plans relevant to the area. Due to the noise environment facades are expected to not require enhanced sound insulation specifications for glazing to achieve suitable internal noise levels. Courtyards and other external amenity areas are accessible in the vicinity of the proposed residential buildings within the recommended range of noise levels from *ProPG* between 50 – 55 dB $L_{Aeq,16hr}$. It is considered that the objectives of achieving suitable external noise levels is achieved within the overall site.

Cumulative noise levels associated with the construction phases have been considered and cumulative impacts are likely at the nearest receptors should all sites progress construction works simultaneously, however the various phases of the Masterplan Site are more likely to be sequential and not concurrent. Once cumulative construction impacts are considered and managed during the construction phase potential cumulative impacts on nearby sensitive receptors are expected to be negative, moderate significance and short-term.

At operational stage, cumulative noise impacts associated with the proposed development and other developments in the area are most likely to be associated with increase noise associated with traffic. An increase +3 dB represents a worst case scenario of a doubling in volume of traffic, representing a perceptible change with negative, moderate significance and long-term.

12.0 ARCHAEOLOGY & CULTURAL HERITAGE

This chapter assesses the effects of the proposed development on the cultural heritage resource, including archaeology and architectural heritage. The recorded and potential cultural heritage resource within a study area encompassing the fields within the proposed development boundary and the surrounding lands extending for 1km in all directions, was reviewed in order to compile a comprehensive cultural heritage baseline for the assessment.

The assessment was based on a programme of desktop research, a field inspection and archaeological test trenching and the assessment of impacts was carried out in accordance with current and relevant Environmental Protection Agency guidelines.

A children's burial ground designated as a recorded archaeological site (LI005-007----) is located within the boundary of the Masterplan site (MS). This site is depicted on historic Ordnance Survey (OS) maps and is clearly visible as a sub-circular feature on all reviewed aerial images. In addition, extant remains of this site were noted during field surveys carried out as part of this assessment and it survives as a heavily overgrown enclosed feature that is not accessible to the public.

There are no recorded archaeological sites within the application site Phase 4 area, although a small portion of the area encroaches into the ZoN around the children's burial ground (LI005-007----). This archaeological site is clearly defined on the ground and will not be directly impacted by the construction

phase of the proposed Phase 4 development. There are no other extant recorded monuments within the Phase 4 area and therefore, the construction phase will have no predicted impact on the known archaeological resource.

The Down Survey map depicts a cluster of buildings within the environs of the proposed development and the Archaeological Survey of Ireland have established a Zone of Notification around this settlement cluster (LI005-039----) which extends slightly into the southern end of the proposed development site. There is no evidence of any features associated with this settlement cluster on any of the later OS maps or recent aerial images and much of the location of the settlement cluster is now occupied by modern housing.

There are a total of six other recorded archaeological monuments located within the 1km study area surrounding the Masterplan site and none of these are located within 450m of its boundary. There are also two Protected Structures located within the 1km study area around the proposed development site and neither of these are located within 500m of its boundary.

The review of the historic mapping indicates that the MS has been occupied by farmland since at least the early nineteenth century (and possibly as far back as the seventeenth century) and it has retained it agricultural character with only a slight alteration of field boundaries since the production of the historic OS maps. While the desktop studies and field surveys did not identify other potential archaeological or architectural heritage features within the proposed development site, a number of previously unrecorded archaeological features were identified during recent archaeological site investigations. A programme of archaeological test trenching was undertaken across the Phase 3 area in January 2023 and a small quantity of previously unrecorded features of archaeological potential were uncovered within a discrete portion of the area and these are described in Section 15.3.3.7 of the Chapter.

The children's burial ground (LI005-007---) located within the MS will be preserved *in situ* as an undeveloped greenspace and is outside the Phase 4 area. A 20m buffer from the outer edge of the monument will be established prior to any construction works commencing within the proposed development site. An Archaeological Management Plan for the Phase 1 area (Planning Ref. 21/1800) was submitted to Limerick City and County Council. This included mitigation measures to manage and protect the children's burial ground (LI005-007----) during the operational phase which will also apply for the operational phase of Phase 3 and these measures are described in Section 15.6.2.1 of the Chapter.

Archaeological investigations have identified the existence of previously unrecorded features of potential archaeological origin within the Phase 4 area. As preservation *in situ* of the identified features of archaeological potential is not a viable option within the proposed development, these features will be preserved by record through a programme of archaeological excavation and recording under licence from the National Monuments Service (NMS) in the Department of Housing, Local Government and Heritage.

The proposed Phase 4 development will not result in any predicted significant cumulative effects on the cultural heritage resource.

The mitigation measures presented in Section 15.6 of the Chapter will result in the appropriate recording of the previously unrecorded features of archaeological potential identified during recent site investigations within the Phase 4 area by a full archaeological excavation. This shall result in a high magnitude of impact, albeit ameliorated by the creation of a full and detailed archaeological record, the results of which shall be disseminated. This shall result in a potential moderate range of significance of effect in the context of residual impacts on the these potential archaeological features. In addition, following the implementation of the mitigation measures presented in Section 15.6 of the Chapter, it is predicted that the Phase 3 development will result in a not significant, indirect, permanent, negative, residual impact on the setting the children's burial ground (LI005-007---).

13.0 THE LANDSCAPE

An assessment was undertaken of the likely visual impacts arising from the proposed development on the existing landscape.

Most of the subject lands would be considered to have the character of an 'agricultural field' typified by traditional hedgerow boundaries both around and within the site. The main area of the subject lands has a different character due to the scatted individual and small groups of trees. This is due to the recent history of this area where is was used as a golf course. The subject lands are primarily bounded by robust and healthy field boundary hedgerows, while hedgerows and drainage ditches also traverse the site. Hedgerows along the Old Cratloe Road have been recently removed to facilitate the road upgrades. Subsequently the character of this area has more or a peri-urban feel than the rural feel of other parts of the subject lands. The new road to the east of the site (under construction) will extend the urban landscape of the city to the edge of the subject lands.

Through a comparison of the historical Ordnance Survey maps and aerial photography with the current site and through analysis by site visits it is evident that there has been little change to the study area until recent times. The subject lands were open farmland through both sets of historic maps, 6-inch maps (1837-1842) and 25-inch maps (1888-1913). The field boundaries and patterns in the historic maps are much the same as would have been visible until the most recent road works.

Within the Limerick County Development Plan, the subject lands fall under the Urban Character Area 5, where it is classed as part of the city landscape and the gateway from the west. The land is not located within or adjoining any designated environmental or heritage sites. There are no Tree Preservation Orders, listed views or prospects or any other landscape designation applied to the subject lands or its immediate surrounds. The sensitivity of the landscape to built development is considered as a low to medium level. The lands can accommodate built development with minimal risks to the landscape in terms of character or visual amenity.

The initial construction operations created by the clearance of the site and the construction of the buildings and roads will give rise to temporary or short-term impacts on the landscape character, through the introduction of new structures, machinery etc. and the removal of a small amount of vegetation. The removal of existing vegetation will also cause a negative impact on the landscape character, however a large portion of the existing vegetation on the site is to be retained and incorporated into the landscape design. The negative visual impact on the landscape character during construction would be considered moderate in magnitude and only short-term in duration.

The proposed development will give rise to negative visual impacts for the users of the public realm and the identified residences that may be sensitive to visual impacts (referred to as sensitive visual receptors). The proposed development itself will mostly negatively impact sensitive visual receptors along the Pass Road. The visual impact on one of these receptors is likely to be significant however only short-term in duration. The proposed masterplan development will negatively impact sensitive visual receptors along the Pass Road and the Old Cratloe Road. The visual impact on three of these receptors is likely to be significant however only short-term in duration.

The landscape character of the subject lands will be notably changed from its current largely undeveloped character to that of built environment. The current landscape has the character of a traditional agricultural landscape that is common in the wider environment and some sections have a peri-urban character. The lands are zoned for the type of development proposed, and therefore, its current state is temporary.

The proposed development and the overall masterplan include a landscape scheme which provides for the retention and enhancement of the hedgerows around the perimeter, and the creation of a network of landscape spaces. This will mitigate the level of impact on the landscape character. The initial change to a new landscape that includes built development may be perceived negatively by some people, however due to the surrounding suburban and peri-urban environment this would be only moderate in significance and long term in duration.

The extent of potential visual impact of the proposed development on the built environment from seven representative view locations around the proposed development is assessed in the chapter. The view locations are representative of locations from which it was suggested by mapping analysis and review in the field, that the proposed development might be visible. Photomontages of the expected proposed view from these locations are submitted as part of the application, as a separate A3 document by Digital Dimensions Ltd.

Design mitigation measures have been incorporated into the design at all stages of the design process. These include the size and finish of buildings, retention of some trees and hedgerows, proposed woodlands blocks, hedgerows, wetlands, and meadows. These mitigation measure reduce the level of predicted negative visual impacts. The assessment concludes that there are no significant negative visual impacts. The highest magnitude of negative impact is the 'moderate' impacts of five of the viewpoints assessed. Moderate impacts are those considered consistent with existing and emerging trends in the area.

14.0 MATERIAL ASSETS - TRAFFIC & TRANSPORT

An assessment of the effects and potential impact of the proposed masterplan development on the surrounding existing and future road network and transport infrastructure was undertaken. The assessment focuses on the effects of increased traffic on the local road network during both the construction and operational periods of the phased development of the overall masterplan lands including the subject Phase 4 proposed development.

The approach to the preparation of this chapter has regard to the requirements of publications by Transport Infrastructure Ireland (TII), National Transport Authority (NTA), Department of Transport (DoT) and other best practice guidance and documents.

The 'Traffic and Transport Assessment Guidelines' published by TII recommend the assessment of the Baseline year, and impact of development traffic in the Opening Year, the Opening Year +5 years and the Opening Year +15 years.

The assessment considers the impact of peak hour traffic from the overall masterplan lands (all development phases) on the baseline and future design year traffic levels which is the cumulative 'worst-case' assessment. If the overall development on the masterplan lands can be shown to be satisfactory, then individual planning applications, such as this Phase 4, within the development will also be deemed to be satisfactory.

The site is bounded by the Old Cratloe Road to the south and the Pass Road (Meelick Road) to the east, both of which are being upgraded / realigned as part of the Coonagh–Knockalisheen Distributor Road (CKDR) scheme which is currently on site and expected to be complete by 2025/26. The traffic assessment and modelling undertaken as part to the Coonagh–Knockalisheen Distributor Road (CKDR) scheme EIS report concluded that new distributor road would lead to a significant increase in capacity of the local road network and junctions and a significant decrease in traffic flows on the Old Cratloe Road itself.

For this assessment, the key junctions which would be subject to construction and operational traffic were identified below and a traffic survey was undertaken at a key junction. The following roads and junctions were assessed as part of this traffic analysis:

- Junction 1: Standard 'T' junction between the upgraded Old Cratloe Road and the realigned section of Pass Rd (Meelick Rd) constructed as part of the CKDR scheme.
- Junction 2: Roundabout junction between realigned Pass Rd (Meelick Rd), proposed site access junction (s) and old Pass Road (Meelick Rd) constructed as part of the CKDR scheme.
- Junction 3: Proposed development access comprising a standard 'T' junction between the upgraded Old Cratloe Road and development access.
- Junction 4: Proposed development access comprising a standard 'T' junction between the upgraded Old Cratloe Road and development access.
- Junction 5: Roundabout junction between upgraded Old Cratloe Road and CKDR which is currently under construction. Report review only.
- Junction 6: Proposed development access comprising a standard 'T' junction between the realigned section of the Pass Rd (Meelick Rd) and the development access

The impact of estimated peak daily construction traffic flows from each phase including staff, deliveries, material movement and miscellaneous trips were assessed, and construction traffic levels were anticipated to be significantly lower than those estimated and assessed for the operational period. The impact of these construction traffic flows will be temporary to short term and will be replaced by the operational period traffic. A detailed Construction Traffic Management Plan (CTMP) will be produced by the successful Contractor in consultation with Limerick City and County Council prior to the main construction works for each phase.

The operational traffic associated with the respective phases was estimated, combined and assigned to the road network to inform the assessment of the overall masterplan. Junction analysis was then undertaken using industry standard junction modelling software which demonstrated the impact at the key junctions during both the construction and operational phases on the road network.

From the analysis results for the operational phase, it was found that the proposed masterplan development would result in a negligible 'near zero' effect on junction capacity and this would be a long-term effect. Similarly, the increased operational traffic would lead to a very slight increase in queuing and delay at the junctions, but the effect would be imperceptible and long-term in nature.

For the construction phase a number of measures have been presented that could be adopted by the appointed contractor subject to agreement with Limerick City and County Council. For the operational phase no mitigation or monitoring measures are necessary to accommodate the proposed masterplan development other than the standard 'taking in charge' process with Limerick City and County Council.

15.0 MATERIAL ASSETS – BUILT SERVICES

An assessment of the proposed development was carried out which considered environmental impacts to water and built services including ownership & access, electricity connections; natural gas supply; and telecommunications was undertaken.

Ownership & Access

The applicant owns the Masterplan site, the subject site (Phase 4) and the adjoining land to the south of proposed Phase 5. The applicant acquired the land in April 2021.

The Masterplan lands will be accessed at three separate locations including, the recently constructed roundabout on the realigned Pass /Meelick Road and two separate standard DMURS compliant property 'T' junctions located on the southern and northern side of the upgraded section of the Old Cratloe Road which has been designed as part of the Coonagh – Knockalisheen Distributor Road Scheme which is expected to be completed by 2025 / 26. The upgraded Old Cratloe Road immediately south of the site and the realigned Meelick Road to the east, will comprise a 6.6m carriageway with footpaths and cycle lanes on both sides.

Water Services

The new development will require new connections to all service providers as well as to public water supply and waste water networks, which may result in temporary disruption of existing services in the vicinity of the development in order to facilitate the connection.

The foul sewerage from the overall development is planned to discharge to the foul network to be installed as part of the Old Cratloe Road upgrade works south of the development. A pre-connection enquiry was lodged with Irish Water (Connection Reference No. CDS22003876) for the development outlining the proposed flows and loads which would be generated by the development. This application was undertaken to determine if there is adequate capacity in the existing public foul sewer network to cater for this development. The proposal was accepted as feasible in principle by Irish Water.

The estimated daily demand for the proposed development has been calculated as 21.9 m³/day. To reduce the water demand on Local Authority water supplies and to reduce the foul discharge from the development, water conservation measures will be incorporated in the sanitary facilities throughout the development, e.g., dual flush toilets, monobloc low volume push taps and waterless urinals.

Surface Water

As part of the proposed development, it is proposed to remove a number of existing drainage channels within the site. These channels have been surveyed and it was determined that they had no contributing catchment upstream of the site, draining the site alone..

A new surface water sewer network shall be provided for the proposed development which will be entirely separate from the foul water sewer network. The design of the storm water network and SUDS allow for 30% climate change and 10% urban creep of the housing area for the developed site.

The storm drainage from the roads and footpaths will be collected in gullies and discharged via a traditional storm pipe network. Given the topography of the site and available green spaces, two networks with separate infiltration and storage areas are proposed in Phase 4. The northern storage area infiltrates and attenuates the surface water flow from the northern section of phase 4 and discharges via a pipe network to the southern storage area a rate of 10 l/s. This storage area is oversized to cater for stormwater flows from the wider Masterplan Site. The southern storage area infiltrates and attenuates the surface water flow from the southern section of Phase 4 and also caters for the restricted flow from the Northern storage area and other masterplan areas. Area 2 discharges to the existing watercourse at the western boundary at a rate of 20 l/s for the Phase 4. This storage area is also oversized to cater for stormwater flows from the wider Masterplan Site.

Gas & Electricity

Gas Networks Ireland has a capped 125mm PE 80 4 Bar gas supply in the area which will serve the proposed site. ESB have low voltage (LV) lines traversing the site and medium voltage (MV) lines in close proximity which will be used to facilitate several cabinet Kiosk type MV/LV substations. The LV network will be distributed via underground ducting and ESB Mini pillars.

The existence of the proposed development will result in an increase in the demand on all required services. Having regard to the potential of the overall masterplan site to accommodate 448 no. units, including the subject site, the potential is for the masterplan to result in a projected population of approximately 1,210 people. This will result in a sizeable new community within the area. This is considered significant, permanent and positive, particularly in the context of current housing demand, but it will place significant additional strains on existing services in the area.

It is not envisaged that the proposed development will result in any significant long-term effects on the environment due to the built services associated with the proposed development. There is however likely to be some minor impact experienced, by way of temporary disruption, during the construction phase of this development. Residual impacts on the built services during the construction and operational phase are considered to be temporary and occasional in nature and not significant, where service is unavoidably disrupted to facilitate the construction phase.

16.0 MATERIAL ASSETS – RESOURCES & WASTE MANAGEMENT

An assessment of the potential impacts associated with waste management during the construction and operational phases of the proposed development was undertaken. The receiving environment is largely defined by Limerick City and County Council as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

During the construction phase, typical construction and demolition (C&D) waste materials will be generated which will be segregated on-site into appropriate skips/containers and removed from site by suitably permitted waste contractors to authorised waste facilities. Where possible, materials will be reused on-site to minimise raw material consumption. Source segregation of waste materials will improve the re-use opportunities of recyclable materials off-site.

Within the overall Masterplan Site, the project engineers have estimated that circa 33,500m^3 of subsoil material will need to be excavated to facilitate the proposed development and that imported fill of 25,500m^3 is required. The quantum of fill required will be reduced by reusing bedrock as Class 1 material any other existing site won materials as appropriate. Top soil stripping will result in circa 42,000m^3 of material although it is envisaged that circa 15,000m^3 of this will be reused.

For the Phase 4 subject site it has been determined that circa 9,300m^3 of subsoil material will need to be excavated to facilitate the proposed development and that imported fill of 9,500m^3 is required. The quantum of fill required will also be reduced by reusing bedrock as Class 1 material any other existing site won materials as appropriate. Top soil stripping will result in circa 7,500m^3 of material although it is envisaged that circa 3,000m^3 of this will be reused.

There will be waste materials generated from the excavation of soil, stones, gravel and clay to facilitate site clearance, site levelling, construction of new building foundations and installation of services. It is currently envisaged that circa 25% of the subsoil cut could be reused on site thereby reducing waste generated from the development and reducing the quantum of imported fill required. Within the masterplan site it is envisaged that circa 8,375m^3 of subsoil material will be reused and within the Phase 4 application site it is envisaged that circa 2,400m^3 of subsoil material will be reused, thereby reducing the movement of waste from the site.

A carefully planned approach to waste management during the construction phase will ensure that the effect on the environment will be short-term, neutral and imperceptible.

The potential impacts on the environment of improper, or a lack of, waste management during the operational phase would be a diversion from the priorities of the waste hierarchy which would lead to small volumes of waste being sent unnecessarily to landfill. In the absence of mitigation, the effect on the local and regional environment is likely to be indirect, long-term, significant and negative.

The nature of the development means the generation of waste materials during the operational phase is unavoidable. Networks of waste collection, treatment, recovery and disposal infrastructure are in place in the region to manage waste efficiently from this type of development. Waste that is not suitable for recycling is can be sent for energy recovery. There are also facilities in the region for segregation of

municipal recyclables which is typically exported for conversion in recycled products (e.g. paper mills and glass recycling).

17.0 INTERACTION BETWEEN ENVIRONMENTAL FACTORS

All environmental factors are inter-related to some extent and this chapter cross references the individual environmental assessments undertaken, including the proposed mitigation measures, having regard to current knowledge and methods of assessment.

The primary interactions can be summarised as follows:

- Architectural design, landscape design, and road and services design and archaeology;
- Landscape design and engineering services with biodiversity and archaeology;
- Stormwater attenuation design with biodiversity and soil & geology;
- Visual impact with biodiversity and archaeology;
- Biodiversity with water and soils;
- Architectural and landscape design with noise;
- Noise and vibration and population and human health;
- Air quality and climate and population and human health; and
- Material Assets with population and human health, water, noise and vibration, air quality and climate

An indication is also given of the cumulative effects of the proposed residential development, with local neighbourhood centre services and facilities. The overall cumulative impact of the proposed development will result in:

- An increase in population n the north western extremity of Limerick city, proximate to the Moyross Regeneration area, making efficient use of new transport infrastructure in the area and developing synergies with the surrounding population, which will result in social benefits to the population of the area;
- An increase in demand or services and facilities in the area in the short term pending delivery of the creche and local neighbourhood centre;
- An increase in economic activity in the local area are due to construction;
- A slight increase in traffic on the local road network which can be adequately managed;
- No significant environmental nuisance from an air quality perspective subject to implementation of the mitigation measures and adherence to good working practices; and
- No significant landscape visual effects due to the nature of the existing, surrounding built environment and the planting of trees.

18.0 SUMMARY OF MITIGATION MEASURES

A summary of mitigation measures is proposed as detailed in Chapters 6.0 to 16.0. The appointed contractor will be required to adhere to the mitigation contained in the EIAR for the protection of the environment and to ensure sustainable development.

A number of mitigation measures have been incorporated into the design proposal, following an iterative assessment during the design stage. In some instances, these mitigatory measures have shaped the design of the scheme, the juxtaposition of the buildings and the mix of uses proposed.

The design rationale and detail employed seeks to mitigate potential negative effects on a series of environmental factors and considerations.