

DOWNNEY

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR)

BELCAMP SHD

Proposed Strategic Housing Development
on Lands at Belcamp, Dublin 17

Applicant: Gerard Gannon Properties

April 2022

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NON-TECHNICAL SUMMARY

1.0 INTRODUCTION

Gerard Gannon Properties (the applicant) is applying to An Bord Pleanála for a 10-year planning permission for 2,527 no. residential units comprising of houses, apartments and duplex units, 2 no. childcare facilities; 1 no. sports changing facilities building; 3 no. cafés/restaurants; 18 no. retail/commercial units; and all associated engineering and site works necessary to facilitate the development, on c.67 ha of land north of R139 road, south of Carr’s Lane, and to the west of Malahide Road, Belcamp, Dublin 17 (the application site). The planning application is made to An Bord Pleanála as a Strategic Housing Development (SHD) application.

The application site of c. 67 hectares falls in what can be considered a built-up area and proposes 2,527 units in total. On this basis, the proposal is environmental impact assessment (EIA) development under Part 2 of Schedule 5 (Annex II) of the EIA Regulations 2018.

This Environmental Impact Assessment Report (EIAR) has been prepared under the following assessment chapters

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| 1. Introduction | 9. Noise and Vibration |
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| 7. Water | 15. Interactions and Cumulative effects |
| 8. Air Quality | 16. Summary of Mitigation & Monitoring Measures |

This EIAR has been prepared by an experienced and suitably qualified team of consultants, as described in the following table:

Name	Role
Downey Planning	EIAR Project Managers & Planning Consultants
John Downey, Planning Consultant, BA (Hons), MRUP, MBA, MIPI, MRTPI – 25 years’ experience; Eva Bridgeman, Planning Consultant BA (Hons), MRUP, MIPI – 10 years’ experience; Donal Duffy, Planning Consultant, Dip. Environmental Resources Management, BSc. Spatial Planning, MSc Energy Management, MIPI) – 15 years’ experience	Preparation of the following EIAR chapters: <ul style="list-style-type: none"> ▪ <i>Chapter 1: Introduction</i> ▪ <i>Chapter 2: Description of Project & Alternatives Considered</i> ▪ <i>Chapter 3: Planning and Development Context</i> ▪ <i>Chapter 4: Population & Human Health</i> ▪ <i>Chapter 15: Interactions</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i> ▪ <i>Compilation of EIAR and NTS</i>

Name	Role
<p><u>CCK Architects & Wilson Architecture</u></p> <p>Michael Crowe, MRIAI Ciara O’Sullivan, MRIAI & Peter Heffernan, MRIAI Marcus Reid, MRIAI</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ <i>Chapter 2: Description of Project & Alternatives Considered</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i>
<p><u>Waterman Moylan Consulting Engineers</u></p> <p>Mark Duignan, Associate Director, Engineer, MA BAI CEng MIEI</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ <i>Chapter 6: Land and Soils</i> ▪ <i>Chapter 7: Water</i> ▪ <i>Chapter 12: Traffic & Transport</i> ▪ <i>Chapter 14: Utilities & Waste</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i>
<p><u>The Big Space (TBS) - Landscape Architects</u></p> <p>Dan Egan, MILI Linda Maher, MILI</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ <i>Chapter 11: Landscape and Visual Impact Assessment</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i>
<p><u>Courtney Deery Heritage Consultancy Ltd.</u></p> <p>Dr. Clare Crowley Senior Archaeologist & EIA Manager</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ <i>Chapter 13: Cultural Heritage</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i>
<p><u>Openfield Ecological Services</u></p> <p>Padraic Fogarty, Ecologist, MSc in EclA</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ <i>Chapter 5: Biodiversity</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i>
<p><u>DKP International Ltd</u></p> <p>Gerard Van Deventer C.ENG., BE. (Mech.), H. Dip. CIOB., MCIBSE</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ <i>Chapter 8: Air Quality</i> ▪ <i>Chapter 9: Noise & Vibration</i> ▪ <i>Chapter 10: Climate</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i>

Further information on the basis for the EIA and project team is provided in Chapter 1 of this EIA.

2.0 DESCRIPTION OF THE SITE, PROJECT & ALTERNATIVES CONSIDERED

2.1 The Site

The application site, extending to approximately 67 ha is located in Belcamp, Dublin 17, and is situated approximately 8 km north-east of Dublin city centre, straddling the River Mayne boundary between the Dublin City and County Fingal administrative areas. The former Belcamp College lands are accessed from the Malahide Road approximately 550m north of the Clarehall junction, and from the R139 along the site’s south boundary. Approximately 3.5km east is the coastline at Baldoyle and the Baldoyle Portmarnock Greenway and 2.5km to the west is the interchange of the M1 and M50 motorways. The lands in Fingal are zoned RA, OS and GB, with development plan objectives for a protected structure and strategic road infrastructure. The lands in Dublin City are zoned mixed use, and form part of the last undeveloped portion of SDRA 1, the North Fringe LAP.

Further information on the application site is provided in Chapter 2 of this EIA.

2.2 The Baseline Scenario

The baseline scenario including a description of the current receiving environment has been considered as part of this EIAR through the collection and collation of data through tests, site visits, desktop reviews, etc, including analytical data for traffic, noise levels, surface water quality, etc. A description of the existing environment is presented in each relevant section for the various environmental chapters.

The application lands are located in Dublin 17 in the northern fringe of Dublin City and within the administrative boundaries of Dublin City Council and Fingal County Council. The surrounding land uses are generally residential, commercial and recreational.

The proposed development represents the completion of the Belcamp lands given that the earlier phases are partly occupied, under construction, permitted for development and in the planning application stage or pre-application consultation stage of the planning process.

Further information on the baseline scenario is provided in Chapter 2 of this EIAR and each of the technical chapters (Chapter 4 to Chapter 14).

2.3 The Development

The proposed development, as per the description contained within the statutory planning notices, provides for:

“We, Gerard Gannon Properties, intend to apply to An Bord Pleanála for a 10 year permission for a strategic housing development at lands at Belcamp Hall (Protected Structure), Malahide Road (R107), the R107/R123 junction, Carr’s Lane, and R139 Road, Belcamp, Dublin 17. The lands are internally bounded by the protected structures and associated curtilage, and the new emerging residential development of Belcamp which is partly occupied and under construction.

The development will consist of the construction of a mixed-use development comprising of 2527 no. residential units (473 no. houses, 1780 no. apartments, and 274 no. duplex units) of which 1969 no. units are residential and 558 no. apartment units are ‘build-to-rent’ residential, ancillary residential amenity facilities, 2 no. childcare facilities, 1 no. sports changing facilities building, 18 no. retail units and 3 no. cafés/restaurants, all of which will be provided as follows:

- *473 no. residential houses (16 no. 2 bed houses, 385 no. 3 bed houses, and 72 no. 4 bed houses) semi-detached, end-terraced, and mid-terraced houses ranging from two to three storey in height;*
- *Duplex Block 1.1 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*
- *Duplex Block 1.2 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*

- Duplex Block 1.3 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;
- Duplex Block 1.4 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;
- Duplex Block 1.5 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;
- Duplex Block 2.1 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to south elevations; separate single storey bike store and bin store; car parking; and bicycle parking;
- Duplex Block 2.2 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to west elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking;
- Duplex Block 2.3 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to east elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking;
- Duplex Block 2.4 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to west elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking (Duplex Block 2.4 is adjoined to Duplex Block 2.5 via single storey bike store);
- Duplex Block 2.5 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to south-west elevation; internal bike store; separate single storey bike store and bin store; car parking within the shared parking court and bicycle spaces, (Duplex Block 2.5 is adjoined to Duplex Block 2.4 via single storey bike store);
- Duplex Block 2.6 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to south elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking;
- Duplex Block 3.1 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; separate single storey bike store and bin store; on-street car parking and car parking within the shared parking court; and bicycle parking;
- Duplex Block 3.2 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store and

- bike store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);*
- *Duplex Block 3.3 containing a total of 12 no. units comprising of 2 no. 1 bed units and 10 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);*
 - *Duplex Block 3.4 containing a total of 12 no. units comprising of 2 no. 1 bed units and 10 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);*
 - *Duplex Block 3.5 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);*
 - *Duplex Block 3.6 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to east and west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the parking court; and bicycle spaces;*
 - *Duplex Block 3.7 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to east and west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces;*
 - *Duplex Block 3.8 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to east and west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Block 3.8 is adjoined to Duplex Block 3.9 via single storey bike store);*
 - *Duplex Block 3.9 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north-east and south-west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Block 3.9 is adjoined to Duplex Block 3.8 via single storey bike store);*
 - *Apartment Block A containing a total of 23 no. units comprising of 8 no. 1 bed units and 15 no. 2 beds, with all units provided with private balconies/terraces to all elevations, in a building four storeys in height, with internal bicycle stores and bin stores at ground floor level; on-street car parking; and bicycle parking;*
 - *Apartment Block B containing a total of 23 no. units comprising of 8 no. 1 bed units and 15 no. 2 beds, with all units provided with private balconies/terraces to all elevations, in a building four storeys in height, with internal bicycle stores and bin stores at ground floor level; on-street car parking; car parking within a parking court; and bicycle parking;*

- *Apartment Block C containing a total of 27 no. units comprising of 7 no. 1 bed units and 20 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building four storeys in height, with internal bin stores and bike stores at ground floor level; car parking within a parking court; and bicycle parking;*
- *Apartment Block D is a mixed-use building containing a total of 42 no. units comprising of 22 no. 1 bed units, 15 no. 2 bed units and 5 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building three to five storeys in height, 1 no. café/restaurant unit and 7 no. retail units at ground floor level with associated signage; bin stores, bike stores and plant room at ground floor level; communal roof garden and ancillary residential amenity facilities including community rooms and communal work pods, all at penthouse level; on-street car parking; and bicycle parking;*
- *Apartment Block F is a mixed-use building containing a total of 103 no. units comprising of 44 no. 1 bed units, 56 no. 2 bed units and 3 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to five storeys over basement in height, 1 no. café/restaurant unit and 5 no. retail units at ground floor level with associated signage; undercroft car parking below landscaped podium; bin stores and bike stores at ground floor level; a basement with car parking, bin stores and plant room; on-street car parking; and bicycle parking;*
- *Apartment Block G is a mixed-use building containing a total of 65 no. units comprising of 29 no. 1 bed units and 36 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building one to five storeys in height, with internal bin stores, bike stores and plant rooms at ground floor level; ESB sub-station at ground floor level; 1 no. retail unit at ground floor level with associated signage; communal roof garden at fourth floor level; undercroft car parking below landscaped podium; bin stores and bike stores; and bicycle parking;*
- *Apartment Block H containing a total of 46 no. units comprising of 20 no. 1 bed units and 26 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores and bike stores at ground floor level; undercroft car parking; on-street car parking; car parking within the shared parking court; and bicycle parking;*
- *Apartment Block J containing a total of 40 no. units comprising of 16 no. 1 bed units and 24 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores and bike stores at ground floor level; 4 no. retail units at ground floor level with associated signage; undercroft car parking and car parking within the shared parking court; and bicycle parking;*
- *Apartment Block L containing a total of 46 no. units comprising of 20 no. 1 bed units and 26 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores and bike stores at ground floor level; undercroft car parking; on-street car parking and car parking within the shared parking court; and bicycle parking;*
- *Apartment Block M containing a total of 56 no. units comprising of 24 no. 1 bed units and 32 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building six storeys in height, with internal bin stores and bike stores at ground floor level; undercroft car parking and car parking within the shared parking court; and bicycle parking;*

- *Apartment Block N containing a total of 56 no. units comprising of 26 no. 1 bed units, 25 no. 2 beds, and 5 no. 3 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores, bike stores and plant rooms at ground floor level; on-street car parking and car parking within the shared parking court; and bicycle parking;*
- *Apartment Block P containing a total of 23 no. units comprising of 5 no. 1 bed units and 18 no. 2 beds, with all units provided with private balconies/terraces to all elevations, in a building five storeys in height, with internal bin stores, bike stores and plant rooms at ground floor level; on-street car parking and car parking within the shared parking court; and bicycle parking;*
- *1 no. childcare facility in a two-storey building, with associated outdoor play area, car parking and drop-off/visitor parking, bicycle parking, and bin stores;*
- *1 no. single storey sports changing facilities building with associated car parking and bicycle parking;*
- *Apartment Block 1 is 'built-to-rent' residential containing a total of 273 no. units comprising of 94 no. 1 bed units, 139 no. 2 beds, and 40 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground floor level including gym and amenity rooms; car parking within the undercroft car park below landscaped podium;*
- *Apartment Block 2 containing a total of 160 no. units comprising of 71 no. 1 bed units, 73 no. 2 beds, and 16 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground and first floor levels including multi-function room and communal rooms; and car parking within the undercroft car park below landscaped podium;*
- *Apartment Block 3 is a mixed-use building containing a total of 297 no. units comprising of 96 no. 1 bed units, 176 no. 2 beds, and 25 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground floor level including amenity room; 1 no. childcare facility over ground and first floor level with outdoor play area at ground floor level with associated signage; 1 no. retail unit and 1 no. café/restaurant at ground floor level adjoining urban plaza, with associated signage; car parking within the undercroft car park below landscaped podium; and public bicycle parking at ground floor level;*
- *Apartment Block 4 is 'built-to-rent' residential containing a total of 285 no. units comprising of 70 no. 1 bed units, 178 no. 2 beds, and 37 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ancillary residential amenity facilities at ground and first floor levels including cinema room, gym, multi-purpose/amenity rooms; ESB sub-station at first floor level; car parking within the undercroft car park below landscaped podium, and on-street bicycle parking;*

- *Apartment Block 5 containing a total of 96 no. units comprising of 37 no. 1 bed units, 51 no. 2 beds, and 8 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to eight storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground floor level including multi-function room; car parking within the undercroft car park below landscaped podium;*
- *Apartment Block 6 containing a total of 119 no. units comprising of 19 no. 1 bed units, 80 no. 2 beds, and 20 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground and first floor levels including amenity rooms; car parking within the undercroft car park and on-street, and bicycle parking.*

The development will provide for a total of 2225 no. car parking spaces and a total of 5394 no. bicycle spaces within the scheme; new vehicular access onto Malahide Road (R107) and associated upgrade works including works to the R107/R123 junction (these upgrade works to the R107/R123 junction include the closing of the existing Belcamp Manor vehicular access off Malahide Road and the provision of a new vehicular access to Belcamp Manor via the proposed East West Link Road [EWLR]); provision of East West Link Road (EWLR) from Malahide Road including bus stops, bus terminus and on-street car parking; provision of north south road including on-street car parking with drop-off/visitor parking serving the childcare facility; 3 no. new vehicular accesses onto the R139 road which includes 1 no. Bus Gate and signalised junctions including toucan crossings, footpaths and cycle paths; upgrades to public realm including footpaths and cycle paths with links to Malahide Road (R107) and adjoining lands/developments, and works to repair with additional safety measures to the existing Mayne River lakes, weirs, culverts and crossings (bridges and causeways); additional Mayne River crossings (bridges and causeways) for vehicular and pedestrian/cycle access; ESNB infrastructure works to cables and masts; new pedestrian/cycle access to Carr's Lane; landscaping including play equipment, MUGA, 3 no. pieces of public art, boundary treatments, playing pitches, pocket parks, and urban plazas; public lighting; proposed reserved school site; and all associated engineering and site works necessary to facilitate the development.

The application contains a statement setting out how the proposal will be consistent with the objectives of the Fingal Development Plan 2017-2023, the Dublin City Development Plan 2016-2022 and the Clongriffin-Belmayne Local Area Plan 2012-2018 (extended until December 2022).

The application contains a statement indicating why permission should be granted for the proposed development, having regard to a consideration specified in section 37(2)(b) of the Planning and Development Act, 2000, as amended, notwithstanding that the proposed development materially contravenes a relevant development plan or local area plan other than in relation to the zoning of the land.

An Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS) have been prepared in respect of the proposed development."

Further information on the proposed development is provided in Chapter 2 of this EIAR.

2.4 Alternatives Considered

This EIAR has considered the following reasonable alternatives to the development proposal:

- 1. Do Nothing Scenario:** If the application site was left undeveloped, most of the subject lands could revert to agricultural use. The strategic roads development plan objective through the site would remain unrealised, with no connections established between the R139, Malahide Road and Clonshaugh, impacting adversely on the future development of the DCC Belmayne and Belcamp Lane Masterplan. The eastern portion of the FCC lands, under current Section 34 applications, may be completed but gaps would remain in the urban form, with diminished enclosure of public spaces, in particular the walled garden where passive surveillance would be limited to the eastern side only. The EWLR would extend some c.660m into the site as a dead-end road with gaps in its southern edge frontage and no development to the north. Belcamp Hall, with no development to the west or south would continue to be vulnerable to antisocial behaviour and vandalism. The approved community and commercial uses would be located peripherally in the development and vulnerable to security issues and commercial failure. The level of demand for housing within both Fingal and DCC, based on the future population growth predictions, would not be met. Furthermore, not developing these zoned and serviced lands would be inconsistent with national planning policy as set out in the National Planning Framework, Regional Spatial Economic Strategy and Urban Development and Building Height Guidelines.
- 2. Alternative Locations:** The consideration of alternatives locations for the development has, in a significant number of cases, already been addressed and decided at strategic planning level during the preparation and adoption of the Fingal Development Plan 2017-2023, the Dublin City Development Plan 2016-2022 and the Clongriffin-Belmayne Local Area Plan 2012-2018 (extended until December 2022). The plans establish a housing need for the district which is required to be accommodated during the plan period and assesses all available land in the district, including the subject site and all available alternatives. These Plans will have been subject to Strategic Environmental Assessment which takes into account the environmental considerations associated with, for example, the cumulative impact of an area zoned for industry on a sensitive landscape. The EIA Guidelines also state that the statutory development plans can establish project-level objectives or other mitigation that a subsequent site project and its EIAR should be cognisant of.
- 3. Alternative Designs and Layouts:** The alternatives to the proposed development considered during the preparation of this EIAR were related to the overall layout and roads pertaining to the proposed scheme. The design of the proposed project has evolved throughout the pre-application consultation process, resulting in alterations to the proposal. It is worth noting that the proposal may continue to develop following the application submission and continued consultation with relevant stakeholders, bringing the proposed development through detailed construction design and implementation.

Further information on the alternatives considered as part of this EIAR is provided in Chapter 2 of this EIAR.

3.0 PLANNING AND DEVELOPMENT CONTEXT

Chapter 3 of this EIAR considers in detail the planning policy and legislative context of the site, development proposal and this EIA at European, national, regional, and local levels. This chapter of the EIAR also considers the planning history of the scheme and the surrounding area. For the purposes of this Non-Technical Summary, this section will consider the site's zoning policy contained in the Fingal County Council Development Plan (2017-2023) and the Dublin City Development Plan (2016-2022).

Under the current Dublin City Development Plan, the subject site is zoned as a 'Strategic Development and Regeneration Area – Zone 14' (SDRA) which seeks:

“To seek the social, economic and physical development and/or rejuvenation of an area with mixed use of which residential and “Z6” would be the predominant uses.”

The proposed residential use and complementary land uses are permitted in principle.

The Clongriffin-Belmayne Local Area Plan (LAP) 2012-2018, extended until 2022, *“provides a framework for proper planning and sustainable development of Clongriffin-Belmayne (the North Fringe) area in accordance with the policies and objectives of the Dublin City Development Plan”*. The lands around the North Fringe area were first proposed for development in 1999/2000 with the publication of an action plan to guide the development. As stated within the LAP, *“the two main objectives of the plan have been to provide a coherent urban structure with distinct identity and to integrate new and existing communities successfully.”*

Outlined in the Fingal Development Plan, the site is predominantly zoned 'RA zoning objective' which seeks the following:

“RA - Residential Area Zoning Objective: To provide for new residential communities subject to the provision of the necessary social and physical infrastructure.”

The subject site is also zoned 'OS – Open Space' which aims to *“Preserve and provide for open space and recreational amenities”*, and there are two sections to the north of the site zoned 'GB – Greenbelt' which aims to *“Protect and provide for a Greenbelt”*. In this instance, the vision for the 'OS – Open Space' seeks to:

“Provide recreational and amenity resources for urban and rural populations subject to strict development controls. Only community facilities and other recreational uses will be considered and encouraged by the Planning Authority.”

Additionally, the 'GB – Greenbelt' seeks to:

“Create a rural/urban Greenbelt zone that permanently demarcates the boundary (i) between the rural and urban areas, or (ii) between urban and urban areas. The role of the Greenbelt is to check unrestricted sprawl of urban areas, to prevent coalescence of settlements, to prevent countryside encroachment and to protect the setting of towns and/or villages. The Greenbelt is attractive and multifunctional, serves the needs of both the urban and rural communities, and strengthens the links between urban and rural areas in a sustainable manner. The Greenbelt will provide

opportunities for countryside access and for recreation, retain attractive landscapes, improve derelict land within and around towns, secure lands with a nature conservation interest, and retain land in agricultural use. The zoning objective will have the consequence of achieving the regeneration of undeveloped town areas by ensuring that urban development is directed towards these areas.”

The proposed development is in accordance with relevant national, regional, and local planning policy documents. However, a material contravention statement is also included with the application indicating why permission should be granted for the proposed development, having regard to a consideration specified in section 37(2)(b) of the Planning and Development Act, 2000, as amended, notwithstanding that the proposed development materially contravenes a relevant development plan or local area plan other than in relation to the zoning of the land.

4.0 POPULATION AND HUMAN HEALTH

This section of the EIAR has been prepared by Downey. The site and proposed development were examined having regard to their impact on the human environment in the general area. The proposed development will have a positive impact on the population and will cater for the predicted future increase in population for the northern fringe of Dublin, and in particular Belcamp area.

4.1 Methodology

The assessment was carried out by way of site visits and desktop research of the demographic profile of the area, assessment of community and social infrastructure facilities, employment, and educational and commercial facilities in the area.

4.2 Receiving Environment

The baseline assessment is submitted to utilise a catchment area defined within 2km radius off the centre the lands, which demographically comprises of Balgriffin ED (04005), Priorswood A ED (02080), Priorswood B ED (02081), Priorswood C ED (02082), Priorswood D ED (02083), Priorswood E ED (02084), Grange A ED (02059), Kilmore C ED (02071), and Ayrfield ED (02008). The assessment has found that the population residing in this area stood at 34,733 in April 2016, which indicates an increase of 2,733 (+8.5%) since the last Census in 2011. This is submitted to be in line with the overall demographic trend in both administrative areas of Fingal County and Dublin City, where the growth rate recorded at +8% and +5.1% respectively. The Land use and settlement pattern consists of predominately residential developments and community amenities with a mix of house types all of which have resulted in varying building heights and forms within the area.

4.3 Potential Impact of Proposal

4.3.1 Construction Phase

The construction of this project, like any project, has the potential to give rise to an impact on the health and safety of human beings if construction activities are not managed appropriately or impact mitigated.

4.3.2 Operation Phase

The proposed development will see an increase in population from the operation phase of the development. This will support an increase in economic activity in the area and employment. This will take place close to people's homes and public transportation. This is seen as a positive impact. The development will generate an increase in traffic and noise, which will have a slight and permanent impact on human health, if not mitigated.

4.4 Remedial/Mitigation Measures

4.4.1 Construction Phase

Measures to address such health and safety considerations will be addressed in the Construction Management Plan, including the Construction Traffic Management Plan for the development, which shall be agreed upon with the Planning Authority pending a grant of permission.

4.4.2 Operation Phase

No mitigation or remedial measures are required about population or human health during the operational phase of the development.

4.5 Predicated Impact of Proposal

4.5.1 Construction Phase

The development will have a positive and temporary impact on employment during the construction phase, providing significant construction sector and related employment over the construction period of the development.

4.5.2 Operation Phase

The proposed development will have a significant positive impact on the local community and will positively contribute to the vitality and viability of the local area, through:

- 1) The influx of a new resident population using existing local businesses and services;
- 2) The provision of 2 no. new creches and retail/commercial provision as community facilities for the use of new residents and the local community; and
- 3) The provision of open space for the use of the local community.

4.6 Monitoring

In terms of population and human health, measures to avoid negative impacts have been a key consideration in the design evolution of the buildings and overall layout of the proposed development to include the provision of a creche, public open space and facilitates to support healthy choices, such as cycle parking. Conditions will be attached to any grant of planning permission to ensure that these facilities are provided and compliance in this regard. Building Regulations will also be adhered to during the construction phase to ensure a fully compliant development is constructed.

Health & Safety requirements, which are site-specific to the proposed project, will be carried out by the Project Manager on site.

Impacts from Air Quality, Noise and Vibration, Climate, and Traffic and Transport and monitoring measures in this regard are addressed in the relevant chapters of this EIAR.

5.0 BIODIVERSITY

A review of the biodiversity of the site was carried out by OPENFIELD Ecological Services and this included a study of existing information from the area and a series of site surveys. Site surveys were carried out between 2020 and 2022 across seasons to include the optimal periods for breeding birds, amphibians, badgers, otters and flora. Dedicated bat and badger surveys were carried out by Brian Keeley within the optimal period for such surveys.

It was found that the site is not within or adjacent to any area that is designated for nature conservation at a national or international level. There are no plants recorded from the site that are listed as rare or of conservation value. There are no habitats that are examples of those listed on Annex I of the Habitats Directive. There are no alien invasive plant species as listed on Schedule 3 of SI No. 477 of 2011, although Giant Hogweed has grown along the River Mayne in the past and has been subject to an on-going control programme. The site can be described as agricultural fields with traditional hedgerow boundaries with small patches of woodland, artificial ponds and the River Mayne. Hedgerows were assessed as mostly of 'higher significance' however some are of 'lower significance' using methodology from the Heritage Council. The River Mayne flows towards the Baldoyle Bay which is designated as a Special Area of Conservation and Special Protection Area.

The site contains suitable roost locations for bats in larger trees however no roosts were found. Four species were recorded using the area for foraging and/or commuting. There are no badger setts on the site. No evidence of otter activity was noted during any site survey while the River Mayne is of poor ecological status. Breeding bird surveys in 2021 and 2022 found that a number of common and widespread species are nesting on the site. Two pairs of yellowhammer (a species of high conservation concern) were noted in 2022, however these hedges will not be affected by the proposal.

It is estimated that 185m of 'lower significance' hedgerow and 1,155m of 'higher significance' hedgerow are to be removed. This was assessed as a significant negative impact on biodiversity and so compensatory habitat is provided in the landscaping scheme. Good site management practices will ensure that pollution to water courses does not occur during the construction phase. Surface water will be attenuated on site so that there will be a positive impact to the quality of the discharge during the operational phase.

Additional landscaping will compensate for the loss of habitat that will occur and this will include c.24,000m² of new native woodlands. Lighting was reviewed with the bat ecologist to ensure that negative effects are minimised. With the suggested mitigation in place, the ecological impacts by this proposed development will not be significant over the medium- to long-term.

A Screening Report for Appropriate Assessment concluded that significant effects to the Baldoyle Bay SAC and SPA could not be ruled out. This arises from the potential for pollution during the construction and operation phases. However, with all suggested mitigation measures in place, no

effects to the integrity of these Natura 2000 sites will arise. No other area protected for nature will be affected by the development.

6.0 LAND AND SOILS

6.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) provides an assessment of the impact that the Strategic Housing Development (SHD) in Belcamp, Dublin 17, located north of the Northern Cross Route, R139, to the east of the IDA lands, and to the west of the Malahide Road (R107), will have on the surrounding soil and geology in the vicinity of the site. It also sets out mitigation and remedial measures and methods of monitoring once the development is operational.

A full description of the development can be found in Chapter 2.

This chapter was completed by Waterman Moylan Consulting Engineers.

6.2 Research Methodology

A desktop study to classify the geological features related to the site was undertaken. Data from the Geological Survey of Ireland (GSI) was reviewed. This information was supplemented by site specific ground investigations carried out at the site by Site Investigations Ltd. in October 2021. This ground investigation assessed the soil, rock and groundwater conditions across the site.

6.3 Baseline Environment

The subject site is located off the Malahide Road in Dublin 17. It is bounded to the south by the Northern Cross Route (R139), to the west by lands under the ownership of the IDA which are zoned “High Technology” (HT), to the east by Phase 1 of the Belcamp development and by the Malahide Road, and to the south by agricultural lands and by a development under construction by Crosswaithe under Planning Reference F18A/0092. The overall site is approximately 67.2 Hectares.

The Mayne River flows from west to east through the site. The northern portion of the subject site is within Fingal County Council’s jurisdiction, while the southern portion of the site is within Dublin City Council’s jurisdiction, with the Mayne River forming the border between the two Local Authorities.

6.3.1 Desktop Study

Geological Survey Ireland (GSI) produces a wide range of datasets, including bedrock geology mapping and the National Aquifer Bedrock Map. From these maps, the subject site lies at the boundary of the Tober Colleen and Malahide Formations, with a small area of Waulsortian Limestones at the north of the site, and it was established that the western portion of the site is locally important moderately productive aquifer, while the eastern portion of the site is poor aquifer which is generally unproductive except for local zones. The boundary between the two zones is the same as the boundary between the Tober Colleen and Malahide Formations (the Tober Colleen Formation is locally important aquifer, whereas the Malahide Formation and Waulsortian Limestones are poor aquifers).

From the GSI groundwater vulnerability map, the vulnerability of the aquifer in the vicinity of the proposed site is low to moderate.

6.3.2 Ground Investigations

As noted above, intrusive ground investigations were carried out at the site by Site Investigations Ltd. in October 2021. The Site Investigation report (included in full in Appendix 6.1) notes that natural ground conditions are consistent, with cohesive soils encountered across the site. The Standard Penetration Test (SPT) results in the natural ground indicate firm to stiff soils. No groundwater ingresses were recorded during the fieldworks period.

6.4 Characteristics of the Proposed Development

The proposed development comprises a total of 473 houses, 274 duplexes and 1,780 apartment units in 18 no. blocks, all on a c.67 ha site. All of the proposed houses/duplexes are in the northern portion of the site, within Fingal County Council, and there are 550 apartment units proposed in this portion of the site, with 1,230 apartment units proposed in the southern portion of the site, within Dublin City Council.

The eastern portion of the site, between the Mayne River to the north and existing development to the south, is proposed to be used as a greenway. It will serve as a connection for pedestrians and cyclists between the subject site and the Malahide Road (R107).

There is a large open space proposed at the north-west of the site, in addition to several smaller open spaces throughout the development.

The proposed development, with respect to soils and geology, includes the following characteristics:-

- Stripping of topsoil.
- Excavation of foundations and basements.
- Excavation of drainage sewers and utilities.
- Regrading and landscaping.
- Disposal of any surplus excavated soils including any contaminated material.

6.5 Potential Impact of the Proposed Development

6.5.1 Construction Phase

There is the potential for some negative aspects to arise owing to the construction phase of the development, which may include:

- Unstable embankments and soil conditions to the surrounding environment during the works.
- Unforeseen ground conditions or obstructions within the ground that have not been identified in the geotechnical investigations.
- Ground borne vibration as a result of the works to the surrounding environment.
- During excavation surface water runoff from the surface of the excavated areas may result in silt discharges to the public network/River Mayne.

- The proposed foundations and basements creating hydrogeological ground water cut-offs that could affect the hydrogeology in the surrounding environment.
- Excavations for basements, foundations, roadworks, and services will result in a surplus of subsoil. Surplus subsoil will be used in fill areas where applicable.
- Dust from the site and from soil spillages on the existing road network around the site may be problematic, especially during dry conditions.
- Accidental oil or diesel spillages from construction plant and equipment, in particular at refuelling areas, may result in oil contamination of the soils and underlying geological structures.

6.5.2 Operational Phase

During the operational stage of the Proposed Development there will be no likely significant ongoing impacts on the underlying soil and geology. Any hydro-geological impacts are temporary and associated with the construction of the proposed development.

6.5.3 “Do Nothing” Impact

There is no impact on the soils and geology in the do-nothing scenario.

6.6 Avoidance, Remedial & Mitigation Measures

6.6.1 Construction Phase

Measures to mitigate potential impacts to the soil and geology of the subject site and surrounding area are included in the Technical section for this Chapter, and also in greater detail in the Construction Environmental Management Plan & Preliminary Construction Demolition and Waste Management Plan reports. These reports were both created by Waterman Moylan Consulting Engineers and are submitted under separate covers as part of this planning application package.

In general these measures aim to reduce the volume of soils to be excavated and subsequent transport movements, advise/instruct on how excavated materials may be reused or disposed of appropriately and storage procedures for soils to be reused, methods to prevent soils and dust being deposited off site or becoming airborne, prevention of chemical/hydrocarbon pollution to soils, methods for the treatment and disposal of groundwater, and methods to prevent the contamination of surface watercourses and networks by silts and silt-laden waters.

6.6.2 Operational Phase

On completion of the construction phase and following replacement of topsoil, a planting programme will commence to prevent soil erosion. SuDS and filtration devices are proposed to be provided as part of the development. These will help to remove pollutants from rainwater runoff. The SuDS proposals will also encourage infiltration of surface water to the ground. Part of the SuDS proposal for this site is also to encourage infiltration of surface water to the ground. This infiltration will assist with natural ground water replenishment which is currently occurring on the lands.

6.7 Residual Impacts

6.7.1 Construction Phase

With the protective measures noted above in place during excavation works, any potential impacts on soils and geology in the area will not have significant adverse impacts, and no significant adverse impacts on the soils and geology of the subject lands are envisaged.

The proposed development will result in a surplus of excavated material, which may contain contaminants. Any contaminated material will be exported to an approved licensed waste facility.

6.7.2 Operational Phase

On completion of the construction phase and following replacement of topsoil and implementation of a planting programme, no further impacts on the soil are envisaged.

SuDS measures, including permeable paving, bioretention tree pits and open areas with low level planting, will assist with treating surface water runoff while replenishing the natural ground water table.

No significant adverse impacts are predicted on soils or geology.

6.7.3 "Worst-Case" Scenario

The worst-case scenario would be for contaminated soils to be encountered during the works. As noted above, any contaminated soils encountered will be excavated and disposed of off-site in accordance with the Waste Management Acts, 1996-2021, and associated regulations and guidance provided in Guidelines for the Management of Waste from National Road Construction Projects published by the National Roads Authority in 2008.

In the worst-case scenario, subsoil may be exposed to inclement weather during construction and may result in the erosion of soils. However, with the proposed mitigation measures the quantity of soils exposed and the duration of that exposure will be minimised.

6.8 Risks to Human Health

A potential risk to human health due to the associated works during construction is the direct contact, ingestion or inhalation of receptors (i.e. construction workers) with any soils which may potentially contain low level hydrocarbon concentrations from site activities (potential minor leaks, oils and paint).

No human health risks associated with long term exposure to contaminants (via. direct contact, ingestion, or inhalation) resulting from the proposed development are anticipated.

6.9 Monitoring

6.9.1 Construction Phase

Monitoring during the construction phase will be carried out. This will include the monitoring of the protection of the soil stockpiles for reuse, the potential for contaminated soils which will need to be disposed of, surface water discharges for silt contamination, the cleanliness of the adjoining road

networks, for prevention of chemical/hydrocarbon spills, and the implementation of methods for dust suppression.

6.9.2 Operational Phase

During the operational phase, the surface water network (drains, gullies, manholes, AJs, SuDS devices) will be regularly maintained and where required cleaned out. A suitable maintenance regime of inspecting and cleaning will be incorporated into the safety file/maintenance manual for the development.

6.10 Reinstatement

Excavations and trenches opened during construction will be backfilled with subsoil to reinstate existing ground levels. Upon completion no impact is foreseen.

7.0 WATER

7.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) provides an assessment of the impact that the Strategic Housing Development (SHD) in Belcamp, Dublin 17, located north of the Northern Cross Route, R139, to the east of the IDA lands, and to the west of the Malahide Road (R107), will have on the network of water (water supply, foul drainage, natural and constructed surface water networks, & natural groundwater table) in the vicinity of the site. It also sets out mitigation measures and methods of monitoring while the development is both under construction and operational.

A full description of the development can be found in Chapter 2.

This chapter was completed by Waterman Moylan Consulting Engineers.

7.2 Research Methodology

7.2.1 Water Supply

Research for this section included a review of the existing watermain layout from Irish Water records for the area.

7.2.2 Foul Water Drainage

Research for this section included a review of the existing foul water layout from Irish Water records for the area.

7.2.3 Surface Water Drainage

Research for this section included a review of Ordnance Survey and Topographical surveys of the subject site and surrounding area and a review of the existing surface water layout from Irish Water / Fingal County Council and Dublin City Council records for the area.

7.3 Baseline Environment

7.3.1 Water Supply

The 600mm diameter trunk North Fringe Watermain traverses through the subject site, within the Dublin City Council lands. There is also an existing 300mm ductile iron watermain in the R139 travelling parallel to the North Fringe Watermain. A 100mm watermain runs for approximately 400m on the southern side of the R139. A new 300mm diameter trunk watermain is under construction in College Avenue, east of the subject site, as part of the Phase 1 works (Planning Reference F15A/0609). This watermain feeds the Phase 1 site and has been designed to also accommodate the subject development. It is connected to the existing Irish Water public network at the Malahide Road.

7.3.2 Foul Water Drainage

The existing North Fringe Northern Interceptor Sewer (NFNIS) traverses the southern portion of the subject site. The NFNIS is a 1,050mm diameter gravity sewer draining much of north-west Dublin and discharging eastwards to Sutton Pumping Station, which in turn pumps wastewater to the Ringsend Wastewater Treatment Works.

A 525mm diameter foul water sewer is under construction in College Avenue as part of the Phase 1 works (Planning Reference F15A/0609). This sewer is designed to accommodate the Belcamp Lands north of the Mayne River. It ultimately outfalls to the 1,050mm diameter NFNIS at Parkway Boulevard.

7.3.3 Surface Water Drainage

The proposed development site is a greenfield site. The Mayne River traverses the site, flowing from west to east. There are two existing off-line lakes at the northern edge of the Mayne River that a portion of the existing Belcamp Lands discharge to.

There is an existing bridge separating the two lakes, and water discharges from the western lake to the eastern lake via a weir under the existing bridge. Water discharges from the eastern lake to the Mayne River via another weir structure. The lakes are substantially higher than the Mayne River at the discharge point from the eastern lake.

Ditches convey surface water from the site as part of three separate catchments, one to the south and two to the north of the Mayne River.

7.4 Characteristics of the Proposed Development

7.4.1 General

The proposed development comprises a total of 473 houses, 274 duplexes and 1,780 apartment units in 18 no. blocks, all on a c.67 ha site. All of the proposed houses/duplexes are in the northern portion of the site, within Fingal County Council, and there are 550 apartment units proposed in this portion of the site, with 1,230 apartment units proposed in the southern portion of the site, within Dublin City Council.

The eastern portion of the site, between the Mayne River to the north and existing development to the south, is proposed to be used as a greenway. It will serve as a connection for pedestrians and cyclists between the subject site and the Malahide Road (R107). There is a large open space proposed at the north-west of the site, in addition to several smaller open spaces throughout the development.

The proposed development includes new wastewater, surface water and water supply connections to the public network.

7.4.2 Water Supply

It is proposed to provide 3 new connections to the existing watermain infrastructure to serve the proposed development. A connection is proposed to the east of the site to the 300mm trunk main on College Avenue (part of the Phase 1 works), and 2 connections are proposed to the existing networks to the south along the R139, one to the 600mm main and one to the 300mm main.

Water will be fed from these connections to the individual blocks and housing units via a series of 100mm and 150mm watermains, with individual unit connections complete with meter boxes.

Irish Water have issued a Confirmation of Feasibility letter and a Statement of Design Acceptance for the proposal. These letters are included in Appendix 7.1 and Appendix 7.2, respectively.

The water demand that will be generated by the development is calculated to be approximately 13.837 l/s, or 1,196m³ per day, with a peak demand of 86.479 l/s.

7.4.3 Foul Water Drainage

It is proposed to discharge wastewater from the southern portion of the site via a series of 150mm, 225mm, and 375mm sewers eastwards, outfalling to the existing NFNIS via a new connection at the east of the site. It is proposed to discharge wastewater from the northern portion of the site via a series of 150mm and 225mm sewers to the 525mm trunk sewer currently under construction as part of the Phase 1 works.

Irish Water have issued a Confirmation of Feasibility letter and a Statement of Design Acceptance for the proposal. These letters are included in Appendix 7.1 and Appendix 7.2, respectively.

The total dry weather flow from the development has been calculated to be approximately 13.837 l/s, with a peak flow of 41.510 l/s.

7.4.4 Surface Water Drainage

It is proposed to drain the site as three separate catchments: one to the south of the Mayne River (Catchment D1) and two to the north (Catchment A1 & A2). Catchment C1 serves, for the most part, the proposed Phase 1B site, submitted for planning in late July 2021 under Planning Reference F21A/0401. There is a portion of the SHD lands that are within the C1 catchment and attenuation has been sized accordingly. The proposed catchments are indicated in the Figure below:

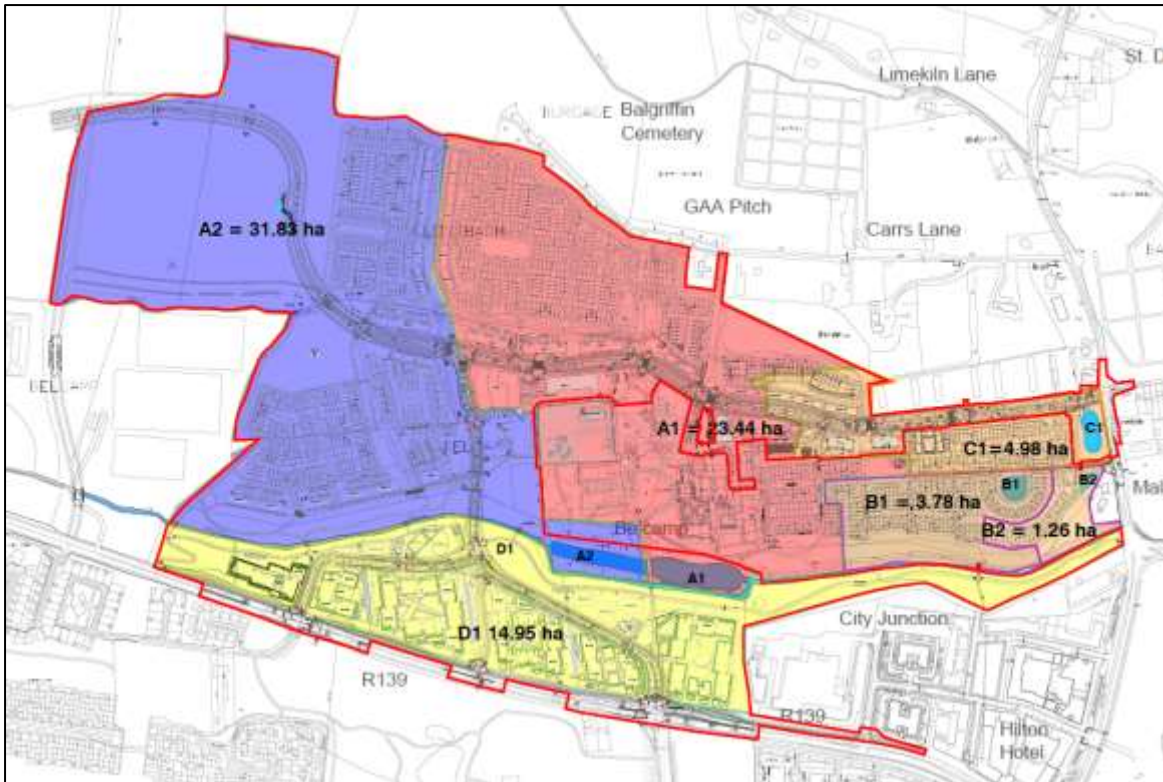


Figure 1. Proposed Surface Water Catchments

Proposed Catchment South of Mayne River

South of the Mayne River, it is proposed to utilise the existing ditches that run south to north along the existing hedge-lines. Each proposed block will drain to a ditch via underground surface water drains. The ditches will, in turn, each flow into a headwall before culverting under the road and ultimately discharging to the Mayne River. Steps will be provided into/out of each of the ditches as a health and safety feature. The main regional attenuation will be provided in the open space adjacent to the Mayne River, east of the main road in a dry detention format.

Proposed Catchments North of Mayne River

All of the lands east of the proposed Belcamp Parkway (main road that runs north/south through the DCC and FCC sites) will drain to the lower eastern lake (Catchment A1), while all lands to the west of the proposed Belcamp Parkway will drain to the upper western lake (Catchment A2). Fingal County Council identified capacity constraints in the culvert at the north-east of the site that discharges under the existing access of the Balgriffin Inn (formerly Campions Pub). It is proposed to redirect a significant portion of the catchment from this culvert to maintain its capacity for the C1 catchment (Belcamp Phase 1B and the eastern extents of the EWLRL). This diverted catchment will flow to the lower lake south of Belcamp Hall adjacent to the Mayne River. The C1 catchment is to be attenuated in the Phase 1B lands. All flows that originate from outside the Belcamp lands will be factored into the attenuation of the lake so that only the catchment that is on the Gannon Lands will be attenuated.

Utilising the natural treatment and storage potential of the existing lakes is an environmentally and ecologically sound solution that will benefit the receiving waters of the Mayne River.

The proposed development has been designed to incorporate best drainage practice, including a Storm Water Management Plan through the use of various SuDS techniques to treat and minimise surface water runoff from the site. Treatment and storage of surface water at source will intercept and slow down the rate of runoff from the site to the existing surface water sewer system.

7.5 Potential Impact of the Proposed Development

7.5.1 Water Supply

Construction Stage

The site is currently primarily greenfield. Site offices and construction activities will create a demand for water supply to the site. Commencement of construction will therefore result in a net increase in the water demand for the site.

There is a risk of contamination to the existing water supply during connection to the public water supply.

Operational Stage

During the operational stage of the development, there will be an average demand for water from the public water supply of 13.837l/s, with a peak demand of 86.479l/s, whereas in the do-nothing scenario there is no water demand for the site.

7.5.2 Foul Water Drainage

Construction Stage

There will be a requirement for a temporary foul connection to serve the site compound during the construction stage.

During the construction of the new foul sewers there is the potential for surface water to be discharged to the existing public foul sewer system due to pipes and manholes being left open.

There is a risk of pollution of groundwater and water courses by accidental spillage of foul effluent during connection being made to live sewers.

Operational Stage

There will be a dry weather flow of 13.837l/s, with a net peak foul water flow of 41.510l/s, discharging to the foul water system serving the site, compared to the do-nothing scenario where there is no active connection in place. The proposal will result in a net increase in flows to the network.

There is a possibility of some surface water ingress into the foul water drainage system due to poor workmanship. There is also a possibility of leakage from sewers and drains within the site and along the route to the outfall sewer. Any foul water leakage would result in local contamination of soil and ground waters in the area.

7.5.3 Surface Water Drainage

Construction Stage

Surface water currently infiltrates the ground, with any excess surface water discharging to the existing ditch network and ultimately to the River Mayne or to the public drainage network in Malahide Road. There is a possibility of temporary contamination to the surface water network during construction activities. Sedimentation and silt arising from construction activities could contaminate the surface water network. Refuelling of vehicles may result in spillages, which could impact local surface water bodies.

Operational Stage

The proposed flow control devices at the lakes and the dry detention basin are to be limited to the greenfield equivalent runoff rate, and SuDS measures proposed to maximise the infiltration as set out above. The net runoff volume from the site will therefore remain unchanged. There is a possibility of some foul water ingress into the surface water drainage system due to poor workmanship. Any such cross connections could result in pollution of the surface water network.

The runoff from the roads and hardstanding areas will discharge contaminants, including oils and silts, to the surface water system which might result in pollution to the surface water network.

7.6 Avoidance, Remedial & Mitigation Measures

7.6.1 Water Supply

Construction Stage

A method statement setting out in detail the procedures to be used when working in the vicinity of existing watermains will be produced by the contractor for any construction works within the vicinity of watermains and for roads or services crossing watermains.

All watermains will be cleaned and tested in accordance with Irish Water guidelines prior to connection to the public watermain. All connections to the public watermain will be carried out by, or under the supervision of, Irish Water.

Potential negative impacts during construction stage will be short term only.

Operational Stage

Water meters will be installed at the connection points, with the locations to be agreed and approved by Irish Water. These meters will be linked to Irish Water's monitoring system by telemetry. The meters will facilitate the early detection of unusual water usage in the network and identify potential leaks in the system.

All plumbing fixtures and fittings and sanitary wear to be installed within the development should be to the current best practice for water consumption to minimise future water usage.

It is not envisaged that any further remedial or reductive measures will be necessary on completion.

7.6.2 Foul Water Drainage

Construction Stage

In order to reduce the risk of defective or leaking foul sewers, the following remedial measures will be implemented:

All foul sewers will be air-tested to Irish Water requirements, all private drainage will be constructed to and certified to the Building Regulations and BCAR requirements, Foul sewers will be surveyed by CCTV to identify possible defects, and the connection of the foul sewer to the public infrastructure will be carried by, or under the supervision of, Irish Water.

Prior to commencement of excavations in public areas, all utilities and public services will be identified and checked, to ensure that adequate protection measures are implemented during the construction stage.

Operational Stage

All foul drains will be tested and surveyed prior to connection to the public sewers to minimise the risk of uncontrolled ground water penetration or leakage of the foul water to groundwater on the site.

Otherwise, no remedial or reductive measures are deemed to be necessary after completion of the proposed development, other than normal maintenance of the foul sewer system.

7.6.3 Surface Water Drainage

Construction Stage

The contractor will prepare and implement a Construction Management Plan which will outline the requirements for the storage and handling of fuel, including the refuelling of vehicles in designated refuelling zones to minimise the risk of spillages, and the impact of spillages should they occur.

The Construction Management Plan will also utilise sedimentation controls, including silt traps, tailings ponds and silt fences during the construction period.

All private drainage will be inspected and signed off by the design Engineer, which will reduce the possibility of any cross connections being constructed.

Operational Stage

The proposed flow control devices are to be limited to the greenfield equivalent runoff rate. The net runoff volume from the site will therefore remain unchanged. There is a possibility of some foul water ingress into the surface water drainage system due to poor workmanship. Any such cross connections could result in pollution of the surface water network.

Surface water will be attenuated locally and will discharge to the natural watercourse at a controlled rate, limited to the greenfield equivalent runoff rate. In addition, the SuDS devices will reduce and slow down the rate of surface water runoff from the site. This will minimise peak flows in the

downstream system during major storm events. Gullies and the flow control devices shall be regularly maintained to avoid blockages.

The SuDS treatment train will also treat the surface water discharging to the public network, removing pollutants from the surface water runoff. Maintenance of these SuDS devices will be required to ensure that they continue to treat the surface water as designed.

7.7 Residual Impacts

7.7.1 Water Supply

Construction Stage

Due to the proposed remedial measures outlined above, no significant adverse impacts are expected to arise on the water supply network during the construction stage of the development.

Operational Stage

There will be a water demand for the implementation of the development of approximately 1,196m³ per day. Irish Water have confirmed that connection to the existing water supply network is feasible without any upgrades to the existing infrastructure.

7.7.2 Foul Water Drainage

Construction Stage

During the construction stage of the development, some short-term negative impacts may result as identified above. However, if the proposed remedial and reductive measures are implemented, the impact of the implementation of the development during the construction stage will be minimised and no significant long-term impacts will result from the construction works.

Operational Stage

Wastewater will discharge from the completed and occupied development at a rate of approximately 1,196m³ per day. Irish Water have confirmed that there is sufficient capacity in the public network to cater for the development without upgrades.

7.7.3 Surface Water Drainage

Construction Stage

During the construction stage, some short-term negative impacts may result, as identified above. However, if the proposed remedial and reductive measures are implemented, the impact of the implementation of the development during the construction stage will be minimised and no significant long-term impacts will result from the construction works.

Operational Stage

By introducing flow control measures and appropriately sized attenuation, the surface water runoff rate from the site will remain unchanged from the current scenario. Introduction of appropriate

interception and treatment SuDS devices will ensure that a high runoff water quality is maintained. No significant adverse impacts are envisaged.

7.7.4 “Worst-Case” Scenario

In the worst-case scenario, there could be some surface water ingress into the foul water drainage system due to poor workmanship. Leakage from sewers and drains could result in local contamination of soil and ground waters in the area. The runoff from the road and hardstanding areas will discharge contaminants, including oils and silts, to the surface water system which might result in polluting of the surface water network. However, with the implementation of the mitigation measures, the likelihood of these impacts will be minimised, and no significant long-term impacts will result from the development.

7.8 Monitoring

7.8.1 Water Supply

Water usage and potential leakage will be monitored by Irish Water using the water meters which will be installed on the supply pipes so that the development can be monitored in sections. The location of these meters will be agreed with Irish Water and the meters will be linked to Irish Water’s monitoring system via telemetry.

7.8.2 Foul Water Drainage

Following completion of construction of the development there are no monitoring requirements envisaged other than normal monitoring and maintenance of the wastewater system by Irish Water.

7.8.3 Surface Water Drainage

The surface water network (drains, gullies, manholes, AJs, SuDS devices, attenuation system) will need to be regularly maintained and where required cleaned out. A suitable maintenance regime of inspecting and cleaning shall be incorporated into the safety file/maintenance manual for the development.

7.9 Reinstatement

Any existing roads, footpaths and park spaces that are opened to facilitate water supply, foul water drainage and surface water drainage connections will be reinstated.

8.0 AIR QUALITY

The assessment identified the existing air quality baseline levels in the area of the proposed development at Belcamp. National and local EPA monitoring data was obtained for current and previous years. It was found that all air quality parameters are well below national and EU ambient air quality limit values. The existing baseline air quality at the site vicinity can be characterised as being good with no exceedances of the Regulations.

The impact on air quality during the construction phase is predicted to be sourced from construction dust emissions. The impact at neighbouring sensitive receptors (nearby existing residential dwellings) was determined by a theoretic assessment of dust soiling. Standard mitigation measures

outlined in Section 8.5 along with the dust management plan outlined in Appendix 8.1 would be implemented to control and minimise emissions during construction. With mitigation measures in place impacts of the proposed development on air quality for the construction phase is likely to be short-term and imperceptible.

The impact on air quality during the operational phase was determined by an assessment using the DMRB air quality model predicting pollutant concentrations over a period of time. Modelled results showed a small increase in annual NO₂, PM₁₀, benzene and CO but each parameter would still remain well below the limit values for EU regulations. This predicted increase above the existing environment results in a negligible impact and would not result in a perceptible change in the existing local air quality environment. Therefore, the operational phase impact to air quality is long-term, and imperceptible.

9.0 NOISE AND VIBRATION

The impact or increase in noise levels, mainly by increased residential traffic noise at the R123/R07 (Balgriffin Rd/Malahide Rd) junction and R139 are at worse case deemed a 'slight' impact based on the predicted calculation methodology of BS 5228-1:2009+A1: 2014 and are in line with general noise impacts of new developments.

However, in actual terms when the new government's climate action plan is implemented, the noise levels including the new proposed development will reduce over the current background noise levels due to the fact that petrol & diesel cars will be phased out and replaced by more quiet electrical cars over the next decade during which the development will be constructed. It is anticipated that construction vibration levels will only have minor temporary increases and that any increase in operational vibration due to the new development is deemed not to have any noticeable impacts on the overall development.

10.0 CLIMATE

The climate impact chapter examines the effects the proposed project will have or contribute to the global environment in terms of carbon dioxide emissions as the main contributors to greenhouses gasses or climate change. CO₂ in this project is emitted in the construction phase and in the operational phase. The construction phase is a relative short phase and its impact on CO₂ is limited when compared with the operational phase. The operational phase is based on the life cycle of a building or dwelling covering a 60-year period. Construction emissions represent approximately 5% to 10% of the Operational emissions over the life cycle period hence reduction for this phase are particularly effective.

Construction phase: CO₂ in the construction phase is emitted by construction vehicles, machinery, and equipment but also by CO₂ attributed to construction materials representing the amount of CO₂ it takes to manufacture and deliver a material to site known as a material's "embodied carbon dioxide". Therefore, selecting materials for the construction of buildings/dwellings which have a low embodied carbon factor like wood, local stone rather than steel, zinc, aluminium or other metallics which have high carbon factors would be beneficial to global CO₂ emissions. A number of CO₂ reduction measures have been applied on construction methodology, vehicles, machinery and

together with selecting construction materials with low embodied carbon factors a reduction of +/- 16% in CO₂ emissions in the construction phase was achieved over current standard or average emissions.

Operational phase: CO₂ in the operational phase is emitted mainly by passenger vehicles and energy required for the building's heating/hot water needs. The operational phase taken over the buildings 60-year life cycle would be the dominating contributor to CO₂ emissions and any reductions applied here are very effective as a result of the length of the life cycle. For this project a number of CO₂ reduction measures have been applied by using more electric vehicles, encourage the use of public transport and cycling achieving a reduction of +/- 13% but the bulk of the reductions at +/- 77% is achieved in the building energy element applying the current and advanced Part L parameters giving a total combined operational phase reduction of +/- 57% which is a significant saving in any account.

11.0 LANDSCAPE AND VISUAL ASSESSMENT

The landscape and visual impact assessment was conducted by The Big Space landscape architects to assess the potential impacts of the proposed development on the surrounding landscape. The landscape and visual impact assessment examines and evaluates the implications of the proposed scheme in terms of landscape character and visual alterations arising from the scheme. The assessment also describes outline landscape treatment proposals to mitigate and attempt to achieve a longer-term integration of the proposed development with its surrounding landscape area. The procedure used for the landscape and visual assessment entailed a desk top study of the site in relation to its overall context both locally and regionally, including assessing the photomontages prepared by Digital Dimensions. It also involved visiting the site and its environs to assess the quality and type of views of the area and the character and quality of the site area and the surrounding landscape. The structure for assessing the landscape impact of the proposed development is based upon the following guidelines:

- Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, July 2017)
- Guidelines for Landscape and Visual Impact Assessment (Landscape Institute & I.E.M.A., UK 2013)

Receiving Environment

The subject site covers an area of c.67 hectares, it was originally part of the Belcamp Hall estate which was built in the 1700s. The subject site is accessed off the R139 to the south and Malahide Road to the east and is located c.8 km north of Dublin city centre. The subject site is located c.4 km south-east of Dublin Airport, c.2.5 km east of the M1/M50 motorway interchange (via R139) and c.2.5km west of Clongriffin Dart Station. The subject site is bound by Malahide Road and Phase 1 of the Belcamp residential development to the east. The R139 road, Bewley's Head Office and the City Junction Business Park are located to the south of the subject site. The Craobh Chiaráin GAA club and pitches are located to the south-west of the subject site and agricultural lands and hedgerows are located to the west and north of the subject site. The Mayne River, which flows eastwards through the subject site, divides the FCC lands (45.5ha) to the north from the DCC lands (16.5ha) to

the south. Weirs and two man-made lakes are also located along a redirected portion of the river, which are divided by the causeway/ access road to the south. While much of the subject site is relatively level, the lands to the south of Belcamp Hall is divided by the Mayne River, the course of which forms a substantial change in level between the main site to the north and the adjoining lands to the south and contains significant woodland. The lands include the original environs of Belcamp Hall as well as a substantial amount of agricultural land. Whilst the agricultural lands support few trees, other than those arising from field demarcations, the lands that surround Belcamp Hall supports substantial woodland. The cumulative effect is an extensive but highly variable landscape across the site, from clear arable agricultural lands to significant woodland within the river valley and environs.

Protected Views

Both the FDP 2017-2023 and DCDP 2016-2022 does not refer to any protected views, corridors or prospects to or from the subject site as shown on Figures 11.5 and 11.10. In relation to views and prospects the FDP 2017-2023 contains the following objective:

“Objective NH40: Protect views and prospects that contribute to the character of the landscape, particularly those identified in the Development Plan, from inappropriate development.”

The Dublin City Development Plan 2016-2022 contains the following policy and objective in relation to views and prospects:

“GI8: To protect and enhance views and prospects which contribute to the appreciation of landscape and natural heritage.

GI08: To undertake a ‘Views and Prospects’ study to identify and protect the key views and prospects of the city. Additional views and prospects may be identified through the development management process and local area plans.”

Visibility into and from the site

Generally, views into and from within the subject site are limited due to its enclosed nature, created by the mature woodlands, tree belts and hedgerows that surround it.

Protected Structures or Recorded Monuments

The Protected Structures, Recorded Monuments and NIAH structures that are in close proximity to the subject site are listed in Tables 11.2, 11.3 and 11.4:

Statutory Designations

There are no Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Natural Heritage Areas (NHA) within the subject site, as shown on Figures 11.6 and 11.7.

Landscape Character

The landscape character of the wider area that surrounds the subject site varies from semi-rural to urban. The lands within the subject site are composed of agricultural fields bound by hedgerows, tree belts, woodlands and the Mayne River. The Belcamp Hall estate which was built in the 1700s,

including the walled garden, the Washington Monument and the man-made lakes are defining features within this designed landscape. The subject site is bound by Malahide Road and Phase 1 of the Belcamp residential development to the east. The R139 road, Bewley's Head Office and the City Junction Business Park are located to the south of the subject site. The Craobh Chiaráin GAA club and pitches are located to the south-west of the subject site and agricultural lands and hedgerows are located to the west and north of the subject site. The Mayne River, which flows eastwards through the subject site, divides the FCC lands to the north from the DCC lands to the south. Weirs and two man-made lakes are also located along a redirected portion of the river, which are the divided by the causeway/ access road to the south.

While much of the subject site is relatively level, the lands to the south of Belcamp Hall is divided by the Mayne River, the course of which forms a substantial change in level between the main site to the north and the adjoining lands to the south and contains significant woodland. Whilst the agricultural lands support few trees, other than those arising from field demarcations, the lands that surround Belcamp Hall supports substantial woodland. The Historic Landscape Report – Belcamp Hall (TBS, 2022) describes the historical aspects of this landscape in further detail.

Landscape Character Assessment

The landscape character of the area within and around the subject lands is identified as 'Low Lying Agriculture Character Type' within the FDP 2107-2023 (refer to Figure 11.8). This type is "characterised by a mix of pasture and arable farming on low lying land with few protected views or prospects. The Low Lying Character Type has an open character combined with large field patterns, few tree belts and low roadside hedges. This low lying area is dominated by agriculture and a number of settlements. The area is categorised as having a modest value. It contains pockets of important value areas requiring particular attention such as important archaeological monuments and demesnes."

Landscape Character Types – Sensitivity

This character type is identified as a 'low sensitivity' meaning that *"these landscapes can absorb a certain amount of development once the scale and forms are kept simple and surrounded by adequate screen boundaries and appropriate landscaping to reduce impact on the rural character of the surrounding roads. The protection of views and riparian corridors from inappropriate development is of paramount importance in these areas.*

Existing Trees and Hedgerows

In relation to trees and hedgerows an Objective NH27 of FDP 2017-2023 states:

"Protect existing woodlands, trees and hedgerows which are of amenity or biodiversity value and/or contribute to landscape character and ensure that proper provision is made for their protection and management."

The Dublin City Development Plan 2016-2022 contains the following objectives in relation to trees:

“GI 25: To protect trees in accordance with existing Tree Preservation Orders (TPOs) and, subject to resources, explore the allocation of additional TPOs for important/ special trees within the city based on their contribution to amenity or the environment.

GI 26: To review ancient and species-rich hedgerows within the city (as identified in the 2006 survey of ancient and species rich hedgerows in Dublin city) and protect existing hedgerow sections.

GI 27: To protect trees, hedgerows or groups of trees which function as wildlife corridors or ‘stepping stones’ in accordance with Article 10 of the EU Habitats Directive.

GI 28: To identify opportunities for new tree planting to ensure continued regeneration of tree cover across the city, taking account of the context within which a tree is to be planted and planting appropriate tree species for the location.

GI 29: To encourage trees to be incorporated in (a) the provision of temporary green spaces (e.g. pop-up parks) either planted into the soil or within moveable containers as appropriate and (b) within sustainable urban drainage systems (SUDS), as appropriate.”

There are no Tree Preservation Orders within the subject site, as shown of Figure 11.9.

Site Arboricultural Assessment:

A comprehensive arboricultural survey was carried out by The Tree File Ltd. which should be read in conjunction with this report.

(Source: Extract from Arboricultural Report, The Tree File Ltd, 2022)

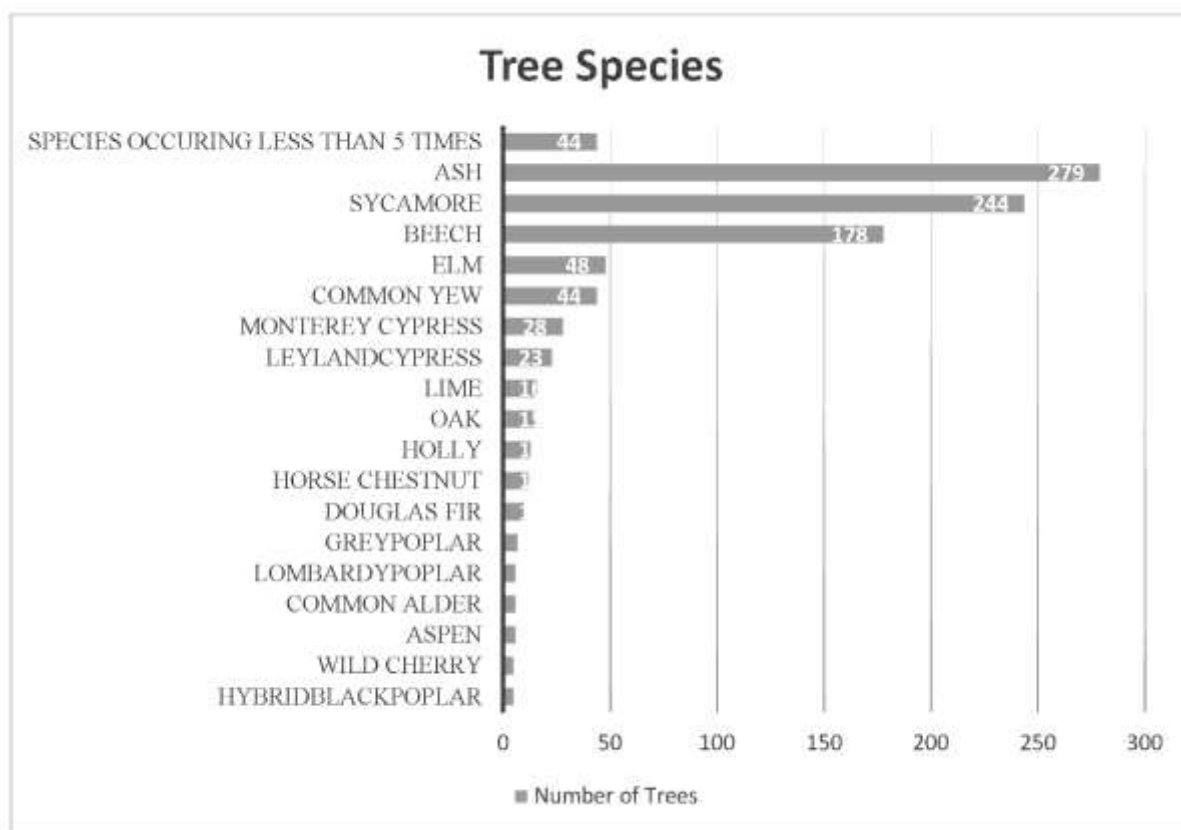


Figure 11.1: Existing Tree Species breakdown (Source: Arboricultural Report, The Tree File, 2022)

Identification of Likely Significant Impacts

Impact on Existing Trees and Hedgerows

The retention of the existing woodlands, trees and hedgerows are a priority of the landscape strategy as they strongly contribute to semi-rural and mature setting of the development and will assist in screening the proposed structures from the adjoining lands and road, as well as providing visual amenity and biodiversity benefits. The design of the development has where possible followed the pattern of existing field boundaries to ensure retention of existing woodland and mature hedgerows where possible and to retain the historical patterns of the landscape. The existing hedgerows that are to be retained will be pruned, tidied and replanted with native species where the hedgerow is of poorer quality. The full impacts on the existing trees and hedgerows are described in detail with the Arboricultural Report (The Tree File Ltd, 2022).

During the construction phase the existing trees and hedgerows that are to be retained will be protected from construction traffic, material storage, ground level changes and any other disturbances, in accordance with the recommendations set out in BS5837: 2012 and detailed in the arborist's report. The overall impact on the existing trees and hedgerows will be slight-moderate and negative during the construction phase, prior to the establishment of proposed trees and supplementary hedge planting throughout the site. During the operational phase, and with consideration for the proposed planting measures and the implementation of the woodland management plan recommendations (refer to Arboricultural Report), it is anticipated that the proposed development will have a slight and negative impact on the short term, reducing to not significant and negative impact on trees and hedgerows in the long term.

Impact on Landscape Character

These lands are subject to land use zoning objectives 'Residential' for the majority of the subject site and 'Open Space' objective along the Mayne River and in the north-west. The conversion of the agricultural land into a residential development will mean that this area will experience an intensification of use. The proposed development will result in an intensification of land-use which may be perceived as having a moderate and negative impact on the character of this landscape during the construction phase, due to the presence of construction cranes, lighting and other visual disturbances caused by construction. However, the land is zoned for a development of this scale and its impact will lessen once the scheme is operational and the planting mitigation measures such as along the site boundaries and within the open spaces, establish and mature. In this context the operational phase of the proposed development will have a slight and negative impact on the landscape character in this area.

Impact on Visibility into the site

For this visual impact assessment, viewpoints were selected to represent the likely visual impact from a variety of distances and direction around the site. Priority was given to views from the public domain, such as main roads and to views from potentially sensitive locations such as adjacent residential areas and from the amenity pathways. Photomontages were compiled from the

viewpoints shown on Figure 11.13 (the visual analysis section below should be read in conjunction with the baseline and proposed visuals produced by Digital Dimensions).

- *Long range views from the north:*
 - From Carr's Lane, looking south: During the operational phase the impact on views from this location may be not significant and negative due to removal of a section of the existing hedgerow and the pruning of the other sections to facilitate the construction of the pedestrian link. However as the existing trees continue to mature and the proposed tree and hedge planting becomes more established it is anticipated that the visual impact will lessen in the long term.
 - From Limekiln Lane, looking south: It is anticipated that views of the proposed development will not be possible or very limited from this location and the visual impact will be imperceptible and neutral.
 - From Baskin Cottages looking south: It is anticipated that views of the proposed development will not be possible or very limited from this location and the visual impact will be imperceptible and neutral.
- *Views from the west - Clonshaugh Road and Stockhole Lane:*
 - The views from the west of the proposed development varies, from imperceptible and neutral to slight and negative. From certain locations it is anticipated that views of the proposed development will not be possible or very limited from this location and the visual impact will be imperceptible and neutral.
 - From other areas, when the subject lands are in the operational phase it is anticipated that the impact on views from this location will be slight-moderate and negative in the short term, as while the existing and proposed planting will assist in screening views of the lower parts of the proposed development, parts of the proposed buildings will likely still be visible against the skyline, from this location in the short to medium term. It is anticipated that as the existing trees continue to mature and the proposed tree planting becomes more established it is anticipated that the visual impact will lessen to slight and negative in the long term.
 - From other areas to the west, when the subject lands are in the operational phase it is anticipated that the impact on views from this location will be slight and negative in the short term, as while the existing and proposed planting will assist in screening views of the lower parts of the proposed development, parts of the apartment buildings will likely still be visible against the skyline, from this location in the short to medium term. It is anticipated that as the existing trees continue to mature and the proposed tree planting becomes more established it is anticipated that the visual impact will lessen to not significant and negative in the long term.
- *Views from the south – Belcamp Park, R139 and Darndale Park:*
 - The views from the south of the proposed development varies from imperceptible and neutral to slight and negative.
 - From certain locations it is anticipated that the proposed development will not be visible from this location, due to the local topography and the existing trees and hedgerows along the R139. During the construction and operational phases, it is anticipated that

the proposed development will not be visible from this location and therefore the visual impact will be imperceptible and neutral.

- From other areas, it is anticipated that the visual impact from this location will be moderate and negative in the short term. However as the existing trees and hedgerows continue to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to slight and negative in the long term, as the proposed development is consistent with existing and emerging development of land in this area
- *Views from the east - Malahide Road:*
 - The views from the east of the proposed development varies from imperceptible and neutral to not significant and negative.
 - From certain locations it is anticipated that the proposed development will not be visible from this location, due to the local topography and the existing trees and hedgerows along the R139. During the construction and operational phases, it is anticipated that the proposed development will not be visible from this location and therefore the visual impact will be imperceptible and neutral.
 - From other areas, due to the local topography, existing vegetation and the existing buildings it is anticipated that there will be limited views of the proposed development and the impact on views from this location will be not significant-slight and negative in the short term. The development is consistent with existing and emerging development of land in this area and the visual impact will decrease in time as the proposed and existing vegetation continues to mature, to not significant and negative in the long term.
- *Views from within the subject site and Phase 1 of Belcamp residential development:*
 - The views from the east of the proposed development varies from not significant and negative to slight and neutral.
 - From certain locations, during the operational phase it is anticipated that there will be limited views of the proposed development from this location and the impact will be not significant and negative, as it is consistent with the existing development of land in this area.
 - From other areas, when the subject site is in the operational phase and the proposed vegetation matures, it is anticipated that the impact on views from this location would lessen to slight and negative in the short term and likely continue to lessen to slight and neutral in the long term.

Cumulative Impacts

There are existing residential developments located to the south of the R139 and the City Junction Business Park north of the R139 (south-west of the subject site). There is also Phase 1 of the Belcamp residential development (Planning References: F15A/0609; F19A/0220; F20A/0379 and F21A/0401) to the east of the subject site, where certain parts are complete and others are still under construction. Cumulatively these developments together with the proposed development, in the absence of any mitigation measures have the potential to have a slight-moderate and negative impact on the character and views of the landscape, particularly from the east and south due to the intensification of land use, as it changes from agricultural to suburban development with its

associated structures and infrastructural works. However, if the proposed mitigation measures proposed as part of this development, are fully implemented:

- The proposed planting will provide an attractive visual backdrop and assist in screening this development
- The Preliminary Woodland Management Plan (detailed within the Arboricultural Report), if fully implemented will address the possible decline of the existing woodland and hedgerows, through the necessary tree works, replacement and infill tree planting, which will secure the extensive tree cover in this area into the future.
- Reinstatement historical field boundaries through replanting and strengthen existing hedgerows that are in poor condition

Due to the existing zoning objectives for these lands, infrastructural and residential development will take place within the subject site and therefore there will be some degree of negative impact on the views towards these lands and on the landscape, as it changes from agricultural to suburban in character. It is anticipated that once the mitigation measures that are proposed within this development are implemented, the cumulative impact on the landscape and views from the surrounding areas will be reduced to slight and negative, and their visual impact will continue to lessen as the planting proposals establish and mature.

Do Nothing Scenario

If this particular development is not undertaken it is likely that the land will continue in its current use, as agricultural lands. The lands within which the subject site is located are zoned for residential development and it is likely that some form of residential development will take place on this site in the near future.

Mitigation Measures

Consideration was given to the avoidance of impacts wherever possible during the design of the proposed scheme. However, as with any development some degree of impact is inevitable and wherever possible measures have been proposed to mitigate the adverse nature of these impacts.

Construction Phase:

It is proposed that careful attention will be paid to avoiding any potentially adverse construction-related effects on the adjacent residences and agricultural lands. Operating a well-managed, organised and planned construction site, with adequate control of construction traffic and working activity, is key to avoiding/minimising such impacts. In addition, any lighting required during the construction phase should be located sensitively to avoid unnecessary light spill into the surrounding residential areas and into the woodlands. The construction works and the habitat protection measures will be carried out in accordance with measures outlined by the project ecologist, FCC and DCC.

Operational Phase:

The careful and considered approach to the layout of the proposed development is to minimise negative visual impact both locally and from the wider surrounding area. The landscape strategy below details the landscape proposals that will assist in mitigating the landscape and visual impacts of the proposed development: refer to landscape drawings 1520_300-304 (FCC lands) and 1561_1-11 (DCC lands), Public Realm Strategy and Landscape Rationale Reports. The key objectives included:

- Retention and protection of the vegetation along existing field boundaries where possible.
 - This helps to retain a mature, established character to the site and provide a unifying, cohesive landscape framework that relates it to the surrounding landscape and its historical context, as well as being of ecological benefit.
 - Generally this will involve retention of mature good quality trees within the woodlands, tree belts and hedgerows, pruning and tidying of the retained hedgerow and replanting where the hedgerow is of poorer quality (as outlined in the Arboricultural Report).
 - The design of the development has, where possible, followed the pattern of existing field boundaries to ensure the retention of the vegetation where possible and to retain the historical patterns of the landscape.
- Integration of the development into the surrounding landscape, minimising landscape and visual impact in particular upon nearby residential dwellings, from amenity areas and from public roads
 - This is largely to be achieved by an extensive planting programme within the site and along the site boundaries and working with the existing topography of the site as much as possible.
- Roadway lighting and lighting of cycle/ pedestrian walkways will be by means of high quality, modern standing fixtures. They will include full cut-off (FCO) and energy efficient lighting where practicable to reduce the impacts of light pollution on the surrounding area and sky.

Introduction of usable amenity spaces, as indicated on drawings 1520_300-304 (FCC lands) and 1561_1-11 (DCC lands), and which will be planted with appropriate species as described in the Public Realm Strategy and the Landscape Rationale Report. The planting proposals within the scheme will be employed to:

- assist in the successful integration of the proposed scheme into its landscape setting
- structured tree planting is proposed within the open spaces and along the proposed roads.
- provide a sense of enclosure at the transitions between public areas to communal areas and the proposed buildings, while also permitting passive surveillance of the open space areas
- act as a buffer and assist in partially screening and filtering views of the proposed development from the surrounding area e.g. adjacent residential areas, public roads.
- assist in defining areas and reinforcing the character of the various spaces
- provide visually attractive spaces for future residents and the local community to relax, move and/ or socialise within
- open lawn and grassland meadows are proposed throughout the public spaces which provide space for informal play and passive recreation.

- create visual interest and a sense of place
- compensate for any loss/ enhance biodiversity benefits with an emphasis on pollinator friendly plant species.

Monitoring

Monitoring, particularly during construction phase will be on an ongoing basis and will be crucial at certain stages such as:

- During site establishment stage– prior to any works taking place, clearly identify trees and hedgerows that are to be retained and protected – ensuring tree protection measures are then place. Clearly identify trees and hedgerows that are to be removed.
- During site excavation stage – ensure existing vegetation is being adequately protected and that topsoil is being correctly stripped and stored for landscape reinstatement
- During construction stage: ensure that landscape proposals are being implemented correctly
- Post-construction stage: periodic visits will be required to ensure that any defects that may occur are rectified, that the landscape proposals are successfully establishing and being correctly maintained.

Conclusion

Given the planning policy for the area, development of this site is inevitable, and it is likely that any proposed viable development will give rise to impacts of a similar nature. While none of the proposed measures, as discussed in the previous section, can fully mitigate against the intensification of land use, as it changes from agricultural land into a residential development, the proposals will be of benefit both locally and to the wider surrounding area by:

- Proposing a variety of planting material - trees, hedges, herbaceous planting and wildflower meadows throughout the subject site, which will improve local biodiversity.
- Future proofing the woodlands and tree belts through the implementation of the Preliminary Woodland Management Plan as outlined within the Arboricultural Report.
- Providing recreational amenities for future residents and the public through the creation of the public open space and access to the existing woodlands and river, that were previously inaccessible to the general public.

Whilst it is inevitable that there will be some negative impacts arising from this development, it's considered that the benefits outweigh the negative aspects of the proposal, resulting in the potential for slight and negative-neutral residual impacts.

12.0 MATERIAL ASSETS - TRAFFIC AND TRANSPORT

12.1 Introduction

This section of the Environmental Impact Assessment Report has been prepared by Waterman Moylan Consulting Engineers and provides a Non-Technical Summary of the assessment of the impact of the proposed development on the surrounding traffic and transport and presents an

assessment of the receiving environment for the construction and operation phases of the proposed development.

12.2 Assessment Methodology

The following methodology has been adopted for this assessment:

- Review of relevant available information including, current Development Plan, existing traffic information and other relevant studies.
- Site visit to gain an understanding of the site access and observe the existing traffic situation.
- Consultations with Fingal County Council Road Department to agree the site access arrangements and determine the scope of the traffic analysis required to accompany a planning application.
- Detailed estimation of the transport demand that will be generated by the development. The morning and evening peak times will be addressed as well as an estimation of under-construction and potential future developments in the surrounding area.
- Assessment of the impact of traffic on local junctions, car parking requirements and accessibility of the site by sustainable modes including walking, cycling and public transport.

12.3 Characteristics of the Proposed Development

12.3.1 Existing conditions & Location

The subject site is located in Belcamp. It is bounded to the west and north by agricultural lands, to the south by the R139 and to the east by the Malahide Road (R107). Mayne River runs west to east through the subject site and forms the boundary between Fingal County Council (FCC) and Dublin City Council (DCC). The subject site is located within the administrative areas of both FCC and DCC authorities. In the eastern portion of the Applicant's ownership lands to the north of Mayne River (FCC jurisdiction), Phase 1 of the Belcamp received a grant of planning permission under Planning Reference F15A/0609 and is currently under construction.

12.3.2 Local Road Network

The subject Belcamp lands are situated immediately west of Malahide Road (R107) and north of R139

Malahide Road (R107) is a regional road running south-north along the eastern boundary of the Belcamp site. This road is approximately 6.5km in length from the site to Fairview and 5.7km to Malahide. The carriageway of the Malahide Road between its intersections with Belmayne and R123 Balgriffin Road is approximately 9.0m wide with footpaths running along both sides and no cycle lanes provided. It is a dual carriageway road in front of the Northern Cross development and connects south to the city. From Northern Cross development, Malahide Road (R107) is a QBC.

R139 is a regional road running east west to the south of the subject Belcamp lands. Approximately 3.2km west of the junction with Malahide Road (R107), R139 provides connection to M1 and M50 motorways (M1 Exit 1 and M50 Exit 3). Along the development lands frontage, R139 has a

carriageway of 15m with two lanes on both sides and dedicated right turning pocket lanes which currently facilitate access to some residential and non-residential developments, and also to the subject Belcamp lands. There is a right turning lane from the R139 into the development site and there is a signal-controlled pedestrian crossing at the existing access. Footpath is provided along both sides for the entirety of the road. Cycle lanes (shared with bus lane) are only provided to the east of Malahide Road (R107).

12.3.3 Pedestrian and Cyclist facilities

The Malahide Road (R107) located to the east of the subject Belcamp site and the R139 to the south, comprise footpaths along both sides of their carriageways. These footpaths, which join up at the Clarehall junction, are of good quality with consistent width throughout and offer walking connections to a number of facilities including bus stops, retail, educational and employment. Dedicated pedestrian crossings with dropped kerbs and tactile paving are provide at every road crossing point towards these facilities.

The existing pedestrian facilities in the surrounding area comprise an inter-connected network of footpaths linking the various neighbourhoods to each other, to the existing schools and commercial/retail, to the Clongriffin train station, to public parks and to the surrounding public network.

Cyclists can benefit from the provision of dedicated cycle lanes along both sides of the carriageway on Belmayne, Malahide Road (R107), Hole in The Wall Road and Main Street (Clongriffin). These cycle lanes currently facilitate access to Clongriffin train station, Malahide Road Industrial Park and Dublin city centre. Figure 12-3 is an extract of the Cycle Network Plan for the Greater Dublin Area which illustrates the existing cycling infrastructure within the surrounding area.

12.3.4 Public Transport

Existing Bus

The subject Belcamp lands are served by public bus services to the east of the site. The closest bus stops are located on Malahide Road (R107), being Bus Stops No. 1217 (southbound) and No. 1206 (northbound). The location of the subject bus stops in relation to subject Belcamp lands is illustrated in Figure 14 of the chapter. These bus stops are served by Dublin Bus Route 42 and Route 43. Route 42 operates between Talbot Street in Dublin city centre and Sand's Hotel in Portmarnock. Route 43 operates between Talbot Street in Dublin city centre and Swords Business Park. The surrounding area is also served by Dublin Bus Route 15 and Route 27. The closest bus stops served by these routes are located on R139 southeast of the subject Belcamp lands.

Travel time from the subject bus stop on Malahide Road (R107) to Talbot Street in Dublin city centre is approximately 16 minutes. On the opposite direction, the travel time from the subject bus stop on Malahide Road (R107) to Malahide is approximately 16 minutes, and to Swords Business Park is approx. 20 minutes.

In addition to the routes above, Dublin Bus also operates Route 27x from Clarehall towards UCD Belfield. It is a Monday to Friday service, with one bus leaving Clarehall at 07:35 towards UCD Belfield in the morning and one bus leaving UCD Belfield at 17:05 in the evening towards Clarehall.

A public transport capacity assessment has been carried out to inform this Traffic and Transport Assessment. The results show the existing bus services currently have capacity to accommodate the Belcamp Site following the phasing programme. The assessment included bus capacity surveys at both bus stops listed above during peak rush hour times, the impact of the Belcamp site was then included to find the spare capacity of the existing public transport network. The findings of this assessment are reported in a stand-alone report, “Public Transport Capacity Assessment”, which is included at Appendix 12.1.

The main conclusions of the Public Transport Capacity Assessment report are:

1. The Belcamp SHD site is well positioned to both the existing and the proposed, enhanced, Bus Connects and DART+ public transport network.
2. There are significant levels of spare capacity on the current bus network in the immediate area of the subject site, as shown by the bus stop surveys undertaken for this report.
3. The detailed layout of the SHD scheme contains key infrastructure of immense benefit to buses, both in the short and long term.
4. The NTA’s BusConnects project proposals include attractive new orbital and radial routes of direct benefit to the development.

Existing Rail

The subject Belcamp lands are not directly served by rail service. The closest train station is Clongriffin, located approximately 2.5km east of the site. See Figure 12-5. Clongriffin is served by Commuter Rail and DART services. The Commuter Rail service through Clongriffin Station serves all stations from Dundalk through Dublin City Centre to Gorey. The service operates at 3 – 4 services per hour in both direction on weekdays. The DART service through Clongriffin Station serves all station from Malahide through Dublin City Centre to Bray and Greystones. On weekdays, this service operates at a 20-minute frequency in both directions. Journey time from Clongriffin Station to Connolly Station is c. 20 minutes.

Dublin Bus Route 15 provides a connection between the subject Belcamp Lands and Clongriffin Station.

12.4 Transportation Improvements

12.4.1 Dart+

Clongriffin Station, located approximately 3.6km from the proposed Belcamp Town Square, is part of the northern route of the DART railway network. The DART+ Programme aims to improve current rail services across Dublin City and Greater Dublin, by modernising and providing an electrified and more frequent and reliable rail service, enhancing capacity on the rail corridor. As part of the programme, the rail service between Drogheda and Dublin City Centre (via Clongriffin) is planned to be electrified with higher frequency. New rail frequency on Clongriffin has not been confirmed at the time of writing, however, significant increase in capacity is expected by purchase of new rolling

stock. Improvements to the northern route are expected to be in place by 2028, with new rolling stock expected to come into service by late 2022.

12.4.2 Bus Connects

The Bus Connects project currently being promoted by the National Transport Authority aims to deliver a much-enhanced bus service to the Greater Dublin Area. The bus services will be dominated by high frequency “Spine routes” that follow the main radial corridors in the city centre, and beyond. In tandem with these service re-designs, the bus route alignments will be upgraded to radically enhance bus priority measures. As of April 2022, Phase 1 and 2 of the Bus Connects project have been launched. Phase 1 included the launch of the H Spine bus route which is located near the Belcamp SHD site.

The subject site is located in close proximity to the proposed CBC Route 1 – Clongriffin to City Centre – See Section 4.2.1 below. Three “spine” routes and four “local/radial/orbital” routes are proposed to serve the subject Belcamp lands. These are: the Spine Routes D1, D2 and D3, the Radial Routes 20 and 21, the Orbital Route N8 and the Local Route L80 – See Figure 19 below. A summary of the frequency of these proposed routes is presented in Table 2.

The Spine Routes D1, D2 and D3 will become operational in the 4th quarter of 2023 and Orbital Route N8 4th quarter 2024.

The closest bus stops to be served by these proposed routes will be located on Malahide Road (R107) just east of the subject Belcamp lands, on R139 and on the extension of Belmayne Main Street to the southeast of the subject Belcamp lands.

According to Bus Connects, “a CBC is an existing road with bus priority so that buses can operate efficiently, reliably and punctually. This generally means full length dedicated bus lanes on both sides of the road from start to finish of each corridor or other measures to ensure that buses are not delayed in general traffic congestions. The bus lanes will be alongside general traffic and segregated cycle lanes/tracks where feasible.”

CBC Route 1 – Clongriffin to City Centre commences at Clongriffin DART Station and is routed via Clongriffin Main Street which will be extended to join the Malahide Road (R107) at a new junction to the north of Clarehall junction, to include a new bus, cycle and taxi only access (bus gate) with general traffic not permitted to use this access. The layout of the approved bus gate is as approved under the Dublin City Council’s ‘Belmayne Main Street and Belmayne Avenue PART VIII Scheme’.

From this bus gate, the CBC Route 1 is then routed via Malahide Road (R107) to the junction with Marino Mart/Fairview. From that point the CBC ties into a separate project, Clontarf to City Centre Cycle & Bus Priority Project which is currently being proposed by Dublin City Council and in summary aims to a) deliver a high quality, continuous and consistent cycling facilities to cater for existing and future demand; b) provide additional pedestrian crossings; c) improve bus journey times and reliability; d) reduce reliance on private car and e) provide for a reduction in transport emissions through encouraging a modal shift to active travel and public transport project.

12.4.3 Metrolink

MetroLink is a proposed high-capacity, high-frequency rail line running from Swords through Dublin Airport and Dublin City Centre to Charlemont. MetroLink will carry up to 50 million passengers annually, cutting journey times from Swords to the city centre to 25 minutes. Although initially forecast to be operational by 2027, the MetroLink scheme is currently assumed to be in place between 2030 and 2043.

12.4.4 GDA Cycle Network

Proposals for the Greater Dublin Area Cycle Network Plan were published by the National Transport Authority in December 2013. The plan sets out a vision and a strategy for the construction and/or designation of a comprehensive network of cycling routes throughout the Greater Dublin Area (Counties Dublin, Meath, Kildare and Wicklow).

12.5 Characteristics of the Proposed Development

12.5.1 General

The subject site is proposed to be delivered in a phased manner, with the initial phases proposed on the eastern portion of the lands (within FCC jurisdiction), immediately adjacent to Malahide Road (R107), north of Mayne River. Phase 1 of Belcamp received grant permission by Fingal County Council in June 2017 under Reg. Ref. F15A/0609 and is currently under construction. Access to Phase 1 will be provided via College Avenue, a new east-west street accessed via a new junction with the Malahide Road (R107).

It is proposed to include the main internal transportation infrastructure as part of the first phase of development, including Belcamp Parkway and the East–West Link Road, to ensure there is adequate transportation provision in place before the development is occupied. It is proposed to provide a transport hub at Belcamp Town Square with bus stops, E-bike charging stations, bicycle racks, E-car charging points and multiple designated car-share fleet parking spaces.

It is also proposed to include the main pedestrian and cycle links from Belcamp Town Square to Belmayne Commercial Area and bus gate, via the River Mayne 4.5m wide path and along the new 5.0m wide pedestrian/cycle link along the R139. It is proposed to provide open space within Phase 1, which will again attract active modes of transport internally and minimise the number of external car trips. In addition to the transport infrastructure, it is proposed to provide commercial infrastructure within Phase 1 in both the DCC and FCC sides, to contribute towards a self-sufficient development from an early stage. This will assist with minimising the number of external trips by car from an early stage in the Belcamp Development. The Figure below shows the proposed Phasing Plan. This Phasing Plan is also included as part of the accompanying A1 drawing package, for ease of reading at suitable scale.

The schedule of accommodation for each phase, along with the proposed construction schedule, is set out in the Table below:

Table 1. Belcamp SHD Phasing Programme

Phase	Description	No. of Units
Phase SHD 1 36.565Ha Q1 2023 - Q3 2028 (Main Road infrastructure by Q1 2025)	Houses	243
	Duplex Units	116
	Apartments	1,145
	Phase SHD 1 Total	1,504
Phase SHD 2 12.524Ha Q3 2028 - Q3 2030	Houses	142
	Duplex Units	68
	Apartments	420
	Phase SHD 2 Total	630
Phase SHD 3 18.491Ha Q3 2030 - Q4 2032	Houses	88
	Duplex Units	90
	Apartments	215
	Phase SHD 3 Total	393
TOTAL		2,527

12.6 Potential Impact of the Proposed Development During Construction Stage

There is potential for construction traffic to impact from a noise and dust perspective in relation to the surrounding road network. Deliveries to and from the site by heavy good vehicles will impact on noise levels, whilst dust may result from vehicles travelling along gravel roads and from general earthwork activities. There is also potential for traffic congestion, due to increased heavy good vehicles on the road network which may also perform turning movements, unloading, etc., in areas that impact on traffic. The potential for inappropriate parking whilst waiting for access to the site, may also impact local road users.

There is potential for construction traffic to have a moderate effect on the surrounding environment. However, the duration of this impact will be short-term.

12.7 Potential Impact of the Proposed Development During Operational Stage

In order to assess the potential impact of the proposed development a detailed traffic and transport assessment has been prepared and is included as part of the subject application under a separate cover.

12.8 Do Nothing Scenario

Should the proposed development not take place, the access roads and infrastructure will remain in their current state and there will be no change. Background traffic would be expected to grow over time. Given the location and zoning of the subject site, it is reasonable to assume that a similar development, with a potentially more intensive requirement for vehicular trips would be established on this site at some stage in the future.

12.9 Mitigation Measures

In order to eliminate or reduce the potential impacts described above, remedial and mitigation measures will be implemented as set out below and in the Construction Management Plan included under a separate cover with this application.

Construction Stage

- Adequate signposting will be located on site to ensure safety of all road users and construction workers.
- Due to the proximity of the proposed site along well serviced bus routes and being well served by cycle lanes, it is intended to limit construction staff parking and to encourage the use of public transport. A limited number of car parking spaces may be provided for senior construction managers within the development site. Suitable locations in the surrounding area may be identified where staff can park and link to public transportation.
- The main contractor as part of their site set up arrangements, shall appoint a Coordinator responsible for the implementation of a Construction Stage Mobility Management Plan and shall carry out the following tasks as part of their role:
 - Provide an extensive information service for public transport options and routes at public location(s) within the development for construction workers;
 - Update the public transport information adjacent to the development on on-going basis; and
 - Advise company staff of tax incentives for public transport and bicycles.
- For those wishing to cycle to and from the development, dedicated cycle parking will be provided for the duration of the works within the site. Shower facilities and lockers will also be provided.
- A dedicated “construction site” access/egress system will be implemented during the construction phases.
- Hoarding will be set up around the perimeter to prevent pedestrian access.
- Dedicated construction haul routes will be identified and agreed with the local authority prior to the commencement of construction activities onsite.
- A material storage zone will also be provided in the Construction Compound area. This storage zone will include material recycling areas and facilities.
- A detailed Construction and Traffic Management Plan will be prepared by the contractor and agreed with the Local Authority prior to commencing works on site.

Operational Stage

- To reduce traffic impact and to promote more sustainable modes of transport a Mobility Management Plan will be prepared for the development
- A management company will be appointed by the developer to manage the development. A senior member of staff from the management company who supports the philosophy of the Plan will be appointed as the Co-ordinator. The Co-ordinator will be responsible for:
 - Implementation and maintenance of the Plan;
 - Monitoring progress of the Plan
 - Liaison with public transport operators and officers of the Planning and Highway Authorities;
 - Production of information reports for the Developer, the occupier(s) and the Planning and Highway Authorities; and
 - Ongoing assessment of the objectives of the Plan.
- Up to date local bus timetables will be maintained within the tenant amenity area and other fixed points within the buildings on the site. Residents will be advised of their location. In addition, internet access to travel information will be provided. The developer will provide all new residents with a travel pack showing alternative modes of travel to the development. Where possible, the developer will advise visitors to the site of alternative modes of travel to that of the car.
- Secure parking facilities will be provided for residents, visitors and Creche users. Local cycle route information will be provided in the tenant amenity area and at other fixed points within the development and residents will be advised of their location. Details of cycle parking provided is included in the Traffic and Transport Assessment provided with the planning submission.
- 5 no. Go Car spaces will be initially provided and details of how to join the scheme will be provided to all residents when they move into their apartment. Information will also be displayed within the resident amenity area and updated when required.
- The Co-ordinator will be responsible for the management of inappropriate parking within the development. This parking management will ensure that spaces are reserved for those who have rented the space and will be accessible only to those users.

12.10 Predicted Impacts of the Proposed Development

Construction Stage

Due to the proposed mitigation measures outlined above, the impact of the proposed development will be temporary and minimised during the construction stage.

Operational Stage

- There will be increase in the use of the road network by private vehicles. A mobility management plan will promote more sustainable forms of transport.

There will be an increase in the number of pedestrians and cyclists in the surroundings of the development. However, footpaths and cycling paths are provided as part of the proposed development and the overall Oldtown area, thus, impact should be minimal.

12.11 Monitoring

Construction Stage

Traffic management and deliveries will be carefully monitored during the construction stage as part of the Construction Management Plan. The appointed contractor will monitor their mobility management plan to ensure that is operating effectively. Local residents will be kept fully informed of construction activities through mail shots, email and site notices.

Operational Stage

During the operational stage the Mobility Management Plan will be monitored by the Co-ordinator. The travel survey will establish the initial modal split of travel by residents.

The Co-ordinator, in consultation with the Developer, the Occupiers, and the Local Authority or its agents, will agree annual targets, following completion and analysis of the travel survey, for increasing the percentage of non-car modes.

The Co-ordinator will:

- Meet with officers of the Local Authorities or its agents within a period of 6 months following occupation of the building(s) and thereafter every 12 months to assess and review progress of the Plan and agree objectives for the next 12 months, and
- Prepare and submit to senior management of the Developer, the Occupier(s) and the Local Authorities or its agents, an annual Monitoring Report.

12.12 Interactions

Construction Stage

Temporary negative impacts to human health may be likely during the Construction Phase due to noise, dust, air quality and visual impacts which are discussed in the relevant chapters of this EIAR. Temporary traffic management will be required to facilitate connections to existing utilities in the existing roads.

The traffic impacts, which would be temporary in duration are not considered to be significant due to the implementation of the mitigation measures identified in Section 12.10.

Operational Stage

Noise generated by increased traffic flows have been assessed in the Air and Noise Chapters of the EIAR.

12.13 Difficulties Encountered

There were no difficulties encountered.

13.0 CULTURAL HERITAGE

Introduction

The proposed development site is a greenfield site, which includes part of the former 18th century estate of Belcamp Hall (RPS 463), which was the residence of Edward Newenham MP. The assessment was based on the combination of a desk study, geophysical survey, and archaeological testing within the application area. It was also informed by an architectural heritage report prepared by conservation architects and a structural condition appraisal by a conservation engineer; these were undertaken in relation to the historic buildings within and in proximity to the proposed SHD site.

Archaeological Heritage

There will be no impact on designated archaeological sites. The entire SHD site was subjected to geophysical survey for the purposes of this assessment and anomalies identified in the survey were investigated by archaeological testing. None of the anomalies proved to be archaeological in origin, including those relating to the cropmark previously identified as a ring ditch (SMR DU014-128). The archaeological testing report, which has been submitted to the National Monuments Service (Department of Housing, Local Government and Heritage (DHLGH)), recommended that the recorded site DU014-128 be removed from the Sites and Monuments Record.

In addition, a recorded ringfort site (RMP DU015-033) located at the boundary between the proposed SHD site and the adjoining permitted development at Belcamp Hall, was shown in archaeological testing in 2016 to be an early modern landscape design feature (a tree-ring) and not an early medieval ringfort as previously thought.

The possible ploughed-out remains of a fulacht fia is located within the proposed SHD site. The remains were identified in 2008, when archaeological testing was undertaken for a road-siting study. There will be a direct negative, moderate, permanent impact on the remains that survive below ground. This site will be preserved by record, which will entail full excavation of the archaeological features under licence to the National Monuments Service (DHLGH). This will be carried out prior to construction.

It is possible that isolated and small-scale archaeological features, deposits, or finds not detected by the archaeological investigations to date may survive subsurface. Any such remains would be impacted by groundworks associated with the proposed development. Archaeological monitoring of ground disturbance works, would ensure the full recognition of, and – if necessary – the proper

excavating and recording of all archaeological features, finds or deposits which may lie undisturbed beneath the ground surface.

No predicted impacts are envisaged as all archaeological heritage issues will be resolved at the pre-construction stage of the development.

Architectural Heritage

An ice house and bridge that form part of the Belcamp Hall protected structure (RPS No. 463) are located within the proposed SHD site. The protected structure record includes the 18th century original house, the Washington Monument, the Walled Garden, the bridge and the early 20th century chapel. The development lands under consideration within the SHD application do not contain any of the key protected structures nor do they impact directly on retained and restored historic landscape. They will however be adjacent or proximate to the historic core and restored landscape. The assessment of impacts considered the impact on historic landscape setting, layout and visual impacts on the historic structures, and impacts on adjacent historic structures.

No significant negative indirect impacts were identified in relation to architectural heritage. Impacts relating to architectural heritage have been managed and mitigated through engagement in the development design process and the ongoing strategy for the repair and restoration of the historic structures and landscape elements.

The proposed re-use of the historic walled garden and its redesign into a public garden alongside the restoration of the house and chapel is viewed as a consistently positive development and complimentary and supportive of the SHD development. The proposed development will strengthen the historic triangle of Belcamp Hall and Chapel, the Walled Garden, and surrounding Woodlands, as the centre of the overall development. It will function as a starting point for explorative and restorative walks, communal and social interaction and the restored buildings will form an important centre piece and historic anchor for the development.

There is a restoration and revival strategy in place for the historic buildings. With the continued engagement between the client and Fingal County Council, the on-going restoration process and strategy will continue. The proposed SHD development accords with established strategy for restoring and consolidating the historic buildings and landscape as the core asset within the overall development.

14.0 MATERIAL ASSETS – UTILITIES AND WASTE

14.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) describes the material assets—utilities and waste—that are potentially impacted by the proposed Strategic Housing Development (SHD) in Belcamp, Dublin 17, located north of the Northern Cross Route, R139, to the east of the IDA lands, and to the west of the Malahide Road (R107). Material assets are resources that are valued and intrinsic to the site of the proposed Project and surrounding environs. Material assets may be of either natural or human origin and the value may arise for economic or cultural reasons.

This Chapter may note some of potential negative issues that may arise and the associated mitigation or remedial measures however, for full details of these the reader should refer to the full (Technical) version of this Chapter which considers and assesses the effects of the proposed Project on the material assets, including major utilities within and around the site during the construction and operational phases such as built services (i.e. gas, electricity, telecommunications, etc.) and waste management. Water, Roads and Traffic are also counted as material assets and are assessed under separate chapters of this EIAR.

The EPA Guidelines (Draft 2017) state that:

'The meaning of this factor is less clear than others. In Directive 2011/92/EU it included architectural and archaeological heritage. Directive 2014/52/EU includes those heritage aspects as components of cultural heritage. Material assets can now be taken to mean built services and infrastructure. Traffic is included because in effect traffic consumes roads infrastructure. Sealing of agricultural land and effects on mining or quarrying potential come under the factors of land and soils.'

Given the importance of Archaeological and Cultural Heritage and noting established EIA best practice within Ireland, the Archaeological and Cultural Heritage has been comprehensively considered and assessed as a standalone chapter within this EIAR – refer to Chapter 12.

Additionally, water, and road infrastructure have been assessed in Chapter 7 and Chapter 13, respectively, by Waterman Moylan Consulting Engineers. Land and soil have been assessed in Chapter 6, also by Waterman Moylan Consulting Engineers.

A site-specific Preliminary Construction, Demolition & Waste Management Plan (CDWMP) has been prepared by Waterman Moylan Consulting Engineers to deal with management of the construction phase of the proposed Project, including waste generation during the construction phase. This report is included as part of the application package, and was prepared in accordance with best practice guidelines. Operational waste management will be managed by the management companies on site and the appointed licenced waste contractor which will ensure the sustainable management of domestic and commercial waste arising from the development in accordance with legislative requirements and best practice standards.

A full description of the development can be found in Chapter 2: Site Location and Description of the Proposed Development.

This chapter was completed by Waterman Moylan Consulting Engineers.

14.2 Research Methodology

14.2.1 Desktop Study

This chapter has been prepared in accordance with the requirements of the following statutory documents which were consulted in the course of the study:

- Environmental Protection Agency (EPA), Guidelines on the information to be contained in Environmental Impact Statements (March 2002);

- EPA, Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (September 2003);
- EPA, Advice notes for preparing Environmental Impact Statements (September 2015);
- EPA, Guidelines on the Information to be contained in Environmental Impact Assessment Reports (August 2017)
- Circular Letter PI 1/2017: Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive)
- The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018)
- Waste Management Acts 1996 -2001 and associated Regulations
- Protection of the Environment Act 2003 (as amended)
- Litter Pollution Act 1997
- Eastern-Midlands Region (EMR) Waste Management Plan
- Waste Management: Changing Our Ways (1998)
- Preventing and Recycling Waste: Delivering Change (2002)
- Taking Stock & Moving Forward (2004)
- National Strategy on Biodegradable Waste Management (2006)
- A Resource Opportunity Waste Management Policy in Ireland (2012)

The study was also informed by numerous site visits, topographical surveying of the application site, the sourcing of utility information/records from the relevant service providers, and an analysis of the resources consumed, and an estimation of waste generated by the proposed Project at both the construction and operational phases.

14.3 Baseline Environment

14.3.1 Site Location and Context

The Belcamp lands are located centrally in the Dublin Fringe area, north of the Northern Cross Route, R139, to the east of the IDA lands, and to the west of the Malahide Road (R107). The IDA lands are zoned “High Technology” (HT), to provide for office, research and development and high technology/high technology manufacturing type employment in a high quality built and landscaped environment. The total site area of the subject lands is c.67 hectares.

The subject site is bounded to the north and west by agricultural lands, to the south by the R139 Regional Road and to the east by an existing mixed-use development, by Phase 1 of the Belcamp development, which is currently under construction by the Applicant, and by the Malahide Road (R107).

The Mayne River flows from west to east through the site. The northern portion of the subject site is within Fingal County Council’s jurisdiction, while the southern portion of the site is within Dublin City Council’s jurisdiction, with the Mayne River forming the border between the two Local Authorities.

Topographic survey data shows that the southern portion of the site falls generally from south-west to north-east, towards the Mayne River, with a high point of c.35.5m OD Malin at the south-west of the site and a low point of c.26.5m OD Malin at the north-east of the main development area. The strip of land proposed as a greenway continues to fall to a low point of c.17m OD Malin close to the Malahide Road.

The northern portion of the site falls generally from north-west to south-east towards the Mayne River, though some of the lands at the north-east of the site fall to the north-east, away from the river and towards a ditch and culvert at the north-eastern boundary of the site.

The subject site is part of a larger proposed multi-phased development which includes lands to the east of the site, which are also under the ownership of the Applicant. Phase 1A of the Belcamp development was approved and is currently under construction under Planning Reference F15A/0609. Phase 1B of the development, immediately north of the Phase 1 lands and south of the Crosswaithe development (which is under construction by others under Planning Reference F18A/0092), has received a Decision to Grant permission under Planning Reference F21A-0401. Planning submissions have been made for Phase 1C, located immediately north of the old Belcamp College building complex. Proposals to conserve the existing walled garden and provide for amenities within the enclosure are included as part of Phase 1C. Future development is proposed at the remainder of the Belcamp lands subject to future planning approvals.

In addition to the development of the Applicant's Belcamp lands, there is development proposed and underway by others in the vicinity of the site, including development of the Belmayne – Belcamp Lane Masterplan area, located to the south and to the east of the subject lands.

14.3.2 Ownership and Access

The lands subject to the application are within the ownership of the applicant, Gerard Gannon Properties, with the exception of the public roads, which are under the control of the Local Authorities. Works to the Malahide Road fall within the jurisdiction of Fingal County Council, while works to the R139 are within Dublin City Council. There is also a pedestrian/cycle connection proposed from the site to the Malahide Road south of the Mayne River, within Dublin City Council. The Local Authorities have each provided the necessary letters of consent for works in the public domain.

Access to the subject development is currently from the Malahide Road, to the east, and from the R139, to the south.

A Traffic and Transport Assessment has been prepared by Waterman Moylan Consulting Engineers and is submitted as part of the planning application for the proposed Project. The Traffic and Transport chapter of this EIAR (Chapter 13) addresses the likely effects of the proposed development in terms of vehicular, pedestrian and cycle access during the construction and operational phases of the proposed development. Several other reports also address various aspects of the transportation impacts of the proposal, including Section 5 of the Engineering Assessment Report, the DMURS Report and Statement of Design Consistency and the Car Parking Strategy report, each prepared by Waterman Moylan with inputs from other members of the multi-disciplinary design team.

14.3.3 Electricity, Gas and Telecommunications

There are currently electricity, gas, and telecommunications utilities available to the site.

Based on the information received from ESB Networks (ESBN), there are below ground ESB cables that service adjacent properties. There are no supply issues envisaged. It is also noted that there is a 38kV overhead cable that traverses the site. ESB have confirmed in writing that it is viable for the existing overhead 38kV line to be re-routed safely underground through the proposed development.

There is an existing Gas network in the vicinity of the site. The gas main in Malahide Road currently terminates at the junction with the R139.

Eir currently serves properties adjacent to the site via network infrastructure in Malahide Road and the R139.

14.3.4 Waste Management

The main sources of construction waste arising from this project will be: Demolition waste, Topsoil and subsoil, Packaging and general waste from construction activities, and General site clearance waste.

The principles and objectives to deliver sustainable waste management for this project are based on the following strategic objectives:

- National Policy: The Waste Management Acts 1996 to 2005
- Waste Management Plan for the Dublin Region 2005 – 2010, November 2005
- Eastern Midlands Region Waste Management Plan 2015 – 2021
- Fingal County Development Plan 2017-2023
- Dublin City Development Plan 2016-2022

The hierarchy of waste management sets out the guiding principles in order of importance as follows:

1. Reduction of the amount of waste generated by the construction process.
2. Segregation of waste is a key concept that will be implemented during the course of the construction phase of the development to enable ease in re-use and recycling, wherever appropriate.
3. Recycle waste material where feasible, including the use of excess excavations as fill material, recycling of various waste fractions such as metals and packaging etc.

Further details on this topic to those contained within the Technical version of this chapter, may also be found in the Preliminary Construction Demolition and Waste Management Plan, submitted under a separate cover.

14.4 Characteristics of the Proposed Development

The proposed development comprises a total of 473 houses, 274 duplexes and 1,780 apartment units in 18 no. blocks, all on a c.67 ha site. All of the proposed houses/duplexes are in the northern portion of the site, within Fingal County Council, and there are 550 apartment units proposed in this

portion of the site, with 1,230 apartment units proposed in the southern portion of the site, within Dublin City Council. The schedule of accommodation is set out in the Table below:

Table 2. Schedule of Accommodation

Dublin City Council	Block 1	94	139	40	-	273	-
	Block 2	71	73	16	-	160	-
	Block 3	96	176	25	-	297	925.8m ² (Retail/Café & Childcare)
	Block 4	70	178	37	-	285	-
	Block 5	37	51	8	-	96	-
	Block 6	19	80	20	-	119	-
	DCC Subtotal	387	697	146	0	1,230	925.8m²
Fingal County Council	Houses	-	16	385	72	473	-
	Duplexes	24	40	210	-	274	-
	Block A	8	15	-	-	23	-
	Block B	8	15	-	-	23	-
	Block C	7	20	-	-	27	-
	Block D	22	15	5	-	42	1,020.5m ² Restaurant & Retail
	Block F	44	56	3	-	103	1,162.0m ² Café/Restaurant & Retail
	Block G	29	36	-	-	65	140.0m ² Retail
	Block H	20	26	-	-	46	-
	Block J	16	24	-	-	40	472.0m ² Retail
	Block L	20	26	-	-	46	-
	Block M	24	32	-	-	56	-
	Block N	26	25	5	-	56	-
	Block P	5	18	-	-	23	-
	Crèche	-	-	-	-	-	606.7m ² Childcare
	Clubhouse	-	-	-	-	-	97.0m ² Changing Rooms
FCC Subtotal	253	364	608	72	1,297	3,498.2m²	
TOTAL	640	1,061	754	72	2,527	4,424m²	

The eastern portion of the site, between the Mayne River to the north and existing development to the south, is proposed to be used as a greenway. It will serve as a connection for pedestrians and cyclists between the subject site and the Malahide Road (R107).

There is a large open space proposed at the north-west of the site, in addition to several smaller open spaces throughout the development.

14.5 Potential Impact of the Proposed Development

This section provides a brief description of the potential impacts of the proposed Project may have during the Construction and Operational phases. The impact assessment addresses the direct, indirect, cumulative, short, medium, and long term, permanent, temporary, positive, and negative effects.

14.5.1 Construction Stage

Site Location and Context

The Construction phase will likely have a temporary impact on the existing settlement in the vicinity of the subject lands. There may also be some slight and temporary impacts to the existing population which may arise during the construction phase. Refer to Chapter 4 (Population and Human Health), Chapter 8 (Air Quality), Chapter 9 (Noise and Vibration) and Chapter 10 (Climate) for further information.

Ownership and Access

During the construction phase, access will be affected by hoarding and security fencing required onto the public road network. A detailed traffic management plan will be prepared and implemented by the Main Contractor and agreed with the Local Authorities prior to commencing works. As a result, there will be a temporary disturbance to traffic in the surrounding area during construction.

The number of construction vehicle movements anticipated is low compared to the number of trips expected to be generated by the proposed development during the operational phase. It should be noted that the majority of such vehicle movements would be undertaken outside of the traditional peak hours, and it is not considered that this level of traffic would result in any operational problems.

The proposal also involves road and junction upgrade works along the R139 and Malahide Road. These road improvement works will require temporary traffic restrictions. The impact of this would be temporary during the construction period, with an overall improvement to the road network when the development is operational.

Electricity, Gas and Telecommunications

Electricity will be required during the construction phase. In conjunction with the ESB, the provision of a temporary builders' power supply will be provided. There is potential for temporary impacts to the local electricity supply network, by way of disruption in supply to the local area during electricity connection works for the proposed Project.

The supply of gas will not be operational during the construction phase of the proposed Project. There is potential for temporary impacts to the local gas supply network, by way of disruption in gas supply to the local area.

Telecommunications will not be operational during the construction phase of the proposed Project. There is potential for temporary impacts to local supply, by way of disruption during connections works.

Waste Management

The proposed Project will generate a range of waste materials during the excavation and construction phase as outlined in Waterman Moylan's Preliminary Construction, Demolition and Waste Management Plan that has been prepared under separate cover as part of the planning

application. Typical municipal waste, such as food waste, will also be generated by construction works on site. Waste materials will be stored temporarily on site until such time as collection takes place by a licenced waste contractor. Dedicated, easily accessible locations for collection will be clearly identified across the construction site.

If waste is not managed or stored appropriately, it is likely to give rise to litter and/or pollution issues on the construction site and surrounding area. In addition, if unauthorised waste contractors were used, waste materials could be incorrectly managed and disposed of illegally and result in negative environmental impacts or pollution. Thus, all waste generated must be managed in accordance with regional and national waste legislation and taken to suitably registered and licenced waste facilities for processing, segregation, reuse, recycling, recovery, or disposal, as deemed appropriate.

There are numerous licensed waste facilities in the region which can accept waste generated. The potential effect of construction waste generated from the proposed Project is considered to be short-term, not significant, and neutral. For further information, please refer to the Preliminary Construction, Demolition and Waste Management Plan prepared by Waterman Moylan Consulting Engineers.

14.5.2 Operational Stage

Site Location and Context

The proposed development comprises a total of 2,527 no. new dwellings (473 houses, 274 duplexes and 1,780 apartment units), with 4,424.0m² (Gross Floor Area) of commercial space.

The development also includes car parking, bicycle parking, landscaping including playgrounds, and public open space parks. The proposed Project will deliver this mixed-use development on appropriately zoned lands in accordance with the pertaining land-use zoning designations.

Ownership and Access

The operational phase of the proposed Project will result in increased traffic volumes to the local road network, primarily the Malahide Road and the R139. A Traffic and Transport Assessment has been prepared by Waterman Moylan Consulting Engineers and is submitted as part of the planning application for the proposed Project. Please refer to Chapter 12 (Material Assets – Traffic and Transport) for further information in this regard.

Electricity, Gas and Telecommunications

Electricity will be required during the operational phase. In conjunction with the ESB, the provision of supply will be facilitated. The proposed Project has been designed in accordance with capacity calculations and loadings to meet the requirements of the development. This will result in increased demand for electricity in the area.

The supply of gas will be required during the operational phase. In conjunction with Gas Networks Ireland, the provision of supply will be facilitated. The proposed Project will result in increased demand for gas in the area.

Telecommunications will be required during the operational phase of the proposed Project. The proposed Project will result in increased demand for telecommunications in the area.

Waste Management

Given the nature of the proposed Project, i.e. a residential development comprising 2,527 no. new dwellings with 4,424.0m² of commercial space, waste materials during the operational phase will be generated. As the development is located in an established suburb of Dublin City, an existing network of waste collection, treatment and disposal contractors and facilities already serve the area.

If waste is not managed or stored appropriately, it is likely to give rise to litter and/or pollution issues. The implications of such are that vermin may be attracted to the immediate area as a result. In addition, if unauthorised waste contractors were used, waste materials could be incorrectly managed and disposed of illegally and result in negative environmental impacts or pollution. Thus, all waste generated must be managed in accordance with regional and national waste legislation and taken to suitably registered and licenced waste facilities for processing, segregation, reuse, recycling, recovery, or disposal, as deemed appropriate. There are numerous licensed waste facilities in the region which can accept waste generated.

It is noted that appropriate waste storage areas have been incorporated into the design of the development with shared waste stores serving the apartments and duplex units, while the houses will be provided with their own bin stores. The proposed development will also be managed by a Management Company ensuring that waste will be managed correctly.

14.6 Avoidance, Remedial & Mitigation Measures

14.6.1 Construction Stage

All possible precautions shall be taken to avoid unplanned disruptions to any services or utilities during the construction phase of the proposed Project. It should be noted that a number of mitigation measures proposed in other EIAR chapters are also of relevance to Material Assets and should be referred to when reading this EIAR.

The construction phase mitigation measures include avoidance, reduction and remedy measures as set out within the Development Management Guidelines document. The design and construction of the necessary service infrastructure will be in accordance with relevant codes of practice and guidelines. This is likely to mitigate any potential impacts during the operational phase of the proposed Project. However, routine maintenance of the site services will be required from time to time. As such, any mitigation measures will be advised by the relevant service provider.

A site-specific Preliminary Construction, Demolition and Waste Management Plan has been prepared to deal with waste generation during the construction phase of the proposed Project and is included as part of the application pack. This document was prepared in accordance with best practice guidelines. A detailed Construction, Demolition and Waste Management Plan will be developed by the Main Contractor, based on the Preliminary Plan developed at planning stage.

14.6.2 Operational Stage

Operational waste will be managed by a designated management company on site and the appointed licenced waste contractor which will ensure the sustainable management of domestic and commercial waste arising from the development in accordance with legislative requirements and best practice standards.

14.7 Residual Impacts

14.7.1 Construction Stage

If unregulated, predicted impacts associated with the construction phase of the proposed Project would be expected to include potential disruption to local natural and human material assets resulting in both short-term and long-term impacts. The implementation of the mitigation measures set out in this chapter and other chapters of this EIA would ensure that there is unlikely to be significant residual impacts during the construction phase. Therefore, impacts are likely to be temporary and neutral.

14.7.2 Operational Stage

During the operational phase, the impact to services and utilities is considered to be positive and permanent positive to all end users.

14.8 Monitoring

Prior to the operational phase of the proposed Project, all services/utility connections will be tested by a suitably qualified professional under the supervision of the service provider.

Any monitoring of the built services required during the operational phase of the proposed Project will be as advised by the relevant service provider.

The management of waste during the construction and operational phases of the proposed Project should be monitored to ensure compliance with best practice and relevant legislative requirements.

14.9 Reinstatement

Any existing roads, footpaths and park spaces that are opened to facilitate electricity, gas and telecommunications connections will be reinstated. No further reinstatement will be required regarding Material Assets. Residual impacts on services and utilities are considered to be imperceptible.

14.10 Interactions

The interactions between Chapter 14 Material Assets (Utilities & Waste) and the other chapters of the EIA are set out below:

14.10.1 Population & Human Health (Chapter 4)

There is a risk of pollution if waste is disposed of inappropriately, which could impact human health. This risk will be mitigated in accordance with Chapter 14 of this EIA.

14.10.2 Biodiversity (Chapter 5)

There is a risk of pollution if waste is disposed of inappropriately, which could affect local flora and fauna. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

14.10.3 Land and Soil (Chapter 6)

There is a risk of pollution if waste is disposed of inappropriately, and this could leach into the soil. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

14.10.4 Water (Chapter 7)

There is a risk of pollution if waste is disposed of inappropriately, and this could affect local water bodies. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

14.10.5 Noise & Vibration (Chapter 9)

Heavy machinery used for excavations to facilitate Electricity, Gas and Telecommunications connections may impact on noise and vibration. Both will be controlled and monitored as set out in Chapter 9 of this EIAR.

14.11 Difficulties Encountered When Compiling

There were no difficulties encountered when undertaking this assessment.

14.12 References

The following documents and sources were consulted during the preparation of Chapter 14:

- Waterman Moylan Consulting Engineers drawings and documentation submitted as part of the planning applications.
- Environmental Protection Agency (EPA), Guidelines on the information to be contained in Environmental Impact Statements (March 2002).
- EPA, Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (September 2003).
- EPA, Advice notes for preparing Environmental Impact Statements (September 2015).
- EPA, Guidelines on the Information to be contained in Environmental Impact Assessment Reports (August 2017).
- Circular Letter PI 1/2017: Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive).
- The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).
- Waste Management Acts 1996 -2001 and associated Regulations.
- Protection of the Environment Act 2003 (as amended).
- Litter Pollution Act 1997.
- Eastern-Midlands Region (EMR) Waste Management Plan.
- Fingal County Council Bye-Laws.
- Waste Management: Changing Our Ways (1998).

- Preventing and Recycling Waste: Delivering Change (2002).
- Taking Stock & Moving Forward (2004).
- National Strategy on Biodegradable Waste Management (2006).
- A Resource Opportunity Waste Management Policy in Ireland (2012).

In addition to the sources listed above, design information from the other members of the project team was incorporated in Chapter 14 (Material Assets – Utilities and Waste).

15.0 INTERACTIVE AND CUMULATIVE EFFECTS

The interaction of impacts, as considered in the EIAR, and their relationship to the information requirements outlined in the European Communities (Environmental Impacts Assessment) Regulations, are summarised as the following:

No.	Heading	Population and Human Health	Biodiversity	Land and Soils	Water	Air Quality	Noise & Vibration	Climate	Landscape & Visual Impact	Material Assets – Traffic & Transport	Cultural Heritage	Material Assets – Utilities & Waste
4	Population and Human Health				X	X	X		X	X		
5	Biodiversity				X				X			
6	Land and Soils	X	X		X	X	X			X		
7	Water	X	X	X			X					
8	Air Quality	X								X		
9	Noise & Vibration	X								X		
10	Climate	X								X		
11	Landscape	X	X							X		
12	Traffic and Transport					X	X	X	X			
13	Cultural Heritage											
14	Utilities & Waste	X	X	X	X		X					

16.0 SUMMARY OF MITIGATION & MONITORING MEASURES

The Environmental Impact Assessment Report has assessed the characteristics of the proposal for significant environmental impacts. Each topic was examined and the resultant environmental impact, if any, was noted and mitigation or reductive measures have been put in place. Accordingly, the proposed development will result in no significant negative long-term impacts on the environment as a result of the mitigation measures proposed as part of the design and at the operation stage.

1.0 INTRODUCTION

1.1 Purpose of This Report

This Environmental Impact Assessment Report (EIAR) has been prepared in parallel with the preparation and formulation of a proposed Strategic Housing Development (SHD) at lands at Belcamp Hall (Protected Structure), Malahide Road (R107), the R107/R123 junction, Carr's Lane, and R139 Road, Belcamp, Dublin 17. The lands are internally bounded by the protected structures and associated curtilage, and the new emerging residential development of Belcamp which is partly occupied and under construction.

Belcamp is situated approximately 8 km north-east of Dublin city centre, straddling the river Mayne boundary between the Dublin City and County Fingal administrative areas. The former Belcamp College lands are accessed from the Malahide Road approximately 550m north of the Clarehall junction, and from the R139 along the site's south boundary. Approximately 3.5km east is the coastline at Baldoyle and the Baldoyle Portmarnock Greenway and 2.5km to the west is the interchange of the M1 and M50 motorways. The lands in Fingal are zoned RA, OS and GB, with development plan objectives for a protected structure and strategic road infrastructure. The lands in Dublin City are zoned mixed use, and form part of the last undeveloped portion of SDRA 1, the North Fringe LAP.



Figure 1-1 – Aerial Photograph of Belcamp Lands (application site outlined in red) [source: Google maps]

The proposed development that is the subject of this SHD application provides for the construction of 2527 no. residential dwellings, comprising 473 no. houses, 1780 no. apartments, and 274 no. duplex units. The proposed development also provides for 2 no. childcare facilities, 1 no. sports changing facilities building, 18 no. retail units, 3 no. cafés/restaurants along with ancillary amenity facilities (the proposed development / the project). The proposed development also provides for public open space, including outdoor play area and playgrounds, car parking, bicycle parking and all associated

engineering and site works necessary to facilitate the development. The site is accessed from the Malahide Road and the R139 road, with additional pedestrian/cycle access via Carr's Lane. This is described in more detail in Chapter 2.

1.2 Nature and Extent of Proposed Development

Gerard Gannon Properties is applying to An Bord Pleanála for planning permission for the following development:

"We, Gerard Gannon Properties, intend to apply to An Bord Pleanála for a 10 year permission for a strategic housing development at lands at Belcamp Hall (Protected Structure), Malahide Road (R107), the R107/R123 junction, Carr's Lane, and R139 Road, Belcamp, Dublin 17. The lands are internally bounded by the protected structures and associated curtilage, and the new emerging residential development of Belcamp which is partly occupied and under construction.

The development will consist of the construction of a mixed-use development comprising of 2527 no. residential units (473 no. houses, 1780 no. apartments, and 274 no. duplex units) of which 1969 no. units are residential and 558 no. apartment units are 'build-to-rent' residential, ancillary residential amenity facilities, 2 no. childcare facilities, 1 no. sports changing facilities building, 18 no. retail units and 3 no. cafés/restaurants, all of which will be provided as follows:

- *473 no. residential houses (16 no. 2 bed houses, 385 no. 3 bed houses, and 72 no. 4 bed houses) semi-detached, end-terraced, and mid-terraced houses ranging from two to three storey in height;*
- *Duplex Block 1.1 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*
- *Duplex Block 1.2 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*
- *Duplex Block 1.3 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*
- *Duplex Block 1.4 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*
- *Duplex Block 1.5 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*

- Duplex Block 2.1 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to south elevations; separate single storey bike store and bin store; car parking; and bicycle parking;
- Duplex Block 2.2 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to west elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking;
- Duplex Block 2.3 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to east elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking;
- Duplex Block 2.4 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to west elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking (Duplex Block 2.4 is adjoined to Duplex Block 2.5 via single storey bike store);
- Duplex Block 2.5 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to south-west elevation; internal bike store; separate single storey bike store and bin store; car parking within the shared parking court and bicycle spaces, (Duplex Block 2.5 is adjoined to Duplex Block 2.4 via single storey bike store);
- Duplex Block 2.6 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to south elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking;
- Duplex Block 3.1 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; separate single storey bike store and bin store; on-street car parking and car parking within the shared parking court; and bicycle parking;
- Duplex Block 3.2 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);
- Duplex Block 3.3 containing a total of 12 no. units comprising of 2 no. 1 bed units and 10 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);
- Duplex Block 3.4 containing a total of 12 no. units comprising of 2 no. 1 bed units and 10 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);

- Duplex Block 3.5 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);
- Duplex Block 3.6 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to east and west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the parking court; and bicycle spaces;
- Duplex Block 3.7 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to east and west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces;
- Duplex Block 3.8 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to east and west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Block 3.8 is adjoined to Duplex Block 3.9 via single storey bike store);
- Duplex Block 3.9 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north-east and south-west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Block 3.9 is adjoined to Duplex Block 3.8 via single storey bike store);
- Apartment Block A containing a total of 23 no. units comprising of 8 no. 1 bed units and 15 no. 2 beds, with all units provided with private balconies/terraces to all elevations, in a building four storeys in height, with internal bicycle stores and bin stores at ground floor level; on-street car parking; and bicycle parking;
- Apartment Block B containing a total of 23 no. units comprising of 8 no. 1 bed units and 15 no. 2 beds, with all units provided with private balconies/terraces to all elevations, in a building four storeys in height, with internal bicycle stores and bin stores at ground floor level; on-street car parking; car parking within a parking court; and bicycle parking;
- Apartment Block C containing a total of 27 no. units comprising of 7 no. 1 bed units and 20 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building four storeys in height, with internal bin stores and bike stores at ground floor level; car parking within a parking court; and bicycle parking;
- Apartment Block D is a mixed-use building containing a total of 42 no. units comprising of 22 no. 1 bed units, 15 no. 2 bed units and 5 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building three to five storeys in height, 1 no. café/restaurant unit and 7 no. retail units at ground floor level with associated signage; bin stores, bike stores and plant room at ground floor level; communal roof garden and ancillary residential amenity facilities including community rooms and communal work pods, all at penthouse level; on-street car parking; and bicycle parking;
- Apartment Block F is a mixed-use building containing a total of 103 no. units comprising of 44 no. 1 bed units, 56 no. 2 bed units and 3 no. 3 bed units, with all units provided with private

balconies/terraces to all elevations, in a building one to five storeys over basement in height, 1 no. café/restaurant unit and 5 no. retail units at ground floor level with associated signage; undercroft car parking below landscaped podium; bin stores and bike stores at ground floor level; a basement with car parking, bin stores and plant room; on-street car parking; and bicycle parking;

- *Apartment Block G is a mixed-use building containing a total of 65 no. units comprising of 29 no. 1 bed units and 36 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building one to five storeys in height, with internal bin stores, bike stores and plant rooms at ground floor level; ESB sub-station at ground floor level; 1 no. retail unit at ground floor level with associated signage; communal roof garden at fourth floor level; undercroft car parking below landscaped podium; bin stores and bike stores; and bicycle parking;*
- *Apartment Block H containing a total of 46 no. units comprising of 20 no. 1 bed units and 26 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores and bike stores at ground floor level; undercroft car parking; on-street car parking; car parking within the shared parking court; and bicycle parking;*
- *Apartment Block J containing a total of 40 no. units comprising of 16 no. 1 bed units and 24 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores and bike stores at ground floor level; 4 no. retail units at ground floor level with associated signage; undercroft car parking and car parking within the shared parking court; and bicycle parking;*
- *Apartment Block L containing a total of 46 no. units comprising of 20 no. 1 bed units and 26 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores and bike stores at ground floor level; undercroft car parking; on-street car parking and car parking within the shared parking court; and bicycle parking;*
- *Apartment Block M containing a total of 56 no. units comprising of 24 no. 1 bed units and 32 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building six storeys in height, with internal bin stores and bike stores at ground floor level; undercroft car parking and car parking within the shared parking court; and bicycle parking;*
- *Apartment Block N containing a total of 56 no. units comprising of 26 no. 1 bed units, 25 no. 2 beds, and 5 no. 3 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores, bike stores and plant rooms at ground floor level; on-street car parking and car parking within the shared parking court; and bicycle parking;*
- *Apartment Block P containing a total of 23 no. units comprising of 5 no. 1 bed units and 18 no. 2 beds, with all units provided with private balconies/terraces to all elevations, in a building five storeys in height, with internal bin stores, bike stores and plant rooms at ground floor level; on-street car parking and car parking within the shared parking court; and bicycle parking;*
- *1 no. childcare facility in a two-storey building, with associated outdoor play area, car parking and drop-off/visitor parking, bicycle parking, and bin stores;*

- *1 no. single storey sports changing facilities building with associated car parking and bicycle parking;*
- *Apartment Block 1 is 'built-to-rent' residential containing a total of 273 no. units comprising of 94 no. 1 bed units, 139 no. 2 beds, and 40 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground floor level including gym and amenity rooms; car parking within the undercroft car park below landscaped podium;*
- *Apartment Block 2 containing a total of 160 no. units comprising of 71 no. 1 bed units, 73 no. 2 beds, and 16 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground and first floor levels including multi-function room and communal rooms; and car parking within the undercroft car park below landscaped podium;*
- *Apartment Block 3 is a mixed-use building containing a total of 297 no. units comprising of 96 no. 1 bed units, 176 no. 2 beds, and 25 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground floor level including amenity room; 1 no. childcare facility over ground and first floor level with outdoor play area at ground floor level with associated signage; 1 no. retail unit and 1 no. café/restaurant at ground floor level adjoining urban plaza, with associated signage; car parking within the undercroft car park below landscaped podium; and public bicycle parking at ground floor level;*
- *Apartment Block 4 is 'built-to-rent' residential containing a total of 285 no. units comprising of 70 no. 1 bed units, 178 no. 2 beds, and 37 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ancillary residential amenity facilities at ground and first floor levels including cinema room, gym, multi-purpose/amenity rooms; ESB sub-station at first floor level; car parking within the undercroft car park below landscaped podium, and on-street bicycle parking;*
- *Apartment Block 5 containing a total of 96 no. units comprising of 37 no. 1 bed units, 51 no. 2 beds, and 8 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to eight storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground floor level including multi-function room; car parking within the undercroft car park below landscaped podium;*
- *Apartment Block 6 containing a total of 119 no. units comprising of 19 no. 1 bed units, 80 no. 2 beds, and 20 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground and first floor levels including amenity rooms; car parking within the undercroft car park and on-street, and bicycle parking.*

The development will provide for a total of 2225 no. car parking spaces and a total of 5394 no. bicycle spaces within the scheme; new vehicular access onto Malahide Road (R107) and associated upgrade

works including works to the R107/R123 junction (these upgrade works to the R107/R123 junction include the closing of the existing Belcamp Manor vehicular access off Malahide Road and the provision of a new vehicular access to Belcamp Manor via the proposed East West Link Road [EWLR]); provision of East West Link Road (EWLR) from Malahide Road including bus stops, bus terminus and on-street car parking; provision of north south road including on-street car parking with drop-off/visitor parking serving the childcare facility; 3 no. new vehicular accesses onto the R139 road which includes 1 no. Bus Gate and signalised junctions including toucan crossings, footpaths and cycle paths; upgrades to public realm including footpaths and cycle paths with links to Malahide Road (R107) and adjoining lands/developments, and works to repair with additional safety measures to the existing Mayne River lakes, weirs, culverts and crossings (bridges and causeways); additional Mayne River crossings (bridges and causeways) for vehicular and pedestrian/cycle access; ESNB infrastructure works to cables and masts; new pedestrian/cycle access to Carr's Lane; landscaping including play equipment, MUGA, 3 no. pieces of public art, boundary treatments, playing pitches, pocket parks, and urban plazas; public lighting; proposed reserved school site; and all associated engineering and site works necessary to facilitate the development. The application contains a statement setting out how the proposal will be consistent with the objectives of the Fingal Development Plan 2017-2023, the Dublin City Development Plan 2016-2022 and the Clongriffin-Belmayne Local Area Plan 2012-2018 (extended until December 2022). The application contains a statement indicating why permission should be granted for the proposed development, having regard to a consideration specified in section 37(2)(b) of the Planning and Development Act, 2000, as amended, notwithstanding that the proposed development materially contravenes a relevant development plan or local area plan other than in relation to the zoning of the land. An Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS) have been prepared in respect of the proposed development."

1.3 EIA Process

The requirements for an Environmental Impact Assessment (EIA) of development proposals (projects) are governed by Directive 2014/52/EU, which amends the previous EIA Directive (Directive 2011/92/EU). The primary purpose of an EIA is to ensure that certain projects that are likely to have significant effects on the environment are subjected to an assessment of their likely environmental impacts. The EIA process itself forms part of the planning consenting process and is carried out by the Competent Authority (An Bord Pleanála in this instance).

An EIAR is prepared by and on behalf of an applicant/developer in respect of a development proposal/project that they are seeking planning consent/permission for. Therefore, the EIAR becomes a central element that informs the Competent Authority's determination of the planning application.

The 2014 Directive has introduced strict new requirements in respect of the competency of experts responsible for the preparation of the EIAR. It is possible to summarise the EIA process as follows:

1. Screening - Is EIA required?
2. Scoping - If EIA is required, what aspects of the Environment should be considered?
3. Preparation of EIAR.
4. EIAR informs EIA (as part of the consent process).

1.4 The Need for an Environmental Impact Assessment Report

The EIA Directive was transposed into Irish Planning legislation on 1st September 2018. Section 172(1) of the Planning and Development Act 2000 (as amended) sets out the requirement for EIA. This current proposed project has been screened for EIA by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018).

The EIA Directives list those projects for which an EIA is mandatory (Annex I) and those projects for which an EIA may be required (Annex II). Annex I projects are listed in Part 1 of Schedule 5 of the Planning and Development Regulations 2001 as amended (“the Regulations”). The Project is not listed within Part 1 of Schedule 5 of the Regulations and therefore mandatory EIA is not required under Annex 1. Concerning Part 2 of Schedule 5 (Annex II) Projects, the relevant thresholds relating to the subject proposal are outlined below:

- **Class 10(b)(i) “Construction of more than 500 dwelling units.”:** This project comprises a residential development including the provision of 2527 no. new residential dwelling units. Therefore, the Project exceeds the stated threshold, and an EIA is required in this context.
- **Class 10(b)(ii): “Construction of a car-park providing more than 400 spaces, other than a car-park provided as part of, and incidental to the primary purpose of a development.”:** The Project does not include a car park providing 400 no. spaces or more. Furthermore, all car parking is provided within the project is incidental to the primary purpose of the residential development and complementary/ancillary uses. Therefore, the car parking element of the project does not fall within this Class of Regulations.
- **Class 10(b)(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 instance, the application site extends to c. 67.6 hectares within what can be considered a built-up area. Therefore, the project exceeds this threshold, and an EIA is required on this basis.

Furthermore, due to the location of the subject lands, the on-going delivery on the Belcamp lands and the adjoining area, and the potential cumulative impact it can have, an EIA is required, and thus an Environmental Impact Assessment Report has been prepared to accompany this planning application.

- *The European Community Directive on Environmental Impact Assessment (No 85/337/EEC);*
- *The European Community Directive (97/11/EC) amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment;*
- *The Planning and Development Act, 2000 (as amended);*
- *The Planning and Development Regulations 2000 (as amended);*
- *European Commission, Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (May 1999);*
- *European Commission, Guidance on EIA Screening (June 2001);*
- *European Commission, Guidance on EIA Scoping (June 2001);*

- *Environmental Protection Agency (EPA), Guidelines on the information to be contained in Environmental Impact Statements (March 2002);*
- *EPA, Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (September 2003);*
- *EPA, Guidelines on the Information to be contained in Environmental Impact Assessment Reports (August 2017);*
- *EPA, Advice notes for preparing Environmental Impact Statements Draft (September 2015);*
- *European Commission, Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (April 2013)*
- *Circular Letter PI 1/2017: Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive)*
- *The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018); and*
- *The Guidelines for Planning Authorities and An Bord Pleanála on Carrying Out Environmental Impact Assessment (August 2018).*

The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) transpose the requirements of the 2014 EIA Directive into Irish Planning Law. On 1st September 2018, the provisions of the Regulations came into effect. This EIAR has been prepared in light of these EIAR Regulations and has also with specific regard to the ‘*Guidelines for Planning Authorities and An Bord Pleanála on Carrying Out Environmental Impact Assessment*’ which were published in August 2018.

1.5 Scope of Environmental Impact Assessment Report

The scope of this EIAR has had regard to the following:

- *Guidelines on the recommended information to be contained in EIAR, which have been published by the EPA (March 2002, September 2003, September 2015, and August 2017);*
- *The requirements of Part X of the Planning and Development Act, 2000 (as amended) and also Part 10 of the Planning and Development Regulations, 2001 as amended;*
- *The requirements of the Fingal Development Plan 2017-2023;*
- *The requirements of the Dublin City Development Plan 2022-2028;*
- *The requirements of the Clongriffin-Belmayne Local Area Plan 2012-2018 (as extended);*
- *The location, scale, and nature of the proposed development;*
- *The receiving environment and any vulnerable or sensitive local features and current uses;*
- *Previous planning applications that have been submitted on lands adjoining the subject site;*
- *The likely and significant impacts of the proposed development (including interactive effects, indirect and cumulative effects) on the environment; and,*
- *Available mitigation measures (including mitigation embedded in the design of the development/project) for reducing or eliminating any potential undesirable impacts.*

Other assessments made under EU legislation have been considered for this EIAR, however, these have been ruled out as irrelevant for this chapter which includes, for example, the Environmental Noise Directive (2002/49/EC) and the Strategic Environmental Assessment Directive (2001/42/EC).

1.6 Structure of Environmental Impact Assessment Report

An EIAR is a process of examining and assessing the environment in tandem with a proposed development in a series of loops and flow systems to ensure that all potential environmental impacts are documented and taken into consideration in the overall formulation of the proposed development inter alia through the design process.

This process allows for the creation of a series of steps in the assessment of potential impacts on various elements of the environment.

The overall structuring of this EIAR has regard to the information requirements of the Directives and Irish Statutory Law and Regulations. In accordance with the statutory regulations, a Non-Technical Summary has been prepared and is included as part of this EIAR. The structure used in this report is a grouped format structure in the form of chapters that examine the broadened scope of environmental consideration introduced by the 2014 Directive.

The structure of this EIAR is based on the requirement to provide a detailed and systematic analysis of the environment at the subject lands; the potential impacts of the development; proposed mitigation measures and future monitoring of environmental indicators.

1.7 The EIAR Study Team

This EIAR has been prepared by an experienced and suitably qualified team of consultants led by Downey Planning. The table below provides information on the members of the EIAR study team and their respective inputs within the report.

Table 1. The EIAR Study Team

Name	Role
<p><u>Downey Planning</u></p> <p>John Downey, Planning Consultant, BA (Hons), MRUP, MBA, MIPI, MRTPI – 25 years' experience; Eva Bridgeman, Planning Consultant BA (Hons), MRUP, MIPI – 10 years' experience; Donal Duffy, Planning Consultant, Dip. Environmental Resources Management, BSc. Spatial Planning, MSc Energy Management, MIPI – 15 years' experience</p>	<p>EIAR Project Managers & Planning Consultants</p> <p>Preparation of the following EIAR chapters:</p> <ul style="list-style-type: none"> ▪ <i>Chapter 1: Introduction</i> ▪ <i>Chapter 2: Description of Project & Alternatives Considered</i> ▪ <i>Chapter 3: Planning and Development Context</i> ▪ <i>Chapter 4: Population & Human Health</i> ▪ <i>Chapter 15: Interactions</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i> ▪ <i>Compilation of EIAR and NTS</i>
<p><u>CCK Architects & Wilson Architecture</u></p> <p>Michael Crowe, MRIAI Ciara O'Sullivan, MRIAI & Peter Heffernan, MRIAI Marcus Reid, MRIAI</p>	<p>Preparation of the following EIAR chapters:</p> <ul style="list-style-type: none"> ▪ <i>Chapter 2: Description of Project & Alternatives Considered</i> ▪ <i>Chapter 16: Summary of Mitigation & Monitoring Measures</i>

Name	Role
<p><u>Waterman Moylan Consulting Engineers</u></p> <p>Mark Duignan, Associate Director, Engineer, MA BAI CEng MIEI</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ Chapter 6: Land and Soils ▪ Chapter 7: Water ▪ Chapter 12: Traffic & Transport ▪ Chapter 14: Utilities & Waste ▪ Chapter 16: Summary of Mitigation & Monitoring Measures
<p><u>The Big Space (TBS) - Landscape Architects</u></p> <p>Dan Egan, MILI Linda Maher, MILI</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ Chapter 11: Landscape and Visual Impact Assessment ▪ Chapter 16: Summary of Mitigation & Monitoring Measures
<p><u>Courtney Deery Heritage Consultancy Ltd.</u></p> <p>Dr. Clare Crowley Senior Archaeologist & EIA Manager</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ Chapter 13: Cultural Heritage ▪ Chapter 16: Summary of Mitigation & Monitoring Measures
<p><u>Openfield Ecological Services</u></p> <p>Padraic Fogarty, Ecologist, MSc in EcIA</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ Chapter 5: Biodiversity ▪ Chapter 16: Summary of Mitigation & Monitoring Measures
<p><u>DKP International Ltd</u></p> <p>Gerard Van Deventer C.ENG., BE. (Mech)., H. Dip. CIOB., MCIBSE</p>	<p>Preparation of the following EIA chapters:</p> <ul style="list-style-type: none"> ▪ Chapter 8: Air Quality ▪ Chapter 9: Noise & Vibration ▪ Chapter 10: Climate ▪ Chapter 16: Summary of Mitigation & Monitoring Measures

The development is being proposed by Gerard Gannon Properties, Kinvara House, 52 Northumberland Road, Ballsbridge, Dublin (the applicant).

1.8 Impartiality

This EIA has been prepared with a standardised methodology that is accepted and acknowledged universally. Competently qualified and experienced specialists have been used throughout the EIA process to ensure that this document is robust, subjective, and impartial.

1.9 Statement of Difficulties Encountered

No exceptional difficulties were experienced in compiling this EIA. However, where difficulties and limitations have been encountered by the study team, this shall be stated within the relevant section(s) of the EIA.

1.10 Errors

Every effort has been made to ensure that the EIA is error-free and accurate. However, there may be instances within the document where typographical errors or minor errors may occur. When minor in nature, any such cases are unlikely to have any material impact on the overall and final findings contained in the EIA.

1.11 References

A reference list detailing the sources used for the descriptions and assessment has been included with each chapter, where necessary.

2.0 DESCRIPTION OF PROJECT & ALTERNATIVES CONSIDERED

2.1 Site Location

Belcamp is situated approximately 8 km north-east of Dublin city centre, straddling the river Mayne boundary between the Dublin City and County Fingal administrative areas. The former Belcamp College lands are accessed from the Malahide Road approximately 550m north of the Clarehall junction, and from the R139 along the site's south boundary. Approximately 3.5km east is the coastline at Baldoyle and the Baldoyle Portmarnock Greenway and 2.5km to the west is the interchange of the M1 and M50 motorways. The lands in Fingal are zoned RA, OS and GB, with development plan objectives for a protected structure and strategic road infrastructure. The lands in Dublin City are zoned mixed use, and form part of the last undeveloped portion of SDRA 1, the North Fringe LAP.

2.2 Site Description

The development site extends west from the Malahide Road for approximately 1.6km to employment zoned lands at Clonshaugh. The northern boundary runs along a northwest alignment splaying the site outwards and widening at the west end into green belt lands to the north. To the south-east the site boundary defines the north and west edges of the Northern Cross urban development, while the R139 road defines the south boundary. To the west the site abuts the Craobh Chiarain GAA club lands.

The site forms the curtilage to Belcamp Hall, a Georgian house, and its associated structures including a walled garden, which are accessed by College Avenue, an internal road off the Malahide Road (R107). Belcamp Hall is a protected structure (RPS 463) dating from the late 18th century. Appendix 2 – Record of Protected Structures of the Fingal County Development Plan 2017-2023, describes it as: *“Former Belcamp College school complex (incl 18th century original house, Washington Monument, walled garden, bridge & early 20th century chapel)”*. While the main protected structure and walled garden are outside the boundary of the subject site, the associated lakes, causeway (bridge), ice house and rock house are all within the site, located close to one another along the river, to the south and south-east of Belcamp Hall.

Much of the site is currently in arable crop, grass or woodland. Until the early 2000s Belcamp College occupied the lands, with the buildings in educational use and playing pitches located in the lands closest to Malahide Road. Belcamp Phases 1 and 1B now occupy this eastern portion of the landholding, with mainly residential uses either approved and under construction or in the planning process.

The site is relatively level for the most part. The lands to the south of Belcamp Hall are divided by the Mayne River, the course of which forms a change in level between the main site to the north and the adjoining lands to the south and contains significant woodland. Existing hedgerows run mostly on a north-south axis with one east-west hedgerow defining a townland boundary. The north and west boundaries comprise ditches with dense vegetation, the north boundary further enhanced by an adjoining old tree lined avenue.

An archaeological survey of the Phase 1 lands concluded that two recorded monuments identified on the OS maps as a ring ditch and a ring fort were in fact the remains of garden features associated with the Georgian house and of no archaeological merit. The Mayne River flows eastwards through the site

and defines the boundary between Dublin City and Fingal. The river is partly redirected via weirs into two manmade ornamental lakes divided by a causeway. It is proposed that much of the surface water generated by the development will discharge into the Mayne via wetlands and other SUDS measures.



Figure 2-1 – Aerial Photograph of Belcamp Lands (application site outlined in red)

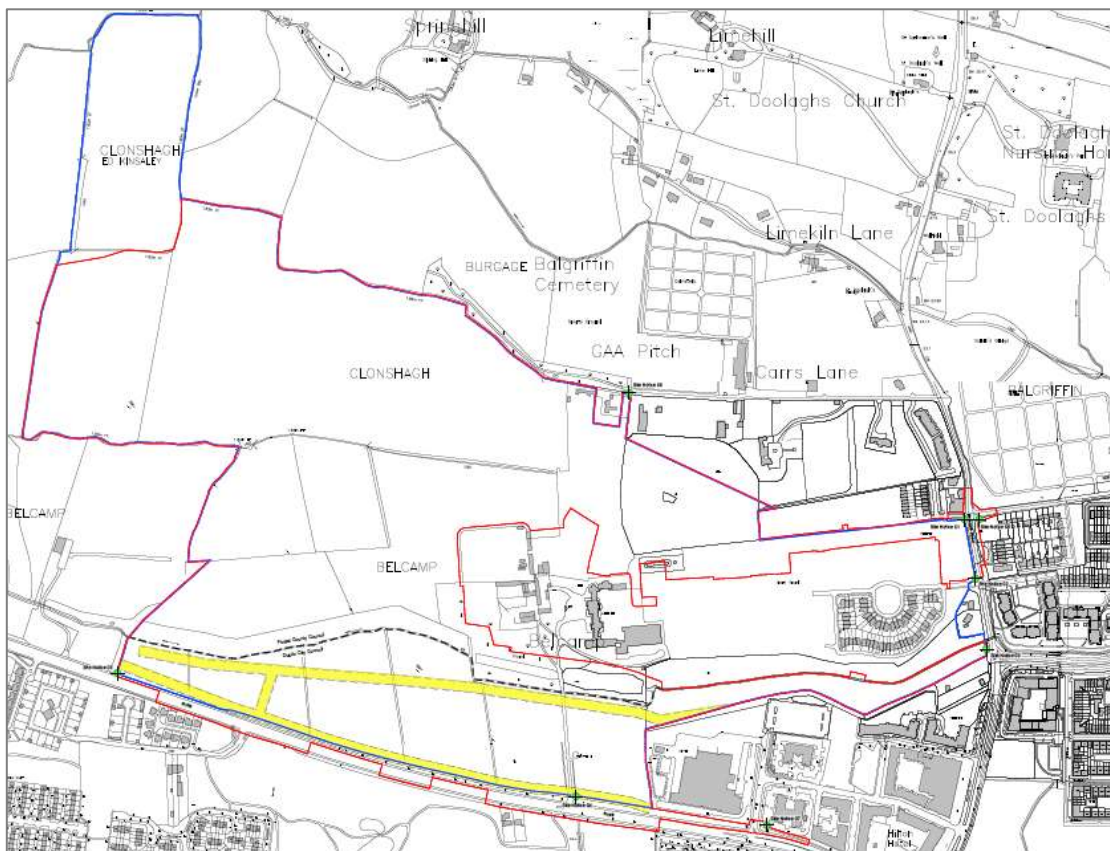


Figure 2-1 – Site Location Plan

2.3 Site Context

Belcamp is located at the boundary between Fingal and Dublin City administrative areas, to the northeast of the city centre. To the south and east of Belcamp are the settlements of Darndale and Belmayne, while to the north and west are the townlands of Balgriffin and Clonshaugh. 2.5km to the east is Clongriffin Dart station, while to the south-east Clarehall shopping centre and retail facilities at the Northern Cross are easily accessible on foot. Lands at the Northern Cross have been the subject of the recent Draft Belcamp Lane and Belmayne Masterplan, prepared by Dublin City Council, and proposals include a new town square approximately 350m south of the Malahide Road entrance to Belcamp. Lands to the west of Belcamp at Clonshaugh are zoned for employment uses, while two GAA grounds are within walking distance of the site: Innisfail's GAA club is on Carr's Lane to the north of the site, and Craobh Chiaráin GAA club have playing pitches immediately west of the Belcamp lands.

Approximately 3.5km east is the coastline at Baldoyle and the Baldoyle Portmarnock Greenway. A linear green route for pedestrian and cycle amenity runs inland from the coast along the Mayne River, linking various parks and spaces before arriving at the Malahide Road and the Belcamp Lands. The subject site has the potential to extend this green route further west along the Mayne River, to connect to the GAA grounds, as well as lands at Clonshaugh and south of the R139 to Darndale Park and Belcamp Park.

The Belcamp landholding extends to 87ha in total, comprising the 67.6ha SHD lands as well as Phases 1 and 1B, which are the subject of separate planning applications to Fingal County Council. The protected structure of Belcamp Hall, as well as its associated structures – chapel and walled garden, are located within the Phase 1 lands and outside the scope of the SHD. However, these historic elements will be central to the overall Belcamp development and are considered integral to the design of the wider scheme.

The Belcamp lands include the original environs of Belcamp Hall as well as a substantial amount of agricultural land. The landscape varies across the site with dense woodland along the riparian zone of the Mayne River valley, mature tree stands to the north and west of Belcamp Hall and open fields to the west bounded by thick hedgerows.

The surrounding built context of Belcamp is increasingly urban. To the east, development of the DCC Development Plan's SDRA 1 - North Fringe Clongriffin-Belmayne is ongoing, with low rise housing surrounding mixed use urban nodes. The green spaces and road network are expanding to support these neighbourhoods and can be expanded further through Belcamp under the objectives of the development plan. The existing urban form comprises larger apartment blocks at central nodes, with commercial uses and active street frontage at ground floor level.

The area south east of the site within the Dublin City Development Plan is designated as KDC 1 – this Key Development Centre will be the town centre for the district. The Draft Belmayne and Belcamp Lane Masterplan has provided a vision and urban structure for what is intended – a new town centre and civic square surrounded by mixed residential use and incorporating high quality access to public transport.

To the south, across the R139 is Darndale Park, a large park serving the existing residential neighbourhoods beyond. To the west, OS zoned lands separate the Belcamp development site from lands zoned for employment uses, while to the north the site abuts green belt lands.

2.4 Characteristics of Proposed Development

The site's existing natural and historic built features form the basis for the scheme layout design, with proposed buildings, streets and spaces arranged to create vistas, frame views and retain these features as the principal focal points in the new neighbourhood. The Belcamp site is unique in its abundance of natural, built, and historic heritage, and presents an opportunity to create a new neighbourhood of distinct character and identity. The unique quality of this site will inform the design of all aspects of its development to preserve its special natural and historic heritage. The design approach is based on five principal themes, arising from the existing features and development plan objectives of the Belcamp lands:

Natural Heritage and Biodiversity

The Belcamp lands are rich in biodiversity and natural features, with extensive woodland, a river valley and mature hedgerows marking historic field and townland boundaries. The Mayne River riparian zone establishes a broad green spine as a principal organising element of the site layout. Existing hedgerows run north and south from this green spine and form the basis for green links and biodiversity corridors through the site, with street grid patterns emerging from their alignments.

Architectural Heritage

The new development will grow outwards from the historic core of the site, with Belcamp Hall and the walled garden remaining as the primary focus for the overall scheme and the centre of the new neighbourhood. The scale, form and materiality of the existing structures will be respected in the design of the new buildings, which are arranged to frame and preserve views and create vistas that showcase these historic elements of Belcamp.

Connectivity and Movement

The Belcamp site will improve permeability in the local area and by increasing the number of site access points, pedestrian and cycle movement in the locality will be expanded with new connections crossing the Belcamp lands, from Carr's Lane in the north to the R139 and Darndale in the south, and from the existing settlements of Belmayne and Clongriffin in the east to lands zoned for employment uses in Clonshaugh to the west. The extension of the Mayne River green route through the site will ultimately connect the Baldoyle coast to the open space zoned lands at Belcamp and to all green nodes in between.

Placemaking

With Belcamp Hall as a central focus, buildings and urban spaces are arranged around it to create enclosure and frame views. The walled garden becomes a formal garden space within the new urban environment, and a key public space linking to the woodland in the south-west and Belcamp Hall in the south-east. The resulting sequence of overlapping spaces provides variety and amenity as one moves through the scheme, with desire lines crossing spaces and delineating path routes.

Strategic Infrastructure

The lands are subject to a development plan roads objective, which will expand public transport routes from the south and east of the site to the west and facilitate future connections to Dublin Airport and its associated employment activities. A Specific Objective for a road proposal is indicated on Development Plan Map Sheet No. 9 of the current Fingal Development Plan 2017-2023. The road proposal comprises two routes crossing the Belcamp lands from east to west to the north of the protected structures, and from south to north to the west of the walled garden. These roads are incorporated into the scheme as DMURS compliant tree-lined avenues with active street frontage, creating street hierarchy and public spaces for commercial activity to serve the new community.

The scheme is divided into several character areas, each relating to its place on the site, informed by its existing site characteristics and external relationships, and within the scheme by its housing mix, density and height, and its place in the network and sequencing of routes, edges, spaces and landmarks. Building detail, materials, colours and finishes, as well as building form will reinforce these identities, distinguishing the character areas from each other.

The urban pattern is legible and easily navigated. Landmark buildings on key corners and nodal points provide markers or way-finders for visitors. Streets have continuous and active frontages, and a high percentage of own-door dwellings ensuring good passive surveillance and safety. All residential buildings and housing terraces 'turn the corner' with specially designed end houses that present a public face to both sides, and long stretches of blank garden walls abutting the public realm are avoided. Pocket parks and green spaces are overlooked by residential buildings, and a mix of on and off-street car parking will create regular footfall between public paths and building entrances.

There is clear definition between public and semi-private open spaces, and the organization of pocket parks define sub-character places within the scheme. Formal play equipment is provided where appropriate and far enough from dwellings to avoid nuisance.

The development proposes a mixed-use scheme of 2,527 dwellings and 4,424m² of non-residential accommodation including creche facilities, retail, and commercial uses. The development comprises a mix of apartments, duplex units and houses, with the higher density apartment blocks of typically 4-5 storeys lining the principal routes and enclosing the town square, rising up to 9 storeys to create a strong urban edge to the R139 along the south boundary of the site. 4 storey duplex blocks provide the transition in scale and grain between the principal urban spaces and the lower rise 2-3 storey housing streets. The Mayne River Park, biodiversity corridors and green spaces are overlooked by their built edges providing passive surveillance over these spaces.

The proposed development includes two childcare facilities, one located in Dublin City comprising 508m², and one in Fingal comprising 606m², with capacity for a combined total of 165 no. child places. Retail and commercial uses totalling 3,213m² are also proposed in both the Dublin City and Fingal portions of the site, either adjacent to open space or surrounding the central civic square. To the west, a changing room block adjacent to the playing pitches comprises 97m² of changing and toilet facilities.

The development facilitates the future provision of a primary school on a reserved site of 1.08ha within the subject lands, adjacent to OS zoned lands in the northwest portion of the site. The Class 1

open space lands will accommodate playing fields for active recreation, accessible from all parts of the site along pedestrian and cycle green routes.

A summary of the accommodation schedule for the proposed development is set out in Table 1:

1-Bed Dwellings	2-Bed Dwellings	3-Bed Dwellings	4-Bed Dwellings	Total
640	1061	754	72	2527

Table 1 Schedule of Accommodation

Demolition Works

There are no existing permanent structures or other features on the site requiring demolition to facilitate the development.

Building Form and Height

The building forms are generated according to location, with simple orthogonal shapes to buildings in the vicinity of the protected structures and building forms with more vertical emphasis creating a strong rhythm along the R139 edge overlooking the south.

Heights are arranged to reflect the spatial and movement hierarchy of the scheme. A robust frontage is required to the south where the scheme makes an edge to the R139, a busy arterial route into the north east city from the M50 and M1. Buildings here range up to 9 floors with a 6-storey shoulder on the east-west building and taller blocks on a north-south axis, so facilitating both sunlight and rhythm.

The main through routes within the development are edged with 4 and 5 storey buildings providing good enclosure, with 5 storeys in the centre around the civic space with associated retail and commercial facilities. The grain of 4 storey apartment and duplex buildings blend easily back into 2 and 3 storey housing behind the main street frontages. Where the buildings rise to 5 in the centre, the higher buildings are usually separated from the housing by trees, either in a courtyard, or along the townland boundary or trees lining the boulevard routes.

There is good variation in building height across the SHD site, and the pattern proposed in this development is compatible with the existing natural and built heritage, with variety in the roofscape across the site and higher buildings in appropriate locations.

Open Space

Public Open Space is provided in accordance with Development Plan standards. The quantum requirements are as follows:

- Fingal County Council: 25sqm per bed space
- Dublin City Council: 10% of Site Area

Fingal County Council Requirement:

- 1-2 Bedroom @ 1.5m²/bedspace;
- 3-4 bedroom @ 3.5m²/bedspace
- 25sqm/bed space requires 8.565Ha

Units	No. of Each	x Bedspaces	Total Bedspaces	x area	Open Space Required
1 & 2 Bed	617	x 1.5	925.5	x 25m ²	23,137.5m ²
3 & 4 Bed	680	x 3.5	2,380	x 25m ²	59,500.0m ²
Total	1,297		3,305.5	x 25m²	82,637.5m²

Table 2 FCC Open Space Requirement

The Public Open Space requirement for the Fingal lands is therefore 8.26ha. A total of 19.27ha of public open space is provided within these lands, more than double the requirement. 5.43ha of this is provided within the RA zoned lands, equal to c.20% of the net development area, while the remainder is provided within the OS and GB zoned lands of the SHD site.

Within the DCC lands a total of 8.79ha is provided, equating to 50.1% of the DCC site area.

Private open space for houses is provided in accordance with the Fingal Development Plan, i.e. a minimum of 60sqm for a 2-3 bedroom house and a minimum of 75sqm for a >4 bedroom house.

Private open space for apartments and duplex units is provided in accordance with the 2020 guidance document Design Standards for New Apartments.

Communal open space for duplex units and apartments is provided in accordance with the same 2020 guidelines. These shared spaces are located within the curtilage of the block they serve, either as ground level enclosed gardens or as landscaped podiums or roof gardens. Communal open spaces are generally overlooked by the residents they serve. These spaces will be privately managed and are not proposed to be taken-in-charge by the Local Authority.

2.5 Detailed Description of Proposed Development

The proposed development, as per the description contained within the statutory planning notices, provides for:

'We, Gerard Gannon Properties, intend to apply to An Bord Pleanála for a 10 year permission for a strategic housing development at lands at Belcamp Hall (Protected Structure), Malahide Road (R107), the R107/R123 junction, Carr's Lane, and R139 Road, Belcamp, Dublin 17. The lands are internally bounded by the protected structures and associated curtilage, and the new emerging residential development of Belcamp which is partly occupied and under construction.

The development will consist of the construction of a mixed-use development comprising of 2527 no. residential units (473 no. houses, 1780 no. apartments, and 274 no. duplex units) of which 1969 no. units are residential and 558 no. apartment units are 'build-to-rent' residential, ancillary residential amenity facilities, 2 no. childcare facilities, 1 no. sports changing facilities building, 18 no. retail units and 3 no. cafés/restaurants, all of which will be provided as follows:

- *473 no. residential houses (16 no. 2 bed houses, 385 no. 3 bed houses, and 72 no. 4 bed houses) semi-detached, end-terraced, and mid-terraced houses ranging from two to three storey in height;*
- *Duplex Block 1.1 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with*

- private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*
- *Duplex Block 1.2 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*
 - *Duplex Block 1.3 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*
 - *Duplex Block 1.4 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*
 - *Duplex Block 1.5 containing a total of 18 no. units comprising of 4 no. 1 bed units, 8 no. 2 bed units, and 6 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store and bin store at ground floor level; undercroft car parking and car parking within the shared parking court;*
 - *Duplex Block 2.1 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to south elevations; separate single storey bike store and bin store; car parking; and bicycle parking;*
 - *Duplex Block 2.2 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to west elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking;*
 - *Duplex Block 2.3 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to east elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking;*
 - *Duplex Block 2.4 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to west elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking (Duplex Block 2.4 is adjoined to Duplex Block 2.5 via single storey bike store);*
 - *Duplex Block 2.5 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to south-west elevation; internal bike store; separate single storey bike store and bin store; car parking within the shared parking court and bicycle spaces, (Duplex Block 2.5 is adjoined to Duplex Block 2.4 via single storey bike store);*
 - *Duplex Block 2.6 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to south elevation; separate single storey bike store and bin store; car parking within the shared parking court; and bicycle parking;*

- Duplex Block 3.1 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to north and south elevations; separate single storey bike store and bin store; on-street car parking and car parking within the shared parking court; and bicycle parking;
- Duplex Block 3.2 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);
- Duplex Block 3.3 containing a total of 12 no. units comprising of 2 no. 1 bed units and 10 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);
- Duplex Block 3.4 containing a total of 12 no. units comprising of 2 no. 1 bed units and 10 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);
- Duplex Block 3.5 containing a total of 12 no. units comprising of 12 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north and south elevations; internal bike store; access to shared single storey bin store; car parking within the shared parking court; and bicycle spaces (Duplex Blocks 3.2, 3.3, 3.4 and 3.5 are all adjoined via single storey bike stores);
- Duplex Block 3.6 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building four storeys in height, and all units provided with private balconies/terraces to east and west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the parking court; and bicycle spaces;
- Duplex Block 3.7 containing a total of 16 no. units comprising of 16 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to east and west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces;
- Duplex Block 3.8 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to east and west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Block 3.8 is adjoined to Duplex Block 3.9 via single storey bike store);
- Duplex Block 3.9 containing a total of 8 no. units comprising of 8 no. 3 bed units, in a building one to four storeys in height, and all units provided with private balconies/terraces to north-east and south-west elevations; internal bike store; access to shared single storey bin store and bike store; car parking within the shared parking court; and bicycle spaces (Duplex Block 3.9 is adjoined to Duplex Block 3.8 via single storey bike store);
- Apartment Block A containing a total of 23 no. units comprising of 8 no. 1 bed units and 15 no. 2 beds, with all units provided with private balconies/terraces to all elevations, in a building

four storeys in height, with internal bicycle stores and bin stores at ground floor level; on-street car parking; and bicycle parking;

- *Apartment Block B containing a total of 23 no. units comprising of 8 no. 1 bed units and 15 no. 2 beds, with all units provided with private balconies/terraces to all elevations, in a building four storeys in height, with internal bicycle stores and bin stores at ground floor level; on-street car parking; car parking within a parking court; and bicycle parking;*
- *Apartment Block C containing a total of 27 no. units comprising of 7 no. 1 bed units and 20 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building four storeys in height, with internal bin stores and bike stores at ground floor level; car parking within a parking court; and bicycle parking;*
- *Apartment Block D is a mixed-use building containing a total of 42 no. units comprising of 22 no. 1 bed units, 15 no. 2 bed units and 5 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building three to five storeys in height, 1 no. café/restaurant unit and 7 no. retail units at ground floor level with associated signage; bin stores, bike stores and plant room at ground floor level; communal roof garden and ancillary residential amenity facilities including community rooms and communal work pods, all at penthouse level; on-street car parking; and bicycle parking;*
- *Apartment Block F is a mixed-use building containing a total of 103 no. units comprising of 44 no. 1 bed units, 56 no. 2 bed units and 3 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to five storeys over basement in height, 1 no. café/restaurant unit and 5 no. retail units at ground floor level with associated signage; undercroft car parking below landscaped podium; bin stores and bike stores at ground floor level; a basement with car parking, bin stores and plant room; on-street car parking; and bicycle parking;*
- *Apartment Block G is a mixed-use building containing a total of 65 no. units comprising of 29 no. 1 bed units and 36 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building one to five storeys in height, with internal bin stores, bike stores and plant rooms at ground floor level; ESB sub-station at ground floor level; 1 no. retail unit at ground floor level with associated signage; communal roof garden at fourth floor level; undercroft car parking below landscaped podium; bin stores and bike stores; and bicycle parking;*
- *Apartment Block H containing a total of 46 no. units comprising of 20 no. 1 bed units and 26 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores and bike stores at ground floor level; undercroft car parking; on-street car parking; car parking within the shared parking court; and bicycle parking;*
- *Apartment Block J containing a total of 40 no. units comprising of 16 no. 1 bed units and 24 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores and bike stores at ground floor level; 4 no. retail units at ground floor level with associated signage; undercroft car parking and car parking within the shared parking court; and bicycle parking;*
- *Apartment Block L containing a total of 46 no. units comprising of 20 no. 1 bed units and 26 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores and bike stores at ground*

floor level; undercroft car parking; on-street car parking and car parking within the shared parking court; and bicycle parking;

- *Apartment Block M containing a total of 56 no. units comprising of 24 no. 1 bed units and 32 no. 2 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building six storeys in height, with internal bin stores and bike stores at ground floor level; undercroft car parking and car parking within the shared parking court; and bicycle parking;*
- *Apartment Block N containing a total of 56 no. units comprising of 26 no. 1 bed units, 25 no. 2 beds, and 5 no. 3 beds, with all units provided with private balconies/terraces to south, east and west elevations, in a building five storeys in height, with internal bin stores, bike stores and plant rooms at ground floor level; on-street car parking and car parking within the shared parking court; and bicycle parking;*
- *Apartment Block P containing a total of 23 no. units comprising of 5 no. 1 bed units and 18 no. 2 beds, with all units provided with private balconies/terraces to all elevations, in a building five storeys in height, with internal bin stores, bike stores and plant rooms at ground floor level; on-street car parking and car parking within the shared parking court; and bicycle parking;*
- *1 no. childcare facility in a two-storey building, with associated outdoor play area, car parking and drop-off/visitor parking, bicycle parking, and bin stores;*
- *1 no. single storey sports changing facilities building with associated car parking and bicycle parking;*
- *Apartment Block 1 is 'built-to-rent' residential containing a total of 273 no. units comprising of 94 no. 1 bed units, 139 no. 2 beds, and 40 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground floor level including gym and amenity rooms; car parking within the undercroft car park below landscaped podium;*
- *Apartment Block 2 containing a total of 160 no. units comprising of 71 no. 1 bed units, 73 no. 2 beds, and 16 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground and first floor levels including multi-function room and communal rooms; and car parking within the undercroft car park below landscaped podium;*
- *Apartment Block 3 is a mixed-use building containing a total of 297 no. units comprising of 96 no. 1 bed units, 176 no. 2 beds, and 25 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground floor level including amenity room; 1 no. childcare facility over ground and first floor level with outdoor play area at ground floor level with associated signage; 1 no. retail unit and 1 no. café/restaurant at ground floor level adjoining urban plaza, with associated signage; car parking within the undercroft car park below landscaped podium; and public bicycle parking at ground floor level;*
- *Apartment Block 4 is 'built-to-rent' residential containing a total of 285 no. units comprising of 70 no. 1 bed units, 178 no. 2 beds, and 37 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal*

bicycle stores, bin stores and plant rooms at ground floor level; ancillary residential amenity facilities at ground and first floor levels including cinema room, gym, multi-purpose/amenity rooms; ESB sub-station at first floor level; car parking within the undercroft car park below landscaped podium, and on-street bicycle parking;

- *Apartment Block 5 containing a total of 96 no. units comprising of 37 no. 1 bed units, 51 no. 2 beds, and 8 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to eight storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground floor level including multi-function room; car parking within the undercroft car park below landscaped podium;*
- *Apartment Block 6 containing a total of 119 no. units comprising of 19 no. 1 bed units, 80 no. 2 beds, and 20 no. 3 bed units, with all units provided with private balconies/terraces to all elevations, in a building one to nine storeys in height, with internal bicycle stores, bin stores and plant rooms at ground floor level; ESB sub-station at ground floor level; ancillary residential amenity facilities at ground and first floor levels including amenity rooms; car parking within the undercroft car park and on-street, and bicycle parking.*

The development will provide for a total of 2225 no. car parking spaces and a total of 5394 no. bicycle spaces within the scheme; new vehicular access onto Malahide Road (R107) and associated upgrade works including works to the R107/R123 junction (these upgrade works to the R107/R123 junction include the closing of the existing Belcamp Manor vehicular access off Malahide Road and the provision of a new vehicular access to Belcamp Manor via the proposed East West Link Road [EWLR]); provision of East West Link Road (EWLR) from Malahide Road including bus stops, bus terminus and on-street car parking; provision of north south road including on-street car parking with drop-off/visitor parking serving the childcare facility; 3 no. new vehicular accesses onto the R139 road which includes 1 no. Bus Gate and signalised junctions including toucan crossings, footpaths and cycle paths; upgrades to public realm including footpaths and cycle paths with links to Malahide Road (R107) and adjoining lands/developments, and works to repair with additional safety measures to the existing Mayne River lakes, weirs, culverts and crossings (bridges and causeways); additional Mayne River crossings (bridges and causeways) for vehicular and pedestrian/cycle access; ESBN infrastructure works to cables and masts; new pedestrian/cycle access to Carr's Lane; landscaping including play equipment, MUGA, 3 no. pieces of public art, boundary treatments, playing pitches, pocket parks, and urban plazas; public lighting; proposed reserved school site; and all associated engineering and site works necessary to facilitate the development.

The application contains a statement setting out how the proposal will be consistent with the objectives of the Fingal Development Plan 2017-2023, the Dublin City Development Plan 2016-2022 and the Clongriffin-Belmayne Local Area Plan 2012-2018 (extended until December 2022).

The application contains a statement indicating why permission should be granted for the proposed development, having regard to a consideration specified in section 37(2)(b) of the Planning and Development Act, 2000, as amended, notwithstanding that the proposed development materially contravenes a relevant development plan or local area plan other than in relation to the zoning of the land.

An Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS) have been prepared in respect of the proposed development.'

2.6 Construction and Phasing

The delivery of the SHD development is proposed in three phases, with completion proceeding generally from east to west. Phase SHD 1 includes the primary infrastructure of the EWLK and north-south road, most public open space lands and a mix of houses, duplex blocks and apartments totalling 1,504 dwellings, c.60% of the overall. The commercial accommodation and the childcare facilities are also provided within this phase. Phase SHD 2 will provide a further 630 dwellings (c. 25%) while the third and final phase, Phase SHD 3, will complete the western portion of the development and will comprise 393 dwellings in a mix of houses, duplex units and apartments.

The first phase of the SHD development includes the primary roads and will facilitate the connection between the Malahide Road and the R139 at the earliest stage of the development. Equally the provision of the mature areas of public open space has been front-loaded to ensure that the green linkages and amenity areas become established at the earliest opportunity. The development of the FCC and DCC sides of the scheme are phased generally in parallel, with neither side having more than c.55% of the units developed in each phase.

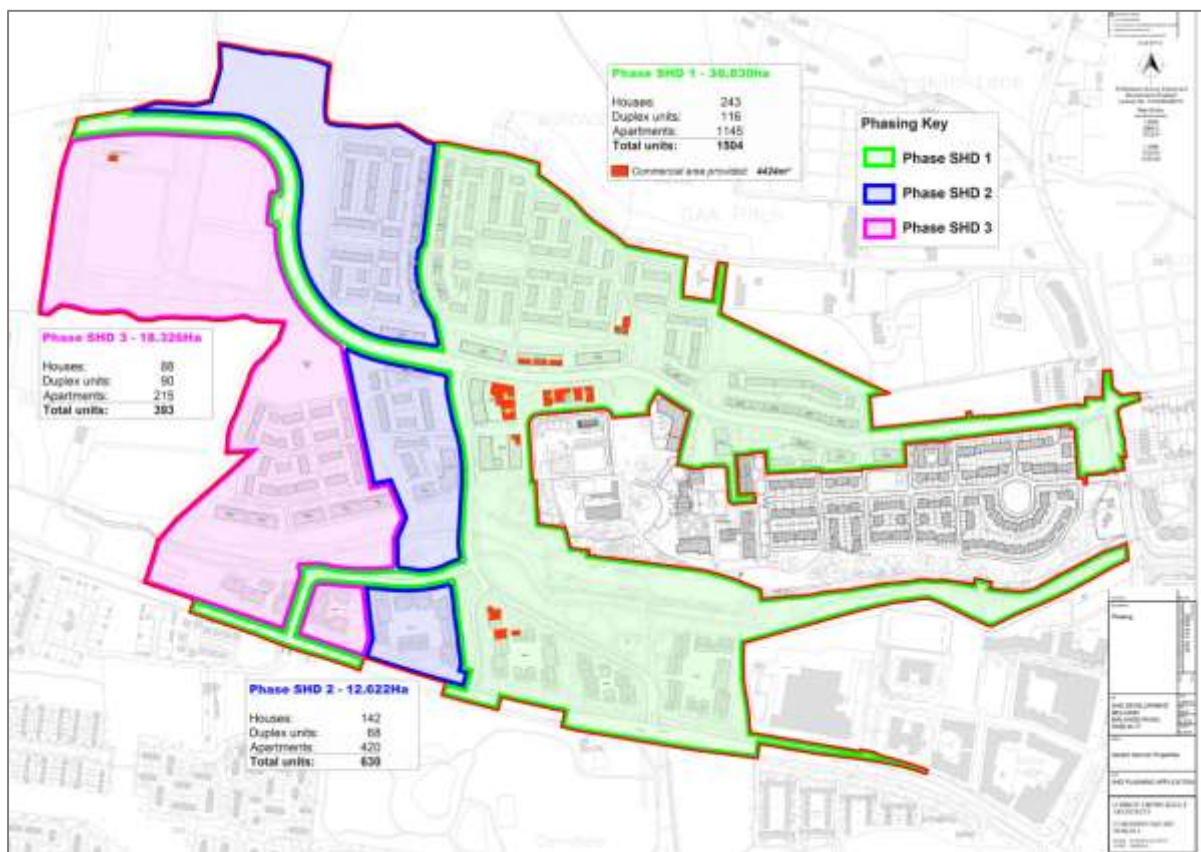


Figure 2-3 – Proposed Phasing Plan

In addition to the SHD lands, the Belcamp landholding includes the walled garden and lands immediately surrounding Belcamp Hall, as well as the former school playing fields in the eastern portion of the site between Belcamp Hall and the Malahide Road. These lands, Phases 1 and 1B, are

the subject of several Section 34 planning applications, and construction is underway of the Phase 1 approved development. To date 181 dwellings have been permitted in Phase 1 and approval is pending for a further 195 dwellings. It is anticipated that a total of 408 dwellings will ultimately be developed on these lands. The Phase 1 permission ensures early delivery of the actions necessary to protect the built heritage, landscape, and ecological structure of the place.

Reg. Ref.	Description	Status
F15A/0609, PL06F.248052 & F15A/0609-E1	'Phase 1' Parent Permission: 176 units, Renovation of Belcamp Hall and Chapel, commercial and community accommodation. Amended by subsequent permissions to 181 units	89 units complete, 49 units under construction, renovation works ongoing. EOD permission approved.
F19A/0220	Amendment of part of parent permission 89 houses	89 units complete
F19A/0221	Amendment of part of parent permission 49 houses	49 units under construction
F21A/0401	'Phase 1B' 78 units	Appeal decision pending
F21A/0488	Blocks 1 and 2 of Phase 1: 77 units	Appeal decision pending
F22A/0136	Block 3 and Walled Garden of Phase 1: 40 units, creche and café	Planning application under consideration

Table 3 Schedule of Planning Permissions and Status

2.7 Emissions and Waste

Please refer to Chapter 7.0, 8.0 and Chapter 10.0 of this Environmental Impact Assessment Report for a full assessment of the impact of the proposed development on emissions and waste arising in relation to air and water quality, and climate. All spoil and waste material will be removed to an approved location and storage of construction materials in public areas will be minimised. Excavated material may be temporarily stored onsite, with excess material to be removed off-site. All oil/diesel stored on site will be in suitable containers which will be located in a purpose-built bunded area, which will provide containment in the event of accidental spills. Such waste will be handled and/or off appropriately in line with Waste Legislation.

2.8 Description of Reasonable Alternatives

This section of the EIAR focuses on alternatives that were considered during the preparation of this EIAR and planning application. It has been carried out by Part 1(d) of Schedule 6 of the Regulations which requires: "An outline of the main alternatives studied by the developer and an indication of the main reasons for his or her choice, taking into account the effects on the environment." It also has close regard to the Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment (2018) which state in this regard that:

“The Directive requires that information provided by the developer in an EIAR shall include a description of the reasonable alternatives studied by the developer. These are reasonable alternatives, which are relevant to the project and its specific characteristics. The developer must also indicate the main reasons for the option chosen taking into account the effects of the project on the environment.

Reasonable alternatives may relate to matters such as project design, technology, location, size and scale.”

This section of the EIAR sets out an outline of the main alternatives that have been examined through the design and consultation stages of the planning process with the following headings:

- Alternative Locations
- Do-Nothing Scenario
- Alternative Uses
- Alternative Processes
- Alternative Designs/Layouts

2.8.1 Alternative Locations

The consideration of alternatives locations for the development has, in a significant number of cases, already been addressed and decided at strategic planning level during the preparation and adoption of the Fingal Development Plan 2017-2023, the Dublin City Development Plan 2016-2022 and the Clongriffin-Belmayne Local Area Plan 2012-2018 (extended until December 2022). The plans establish a housing need for the district which is required to be accommodated during the plan period and assesses all available land in the district, including the subject site and all available alternatives. These Plans will have been subject to Strategic Environmental Assessment which takes into account the environmental considerations associated with, for example, the cumulative impact of an area zoned for industry on a sensitive landscape. The EIA Guidelines also state that the statutory development plans can establish project-level objectives or other mitigation that a subsequent site project and its EIAR should be cognisant of.

Having regard to the above, Downey notes that the lands subject to this application and EIAR are located within the Fingal County Council and Dublin City Council administrative areas. Under the current Dublin City Development Plan, the subject site is zoned as a ‘Strategic Development and Regeneration Area – Zone 14’ (SDRA) which seeks:

“To seek the social, economic and physical development and/or rejuvenation of an area with mixed use of which residential and “Z6” would be the predominant uses.”

The proposed residential use and complementary land uses are permitted in principle.

The Clongriffin-Belmayne Local Area Plan (LAP) 2012-2018, extended until 2022, *“provides a framework for proper planning and sustainable development of Clongriffin-Belmayne (the North Fringe) area in accordance with the policies and objectives of the Dublin City Development Plan”*. The lands around the North Fringe area were first proposed for development in 1999/2000 with the publication of an action plan to guide the development. As stated within the LAP, *“the two main*

objectives of the plan have been to provide a coherent urban structure with distinct identity and to integrate new and existing communities successfully.”

Outlined in the Fingal Development Plan, the site is predominantly zoned ‘RA zoning objective’ which seeks the following:

“RA - Residential Area Zoning Objective: To provide for new residential communities subject to the provision of the necessary social and physical infrastructure.”

The subject site is also zoned ‘OS – Open Space’ which aims to *“Preserve and provide for open space and recreational amenities”*, and there are two sections to the north of the site zoned ‘GB – Greenbelt’ which aims to *“Protect and provide for a Greenbelt”*. In this instance, the vision for the ‘OS – Open Space’ seeks to:

“Provide recreational and amenity resources for urban and rural populations subject to strict development controls. Only community facilities and other recreational uses will be considered and encouraged by the Planning Authority.”

Additionally, the ‘GB – Greenbelt’ seeks to:

“Create a rural/urban Greenbelt zone that permanently demarcates the boundary (i) between the rural and urban areas, or (ii) between urban and urban areas. The role of the Greenbelt is to check unrestricted sprawl of urban areas, to prevent coalescence of settlements, to prevent countryside encroachment and to protect the setting of towns and/or villages. The Greenbelt is attractive and multifunctional, serves the needs of both the urban and rural communities, and strengthens the links between urban and rural areas in a sustainable manner. The Greenbelt will provide opportunities for countryside access and for recreation, retain attractive landscapes, improve derelict land within and around towns, secure lands with a nature conservation interest, and retain land in agricultural use. The zoning objective will have the consequence of achieving the regeneration of undeveloped town areas by ensuring that urban development is directed towards these areas.”

As this site is mainly zoned for residential development within an established urban area, it was not considered necessary to consider other sites outside of those already considered as part of the plan-making process. Furthermore, the site forms a natural extension to the existing developments currently occupied and/or under construction by the same applicant, immediately abutting the subject lands to the east. These developments represent the overall phases of the overall delivery of the Belcamp lands.

2.8.2 Alternative 1: “Do Nothing” Scenario

If the application site was left undeveloped, most of the subject lands could revert to agricultural use. The strategic roads development plan objective through the site would remain unrealised, with no connections established between the R139, Malahide Road and Clonshaugh, impacting adversely on the future development of the DCC Belmayne and Belcamp Lane Masterplan. The eastern portion of the FCC lands, under current Section 34 applications, may be completed but gaps would remain in the urban form, with diminished enclosure of public spaces, in particular the walled garden where passive

surveillance would be limited to the eastern side only. The EWLR would extend some c.660m into the site as a dead-end road with gaps in its southern edge frontage and no development to the north. Belcamp Hall, with no development to the west or south would continue to be vulnerable to antisocial behaviour and vandalism. The approved community and commercial uses would be located peripherally in the development and vulnerable to security issues and commercial failure. The level of demand for housing within both Fingal and DCC, based on the future population growth predictions, would not be met.

2.8.3 Local Planning Context

DCC Lands

Dublin City extended the Clongriffin Belmayne LAP 2012-18 until 2023. DCC also undertook the Belmayne-Belcamp Lane Masterplan which sets out the town centre for the Key Development Centre (KDC). This was carried out in conjunction with the Clongriffin-Belmayne Economic and Retail Study 2018 which anticipates a significant urban centre on the Malahide Road just north of Clarehall Cross. This will be the commercial and social centre of gravity of the district and influences the scale and locations of retail in the SHD application. At this stage most of the LAP has been granted planning permission, and mainly built, from east west. The area north of Clarehall Cross in the control of Dublin City Council, and Belcamp land in the control of the applicant, remain to be permitted and developed. This site is within 18 minutes on a QBC to Dublin City, has access to the Dart, and can avail of a good green mode network.

FCC Lands

The Fingal lands have been zoned for Residential development for some time with a LAP pending. The area along the Mayne River and to the west are zoned open space. The various stated objectives for Belcamp include promotion of a high-quality residential development with typologies for all life stages, accessible local services; the protection of the character and setting of Belcamp Hall with reference to natural and built heritage, and biodiversity; green infrastructural linkages east to the coast, Baldoyle nature park and Dart station; preparation of an LAP and interim arrangements around Belcamp Hall pending its adoption.

2.8.4 Initial Scheme Design and Site Constraints

An assessment of the site, including topographical and tree surveys, was carried out to identify the principal natural and built features on the lands, as well as site constraints that would inform the initial scheme design. From the Site Constraints map the following principal features and constraints are identified:

River Mayne and Woodland

The existing riparian and woodland areas are rich in natural amenity and biodiversity and a very positive feature of the site.

Built Heritage

The protected structures will provide a unique character and focus to the adjoining new development.

Hedgerows and Boundaries

Old townland and field boundaries, ditches and hedgerows can be incorporated into the scheme to create green links and biodiversity corridors.

Access and Frontage to Public Roads

Existing access points are from Malahide Road (via earlier phases) and the R139, with potential to provide additional access points on the R139 and to Carr's Lane in the north. Frontage on to the R139 can follow the existing building line established to the east.

Wayleaves and Riparian Zone

Drainage and watermain wayleaves run west-east to the south of the Mayne, where a 25m riparian zone is also reserved.

Development Plan Zoning

Within the Fingal area, OS zoned lands are located along the Mayne river and woodland valley, and in the west of the site. GB zoned lands occur in the north-west and north-east, while the remainder is zoned RA. In the DCC area, the lands are zoned Z14 – mixed use, with residential as the predominant use.

Development Plan Objectives

A roads proposal crosses the site from east to west and north to south and will be incorporated into the site layout design.

2.8.5 Alternatives Considered

Early Stage Layout

At a very early stage a higher density scheme was considered with over 3,500 dwellings proposed. Apartment blocks were concentrated in the DCC lands and lining the principal roads within the FCC lands. The scheme centred on the dual nodes of Belcamp Square and "Commercial Square" as the centre of the scheme, with permeable walking and cycle routes crossing the site. The principal roads through the site intersected at Commercial square where the EWLR met the north south road at a T-junction on the north-west corner of the square. This public space occurred at the confluence of the two routes with west bound traffic redirected north on to the north-south road. The EWLR continued west at an offset north of the T junction as a smaller road, turning north again at the west boundary to re-join the larger road. Housing streets followed a more organic pattern with private gardens abutting the site boundaries at the north and west.

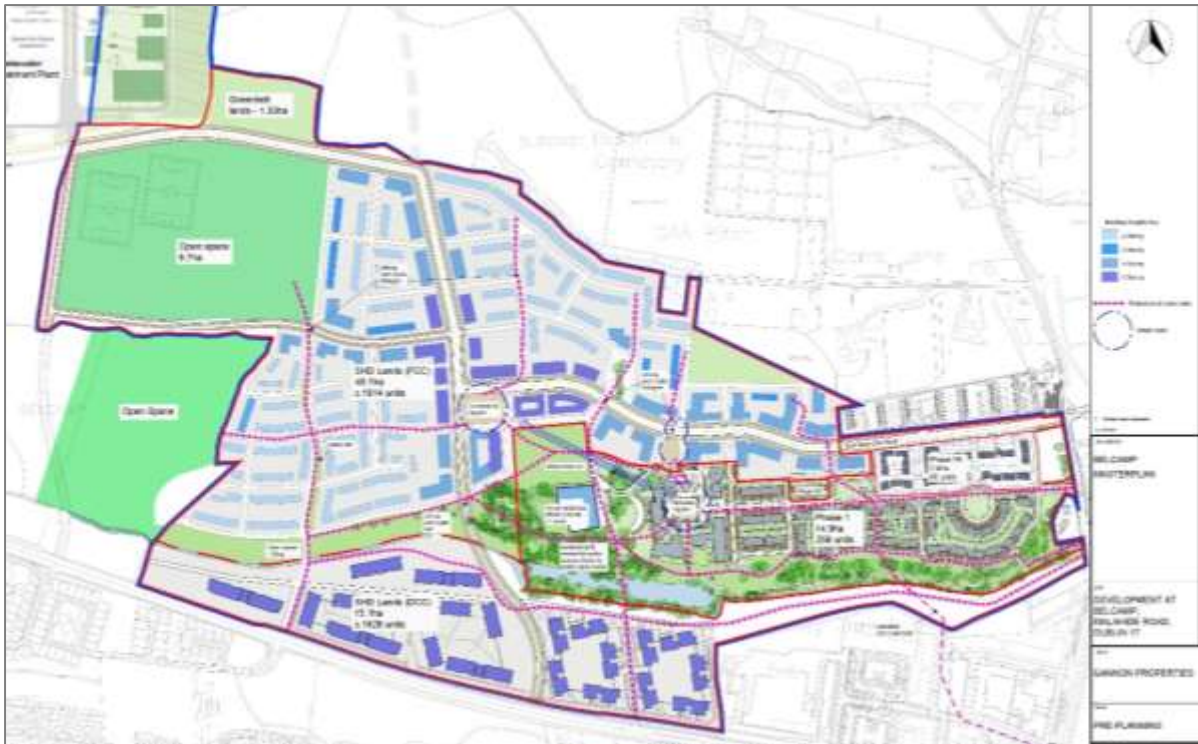


Figure 2-4 - Early Stage Layout - March 2020

Alternative Layout

An alternative scheme was proposed in 2021 following early-stage consultations with the local authorities, with some fundamental changes to the initial layout. These changes were based on the desire to retain more of the site's natural heritage and enhance the pedestrian and cycle permeability of the scheme with green routes along biodiversity corridors, including a perimeter route designed to protect the existing hedgerows along the north and west boundaries. Housing streets patterns were overhauled to provide orthogonal grids with outward facing frontages towards the site boundaries, and private gardens contained within the urban blocks. The alignment of the principal roads removed the northern leg of the north-south road, which now met the EWLR at a T-junction to the west of the town square. EWLR alignment ran directly west to exit the site at the middle portion of the west boundary. To the south of the site the DCC apartment blocks rose in height and were moved away from the Mayne River.

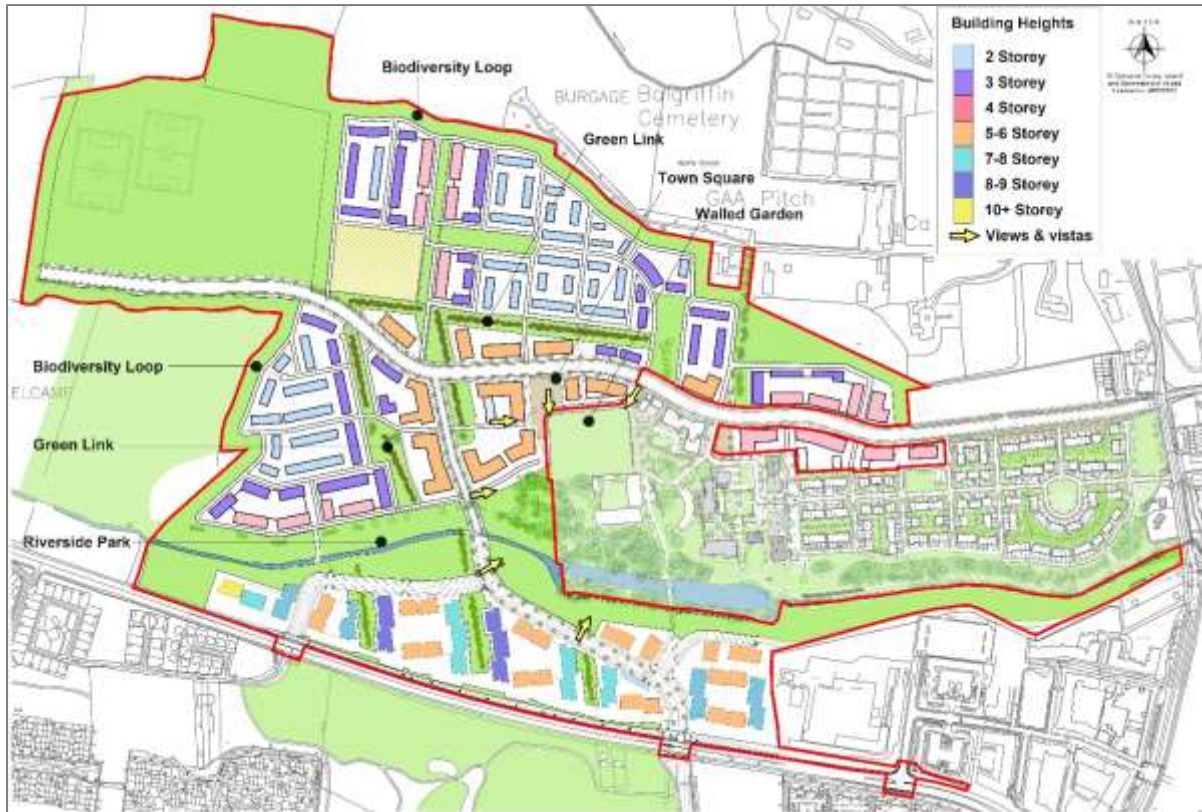


Figure 2-5 - Alternative Layout

2.8.6 Stage 2 Layout

The scheme design is developed further with the EWLR alignment adjusted to match the townland boundary and the school site relocated to south of the EWLR. The position of the north-south road is revised to the east of the hedgerow to improve efficiency in the street grid layouts. Block types are regularised and street edges defined. Landscaping proposals give a richer quality to the outdoor spaces. Views and vistas to and from the historic buildings are maintained. Material finishes to the roads and paths reinforce street hierarchy, with shared surface areas to streets on pedestrian desire lines to encourage pedestrian priority.



Figure 2-6 - Stage 2 Layout

2.8.7 Application Layout

The current proposal reflects the development strategy and design issues required to be considered and addressed by the Applicant as per the Opinion of An Bord Pleanála, issued on foot of the Section 5 Pre-Consultation (Tripartite Meeting). These issues were as follow:

1. Principle of Development

Further consideration and/or justification of the documents as they relate to Objective Balgriffin/Belcamp 6 of Fingal County Development Plan 2017-2023. The submitted documentation should address the higher-level planning policy, including inter alia, the need for a Local Area Plan for the site. The consideration/ justification of documentation should cross reference the appropriate development and phasing strategy necessary to comply with national guidance for sustainable residential development and self-sufficient communities. In addition, any references to delivery of the development at this location and the circumstances of the surrounding area, including those relating to the availability or otherwise of infrastructure, employment, retail, commercial or social services, should be based on verifiable facts.

Objective Belcamp 6 of Fingal Development Plan requires the preparation of an LAP for these lands. The portion of the site in Dublin City is already the subject of an LAP. The lands in both jurisdictions have been zoned for several development plans. The SHD process offers a unique opportunity to coordinate strategic issues that pertain to both areas.

It is noted that Belcamp is within 8km of the city centre and is located close to the intersection of principle orbital and radial Bus Connects routes, (D1, D2, D3, N8) including connections to Clongriffin Dart station. High quality cycle connections facilitate a 10 minute cycle time to Clongriffin. In short, this site and neighbourhood is provided with high quality high frequency public transport and excellent local green links. This reduces car dependency for both local and commuting trips. Local self-sufficiency is evident within walking and cycle distance in the Belmayne / Clarehall town centre where further commercial expansion is planned. A large Tesco, hotel, fitness centre, local shops and cafes are already trading. Local centres are also provided in the new Belcamp development. New schools have been built in the neighbourhood, and a school site is reserved in the proposal.

2. Design Strategy

Further consideration and/or justification of the documents as they relate to the design approach of the proposed development and the need for a high quality, strong urban edge which integrates effectively along the R139. The further consideration/ justification should address the proposed design and layout, inter alia the unit mix proposed across the entire site, the design of the ground floor apartments units, passive surveillance and functionality of open space (in particular along the River Mayne), compliance with DMURS guidance and interaction with lands currently permitted within the applicant's ownership. Particular regard should be had 12 criteria set out in the Urban Design Manual which accompanies the Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas (May 2009) and the requirement for good design and the inclusion of a sense of place.

The Design Strategy is explained at macro level in the Design Strategy report, and then in greater detail in the Architecture and Urban Design reports for each Local Authority Area, by CCK Architects documentation in the case of Fingal County Council, and Wilson Architects in the case of Dublin City. The current permitted and proposed development on FCC lands outside of the SHD application are explained. A 'whole site' design strategy integrating the SHD with the balance of the site is demonstrated. The wider site is currently under construction working in an easterly direction from Malahide Road. In tandem, and as a requirement, restoration works to Belcamp Hall are underway. New development will soon meet Belcamp Hall and provide necessary passive security.

The unit mix is broadly 70% apartments and 30% own door duplex and houses. While recent developments have a good mix of dwelling types, adjacent areas of Darndale and Clarehall are very predominantly mono typical family houses. The proposed apartments are mainly along the R139 and face south and form a strong edge to the Darndale Park. The unit mix of these blocks now proposes more 3-bed units.

The green spaces of the proposal and the heritage quality of Belcamp Hall are design drivers for the wider whole of site design strategy. Pedestrian and cycle desire lines are steered gently onto natural greenways often running east west towards the transport hub and community facilities.

The site has extensive and varied green spaces including heritage setting, walled garden, woodland, river valley, greenways along hedgerows and extensive active recreation areas to the west. The road strategy complies with DMURS principles and the East West Link Road (EWLR) is integrated as part of the place with boulevard tree planting and increased enclosure. Compliance with the 12 criteria set out in the Urban Design Manual is explained in the Architect's and Urban Design reports.

3. Traffic and Transport

Further consideration and/or justification of the documents as they relate to the traffic and transport provision. The submitted documentation should address the requirements of the South Fingal Transport Study and the delivery of the East West Link Road. Regard should be given, in the Traffic and Transport Assessment, inter alia, the capacity of the surrounding junctions and the impact of the proposed development on the surrounding road network and the delivery of sustainable transportation options.

Traffic and Transport issues are dealt with the documentation submitted by Waterman Moylan Civil Engineers. The EWLR and connection to R139 are proposed in the first phase providing a bus gate corridor and to assist in traffic dispersion. Easterly green mode connections towards transport and facilities are already underway and will be extended in early phases of this proposal.

Waterman Moylan met with representatives from the NTA, FCC and DCC in March 2022 to discuss the transport requirements of the proposed Belcamp SHD development. The current N8 BusConnects route departs from Clongriffin train station, continuing along Main Street before turning south onto the Hole in the Wall Road and then continuing west along the R139. At the meeting, the NTA advised that they envisaged the N8 BusConnects Route being altered to run through the subject development along the East–West Link Road (EWLR) into Belcamp town square and then, preferably, directly south onto the R139. The proposed road layout was amended following this meeting, to ensure that the requirements of the NTA are met. The amended proposal provides a bus gate linking directly southwards from the EWLR onto the R139. The bus gate was introduced to give bus priority over cars and to provide a direct south link from the EWLR onto the R139, as discussed with the NTA in March 2022.

The revised N8 route will benefit from a newly proposed bus gate providing a bus-only route onto the R139, with signal control on demand. During the meeting with the NTA, FCC and DCC, the NTA noted that they would welcome the use of bus gates to prioritise public transport ahead of cars and to ensure that buses do not get stuck in traffic. Belcamp Parkway and the R139 Link Road have both also been designed to be bus capable and can accommodate bus routes with 3.25m wide lanes, locations for bus stops and signalised junctions that can provide bus priority. This provides a robust, flexible design with options for future bus routes. The removal of the bus gate and the use of the R139 link Road as N8 bus route can be accommodated without compromise to the proposed submission, if that is the NTA's preference for the N8 BusConnects route.

In addition, the previously proposed road alignment of the proposed East West Link Road (EWLR) provided a straighter alignment at consultation stage. However, alternative design options have since been explored by the design team in consultation with key stakeholders, including the IDA, who are landowners of the strategic employment lands adjoining the western boundary of the application lands. Following this consultation, it was considered that the previous alignment did not represent the optimal design solution for the Belcamp lands and the surrounding context, including the adjoining IDA High Technology employed zoned lands to the west of the site. At a strategic and spatial level, the discussions took place with representatives of the IDA and it is the position of the IDA that the IDA have taken the Development Plan alignment as the default position of the road for their future

proposals for their landholding. In order to facilitate the potential of a large single user on the site and maintain their landbank as a strategic whole, the IDA is not in a position to agree on the east-west alignment that divides their lands and thus there is a requirement for the EWLR to align as per the now preferred road design, i.e. to the north west of the Belcamp lands. In light of this, the applicant has brought forward this preferred route, which is submitted as part of this planning application and is the preferred route for the application.

At a site level, the previous consultation stage road layout segregated the proposed school reserved site from the playing pitches and meant that students would have to cross this EWLR to access the playing pitches, which represented a safety risk. The 'S' bend now proposed in the road will act as a speed reducing measure for vehicles travelling from the west as it approaches the Belcamp school site and Town Square at the heart of the scheme. It is important to note that the realignment of the road means that the open space and playing fields are now connected to the future reserved school site and ensures that the school can use these facilities without the need to directly cross the EWLR.

Further Specific information referenced in An Bord Pleanála Opinion:

1. Additional Computer-Generated Images (CGIs) and visualisation/ cross section drawings showing the proposed development in the context of the existing residential and commercial properties surrounding the site and the proposed development at key landmark views.

Please refer to VIAs and CGIs contained in a report prepared by Digital Dimensions. Further 3D visualisations are included in the various architects' reports.

2. A report that specifically addresses the proposed materials and finishes to the scheme including specific detailing of finishes, the treatment of balconies in the apartment buildings, landscaped areas, pathways, entrances, boundary treatment/s and neighbourhood / commercial centre. Particular regard should be had to the requirement to provide high quality and sustainable finishes and details which seek to create a distinctive character for the development. The documents should also have regard to the long-term management and maintenance of the proposed development and a life cycle report for the apartments in accordance with section 6.3 of the Sustainable Urban Housing: Design Standards for New Apartments (2020).

Details of finishes for buildings and the treatment of balconies etc are presented in the Materiality Reports and Architectural Statements prepared by CCK Architects for FCC area, and Wilson Architecture for the DCC area. Separate building lifecycle reports are also provided. Similar detail with regard to landscape and public realm detailing is provided by TBS and RMDA Landscape Architects for FCC and DCC areas respectively.

Character areas are generally defined by their place in the scheme, and by the underlying site assets and topography informing local layout. Materiality is also employed to subtly underline these differences.

3. An updated Conservation Impact Assessment which includes justification for the design and layout, having regard to the location adjacent to Belcamp House, and include a phasing and delivery schedule detailed the restoration works for Belcamp House.

Please refer to the reports and documentation of Sheehan and Barry Conservation Architects. The conservation strategy for Belcamp is a key driver of the design approach for the development. The area immediately around Belcamp Hall has been subject to separate planning applications conducted in tandem with the SHD process. These applications and this SHD application support Fingal County Council objectives for the restoration and preservation of Belcamp Hall and its environs.

4. A Retail Impact Assessment, clearly demonstrating that the quantum of retail and commercial service proposed is sufficient to serve the proposed population within the site.

A Retail Impact Assessment has been carried out and has informed the quantum and nature of the retail and service offer on the proposed development.

5. A Taking in charge map.

Please refer to enclosed Taking in Charge drawings.

6. A report that addresses the contents of the submission from Irish Water (dated 8th of November 2021) concerning the need to ensure no impact on the proposed future wastewater treatment plant adjacent to the proposed development. In addition, the report shall address the concerns raised in relation to the need for a detailed Local Network Plan (Master Plan) of the Development Area, including water distribution and wastewater collection networks servicing the planned building blocks.

This item is addressed in the documentation submitted by Waterman Moylan Civil Engineers.

7. A detailed landscaping plan clearly illustrating the quantum and functionality of all areas designated for communal and public open space. The landscaping details shall include, inter alia, designated communal open space, the inclusion of useable space for play provision necessary to comply with Section 4.13 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities and the design, a detailed trees survey and proposed tree planting scheme and shall clearly indicate the quantum and designated areas of useable public open space.

8. A quantitative and qualitative assessment which provides a breakdown of the public and communal open space areas. This assessment should include a detailed landscape plan including the provision of communal amenity spaces and play facilities in line with the Sustainable Urban Housing: Design Standards for New Apartments (2020) and the requirements of Fingal County Council Parks Department.

With reference to 7 and 8, please refer to the detailed reports and drawings of the Landscape Architects to confirm quantitative and qualitative assessment of open space, both communal and public. This is also discussed under Development Plan Standards in the Architects' reports. The overall Landscape Strategy is discussed within the Design Strategy document which explains the wider context and Belcamp site in its entirety.

9. An updated Sunlight/Daylight/Overshadowing analysis showing an acceptable level of residential amenity for future occupiers and existing residents, which includes details on the standards achieved within the proposed residential units, in private and shared open space, and in public areas within the development and in adjacent properties. This report should address the full extent of requirements of BRE209/BS2011, as applicable

Refer to enclosed separate reports for DCC and FCC areas.

10. In accordance with section 5(5)(b) of the Act of 2016, as amended, any application made on foot of this opinion should be accompanied by a statement that in the prospective applicant's opinion the proposal is consistent with the relevant objectives of the development plan for the area. Such statement should have regard to the development plan or local area plan in place or, likely to be in place, at the date of the decision of the Board in respect of any application for permission under Section 4 of the Act.

Please refer to Downey Planning reports and statement of consistency.

2.9 Consideration of Cumulative Effects with Other Projects

The assessment in each EIAR Chapter (Nos. 4 to 14) has considered the cumulative impacts of construction and operational phases of the proposed development, in conjunction with surrounding developments completed, under construction, and those to be commenced.

As it stands, the proposed development forms the final phase of the zoned Belcamp lands, located in a context with ongoing developments in the adjoining areas. There have been several planning applications on the Belcamp north lands as follows:

Reg. Ref.	Location	Description	Decision
Reg. Ref. F05A/1388	Belcamp College, Malahide Road, Balgriffin, Dublin 13.	Planning permission was granted for alterations to and change of use of Belcamp Hall complex to residential use.	Permission
F15A/0093	The former Campions Public House, Malahide Road, Balgriffin, Co. Dublin.	Mixed use residential and retail development comprising 52 no. residential units consisting of 43 no. 2.5 storey dwellings (28 no. 3 bed terraced units; 5 no. 4 bed end of terrace units and 10 no. 3 bed detached units); A 4 storey mixed use block containing 9 no. 2 bedroom apartments and 1 no. retail unit (357 sq.m. GFA); 122 no surface level car parking spaces and 11 no. bicycle parking spaces, bin storage, 1 no. ESB substation and all associated site development, engineering, roads and footpaths, landscaping and boundary treatment works including revised vehicular entrance to the Malahide Road. The proposed development will also consist of the demolition of the existing former 'Campions Public House' and all ancillary store and sheds in order to facilitate this proposed development at the Former Campions Public House, its car park and lands to its rear.	Refuse
Reg. Ref. F15/0609 (ABP Ref. PL06F. 248052)	Belcamp, Malahide Road, Dublin 17.	Planning permission was granted by An Bord Pleanála and Fingal County Council for a residential development at Belcamp. Permission was granted for 175 residential dwellings and apartment units.	Permission

F18A/0167	Campions Public House, its carpark and lands to its rear, Malahide Road, Balgriffin, Co. Dublin.	Modifications to previously granted planning application Reg. Ref. F15A/0093 (An Bord Pleanala Ref. No. PL06F.245710) includes the omission of 6 no. 4 bed detached houses (Type B), to be replaced with 6 no. 3 bed terraced houses (Type A). In addition, permission is sought for the construction of 12 No. 3 bed terraced houses (Type A). Permission for change of use from residential to licenced betting shop including a new rear and side extension totalling 44 sq.m. with external lighting, signage, shopfront alterations, satellite dishes to rear along with all associated plant to rear. Change of use from licensed bar at first floor level over existing ground floor public house, to 1 No. 5 bed apartment, with new entrance door and access stairs from the rear of the public house, together with associated balcony to rear and internal modifications. All with associated site layout modifications, car parking and site works.	Permission
F18A/0554	Adjacent to Campions Public House, Malahide Road, Balgriffin, County Dublin	Demolition of existing single storey commercial building and construction of new two storey building, consisting of commercial unit at ground floor and proposed 4 no. bed residential unit at first floor. All with associates site works.	Permission
Reg.Ref. F18A/0058	Belcamp, Malahide Road, Dublin 17.	Planning permission was granted by Fingal County Council for amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052, at Belcamp, a protected structure (RPS No. 463), to replace 9 no. three storey three-bedroom houses with 8 no. two storey three-bedroom houses, on a 0.19ha portion of the lands, with access from Malahide Road.	Permission
Reg. Ref. F19A/0220	Belcamp, Malahide Road, Dublin 17.	Planning permission was granted by Fingal County Council for amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052 at Amendments to permitted developments Reg. Ref. F15A/0609, PL06F.248052 and F18A/0058 (a protected structure, RPS No. 463) to replace 83 no. two storey houses comprising 1 no. 2-bedroom house, 44 no. 3-bedroom houses and 38 no. 4-bedroom houses, with 89 no. two storey houses comprising 58 no. 3-bedroom houses and 31 no. 4-bedroom houses, on a 2.27ha portion of the lands, with access from Malahide Road. The development includes 178 no. on-curtilage car parking spaces and all associated and ancillary site works.	Permission
Reg. Ref. F19A/0221	Belcamp, Malahide Road, Dublin 17.	Planning permission was granted by Fingal County Council for amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052 at Belcamp, a Protected Structure (RPS No. 463), comprising revisions to layout and house types of 49 no. two storey houses comprising	Permission

		37 no. 3-bedroom houses and 12 no. 4-bedroom houses on a 1.21ha portion of the lands, with access from the Malahide Road. The development includes 98 no. on-curtilage car parking spaces and all associated and ancillary site works.	
F20A/0379	Belcamp Hall, Malahide Road, Dublin 17.	<p>Development of 85 dwellings on lands bounded to the south by permitted development Reg. Ref. F15A/0609 PL06F.248052, F19A/0220 & F19A/0221, under construction, to the west by undeveloped lands and 182m west by Belcamp Hall (protected structure RPS No. 463), to the north by undeveloped lands, by the Balgriffin Inn Public House (formerly 'Champions') and by 'Belcamp Manor' under construction, and to the east by Malahide Road.</p> <p>The proposed development comprises 51 no. 3-bedroom and 13 no. 4-bedroom two storey houses and 2 no. three storey multi-dwelling blocks: Block 1 comprising 6 no. 1-bedroom and 6 no. 2-bedroom apartments, and 1 no. 2-bedroom own-door duplex unit; and Block 2 comprising 4 no. 1-bedroom apartments and 4 no. 3-bedroom own-door duplex units. No works are proposed to Belcamp Hall, a protected structure RPS No. 463, or any other protected structures associated with it. The proposed development includes c.339m of new road infrastructure: the East West Link Road (EWLR) and the upgrading of the R107 Malahide Road junction with R123 to include the EWLR. Junction upgrade works include the closing of the existing Belcamp Manor access off the Malahide Road and the provision of a new access off the EWLR. The development includes 24 no. on-street and 128 no. on-curtilage car parking spaces, all associated on-site infrastructure and ancillary site works. Access is from Malahide Road via a new internal road permitted under F15A/0609 and the East West Link Road (EWLR) from Malahide Road.</p>	Refuse
Reg. Ref F21A/0401	Lands at Belcamp Hall, Malahide Road, Dublin 17	<p>Planning permission was granted by Fingal County Council for a development on lands at Belcamp, Malahide Road, Dublin 17, comprising of the construction of 78 no. residential units comprising 58 no. houses (41 no. two storey 3-beds, 12 no. two storey 4-beds and 5 no. three storey 4-beds, all with associated car parking, and one no. three storey multi-dwelling block consisting of 10 no. own-door duplex units (6 no. 2-beds and 4 no. 3-beds), 2 no. 2-beds own-door triplex units, and 8 no. apartments (6 no. 1-beds and 2 no. 2-beds), all provided with private balconies/terraces and associated car parking and bicycle parking; landscaping; boundary treatments; public lighting; and all associated site infrastructure and</p>	Permission

		engineering works necessary to facilitate the development. An appeal was subsequently lodged on 26th November 2021 and is now under consideration by An Bord Pleanála.	
F21A/0390	The former Campions Public House, Malahide Road, Balgriffin, Co. Dublin.	Modifications to a previously granted planning application Reg. Ref. F18A/0167. The proposed modifications pertain to the first floor of the existing public house and include the subdivision and re-configuration of the existing 2 no. five-bedroom units to provide for 3 no. three-bedroom units. External modifications at first floor level to the north elevation of the existing windows on the northern elevation to facilitate the internal modifications. All associated site works.	Permission
Reg. Ref F21A/0488	Belcamp Hall, Malahide Road, Dublin 17.	Planning permission was granted by Fingal County Council for a development on lands at Belcamp, Malahide Road, Dublin 17, consisting of the construction of 77 no. residential units across 2 no. apartment blocks as follows; Block 1, a part 3 and part 4 storey apartment block comprising 51 no. units (16 no. 1 bedrooms; 33 no. 2 bedrooms and 2 no. 3 bedroom units) with balconies/terraces to all units. Block 2, a part 3 and part 4 storey apartment block comprising 26 no. units (4 no. 1 bedrooms and 22 no. 2 bedroom units) with balconies/terraces to all units. The development also to include 65 no. surface level parking spaces, 184 no. bicycle parking spaces, bin stores, landscaping and boundary treatments. An appeal has subsequently been lodged on 23rd February 2022 and is now under consideration by An Bord Pleanála. It is important to note that Blocks 1 & 2 also form part of the site that was previously omitted by way of Condition No. 2 that was attached to the parent planning permission granted under Reg. Ref. F15A/0609; ABP Ref. PL06F.248052.	Permission

Table 4 Schedule of Planning Permissions

There is also an active planning application planning Reg. Ref. F22A/0139 for a total of 40 units, a childcare facility, conservation works to the Walled Garden and café; which formed part of the site that was previously omitted by way of Condition No. 2 that was attached to the parent planning permission granted under Reg. Ref. F15A/0609; ABP Ref. PL06F.248052.

Additional planning applications in the wider vicinity of the lands include the earlier phases of the lands (as detailed above), most of which are now under construction. Other planning applications in the wider area include the following:

- **Campions site, Balgriffin.** The adjoining site at Campions has planning permission for a total of 54 no. residential units. This was granted by Fingal County Council under Reg. Ref.

F18A/0167, which amends the parent permission (43 no. units granted under Reg. Ref. F15A/0093; ABP Ref. PL06F.245710). This amendment application represents a 25% increase in the number of units and density being granted in the area as a result of an amendment application that utilises a more efficient site layout and house type design.

- **Parkside (Shannon Homes).** The residential development on the eastern side of the Malahide Road, known as 'Parkside' provides for approximately 185 no. residential units on a site extending to c.3.1 hectares, which provides a density of 59 units per hectare.
- **Belmayne Main Street & Belmayne Avenue, Dublin 13.** A critical piece of road infrastructure which was approved by Dublin City Council under the Part 8 planning process (Reg. Ref. 4214/18). The provision of this road (along with cycle lanes, a number of junction upgrades and a bus gate at the Malahide Road) will open up Belmayne for Town Centre and residential development. The approved scheme has been designed to incorporate the BusConnects – Core Bus Corridor No. 1 from the City Centre to Clongriffin Railway Station.
- **Malahide Road, Churchwell Avenue and Belmayne Road, Ayrfield, Dublin 13.** This development comprises 150 apartment units approved under Part VIII procedures, on lands at Belmayne under Reg. Ref. 3238/17. This development is currently under construction.
- **Schools provision.** Permission has been granted for 2 no. schools – a temporary post primary and primary school at Belmayne Avenue, under Reg. Ref. 3009/19. Also, 1 no. additional permanent 1,000 pupil post-primary school has been granted by Dublin City Council at Belmayne Avenue (Reg. Ref. 2600/20). Thus, a total of 3 no. schools have been granted planning permission recently.
- **Northern Cross SHD.** An Bord Pleanála granted a Strategic Housing Development under ABP-307887-20 for 191 no. apartments and associated site works, on lands at Site 2, Mayne River Avenue, Northern Cross, Malahide Road, Dublin 17.
- **Grid Stabilisation Facility.** A 10 year planning permission is sought for the development of a Synchronous Compensator Development (Grid Stabilisation Facility) on the site of c. 1.65 ha at lands south of Belcamp 220kV Substation, Belcamp, Dublin 17. A request for additional information was requested by Fingal County Council on the 17th February 2022.

The aforementioned applications and developments have all been taken into consideration as part of this EIAR. As per this EIAR, it is submitted that such applications are expected to have no material consideration to the proposed development.

2.10 Risk of Major Accidents and/or Disasters

The surrounding environment of the proposed project consists of a mix of residential, commercial, and recreational facilities. The Fingal Development Plan 2017-2023 and the Dublin City Development Plan 2016-2022 identify Seveso sites within the administrative areas and specific distances for each ranging from 300-1000m, all of which are identified in Table 12.13 of the Fingal Development Plan and Appendix 12 of the City Development Plan, and on the relevant zoning maps for the city and county. There are no SEVESO II Directive site (96/82/EC & 2003/105/EC) within 1km of the proposed project located within Belcamp. Therefore, there is no risk of a major accident or disaster in relation to a major chemical accident. In terms of the risk of a major accident and disaster, the vulnerability of the scheme is considered to be low given the location of the proposed scheme and the existing built environment surrounding the site. Therefore, the potential risk posed by a major accident and or disaster has been considered based on a low vulnerability of same. The overall risk is considered to be low.

3.0 PLANNING & DEVELOPMENT CONTEXT

3.1 Introduction

The site is located within the administrative area of Fingal County Council and Dublin City Council, for which the statutory Development Plans are the Fingal Development Plan 2017-2023 and the Dublin City Development Plan 2016-2022. The lands are subject to national, regional, and local objectives and planning policies. The foregoing represents the relevant plans, guidelines, frameworks, and legislation for the Assessment in line with recital 32 and Article 4(4) of the EIA Directive and Article 299(1)(b)(ii)(II)(C) of the Planning and Development Regulations 2001 (as amended).

National Planning Policy

- Project Ireland 2040: National Planning Framework
- Project Ireland 2040: National Development Plan 2021-2030
- Rebuilding Ireland, An Action Plan for Housing and Homelessness (2016)
- Housing for All: A New Housing Plan for Ireland
- Affordable Housing Act 2021 & Housing Circular 28/2021
- The Housing Agency Statement of Strategy 2022-2024
- Residential Densities in Towns and Villages (Circular Letter: NRUP 02/2021)
- Sustainable Residential Development in Urban Areas and Best Practice Urban Design Manual Guidelines (2009)
- Delivering Homes, Sustaining Communities: Statement on Housing Policy (2007)
- Quality Homes for Sustainable Communities (2007)
- Sustainable Urban Housing: Design Standards for New Apartments (Dec 2020)
- Urban Development and Building Heights Guidelines for Planning Authorities (Dec 2018)
- Childcare Facilities: Guidelines for Planning Authorities (2001)
- Childcare Facilities operating under the ECCE Scheme (Circular Letter: PL 3/2016)
- Space for Play; A Play Policy for Fingal
- Smarter Travel: A Sustainable Transport Future
- Design Manual for Urban Roads and Streets (DMURS)
- National Cycle Manual (June 2011)
- Retail Planning Guidelines (2012) and Retail Design Manual (2012)
- The Planning System and Flood Risk Guidelines (2009)
- All-Ireland Pollinator Plan 2021-2025
- National Adaptation Framework: Planning for a Climate Resilient Ireland
- Climate Action Plan 2021

Regional Planning Policy

- Regional Spatial and Economic Strategy for the Eastern and Midland Region 2019-2031; and,
- Transport Strategy for the Greater Dublin Area 2016-2035.

Local Planning Policy

- Fingal Development Plan 2017-2023
- Dublin City Development Plan 2016-2022
- Clongriffin-Belmayne Local Area Plan 2012-2018 (as extended)

This chapter outlines the planning and development context for the proposed development with reference to the aforementioned principal planning policy documents. This chapter also sets out the development context and the planning history within which the proposed development should be considered and provides the policies, principles, and objectives within which the proposed development should be assessed. It is important to note that a full Statement of Consistency with Planning Policy has been prepared by Downey Planning and is submitted under separate cover as part of the planning application. That report sets out a detailed analysis of the project's consistency with the relevant planning objectives as they pertain to the area and project.

3.2 National Planning Context

3.2.1 Project Ireland 2040: National Planning Framework

The National Planning Framework is “the Governments high-level strategic plan for shaping the future growth and development of our country out to the year 2040”. It is a Framework to guide public and private investment, to create and promote opportunities for our people, and to protect and enhance our environment- from our villages to our cities and everything in between. It is stated within the National Planning Framework that “a major new policy emphasis on renewing and developing existing settlements will be required, rather than continual expansion and sprawl of cities and towns out into the countryside, at the expense of town centres and smaller villages”. It is also stated that there will be an ongoing shift in population and jobs to the east and to the counties around Dublin in particular. The NPF will support the future growth and success of Dublin as Ireland's leading global city of scale, by better managing Dublin's growth to ensure that more of it can be accommodated within and close to the city.

According to the National Planning Framework, Dublin needs to accommodate a greater proportion of the growth it generates within its metropolitan boundaries and to offer improved housing choice, transport mobility and quality of life. Dublin's continued performance is critical to Ireland's competitiveness.

The NPF states that “the long-term vision for Ireland's housing future aims to balance the provision of good quality housing that meets the needs of a diverse population, in a way that makes our cities, towns, villages and rural areas good places to live now and in the future.”

It is outlined within the Plan that future homes are required to be located where people have the best opportunities to access a high standard quality of life. In Ireland, the location of housing has taken on a dispersed and fragmented character which has led to people living further away from their jobs and

often being at a sizeable remove from important services such as education and healthcare. It is stated that it is important to, *“prioritise the location of new housing provision in existing settlements as a means to maximising a better quality of life for people through accessing services, ensuring a more efficient use of land and allowing for greater integration with existing infrastructure”*.

In terms of Dublin City and the Metropolitan Area, the National Planning Framework 2040 states that:

“Dublin needs to accommodate a greater proportion of the growth it generates within its metropolitan boundaries and to offer improved housing choice, transport mobility and quality of life. Dublin also needs to become a greener, more environmentally sustainable city in line with international competitors. At a metropolitan scale, this will require focus on a number of large regeneration and redevelopment projects, particularly with regard to underutilised land within the canals and the M50 ring and a more compact urban form, facilitated through well designed higher density development.”

The reader is invited to refer to the Statement of Consistency prepared by Downey, which has been submitted as part of this application for full details on the proposed developments compliance with the National Policy Objectives and National Core Principles contained within the National Planning Framework

3.2.2 Project Ireland 2040: National Development Plan 2021-2030

The renewed National Development Plan sets out the investment priorities that will underpin the successful implementation of the National Planning Framework (NPF). This will guide national, regional and local planning and investment decisions in Ireland over the next two decades to cater for an expected population increase of over 1 million people.

Resolving the systemic factors underlying the current housing crisis is at the heart of the NPF and reflecting this, housing and sustainable urban development is a priority for the National Development Plan. In this regard, the NDP states that there is a *“need to provide in excess of half-million more homes over the period to 2040 corresponds to a long-term trend of 25,000 new homes every year. A higher level of output is needed in the short to medium-term to respond to the existing deficit that has given rise to the housing crisis.”*

Furthermore, the NDP states that *“the continuation of existing patterns of development accentuates the serious risk of economic, social and environmental unsustainability through, for example, placing more distance between where people work and where people live, and increasing energy demand. The NPF highlights the urgent requirement for a major uplift of the delivery of housing within the existing built-up areas of cities and other urban areas. It has a particular focus on brownfield development, targeting derelict and vacant sites that may have been developed before but have fallen into disuse.”*

There are a number of strategic outcomes identified within the NDP which support the proposed development. Such outcomes include:

National Strategic Outcome 1: Compact Growth – *“This outcome aims to secure the sustainable growth of more compact urban and rural settlements supported by jobs, houses, services and amenities, rather than continued sprawl and unplanned,*

uneconomic growth. This requires streamlined and co-ordinated investment in urban, rural and regional infrastructure by public authorities to realise the potential of infill development areas within our cities, towns and villages. This will give scope for greater densities that are centrally located and in many cases publicly owned, as well as bringing life and economic activity back into our communities and existing settlements. Creating critical mass and scale in urban areas with enabling infrastructure, in particular increased investment in public and sustainable transport and supporting amenities, can act as crucial growth drivers. This can play a crucial role in creating more attractive places for people to live and work in, facilitating economic growth and employment creation by increasing Ireland's attractiveness to foreign investment and strengthening opportunities for indigenous enterprise."

National Strategic Outcome 4: Sustainable Mobility – *"The expansion of attractive and sustainable public transport alternatives to private based car transport will reduce congestion and emissions and enable the transport sector to cater in an environmentally sustainable way for the demands associated with longer term population and employment growth envisaged under the NPF. Furthermore, the provision of safe alternative active travel options such as segregated cycling and walking facilities can also help alleviate congestion and meet climate action objectives by providing viable alternatives and connectivity with existing public transport infrastructure."*

The proposal will ensure walking and cycling are viable options for the community, with the area also well served by existing public transport infrastructure, all of which will ensure that the future population utilise sustainable public transport and active travel options rather than private/car transport. It is therefore considered that the provision of 2,527 no. residential units (1,780 no. apartments, 473 no. houses, and 274 no. duplex units) with ancillary amenity facilities and 2 no. childcare facilities on the subject site will assist in achieving the objectives of the National Development Plan 2018-2027.

3.2.3 Rebuilding Ireland, An Action Plan for Housing and Homelessness (2016)

'Rebuilding Ireland, an Action Plan for Housing and Homelessness', provides a multi-stranded, action-oriented approach to achieving many of the Government's key housing objectives. The overarching aim of the Plan is to ramp up delivery of housing from its current undersupply across all tenures to help individuals and families meet their housing needs, and to help those who are currently housed to remain in their homes or be provided with appropriate options of alternative accommodation especially those families in emergency accommodation.

The Action Plan comprises of 5 key pillars which are: addressing homelessness, accelerating social housing, building more homes, improving the rental sector and utilising existing housing. The Action Plan sets ambitious targets to double the annual level of residential construction to 25,000 homes and deliver 47,000 units of social housing in the period to 2021, while at the same time making the best use of the existing housing stock and laying the foundations for a more vibrant and responsive private rental sector.

Achieving the aim of accelerated delivery will contribute to the following core objectives:

- Addressing the unacceptable level of households, particularly families, in emergency accommodation;
- *Moderating rental and purchase price inflation, particularly in urban areas;*
- *Addressing a growing affordability gap for many households wishing to purchase their own homes;*
- *Maturing the rental sector so that tenants see it as one that offers security, quality and choice of tenure in the right locations and providers see it as one they can invest in with certainty;*
- *Ensuring housing's contribution to the national economy is steady and supportive of sustainable economic growth; and,*
- *Delivering housing in a way that meets current needs while contributing to wider objectives such as the need to support sustainable urban and rural development and communities and maximise the contribution of the built environment to addressing climate change.*

The provision of 2,527 no. residential units (1,780 no. apartments, 473 no. houses and 274 no. duplex units) with 2 no. childcare facility on the application site will help the Government to achieve the objectives of the Housing Action Plan. Thus, it is submitted that the proposed development is consistent with the policy in this regard.

Furthermore, one of the five pillars which form the Action Plan refers to rental accommodation, it has a key objective of “*addressing the obstacles to greater private rented sector delivery, to improve the supply units at affordable rents,*” and emphasizes the importance of rental housing for enabling the housing market to adapt to the changing needs of the population. In order to ‘*improve the rental sector*’ which is the vision for this pillar, there are several key actions proposed as part of the Action Plan, these are as follows:

- *Develop a strategy for a viable and sustainable rental sector*
- *Introduce legislation on balanced arrangements for tenancy terminations*
- *Review the standards for rental accommodation*
- *Enhance the role of the Residential Tenancies Board*
- *Introduce an Affordable Rental Scheme*
- ***Encourage “build to rent”***
- *Support greater provision of student accommodation.*

Therefore, the ‘Build to Rent’ element of this scheme (contained within Blocks 1 and 4 of the southern portion of the site) is thoroughly encouraged. The document acknowledges that the country’s housing stock was not built with the needs of long-term renters in mind (at the time when the Action Plan was prepared), thus the proposed development would assist in the delivery of this scheme for the rental market and support the housing stock with the provision of new residential units in this strategic location. It is important to note that the ‘Build to Rent’ model that pertains to part of this development is supported by the ‘*Sustainable Urban Housing: Design Standards for New Apartments*’ guidelines and other statutory policy.

3.2.4 Housing for All: A New Housing Plan for Ireland

The Housing for All: A New Housing Plan for Ireland states that Ireland's housing system is not meeting the needs of enough of our people, and therefore, it needs to increase new housing supply to an average of at least 33,000 new units per year over the next decade. This will include over 10,000 social homes each year over the next five years, with 9,500 of these being new-builds, and an average of 6,000 affordable homes for purchase or rent. The plan also includes measures to support availability of the land, workforce, funding, and capacity to enable both the public and private sectors to meet the targets. The plan is based on four pathways, leading to a more sustainable housing system:

- Support home ownership and increase affordability;
- Eradicate homelessness, increase social housing delivery, and support social inclusion;
- Increase new housing supply and;
- Address vacancy and make efficient use of existing stock.

Outlined in the Plan, the State must act decisively to increase supply of both private and public housing. An average of 33,000 new units, on average, per annum up to and including 2030. This will include, on average, 10,000 social housing units, 4,000 homes for Affordable Purchase, 2,000 Cost Rental homes and 17,000 private homes over the lifetime of the plan (to the end of 2030) the 300,000 required homes are expected to consist of: 90,000 social homes; 36,000 Affordable Purchase homes, 18,000 'Cost Rental' homes and approximately 156,000 private homes. One of the key measures in achieving this is to use vacant and underutilised land.

The proposed development is in line with the ambitious goals within Housing For all. This National Policy Document has recognised the need to cater for a broad range of buyers within the market, in order to achieve a sustainable housing system. The residential mix provides a good choice for future residents and caters for a broad range of housing requirements within the market, including first-time buyers, young families, singles, downsizers, and retirees. The choice of housing typologies within this proposed scheme, better supports a mix of age & tenure.

It is submitted that provision of 2,527 no. residential units on the subject site will help the Government to achieve the objectives of the Housing for All Plan in increasing the housing output. Therefore, it is considered that the proposed development is consistent with the development framework in this regard.

3.2.5 Affordable Housing Act 2021 & Housing Circular 28/2021

In July 2021, the Affordable Housing Act 2021 was published, aiming to address problems associated with the high cost of housing for the portion of the population that do not qualify for social housing. Coming to effect from 3rd September 2021, the Housing Circular 28/2021, amends Part V of the Planning and Development Act 2000. The Programme for Government contained commitments in relation to expanding Part V to encompass affordable purchase and cost rental units and introducing affordable homes requirements to Part V. Part 6 of the Affordable Housing Act 2021, which was enacted on 21 July 2021, gives effect to this commitment.

The principal change to Part V made by these amendments is to increase the Part V contribution for new housing developments from 10% social housing to a mandatory 20% requirement, at least half of

which must be applied to social housing provision and up to half of which may be applied to affordable and cost rental housing. It is noted that these changes to Part V primarily apply to land purchased on or after 1 August 2021. Any new planning permissions for housing development on that land will have a 20% Part V requirement, which applies to the development lands.

It is considered that the proposed development is consistent with the Affordable Housing Act 2021, Housing Circular 28/2021, and the requirements under Part V of the Act as it is proposed to provide 20% of the housing units for social and affordable housing, i.e., a total of 532 units across the 3 phases of development. For further details, please refer to the enclosed Part V Validation Letter from Fingal County Council and Dublin City County Council with associated indicative costings and layout.

3.2.6 The Housing Agency Statement of Strategy 2022-2024

Launched in late January of 2022, the Housing Agency's Statement of Strategy, outlines how more affordable housing, increasing the supply of social and private homes and addressing social inclusion issues such as homelessness and ageing will be the priorities for the work of The Housing Agency over 2022-2024. The Statement of Strategy frames the work of The Housing Agency under three broad themes:

- Being a centre for housing knowledge;
- Bridging housing supply and demand; and,
- Building capacity for housing.

It also outlines how, over the coming years, the Housing Agency will use research, informed policy insights and data to work *"to achieve a housing system that meets the housing needs of the nation and promotes viable, sustainable communities"*.

The Housing Agency's Strategic Plan 2022-2024 has been framed in the context of supporting Housing for All, the Government's housing plan for Ireland and key trends in the housing system including:

- Diverse and changing housing needs for people living in Ireland.
- Long-term government policy and strategic planning for the Irish housing system.
- A continuing focus on building inclusive, sustainable communities.

It is submitted that provision of 2,527 no. residential units on an appropriately zoned land under Fingal Development Plan 2017-2023 and the Dublin City Development Plan 2016-2022 would help utilising an existing capacity within Balgriffin & Belcamp and facilitate meeting the housing target for the area and the overall County. Therefore, it is considered that the proposed development is consistent with the foregoing Strategy in this regard.

3.2.7 Residential Densities in Towns and Villages (Circular Letter: NRUP 02/2021)

The purpose of this Circular, issued on 21st April 2021, is to provide clarity in relation to the interpretation and application of current statutory guidelines, in advance of issuing updated Section 28 guidelines that will address sustainable residential development in urban areas, later in 2021. It is considered important to address this matter in the context of both the need for significantly increased and more sustainable housing supply throughout Ireland, and national recovery from the Covid-19 pandemic.

Outlined in the Circular, while the *Sustainable Residential Development Guidelines* clearly encourage net densities in the 35-50 dwellings per hectare range within cities and larger towns, net densities of 30-35 dwellings per hectare may be regarded as acceptable in certain large town contexts and net densities of less than 30 dwellings per hectare, although generally discouraged, are not precluded in large town locations.

These “outer suburban” provisions apply to cities and larger towns, and the *Sustainable Residential Development Guidelines* define larger towns as having a population in excess of 5,000 people. Large towns therefore range from 5,000 people up to the accepted city scale of 50,000 people. Given the very broad extent of this range and variety of urban situations in Ireland, it is necessary for An Bord Pleanála and Planning Authorities to exercise discretion in the application and assessment of residential density at the periphery of large towns, particularly at the edges of towns in a rural context.

Accordingly, the full range of outer suburban density, from a baseline figure of 30 dwellings per hectare (net) may be considered, with densities below that figure permissible subject to Section 5.12 of the Sustainable Residential Development Guidelines. It is also clarified that in certain circumstances, the neighbourhood or district referred to in Section 5.12, may comprise a significant portion of a rural town.

Considering that the Census 2016 recorded a population of 3,113 people for Balgriffin, the town stands within the larger towns category, contributing to consolidation of Dublin Metropolitan Area. Accordingly, the proposed development of the subject lands is submitted to strengthen the urban role of Belcamp/Balgriffin and reinforcing the vital role of Belcamp in the settlement’s hierarchy of the County, and therefore, is considered to be consistent with the foregoing Circular. In this regard the development will provide an overall net density of 66.7 units per hectare, with the net density for the lands within the administrative area of Dublin City Council (i.e. Belcamp south) being 112.8 units per hectare and the net density for the lands within the administrative area of Fingal County Council (i.e. Fingal north) being 47.9 units per hectare.

3.2.8 Sustainable Residential Development in Urban Areas and Best Practice Urban Design Guidelines (2009)

This document reviews and updates the Residential Density Guidelines (1999), and its aim is to assist both planning authorities and developers in meeting certain standards in the design of residential development. The main objective of the Sustainable Residential Development in Urban Areas Guidelines is to produce high-quality sustainable developments through providing:

- *Quality homes and neighbourhoods;*
- *Places where people actually want to live, to work and to raise families; and*
- *Places that work - and will continue to work – and just for us, but for our children and for our children’s children.*

The Guidelines state that sustainability is about the integration of schools, community facilities, employment, transport and amenities with the housing development process in a timely, cost-effective way.

For further detailed information on the proposed development's consistency with the Urban Design Manual, please refer to the Architectural Design Statements prepared by CCK Architects & Urban Designers and Wilson Architecture, as well as the Statement of Consistency prepared by Downey.

3.2.9 Delivering Homes, Sustaining Communities: Statement on Housing Policy (2007)

The Department's policy statement 'Delivering Homes, Sustaining Communities' provides the overarching policy framework for an integrated approach to housing and planning. The statement 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. The quality of the housing environment is recognised as being central to creating a sustainable community.

Sustainable neighbourhoods are areas where an efficient use of land, high-quality design and effective integration in the provision of physical and social infrastructure combine to create places people want to live in.

The 'Delivering Homes, Sustaining Communities' policy statement is accompanied by Best Practice Guidelines entitled 'Quality Housing for Sustainable Communities'. The purpose of these Guidelines is to promote high standards in the design and construction and the provision of residential units and services in new housing developments. Best use of land is encouraged and optimal utilisation of services and infrastructure in the provision of new housing; point the way to cost effective options for housing design that go beyond minimum codes and standards; promote higher standards of environmental performance and durability in housing construction; seek to ensure that residents of a new housing scheme enjoy the benefits of first-rate living conditions in a healthy, accessible and visually attractive environment; and provide homes and communities that may be easily managed and maintained.

This Strategic Housing Development application is accompanied by the Architect and Urban Designer's Statement and a Housing Quality Assessment (HQA) prepared by CCK Architects and Wilson Architecture, which demonstrates the proposed development is compliant with the relevant standards in the 'Quality Housing for Sustainable Communities' document, the Fingal County Development Plan 2017-2023 and the Dublin City Development Plan.

3.2.10 Sustainable Urban Housing Guidance: Design Standards for New Apartments (December 2020)

The Guidelines state that, "*in the longer term to 2040, the Housing Agency has identified a need for at least 45,000 new homes in Ireland's five cities (Dublin, Cork, Limerick, Galway and Waterford), more than 30,000 of which are required in Dublin City and suburbs, which does not include additional pent-up demand arising from under-supply of new housing in recent years*". It is also stated that it is "*critical to ensure that apartment living is an increasingly attractive and desirable housing option for a range of household types and tenures.*"

The Guidelines also state that, "*aspects of previous apartment guidance have been amended and new areas addressed in order to:*

- *enable a mix of apartment types that better reflects contemporary household formation and housing demand patterns and trends, particularly in urban areas;*
- *make better provision for building refurbishment and small-scale urban infill schemes;*
- *address the emerging 'build to rent' and 'shared accommodation' sectors; and*
- *remove requirements for car-parking in certain circumstances where there are better mobility solutions and to reduces costs."*

Therefore, these Guidelines set out internal space and amenity space standards for apartments; address the emerging 'build to rent' and 'shared accommodation' sectors and remove car parking requirements at certain locations under certain circumstances. Locations suitable for large-scale high-density apartment developments include 'Central and/or Accessible Urban Locations'. The Belcamp lands subject to this planning application are served by a high-quality bus corridor connecting Dublin City Centre and Clongriffin Train Station, within close proximity of the subject lands, and as such the lands would be classified as an 'Accessible Urban Location' and therefore an appropriate location for the proposed development. The HQAs prepared by CCK Architects & Urban Designers and Wilson Architecture submitted as part of this application outline how the proposed development is consistent with these standards.

The Guidelines also have specific planning policy requirements (SPPRS); for full detail on how the proposed development is compliant with the SPPRS as set out within the Sustainable Urban Housing Guidance please refer to the Statement of Consistency prepared by Downey.

3.2.11 Urban Development and Building Heights Guidelines for Planning Authorities (Dec 2018)

The "*Urban Development and Building Heights, Guidelines for Planning Authorities*" are intended to set out national planning policy guidelines on building heights in relation to urban areas, building from the strategic policy framework set out in the National Planning Framework 2040 (NPF). This document recognises that in recent years local authorities, through the statutory plan processes, have begun to set generic maximum height limits. However, such limits if inflexibility and unreasonably applied, can undermine national policy objectives to provide more compact urban forms as outlined in the National Planning Framework and instead can continue unsustainable patterns of development.

These Guidelines reinforce that, "*a key objective of the NPF is therefore to see that greatly increased levels of residential development in our urban centres and significant increases in the building heights and overall density of development is not only facilitated but actively sought out and brought forward by our planning processes and particularly so at local authority and An Bord Pleanála levels.*"

The document states that it is critically important that development plans identify and provide policy support for specific geographic locations or precincts where increased building height is not only desirable but a fundamental policy requirement. Locations with the potential for comprehensive urban development or redevelopment (e.g. brownfield former industrial districts, dockland locations, etc.) should be identified where, for example, a cluster of higher buildings can be accommodated as a new neighbourhood or urban district or precinct.

In light of the above, the guidelines go on to further state that "*newer housing developments outside city and town centres and inner suburbs, i.e. the suburban edges of towns and cities, typically now*

include town-houses (2-3 storeys), duplexes (3-4 storeys) and apartments (4 storeys upwards). Such developments deliver medium densities, in the range of 35-50 dwellings per hectare net”.

Section 1.11 of the Guidelines states, “*these guidelines therefore set out national planning policy that:*

- *Expand on the requirements of the National Planning Framework; and*
- *Applies those requirements in setting out relevant planning criteria for considering increased building height in various locations but principally (a) urban and city-centre locations and (b) suburban and wider town locations.”*

The proposed development on the lands at Belcamp Hall, Malahide Road, Dublin 17 is submitted to be in line with the foregoing development policies and with the physical and social infrastructure already in place which can easily accommodate the proposed apartment heights of up to 9 storeys.

The Guidelines also have specific planning policy requirements (SPPRS); for full detail on how the proposed development is compliant with the SPPRS as set out within the Sustainable Urban Housing Guidance please refer to the Statement of Consistency prepared by Downey.

3.2.12 Childcare Facilities: Guidelines for Planning Authorities (2001)

Government policy on childcare is to increase the number of childcare places and facilities available and to improve the quality of childcare services for the community. These Guidelines for Planning Authorities on Childcare Facilities provide a framework to guide both local authorities in preparing development plans and assessing applications for planning permission, and developers and childcare providers in formulating development proposals.

The following definition of Childcare is included in the Guidelines:

“In these Guidelines, “childcare” is taken to mean full day-care and sessional facilities and services for pre-school children and school-going children out of school hours. It includes services involving care, education, and socialisation opportunities for children. Thus services such as pre-schools, naíonraí (Irish language playgroups), day-care services, crèches, playgroups, and after-school groups are encompassed by these Guidelines. Conversely childminding, schools, (primary, secondary and special) and residential centres for children are not covered by these Guidelines.”

For housing schemes, the Guidelines provide a benchmark provision of 1 no. 20 space childcare facility per 75 dwellings. The threshold for provision should be established having regard to existing location of facilities and the emerging demography of the area where new housing is proposed. The recommendations provided within the Guidelines must be considered in the context of the ‘Sustainable Urban Housing: Design Standards for New Apartments’ (2018), which state that:

“Notwithstanding the Department’s Planning Guidelines for Childcare Facilities, which are currently subject to review and recommend the provision of one childcare facility (equivalent to a minimum of 20 child places) for every 75 dwelling units, the threshold for provision in apartment scheme should be established having regard to the scale and unit mix of the proposed development and the existing geographical distribution of childcare facilities and the emerging demographic profile for the area.”

As recommended in the Guidelines, 1 no. childcare facility may be required as part of the proposal to cater for the influx of population arising from the proposed scheme. It is worth noting that as stated within the apartment guidelines, *“one-bedroom or studio type units should not generally be considered to contribute to a requirement for any childcare provision and subject to location, this may also apply in part or whole, to units with two or more bedrooms”*.

The proposed development provides for 2 no. childcare facilities. It is submitted that the proposed development is consistent with the Childcare Facilities Guidelines. A Childcare Assessment Report has been prepared by Downey and submitted as part of this application; please refer to this for details on the childcare demand generated by the proposed development and the cumulative demand within the catchment area.

3.2.13 Childcare Facilities operating under the ECCE Scheme (Circular Letter: PL 3/2016)

The purpose of this Circular, issued on 31st March 2016, is to revise the Childcare Facilities Guidelines for Planning Authorities 2001, and having regard to the extension of the ECCE scheme and the associated increased demands on childcare facilities with effect from September 2016, planning authorities are hereby requested to:

- Expedite all pre-planning application consultation requests from Childcare facility providers in relation to proposals to extend opening hours, to increase capacity or to provide new facilities.
- Expedite, insofar as is possible, consideration of all planning applications or Section 5 declaration submissions in respect of childcare facilities in order to facilitate the expansion of required capacity as appropriate.

The Childcare Facilities Guidelines for Planning Authorities 2001 outline general planning related standards for childcare facilities. Planning Authorities are advised that the Child Care (Pre-School Services) Regulations 2006 set out a range of childcare related standards for childcare facilities as stipulated by the Department of Children and Youth Affairs. The Child and Family Agency, also known as TUSLA, is responsible for inspecting pre-school services under, and enforcing compliance with, the afore-mentioned 2006 Regulations.

In light of the foregoing, planning authorities are requested to exclude matters relating to childcare facility standards outlined in Appendix 1 of the Childcare Facilities Planning Guidelines 2001 - including the minimum floor area requirements per child - from their consideration of planning applications relating to childcare facilities and to solely focus on planning related considerations that fall within the remit of the Planning and Development Act 2000, as amended, in the determination of such planning applications.

It is submitted that the no. 2 proposed childcare facilities provides for adequate capacity to cater for the influx of population arising from the proposed development. Therefore, it is suggested that the proposed development is consistent with Circular PL 3/2016.

3.2.14 Smarter Travel: A Sustainable Transport Future

In summary, *'Smarter Travel: A Sustainable Transport Future'* states that, "to achieve the vision of a sustainable transport system, individual lifestyles will have to change and collectively we will have to work progressively on a range of solutions which deal with apparently conflicting goals: economic growth, reduced emissions, less use of motorised transport and better accessibility."

The 5 key goals of this transport policy are as follows:

- *Improve quality of life and accessibility to transport for all and, in particular, for people with reduced mobility and those who may experience isolation due to lack of transport;*
- *Improve economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks;*
- *Minimise the negative impacts of transport on the local and global environment through reducing localised air pollutants and greenhouse gas emissions;*
- *Reduce overall travel demand and commuting distances travelled by the private car; and,*
- *Improve security of energy supply by reducing dependency on imported fossil fuels.*

It is considered that the proposed development complies with "*Smarter Travel: A Sustainable Transport Future*".

It is considered that the proposed development complies with *'Smarter Travel: A Sustainable Transport Future'*. The Board are invited to refer to the Traffic and Transport Assessment prepared by Waterman Moylan and the Sustainable Transport Strategy prepared by Systra which have been submitted as part of this application.

3.2.15 Design Manual for Urban Roads and Streets (DMURS)

The *'Design Manual for Urban Roads and Streets'* (DMURS) 2013 and as updated in 2019, sets out design guidance and standards for constructing new and reconfigured existing urban roads and streets. It also sets out practical design measures to encourage more sustainable travel patterns in urban areas. The engineering assessment report prepared by Waterman Moylan Engineering Consultants provide further details in respect of the compliance of the proposed development with the provision of DMURS. Please refer to the pertaining documents prepared by Waterman Moylan Engineering Consultants for further information in this regard.

3.2.16 National Cycle Manual (June 2011)

The *'National Cycle Manual'* 2011 embraces the Principles of Sustainable Safety as this will offer a safe traffic environment for all road users including cyclists. It offers guidance on integrating the bike in the design of urban areas. The Manual challenges planners and engineers to incorporate cycling within transport networks more proactively than before.

Outlined in the Manual, many residential and access streets already offer a high quality of service to cycling. Cycling two-abreast on quiet, interesting, well-surfaced streets and roads can be attractive to

cyclists. In many cases there is no physical infrastructure involved, other than the self-evident and self-enforcing nature of the environment.

The Manual also gives guidance on the minimum number of spaces which should be provided initially at new private and public facilities in urban areas. For housing developments, this is stated to be:

- 1 no. private secure bicycle space per bed space (note - design should not require bicycle access via living area), minimum 2 spaces; and
- 1 visitor bicycle space per two housing units.

The following gives an overview of the varying characteristics of parking at residential areas that should be considered in determining the most appropriate parking facility.

- Convenience is essential for frequently used bicycles, and preferably not via living areas;
- Private parking should accommodate residents and visitors; and,
- Shared parking facilities can be suitable for multiple dwellings (e.g. apartment complex).

It is submitted that connections in the proposed development have been addressed by developing an integrated site strategy having full regard to cycle and pedestrian movement, in addition to efficient vehicular access points, including:

- The proposed development will include dedicated cycle facilities, including an off-road cycle track along the East-West Link Road and along the R139, separated from the vehicular carriageway by a verge. The proposed junction upgrade at the site entrance from Malahide Road includes new cycle stopping areas and new cycle lanes along the Malahide Road.
- Due consideration has been given to creating pedestrian & cycle links between Belcamp's natural & build heritages amenity including – Belcamp Hall, the Walled Garden, the Greenway Walk and the lakes.
- The proposed development provides sufficient, accessible and safe bicycle parking for residents & visitors.

For further details on the cycle infrastructure proposed, please refer to the enclosed Traffic and Transport drawings and documentation prepared by Waterman Moylan Engineering Consultants for further details in this regard.

3.2.17 Retail Planning Guidelines (2012) and Retail Design Manual (2012)

The Retail Planning Guidelines, which were first issued in 2000 and subsequently revised in 2005, and subsequently the third iteration of the Guidelines were published in 2012 accompanied by the Retail Design Manual (2012), providing the strategic policy framework for the spatial distribution of new retail development. Therefore, the Guidelines provide a comprehensive framework to guide both local authorities in preparing development plans and assessing applications for planning permission, and retailers and developers in formulating development proposals.

The guidelines specifically state that local retail units such as corner shops or shops located in local or neighbourhood centres serving local residential districts perform an important function in urban areas. Where a planning authority can substantiate the local importance of such units in defined local

centres, they should safeguard them in development plans, through appropriate land-use zoning. Development management decisions should support the provision of such units, particularly where they encompass both food-stores and important non-food outlets such as retail pharmacies, and have significant social and economic functions in improving access to local facilities especially for the elderly and persons with mobility impairments, families with small children, and those without access to private transport. The guidelines identify five key objectives, of equal weight, which are as follows:

- to ensure that in future all Development Plans incorporate clear policies and proposals for retail development,
- to facilitate a competitive and healthy environment for the retail industry of the future,
- to promote forms of development which are easily accessible, particularly by public transport and in a location which encourages multi-purpose shopping, business and leisure trips,
- to support the continuing role of town and district centres, with
- a presumption against large retail centres located adjacent or close to existing, new or planned national roads/motorways.

The Guidelines clearly acknowledge that it is critical for the proper planning and sustainable development of an area that new retail development is located at the optimum location having regard to the type of retail offering and the context of the existing environs. It is submitted that the proposed scheme is comprised of the following:

Breakdown of Commercial/Retail Provision within the Scheme

Block	Description	GFA (sqm)
Block D	Café/Restaurant/7 no. Retail Units (Ranging from 55 sqm to 132.5 sqm)	1,020.5
Block F	Café/Restaurant/ 5 no. Retail Units (Ranging from 152 sqm to 208 sqm)	1,162
Block G	A Retail Unit	140
Block J	4 no. Retail Units (Ranging from 91.3 sqm to 144.7 sqm)	472
Creche	Childcare	606.7
Clubhouse	Changing Rooms	97
FCC Sub-total		3,498.2
Block 3	Café/Retail	417.8
Block 3	Creche	508
DCC Sub-total		925.8
Total Retail/Commercial Provision		4,424

3.2.18 The Planning System and Flood Risk Guidelines (2009)

These Guidelines require the planning system at all levels to avoid developments in areas at risk of flooding, particularly floodplains, except where there are no suitable alternative sites available in areas at lower risk that are consistent with the objectives of proper planning and sustainable development. Where such development has to take place, in the case of urban regeneration for

example, the type of development has to be carefully considered and the risks should be mitigated and managed through location, layout and design of the development to reduce flood risk to an acceptable level. Applicants are advised to carefully examine their development proposals to ensure consistency with the requirements of these Guidelines including carefully researching whether there have been instances of flooding or there is the potential for flooding on specific sites and to carry out a site-specific flood risk assessment.

In accordance with these Guidelines, Waterman Moylan Consulting Engineers have carried out a flood risk assessment of the subject site. The site has been assessed in accordance with the Flood Risk Management Guidelines, with appropriate mitigation measures proposed such as SuDs design, green roofs, appropriate floor levels, and regular inspections. Therefore, it is considered that the proposed development is consistent with the requirements of this national flood risk management policy. For further information in this regard, please refer to the Flood Risk Assessment report prepared by Waterman Moylan Consulting Engineers which accompanies this application.

3.2.19 All-Ireland Pollinator Plan 2021-2025

The All-Ireland Pollinator Plan is a shared plan of action which is to bring about a landscape where pollinators can flourish over 2021-2025. To achieve this, the Plan sets out six objectives: (1) Making farmland pollinator friendly, (2) Making public land pollinator friendly, (3) Making private land pollinator friendly, (4) All-Ireland Honeybee Strategy, (5) Conserving rare pollinators, and (6) Strategic coordination of the Plan.

With respect to the aforementioned, the proposed development has taken into consideration the All-Ireland Pollinator Plan, reflecting the relevant guidelines and proposed measures by providing for an internal network of landscaped open-spaces. Moreover, these high quality landscaped areas retain the existing trees and hedgerows where possible, which will enhance the scheme by providing mature sylvan areas as a foil to the new streetscapes and buildings now proposed. Please refer to the Landscape drawings and report prepared by TBS landscape Architects for further details on inclusion of the Plan guidelines within the proposed landscape of the scheme.

3.2.20 National Adaptation Framework: Planning for a Climate Resilient Ireland

In accordance with the *'Climate Action and Low Carbon Development Act 2015'*, this National Adaptation Framework (NAF) specifies the national strategy for the application of adaptation measures in different sectors and by local authorities in their administrative areas in order to reduce the vulnerability of the State to the negative effects of climate change and to avail of any positive effects that may occur. This NAF and its successors will set out the context to ensure local authorities, regions and key sectors can assess the key risks and vulnerabilities of climate change, implement climate resilience actions and ensure climate adaptation considerations are mainstreamed into all local, regional and national policy making.

The *'Built Environment and Spatial Planning'* section within this Framework recognises that, *"climate change considerations need to be taken into account as a matter of course in planning-related decision making processes and that the deepening of adaptation considerations in the planning and building standards processes is considered the most appropriate way of increasing the resilience of the built environment"*.

Furthermore, *“effective planning reduces vulnerability to the negative effects of climate change by integrating climate considerations into decision making in order to avoid inappropriate forms of development in vulnerable areas and promoting compact development in less vulnerable areas”*. It is important to mention that this Framework envisions ‘flood resilience’ and ‘access to wildlife and green space’ as no-regret benefits of effective adaptation which would continue to be worthwhile regardless of future climate scenarios.

As such, the proposed development has taken into consideration the context of the site and it can be noted that an assessment of Flood Risk has been prepared by Waterman Moylan Consulting Engineers, with appropriate mitigation measures proposed such as SuDS design attenuation ponds, overland flood routing, etc. Thus, the proposed development with access to high-quality green communal space and introduction of best practice energy efficiency measures as required to meet the Energy Strategy and Building Regulations and promoting a compact urban form for ‘less vulnerable areas’ is consistent with this national framework.

3.2.21 Climate Action Plan 2021

Climate disruption is already having diverse and wide-ranging impacts on Ireland's environment, society, economic and natural resources. The Climate Action Plan 2021 sets out an ambitious course of action over the coming years to address this issue. The Plan clearly identifies the nature and scale of the challenge.

It outlines the current state of play across key sectors including Electricity, Transport, Built Environment, Industry and Agriculture and charts a course towards ambitious decarbonisation targets. The Plan sets out governance arrangements including carbon-proofing policies, establishment of carbon budgets, a strengthened Climate Change Advisory Council and greater accountability to the Oireachtas.

The Plan clearly recognises that Ireland must significantly step up its commitments to tackle climate disruption. The leadership role both the Government and public bodies can play in taking early action on climate is fundamental to achieving our decarbonisation goals. The Plan notes that the built environment (residential and commercial) accounted for 12.7% of Ireland's greenhouse gases in 2018; an increase from 11.7% in 2017. It is important that we improve the energy efficiency of our buildings, including our homes, workplaces, and schools by meeting higher energy performance standards and by increasing retrofit activity. This will not only reduce Ireland's dependence on fossil fuels, but will also improve our living standards by making our buildings more comfortable, healthier, safer, and less costly to heat.

Our buildings are 70% reliant on fossil fuels, including oil fired boilers; over 80% of our homes and other buildings assessed for their BER have a rating of C or worse; and the current annual retrofit activity for existing stock is far too limited (approximately 23,000, mainly shallow, retrofits). A hierarchy of the most cost-effective investments underpin this, in addition to those already committed to in the 2019 Climate Action Plan, including:

- Improving the fabric and energy efficiency of our existing buildings.
- Rolling out zero-carbon heating solutions, predominantly heat pumps and district heating networks

- Planning for the full phase out of fossil fuels in buildings by 2050
- Progressive strengthening of building standards for all types of buildings
- Promoting the use of lower carbon alternatives in construction.
- Promoting behavioural change in how households use energy.

The proposed buildings are to be of a high energy rating and in full compliance with the relevant Guidelines. An Energy Statement has been prepared under separate cover, which details this. As such, the proposed development has taken into consideration the Climate Action Plan and measures have been included within the design of the development to reduce carbon emissions in line with the requirements of the Action Plan.

3.2.22 Architectural Heritage Protection Guidelines for Planning Authorities

These guidelines are issued under Section 28 and Section 52 of the Planning and Development Act 2000. Under Section 52 (1), the Minister is obliged to issue guidelines to planning authorities concerning development objectives: a) for protecting structures, or parts of structures, which are of special architectural, historical, archaeological, artistic, cultural, scientific, social, or technical interest, and b) for preserving the character of architectural conservation areas.

The Guidelines note that as indicated in the 2001 Regulations, a planning application for works to a protected structure or proposed protected structure must include (in addition to the normal requirements to supply maps and drawings) “such photographs, plans and other particulars as are necessary to show how the development would affect the character of the structure.”

Belcamp Hall is designated as Protected Structure No. 0463, this status includes 18th century original house, Washington Monument, walled garden, bridge & early 20th century chapel. As part of the development there are no works proposed for Belcamp Hall, however the following is proposed:

- Undertake works to the Washington Monument to preserve the character of the structure and prevent deterioration.
- The proposed development includes the restoration of the Mayne River and bridge. It is proposed that the woodland and Mayne River valley will form a significant new public amenity within the area, incorporating woodland walks within the Belcamp lands.
- It is the intention to conserve the icehouse as part of the overall conservation of the house and grounds.

In order to assist the Board and the Planning Authority in assessing the proposals for the Protected Structures, Sheehan & Barry Conservation Architects have prepared a comprehensive Architectural Assessment/ Conservation Report, which includes an architectural assessment, impact assessment and conservation and Methodology assessment with a photographic survey and fully detailed existing and proposed drawings with regards to the preservation of Belcamp Hall. As well plans and proposals for the landmark features on the Belcamp Lands including the icehouse, the Washington Tower and the lakes, causeway and weirs.

Please refer to the documentation prepared by Sheehan & Barry Conservation Architects for further details.

3.3 Regional Policy and Guidance

The key provisions of the regional planning policy as it relates to the proposed development are now set out in the following sections. The key regional policy of relevance includes:

- Regional Spatial and Economic Strategy for the Eastern and Midland Region 2019-2031; and,
- Transport Strategy for the Greater Dublin Area 2016-2035.

3.3.1 Regional Spatial and Economic Strategy

The *'Regional Spatial and Economic Strategy'* (RSES) was published by the Eastern and Midland Regional Assembly. The RSES outlines the long-term regional level strategic planning and economic framework in support of the National Planning Framework for the period 2019-2031.

The RSES identifies regional assets, opportunities, pressures and constraints and provides a framework for investment to better manage spatial planning and economic development throughout the Eastern & Midland Region. The RSES is tasked with the development of planning policy for future housing needs in the region upon consideration of the availability of land, resources, environment and infrastructure capacity.

In conjunction with the NPF, the RSES predicts the Dublin Metropolitan Area under *'Dublin Metropolitan Area Strategic Plan'* (MASP) to experience continued population growth over the period 2019-2031 with a predicted increase of 250,000. The NPF targets 50% of all housing to be provided within or contiguous to the built-up area of Dublin city and suburbs and a target of at least 30% for other metropolitan settlements, with a focus on healthy placemaking and improved quality of life. The reader is invited to refer to the Statement of Consistency, submitted as part of this application, for details on the proposed developments compliance with the Regional Policy Objectives and Settlement Strategy set within the Regional Spatial and Economic Strategy.

3.3.2 Transport Strategy for the Greater Dublin Area 2016-2035

This transport strategy provides a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA). The purpose of the Strategy is:

"To contribute to the economic, social and cultural progress of the Greater Dublin Area by providing for the efficient, effective and sustainable movement of people and goods."

The core of the strategy seeks the better integration of land use planning and transport planning. This can be achieved through the consolidation of development into higher order centres. In terms of the provision of housing, the strategy seeks to directly enable the sustainable development of strategically important residential sites, particularly in Metropolitan Dublin, where demand is highest.

The proposed development on lands at Belcamp Hall, seeks to develop on appropriately zoned lands, in a highly accessible location within the Belcamp, Balgriffin & Clongriffin area. The application site is also located within walking distance of Dublin Bus stops located along R107 Malahide Road to the east of the application site. Additionally, the site is located approximately 2.7km for the Clongriffin Train Station. It is considered that the proposed application will represent an appropriate form of

development in the context of supporting the vision and objectives of the Transport Strategy for the Greater Dublin Area 2016-2035.

3.4 Local Planning Policy

3.4.1 Dublin City Development Plan 2016-2022

3.4.1.1 Overarching Considerations

The subject site is located within the functional area of Dublin City Council. The development of the site is therefore informed by the policies and objectives of Dublin City Development Plan. The reader is invited to refer to the Statement of Consistency and the Material Contravention Statement which has been submitted as part of this application, for full details on the proposed developments compliance with Dublin City Development Plan 2016-2022.

The policies and objectives of the Development Plan are underpinned by the following statement:

“For the purposes of guiding this plan, both the long-term vision and the core strategy, as set out above, can be translated into three strongly interwoven strands:

1. *Compact, Quality, Green, Connected City*
2. *A Prosperous, Enterprising, Creative City*
3. *Creating Sustainable Neighbourhoods and Communities*

The core strategy will guide development in both policy and spatial terms. Delivered together, these priorities represent an integrated and holistic approach to the delivery of essential infrastructure and services within an over-arching sustainable framework.”

3.4.1.2 Core Strategy & Housing Strategy

The purpose of the Core Strategy is to articulate a medium-to-longer term quantitatively based strategy for the spatial development of the area of the Planning Authority and in doing so, to demonstrate that a Development Plan and its policies and objectives are entirely consistent with national and regional policies and strategies.

The North Fringe lands (Clongriffin-Belmayne) have been identified as a Strategic Development and Regeneration Area (SDRA). *“The north fringe action area plan was first produced for the North Fringe lands in 2000, setting out the objective to extend the metropolitan core and create a new dynamic mixed-use urban quarter.”*

The vision of the Dublin City Development Plan is to grow Dublin in a sustainable fashion as it enters a period of sustained economic and population growth. *“Dublin city in its entirety lies within the metropolitan area and the RPGs give direction to Dublin city as the ‘gateway core’ for high-intensity clusters, brownfield development, urban renewal and regeneration”.* Significant housing demand exists in the Dublin city area and several Strategic Development and Regeneration Areas (SDRAs) have been identified to try and meet this demand; the proposed development is located within an SDRA (SDRA 1 North Fringe Clongriffin-Belmayne).

Further to this, the plan states that, *“a further key aspect is that future expansion, whether housing or mixed-uses, occur in tandem with high-quality rail-based public transport and on a phased basis. The development plan incorporates these principles in a settlement hierarchy which prioritises the inner city, key district centres and strategic development and regeneration areas (SDRAs).”*

The site in question is part of a SDRA and is located within close proximity to Clongriffin Train Station, as well as the Malahide Road QBC, ensuring development of these lands is consistent with development plan policy. The Development Plan estimates that 7,100 residential units can be produced within the SDRA 1 (Fig. 1). The overall proposed development provides for a total of 2,527 no. residential units (of which 1,230 no. units are within the functional area of Dublin City Council) and is considered consistent with the objectives of the Development Plan.

3.4.1.3 Land Use Zoning

Under the current Dublin City Development Plan, the subject site is zoned as a ‘Strategic Development and Regeneration Area – Zone 14’ (SDRA) which seeks:

“To seek the social, economic and physical development and/or rejuvenation of an area with mixed use of which residential and “Z6” would be the predominant uses.”

The proposed residential use and complementary land uses are permitted in principle. The proposed development will build on the existing attributes within Belcamp/Balgriffin and will form part of the overall development for the Belcamp lands through the introduction of 1,230 no. high-quality residential units proposed across the lands, alongside 1 no. childcare facility retail/commercial floor space (901.4 sq.m. GFA) on lands within the functional area of Dublin City Council.

It is therefore considered that the proposed development is consistent with the objectives of the SDRA zoning designation.

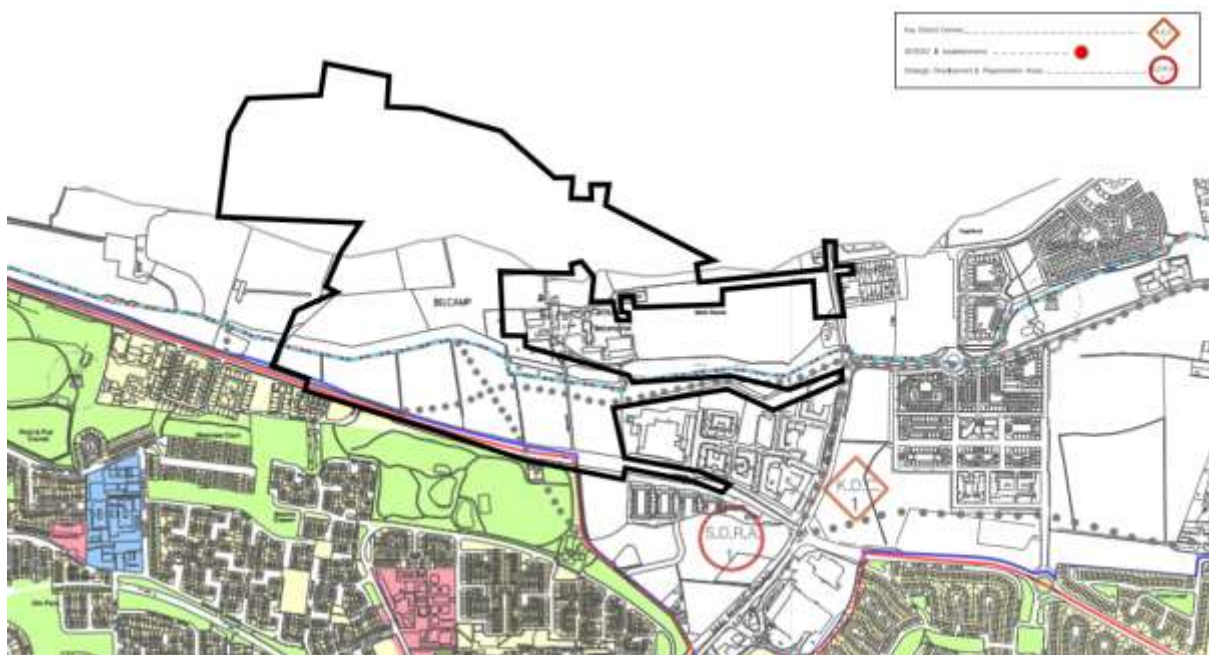


Figure 1: SDRA zoning (subject lands in black)

3.4.1.4 Strategic Development and Regeneration Areas (SDRA)

The proposed development is located in an area designated 'SDRA 1 North Fringe (Clongriffin-Belmayne)'. The Development Plan states that, *"the north fringe action area plan was first produced for the North Fringe lands in 2000, setting out the objective to extend the metropolitan core and create a new dynamic mixed-use urban quarter. With a strong urban design framework in place, much has already been achieved including the development of over 3,400 new homes and 41,000 sq. m of commercial floor space. In addition, key water and drainage infrastructure, a new railway station and public square, sections of the new main boulevard and the much-acclaimed Father Collins Park are all in place."*

A statutory local area plan was subsequently produced for the area and adopted by the City Council in December 2012 (Clongriffin-Belmayne Local Area Plan (LAP) 2012-2018, extended until 2022). It sets out a detailed framework and phasing mechanism for the development of the remaining key sites, with the aim of providing approximately 8,000 new homes upon completion. The local area plan is based on the following key objectives/guiding principles:

- "1. To create a highly sustainable, mixed use urban district, based around high quality public transport nodes, with a strong sense of place.*
- 2. To achieve a sufficient density of development to sustain efficient public transport networks and a viable mix of uses and community facilities.*
- 3. To establish a coherent urban structure, based on urban design principles, as a focus for a new community and its integration with the established community."*

It is submitted that the proposed development complies with the aforementioned objectives as set out in the Local Area Plan. The LAP is further assessed in the following section.

3.4.1.5 Development Management Standards

The Dublin City Development Plan 2016-2022 sets out development standards and criteria from the policies and objectives of the City Development Plan to ensure that development occurs in an orderly and efficient manner and that it is in accordance with proper planning and sustainable development. Please refer the Statement of Consistency for detail on how the proposed development complies with the Development Management Standards as set out with the Dublin City Development Plan 2016-2022.

3.4.2 Clongriffin-Belmayne Local Area Plan 2012-2018

The Clongriffin-Belmayne Local Area Plan (LAP) 2012-2018, extended until 2022, *"provides a framework for proper planning and sustainable development of Clongriffin-Belmayne (the North Fringe) area in accordance with the policies and objectives of the Dublin City Development Plan"*. The lands around the North Fringe area were first proposed for development in 1999/2000 with the publication of an action plan to guide the development. As stated within the LAP, *"the two main objectives of the plan have been to provide a coherent urban structure with distinct identity and to integrate new and existing communities successfully."*

The reader is invited to refer to the Statement of Consistency and the Material Contravention Statement which has been submitted as part of this application, for full details on the proposed developments compliance with the Clongriffin-Belmayne Local Area Plan 2012-2018.

3.4.2.1 Urban Design

The Urban Design section indicates *“that the principles of urban design will drive future development in the North Fringe to achieve a high-quality urban environment creating a neighbourhood where people will want to live, work and visit, now and in the future.”*

Some of the key objectives from the Urban Design section which are relevant to the proposed scheme include:

Objective - UD02: *“To promote the development of family orientated, high quality, adaptable, life long homes within the LAP area through creative design that still delivers a sustainable density to support the provision of services.”*

Objective - UD03: *“To promote public spaces that provide both passive and active recreation and a connection to those forms of activities in the surrounding area.”*

Objective - UD04: *“To ensure high quality streetscapes are achieved through distinctive high quality street furniture, lighting, paving and public artwork that creates a distinctive character associated with the North Fringe.”*

Objective - UD05: *“To design park spaces and all open spaces linkages to be part of the larger green network in particular from Father Collins Park to the surrounding area and along the River Mayne incorporating a dedicated network of cycle paths and pedestrian routes.”*

Objective - UD06: *“To achieve creative and unique character through public realm enhancements in all key development sites through development contribution levies and partnership with the divisions of Dublin City Council.”*

Objective - UD07: *“The height strategy for the LAP will seek positive integration of new building height with established character. Locations identified for special height character are the designated Key District Centres (in general 5 storeys minimum) and the Main Street Boulevard axis (in general four to five storeys). Heights of 2-6 storeys (including a set back at the top floor of a 5/6 storey building) may be facilitated subject to quality design criteria and set back requirements along the river corridor to complete the urban form of pavilion buildings to complete Marrsfield. One location for a landmark profiled building (10-14 storey office height equivalent) is designed adjacent to Clongriffin train station. In other locations, where 4 storeys residential height is proposed, some flexibility will be allowed on height equivalent (13m) to achieve design improvements to the façade.”*

The Architectural Design Statement prepared by Wilson Architecture, along with the Landscape Rationale prepared by RMDA Landscape Architects & Consultants, which accompany this application,

outlines the urban design approach taken for this scheme. It aims to achieve the highest quality of residential and mixed-uses development which meets the needs of residents and visitors to the site.

3.4.2.2 Community and Social Infrastructure Policy

In relation to Community and Social Infrastructure, the LAP notes that, *“taking into account methods that have worked in the past and identifying the opportunities for enhancement of the community in the future Dublin City Council seek to create neighbourhood revitalisation, and promote principles of active citizenship and civic responsibility in the new and innovative ways. New developments should contribute to sustainable communities through the provision of sustainable social infrastructure that will ensure optimum use of community facilities.”*

Some of the key objectives from the Community and Social Infrastructure section which are relevant to the proposed scheme include:

Objective – CS01: *“To promote well designed, accessible and sustainable urban neighbourhoods throughout the LAP area that are well served by local facilities and public transport.”*

Objective – CS02: *“To ensure access for all to community and social infrastructure for community integration.”*

Objective – CS03: *“To ensure that buildings intended for community related facilities are designed as adaptable flexible spaces that accommodate a range of uses.”*

Objective – CS06: *“To seek to create safe and useable open spaces with each residential development for play through overlooking and passive surveillance.”*

Objective – CS08: *“To promote and encourage a socially inclusive community that cater for all age groups, that accord with the principles of universal design and that offer quality of opportunity and good services to all.”*

Objective – CS010: *“To encourage the provision of accessible sports, recreation and community facilities as part of a sustainable mix of uses for future development proposals within the LAP area.”*

The Belcamp lands enjoy the benefit of a granted residential development currently under construction. The proposed scheme includes additional lands to the east and south of the granted permission (Reg. Ref. F15A/0609 (ABP Ref. PL06F.248052), and subsequent amendments under Reg. Ref. F18A/0058, Reg. Ref. F19A/0220, and Reg. Ref. F19A/0221), thus enabling an improved form and design for a wider residential scheme to be developed. A Community and Social Infrastructure Audit was prepared by Downey as part of this planning application and is included under separate cover. It is noted that there is sufficient infrastructure in the area, which will be supported by additional on-site facilities to cater for this proposed development. The development is therefore consistent with the above objectives.

3.4.2.3 Sustainability Strategy

The Sustainability Strategy section begins with the statement: *“Developing the LAP area in a sustainable way will help to provide opportunities for citizens to live and work close to the city centre, close to suburban communities they may have grown up in and close to the natural amenities of the coast and north County Dublin. The opportunity is presented by the LAP is to consolidate the city and prevent sprawl and encroachment into further green field areas.”*

Some of the key policies and objectives of the Sustainability Strategy section which are relevant to the proposed scheme include:

Policy - SSP1: *“To support sustainable design and sustainable formats of development in the LAP area which will help Dublin City Council achieve its targets in reducing energy consumption and reducing carbon dioxide emissions in accordance with the Dublin City Energy Action Plan.”*

Objective - SSO1: *“To seek best practice in sustainable design and incorporation of green technology for all future development proposal in the LAP area across the levels of the individual buildings, the overall scheme and overall neighbourhood.”*

Objective – SSO2: *“To encourage the development of exemplary projects within the LAP area that demonstrate best practice in energy efficiency (both residential and commercial) and sustainable design.”*

The proposed development in this instance is consistent with the proper planning and sustainable development of the area. The development comprises a high-quality residential development well serviced by public transport, with frequent bus and rail services to and from Dublin City Centre. The open space provisions will ensure a high-quality standard of living for residents and for visitors to the area. The scheme has been designed to minimise energy use and thus minimise carbon emissions through the use of energy efficient heating systems and encouraging sustainable transport.

3.4.3 Fingal County Development Plan 2017-2023

3.4.3.1 Overarching Considerations

The subject site is located within the functional area of Fingal County Council. The development of the site is therefore informed by the policies and objectives of the Fingal County Council Development Plan. The policies and objectives of the Development Plan are underpinned by the following vision:

“Within the next 25 to 30 years, Dublin will have an established international reputation as one of Europe’s most sustainable, dynamic and resourceful city regions. Dublin, through the shared vision of its citizens and civic leaders, will be a beautiful, compact city, with a distinct character, a vibrant culture and a diverse, smart, green, innovation based economy. It will be a socially inclusive city of urban neighbourhoods, all connected by an exemplary public transport, cycling and walking system and interwoven with a quality bio-diverse green space network. In short, the vision is for a capital city where people will seek to live, work, experience, invest and socialise, as a matter of choice”.

The reader is invited to refer to the Statement of Consistency and the Material Contravention Statement which has been submitted as part of this application, for full details on the proposed developments compliance with Dublin City Development Plan 2017-2023.

3.4.3.2 Core Strategy & Housing Strategy

The purpose of the Core Strategy is to articulate a medium-to-longer term quantitatively based strategy for the spatial development of the area of the Planning Authority and in doing so, to demonstrate that a Development Plan and its policies and objectives are entirely consistent with national and regional policies and strategies.

Belcamp & Balgriffin have been identified as Consolidation Areas Within Gateway in the Development Plan. It is the goal of the Development Plan to *consolidate the new and existing areas of Balgriffin and Belcamp to create vibrant residential communities with appropriate local services and community facilities to serve the new population. Ensure that the necessary infrastructure is delivered in tandem with development and that the new built form respects the rich built and natural heritage of the surrounding environment and recognises the ecological sensitivity and hydrological connection with adjacent European Sites.*

The vision of the Fingal Development Plan is to grow the county in a long-term sustainable way as it enters a period of economic and population growth. The plan states, *“the emphasis of this Plan is to continue to consolidate the existing zoned lands and to maximise the efficient use of existing and proposed infrastructure. In this way the Council can ensure an integrated land use and transport strategy in line with national and regional policy. [...] The development of larger areas of residential or mixed-use lands will only take place subject to the necessary infrastructure being available and to this end will be subject to a Local Area Plan. It is through the LAP process that, within the towns and villages, the detailed phasing and distribution of housing will be determined in line with the population and housing targets established at a strategic level.”*

In this instance, the subject site forms part of the overall landholding for the Belcamp lands, which have been identified as being subject to a Local Area Plan (LAP 9.B) which has not yet been implemented, and a specific objective for strategic road infrastructure. The proposed development forms part of the adjoining residential scheme for the Belcamp lands granted under Reg. Ref. F15A/0609 (ABP Ref. PL06F.248052), and subsequent amendments under Reg. Ref. F18A/0058, Reg. Ref. F19A/0220, and Reg. Ref. F19A/0221, in various phases, thus ensuring the development of these lands is consistent with development plan policy.

The Development Plan estimates that 2,791 residential units can be produced within the Fingal administrative area of Belcamp (within ‘Other Settlements’). The proposed development provides for an overall net density of c.67.7 dwellings per hectare, which is considered an appropriate density for the subject lands and in accordance with the objectives of the Development Plan and national policy guidance.

With regards to the housing strategy as set out within the Development Plan, there are three core principles which inform and guide the core strategy which are as follows:

- *“To ensure Fingal County Council provides for the development of sufficient housing to meet its obligations as set out in the Regional Planning Guidelines. - To identify the existing and likely future need for housing in the area of the Development Plan.*
- *To ensure that sufficient zoned lands are provided to meet the needs of the different categories of households.”*

It is submitted that the proposed development at Belcamp is consistent with the housing strategy as it will assist in the delivery of housing, of a sustainable density on appropriately zoned lands, in a highly accessible location, and within within a wider residential scheme for the Belcamp lands (granted under Reg. Ref. F15A/0609 (ABP Ref. PL06F.248052), and subsequent amendments under Reg. Ref. F18A/0058, Reg. Ref. F19A/0220, and Reg. Ref. F19A/0221). The subject site is also located within close proximity of a high-quality bus corridor connecting Dublin City Centre and Clongriffin Train Station, whilst providing a variety of unit types and mixed tenures for all, in a high-quality, vibrant community setting.

3.4.3.3 Land Use Zoning

Under the current Fingal County Council Development Plan, there are 3 different land use zonings pertaining to the subject site. The majority of the site is zoned “RA – Residential Area” which seeks:

“Provide for new residential communities subject to the provision of the necessary social and physical infrastructure.”

The vision for the “RA – Residential Area” seeks to:

“Ensure the provision of high quality new residential environments with good layout and design, with adequate public transport and cycle links and within walking distance of community facilities. Provide an appropriate mix of house sizes, types and tenures in order to meet household needs and to promote balanced communities.”

The subject site is also zoned ‘OS – Open Space’ which aims to *“Preserve and provide for open space and recreational amenities”*, and there are two sections to the north of the site zoned ‘GB – Greenbelt’ which aims to *“Protect and provide for a Greenbelt”*. In this instance, the vision for the ‘OS – Open Space’ seeks to:

“Provide recreational and amenity resources for urban and rural populations subject to strict development controls. Only community facilities and other recreational uses will be considered and encouraged by the Planning Authority.”

Additionally, the ‘GB – Greenbelt’ seeks to:

“Create a rural/urban Greenbelt zone that permanently demarcates the boundary (i) between the rural and urban areas, or (ii) between urban and urban areas. The role of the Greenbelt is to check unrestricted sprawl of urban areas, to prevent coalescence of settlements, to prevent countryside encroachment and to protect the setting of towns and/or villages. The Greenbelt is attractive and multifunctional, serves the needs of both the urban and rural communities, and strengthens the links between urban and rural areas in a sustainable manner. The Greenbelt will provide opportunities for

countryside access and for recreation, retain attractive landscapes, improve derelict land within and around towns, secure lands with a nature conservation interest, and retain land in agricultural use. The zoning objective will have the consequence of achieving the regeneration of undeveloped town areas by ensuring that urban development is directed towards these areas.”

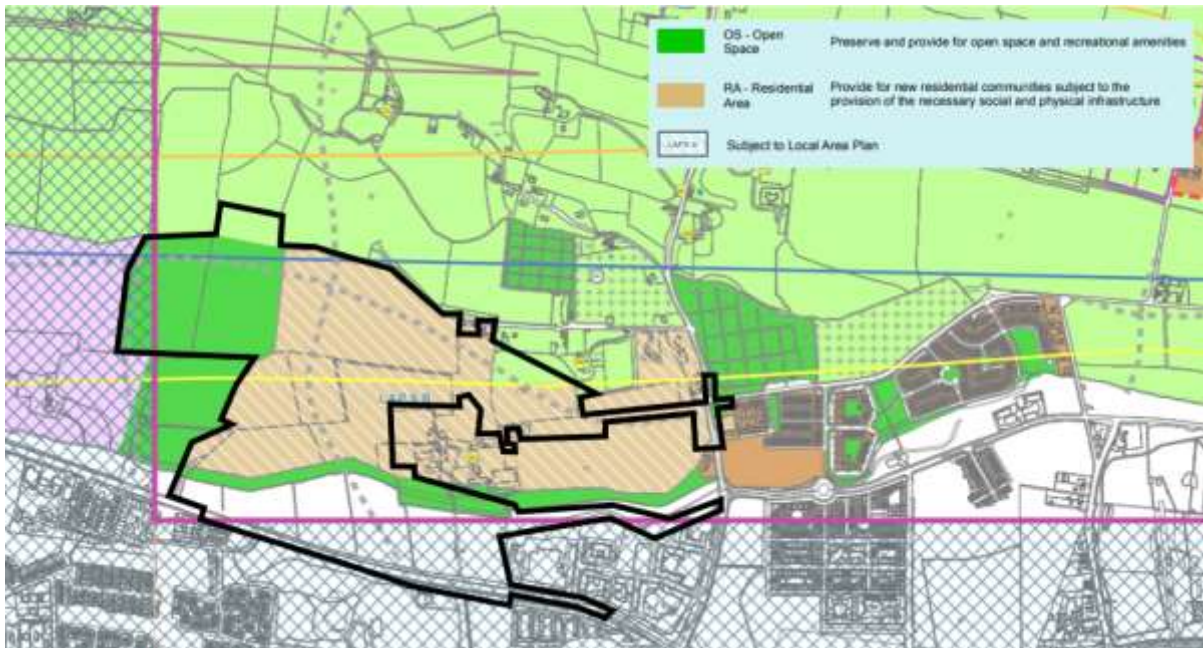


Figure 2: Land Use Zoning Map (application site outlined in black)

The proposed development is permitted in principle under the pertaining zoning objectives and is considered in accordance with the zoning objective and the necessary social and physical infrastructure for the area.

3.4.3.4 Site Specific Objectives and Designations

Under the current Development, the lands are subject to the following Objectives:

Objective BALGRIFFIN/BELCAMP 1: *“Promote high quality residential development which meets the needs of all stages of the life cycle through an appropriate mix of house type and local amenities.”*

The development proposes a high-quality residential and mixed-use development with a mix of house types, including houses, duplex apartments and apartment blocks with different unit sizes. A range of local amenities are also proposed, including childcare, recreational playing fields, urban plaza’s, public open spaces, children’s play equipment as well as retail units. This is in addition to the facilities already in place at Belcamp, including a Walled Garden and riverside walk.

Objective BALGRIFFIN/BELCAMP 2: *“Ensure that new communities are adequately served with accessible local services.”*

The development will be well served by both existing and proposed local services, which are readily accessible. A full assessment of this is outlined in the Community and Infrastructure Audit, prepared by Downey, which is submitted under separate cover.

Objective BALGRIFFIN/BELCAMP 5: *“Consider a limited quantum of development on the Belcamp LAP lands to facilitate the rehabilitation and preservation of Belcamp House prior to the adoption of Belcamp LAP. A design brief including the quantum and location of any such development, which shall not prejudice any future road requirements, shall be agreed with the Planning Authority prior to a planning application being lodged. Not more than 50% of any residential units permitted shall be sold or occupied pending the full re-instatement of Belcamp House to the satisfaction of the Planning Authority.”*

Objective BALGRIFFIN/BELCAMP 6: *“Prepare a Local Area Plan for lands at Belcamp (see Map Sheet 9, LAP 9.B) to provide for a sustainable mixed use urban district including residential, community and recreational facilities subject to the delivery of the necessary infrastructure and rehabilitation and restoration of Belcamp House.”*

In relation to Local Area Plans, the Development Plan indicates that, *“the preparation of Local Area Plans will enable a high degree of flexibility in the application of zoning and planning policies and assist in the application of the Council’s policies in relation to:*

- *Ensuring appropriate residential densities, especially where near to public transport links, with a requirement for a high standard of layout design and a mix of housing types.*
- *Providing for industrial and commercial uses to a high standard of design.*
- *Providing for the implementation of the Council’s objectives in relation to Green Infrastructure which seeks to address provision for biodiversity, parks and open space, sustainable water management, landscape character, and architectural and archaeological heritage in a coherent and integrated manner.*
- *Considering the feasibility of facilitating specific uses to provide appropriate employment opportunities.*
- *Providing for appropriate, viable and sustainable uses of the Greenbelts.*
- *Providing for the development of land to be phased with the provision of infrastructural and social facilities.*
- *Ensuring an appropriate mix of social, affordable and private housing.*
- *Providing for the development of viable rural communities.”*

The subject lands at Belcamp, whilst zoned for residential development, are also located in an area marked LAP 9.B and therefore are subject to a Local Area Plan. To date a Local Area Plan has not been prepared or adopted for the Belcamp lands by Fingal County Council. Therefore, the proposed development materially contravenes Objective BALGRIFFIN/BELCAMP 6 of the Fingal County Development Plan in that a Local Area Plan has not yet been prepared or adopted for the lands at Belcamp Hall.

In this regard, it is important to note that the proposed development forms part of the overall Belcamp LAP lands, thus representing an expansion on the already granted Phase 1 development for the

Belcamp lands (under Reg. Ref. F15A/0609 – ABP Ref. PL06F.248052, and subsequent amendments under Reg. Ref. F18A/0058, Reg. Ref. F19A/0220, and Reg. Ref. F19A/0221) and provides a design, layout, and scale, which follows from the already approved permissions mentioned above. The layout and street pattern of the proposal provide permeability between the adjacent lands and overall landholding.

Furthermore, it is submitted that the proposed scheme will also contribute to improving pedestrian and cycle linkages in the area, with dedicated cycle lanes are proposed across the scheme, while the street pattern allows easy cycle connection to Phase 1 of the Belcamp LAP lands, and the linear woodland park along the Mayne River. Pedestrian linkages are provided throughout the scheme in order to facilitate pedestrian crossing to connect the proposed development to the wider area.

As such, it is considered that the proposed residential development will assist in achieving quality developments in terms of urban design, structure, delivery of community/amenity facilities and permeability. The Architectural Design Statement prepared by CCK Architects & Urban Designers, which is enclosed under separate cover, sets out the site analysis for the entire Belcamp lands. Please refer to the enclosed supporting documentation which sets out the design principles for the development of the Belcamp lands in the context of the specific policies and objectives for the lands as set out in the Fingal Development Plan 2017-2023.

3.4.3.5 Development Standards

The Fingal Development Plan 2017-2023 sets out development standards and criteria from the policies and objectives of Fingal County to ensure that development occurs in an orderly and efficient manner and that it is in accordance with proper planning and sustainable development. Please refer the Statement of Consistency for detail on how the proposed development complies with the Development Management Standards as set out with the Fingal Development Plan 2016-2022.

3.5 Planning History Context

Downey have carried out an examination of the planning history of the subject site which determined that there have been a number of planning applications made on the overall landholding of the subject lands. The most relevant planning history is as follows:

- **Reg. Ref. F05A/1388** – By Order dated 1st March 2007, Fingal County Council granted planning permission to Gannon Homes Limited for alterations to and change of use at Belcamp College, a Protected Structure. The proposed development relates only to later 19th and 20th century parts of the complex, being the northern residential annexe and the southern T shaped brick wing, and consists of the change of use from school with residential component to apartment dwellings with consequential alterations to the internal arrangements and to fenestration on all elevations, 9 one bedroom, 20 two bedroom and 1 three bedroom apartments are to be provided together with associated parking, landscaping and engineering works, all accessed from existing access from N32 Road, Belcamp; on lands at Belcamp College, Malahide Road, Balgriffin, Dublin 13.
- **Reg. Ref F15A/0609 (ABP Ref. PL06F.248052)** – By Order dated 28th June 2017, An Bord Pleanála granted planning permission to Gannon Properties for a development of houses, apartments and shops and the change of use of Belcamp Hall, a Protected Structure (RPS No.

463), and its associated later extensions from educational uses to residential use, the chapel and the room in the north east part of Belcamp Hall ground floor to a community use, the three storey building on the north east to residential, cafe and childcare use. The works involve the refurbishment of Belcamp Hall and its later extension to provide 34 apartments (15 no. 1-bed, 13 no. 2-bed, 5 no. 3-bed and 1 no. 4-bed) and comprise the general repair and conservation of the existing buildings, and other works as is necessary to adapt the buildings to their new uses. The works to the Georgian House involve the general repair and conservation of the historic building fabric, upgrading the floors and installation of a new pitched roof. The works to the existing extensions to the south involve the complete refurbishment and fit out of the fire damaged blocks including installing new pitched roofs with dormer windows and the installation of balconies. An existing stair on the south east will be demolished and a replacement staircase constructed. An additional floor will be inserted into the southern block to provide additional accommodation at roof level. The works to the chapel involve the repair, conservation and reinstatement of the building fabric and its fittings and works to adapt it to its new use. The three storey building to the north will be extended and converted to residential use on the first floor level, restaurant use on the ground floor and part basement level and a childcare facility at basement level. External brickwork and stone will be re-pointed and cleaned and rainwater goods and leadwork replaced. Decorative metal railings will be reinstated. Disabled access facilities will be provided to the chapel. New mechanical, electrical and waste services will be installed throughout. The works will also include external works, hard and soft landscaping, underground services, repairs to the external entrance stone bridge and other external stone paved features. The existing stone pillars and gates at the Malahide Road entrance to be relocated to a position within the development. The new works comprise: a courtyard of 27 dwellings (6 no. three storey 3-bed houses and one 3 storey block containing 8 no. 1-bed, 1 no. 2-bed & 1 no. 3-bed apartments, 5 no. 2-bed & 1 no. 3-bed duplex live/work units, and 5 no. 3-bed duplex units) and 1 no. corner retail unit (51m²), on lands east of the walled garden; and one 3-4 storey block of 47 apartments (12 no. 1-bed, 32 no. 2-bed & 3 no. 3-bed); one 3 storey block of 16 apartments (4 no. 1-bed, & 12 no. 2-bed) over 8 no. retail units (621.5m² gross area); and 139 no. terraced, semi-detached and detached 2 storey houses (3 no. 2-bed, 86 no. 3-bed and 50 no. 4-bed) on lands between Belcamp Hall and Malahide Road. The development will include associated roads and infrastructure including a new east-west main road; services networks; 524 no. car parking spaces (incl. 273 on-curtilage); 118 no. bicycle spaces; bin stores; landscaping works including regeneration of existing woodland and provision of foot paths along Mayne River valley east and south of Belcamp Hall and protection and management of walled garden and woodland west of Belcamp Hall; and all associated ancillary and site works; all on a site of c.15.3ha, on lands bounded by the Malahide Road to the east, Mayne River to the south and development lands to the west and north, with access from the Malahide Road.

- **Reg. Ref F18A/0058** - By Order dated 16th May 2018, Fingal County Council granted planning permission to Gannon Properties for amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052, at Belcamp, a protected structure (RPS No. 463), to replace 9 no. three storey bedroom houses with 8 no. two storey three-bedroom houses, on a 0.19ha portion of the lands, with access from Malahide Road. The development includes 16 no. on-curtilage car parking spaces and all associated and ancillary site works; on lands at Belcamp, Malahide Road, Dublin 17.

- **Reg. Ref F19A/0220** - By Order dated 20th August 2019, Fingal County Council granted planning permission to Gannon Properties for Amendments to permitted developments Reg. Ref. F15A/0609, PL06F.248052 and F18A/0058 (a protected structure, RPS No. 463) to replace 83 no. two storey houses comprising 1 no. 2-bedroom house, 44 no. 3-bedroom houses and 38 no. 4-bedroom houses, with 89 no. two storey houses comprising 58 no. 3-bedroom houses and 31 no. 4-bedroom houses, on a 2.27ha portion of the lands, with access from Malahide Road. The development includes 178 no. on-curtilage car parking spaces and all associated and ancillary site works; on lands at Belcamp, Malahide Road, Dublin 17.
- **Reg. Ref F19A/0221** - By Order dated 20th August 2019, Fingal County Council granted planning permission to Gannon Properties for amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052 at Belcamp, a Protected Structure (RPS No. 463), comprising revisions to layout and house types of 49 no. two storey houses comprising 37 no. 3-bedroom houses and 12 no. 4-bedroom houses on a 1.21ha portion of the lands, with access from the Malahide Road. The development includes 98 no. on-curtilage car parking spaces and all associated and ancillary site works; on lands at Belcamp, Malahide Road, Dublin 17.
- **Reg. Ref F21A/0401** - By Ordered dated 3rd November 2021 Fingal County Council granted planning permission to Gerard Gannon Properties for the construction of 78 no. residential units comprising 58 no. houses (41 no. two storey 3-beds, 12 no. two storey 4-beds and 5 no. three storey 4-beds, all with associated car parking, and one no. three storey multi-dwelling block consisting of 10 no. own-door duplex units (6 no. 2-beds and 4 no. 3-beds), 2 no. 2-beds own-door triplex units, and 8 no. apartments (6 no. 1-beds and 2 no. 2-beds), all provided with private balconies/terraces and associated car parking and bicycle parking; landscaping; boundary treatments; public lighting; and all associated site infrastructure and engineering works necessary to facilitate the development. An appeal was subsequently lodged on 26th November 2021 and is now under consideration by An Bord Pleanála. This development is located lands at Belcamp, Malahide Road, Dublin 17.
- **Reg. Ref F21A/0488** – By Ordered dated 28th January 2022 Fingal County Council granted planning permission to Gerard Gannon Properties for the construction of 77 no. residential units across 2 no. apartment blocks as follows; Block 1, a part 3 and part 4 storey apartment block comprising 51 no. units (16 no. 1 bedrooms; 33 no. 2 bedrooms and 2 no. 3 bedroom units) with balconies/terraces to all units. Block 2, a part 3 and part 4 storey apartment block comprising 26 no. units (4 no. 1 bedrooms and 22 no. 2 bedroom units) with balconies/terraces to all units. The development also to include 65 no. surface level parking spaces, 184 no. bicycle parking spaces, bin stores, landscaping and boundary treatments. An appeal has subsequently been lodged on 23rd February 2022 and is now under consideration by An Bord Pleanála. It is important to note that Blocks 1 & 2 also form part of the site that was previously omitted by way of Condition No. 2 that was attached to the parent planning permission granted under Reg. Ref. F15A/0609; ABP Ref. PL06F.248052. This development is located lands at Belcamp, Malahide Road, Dublin 17.
- **Reg. Ref F15A/0609/E1** – By Order Dated 24th March 2022, Fingal County Council Granted an Extension of Duration of Permission on the parent permission ABP Ref. PL06F.248052, for a period of 5 years, expiring on the 28th June 2027.

There is a live planning application lodged to Fingal County Council in relation to the overall Belcamp lands. This applications are currently being assessed and comprise of the following:

- **Reg. Ref F22A/0136** – On 16th March 2022 Gerard Gannon Properties submitted a planning application to Fingal County Council for a development consisting of a 4 storey mixed use building (Block 3) comprising 40 no. residential units (6 no. 1 bedroom units and 34. no 2 bedroom units) with balconies/terraces, a childcare facility over ground and first floor levels with outdoor play area, refuse storage, plant and bike storage area at ground floor level, all with associated car parking and bicycle parking, landscaping, boundary treatments, public lighting and all associated site and engineering works necessary to facilitate the development. Planning permission is also sought for a single storey cafe structure within the walled garden (protected structure) with an associated terrace area, pergola, retractable awnings, and associated signage, with maintenance store, vehicular service access with gates, boundary treatments, detailed walled garden landscaping proposals including a natural play area (on foot of planning permissions granted under Reg Refs F15A/0609, PL06F 248052, F18A/0058, F19A/0220, F19A/0221). Additionally, the proposed development also includes an additional section of new road infrastructure pertaining to the East West Link Road on foot of planning permissions granted under Reg Refs F15A/0609, PL06F.248052, F18A/0058, F19A/0220 and F19A/0221). It's important to note that Block 3 and the childcare facility form part of the site that was previously omitted by way of Condition No. 2 that was attached to the parent planning permission granted under Reg. Ref. F15A/0609; ABP Ref. PL06F.248052

Downey, Chartered Town Planners, understand that this represents the full extent of the planning history pertaining to the subject site.

4.0 POPULATION AND HUMAN HEALTH

4.1 Introduction

This section of the Environmental Impact Assessment Report assesses the impact of the proposed development on the population, human health, and human environment in the general area of the application site on lands at Belcamp, Dublin 17, and within the administrative areas of Dublin City Council and Fingal County Council. Specific aspects that will be examined include population levels, human health, residential amenity, impact on employment, commercial activity, land-use, community infrastructure and social facilities. Insofar as possible, this assessment has also considered impacts on the future residents, workers, and visitors to the subject lands.

4.2 Research Methodology

The following assessment of the predicted impacts on population and human health was undertaken based on local population information from the Central Statistics Office’s (CSO) Census of Population reports and databank, the Regional Spatial and Economic Strategy 2019-2031, Dublin City Development Plan 2016-2022, and the Fingal County Council Development Plan 2017-2023. It is important to note that given the location of the subject site situated within the Balgriffin, Priorswood B, and Priorswood C ED’s. With respect to the nature and scale of the proposed development, it was considered that an assessment of amenities within a 2km radius off the centre of the lands would be appropriate.

It is important to note that as per the Fingal County Council’s written response to the stage 2 pre-planning submission, there were concerns over accurate portrayal of central point of the lands, which effectively changes the 2km radius catchment of the audits. In response to that and with regards to the irregular shape of the development site, it is suggested that centroid (geometric centre) of the lands would appropriately meet the foregoing item. Thus, as illustrated in the Figure 4-1 below, the centroid of the lands was calculated by utilising ArcGIS online, and the 1-2km buffer areas were then generated off this point.

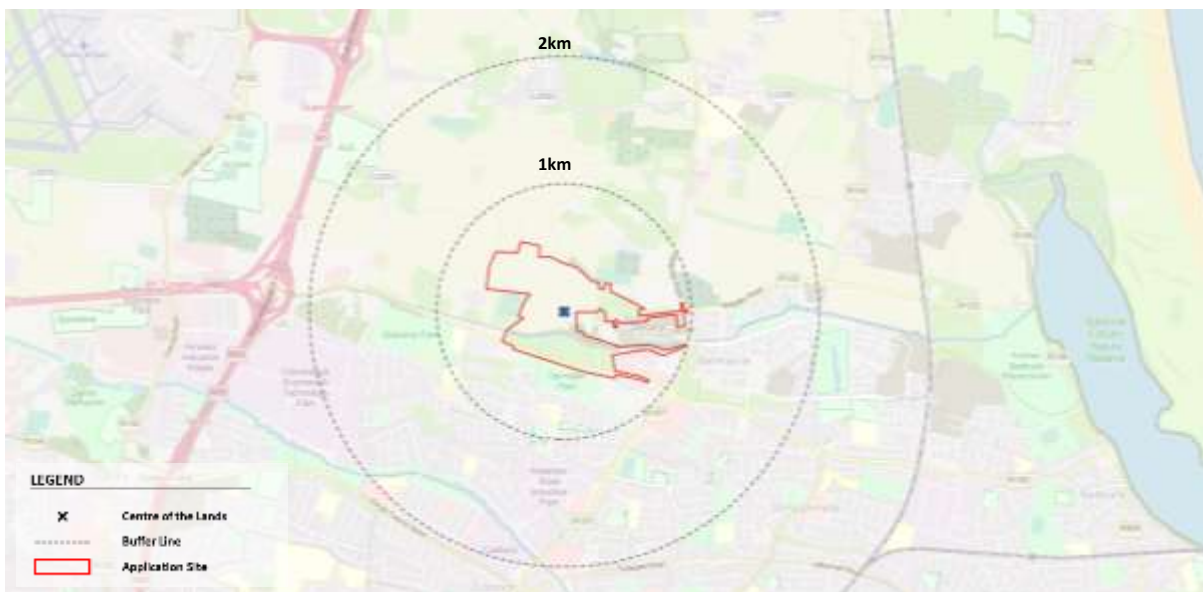


Figure 4-1. Catchment Area of the Assessment Defined as 1-2km Radius off the Centroid of the Lands

With regards to the foregoing, the demographic scope of the assessment is determined by overlaying the 2km radius buffer zone off the centre of the application lands and the Electoral Divisions National Statutory Boundaries, which includes the following:

- | | |
|----------------------------|----------------------------|
| 1) Balgriffin ED (04005) | 6) Priorswood E ED (02084) |
| 2) Priorswood A ED (02080) | 7) Grange A ED (02059) |
| 3) Priorswood B ED (02081) | 8) Kilmore C ED (02071) |
| 4) Priorswood C ED (02082) | 9) Ayrfield ED (02008) |
| 5) Priorswood D ED (02083) | |

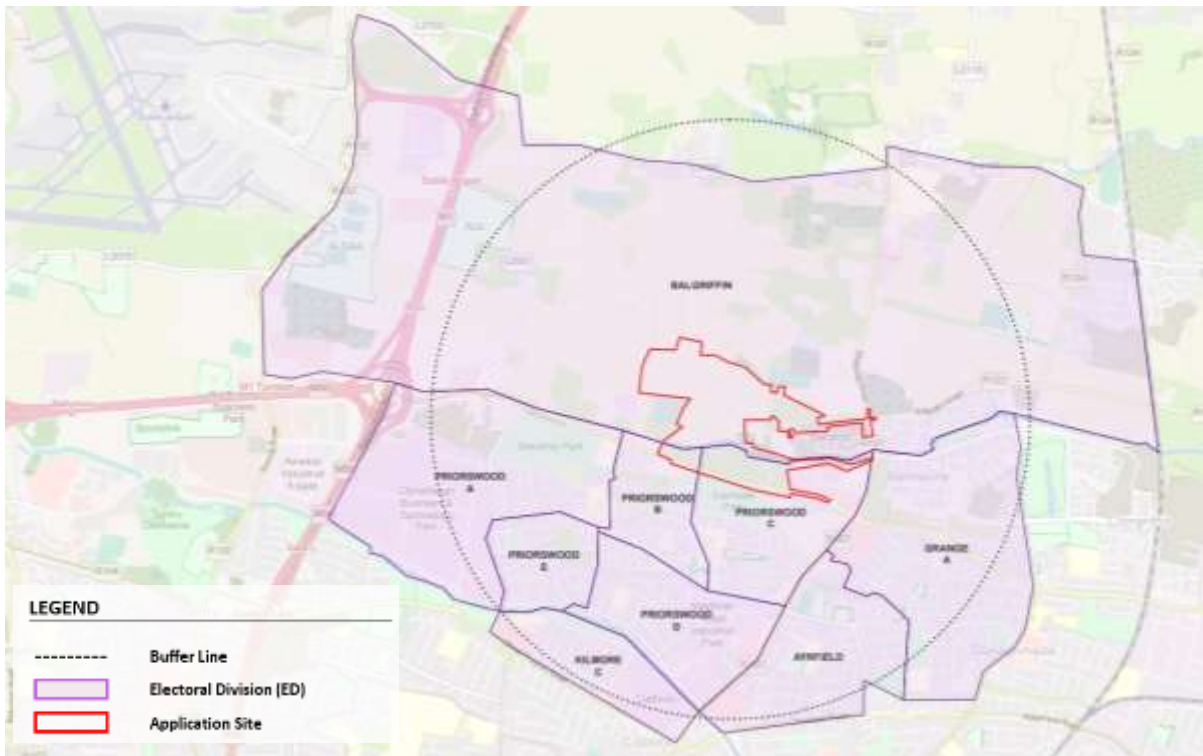


Figure 4-2. Demographic Scope of the Assessment

It is noted that the same approach was utilised within the Community and Social Infrastructure Audit and Childcare Provision Assessment; however, this scope was further expanded in the School Demand Assessment as to also include Grange B ED (02060) in order to have the Clongriffin-Belmayne LAP lands within the scope of the assessment. Also, the same scope was adjusted and enhanced to include Balgriffin, Priorswood A, Priorswood B, Priorswood C, Grange A, Grange B, Baldoyle, and Portmarnock South ED's to carry out a Retail Impact Assessment.

As to provide for greater consistency between these reports and the EIAR, it is suggested to incorporate the first spatial scope to include the 9 no. ED's of Balgriffin, Priorswood A, Priorswood B, Priorswood C, Priorswood D, Priorswood E, Grange A, Kilmore C, and Ayrfield ED's within the following chapter of the EIAR.

A site visit and a Community and Social Infrastructure Audit was also undertaken to appraise the location, the existing infrastructure and services in the area and any likely and significant potential impact upon human receptors. This also accompanies a School Demand Assessment, a Childcare

Provision Assessment, and an Economic Study & Retail Impact Assessment to further investigate the anticipated demand arising from the future population together with the proposed development.

The employment context was set out drawing principally on the most recently available statistics for the total number of persons at work, unemployment levels and employment categorised according to social group. Therefore, information on the economic performance of the area and the wider Dublin region is derived primarily from the 2016 Census results and statistics obtained from the ESRI.

The following assessment of land-use was undertaken based on a site visit appraisal and a review of the zoning objectives of the Dublin City Development Plan 2016-2022 and Fingal County Council Development Plan 2017-2023. The assessment was carried out in accordance with the following guidance documents and aligned accordingly based on Downey's professional experience and judgement:

- EPA (2017), Guidelines on the Information to be Contained in Environmental Impact Statements.
- The Guidelines for Planning Authorities and An Bord Pleanála on Carrying Out Environmental Impact Assessment (August 2018).
- EPA (2015), Advice Notes on Current Practice in the Preparation of Environmental Impact Statements.

4.3 Baseline Environment

The lands, which extend to approximately 67 hectares, are located to the north of the Northern Cross Road (R139), Northern Cross, Dublin 17. The site comprises Belcamp Hall (and associated additions), chapel, walled garden, and folly's accessed by an internal access road off the Malahide Road (R107). Phase 1 of the new emerging development of Belcamp has commenced and partially occupied. The site is of irregular shape as a result of its being a composite of pre-existing landscape features of equally irregular shapes. Much of the site is relatively level. However, the lands to the south of Belcamp Hall are divided by the Mayne River, the course of which forms a substantial change in level between the main site to the north and the adjoining lands to the south and contains significant woodland. The lands include the original environs of Belcamp Hall as well as a substantial amount of agricultural land. Whilst the agricultural lands support few trees, other than those arising from field demarcations, the lands that surround Belcamp Hall supports substantial woodland. The cumulative effect is an extensive but highly variable landscape across the site, from clear arable agricultural lands to woodland within the river valley and environs.

4.4 Characteristics of the Proposed Development

The proposed development subject to this Strategic Housing Development (SHD) Application provides for delivery of 2,527 no. residential units comprising 1,780 no. apartments, 274 no. duplex units, and 473 no. houses, 2 no. childcare facilities, retail/commercial provision, and all associated site infrastructure and engineering works necessary to facilitate the development. It is also important to note that a site is being reserved as part of this application for the future provision of a school by the Department of Education.

4.5 Demographic Trends

4.5.1 Population

The latest Census results show that Ireland’s population stood at 4,761,865 in April 2016, an increase of 173,613 (3.8%) since April 2011. This trend has been represented in the Dublin region with a greater growth rate, increasing by 5.9% to 1,347,359 over the intercensal period. As illustrated in the table below, the population growth of Dublin City and County Fingal followed the same pattern as the Region, with an even greater growth rate recorded for County Fingal, increasing by 8% to 296,020 in 2016. This recorded the County of Fingal as the most dynamic county in the Region in terms of population change over 2011-2016.

Table 4-1. Population Change Across the Dublin Region over 2011-2016

Area	2011	2016	Actual Change	% Change
Dublin City	527,312	554,554	+27,242	5.2
Dun Laoghaire - Rathdown	206,261	218,018	+11,757	5.7
South Dublin	265,205	278,767	+13,562	5.1
Fingal	273,991	296,020	+22,029	8.0

Source: CSO StatBank

Census 2016 results show that the assessment area’s population stood at 34,733 in April 2016, which indicates an increase of 2,733 (+8.5%) since the last Census in 2011. This is submitted to be in line with the overall demographic trend in both administrative areas of Fingal County and Dublin City, where the growth rate recorded at +8% and +5.1% respectively. Breaking down the growth into the ED’s, as illustrated in the Table below, all electoral divisions had a growing population. However, Balgriffin recorded a notable growth rate standing at +58.3% with an actual increase of +1,147 persons over 2011-2016. This is then followed by Grange A (+8.4%), Priorswood C (+8.1%), and Kilmore C (+5.3%). It is noted that major part of the subject lands is located within the Balgriffin ED, where the most notable population growth took place in. The Priorswood C and B, where the southern portion of the lands area located in, also experienced considerable growth over the intercensal period. This is submitted to be reflective of the spatial distribution of the area’s emerging housing demand.

Table 4-2. Population Change in the Assessment Area against the overall Stats of the Administrative Areas, 2011-2016

	Census 2011	Census 2016	Actual Change	Percentage Change
County Fingal (Administrative Area)	273,991	296,020	22,029	8.0%
Dublin City (Administrative Area)	527,612	554,554	26,942	5.1%
Balgriffin	1,966	3,113	1,147	58.3%
Priorswood A	1,562	1,618	56	3.6%
Priorswood B	2,673	2,728	55	2.1%
Priorswood C	4,491	4,854	363	8.1%
Priorswood D	2,729	2,756	27	1.0%
Priorswood E	2,821	2,839	18	0.6%
Grange A	8,948	9,696	748	8.4%
Kilmore C	1,415	1,490	75	5.3%
Ayrfield	5,395	5,639	244	4.5%

Source: CSO StatBank

As illustrated on the Figure 4-3 below, the largest share of the population residing in the Assessment Area recorded to be in Grange A (28%), followed by Ayrfield (16%), and Priorswood C (14%). Therefore, the overall demographic trending of the Assessment Area is expected to be mainly affected by the foregoing ED's.

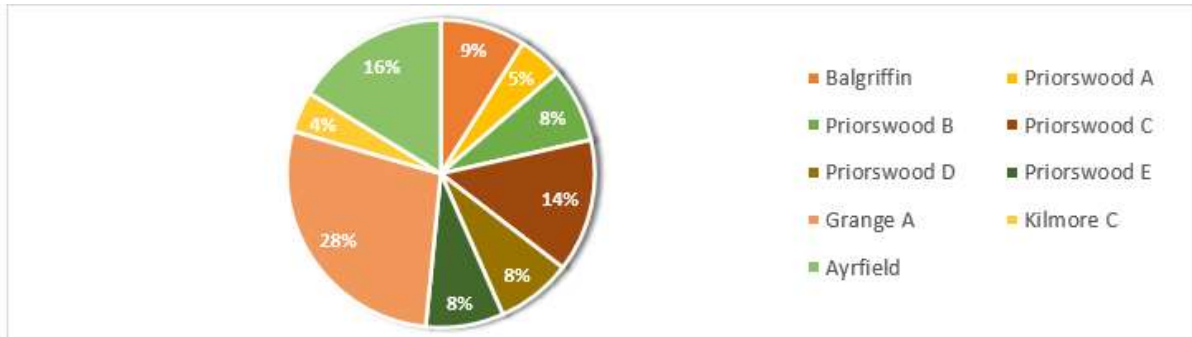


Figure 4-3. Breakdown of Population Residing in the Assessment Area by ED, 2016

4.5.2 Average Household Size

With an average household size of 3.1, there were 11,100 no. private households residing in the area in 2016. As shown in the Table 4-3 below, 62.2% of the households in this area recorded to be small sized households ranging from 1- to 3-person households (6,906 no. households). It is important to note that the average household size in the area slightly increased from 3.0 in 2011 to 3.1 in 2016.

Table 4-3. Private Households in the Assessment Area by Household Size, 2016

Size of Household	Balgriffin	Priorswood A	Priorswood B	Priorswood C	Priorswood D	Priorswood E	Grange A	Kilmore C	Ayrfield	Total	% of Total
1-Person	87	78	78	287	194	143	360	111	376	1,714	15.4%
2-Person	123	134	166	417	240	261	800	146	635	2,922	26.3%
3-Person	128	109	172	339	182	204	655	83	398	2,270	20.5%
4-Person	194	124	147	261	143	211	721	91	361	2,253	20.3%
5-Person	111	61	100	151	110	79	371	39	190	1,212	10.9%
6plus-Person	69	19	115	118	67	53	169	43	76	729	6.6%
Total	712	525	778	1,573	936	951	3,076	513	2,036	11,100	100.0%

Source: CSO StatBank

With respect to the household size profile of the area recording more than 62% of the households as small sized families, it is suggested that not all the 2-bedroom dwellings are expected to be family occupied, instead these are foreseen to be mainly occupied by young professionals or singles.

4.5.3 Average Age

Investigating the age profile of the area as per Census 2016, as illustrated in the Figure below, indicates that younger age cohorts still form the greatest share of the population residing in the ED's forming the assessment area, with the younger age groups of 0-9 and 10-19 years old showing a steady growth, and 20-29 and 30-39 years old comprising a considerable share of the population residing across the ED's. It also reveals that the largest share of younger age groups resides in Grange A ED.

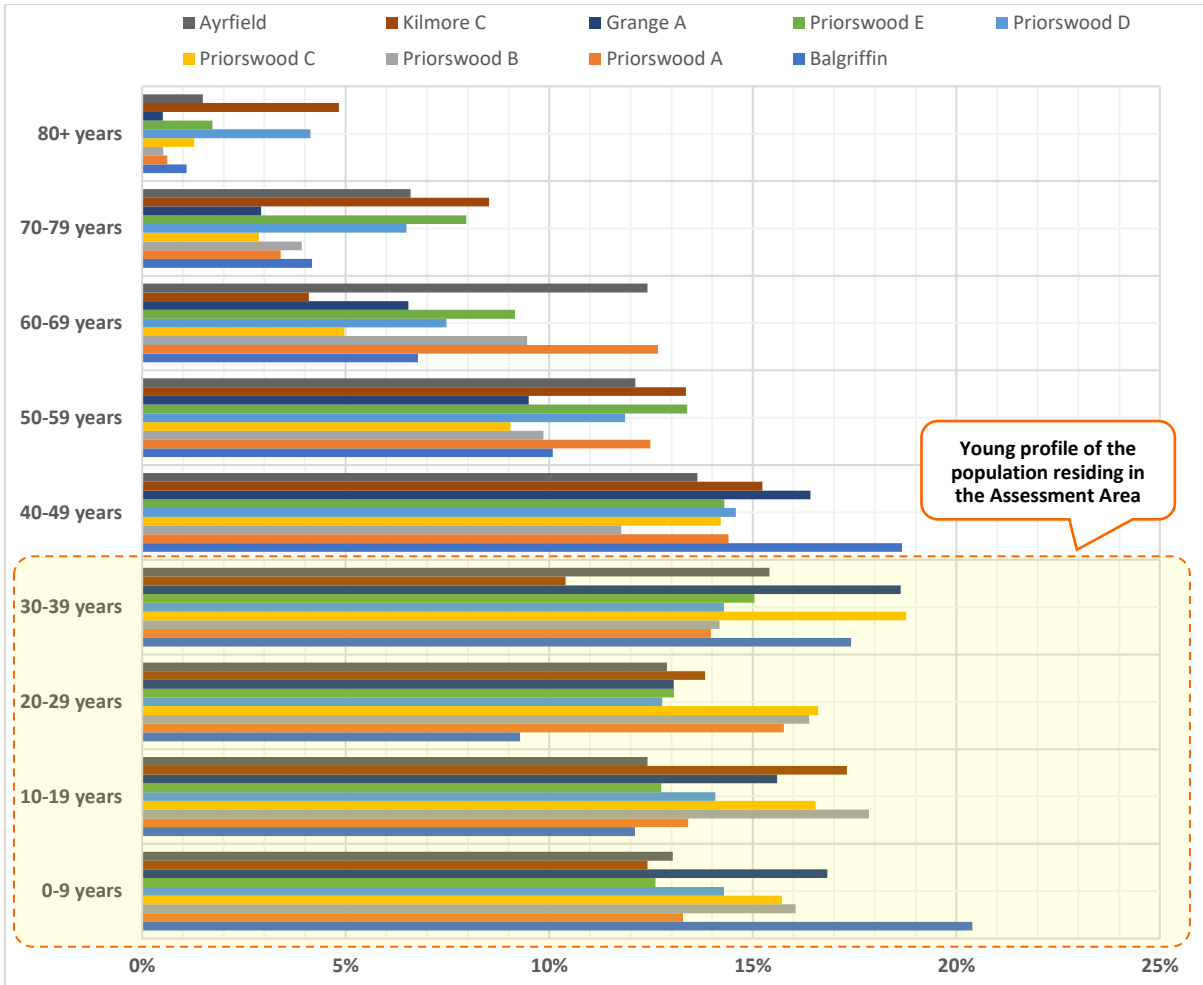


Figure 4-4. Population Age Cohorts in the Assessment Area across the ED's, 2016

The population pyramid below (Figure 4-5) shows the age distribution in the area with more detail. A peak of births in 1980's shows up in the 30-39 age category, and another peak in the number of births occurred in 2000's and shows up in the 0-9 age category. Overall, the age pyramid indicates a young population residing in the area, which is expected to grow in the coming years.

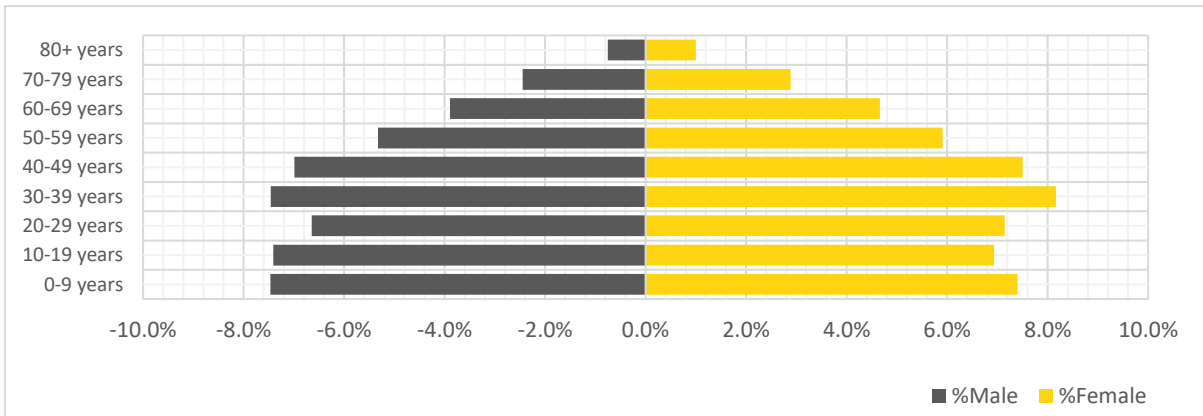


Figure 4-5. Population Age Pyramid of the Assessment Area, 2016

As illustrated in the table below, the age dependency rate had a steadily increasing growth since 2011. The old age dependency rate increased from 46.6% in 2011 to 47.3% in 2016 within the assessment

area, however, it is submitted that while old age dependency increased from 8.5% in 2011 to 11.2% in 2016, young age dependency decreased from 38.2% in 2011 to 36.1% in 2016. It is noteworthy to mention that in terms of young age dependency, Balgriffin, Priorswood B, and Priorswood C, which the application lands fall under, stood well above the recorded average for both Fingal County and Dublin City. In terms of old age dependency, as illustrated in the Table below, these three ED's submitted to have a lower rate when compared to Fingal County and Dublin City. Therefore, the immediate context to the application site is mostly characterised with younger age groups.

Table 4-4. Age Dependency in Malahide Area against the overall Stats for the County, 2011-2016

		Old Age Dependency	Young Age Dependency	Total Age Dependency
County Fingal (Administrative Area)	Census 2016	13.8%	37.0%	50.7%
	Census 2011	10.6%	35.4%	46.0%
Dublin City (Administrative Area)	Census 2016	18.1%	20.9%	39.0%
	Census 2011	12.6%	29.7%	42.3%
Balgriffin	Census 2011	7.1%	36.3%	43.4%
	Census 2016	8.7%	36.0%	44.7%
Priorswood A	Census 2011	5.1%	37.1%	42.2%
	Census 2016	10.6%	34.1%	44.7%
Priorswood B	Census 2011	6.1%	44.7%	50.7%
	Census 2016	9.3%	41.8%	51.1%
Priorswood C	Census 2011	4.1%	43.6%	47.7%
	Census 2016	6.4%	40.4%	46.8%
Priorswood D	Census 2011	14.8%	36.2%	50.9%
	Census 2016	14.8%	35.0%	49.7%
Priorswood E	Census 2011	11.8%	35.4%	47.2%
	Census 2016	14.4%	31.5%	45.9%
Grange A	Census 2011	4.3%	38.8%	43.1%
	Census 2016	7.2%	38.4%	45.7%
Kilmore C	Census 2011	20.0%	38.4%	58.4%
	Census 2016	15.2%	36.4%	51.6%
Ayrfield	Census 2011	2.9%	33.2%	36.1%
	Census 2016	14.3%	31.3%	45.6%

Source: CSO StatBank

The overview of age dependency rates in assessment area indicates despite a growing increase in the population over the age of 65, the population of the area is expected to be characterised mainly by younger age groups. This is further supported by the breakdown of population into two age groups of under 24 years old and above 65 years old, as summarised in the Table below. As shown, despite a considerable rate of growth recorded for the population over the age of 65, the younger age cohorts still form a bigger share of the overall population residing in the area.

Table 4-5. Population Aged 24 and below along Population Aged 65 and above Residing in the Area, 2011-2016

Age Group	Census 2011	Census 2016	% Change
24 year olds and below	12,243	12,663	3.4%
65 year olds and above	2,120	3,554	67.6%

Source: CSO StatBank

As it is mapped on the Figure below, the spatial distribution of population density in the area, 2016 reveals moderate to the southern boundaries of the application site. However, as illustrated below,

the concentration of high density small areas along the railway and major transportation corridors reveals the emerging pattern of development in this area, where the land banks to the northern fringe of Dublin City are the targets to housing delivery where there is an appropriate level of accessibility.

As it can be seen, the proposed scheme would assist in development of an on appropriately zoned lands, in an accessible location, which would promote compact urban growth in the area in line with sustainable development of the area.

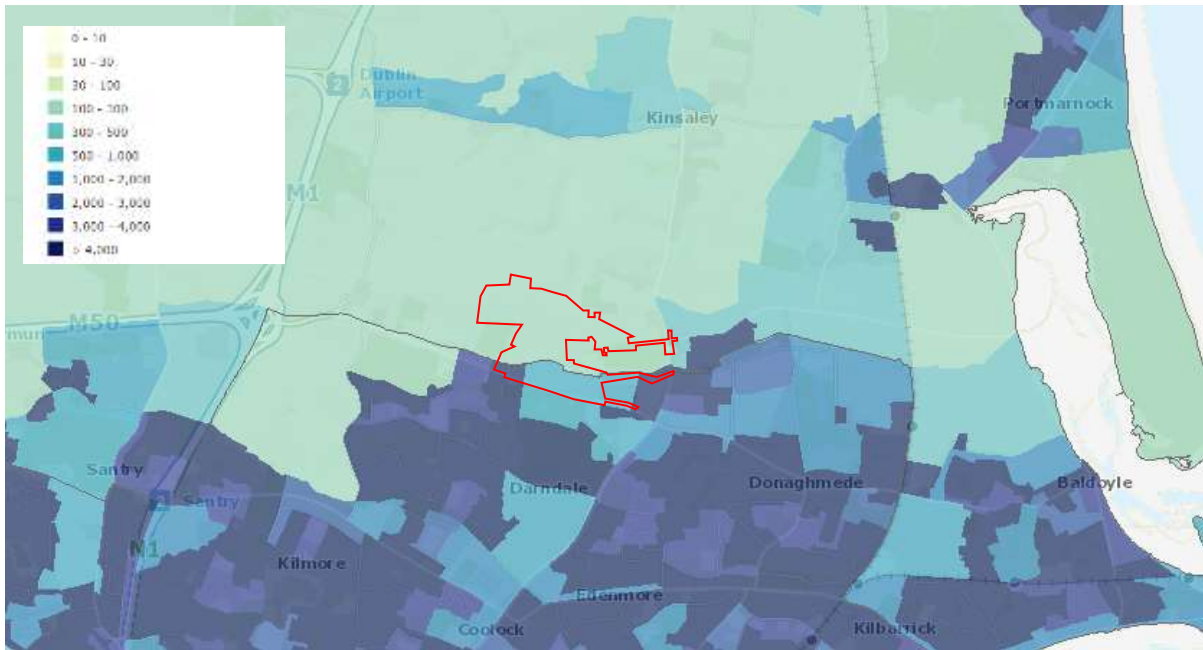


Figure 4-6. Spatial Distribution of Population Density per Km² in the Assessment Area

Based on the aforementioned results, the context to the proposed development is expected to have a steady population growth while facilitating housing delivery in the north fringe of Dublin City. This would also contribute to the housing targets set in both Fingal County Development Plan and Dublin City Development Plan utilising an appropriately zoned piece of land. Spatial distribution of the population indicates a tendency for the greater densities in the area. This population is characterised by a young age profile and small to medium sized households. This would render the profile of housing market in the area, where smaller households and young professionals are the main target groups. This would also support the proposed development, where a balanced mix of dwellings have been provisioned.

4.5.4 Potential Impact of the Proposed Development

4.5.4.1 Construction Phase

The construction phase of the proposed development should not have any direct impact on the population of the area or the subject lands. It is expected that the work force will generally travel to the development site rather than take up residence in the immediate vicinity. However, the construction of any project has potential to give rise to an impact on health and safety of human beings if construction activities are not managed appropriately. Measures to address such health and safety considerations will be addressed in a Construction Management Plan for the development for implementation during the construction phase, in accordance with best practice.

4.5.4.2 Operational Phase

The operational phase of the proposed development will result in the provision of 2,527 no. new residential units. The average household size stood at 3.02 for Fingal and 2.48 for Dublin City, which is based on the 2016 census of population and for the development's catchment area translates into 3.1 persons. Based on this figure, it is anticipated that the proposed development to accommodate a maximum of 7,834 persons. It is noted that within the proposed mix of unit types, there is also one-bedroom apartment/duplex units. Outlined in the demographic profile of the area, 41.7% of the households recorded as 1- to 2-person families.

To provide for a more accurate estimation, the calculation shown below thus excludes 1-bedroom apartments and 40% of the 2-bedroom units on the basis that these will not be occupied by families (640 no. 1-beds + 418 no. as 40% of 2-beds = 1,058 no. units), instead these are foreseen to be occupied by young professionals or singles. As such, the proposed development comprises a total of 1,469 no. residential units that can be deemed to accommodate families. Applying the average household size of 3.1 to 1,469 no. apartments/duplexes would generate 4,554 no. residents. Applying a maximum household size of 1 to the remaining apartments/duplexes would generate 2,116 no. residents. This would provide for an overall total of 6,670 residents.

With respect to the above mentioned, the proposed scheme is expected to accommodate a maximum of 6,670 to 7,834 persons.

4.5.5 Remedial and Reductive Measures

No remedial or reductive measures are proposed with reference to population.

4.5.6 Predicted Impact of the Proposed Development

4.5.6.1 Construction Phase

The construction phase of the development will have a negligible or neutral impact on population.

4.5.6.2 Operational Phase

The population analysis above suggests that the population of the area will continue to rise in the medium term. The population increase predicted as a result of the operational stage of the proposed development ties in with broader trends in the area and the development will provide for this increase, therefore resulting in a positive impact on population.

4.5.6.3 Monitoring

There is no requirement for population monitoring.

4.6 Employment

The CSO 2016 statistics confirm an employment level of 2,006,641 persons for the catchment and an unemployment level of 297,396 persons for the State. The employment level is increased from 199,281 since 2011 and the unemployment level is down significantly from the previous figure of 424,843 people, this was mainly due to the impact of the recession on employment levels during the census period. As illustrated in the Table below, both County Fingal and Dublin City experienced an

increase in their employment levels between the period of 2011-2016, and the same trend was followed within the assessment area recording an increase of 15.4% in the overall rate of employment. A breakdown of this trending across the ED's are provided below.

Table 4-6. Total Number of Persons aged +15 years at Work in the County and Study Area, 2011-2016

Area	Persons at Work		% Change 2011-2016
	2011	2016	
Dublin City (Administrative Area)	227,429	265,670	16.8%
County Fingal (Administrative Area)	119,276	133,971	12.3%
Balgriffin	893	1,464	63.9%
Priorswood A	638	708	11.0%
Priorswood B	731	804	10.0%
Priorswood C	1,605	1,855	15.6%
Priorswood D	837	945	12.9%
Priorswood E	1,101	1,230	11.7%
Grange A	4,025	4,497	11.7%
Kilmore C	367	446	21.5%
Ayrfield	2,326	2,500	7.5%

Source: CSO StatBank

The Labour Force Survey Q3 2021, which was published by the CSO in November 2021, contains the labour market statistics for Ireland. Due to the impact of COVID-19 in the global economy the CSO has compiled standard methodology and separate COVID-19 adjusted estimates (as stated in their Information Note on Implications of COVID-19 on the Labour Force Survey), which stated:

“As the Central Statistics Office (CSO) is obliged to follow standard definitions and methodology when calculating official estimates from the Labour Force Survey (LFS), it has been decided to compile the Quarter 1 2020 LFS Estimates in the usual way and provide separate COVID-19 Adjusted Estimates. This approach preserves the methodology of the LFS while at the same time providing transparency around the current impact of COVID-19 on the Labour Market within Ireland.

The CSO has produced a supplementary measure of Monthly Unemployment in parallel with the routine Monthly Unemployment Estimate methodology, which incorporates those in receipt of the Pandemic Unemployment Payment into the calculation to produce a COVID-19 Adjusted Measure of Monthly Unemployment. This new measure was published as part of the Monthly Unemployment Estimates (MUE) release for March 2020 and April 2020 and will continue to be made available for as long as deemed necessary by the CSO.”

Accordingly, there were 2,471,200 people aged 15-89 years in employment in Q3 2021, giving an employment rate of 72.2% for those aged 15-64, based on the International Labour Organisation (ILO) criteria. The number of persons in employment was up 9.8% (221,200) from 2,250,000 over the year while the employment rate was up from 66.4% in Q3 2020.

The COVID-19 Adjusted Measure of Employment, or the lower bound for the number of employed persons aged 15 - 89 years, rose from 2,369,731 to 2,393,394 persons between the end of September 2021 and the end of October 2021. This was accompanied by an increase from 69.1% in September 2021 to 69.8% in October 2021 in the associated COVID-19 Adjusted Employment Rate for those persons aged 15-64.

Table 4-7. Summary of Labour Force Survey (Q3 2021)

	Standard LFS Methodology (ILO)	COVID-19 Adjusted Estimates September 2021
Indicator	Q3 2021	end of Q3 2021
Employed persons aged 15-89 years	2,471,200	2,369,731
Employment rate for those aged 15-64 years	72.2%	69.1%
Unemployed persons aged 15-74 years	149,100	232,866
Unemployment rate for those aged 15-74 years	5.7%	8.9%
In labour force	2,620,300	-
Not in labour force	1,407,700	-

Source: CSO StatBank

There were 149,100 unemployed persons aged 15-74 years in the catchment in Q3 2021 based on ILO methodology. In Q3 2021, the unemployment rate was 5.7% for those aged 15-74 years with a rate of 12.1% for those aged 15-24 years, these rates are down from 7.4% and 20.9% respectively in Q3 2020. The COVID-19 Adjusted Measure of Monthly Unemployment published as part of the Monthly Unemployment release for October 2021, was 232,866 for September 2021 (end of Q3 2021), this estimate is an upper bound and adds all those on the Pandemic Unemployment Payment (PUP) to the standard Monthly Unemployment Estimate. Furthermore, the COVID-19 Adjusted Measure of Unemployment fell to 205,246 in October 2021. The associated COVID-19 Adjusted Unemployment Rate fell from 8.9% in September 2021 to 7.9% in October 2021.

4.6.1 Potential Impact of the Proposed Development

4.6.1.1 Construction Phase

The proposed development will provide significant construction sector and related employment over the construction period of the development. It can be difficult to determine the exact numbers that may be employed directly on site during the construction phase as workers may only be employed on a temporary basis as sub-contractors and may also work on other sites during the period.

Should An Bord Pleanála grant planning permission for this proposed development, then it will be constructed over a phased basis, in accordance with the indicative proposed construction phasing plan for the proposed project and in agreement with the planning authorities.

Aside from the benefits of direct employment, it is anticipated that builder suppliers and other related services will indirectly benefit from the construction phase of the proposed development. The construction phase therefore will be beneficial to the local economy due to the additional income and expenditure that will arise. This is considered to be a positive impact arising from the development.

4.6.1.2 Operational Phase

The proposed development will attract visitors to the area on a temporary basis, possibly sustaining and increasing the demand for local services, including shops, public houses, restaurants, etc. In addition to the residential component of the development, the application also proposes 1 no. childcare facility, which will deliver new local employment opportunities, both full time and part time positions which will become available for the resident population with an overall positive impact on employment.

4.6.2 Remedial and Reductive Measures

No adverse impacts on employment are predicted during the construction or operational phase of the development. No remedial or mitigation measures are considered necessary.

4.6.3 Predicted Impact of the Proposed Development

The predicted impact of the proposed development will be the same as that set out for potential impacts.

4.6.4 Monitoring

There is no requirement for economic monitoring.

4.7 Land-Use

Under the current Fingal County Council Development Plan, the majority of the subject lands are zoned “RA - Residential”. The provision of residential and community uses is permitted in principle under the “RA” zoning which seeks to:

“Provide for new residential communities subject to the provision of the necessary social and physical infrastructure.”

The vision for “RA” zoned lands is to:

“Ensure the provision of high quality new residential environments with good layout and design, with adequate public transport and cycle links and within walking distance of community facilities. Provide an appropriate mix of house sizes, types and tenures in order to meet household needs and to promote balanced communities.”

As shown on the Figure below, a portion of the lands is also zoned “OS - Open Space”, seeking:

“To preserve and provide for open space and recreational amenities”.

Also, parts of the lands are zoned as “GB - Green Belt”, seeking to:

“Protect and provide for a Greenbelt.”

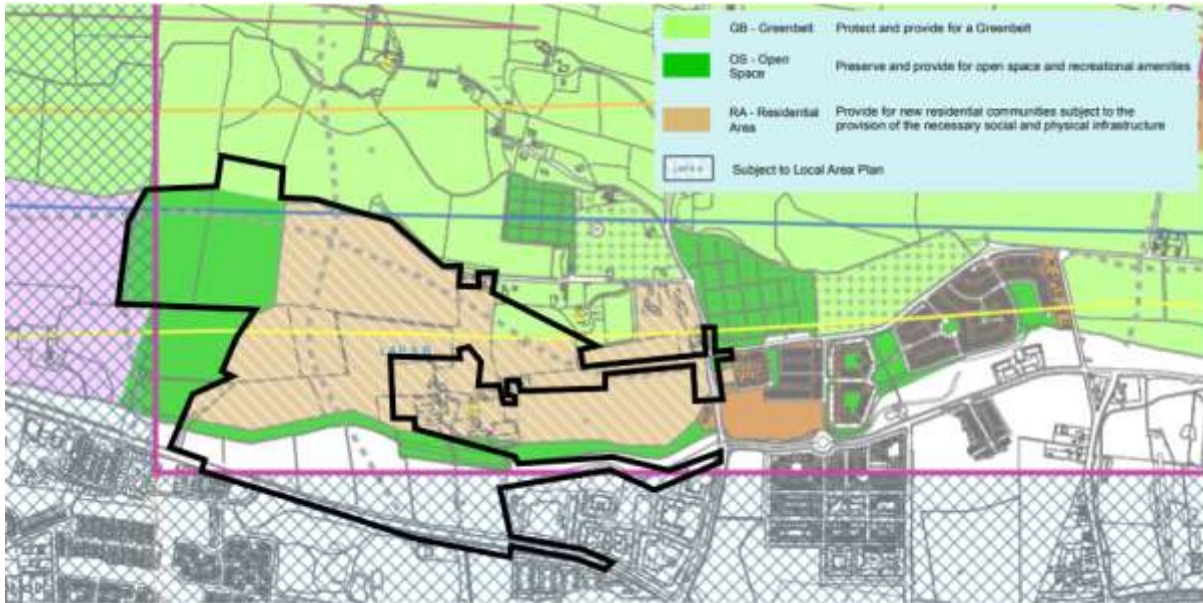


Figure 4-7. Land Use Zoning Map Extracted from the Fingal Development Plan (application site outlined in black)

Under Dublin City Development Plan 2016-2022, the southern portion of the application lands are zoned as a “Strategic Development and Regeneration Area – Zone 14” (SDRA). Outlined in the Development Plan, these are large-scale public housing areas, where proposals for comprehensive development or redevelopment have been, or are in the process of being prepared. These areas also have the capacity for a substantial amount of development in developing areas in the inner and outer city. As per Development Plan, it is objective of this land use zoning:

“To seek the social, economic and physical development and/or rejuvenation of an area with mixed use of which residential and “Z6” would be the predominant uses.”

Also, Z14 areas are capable of accommodating significant mixed-use development; therefore, developments must include proposals for additional physical and social infrastructure/facilities to support same. It is noted that the Development Plan identifies 18 no. Z14 areas, which the subject lands fall under the “SDRA 1 - North Fringe (incl. Clongriffin/Belmayne).



Figure 4-8. Land Use Zoning Map Extracted from the Dublin City Development Plan (application site outlined in black)

Therefore, the proposed development of residential units, 2 no. childcare facilities, retail/commercial provision, are all permitted in principle under the zoning objectives pertaining to the subject lands.

4.7.1 Potential Impact of the Proposed Development

4.7.1.1 Construction Phase

The construction phase of the development involves a change in land-use of the majority of the site from a current greenfield site, which has no current activity to use as a temporary active construction site. The site is considered suitable for construction activities to provide a development that will cater for the planned population and housing targets set for the northern fringe of Dublin, within the Dublin Metropolitan Area, through provision of new homes. With recommended construction mitigation measures in place as set out within this EIAR, the subject lands and surrounding area have the capacity to accommodate the construction of the proposed development without any significant risk of impact upon existing land-uses.

4.7.1.2 Operational Phase

The proposed development will result in a permanent change in land-use of the site from a current greenfield site, which has no current activity to a residential development and supporting community uses, comprising 2 no. childcare facilities and retail/commercial provision. This is considered to be a permanent positive impact on an area of land that has no current active use. The surrounding land-uses (primarily residential, recreation and commercial uses) will continue during the operational phase of the proposed development. The impact of the proposed site is negligible as the site will have a positive impact on the surrounding area through the provision of a new resident community. Therefore, while the proposed development will result in a permanent change in land-use from an undeveloped land to a mix of residential and residential amenity use, this change is consistent with the zoning objectives for the lands as per Dublin City Development Plan 2016-2022 and Fingal County Council Development Plan 2017-2023.

4.7.2 Remedial and Reductive Measures

No remedial or reductive measures are proposed with reference to land-use.

4.7.3 Predicted Impact of the Proposed Development

4.7.3.1 Construction Phase

The predicted impacts of the construction phase of the development are the same as that set out under the potential impacts of the construction phase of the development and are not anticipated to be significant. Furthermore, all impacts will be temporary in nature.

4.7.3.2 Operational Phase

The predicted impact is the same as that set out under the potential impacts of the operational phase of the development.

4.7.4 Monitoring

There is no requirement for land-use monitoring.

4.8 Community Infrastructure and Social Facilities

Community infrastructure can generally be defined as services and facilities that are available to the residents of any given area. These include early childcare and educational facilities, open spaces, recreational, and sporting facilities, community centres and halls, retail provision, healthcare facilities, and religious buildings. The current situation in relation to these facilities in the subject area is set out in the following sections and is also subject to a separate report prepared by Downey, which forms part of the planning application documentation submitted with the EIAR.

4.8.1 Early Childcare & Educational Facilities

4.8.1.1 Childcare Facilities

As seen on the TUSLA map below, there are a number of registered childcare providers in the area and Downey have contacted them to determine their current capacity. The details of these childcare facilities are outlined in the Table 4-8 on the following page.

It is important to note that not all the childcare facilities decided to participate in the assessment, however the information obtained from our efforts indicates that most childcare facilities are working at full capacity for the time-being.

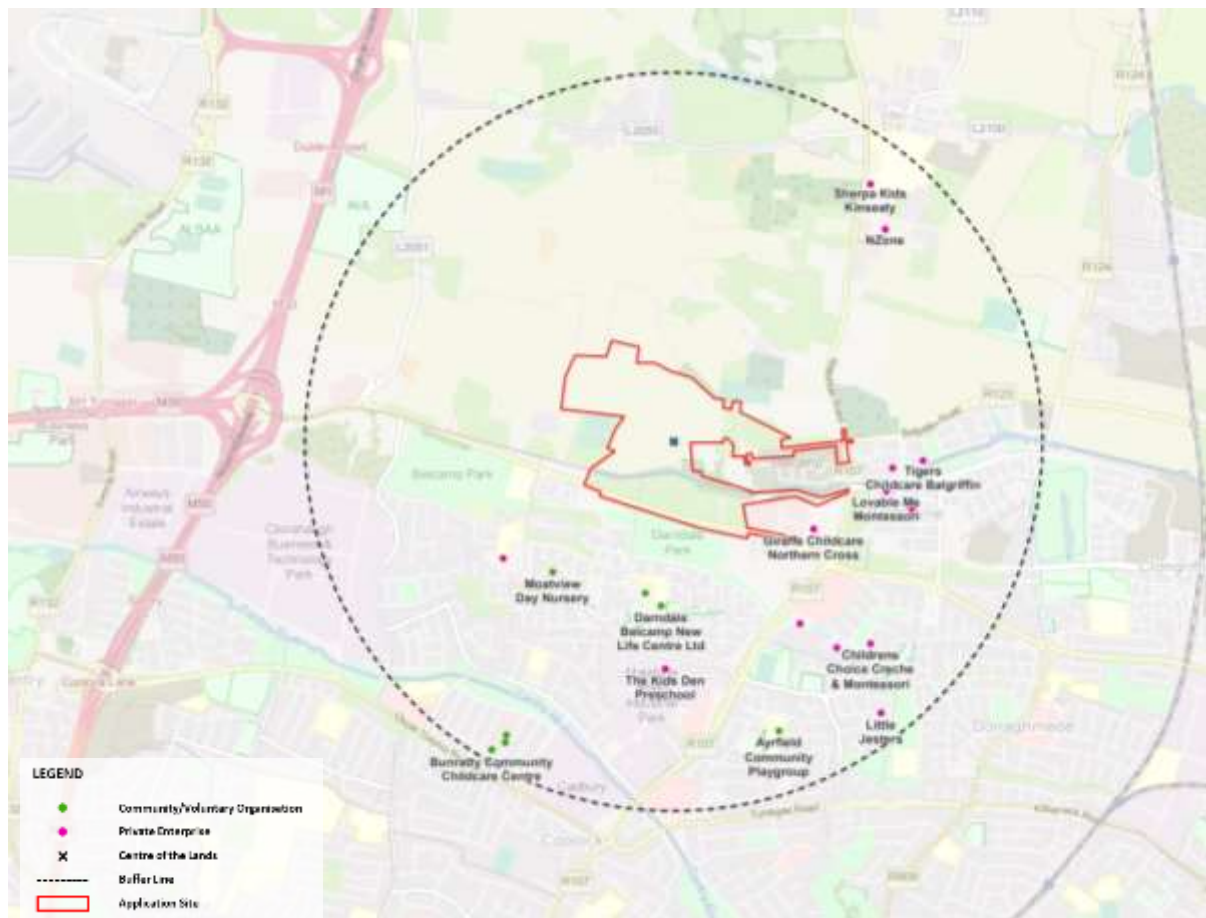


Figure 4-9. Childcare Facilities within 2km Radius off the Lands (approximate boundaries of the lands are outlined in red) (Source: pobal.ie)

This is further supported by the proposed childcare facility included as part of the application and other permissions applications at Belcamp, which provides for 2 no. childcare facility of 1,114.7 sqm capable of accommodating circa 165 no. children. This is submitted to provide for sufficient capacities of childcare services to cater for the proposed scheme and its wider area. For further information in this regard, refer to the Childcare Provision Assessment Report prepared by Downey.

Table 4-8. Childcare Facilities within 1-2km Radius of the Subject Lands (source: Tusla.ie updated by Downey)

	Name	Address	Max Capacity	Type of Service Age Profile
Within 1 Km Radius of the Subject Lands	Giraffe Childcare Northern Cross	Retail Unit 14, Burnell Square, Northern Cross, Malahide Road	98 children	Full Day/Part Time/Sessional (0-6 years)
	Bumblebee Montessori and Childcare – Belmayne	16-17 Churchwell Mews, Belmayne	52 children	Full Day (0-6 years)
	First Steps Academy Creche & Montessori Limited	The Hermitage, Balgriffin	85 children	Full Day/Part Time/Sessional (1-6 years)
	Tigers Childcare	20 St. Samson's Square, Balgriffin	103 children	Full Day/Part Time/Sessional (0-6 years)
	Lovable Me Montessori	63-64 Churchwell Drive, Belmayne	22 children	Sessional (2-6 years)
Within 2 Km Radius of the Subject Lands	Sherpa Kids Kinsealy	St. Nicholas of Myra Ns., Malahide Road, Kinsealy, Co. Dublin	Temporarily Closed	Afterschool (4-12 years)
	Nzone	Posie Row, Kinsealy	80 children	Full Day/Part Time/Sessional (1-6 years)
	Children's Choice	31 Templeview Park, Clarehall	34 children	Full Day (0-6 years)
	Caroline's Playschool	6 Templeview Court, Clarehall	16 children	Sessional (2-6 years)
	Dolphins Early Education & Childcare Centre	Clare Village, Malahide Road	46 children	Full Day
	Ayrfield Community Playgroup	St. Paul's School (Room 13), Ayrfield	20 children	Sessional (2-6 years)
	Bunratty Community Childcare Centre Ltd.	Northside Civic Centre, Bunratty Road, Bonnybrook	38 children	Full Day/Part Time (1-6 years)
	Doras Buí	Doras Buí, Bunratty Drive, Coolock	65 children	Full Day/Part Time/Sessional (1-6 years)
	Bonnybrook Early Education Centre	Bunratty Drive, Coolock	80 children	Full Day/Part Time/Sessional (0-6 years)
	The Kids Den Preschool Ltd.	Unit 6a Newtown Park, Malahide Road, Coolock	44 children	Full Day/Part Time/Sessional (2-6 years)
	Darndale Belcamp New Life Centre Ltd.	Darndale Belcamp Village Centre, Darndale	30 children	Standalone (4-12 years)
	Darndale/Belcamp Integrated Childcare Service	Darndale/Belcamp Village Centre	157 children	Full Day/Part Time/Sessional (0-5 years)

Name	Address	Max Capacity	Type of Service Age Profile
Moatview Early Education Centre	35A Moatview Avenue Priorswood, Priorswood, Coolock	32 children	Sessional (2-5 years)
Little Footprints Montessori	130th Priorswood Scout Den, Clonshaugh Shopping Centre, Clonshaugh	22 children	Part Time/Sessional (2-6 years)

Therefore, Downey are of the considered opinion that while there is a significant number of childcare facilities within the area, the quantum of units being proposed as part of this development would justify the provision of a new childcare facility which forms part of this proposed development. The new childcare facilities would cater for both the residents of the application site and its wider community. For further details in this regard, please refer to the enclosed Childcare Provision Assessment prepared by Downey.

4.8.1.2 Primary Schools

As illustrated in the Figure below, there are 4 no. primary schools within 1km radius of the subject lands, and 8 no. schools in the 2km radius of the lands. This is submitted to provide for a good level of accessibility to the schools from the subject lands and across the area. Therefore, it is considered that there is an overall total of 12 no. schools in the accessible distance of the lands, catering for the emerging demand of the proposed scheme. The details of these schools are summarised in Table 4-9.



Figure 4-10. Existing Primary Schools within the 2km Radius of the Subject Lands

Downey attempted to contact the schools with regard to their available capacity, however, the level of feedback was considerably low. The feedback received did not indicate exact numbers, therefore, the database provided by DoES and Schooldays.ie has been utilised within this Audit.

Table 4-9. Primary Schools within 1-2km Radius of the Subject Lands (source: DoES & Schooldays.ie updated by Downey)

	Roll No.	Name	Address	Enrolment 2021-22
Within the 1km radius of the subject lands	17104G	Saint Francis Junior NS	Priorswood, Dublin 17	Boys: 95 Girls: 99
	19668Q	Saint Francis Senior NS	Priorswood, Dublin 17	Boys: 122 Girls: 107
	19454U	Darndale Junior NS	Our Lady Immac Jun Ns Darndale Malahide Road, Dublin City	Boys: 106 Girls: 87
	19524P	Darndale Senior NS	Our Lady Immac Sen Ns Darndale Dublin 17, Dublin City	Boys:93 Girls:102
Within 2km of the Subject lands	19913D	Saint Joseph's NS	Macroom Road, Bonnybrook, Dublin 17	Boys:185 Girls: 149
	19471U	St Pauls Junior NS	Ayrfield, Malahide Road, Dublin 13	Boys: 100 Girls: 133
	19618B	St Pauls Senior National School	Ayrfield, Malahide Road, Dublin 13	Boys:122 Girls:107
	20519G	Stapolin Educate Together National School	Belmayne Avenue, Belmayne, Dublin 13, Dublin	Boys: 49 Girls: 38
	20308Q	Belmayne Educate Together National School	Balgriffin Park, Belmayne, Dublin 13 ,Dublin Fingal D13DA58	Boys: 219 Girls: 215
	20304I	St. Francis of Assisi Primary School	Belmayne, Balgriffin, Dublin 13 ,Dublin D13RF78	Boys: 239 Girls: 217
	17785K	San Nioclas Myra	Kinsealy, Dublin 17, D17FP53	Boys: 103 Girls: 99
	20445D	Malahide/Portmarnock Educate Together	Malahide Road, Kinsealy	Boys:169 Girls: 179

In light of the above, Downey are of the considered opinion that there is suitable capacity within close proximity to the area at a National School level to accommodate the proposed development. For further details in this regard, please refer to the enclosed School Demand Assessment prepared under a separate cover by Downey accompanying the proposed SHD application.

4.8.1.3 Post-primary Schools

As illustrated in the Figure below, there are two number post-primary schools within the 2km radius of the subject lands. In addition, the Donahies Community School is located c. 3km away from the lands with Dublin Northeast Education Together Secondary School, Grange Community College and Gaelcholáiste Reachrann are also located c. 2.5km away from the lands, which considering that secondary students would travel further distances, it is suggested that theses secondary schools would cater for the scheme as well. The details of these schools are summarised in the Table 4-10 below.

Downey attempted to contact the schools with regard to their available capacity, however, the level of feedback was considerably low. The feedback received did not indicate exact numbers, but it was suggested there is some spare capacity within the secondary schools in the vicinity of the site.

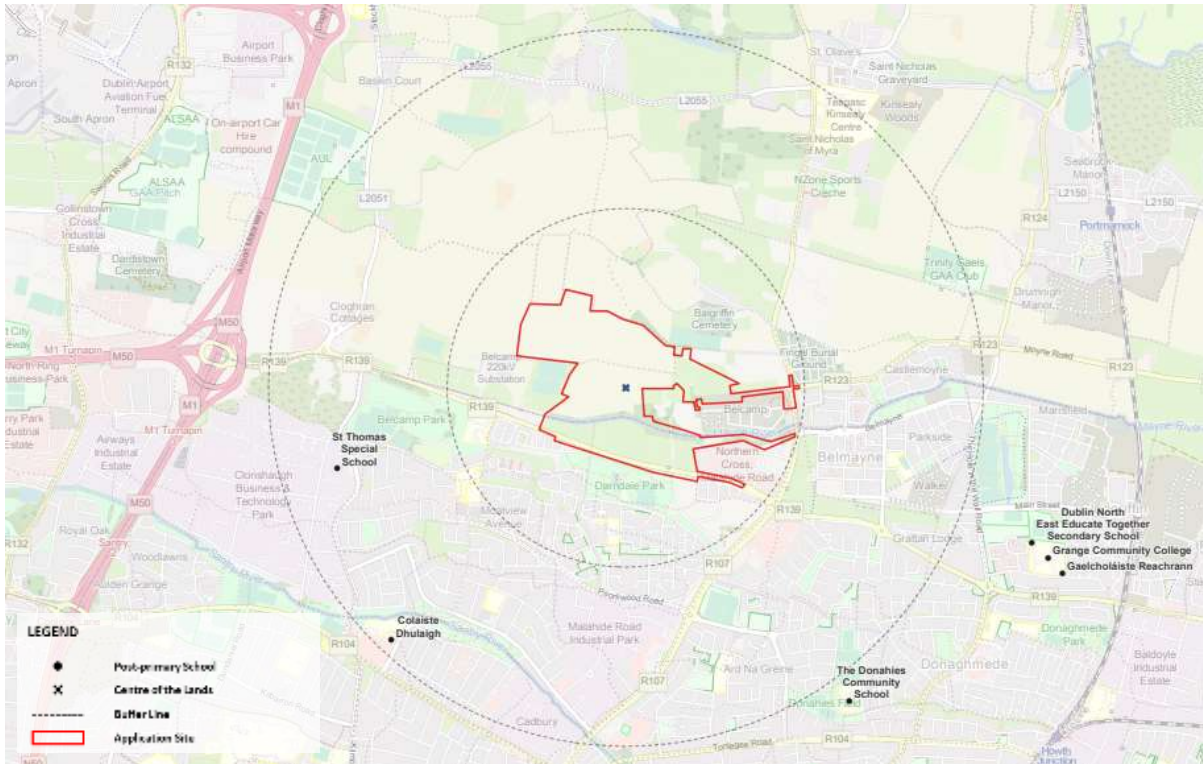


Figure 4-11. Location of Post-primary Schools (approximate boundaries of the subject site outlined in red)

With regard to the existing post-primary schools in the area, Downey are of the opinion that there is suitable capacity within the area at a secondary school level to accommodate the proposed development. For further details, please refer to the enclosed School Demand Assessment prepared under a separate cover by Downey accompanying the proposed SHD application.

Table 4-10. Post-primary Schools within 1-2km Radius of the Subject Lands (source: Schooldays.ie)

	Roll No.	Name	Address	Enrolment 2021-22
Within the 2km radius of the subject lands	19793T	St Thomas Special School*	Clonshaugh Road Coolock Dublin 17, Dublin Cit	Boys: 28 Girls: N/A
	70330Q	Coláiste Dhúlaigh	Barryscourt Road, Coolock, Dublin 17	Boys: 100 Girls: 86
Beyond 2km of the Subject lands	91318U	The Donahies Community School	Streamville Road Dublin 13, Dublin City	Boys:261 Girls: 241
	76085N	Gaelcholáiste Reachrann	Bóthar Mhainistir Na Gráinsí, Domhnach Míde, Baile Atha Cliath 13	Boys: 235 Girls: 263
	70020B	Grange Community College	Grange Road Donaghmede Dublin 13, Dublin City	Boys:207 Girls:187
	68346T	Dublin Northeast Educate Together Secondary School	C/O Grange Community College, Grange Abbey Road, Donaghmede, D13, Dublin City	Boys: 99 Girls: 95

4.8.2 Recreational Facilities

This part of the Audit assesses the number and location of existing recreational facilities that are within 1-2km radius of the subject lands. It will include parks, playing fields, community centres and gyms, etc. categorised as indoor and outdoor recreational facilities.

4.8.2.1 Indoor Leisure & Recreational Facilities

It can be seen in the Figure 4-12 below, there are a number of sport centres and fitness facilities, a library, and several community-related facilities within 1-2km radius of the proposed development. Also, service centres such as Donaghmede, Coolock, and Darndale which offer a variety of leisure services are easily accessible from the application lands.

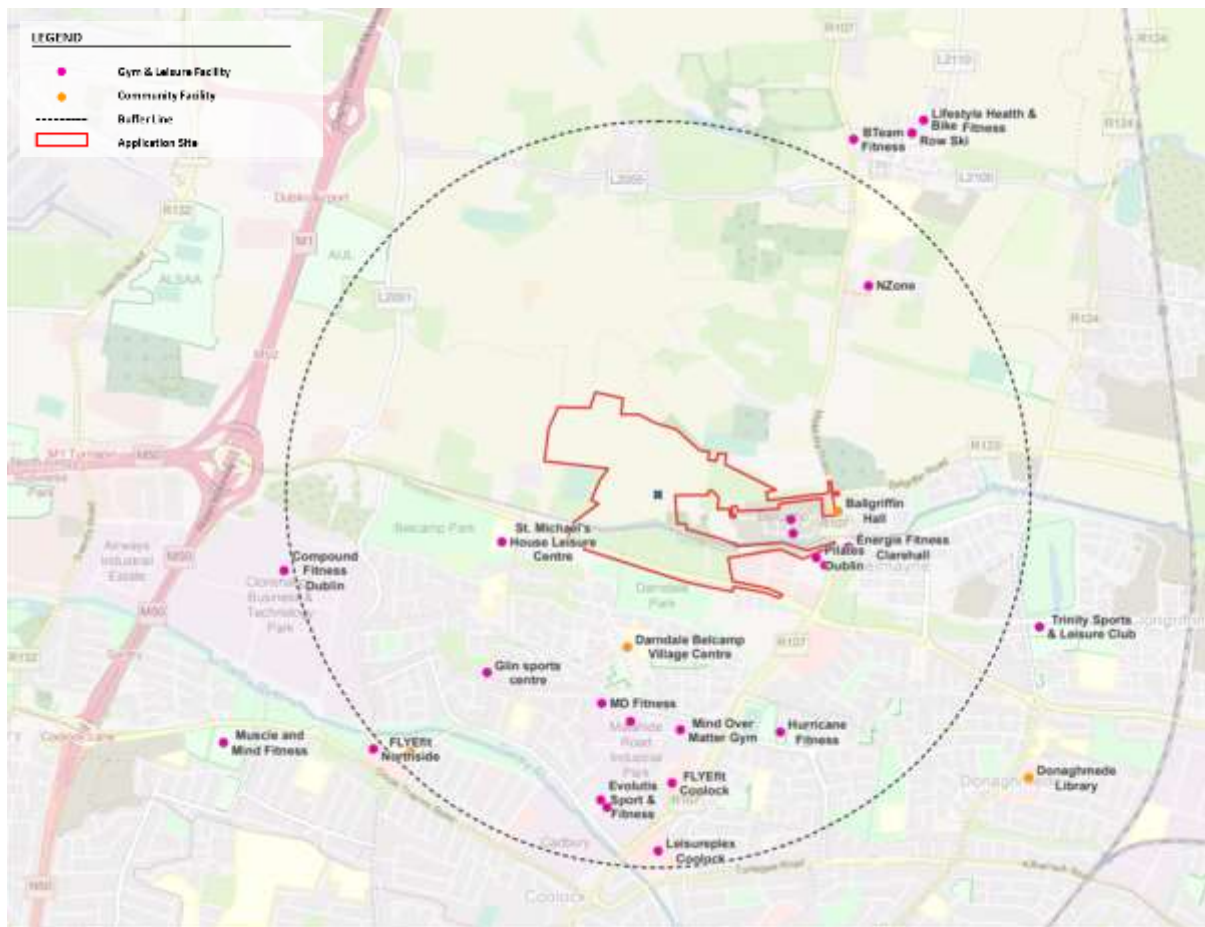


Figure 4-12. Location of Indoor Recreational Facilities (approximate boundaries of the subject site outlined in red)

Accordingly, there is a notable range of indoor sporting activities within 1-2km radius of the subject lands including, gyms, GAA and football clubs, Pilates studios, swimming pools, etc.

Furthermore, the Donaghmede Library is located within 2km radius of the subject lands, supporting a wide range of services and activities including free WiFi and internet access, photocopying and printing facilities, study space and lecture room, exhibition space, and local history collection. The relevant details on these facilities are outlined in the Table below.

Table 4-11. Indoor Leisure & Recreational Facilities within 1-2km Radius of the Subject Lands

	Name	Location	Type
Gyms and Leisure Facilities	Trinity Sports & Leisure Club & Bar	Father Collins Park, Hole in The Wall Rd, Donaghmede, Dublin	Sports & Leisure Club
	NZone	Posie Row, Saintdoolaghs, Kinsealy, Co. Dublin	Gyms and Leisure Facilities
	Glin sports centre	Glin Rd, Priorswood, Dublin	Gyms and Leisure Facilities
	Leisureplex Coolock	Malahide Rd, Donaghmede, Co. Dublin, 17	Gyms and Leisure Facilities
	FLYefit Northside	Northside Shopping Centre, Kilmore, Dublin	Gyms and Leisure Facilities
	FLYefit Coolock	Coolock Retail Park, 3 Malahide Rd, Priorswood, Dublin 17	Gyms and Leisure Facilities
	Pilates Dublin	Unit 6, Burnell Court, Malahide Rd, Northern Cross, Dublin 17, Co. Dublin	Pilates Studio and gym
	Anthony Doyle Fitness	Burnell Court, Unit 4 Malahide Rd, Northern Cross, Dublin	Personal Trainer
	Hot Yoga Dublin	Burnell Green, 4 Malahide Rd, Northern Cross, Dublin 17	Yoga Studio
	Compound Fitness Dublin	Unit 6 Port Tunnel Business Park Clonshaugh Industrial Estate Clonshaugh, 17, Priorswood, Dublin	Gym
	Hurricane Fitness	Blunden Dr, Ayrfield, Dublin, D13 F7P6	Gym
	Mind over Matter Gym	2C, Newtown Industrial Estate Coolock, Priorswood, Dublin 17	Gym
	Fun Intense Training - FIT	Newtown Ave, Coolock Industrial Estate Dublin 17, Priorswood, Dublin	Gym
	MD Fitness	Priorswood, Dublin	Gym
	Muscle and Mind Fitness	9 Oscar Traynor Rd, Dublin 9, Dublin	Gym
	Evolutis Sport & Fitness	Greencastle Parade, Priorswood, Dublin	Gym
	FBT GYM	Greencastle Parade, Priorswood, Dublin	Gym
	Block 9 Health & Fitness Club	Burnell Court, Unit 4, Malahide Rd, Northern Cross, Dublin 17	Gym
	Énergie Fitness Clarehall	Unit 8, Clarehall Retail Park, 17 Malahide Rd, Grange, Dublin 17	Gym
	Community Services	Donaghmede Library	Donaghmede Shopping Centre, Grange Road, Donaghmede, Dublin 13, Co. Dublin
Balgriffin Hall		Balgriffin, Dublin	Community Centre
Darndale Belcamp Village Centre		Darndale Belcamp Village Centre, Priorswood, Dublin 17	Community Centre

4.8.2.2 Outdoor Leisure & Recreational Facilities

There is a huge range of outdoor recreational facilities within the 1-2km radius of the subject site and its wider area. This includes sports clubs and complexes, a golf society, playing pitches, and a variety of open green spaces including parks, gardens, and community gardens (Figure 4-13). The relevant details of these amenities are outlined in Table 4-12.

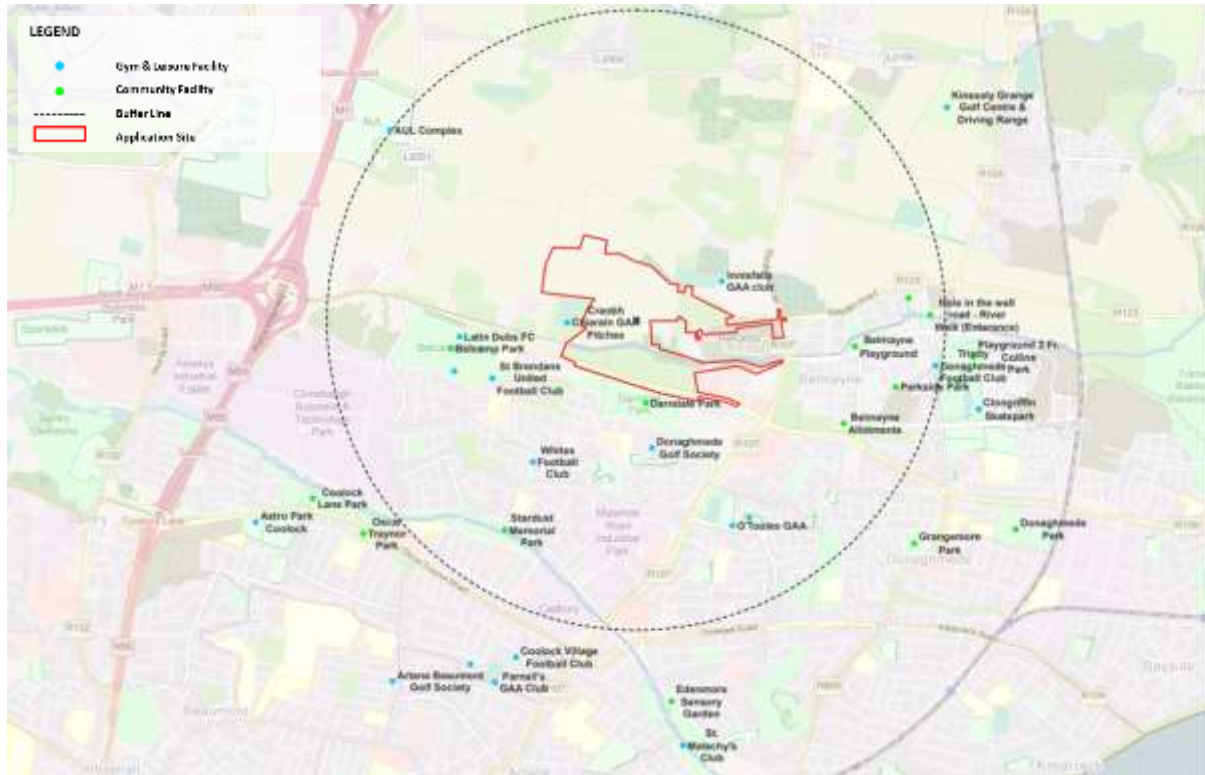


Figure 4-13. Location of Outdoor Recreational Facilities (approximate boundaries of the subject site outlined in red)

There are a range of football clubs located within walking distance from the site, including the AUL Complex to the north, which is a centre of excellence for sport and has all weather playing pitches. Local GAA teams include Craobh Chiarain, Innisfails and O'Tooles.

The location of subject lands is within walking distance from Father Collins Park, indicating a good level of site accessibility to quality green open space, children’s play equipment, a skate park and outdoor chess boards. The park includes sustainable features such as: wetlands which treat and store surface water from the park to prevent run-off, wind turbines to power the park, a green roof on the sports pavilion.



Figure 4-14. Father Collin’s Park

Additionally, the proposed development includes provision of public open space such as the new Urban Plaza and the Mayne River Walkway. Furthermore, the parent and concurrent applications on the lands at Belcamp Hall (Reg. Ref. F15A/0609, PL06F 248052, and F22A/0136) include the provision of high-quality public amenities such as the restoration of the Walled Garden and ancillary café. As such, the proposed development facilitates the protection of the grounds of Belcamp Hall, creating local and public accessibility to architectural heritage and biodiversity assets.

Table 4-12. Outdoor Leisure & Recreational Facilities within 1-2km Radius of the Subject Lands

	Name	Location	Type
Sport Clubs & Outdoor Exercise	AUL Complex	Aul Complex, Clonshaugh, Stockhole, Dublin	Football playing pitches
	Clongriffin Skatepark	Aul Complex, Clonshaugh, Stockhole, Dublin	Skatepark
	Trinity Donaghmede Football Club	Father Collins Park, Donaghmede, Dublin 13	Football Club
	Innisfails GAA club	17 Carr's Lane, Balgriffin, Dublin	GAA Club
	St Brendans United Football Club	11 Clonshaugh Lawn, Clonshagh, Dublin	Football Club
	Belcamp 9 Hole Pitch & Putt	Priorswood, Dublin	Golf facility
	O'Tooles GAA	Blunden Dr, Ayrfield, Dublin	GAA Club
	Craobh Chiarain GAA Pitches	Cara Park, Belcamp, Co. Dublin	GAA Club
	Kinsealy Grange Golf Centre & Driving Range	Chapel Rd, Kinsealy, Portmarnock, Co. Dublin	Golf facility
	Ayrfield United Soccer Pitch	Ayrfield, Dublin	Football Club
	Whites Football Club	32 Ferrycarrig Dr, Priorswood, Dublin	Football Club
	Latin Dubs FC	Belcamp Ave, Priorswood, Dublin	Football Club
	Coolock Village Football Club	Parnells Gaa, Kilmore, Dublin 5	Football Club
	St. Malachy's Football Club	98 Edenmore Ave, Edenmore, Dublin	Football Club
	St. John Vianney Football Club	Kilmore Dr, Beaumont, Dublin	Soccer Club
	Parnell's GAA Club	30 Main Street, Coolock, Dublin 5	Sports Complex
	Astro Park Coolock	Oscar Traynor Rd, Kilmore, Dublin 17	Sports Complex
	Donaghmede Golf Society	146 Primrose Grove, Priorswood, Dublin	Golf Club
	Artane Golf Society	6 Ardmore Dr, Beaumont, Dublin	Golf Club
Outdoor Recreational & Park Facilities	Hole in the wall road - River Walk	Hole in the wall road - River Walk	River Trail
	Playground Fr. Collins Park	Hole in The Wall Rd, Donaghmede, Co. Dublin	Public Playground
	Belmayne Playground	Balgriffin Park	Public Playground

	Name	Location	Type
	Castlemoyne Playground	Snugborough, Dublin	Public Playground
	Parkside Park	12 Parkside Square, Donaghmede, Dublin 13	Public Playground
	Father Collins Park	Hole in The Wall Rd, Donaghmede, Co. Dublin	Public Park
	Belcamp Park	Priorswood, Dublin	Public Park
	Darndale Park	Darndale Park, Belcamp Ln, Priorswood, Dublin 17	Public Park
	Donaghmede Park	Grange, Dublin	Public Park
	Grangemore Park	Grange, Dublin	Public Park
	Stardust Memorial Park	Bonnybrook, Dublin	Public Park
	Oscar Traynor Park	Kilmore, Dublin	Public Park
	Coolock Lane Park	Priorswood, Dublin	Public Park
	Edenmore Sensory Garden	Springdale Road, stop 637, Edenmore, Dublin	Garden
	Belmayne Allotments	Grange, Dublin	Community Garden

The proposed development will provide high quality public open spaces, this includes a Mayne River Park, the Belcamp Green Infrastructure Corridor and Class 1 Open Space for active recreation, comprising of proposed pitches of multiple sizes and changing rooms with associated parking areas.

The overarching goal for the lands at Belcamp Hall is to be a self-sustaining development which includes providing the appropriate open and recreational facilities for future residents.



Figure 4-15. Proposed Active Recreation Concept within the Northern Portion of the Site (source: TBS Landscape Architects)



Figure 4-16. Proposed Landscape Plan for the Southern Portion of the Site (source: RMDA Landscape Architects)

Therefore, Downey are of the considered opinion that there is suitable capacity within the area for the recreational and leisure facilities to accommodate the proposed development. This would be complemented by the proposed range of open green spaces within the development.

4.8.3 Retail Provision

In order to provide an insight to the existing retail environment and to evaluate the likelihood or rather the possibility of future retail expansion in the subject site, as shown in the Figure below, the existing retailers have been identified and mapped out in a geographical scope extending from Dublin City Centre all the way up to Swords Town Centre. The wide scope of the assessment is submitted to be driven by the large scale of the proposed scheme.

As illustrated below, this includes a wide range of retail provision comprising of Dublin City Centre and Swords Shopping Centre as the higher tier retail provision functioning in a strategic level, which is then further complemented by level 3 and 4 retail offerings as to enhance accessibility to retailers. Noted that the local-scale and neighborhood-level grocery retailers have also been marked on the map, as they would further support the foregoing hierarchy of retail provision in the area. This includes the popular grocery retailers in the Irish market, in the likes of Tesco, Dunnes Stores, SuperValu, Spar, Centra, Lidl, Aldi, etc.

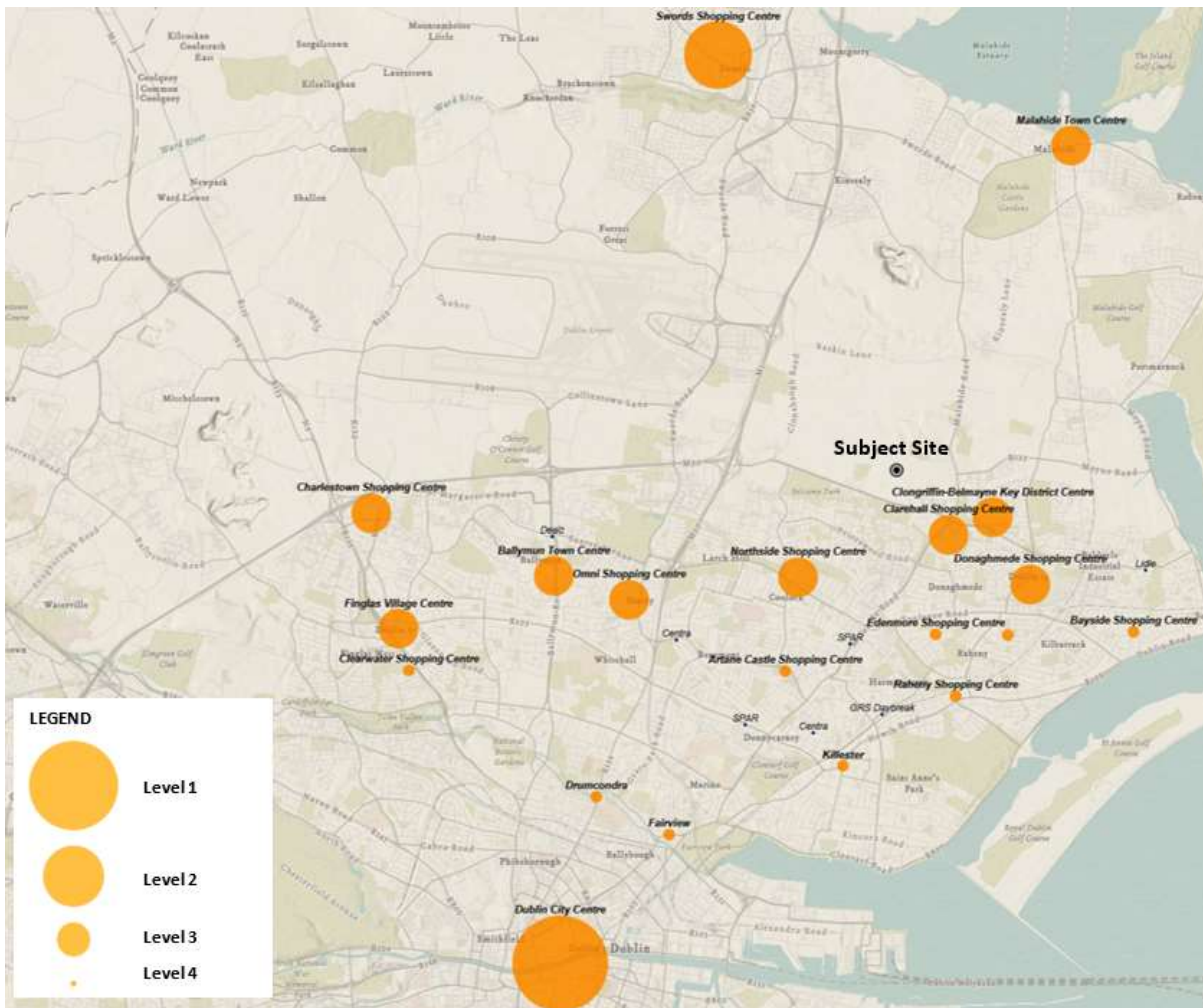


Figure 4-17. Subject Site within Retail Hierarchy of Retail Provision

Narrowing down the spatial scope of the assessment as to illustrate a more local level retail provision, as shown on the Figure 4-18 below, the major retail and commercial provision in the catchment area is Clarehall Shopping Centre with an overall net area of c. 14,000 sqm including a Tesco and a range of retail, entertainment, and office provision. Going beyond the 2km radius from the lands, the closest key retail destinations would be Donaghmede and Northside Shopping Centres.

Having regard to the above, the retail and commercial environment in the area is mostly characterised by large-scale shopping centres and retail clusters, which essentially generate car-driven travels. In terms of neighborhood level retail provision to cater for the local needs, it is evident that there is a shortfall. The relevant details on the existing retail provision in the area is summarised in the Table below.



Figure 4-18. Retail Provision within 2km Radius of the Subject Lands

Table 4-13. List of Retail Facilities in Proximity of the Subject Site

Name	Location	Type
Clarehall Shopping Centre	13 Malahide Rd, Clarehall, Dublin 17	Shopping Centre
Northside Shopping Centre	Oscar Traynor Rd, Dublin 17	Shopping Centre
Donaghmede Shopping Centre	Donaghmede Rd, Grange, Donaghmede, Co. Dublin	Shopping Centre
Edenmore Shopping Centre	Edenmore, Raheny, Dublin 5	Grocery Stores (Centra)
SPAR	Malahide Rd, Northern Cross, Dublin 17	Convenience Store
Costcutter	4, Clonshaugh Shopping Centre, Priorswood, Dublin	Convenience Store
SPAR Clarehall	Grange, Dublin	Convenience Store
Centra	Newtown Service Station, Malahide Rd, Newtown, Dublin 17	Convenience Store
Centra	Main St, Grange, Dublin	Convenience Store
Lidl	Coolock Retail Park, Malahide Rd, Priorswood, Dublin	Grocery Store
Artane Castle Shopping Centre	5 Kilmore Rd, Beaumont, Dublin 5	Shopping Centre
Kilbarrack Shopping Centre	Unit 7, Swan's Nest Rd, Grange, Dublin 5	Tesco Metro

In addition, the proposed development also provides for 4,424 sqm commercial and retail area, which is submitted to cater for day-to-day basis and local needs of the residents. This sub-section of the Community & Social Audit has been fully discussed in the enclosed Economic and Retail Study, which also includes a Retail Impact Assessment that has been prepared in accordance with the advice

provided by the Department of the Environment and Local Government (DoEHLG) in the *Retail Planning Guidelines for Planning Authorities* published in 2012 and in response to the item 4 of the Opinion Letter of An Bord Pleanála, which we invite the Board to refer to.

4.8.4 Healthcare Facilities

As shown on Figure 4-19, there is a wide range of healthcare facilities within 2km radius of the subject site and its wider area. This includes health centres, GP clinics, pharmacies, dental practices, and nursing homes. The relevant details on the healthcare provision in the area is listed in Table 4-14.

With respect to the proximity of the lands to Darndale Belcamp Village Centre, which is situated in a prime location on the north side of Dublin City, close to the R139, M1, M50 and city centre bus routes, it is suggested that there is an appropriate level of access to the facilities provided in this Village Centre which also includes healthcare services.

It is also important to note that Beaumont Hospital is located within approximately 5.6km to the south of the subject lands, and this is c. 12-minute driving distance via R139 and Clonshaugh Road.

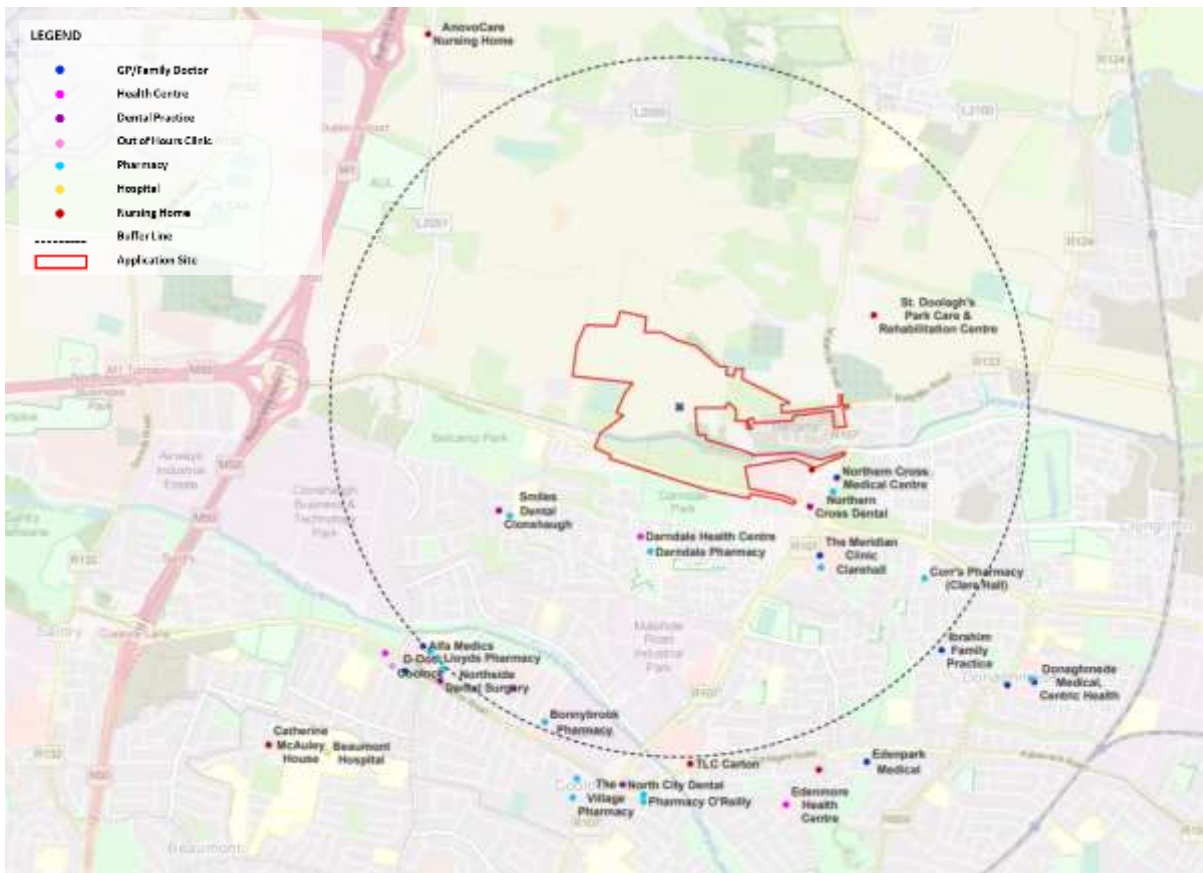


Figure 4-19. Location of Healthcare Facilities within 2km Radius of the Subject Site and its Wider Area (approximate boundaries of the subject site outlined in red)

With respect to the proximity of the lands to Darndale Belcamp Village Centre, which is situated in a prime location on the north side of Dublin City, close to the R139, M1, M50 and city centre bus routes, it is suggested that there is an appropriate level of access to the facilities provided in this Village Centre which also includes healthcare services. It is also important to note that Beaumont Hospital is located

within approximately 5.6km to the south of the subject lands, and this is c. 12-minute driving distance via R139 and Clonsaugh Road.

Table 4-14. List of Healthcare Facilities in Proximity of the Subject Site

Name	Location	Type
Darndale Health Centre	Darndale/Belcamp Village Centre, Dublin 17	Health centre
Edenmore Health Centre HSE	Edenmore Park, Donaghmede, Dublin	Health centre
Trinity Care St Doolagh's Park Care & Rehabilitation Centre	Malahide Rd, Balgriffin, Dublin, D17 YE97	Health Centre
Northern Cross Medical Centre 1) Kenneth Agbalizu	Unit 4, Burnell Court, Northern Cross, Malahide Road, Dublin 17	Family Practice
The Meridian Clinic Clarehall 1) Mahomed Suleman Kadwa 2) Ana Maria Cueli Guerra 3) Abubakar Mohammed 4) Liza-Jane Pringle 5) Michael Adibe 6) Iwona Zaleska (GMS) 7) Shareen Sandhu	13 Malahide Rd, Donaghmede, Dublin	Family Practice/Dental
Coolock Primary Care Centre 1) Rosemary Gillan 2) Kate McSweeney 3) Marie-Therese Warren 4) Trinity Clinic Northside	The Coolock Primary Care Centre, Cromcastle Road. Kilmore. Dublin 5	Family Practice/ Primary Care Centre
Donaghmede Medical Centric Health 1) Enda Casey 2) John Caulfield	Donaghmede Shopping Centre, Grange Rd, Donaghmede, Dublin 13	Family Practice
Grange Clinic 1) Shona Josephine O'Connor 2) Brenda Maguire 3) Alice Mary Neylan 4) Brian Cahill 5) David Walsh, 6) Damian Vincent Jennings (GMS) 7) Jennifer Kell 8) Sarah Callaghan 9) Alan Clifford 10) Helen Casey 11) Clodagh Quinn 12) Timothy Oliver O'Neill (GMS)	Grange Rd, Donaghmede, Dublin 13	Family Practice
Ibrahim Family Practice 1) Grace Conroy 2) Sarah Ibrahim 3) Abdul Rashid Ibrahim (GMS) 4) Priya Rana	52 Ascaill Ard an Rátha, Grange, Dublin 13, D13 RK03	Family Practice
Edenpark Medical Mark Wheeler (GMS), Charlotte Murphy, Timothy Ryan, Alana Jane Cairtriona Lawlor, Ben Bella Dafalla, Ruth Geraldine Dwyer, Mary Davin-Power, David O'Connell, Niamh Wheeler, Sarah O'Connell, Fionnuala Joyce, John O'Dwyer, Helena Butterfield (GMS), Edel Mary Fitzpatrick,	Tonlegee Primary Care Centre, Tonlegee Road, Dublin 5	Family Practice

Name	Location	Type
Caroline Marguerite Burke, Shareen Sandhu, Thomas Patrick Burke, Sarah Wrafter		
Alfa Medics 1) Intisar Karam Abed Alghurabi 2) Eman Mohammed Ali 3) Al -Jiryan Hamza Naief Hafidh 4) Angela Parvu 5) Irene Szczedrin Von Hartman	Northside Shopping Centre, Oscar Traynor Road, Dublin 17	Family Practice
Trinity Clinic - Coolock 1) Gabriel Fitzpatrick 2) Syed Muhammad Abid Shah 3) Sarah Power 4) Ajaz Ahmed 5) Esra Dindash 6) Alva O'Dalaigh 7) Sheila Byrne 8) Kenechukwu Ebele Chukwuemeka 9) Zara Louise Hallett Quail 10) Ciara Joy 11) Riana-Marie Grosskopf 12) Aoife Ni Sheaghda	Coolock Primary Care Centre, Cromcastle Road, Dublin 5	Family Practice
Cromcastle General Practice 1) Orla Cotter, 2) Alice Clodagh Cummins, 3) John Delap (GMS), 4) Meabh Brid Ni Dhiarmada, 5) Siun Mary Sweeney-Landers, 6) Barry Mahon, 7) Vivienne Wallace, 8) Emma Jane McGovern, 9) Philip Adam Dowling	Coolock Primary Care Centre, Cromcastle Road, Dublin 5	Family Practice
D-Doc Coolock	Cromcastle Road Coolock, Kilmore, Dublin	Out of Hours Clinic
McCabe's Pharmacy	Clarehall Shopping Centre, Malahide Road, Northern Cross, Dublin 17	Pharmacy
Donaghmede Allcare Pharmacy	Donaghmede Shopping Centre	Pharmacy
Darndale Pharmacy	Darndale Belcamp Village Centre, Priorswood, Dublin 17	Pharmacy
Bnnybrook Pharmacy	UNIT 1B, Northside Retail Park, Coolock Dr, Kilmore, Dublin 17	Pharmacy
Corr's Pharmacy (Clonshaugh) Ltd.	Unit 6, Priorswood Shopping Centre, Clonshaugh Avenue, Dublin 17	Pharmacy
Limitless Health Pharmacy	Burnell Court, Unit 4, Malahide Rd, Northern Cross, Coolock, Co. Dublin	Pharmacy
McCartan's Pharmacy Northside	Northside Shopping Centre, Oscar Traynor Road, Dublin 17	Pharmacy
Lloyd's Pharmacy	Northside Shopping Centre, Oscar Traynor Road, Dublin 17	Pharmacy
Lloyd's Pharmacy	Unit 4, Coolock Village Centre, Main Street, Dublin 5	Pharmacy
The Village Pharmacy	19 Main Street, Dublin 5	Pharmacy
Hickey's Pharmacy	Unit 33/34, Northside Shopping Centre, Oscar Traynor Road, Dublin 17	Pharmacy
The Village Pharmacy	19 Main Street, Dublin 5	Pharmacy
DocMorris Pharmacy	44 Tonleeg Road, Coolock, Dublin 5	Pharmacy
Pharmacy O'Reilly	38 Tonleeg Road, Dublin 5	Pharmacy

Name	Location	Type
Northern Cross Dental	Burnell Square, Unit 8/9, Malahide Rd, Northern Cross, Dublin	Dental Practice
Northside Dental	Unit S, Northside Shopping Centre, Oscar Traynor Rd, Dublin	Dental Practice
Meridian Dental Clarehall	3 Ross Terrace, New Street, Malahide, Co. Dublin	Dental Practice
Smiles Dental Clonshaugh	Priorswood Shopping Centre, Clonshaugh Ave, Priorswood, Dublin	Dental Practice
North City Dental	Tonlegree Rd, Donaghmede, Dublin	Dental Practice
Beaumont Hospital	Beaumont Hospital	Hospital
TLC Carton	Tonlegree Road Raheny, Donaghmede, Dublin	Nursing Home
AnovoCare Nursing Home	Anovo Nursing Home, Stockhole, Cloghran, Swords, Co. Dublin	Nursing Home
CareChoice Malahide	Mayne River St, Northern Cross, Dublin	Nursing Home
St Gabriel's Nursing Home	Saint Gabriel's Private Nursing Home, Glenayle Road, Dublin 5	Nursing Home
Trinity Care St Doolagh's Park Care & Rehabilitation Centre	Saint Doolagh's Park Care & Rehabilitation Centre, Saint Doolaghs Park, Malahide Road, Dublin 17	Nursing Home
Catherine McAuley House	Catherine McAuley House, Beaumont Woods, Dublin 9	Nursing Home

4.8.4 Religious and Community Provision

There are 4 no. religious centres including Christian and Catholic churches and 3 no. community support centres within 2km radius of the application lands. In addition, as illustrated below, there are 6 no. religious centres and 4 no. community centres within proximity of the lands, expecting to cater for the emerging community. The details on these facilities are summarised in Table 4-15.

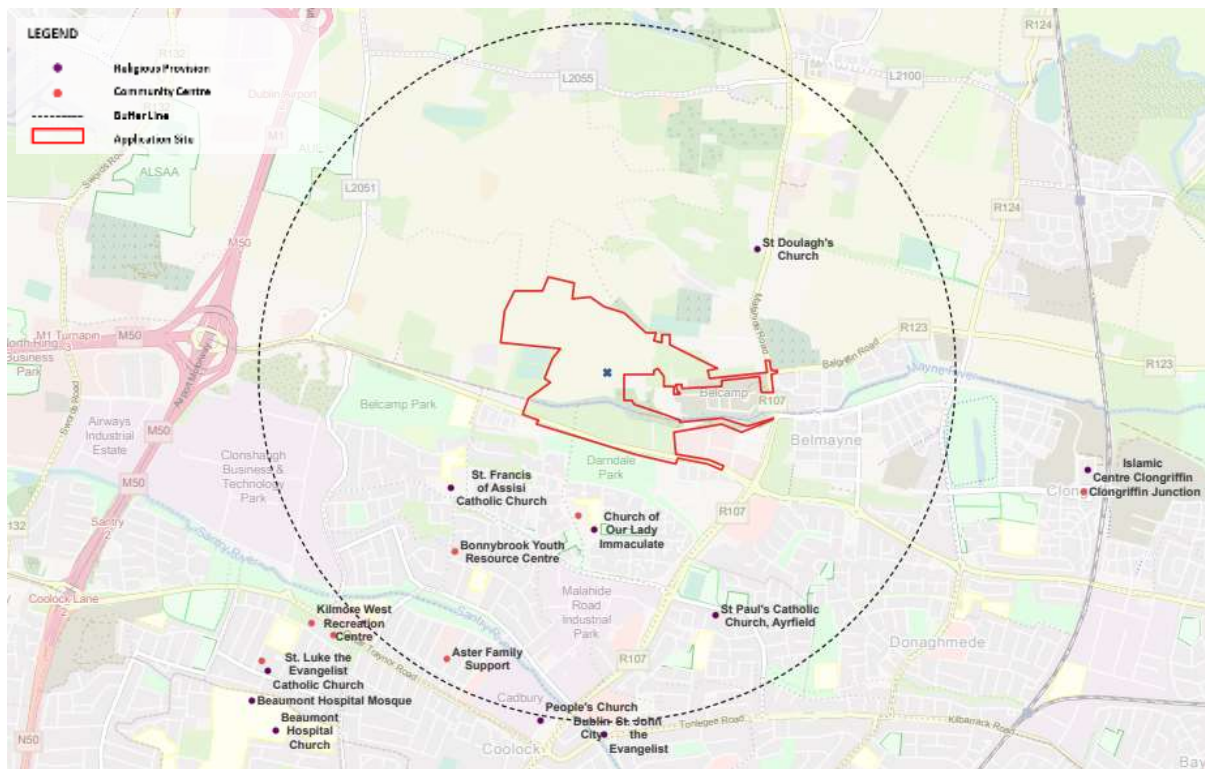


Figure 4-20. Location of Religious & Community Facilities within 2km Radius of the Subject Site and its Wider Area (approximate boundaries of the subject site outlined in red)

Taking into consideration the scale of the proposal, and the influx of new population into the area, the existing facilities prove to be sufficient and meet the needs of the proposed development.

Table 4-15. List of Religious & Community Facilities in Proximity of the Subject Site

Name	Location	Type
Church of Our Lady Immaculate	Priorswood, Dublin	Catholic Church
St. Francis of Assisi Catholic Church	Clonshaugh Drive, Priorswood, Dublin 17	Catholic Church
St Paul's Catholic Church, Ayrfield	Blunden Dr, Ayrfield, Dublin 13	Catholic Church
St. Luke the Evangelist Catholic Church	Kilbarron Rd, Kilmore, Dublin 5	Catholic Church
St. John the Evangelist	Tonlegee Rd, Donaghmede, Dublin 5	Church of Ireland
St Doulagh's Church	Saintdoolaghs, St Doolaghs, Co. Dublin	Church of Ireland
People's Church Dublin City	Malahide Road, Kilmore, Dublin	Church
Beaumont Hospital Church	Beaumont, Dublin	Church
Beaumont Hospital Mosque	Beaumont, Dublin	Mosque
Islamic Centre Clongriffin	3 Station Rd, Clongriffin, Dublin	Mosque
Parish Hall (St. Luke the Evangelist Catholic Church)	Kilmore, Dublin	Parish Resource Centre
Darndale Belcamp Village Centre	Priorswood, Dublin 17	Community Centre
Kilmore West Recreation Centre	Cromcastle Road, Coolock, Kilmore, Dublin	Community Centre
Coolock Day Activity Centre	Cromcastle Rd, Kilmore, Dublin	Community Centre
Bonnybrook Youth Resource Centre	42 Glin Rd, Priorswood, Dublin	Youth Centre
Aster Family Support	Northside Enterprise Centre, 17 Bunratty Dr, Kilmore, Dublin 17	Family Resource Centre

Darndale Belcamp Village Centre supports a wide range of activities for various age groups, such as formation gatherings and meetings, dance, yoga and fitness classes, retreats, Bell Art Gallery, and seminars. The centre also has a café, serving the community on a daily basis. The centre offers the local community services such as a Handy Helpers that offers professional home maintenance and decluttering services at affordable rates for older people living in the areas of Dublin 5, 13, and 174.8.

4.9 Potential Impact of the Proposed Development

4.9.1 Construction Phase

Construction impacts are expected to be short term and temporary in nature, but some potential adverse local impacts can be expected during construction of the development related to impacts on residential amenity. This is likely to be associated with construction traffic and any possible nuisance with such movements, for example an increase in daytime noise levels.

The resident community in adjoining housing developments are most likely to be affected by these short-term temporary impacts. Corresponding mitigation measures are set out in Chapter 16 which

will reduce these impacts to a level which is not significance. Noting the inclusion of this mitigation plan, any further assessment in relation to noise impact was not considered relevant.

The development may also have some positive impacts on passive retail facilities within the area with additional revenue being derived from the use of these facilities by the construction workers. Impacts to the local population are considered to be neutral, imperceptible, temporary in nature and therefore not considered significant.

4.9.2 Operational Phase

The proposed development could have the following potential operational impacts:

- 1) An increase in traffic levels.
- 2) Additional demand on local community services.
- 3) An impact on the landscape and appearance in the area.
- 4) Increased demands on services infrastructure.

The predicted population increase arising from the proposed development will generate additional traffic loads in the area, although according to the Transportation Chapter of this EIAR, will be within the capacity of the road network. The impacts in this regard are set out in detail in Chapter 12.0 Traffic and Transport. The resident community will benefit from the additional passive amenity areas, to be provided as part of the proposed development. There is a hierarchy of open spaces being put forward as part of the proposed development, in particular areas of public open space containing play equipment for children that will be available for future residents and the wider community, which will add to recreational amenity of the area and will have a positive impact on health for the overall area.

4.9.3 Remedial and Reductive Measures

4.9.3.1 Construction Phase

Measures to mitigate potential impacts arising from the construction phase of the proposed development such as noise, transport and air quality are set out in relevant chapters of this EIAR and summarised in Chapter 16.

4.9.3.2 Operational Phase

No mitigation measures are necessary for the operational phase of the development.

4.9.4 Predicted Impact of the Proposed Development

4.9.4.1 Construction Phase

Through the implementation of remedial and reductive measures that have been set out above, the impacts of the construction phase of the development are not anticipated to be significant. Furthermore, all impacts will be temporary in nature.

4.9.4.2 Operational Phase

The proposed development will have a significant positive impact on the local community and will positively contribute to the vitality and viability of the local area, through:

- 1) The influx of a new resident population using existing local businesses and services;
- 2) The provision of a new creche as a community facility for the use of new residents and the local community; and
- 3) The provision of open space for the use of the local community

4.9.5 Monitoring

There is no requirement for monitoring to mitigate the impact of the development.

4.10 Human Health

The subject lands are located to the north of the Northern Cross Road (R139), Northern Cross, Dublin 17. With an irregular shape and approximate area of 67ha, the site comprises Belcamp Hall (and associated additions), chapel, walled garden, and folly's accessed by an internal access road off the Malahide Road (R107). Phase 1 of the new emerging development of Belcamp has commenced and partially occupied. The existing and/or ongoing developments are characterised by a variety of apartment/duplex units and two storey dwellings with associated on-curtilage parking in a mix of unit types.

The proposed development will provide for completion of developing Belcamp lands by providing for a predominately residential scheme that will be well-integrated with the surrounding area, as well as promoting community services in the locality by providing for 2 no. childcare facilities and retail and/or commercial provision to meet the emerging community needs. The proposed scheme will make a positive contribution to the existing community by creating new places/spaces that are accessible not only to the residents of the scheme, but also to members of the public. It is submitted that the completion of the proposed scheme will not have an adverse impact on human health including mental health or wellbeing. Furthermore, there will be no adverse impacts on social, economic, or environmental living conditions as a result of the development.

4.10.1 Potential Impact of the Proposed Development

4.10.1.1 Construction Phase

Construction impacts are expected to be short term, but some potential adverse local impacts can be expected due to the actual construction of the development. These impacts are likely to be associated with construction traffic movements and any possible nuisance with such movements, for example an increase in daytime noise levels, migration of surface contaminants and dust. The resident community in adjoining housing estates are most likely to be affected by these short-term, temporary impacts. Corresponding mitigation measures are set out in Chapters 8.0 and 9.0 which will reduce these impacts to an insignificant level. Noting the minor nature of these impacts, any further assessment in this regard was not considered relevant. The development may also have some positive impacts on passive recreational facilities within the area with additional revenue being derived from the use of these facilities by the construction workers.

4.10.1.2 Operational Phase

The proposed development could have the following potential operational impacts as a result of an increase in population levels:

- 1) An increase in traffic levels.
- 2) Additional demand on local community services.
- 3) An impact on the landscape and appearance in the area.
- 4) Increased demands on services infrastructure.

The impacts in regard to additional traffic loads in the area generated by the predicted population increase are set out in detail in the Transportation Chapter of this EIAR.

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

4.10.2 Remedial and Reductive Measures

4.10.2.1 Construction Phase

Measures to mitigate potential impacts arising from the construction phase of the proposed development such as noise, traffic and air quality are set out in relevant chapters of this EIAR.

4.10.2.2 Operational Phase

No mitigation measures are required in respect of human health during the operational phase of the development.

4.10.3 Predicted Impact of the Proposed Development

4.10.3.1 Construction Phase

Through the implementation of remedial and reductive measures that have been set out above, the impacts of the construction phase of the development are not anticipated to be significant. Furthermore, all impacts will be temporary in nature.

4.10.3.2 Operational Phase

The proposed development will provide a development that will be integrated with the surrounding area and existing and future transport infrastructure, including green infrastructure. The proposed development will make a positive contribution to the existing community by providing amenities for local needs, creating new places and spaces, as well as improved permeability that are accessible not only to the residents of the scheme, but also to members of the public.

It is submitted that the proposed development at Belcamp, Dublin 17 will not have an adverse impact on human health including mental health or wellbeing. Furthermore, there will be no adverse impacts on social, economic, or environmental living conditions as a result of the proposed scheme.

4.11 Monitoring

In terms of population and human health, measures to avoid negative impacts have been a key consideration in the design evolution of the buildings and overall layout of the proposed development

to include the provision of a creche, public open space and facilities to support healthy choices, such as cycle parking. Conditions will be attached to any grant of planning permission to ensure that these facilities are provided. Building Regulations will also be adhered to during the construction phase to ensure a fully compliant development is constructed.

Health & Safety requirements, which are site specific to the proposed project, will be carried out by the Project Manager on site.

Impacts from Air Quality, Noise and Vibration, Climate, and Traffic and Transport and monitoring measures in this regard are addressed in the relevant chapters of this EIAR.

4.12 Reinstatement

No reinstatement will be required specifically for population and human health.

4.13 Interactions

The main interactions relating to population and human health are water, air quality, noise, and traffic during the construction phase. Construction activities will have a temporary impact on the landscape of the area by way of visual disturbance. These impacts are not considered to be significant. During the operational phase, the main interactions relating to population and human health are water, air quality, noise, and traffic. These impacts are not considered to be significant. Please refer to the associated chapters for further information on these interactions.

4.14 Difficulties Encountered in Compiling

Overall, no difficulties were encountered in compiling this chapter.

4.15 Cumulative Impacts

The assessment has considered cumulative impacts of construction and operational phases of the proposed project, in conjunction with surrounding developments. Multiple sites under construction at the one time may result in cumulative impacts in terms of noise and vibration during the construction period for human beings. However, such impacts are short-term, and the implementation of appropriate mitigation measures will ensure that noise and vibration impact is kept to a minimum. Please refer to Chapter 9.0 for further details in this regard. During the operational phase of the development, there will be residential, recreational, and commercial developments in proximity to the proposed project which will generate a synergy of uses. This will increase population, increase employment opportunities, and increase community facilities such as childcare facilities, and as such the long-term effect will be a positive and permanent impact for the overall town.

4.16 “Do Nothing” Impact

A “Do Nothing” scenario is not considered appropriate as the lands are currently zoned for Residential, Open Space, and Green Belt under the Fingal County Council Development Plan 2017-2023 and Strategic Development and Regeneration Area – Zone 14 under Dublin City Development 2016-2022. However, if a do-nothing scenario were to occur, the lands would not be developed and therefore there would be no beneficial or adverse impacts to population and human health. In the event that

the proposed project does not proceed, the lands would remain in its current condition in the short-term or until alternative development proposals are granted planning permission.

4.17 References

- *Central Statistics Office [CSO] (Census data results and analysis from 2011 and 2016)*
- *CSO (2021). Quarterly Labour Force Survey Q1 2021*
- *Economic and Social Research Institute [ESRI] (data results and analysis)*
- *Eastern and Midland Regional Assembly (2019), Regional Spatial and Economic Strategy 2019-2031*
- *Dublin City Council, Dublin City Development Plan 2016-2022*
- *Fingal County Council, Fingal Development Plan 2017-2023*

5.0 BIODIVERSITY

This biodiversity assessment has been prepared by Pádraic Fogarty of OPENFIELD Ecological Services. Pádraic has worked for 25 years in the environmental field and in 2007 was awarded an MSc from Sligo Institute of Technology for research into Ecological Impact Assessment (EclA) in Ireland. OPENFIELD is a full member of the Institute of Environmental Management and Assessment (IEMA). He is a competent expert for the examination of biodiversity impacts for this Environmental Impact Assessment Report.

Under Article 6(3) of the Habitats Directive an ‘appropriate assessment’ of projects must be carried out to determine if significant effects are likely to arise to Natura 2000 sites. An Appropriate Assessment Screening Report has been prepared as a separate standalone report.

5.1 Study Methodology

The assessment was carried out in accordance with the following best practice methodology: ‘The assessment was carried out in accordance with the following best practice methodology: ‘Guidelines on the information to be contained in Environmental Impact Assessment Reports’ by the Environmental Protection Agency (EPA, 2017), ‘Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland’ by the Chartered Institute of Ecology and Environmental Management (IEM, 2018), The European Commission’s “Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment” (2013) and the Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report, European Commission (2017).

Site surveys were carried out on the 27th of August 2020, the 27th of January 2021, the 13th of April 2021, the 16th of February 2022 and the 14th of April 2022. On each occasion the site was surveyed in accordance with the Heritage Council’s Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2010). Habitats were identified in accordance with Fossitt’s Guide to Habitats in Ireland (Fossitt, 2000).

The nomenclature for vascular plants is taken from The New Flora of the British Isles (Stace, 2010) and for mosses and liverworts A Checklist and Census Catalogue of British and Irish Bryophytes (Hill et al., 2009).

April and August lie within the optimal period for general habitat surveys (Smith et al., 2010) and so it was possible to classify all habitats on the site to Fossitt level 3. April lies within the optimal season for surveying breeding birds and amphibians, January and February are optimal for wintering birds while January, February and April are optimal for surveying larger mammals, e.g. Badger and Otter.

Dedicated bat surveys were carried out by Brian Keeley of Wildlife Surveys Ireland. A dedicated Badger and Otter survey was also carried out. This report is presented separately but its findings are incorporated here.

5.2 Existing Receiving Environment

5.1 Zone of Influence

Best practice guidance suggests that an initial zone of influence be set at a radius of 2km for non-linear projects (IEA, 1995). However, some impacts are not limited to this distance and so sensitive receptors further from the project footprint may need to be considered as this assessment progresses. This is shown in figure 1.

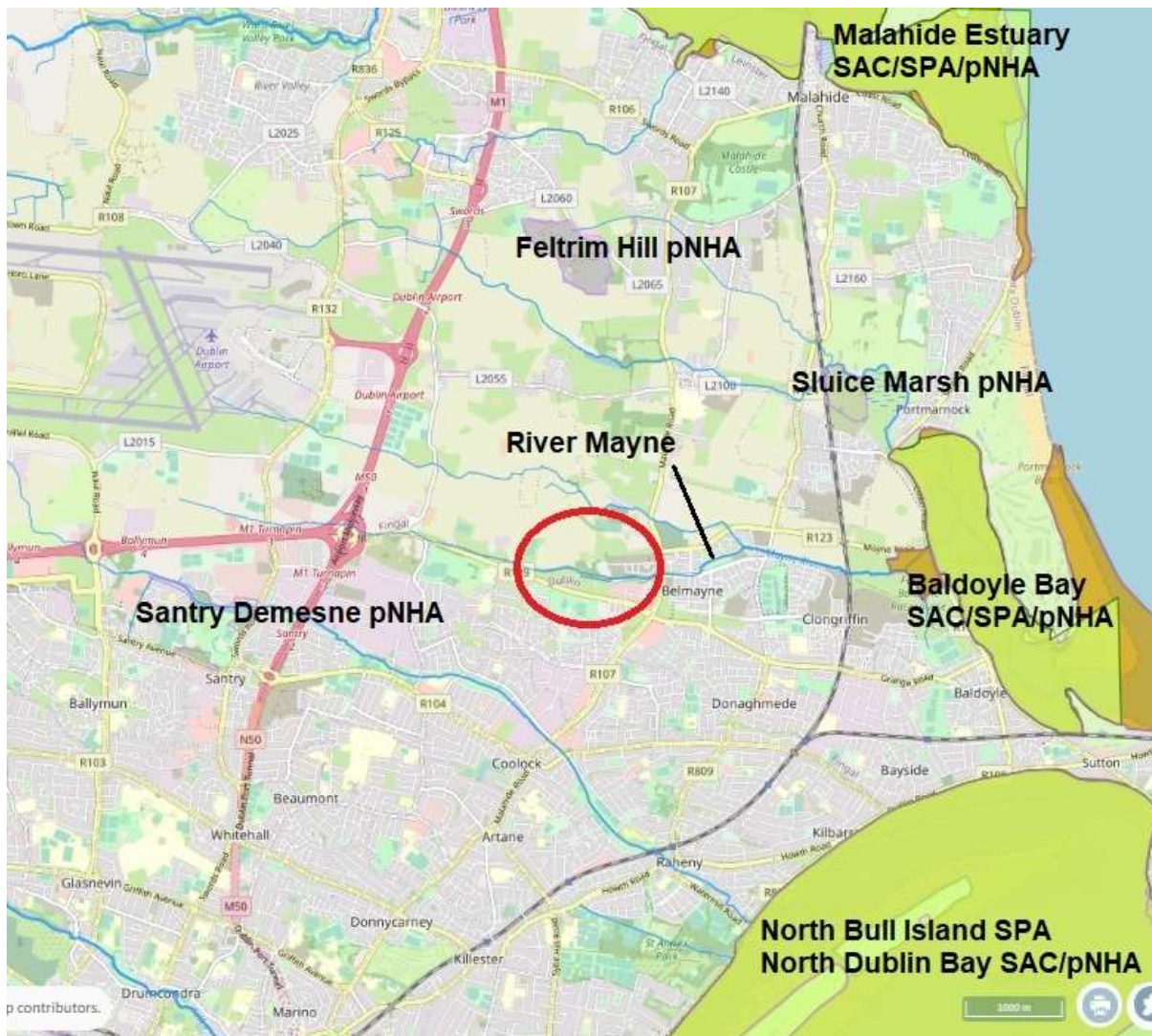


Figure 5-1. Location of the proposed site (red circle) showing areas designated for nature conservation. Some areas have multiple designations.

There are a number of designations for nature conservation in Ireland including National Park, National Nature Reserve, RAMSAR site, UNESCO Biosphere reserves, Wildfowl Sanctuary, Special Protection Areas (SPA – Birds Directive), Special Areas of Conservation (SAC – Habitats Directive); and Natural Heritage Areas. The mechanism for these designations is through national or international legislation. Proposed NHAs (pNHA) are areas that have yet to gain full legislative protection. They are generally protected through the relevant County Development Plan. There is no system in Ireland for the designation of sites at a local, or county level. Within the vicinity of the subject site there are a number of such areas: the Broadmeadow (Malahide), Baldoye Estuaries and Dublin Bay (covered by

multiple designations), the Feltrim Hill pNHA and the Sluice River Marsh pNHA. The focus of this report is to look at the biodiversity of the proposed development site and impact on areas designated for nature conservation, while specific impacts on Natura 2000 sites are examined in the Screening Report for Appropriate Assessment and Natura Impact Statement.

Sluice River Marsh pNHA (site code: 1763)

According to the NPWS: “This site is located about 1 km west of Portmarnock village. The Sluice River flows into Baldoyle Estuary, less than 1 km away. The marsh backs onto the east side of the railway embankment.

[...] This site is of importance as a relatively intact freshwater marsh, a habitat that is now rare in County Dublin.” (NPWS, 2006)

Feltrim Hill pNHA (site code: 1208)

This active quarry was identified as a pNHA due to its geological interest.

Malahide Estuary SAC/SPA/pNHA

The estuary is designated for its intertidal habitats and important wintering bird population. The area is within a Special Area of Conservation (site code: 0205) and Special Protection Area (site code: 4025) but is also a Ramsar site (Broadmeadow estuary no. 833) and a Marine Protected Area under the OSPAR Convention (site code: O-IE-0002967).

Of these designations those made under the Habitats and Birds Directives (i.e. the SAC and SPA) are considered to take precedent. As such they are covered under Article 6 of the Habitats Directive which ensures that developments do not result in adverse effects when measured against their ‘conservation objectives’.

The qualifying interests for the SAC (the reasons why the site is of European value) are detailed in table 1 while the Special Conservation Interests (analogous to qualifying interests for SPAs) for the SPA are given in table 2.

Table 5.1 – Site qualifying interests for the Malahide estuary SAC

Aspect	Level of Protection	Status
Fixed coastal dunes with herbaceous vegetation (grey dunes) (code: 2130)	Habitats Directive Annex I priority habitat	Bad
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (‘white dunes’) (code: 2120)	Habitats Directive Annex I	Inadequate
Salicornia and other annuals colonizing mud and sand (code: 1310)		Inadequate
Mediterranean salt meadows (code: 1410)		Inadequate
Atlantic salt meadows (code: 1330)		Inadequate

Mudflats and sandflats not covered by seawater at low tide (code: 1140)		Inadequate
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- Tidal mudflats (1140). This is an intertidal habitat characterised by fine silt and sediment. Most of the area in Ireland is of favourable status however water quality and fishing activity, including aquaculture, are negatively affecting some areas.
- Salicornia mudflats (1310): This is a pioneer saltmarsh community and so is associated with intertidal areas. It is dependent upon a supply of fresh, bare mud and can be promoted by damage to other salt marsh habitats. It is chiefly threatened by the advance of the alien invasive Cordgrass *Spartina anglica*. Erosion can be destructive but in many cases, this is a natural process.
- Atlantic and Mediterranean salt meadows (1330 & 1410): these are intertidal habitats that differ somewhat in their vegetation composition. They are dynamic habitats that depend upon processes of erosion, sedimentation and colonisation by a typical suite of salt-tolerant organisms. The main pressures are invasion by the non-native *Spartina anglica* and overgrazing by cattle and sheep.
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) (2120). These are the second stage in dune formation and depend upon the stabilising effects of Marram Grass. The presence of the grass traps additional sand, thus growing the dunes. They are threatened by erosion, climate change, coastal flooding and built development.
- Fixed coastal dunes with herbaceous vegetation (grey dunes) (2130 – priority habitat). These are more stable dune systems, typically located on the landward side of the mobile dunes. They have a more or less permanent, and complete covering of vegetation, the quality of which depends on local hydrology and grazing regimes. They are the most endangered of the dune habitat types and are under pressure from built developments such as golf courses and caravan parks, over-grazing, under-grazing and invasive species.

Table 5.2 – Special Conservation Interests for Malahide Estuary SPA

Species	National Status ¹
<i>Anas acuta</i> Pintail	Amber (Wintering)
<i>Branta bernicula hrota</i> Light-bellied brent goose	Amber (Wintering)
<i>Bucephala clangula</i> Goldeneye	Red (Wintering)
<i>Calidris alpina</i> Dunlin	Red (Breeding & Wintering)
<i>Calidris canutus</i> Knot	Red (Wintering)
<i>Haematopus ostralegus</i> Oystercatcher	Red (Breeding & Wintering)
<i>Limosa lapponica</i> Bar-tailed godwit	Red (Wintering)

¹ Birds of Conservation Concern in Ireland. Gilbert et al., 2021

<i>Limosa limosa</i> Black-tailed godwit	Red (Wintering)
<i>Mergus serrator</i> Red-breasted Merganser	Amber (Breeding & Wintering)
<i>Pluvialis apricaria</i> Golden Plover	Red (Breeding & Wintering)
<i>Pluvialis squatarola</i> Grey Plover	Red (Wintering)
<i>Podiceps cristatus</i> Great-crested Grebe	Amber (Breeding & Wintering)
<i>Tadorna tadorna</i> Shelduck	Amber (Breeding & Wintering)
<i>Tringa totanus</i> Redshank	Red (Breeding & Wintering)
Wetlands & Waterbirds	

- Pintail. Dabbling duck wintering on grazing marshes, river floodplains, sheltered coasts and estuaries. It is a localised species and has suffered a small decline in distribution in Ireland for unknown reasons.
- Light-bellied Brent Goose. There has been a 67% increase in the distribution of this goose which winters throughout the Irish coast. The light-bellied subspecies found in Ireland breeds predominantly in the Canadian Arctic.
- Goldeneye. This duck wintering throughout Ireland on suitable coastal areas, river valleys and wetlands. There has been an 11% contraction in its Irish wintering range since the early 1980s and a 37% decline in abundance since the 1990s.
- Dunlin. Although widespread and stable in number during the winter season, the Irish breeding population has collapsed by nearly 70% in 40 years. Breeding is now confined to just seven sites in the north and west as habitat in former nesting areas has been degraded.
- Knot. These small wading birds do not breed in Ireland but gather in coastal wetlands in winter. Their numbers have increased dramatically since the mid-1990s although the reasons for this are unclear.
- Oystercatcher. Predominantly coastal in habit Oystercatchers are resident birds whose numbers continue to expand in Ireland.
- Bar-tailed Godwit. These wetland wading birds do not breed in Ireland but are found throughout the littoral zone during winter months. They prefer estuaries where there are areas of soft mud and sediments on which to feed.
- Black-tailed Godwit. Breeding in Iceland these waders winter in selected sites around the Irish coast, but predominantly to the east and southern halves. Their range here has increase substantially of late.
- Red-breasted Merganser. A widely distributed duck in winter Red-breasted Mergansers also breed in Ireland at certain coastal and inlands locations to the north and west. They have suffered small declines in both their wintering and breeding ranges and possible reasons have been cited as predation by American Mink and shooting.
- Golden Plover. In winter these birds are recorded across the midlands and coastal regions. They breed only in suitable upland habitat in the north-west. Wintering abundance in Ireland has

changed little in recent years although it is estimated that half of its breeding range has been lost in the last 40 years.

- Grey Plover. These birds do not breed in Ireland but winter throughout coastal estuaries and wetlands. Its population and distribution is considered to be stable.
- Great-crested Grebe. These birds breed predominantly on freshwater sites north of the River Shannon while coastal areas along the east and south are used for wintering. Numbers in Ireland have decline by over 30% since the 1990s.
- Shelduck. The largest of our ducks, Shelduck both breed and winter around the coasts with some isolate stations inland. Its population and range is considered stable.
- Redshank. Once common breeders throughout the peatlands and wet grasslands of the midlands Redshanks have undergone a 55% decline in distribution in the past 40 years. Agricultural intensification, drainage of wetlands and predation are the chief drivers of this change.

Baldoyle Bay SAC/SPA

This SAC is the estuary of the Sluice and the Mayne Rivers that is largely enclosed by a sand spit that stretches from Portmarnock to Howth. At low tide it has large areas of exposed mud and sediment that support rich invertebrate communities. There are a number of habitats here that are listed in the EU's Habitats Directive Annex I while there are two plants recorded from the Bay that are protected under the Flora Protection Order: Borrer's Saltmarsh-grass *Puccinellia fasciculata* and Meadow Barley *Hordeum secalinum*.

The reasons why the bay falls under the SAC designation are set out in the qualifying interests. They are either habitat types listed in Annex I or species listed in Annex II of the Habitats Directive. This information is provided by the National Parks and Wildlife Service (NPWS) and is shown in table 5.3 below. In this case the SAC is designated only for protected habitat types.

Table 5.3 – Qualifying interests for the Baldoyle Bay SAC (from NPWS)

Code	Habitats
1140	Mudflats and sandflats not covered by seawater at low tide
1310	Salicornia and other annuals colonizing mud and sand
1330	Atlantic salt meadows
1410	Mediterranean salt meadows

- Tidal mudflats (1140). This is an intertidal habitat characterised by fine silt and sediment. Most of the area in Ireland is of favourable status however water quality and fishing activity, including aquaculture, are negatively affecting some areas.
- Salicornia mudflats (1310): This is a pioneer saltmarsh community and so is associated with intertidal areas. It is dependent upon a supply of fresh, bare mud and can be promoted by damage

to other salt marsh habitats. It is chiefly threatened by the advance of the alien invasive Cordgrass *Spartina anglica*. Erosion can be destructive but in many cases, this is a natural process.

- Atlantic and Mediterranean salt meadows (1330 & 1410): these are intertidal habitats that differ somewhat in their vegetation composition. They are dynamic habitats that depend upon processes of erosion, sedimentation and colonisation by a typical suite of salt-tolerant organisms. The main pressures are invasion by the non-native *Spartina anglica* and overgrazing by cattle and sheep.

Baldoyle Bay SPA (site codes: 4016)

Estuarine habitats are some of the most productive in the world and the nutrients that are deposited here fuel primary and secondary production (levels in the food chain) that in turn provide food for internationally significant numbers of wintering birds (Little, 2000). It had a mean of 5,780 birds between the winters of 2006/07 and 2010/11 (Crowe et al., 2012). Specifically, it has a number of species which are ‘features of interest’ of the SPA, along with ‘wetlands and waterbirds’. Table 5.4 details these.

Table 5.4 – Features of Interest for the Baldoyle Bay SPA (from NPWS)

Species		Status ²
<i>Branta bernicula</i>	Light-bellied brent goose	Amber (Wintering)
<i>Charadrius hiaticula</i>	Ringed plover	Amber (Breeding & Wintering)
<i>Limosa lapponica</i>	Bar-tailed godwit	Red (Wintering)
<i>Pluvialis apricaria</i>	Golden plover	Red (Breeding & Wintering)
<i>Pluvialis squatarola</i>	Grey plover	Red (Wintering)
<i>Tadorna tadorna</i>	Shelduck	Amber (Breeding & Wintering)
Wetlands & Waterbirds		

- Light-bellied Brent Goose. There has been a 67% increase in the distribution of this goose which winters throughout the Irish coast. The light-bellied subspecies found in Ireland breeds predominantly in the Canadian Arctic.
- Ringed Plover. This bird is a common sight around the Irish coast where it is resident. They breed on stony beaches but also, more recently, on cut-away bog in the midlands.
- Bar-tailed Godwit. These wetland wading birds do not breed in Ireland but are found throughout the littoral zone during winter months. They prefer estuaries where there are areas of soft mud and sediments on which to feed.
- Golden Plover. In winter these birds are recorded across the midlands and coastal regions. They breed only in suitable upland habitat in the north-west. Wintering abundance in Ireland has

² Birds of Conservation Concern in Ireland. Gilbert et al., 2021

changed little in recent years although it is estimated that half of its breeding range has been lost in the last 40 years.

- Grey Plover. These birds do not breed in Ireland but winter throughout coastal estuaries and wetlands. Its population and distribution is considered to be stable.
- Shelduck. The largest of our ducks, Shelduck both breed and winter around the coasts with some isolate stations inland. Its population and range is considered stable.

South Dublin Bay SAC/pNHA (site code: 0210; c.850m from the development site) is concentrated on the intertidal area of Sandymount Strand. It has one qualifying interest (i.e. feature which qualifies the area as being of international importance) which is mudflats and sandflats not covered by seawater at low tide.

North Dublin Bay SAC/pNHA (site code: 0206); 6.3km from the development site) is focused on the sand spit on the North Bull Island.

South Dublin Bay and Tolka Estuary SPA (site code: 4024; c.850m from the development site) is largely coincident with the SAC boundary with the exception of the Tolka Estuary.

The **North Bull Island SPA** (site code: 4006; c.4.7km from the development site) is largely coincident with the North Dublin Bay SAC with the exception of the terrestrial portion of Bull Island. Table 1 lists the features of interest for these SPAs.

Table 5.5 – Features of interest for the South Dublin Bay and Tolka Estuary SPA and the North Bull Island SPA in Dublin Bay (EU code in square parenthesis)

Species	Long-term trend ³
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Stable or increasing
Shelduck (<i>Tadorna tadorna</i>) [A048]	Stable or increasing
Pintail (<i>Anas acuta</i>) [A054]	Stable or increasing
Teal (<i>Anas crecca</i>) [A052]	Stable or increasing
Shoveler (<i>Anas clypeata</i>) [A056]	Moderate decline
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Stable or increasing

³ https://birdwatchireland.ie/app/uploads/2022/04/iwebs_trends_0U404_Dublin_Bay.html

Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Stable or increasing
Ringed Plover (<i>Charadrius hiaticula</i>) [A137]	Intermediate decline
Grey Plover (<i>Pluvialis squatarola</i>) [A140]	Large decline
Knot (<i>Calidris canutus</i>) [A143]	Stable or increasing
Sanderling (<i>Calidris alba</i>) [A144]	Stable or increasing
Dunlin (<i>Calidris alpina</i>) [A149]	Stable or increasing
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Stable or increasing
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Stable or increasing
Redshank (<i>Tringa totanus</i>) [A162]	Stable or increasing
Curlew (<i>Numenius arquata</i>) [A160]	Intermediate decline
Turnstone (<i>Arenaria interpres</i>) [A169]	Stable or increasing
Black-headed Gull (<i>Croicocephalus ridibundus</i>) [A179]	-
Roseate Tern (<i>Sterna dougallii</i>) [A192]	-
Common Tern (<i>Sterna hirundo</i>) [A193]	-
Arctic Tern (<i>Sterna paradisaea</i>) [A194]	-
Wetlands & Waterbirds [A999]	

Bird counts from BirdWatch Ireland are taken from Dublin Bay as a whole and are not separated between the two SPAs in this area.

The site is in the catchment of the River Mayne, which flows in an easterly direction, discharging to the Irish Sea at Baldoyle. Water quality in Baldoyle Bay (Mayne Estuary; code: IE_EA_080_0100) was assessed by the EPA as 'intermediate' for the 2018-2020 reporting period. The ecological status of Baldoyle Bay under the Water Framework Directive is under review. The principal river feeding into the Baldoyle Bay is the River Mayne (code: IE_EA_09M030500) and this is 'poor status. According to the sub-catchment report on www.catchments.ie the principal pressure on the transitional water is "anthropogenic pressure" while the principle pressure on the River Mayne is "urban run-off". Although the exact cause of this is unknown, this may arise from misconnections whereby effluent from homes is discharging straight to the environment rather than the foul sewer. Unattenuated surface run-off may also be a contributing factor.

The NPWS web site (www.npws.ie) contains a mapping tool that indicates historic records of legally protected species within a selected Ordnance Survey (OS) 10km grid square. The Belcamp lands are located within the square O24 and 11 protected plants are recorded. It must be noted that this list cannot be seen as exhaustive as suitable habitat may be available for other important and/or protected species. Table 5.6 lists these and their known current status.

Table 5.6 – Known records of protected species from the O24 square (from www.npws.ie)

Species	Habitat ^{4 5}	Current status ⁶
<i>Centaureum pulchellum</i> Lesser Centaury	Sandhills, dune-slacks and margins of brackish lakes	Current
<i>Clinopodium acinos</i> Basil Thyme	Field margins and sandy or gravelly places	Non-native; Record pre-1970
<i>Galeopsis angustifolia</i> Red Hemp-nettle	Calcareous gravels	Records pre-1986
<i>Hordeum secalinum</i> Meadow Barley	Upper parts of brackish marshes, chiefly near the sea	Record pre-1970 (O14) Current (O24)
<i>Hypericum hirsutum</i> Hairy St. John's-wort	Woods and shady places	Current, record from Santry Court
<i>Mertensia maritima</i> Oysterplant	Shingle shores	Record pre-1970
<i>Papaver hybridum</i> Rough Poppy	Sandy fields	Non-native; Record pre-1986
<i>Puccinellia fasciculata</i> Borrer's Salt-marsh grass	Muddy inlets on the coast	Current
<i>Saxifraga granulata</i> Meadow saxifrage	Sandhills and pastures near the east coast	Record pre-1970
<i>Scleranthus annus</i> Annual Knawel	Waste places and roadsides on dry, sandy soils	Record pre-1970

⁴ Parnell et al., 2012

⁵ Hayden & Harrington, 2001

⁶ Preston et al., 2002

<i>Viola hirta</i> Hairy Violet	Sand dunes, grasslands, limestone rocks	Current, records from Santry Demesne and Feltrim Hill
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As can be seen there are four current records of protected plants in this 10km square.

5.3 Stakeholder Consultation

As the site falls within the catchment of the River Mayne, Inland Fisheries Ireland was contacted for fisheries observations. A response to this was received on April 28th 2021 noting that “The Mayne River is a non-salmonid system. While the Mayne River is non-salmonid, IFI are currently assessing the viability of a salmonid reintroduction programme. European Eel are resident in the system and Hans Visser from Fingal has opened up the flap valve on the end of the system to encourage migrating fish species into the system. Previous WFD surveys carried out by IFI can be found at www.whdfish.ie.”

Response:

Although the Mayne River is not currently of salmonid status ecological enhancement measures have been incorporated into this project. These include removing blockages along the river, particularly of accumulated debris, including dumped rubbish, and partly reconnecting the river to a small area of floodplain. All new river crossings have been designed to be fish and Otter passable.

Details of the proposal were sent to the Development Applications Unit of the Department of Housing, Local Government and Heritage. A response was not received at the time of submission.

5.4 Site Survey

Aerial photography from the OSI and historic mapping shows that this area has been in agricultural use for decades if not centuries. The lands in the immediate vicinity remain in agricultural use however new residential and civic developments have seen a change in land use in recent years.

5.4.1 Flora

The development lands can be broadly divided in two, with lands within Fingal County Council to the north of the River Mayne and lands within Dublin City Council to the South.

To the south of the river, the lands are confined to a long and narrow belt which is mostly bounded by the R139 road to the south. This is largely divided into a number of agricultural fields, most of which are **arable crops – BC1**. These were bare lands during the most recent survey in February 2022.

The field to the far west, as well as a small patch to the far east, are **dry neutral grasslands – GS1** and are grazed by horses. The sward is very tightly grazed with Ragwort *Senecio jacobaea*, Docks *Rumex sp.*, Creeping Thistle *Cirsium arvense* and Creeping Buttercup *Ranunculus repens*.

These fields are bounded by **hedgerows – WL1** with Blackthorn *Prunus spinosa*, Brambles *Rubus fruticosus agg.*, Ash *Fraxinus excelsior*, Hawthorn *Crataegus monogyna* and Field-rose *Rosa arvensis*.

The River Mayne is a **lowland river – FW2** and its riparian zone is characterised by **treelines – WL2** and dense **scrub – WS1**. Treelines include Beech *Fagus sylvatica*, Horse Chestnut *Aesculus hippocastanum*, Ash, Sycamore *Acer pseudoplatanus*, Ivy *Hedera helix*, Elm *Ulmus sp.*, Holly *Ilex aquilinum* and Crack Willow *Salix fragilis*.

Areas of scrub along the river include dense Brambles and Elder *Sambucus nigra* while the strip to the far east of the development site is wet with fallen and dead trees and stands of Angelica *Angelica sylvestris*.

North of the River Mayne there are a series of **artificial ponds – FL8** as well as bands of **broadleaved woodland – WD4**. The woodland within the development site boundary is composed of tall trees of a variety of species including Beech, Sycamore, Aspen *Populus tremula* and Yew *Taxus baccata* as well as Holly and Hazel *Corylus avellana*. The ground level includes a lot of Ivy but also ferns such as Hart's-tongue *Asplenium scolopendrium*. The upper (western) pond is surrounded by dense vegetation including dead and fallen trees. There are large rafts of Duckweed *Lemna sp.* on the water surface. The lower (eastern) pond has had much of its vegetation cleared as part of permitted works for on-going development.

The River Mayne is a short and highly urbanised water course and so its stretch through the Belcamp development site is of county significance in biodiversity terms for the relative naturalness of its habitats.

North of the River Mayne there is a network of fields of arable crops with mature treeline and hedgerow boundaries, some of which are associated with **drainage ditches – FW4**. A strip of broadleaved woodland is found along the northern development site boundary at Burgage.

To the east of this area there are small patches of scrub vegetation, an un-grazed field corner which is a patch of **dry meadow – GS2**. There is also a field of dry grassland which is grazed by horses in this area.

Collectively, the Belcamp development site consists of a variety of semi-natural features which range from intensively managed, low biodiversity value agricultural habitats to high local value hedgerows and treelines and the River Mayne with its associated woodlands and scrub are of county value.

However, there are no habitats which are examples of those listed on Annex I of the Habitats Directive. The River Mayne provides a direct hydrological connection between the development site and the Baldoyle Estuary, which is designated for its intertidal habitats and coastal bird communities.

Habitats on the development site are not suitable for populations of wetland/wading/wintering birds which are qualifying interests of the Baldoyle Bay SPA or other Natura 2000 sites. The surveys in January 2021 and February 2022 were undertaken during the optimal period for wintering birds and no such species were recorded.

There are no plant species growing on the site which are listed as alien invasive under SI No. 477 of 2011. The developments lands have been subject to invasive species surveys by Peter Cuthbert since 2018 with the most recent survey in spring 2022. Growths of Giant Hogweed *Heracleum mantegazzianum* along the Mayne River have been subject to on-going treatment, most recently in

2021. It is believed that recolonisation of the Belcamp lands may be arising from seed sources upstream of the development site



Figure 5-2. site boundary showing habitats present

5.4.2 Fauna

The site survey included incidental sightings or proxy signs (prints, scats etc.) of faunal activity, while the presence of certain species can be concluded where there is suitable habitat within the known range of that species. Table 5.7 details those mammals that are protected under national or international legislation in Ireland. Cells are greyed out where records from the National Biodiversity Data Centre (NBDC) do not exist.

Rabbit *Oryctolagus cuniculus* was observed and their burrows are to be found throughout. Fox *Vulpes vulpes* scat was also observed however these are not protected species. This is a large site with mature hedgerows with trees which may provide bat roost potential (Hundt, 2013). The bat report states:

Bat activity was noted throughout the site but with higher levels of activity in the more sheltered areas. Given the weather conditions were mild and dry, bats were widespread. All four bat species present were recorded close to the former school and walled garden and this area was also the area where a bat roost was noted. A pipistrelle was noted to fly into the buildings prior to sunrise. This was a soprano pipistrelle based on the recorded ultrasonic signals.

Two pipistrelle species were noted around the buildings shortly after sunset. Both common and soprano pipistrelle were noted throughout the survey period. Other species noted within the site included brown long-eared bat (very brief calls were noted close to the walled garden) and Leisler's

bat which was a little more widespread and was particularly notable in its southern activity. There was bat activity both after sunset and prior to dawn and bats were roosting within and around the site. Activity at the ruined school and chapel and walled garden included soprano pipistrelles flying towards the building at 19.44 hours followed by a common pipistrelle and a calling soprano pipistrelle. Leisler's bat activity was noted at 19.51 hours and then soprano pipistrelle social calls were noted followed by two common pipistrelles in pursuit along the wall (of the walled garden).

Surveys for Badgers was carried out in 2020 and 2021. There are no recent records of Badger *Meles meles* from this area. The Badger survey, found that:

There was no evidence of badgers from the site in autumn or winter 2020. There were no latrines, signs of digging, snagged hairs, tracks or badger setts within or adjacent to the site. The largest burrows within or around the site are used by rabbits but may have been originally constructed by badgers.

The River Mayne was surveyed for signs of Otter during each site survey both by Openfield and Wildlife Surveys Ireland. No signs of Otter activity were recorded. According to the mammal report:

Otters are not breeding within the site but may enter the site along the River Mayne and there is historical evidence to indicate that they are present within the area and enter the site either to feed or commute (three years old - 2018).

For the purposes of this survey the stretch of the River Mayne is considered to have Otter potential.

Small mammals, such Irish Stoat, Pygmy Shrew and Hedgehog are considered more or less ubiquitous in the Irish countryside (Lysaght & Marnell, 2016).

April is within the suitable season for surveying breeding birds and surveys were carried out before noon in April 2021 and 2022. The purpose of the survey was to identify all species of birds breeding on the site or displaying breeding behaviour (singing, holding territory, carrying nesting or feeding material etc.).

Birds which were recorded in April 2021:

Table 5.7 – Breeding birds of the Belcamp site

Species	April 2021	April 2022	Status
Hooded Crow <i>Corvus corone</i>	X	X	Green
Wren <i>Troglodytes troglodytes</i>	X	X	Green
Jackdaw <i>C. monedula</i>	X	X	Green
Goldfinch <i>Carduelis carduelis</i>	X	X	Green
Chaffinch <i>Fringilla coelops</i>	X	X	Green
Great Tit <i>Parus major</i>	X	X	Green
Feral Pigeon <i>Columbus livia</i>	X		Green
Magpie <i>Pica pica</i>	X	X	Green
Moorhen <i>Gallinula chloropus</i>	X		Green
Blackbird <i>Turdus merula</i>	X	X	Green
Buzzard <i>Buteo buteo</i>	X	X	Green
Chiffchaff <i>Phylloscopus collybita</i>	X	X	Green
Blue Tit <i>P. caeruleus</i>	X	X	Green

Robin <i>Erithacus rubecula</i>	X	X	Green
Blackcap <i>Sylvia atricapilla</i>	X	X	Green
Pheasant <i>Phasianus colchicus</i>	X	X	Green
Dunnock <i>Prunella modularis</i>	X	X	Green
Song Thrush <i>Turdus philomelos</i>	X	X	Green
Collared Dove <i>Streptopelia decaocto</i>	X		Green
Wood Pigeon <i>C. palumbus</i>	X	X	Green
Coal Tit <i>P. ater</i>		X	Green
Linnet <i>Carduelis cannabina</i>		X	Amber
Collared Dove <i>Streptopelia decaocto</i>		X	Green
Sparrowhawk <i>Accipiter nisus</i>	X	X	Green
Yellowhammer <i>Emberiza citrinella</i>		X	Red
Long-tailed Tit <i>Aegithalos caudatus</i>		X	Green
Bullfinch <i>Pyrrhula pyrrhula</i>		X	Green

Surveys during non-breeding periods recorded (in addition to those species already listed) Sparrowhawk *Accipiter nisus*, Starling *Sturnus vulgaris* and Long-tailed Tit *Aegithalos caudatus* as well as Mallard *Anas platyrhynchos* and Grey Heron *Ardea cinerea* near the ponds.

Most of the birds which were recorded to be breeding are birds of low conservation concern (Gilbert et al., 2021). Hedgerows, treelines, scrub, woodland and pond margins provide the necessary cover to allow these species to breed. In 2022 Linnet was noted and this is amber listed (medium conservation concern) while two pairs of Yellowhammer were noted to the north-west of the lands (future open space) and this is red listed (high conservation concern).

Winter bird surveys were carried out in January 2021 February 2022 and no species was recorded which is a qualifying interest of coastal Natura 2000 sites within the zone of influence of this project.

The ponds were examined for the presence of amphibians but no spawn, tadpoles or adults were noted during any of the surveys between 2020 and 2022. Frog spawn was noted in February 2022 in some wet depressions in the small floodplain to the south of the Mayne River, however these had dried up by April of that year.

The Mayne River is not of salmonid status and barriers to movement, particularly the culvert under the R107, mean the stretch in the Belcamp lands is currently not accessible to migratory fish. The River Mayne was surveyed for fish life by Inland Fisheries Ireland in 2016. Sampling sites did not include any on, or upstream of, the Belcamp lands, but downstream of this point European Eel *Anguilla anguilla*, Three-spined Stickleback and Flounder (in the lower reaches) were recorded (Kelly et al., 2017). The European Eel is a critically endangered species (King et al., 2011).

Most habitats, even highly altered ones, are likely to harbour a wide diversity of invertebrates. In Ireland only one insect is protected by law, the Marsh Fritillary butterfly *Euphydryas aurinia*, and this is not to be found in this vicinity. Other protected invertebrates are confined to freshwater and wetland habitats which are not present on this site.

Table 5-8. Protected mammals in Ireland and their known status within the T15 10km square⁷. Those that are greyed out indicate either that there are no records of the species from the National Biodiversity Data Centre.

Species	Level of Protection	Habitat ⁸	
Otter <i>Lutra lutra</i>	Annex II & IV Habitats Directive; Wildlife (Amendment) Act, 2000	Rivers and wetlands	
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>		Disused, undisturbed old buildings, caves and mines	
Grey seal <i>Halichoerus grypus</i>	Annex II & V Habitats Directive; Wildlife (Amendment) Act, 2000	Coastal habitats	
Common seal <i>Phocaena phocaena</i>			
Whiskered bat <i>Myotis mystacinus</i>	Annex IV Habitats Directive; Wildlife (Amendment) Act, 2000	Gardens, parks and riparian habitats	
Natterer's bat <i>Myotis nattereri</i>		Woodland	
Leisler's bat <i>Nyctalus leisleri</i>		Open areas roosting in attics	
Brown long-eared bat <i>Plecotus auritus</i>		Woodland	
Common pipistrelle <i>Pipistrellus pipistrellus</i>		Farmland, woodland and urban areas	
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>		Rivers, lakes & riparian woodland	
Daubenton's bat <i>Myotis daubentonii</i>		Woodlands and bridges associated with open water	
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>		Parkland, mixed and pine forests, riparian habitats	
Irish hare <i>Lepus timidus hibernicus</i>		Annex V Habitats Directive; Wildlife (Amendment) Act, 2000	Wide range of habitats
Pine Marten <i>Martes martes</i>			Broad-leaved and coniferous forest
Hedgehog <i>Erinaceus europaeus</i>	Wildlife (Amendment) Act, 2000	Woodlands and hedgerows	
Pygmy shrew <i>Sorex minutus</i>		Woodlands, heathland, and wetlands	
Red squirrel <i>Sciurus vulgaris</i>		Woodlands	

⁷ From the National Biodiversity Data Centre, excludes marine cetaceans

⁸ Harris & Yalden, 2008

Irish stoat <i>Mustela erminea Hibernica</i>		Wide range of habitats
Badger <i>Meles meles</i>		Farmland, woodland and urban areas
Red deer <i>Cervus elaphus</i>		Woodland and open moorland
Fallow deer <i>Dama dama</i>		Mixed woodland but feeding in open habitat
Sika deer <i>Cervus Nippon</i>		Coniferous woodland and adjacent heaths

5.5 Overall Evaluation of the Context, Character, Significance and Sensitivity of the Proposed Development Site

In summary it has been seen that the development site is of low biodiversity value farmland with 'higher significance' field boundaries. The development site is home to four bat species. There are no examples of habitats listed on Annex I of the Habitats Directive or records of rare or protected plants. There are no species listed as alien invasive as per SI 477 of 2011 although Giant Hogweed has been present in the past. Significance criteria are available from guidance published by the National Roads Authority (NRA, 2009). From this an evaluation of the various habitats and ecological features on the site has been made and this is shown in table 5.9.

Table 5-9. Evaluation of the importance of habitats and species on the Gorey Hill site

Arable crops – BC1	Negligible ecological value
Scrub – WS1 Dry meadow – GS2 Artificial ponds – FL8 'Lower significance' hedgerow – WL1	Low local value
'Higher significance' hedgerows – WL1 'Higher significance' treelines – WL2 With drainage ditches -FW4 Broadleaved Woodland – WD1	High local value
River Mayne corridor – FW2	County value

5.6 Characteristics of the Proposed Development

The proposed development will see the construction of 2,527 new homes, along with amenity open space, internal access roads and connections to all essential infrastructure. It will include site clearance and a construction phase that will see extensive land clearance. It will require the partial removal of internal field boundaries and sections of external boundaries to allow for road access and seven crossings of the River Mayne (including existing).



Figure 5-3. Site layout

5.7 Potential Impact of the Proposed Development

This section provides a description of the potential impacts that the proposed development may have on biodiversity in the absence of mitigation. Methodology for determining the significance of an impact has been published by the NRA. This is based on the valuation of the ecological feature in question (table 3) and the scale of the predicted impact. In this way it is possible to assign an impact significance in a transparent and objective way. Table 4 summaries the nature of the predicted impacts.

5.8 Construction Phase

The following potential impacts are likely to occur during the construction phase in the absence of mitigation:

1. Habitat loss

There will be loss of agricultural field habitats as well as treelines and hedgerows. It is calculated that 1,155m of 'higher significance' hedgerow and 185m of 'lower significance' hedgerow will be lost. This is shown in figures 5-4 to 5-7.

The loss of habitat will impact upon the species currently using the lands including foraging territory for bats. The nesting areas of the red listed Yellowhammer are within hedgerows that are to be retained. No negative effects will arise to Yellowhammer or Otters arising from this project.

According to the mammal survey report:

Reduced vegetation may lead to reduced insect abundance. This will be a permanent slight negative impact. While the crop at the time of survey was a cereal crop and would support low densities of insects, rotation of crops would allow for the presence of pasture on occasion and a greater availability of insects. This will cease once housing is constructed. This the level of insect availability and bat food will decrease.

This cumulative loss of both high and low local value habitat is negative, significant, likely and permanent.



Figure 5-4. Trees and linear woodland habitats to be removed (North-West)



Figure 5-5. Trees and linear woodland habitats to be removed (North-East)



Figure 5-6. Trees and linear woodland habitats to be removed (South-East)



Figure 5-7. Trees and linear woodland habitats to be removed (South-West)

2. The direct mortality of species during site clearance. This impact is most acute during the bird breeding season which can be assumed to last from March to August inclusive. Suitable habitat for nesting birds is present in treeline and hedgerow habitats. All birds' nests and eggs are protected by law, regardless of species. There are no bat roosts on the site however some old trees as well as the building have bat roost potential. According to the bat survey report:

Tree felling creates a risk of roost loss where mature trees have been unmanaged and there are cavities and rotten or cracked limbs. [...]

This impact is potentially negative, significant, likely and permanent.

3. Pollution of water courses through the ingress of silt, oils and other toxic substances. During the construction phase there is the potential for pollution to occur from dangerous substances (oils, concrete etc.) or silt. Silt is a particularly important pollutant in aquatic habitats as it can degrade spawning gravels or directly affect fish by clogging gills. The River Mayne is of salmonid potential although suffers from poor status. Nevertheless, the River Mayne flows into Baldoyle Bay which is a Special Area of Conservation and Special Protection Area.

During this phase best practice guidance from Inland Fisheries Ireland is to be followed (IFI, 2016). This will include preventing silt laden water from leaving the site and stockpiling dangerous substances in bunded areas. These measures have been defined in a Construction Environmental Management Plan which has been prepared for this development application by Waterman Moylan Engineers.

Largely due to the hydrological connection to Baldoyle Bay SAC and SPA via the River Mayne, this impact is potentially negative, significant, likely and permanent.

4. Spread of alien invasive species

Giant Hogweed has historically been recorded from the banks of the River Mayne within the development site area. Although this has been subject to control measures since 2018, it is believed that recolonisation may be occurring due to a seed source upstream of the development site. Without continued mitigation measures, and should Giant Hogweed become re-established on these lands, a new seed source could emerge which could negatively affect biodiversity along this important corridor.

This impact is potentially negative, significant, likely and permanent.

5.9 Operation Phase

The following potential impacts are likely to occur during the operation phase in the absence of mitigation:

5. Pollution of water from foul wastewater arising from the development.

Wastewater will be sent to the municipal treatment plant at Ringsend. Upgrade works are underway as the plant is not currently meeting its requirements under the Urban Wastewater Treatment Directive. Pollution effects are most acute in freshwater systems where the capacity for dilution is low and the consequent risk of eutrophication is high. The Ringsend WWTP discharges into Dublin Bay which is currently classified as 'good status' by the EPA despite long-running compliance issues at the plant. A separate screening report for Appropriate Assessment specifically examines the impacts of this project on Natura 2000 sites in Dublin Bay and found that no significant effects are likely to arise to these areas from foul effluent discharges. Irish Water is to undertake upgrading works on a phased basis.

This impact is neutral, imperceptible, unlikely and permanent.

6. Pollution of water from surface water run-off.

Change of land use and urban expansion can lead to an increased risk of local flooding and a deterioration of water quality. This arises where soil and natural vegetation, which is permeable to rainwater and slows its flow, is replaced with impermeable hard surfaces.

Currently there is no attenuation of rain run-off and surface water percolates to the ground or follows surface pathways to the River Mayne. In accordance with the Greater Dublin Strategic Drainage Study this project will incorporate sustainable drainage systems (SuDS). Discharge to the River Mayne will be via attenuation storage and controlled flow. However, given that the River Mayne provides a direct hydrological pathway to the Baldoyle Bay SAC and SPA, and given that in the absence of SUDS measures, the AA Screening report concluded that significant effects to these areas could not be ruled out, for the sake of consistency the same approach is adopted here.

Therefore, in the absence of SUDS, which are further included as mitigation measures, this impact is negative, significant, likely and permanent.

7. Impacts to Ecological Corridors

The degree to which plants and animals can move across a landscape depends upon the species and the available habitats. Generally speaking, semi-natural habitats in Ireland are highly fragmented, with large areas of low biodiversity value urban and agricultural habitats dominating the landscape. Some generalist species have adapted to these landscapes and can move freely through them, however others are confined to corridors of semi-natural vegetation. These linear features, such as field boundaries and waterways are vital therefore for the movement of many species and disruptions to connectivity can result in effective habitat shrinkage for these species. Such disruptions can arise from the loss of vegetation (e.g. passing a road through a hedgerow), artificial lighting or barriers to movement along waterways, e.g. with crossings or culverts.

On the Belcamp lands, the River Mayne and its riparian zone have been identified as a biodiversity corridor of county importance. To the south of the lands, the R139 road is a significant barrier to movement for wildlife while the lands to the south of this road are, in any case, heavily urbanised. Similarly, to the east, the R107 Malahide Road is a substantial barrier to movement. This includes the culvert under which the River Mayne flows and this is likely to be impassable to much aquatic life. Within the site itself there are three existing culverts while accumulations of debris (both natural and anthropogenic litter) have created impassable barriers to all but the smallest of fish.

The landscaping strategy includes the preservation of the main east-west river corridor as a principal biodiversity corridor. The eastern boundary is to be preserved and strengthened to allow for north-south movement and so continued biodiversity connection with the open lands to the north and east. Similarly, the northern boundary is to be include significant additional planting to connect the existing woodland (outside the Belcamp SHD development boundary) to new woodland areas to be created as part of this scheme. Elsewhere, loss of hedgerows, or parts of hedgerows, will disrupt movement of some species along these lines. However, overall, the development will not impede the movement of plants and animals through the development site.

Along the River Mayne, existing blockages with debris are to be removed. New crossings have all been designed to provide for fish and Otter movement. The location of all crossings is given in figure 5-4. The removal of horses from the land will all the return of natural vegetation along those areas of the riparian corridor that are to remain open, particularly to the south-east.

According to the bat and badger survey report “may lead to the disturbance of light intolerant or shy species while the more urban-adapted species will be affected only over a short-term period” [...] “At worst, it would be a permanent moderately negative impact.”

In summary, the development layout has been designed in order to preserve important biodiversity corridors. Nevertheless, the potential for artificial lighting to impact the movement of bats means that without mitigation, this impact is potentially negative, significant, likely and permanent.

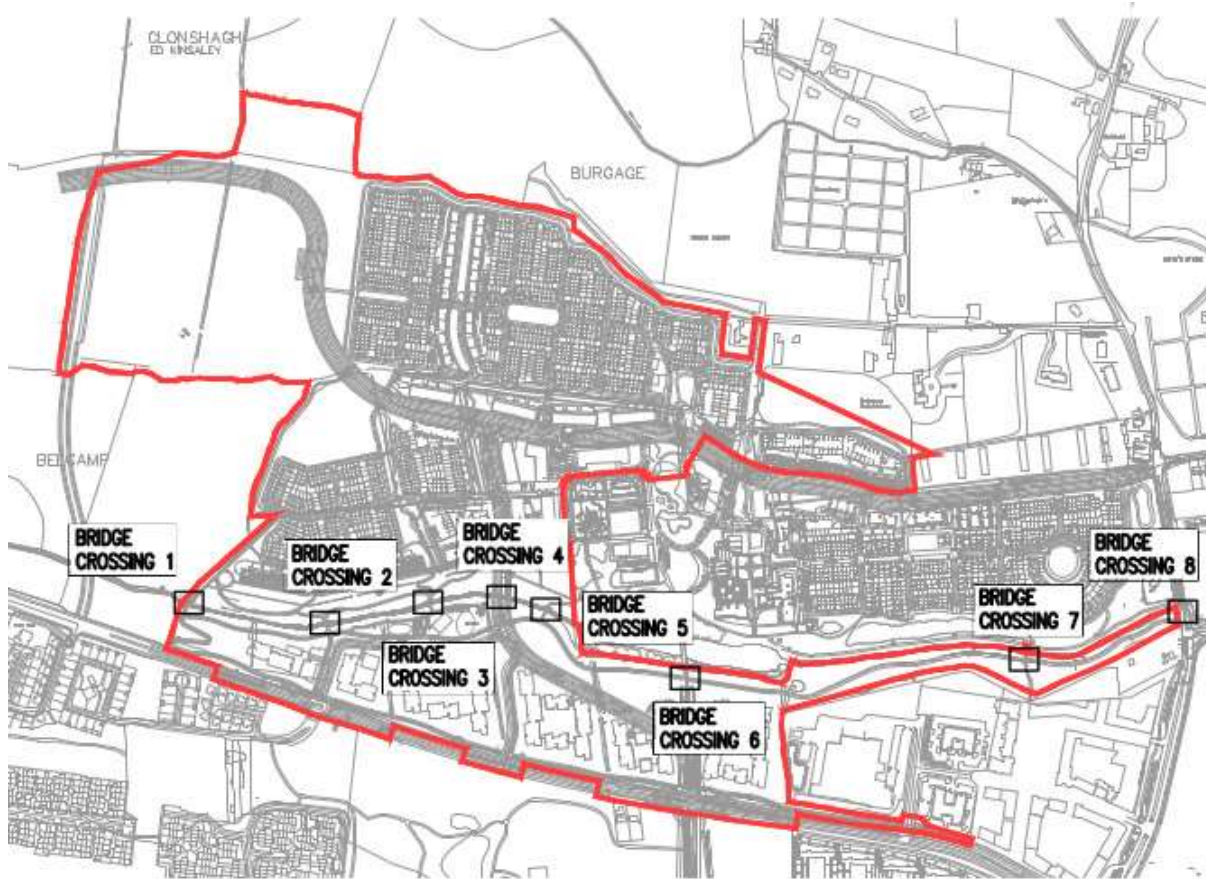


Figure 5-8. Site layout

8. There is a direct, hydrological pathway from the development site to the Baldoyle Bay SAC and SPA. A screening report for Appropriate Assessment carried out for this development application concluded that significant effects to these Natura 2000 sites during the construction and operation phases could not be ruled out. This was based upon the potential for pollution to arise from sediment and other construction materials as well as surface water run-off. On foot of this conclusion, a separate Natura Impact Statement was prepared which details the mitigation measures which are to be undertaken. With the implementation of these measures, adverse effects to the integrity of Natura 2000 sites will not occur.

This impact in the absence of mitigation measures is therefore potentially negative, significant, likely and medium-term.

There are no pathways between the development site and any other area designated for nature conservation, and so no effects to any other protected sites can arise.

Table 5-10. Significance level of likely impacts in the absence of mitigation

Impact		Significance
Construction phase		
1	Habitat loss	Significant
2	Mortality to animals during construction	Significant
3	Pollution of water during construction phase	Significant
4	Alien invasive species	Significant

5	Wastewater pollution	Neutral
6	Surface water pollution	Significant
7	Ecological Corridors/Artificial lighting	Significant
8	Protected areas	Significant

Overall, it can be seen that six potentially significant negative impacts are predicted to occur as a result of this project in the absence of mitigation (a seventh – impacts to protected areas – is the same as impacts #3 and #6).

5.10 Cumulative impacts

A number of the identified impacts can also act cumulatively with other impacts from similar developments in this area of Dublin.

The catchment of the Mayne River has been substantially transformed in the past 15-20 years from farmland to built development. The area downstream of the Belcamp site is currently a combination of open park spaces, with significant built development including residential and retail uses which stretches as far as the coastal zone.

Upstream there are still areas of open grassland before the Mayne's headwaters at Dublin airport, where the river is affected by extensive areas of paving for runways, car parks etc.

The cumulative effects of this type of urban growth can arise from replacing permeable ground with hard surfaces. This can result in increased risk of flooding and deterioration of water quality, primarily from the run-off of particulate matter and hydrocarbon residues (Mason, 1996). To combat this effect the Greater Dublin Strategic Drainage Study was published in 2005. This aims to ensure that new developments integrate sustainable drainage systems (SUDS) to maintain natural, or 'green field' rates of surface water run-off while also improving water quality in rivers. This development is fully compliant with these SUDS principles.

The first River Basin Management Plan (RBMP) was published under the EU's Water Framework Directive in 2010. This set out to attain 'good ecological status' of all water bodies by 2027 at the latest. It included a 'programme of measures' that was to address point or diffuse pressures on water quality. The Mayne River is currently assessed as 'poor' while Baldoyle Bay is 'eutrophic'. Under the second RBMP 2018-2021 the Mayne River is identified as one of 190 'priority areas for action'. A third RBMP is in preparation.

This project can be seen in combination with continued suburban style development in Clongriffin (and indeed across the Dublin region). This is planned for under relevant development plans, particularly the Dublin City Development Plan 2016-2022 and the Fingal County Development Plan 2017-2023. The relevant planning authority has carried out an AA for these plans and concluded that their implementation would not result in adverse effects to the integrity of Natura 2000 sites.

The current development proposal is part of a wider development of the lands associated with Belcamp House.

In the event that this project is under construction at the same time as other projects there is a possibility that construction pollutants entering the River Mayne and other waterways leading to

Baldoyle Bay SAC and SPA could act cumulatively to result in negative effects to the SAC and SPA as well as biodiversity within the freshwater portions of this river system.

The growth of population in the Dublin area is placing pressure on wastewater treatment infrastructure and plans are underway to increase capacity at Ringsend. Current compliance issues are not resulting in significant effects to Natura 2000 sites in Dublin Bay.

In the absence of SUDS measures, and despite the fact that SUDS are standard for all development projects, pollution from surface run-off could act cumulatively with other similar sources from throughout the Mayne catchment to contribute to poor water status. Poor status can be assumed to negatively impact upon species and habitats in Natura 2000 sites in Baldoyle Bay.

5.11 Avoidance, Remedial and Mitigation Measures

This report has identified four impacts that were assessed as 'significant negative'.

5.11.1 Mitigation Measures Proposed

The following mitigation measures are proposed for the development

Construction Phase

Mitigation 1: Loss of habitat – mitigation by compensation

Landscaping of the development has been designed to compensate for the loss of habitat arising from the removal of higher and lower significance hedgerows. In total, 185m of 'lower significance' hedgerow and 1,155m of 'higher significance' hedgerow are to be removed. If it is assumed (conservatively) that the average width of linear habitat is 5m, then the total area of habitat to be lost is c.6,700m².

The landscape design includes nearly c.24,000m² of new native woodland (one block to the north-west and another to the south-west). Existing hedgerows along key biodiversity corridors are also to be widened so that they will be native woodland strips. In effect, nearly 2km of existing hedgerows will go from c. 5m in width to c.10m, adding c. 10,000m² of additional native woodland.

Elsewhere, meadow areas will be managed by cutting twice a year, once early in the season and again after flowers have seeded in the autumn. No herbicide sprays are to be used.

Conservatively, a total of 34,000m² of new habitat, or approximately five times the area of higher and lower significance habitat to be removed, is to be created. Habitat compensation is not a precise science and new planting cannot fully compensate for the loss of old, biodiverse hedgerows. New planting will take time to achieve its biodiversity potential and will rely upon appropriate management during the operational phase. Nevertheless, the extent of compensation areas will reduce the magnitude of the negative effect arising from **habitat loss so that in the medium to long-term the impact will not be significant.**



Figure 5-9. Overall landscaping

Mitigation 2: Disturbance of birds’ nests – mitigation by avoidance

All birds’ nests, eggs and young are protected by law. Trees and other vegetation should ideally be felled outside the nesting season (September to February). Where this is not possible, trees should be first inspected for nests. If no nest is present felling can proceed. If a nest is present then works can only proceed under licence from the National Parks and Wildlife Service.

Following mitigation this impact is not significant.

Mitigation 3: Disturbance to bats – mitigation by avoidance

The following is taken from the bat and badger survey report:

All mature trees undergoing any operations must be examined for the presence of bats by means of either a bat detector survey or by examination from a hoist or rope access by a bat specialist. Felling should preferably be undertaken prior to late November to ensure that bats are not in hibernation. If trees are felled in winter, additional care in examining for bats must be taken to ensure that no bats are placed at risk. Should bats be noted in any tree, this is a protected structure and may only be felled under licence from NPWS under the instruction of a licensed bat specialist.

Bat boxes and bat tubes:

The following bat boxes are proposed for the site: 21 x 2FN Schwegler Bat Boxes Height 33 cm x diameter 16 cm. Weight: 4.1 kg. These boxes shall be installed on 7 mature trees within the site. Boxes shall be no lower than 3 metres and shall face in several directions with a majority facing south (e.g., 14 facing either south, southeast, or southwest). 21 x Timber bat boxes of various designs As for the above, these boxes shall be installed on 7 mature trees within the site. Boxes shall be no lower than 3 metres and shall face in several directions with a majority facing south (e.g., 14 facing either south, southeast, or southwest). Boxes should preferably be painted black for greater heat absorption.

6 x Vivara Pro Build-in Woodstone Bat Tubes or 6 x 2FR Schwegler Bat Tubes if available.

Following mitigation this impact is not significant.

Mitigation 4: Prevention of pollution – mitigation by avoidance

Construction will follow guidance from Inland Fisheries Ireland on the prevention of pollution during construction projects (2016). This will include the storage of dangerous substances in bunded areas and ensuring the silt-laden water does not run-off the site. Water will only be permitted to leave the site after passing thorough suitably-sized silt-traps. Pollution prevention measures will be maintained for the full duration of the construction project. The site manager will be responsible for the prevention of pollution. The following specific measures are included in the Construction Environmental Management Plan prepared for this planning application by Waterman Moylan. This includes the following specific pollution prevention measures:

No.	Risk	Possible Impact	Mitigation	Result of Mitigation
1	Hydrocarbons from carparking area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Designated parking at least 50m from any watercourse.	Ensures no soil disturbance or hydrocarbons leak near aquatic zone
2	Pollutants from site compound areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	The site compound will be located at least 50m from any watercourse.	Prevents pollution of the aquatic zone from toxic pollutants
3	Pollutants from material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Fuels, oils, greases, and other potentially polluting chemicals will be stored in bunded compounds at the Contractor's compound or a location at least 50m from any body of water. Bunds are to be provided with 110% capacity of the storage container. Spill kits will be kept on-site at all times and all staff trained in their appropriate use. Method statements for dealing with accidental spillages will be provided by the Contractor for review by the Employer's Representative.	Prevents contamination of aquatic zone by toxic pollutants
4	Concrete/cementitious materials entering the watercourse from washdown.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	A designated wash down area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off-site
4	Concrete/cementitious materials entering the watercourse from concrete pours.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Pouring of cementitious materials will be carried out in the dry.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off-site

5	Leaching of contaminated soil into groundwater.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Spill kits will contain 10 hr terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent leaching to groundwater	Prevents contamination of aquatic zone by petrochemicals
6	Pollutants from equipment storage/refuelling area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Any refuelling and maintenance of equipment will be done at designated bunded areas with full attendance of plant operative(s) within contained areas at least 50m from any watercourse	Prevents contamination of aquatic zone by petrochemicals
7	Runoff from exposed work areas and excavated material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Contractor to prepare a site plan showing the location of all surface water drainage lines and proposed discharge points to the sewer. The plan will include the location of all surface water protection measures, including monitoring points and treatment facilities.	Prevents contamination of aquatic zone by suspended solids or pollutants.

Table 4 | Schedule of Surface Water Mitigation Measures

Following mitigation this impact is not significant.

Mitigation 5: SUDS

According to the engineering report prepared for this development by Waterman Moylan:

South of the Mayne River, it is proposed to utilise the existing ditches that run south to north along the existing hedge-lines as open surface water features, but these are not needed or desirable for attenuation as there are trees lining both sides of the ditch. Each proposed block will drain to a ditch via underground surface water drains. The ditches will, in turn, each flow into a headwall before culverting under the road and ultimately discharging to the Mayne River. Steps will be provided into/out of each of the ditches as a health and safety feature. The main regional attenuation will be provided in the open space adjacent to the Mayne River, east of the main road in a dry detention format. A Downstream Defender unit is proposed upstream of the basin to remove pollutants and debris and protect the hydrobrake outfall chamber from siltation.

North of the River Mayne:

It is proposed to redirect a significant portion of the catchment from this culvert to maintain its capacity for the C1 catchment (Belcamp Phase 1B). This diverted catchment will flow to the lower lake south of Belcamp Hall adjacent to the Mayne River.

Additional SUDS measures include permeable paving, green roofs, planted areas, roadside bioretention tree pits, downstream defender and, as part of regional water control measures, attenuation lakes.

Additional SUDS measures include:

Permeable Paving:

It is proposed to introduce permeable paving in private courtyard areas throughout the development. Downpipes from the roofs of the blocks will drain to filter drains beneath the permeable paving to facilitate maximum infiltration of surface water from paved and roof areas. The goal of permeable paving is to control stormwater at the source to reduce runoff. In addition to reducing surface runoff, permeable paving has the dual benefit of improving water quality by trapping suspended solids and filtering pollutants in the substrata layers.

Green Roof:

It is proposed to introduce green roofing as a source control device. Each block will have green roofing introduced on at least 60% of the roof area.

The substrate and the plant layers in a green roof absorb large amounts of rainwater and release it back into the atmosphere by transpiration and evaporation. They also filter water as it passes through the layers, so the run-off, when it is produced, has fewer pollutants. Rainfall not retained by green roofs is detained, effectively increasing the time to peak and slowing peak flows.

A green roof can reduce annual percentage runoff by between 40% and 80% through this retention and evapotranspiration, with the impact dependent on a range of factors including the depth of substrate, the saturation of substrate at the onset of a rain event, the angle of the roof, the range of vegetation growing, intensity of rainfall and the time of year.

Planted Areas:

It is proposed to provide open grassed areas with low level planting at the ground floor around each apartment block. This will act as soft scape and will significantly slow down and reduce the amount of surface water runoff from the open spaces. Planter boxes and planted areas will also take surface water runoff from the downpipes from buildings before draining to filter drains beneath the permeable paving.

Roadside Bioretention Tree Pits:

It is proposed to provide roadside trees along the main access road. Trees can help control and treat storm water runoff from the surrounding road / footpath because their leaves, stems, and roots slow rain from reaching the ground and capture and store rainfall to be released later. Tree pits help to attenuate flows, trap silts and pollutants, promote infiltration and prevent erosion. Incorporating tree planting offers multiple benefits, including attractive planting features, improved air quality and increased biodiversity whilst helping to ensure adaptation to climate change.

Downstream Defender:

A downstream defender (trade name for a large chamber that retains solids and hydrocarbons) is intended for the DCC lands that will treat the flows that are to be stored in the basin.

As part of regional water control measures:

Attenuation Lakes:

The two existing lakes, parallel to the Mayne River, will be used to attenuate the development north of the Mayne. These lakes have natural reeds and lake vegetation assisting with pollution and hydrocarbon removal. Excess surface water runoff, over and above the greenfield runoff, will be attenuated within the lakes above the permanent water level.

[...]

For Catchment A1, a new hydrobrake or similar approved flow control device will be provided on the lower lake weir to the river to regulate the discharge rate, limiting flows to the greenfield equivalent runoff rate. This flow control has been designed and provided for under phase 1.

Flows to the upper lake, from Catchment A2, will be through the existing ditch immediately east of the distributor road over the Mayne. This ditch flows into the upper lake which in turn flows into the lower lake and over the weir into the Mayne. The flows in the upper lake will be attenuated by means of a hydrobrake in a manhole installed in the causeway that splits the lakes. It may not be possible to utilise the existing culvert between the two lakes that is under the causeway, but it is intended to keep this in place for historical and conservation reasons.

The DCC catchment is split by the main distributor road, but it is intended to amalgamate the attenuation into one offline dry detention basin east of the distributor road where levels are most suitable. A hydrobrake at the outfall will limit flows to the greenfield equivalent rate, with excess surface water attenuated at the dry detention basin.

Following mitigation this impact is not significant.

Mitigation 6: Alien invasive species

On-going monitoring for Giant Hogweed will be a part of the landscaping maintenance programme. This will include annual surveys of the riparian zone of the River Mayne for signs of the plant (not currently growing on the development site). Should the plant be recorded it will be treated with standard herbicide during the optimal growing season but before flower heads set seed.

Following mitigation this impact is not significant.

Mitigation 7: Artificial lighting – mitigation by minimisation

The bat survey recommends that:

As lighting may deter wildlife or alternatively render them visible and more exposed to disturbance, it is recommended that bollard lighting is employed where essential unless there is an equivalent means by which light overspill can be controlled. No lighting shall illuminate the River Mayne or the vegetation immediately around it.

The source of light shall be Light Emitting Diodes (LEDs) as this is a narrow beam highly directional highly energy efficient light source. A warm white spectrum (<2700 Kelvin) shall be adopted to reduce blue light component.

The lighting should allow for a light level of 3 lux at ground level. This low lighting is thus easier to control both the direction but also the actual light level because it is so close to the target area (if using bollard lighting). Lighting should preferably respond to a trigger (motion sensor on approach of vehicles or pedestrians) and be capable of dimming.

In relation to security, it is recommended that infra-red lighting and infra-red cameras are employed to record anti-social activity to assist in crime solving and prevention. This would not raise the visible light levels that would affect mammals and birds to a much greater extent. It is still entirely adequate for monitoring and identification.

In summary, the following would address the main lighting concerns:

- (1) No floodlighting should be used – this causes a large amount of light spillage into the sky. The spread of light should be kept below the horizontal.
- (2) Hoods, louvres, shields or cowls should be fitted on the lights to reduce light spillage.
- (3) Lights should be of low intensity. It is better to use several low intensity lights than one strong light spilling light across the entire area.
- (4) Lights should be on a timer system to switch off relatively quickly in the absence of sustained movement.
- (5) Narrow spectrum lighting should be used with a low UV component. Glass also helps reduce the UV component emitted by lights. A warm white spectrum (<2700 Kelvin) shall be adopted to reduce blue light component.

Following mitigation this impact is not significant.

5.12 Predicted Impacts of the Proposed Development

This section allows for a qualitative description of the resultant positive and negative effects which the proposed development may have, assuming all mitigation measures are fully and successfully applied.

With the full implementation of all proposed mitigation measures then no significant negative effects to biodiversity will arise in the medium- to long-term. There will be short-term negative impact to biodiversity from habitat loss however this is not significant.

No other residual negative effects will arise from this development which are significant in magnitude.

5.13 Interactions

The key environmental interactions with Biodiversity are water and landscaping. A series of mitigation measures are proposed in the Water Chapter of this EIAR document to ensure the quality (pollution and sedimentation) and quantity (surface run-off and flooding) is of an appropriate standard.

5.14 Monitoring

Monitoring is required where the potential impact of mitigation is uncertain or where significant residual impacts may arise despite mitigation. In this case no residual significant negative effects to

biodiversity are predicted. Nevertheless, monitoring of pollution prevention measures will be required throughout the construction phase and this is described in the CEMP. Monitoring for Giant Hogweed, an alien invasive species, will also be required at least annually.

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6.0 LAND AND SOILS

6.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) provides an assessment of the impact that the Strategic Housing Development (SHD) in Belcamp, Dublin 17, located north of the Northern Cross, R139, to the east of the IDA lands, and to the west of the Malahide Road (R107), will have on the surrounding soil and geology in the vicinity of the site. It also sets out mitigation and remedial measures and methods of monitoring once the development is operational.

A full description of the development can be found in Chapter 2: Site Location and Description of the Proposed Development.

This chapter was completed by Waterman Moylan Consulting Engineers.

6.2 Research Methodology

A desktop study to classify the geological features related to the site was undertaken. Data from the Geological Survey of Ireland (GSI) was reviewed, including the following maps:

- Bedrock Geology Map
- Bedrock Aquifer Map
- Ground Water Vulnerability Map

This information was supplemented by site specific ground investigations carried out at the site by Site Investigations Ltd. in October 2021 (Ref. 5877), which is included in full in Appendix 6-1.

This ground investigation assessed the soil, rock and groundwater conditions across the site and included:-

- 5 No. cable percussive boreholes;
- 10 No. trial pits with dynamic probes;
- 7 No. soakaway tests;
- 8 No. California Bearing Ratio tests;
- Laboratory Testing of samples (including moisture contents, Atterberg limits, particle size gradings, pH, sulphate and chloride content); and
- Environmental testing (completed by ALS Environmental Ltd. and comprising Suite I analysis and loss on ignition tests) in order for a Waste Classification report to be produced.

6.3 Baseline Environment

The subject site is located off the Malahide Road in Dublin 17. It is bounded to the south by the Northern Cross Route (R139), to the west by lands under the ownership of the IDA which are zoned “High Technology” (HT), to the east by Phase 1 of the Belcamp development and by the Malahide Road, and to the north by agricultural lands and by a development under construction by Crosswaithe under Planning Reference F18A/0092. The overall site is approximately 67 hectares.

The Mayne River flows from west to east through the site. The northern portion of the subject site is within Fingal County Council’s jurisdiction, while the southern portion of the site is within Dublin City Council’s jurisdiction, with the Mayne River forming the border between the two Local Authorities.

A topographic survey was carried out to determine the existing topography at the site. The survey data shows that the southern portion of the site falls generally from south-west to north-east, towards the Mayne River, with a high point of c.35.5m OD Malin at the south-west of the site and a low point of c.26.5m OD Malin at the north-east of the main development area. The strip of land proposed as a greenway continues to fall to a low point of c.17m OD Malin close to the Malahide Road.

6.3.1 Desktop Study

Geological Survey Ireland (GSI) produces a wide range of datasets, including bedrock geology mapping, extracted in the Figure below:

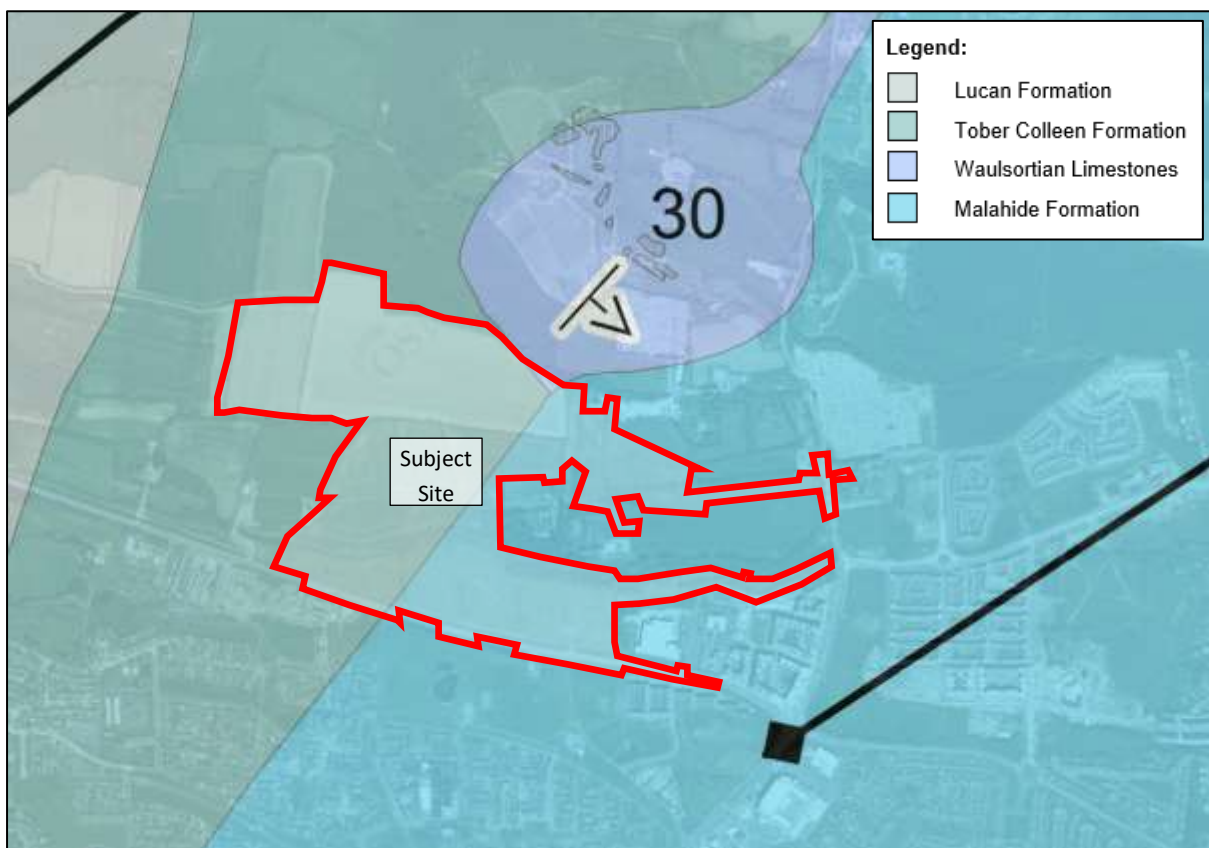


Figure 6-1 | Extract from GSI Bedrock Geology Map

From the GSI bedrock map, extracted above, the subject site lies at the boundary of the Tober Colleen and Malahide Formations, with a small area of Waulsortian Limestones at the north of the site.

The Tober Colleen Formation comprises dark-grey, calcareous, commonly bioturbated mudstones and subordinate thin micritic limestones.

The lower part of the Malahide Formation is composed of calcareous shales, siltstones and sandstones, and occasional thin limestones at its base. These are followed by cyclical, peloidal and oncolitic, peloidal, occasionally nodular micrites and thin intraclastic

Waulsortian Limestones are massive unbedded lime-mudstone, dominantly pale-grey, crudely bedded or massive limestone.

The National Aquifer Bedrock Map prepared by the Geological Survey of Ireland was also consulted and is extracted below:

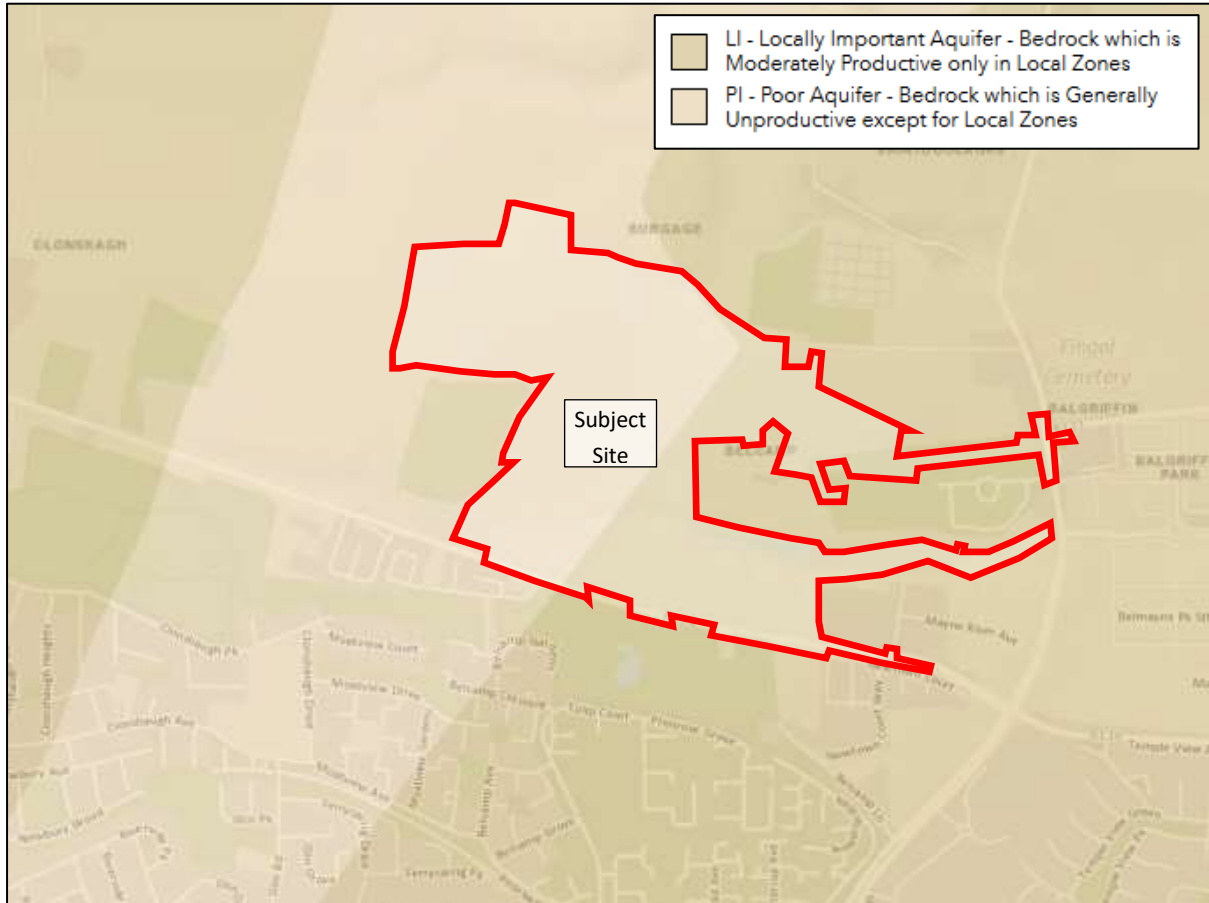


Figure 6-2 | Extract from GSI Groundwater Aquifer Map

From this map, it was established that the western portion of the site is locally important moderately productive aquifer, while the eastern portion of the site is poor aquifer which is generally unproductive except for local zones. The boundary between the two zones is the same as the boundary between the Tober Colleen and Malahide Formations (the Tober Colleen Formation is locally important aquifer, whereas the Malahide Formation and Waulsortian Limestones are poor aquifers).

From the GSI groundwater vulnerability map, extracted below, the vulnerability of the aquifer in the vicinity of the proposed site is low to moderate:

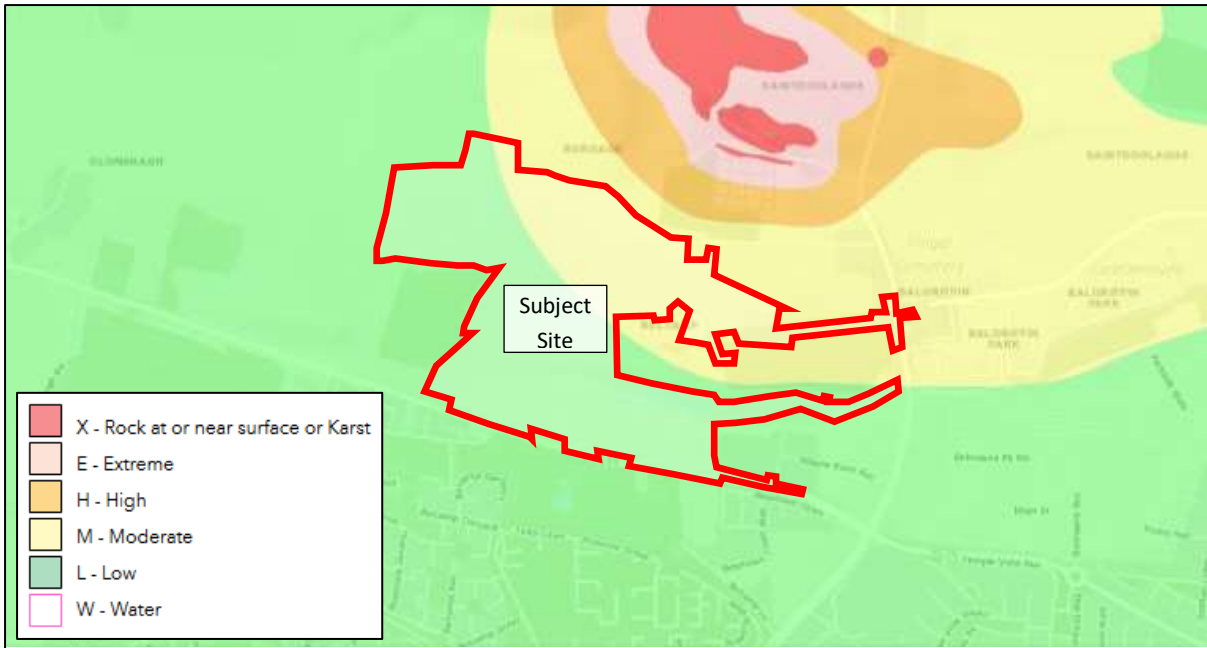


Figure 6-3 | Extract from GSI Groundwater Vulnerability Map

6.3.2 Ground Investigations

As noted above, intrusive ground investigations were carried out at the site by Site Investigations Ltd. in October 2021.

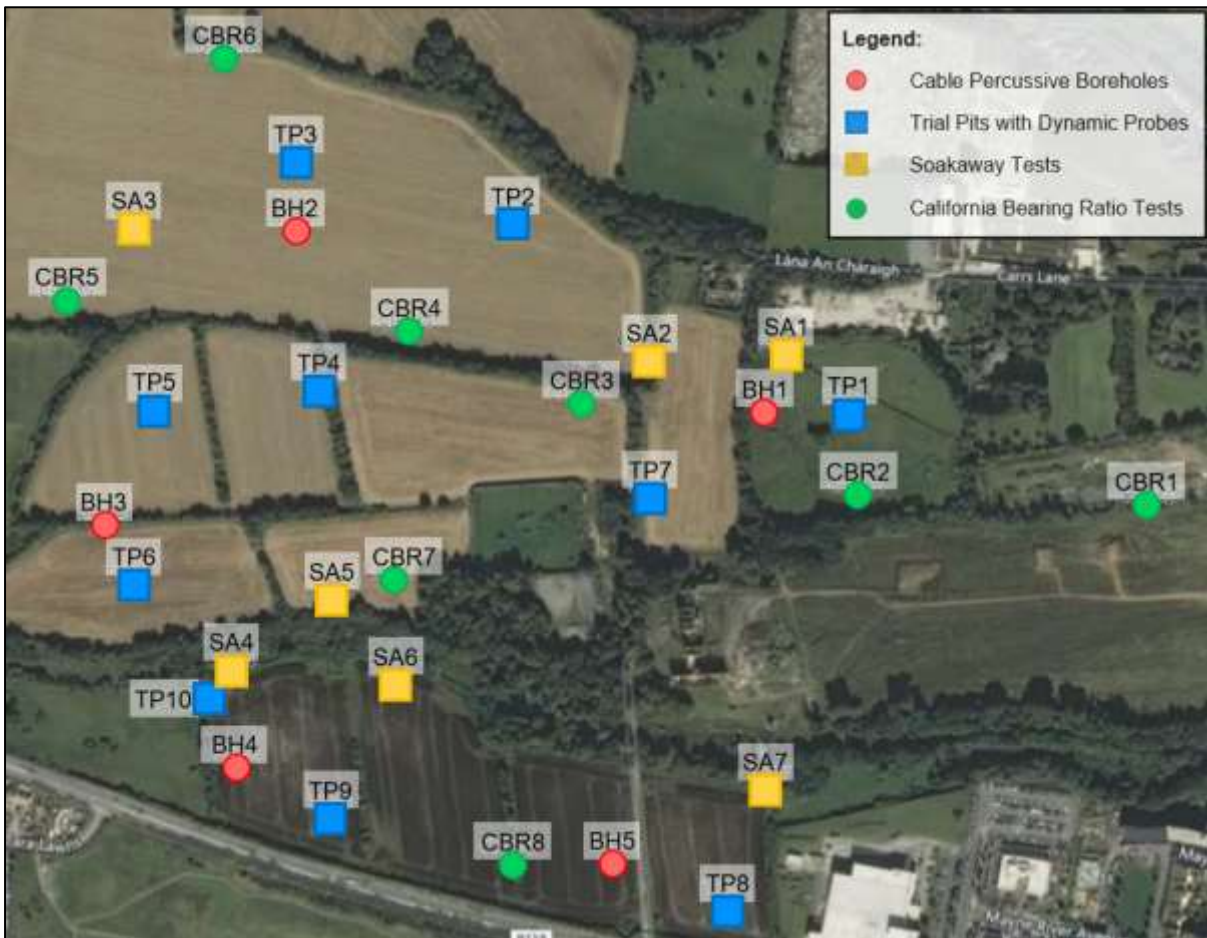


Figure 6-4 | Approximate Site Investigation Locations

The Site Investigation report (included in full in Appendix 6-1) notes that natural ground conditions are consistent, with cohesive soils encountered across the site. This includes brown or grey-brown overlying black slightly sandy slightly gravelly silty clay, with high cobble and low boulder content soils. The boundary between the brown and black soils is between 1.80m below ground level and 2.40m below ground level and these ground conditions are encountered across the north Co. Dublin region. The boreholes terminated at similar depths ranging from 7.30m below ground level to 7.80m below ground level on boulder obstructions.

A thin layer of made ground was encountered in one trial pit, TP7, to 0.40m below ground level. The soil consists of cohesive clay soils with some red brick fragments.

The Standard Penetration Test (SPT) N-values in the natural ground at 1m below ground level range from 11 to 16 indicating firm to stiff soils. The N-values then increase to 24 to 32 at 2m below ground level and steadily increase with depth as the boreholes progress.

Laboratory tests of the shallow cohesive soils confirm that clay soils dominate the site, with low to intermediate plasticity indexes of 15% to 16% recorded. The particle size distribution curves were poorly sorted straight-line curves with 22% to 37% fines content. No groundwater ingresses were recorded during the fieldworks period.

The full Ground Investigation Report prepared by Site Investigations Ltd. is included as an Appendix to this chapter.

6.4 Characteristics of the Proposed Development

The proposed development comprises a total of 473 houses, 274 duplexes and 1,780 apartment units in 18 no. blocks, all on a c.67 ha site. All of the proposed houses/duplexes are in the northern portion of the site, within Fingal County Council, and there are 550 apartment units proposed in this portion of the site, with 1,230 apartment units proposed in the southern portion of the site, within Dublin City Council. The schedule of accommodation is set out in the Table below:

Description		1-Bed	2-Bed	3-Bed	4-Bed	Total Residential	Commercial Space
Dublin City Council	Block 1	94	139	40	-	273	-
	Block 2	71	73	16	-	160	-
	Block 3	96	176	25	-	297	925.8m ² (Retail/Café and Childcare)
	Block 4	70	178	37	-	285	-
	Block 5	37	51	8	-	96	-
	Block 6	19	80	20	-	119	-
	DCC Subtotal	387	697	146	0	1,230	925.8m²
Fingal County	Houses	-	16	385	72	473	-
	Duplexes	24	40	210	-	274	-
	Block A	8	15	-	-	23	-
	Block B	8	15	-	-	23	-
	Block C	7	20	-	-	27	-

Description	1-Bed	2-Bed	3-Bed	4-Bed	Total Residential	Commercial Space
Block D	22	15	5	-	42	1,020.5m ² Pub/Restaurant & Retail
Block F	44	56	3	-	103	1,162.0m ² Café/Bar/Restaurant & Retail
Block G	29	36	-	-	65	140.0m ² Retail
Block H	20	26	-	-	46	-
Block J	16	24	-	-	40	472.0m ² Retail
Block L	20	26	-	-	46	-
Block M	24	32	-	-	56	-
Block N	26	25	5	-	56	-
Block P	5	18	-	-	23	-
Crèche	-	-	-	-	-	606.7m ² Childcare
Clubhouse	-	-	-	-	-	97.0m ² Changing Rooms
FCC Subtotal	253	364	608	72	1,297	3,498.2m²
TOTAL	640	1,061	754	72	2,527	4,424.0m²

Table 6-1 | Schedule of Accommodation

The eastern portion of the site, between the Mayne River to the north and existing development to the south, is proposed to be used as a greenway. It will serve as a connection for pedestrians and cyclists between the subject site and the Malahide Road (R107).

There is a large open space proposed at the north-west of the site, in addition to several smaller open spaces throughout the development.

The proposed development, with respect to soils and geology, includes the following characteristics:-

- Stripping of topsoil.
- Excavation of foundations and basements.
- Excavation of drainage sewers and utilities.
- Regrading and landscaping.
- Disposal of any surplus excavated soils including any contaminated material.

6.5 Potential Impact of the Proposed Development

6.5.1 Construction Phase

The following potential effects arising from the construction phase of the Proposed Development have been considered:

- Unstable embankments and soil conditions to the surrounding environment during the works causing slippages and ground movement.
- Unstable excavations and retention systems during the ground works causing soil slippages and ground movement resulting in damage to nearby buildings and surrounding environment.

- Unforeseen ground conditions or obstructions within the ground that have not been identified in the geotechnical investigations.
- Ground borne vibration as a result of the works to the surrounding environment could cause damage to nearby buildings. While most of the works will be in greenfield areas away from any existing buildings, there will be works adjacent to the Phase 1 development, road works close to some existing buildings along the R139, road works near properties on the Malahide Road (R107), works near the existing Belcamp House, Washington Monument and Walled Garden and works near the Crosswaithe Development currently under construction.
- During excavation surface water runoff from the surface of the excavated areas may result in silt discharges to the public network/River Mayne.
- The proposed foundations and basements creating hydrogeological ground water cut-offs that could affect the hydrogeology in the surrounding environment and natural ground water paths.
- Excavations for basements, foundations, roadworks, and services will result in a surplus of subsoil. Surplus subsoil will be used in fill areas where applicable.
- Dust from the site and from soil spillages on the existing road network around the site may be problematic, especially during dry conditions.

Accidental oil or diesel spillages from construction plant and equipment, in particular at refuelling areas, may result in oil contamination of the soils and underlying geological structures.

6.5.2 Operational Phase

During the operational stage of the Proposed Development there will be no likely significant ongoing impacts on the underlying soil and geology. Any hydro-geological impacts are temporary and associated with the construction of the proposed development.

6.5.3 “Do Nothing” Impact

There is no impact on the soils and geology in the do-nothing scenario.

6.6 Avoidance, Remedial & Mitigation Measures

6.6.1 Construction Phase

To reduce the quantity of soil to be removed from or imported into the site, the finished floor levels of the proposed buildings and the road levels are designed to match existing levels and minimise the cut and fill balance. The number of vehicle movements offsite will be minimised by this optimisation. Surplus subsoil and rock that may be required to be removed from site will be deposited in approved fill areas or to an approved waste disposal facility. This is outlined in Waterman Moylan’s Preliminary Construction, Demolition & Waste Management Plan, which accompanies this submission, and which will need to be updated and implemented by the development’s main contractor during the construction phase.

In the case of topsoil careful planning and on-site storage can ensure that this resource is reused on-site as much as possible. Any surplus of soil not reused on site can be sold. However, topsoil is quite sensitive and can be rendered useless if not stored and cared for properly. It is therefore important that topsoil is kept completely separate from all other construction waste, as any cross-contamination of the topsoil can render it useless for reuse.

It is important to ensure that topsoil is protected from all kinds of vehicle damage and kept away from site-track, delivery vehicle turning areas and site plant and vehicle storage areas.

If topsoil is stored in piles of greater than two metres in height the soil matrix (internal structure) can be damaged beyond repair. It should also be kept as dry as possible and used as soon as possible to reduce any deterioration through lengthy storage and excess moving around the site.

Records of topsoil storage, movements and transfer from site will be kept by the C&D Waste Manager.

Silt traps, silt fences and tailing ponds will also need to be provided by the contractor where necessary to prevent silts and soils being washed away by heavy rains during the course of the construction phase.

Surplus subsoil will be stockpiled on site, in such a manner as to avoid contamination with builders' waste materials, etc., and so as to preserve the materials for future use as clean fill.

The provision of wheel wash areas at the exit to the development as necessary will minimise the amount of soils deposited on the surrounding road network. The adjoining road network will be cleaned on a regular basis. All trucks on the public roads will carry up to a maximum of ten cubic metres of material to prevent spillage and damage to the surrounding road network.

Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works.

Appropriate storage and bunding measures will be implemented throughout the construction stage to prevent contamination of the soil and groundwater from oil and petrol leakage from site plant. Refuelling will be restricted to allocated re-fuelling areas. This area is to be an impermeable bunded area designed to contain 110% of the volume of fuel stored.

Soil samples taken from the site during the site investigations showed no evidence of contamination. However, any contaminated soil that may be uncovered on the site will be identified and disposed of to an appropriate waste disposal facility.

If groundwater is encountered during excavations, mechanical pumps will be required to remove the groundwater from sumps. Sumps should be carefully located and constructed to ensure that groundwater is efficiently removed from excavations and trenches.

On foot of Waterman Moylan's accompanying Preliminary Construction Demolition and Waste Management Plan, a Construction Management Plan, Traffic Management Plan and Waste Management Plan will be implemented by the contractor during the construction phase to control the above remedial measures.

6.6.2 Operational Phase

On completion of the construction phase and following replacement of topsoil, a planting programme will commence to prevent soil erosion. SuDS and filtration devices are proposed to be provided as part of the development. These will help to remove pollutants from rainwater runoff. The SuDS proposals will also encourage infiltration of surface water to the ground. Part of the SuDS proposal for this site is also to encourage infiltration of surface water to the ground. This infiltration will assist with natural ground water replenishment which is currently occurring on the lands.

6.7 Residual Impacts

6.7.1 Construction Phase

With the protective measures noted above in place during excavation works, any potential impacts on soils and geology in the area will not have significant adverse impacts, and no significant adverse impacts on the soils and geology of the subject lands are envisaged.

The proposed development will result in a surplus of excavated material, which may contain contaminants. Any contaminated material will be exported to an approved licensed waste facility.

6.7.2 Operational Phase

On completion of the construction phase and following replacement of topsoil and implementation of a planting programme, no further impacts on the soil are envisaged.

SuDS measures, including permeable paving, bioretention tree pits and open areas with low level planting, will assist with treating surface water runoff while replenishing the natural ground water table.

No significant adverse impacts are predicted on soils or geology.

6.7.3 "Worst-Case" Scenario

The worst-case scenario would be for contaminated soils to be encountered during the works. As noted above, any contaminated soils encountered will be excavated and disposed of off-site in accordance with the Waste Management Acts, 1996-2021, and associated regulations and guidance provided in Guidelines for the Management of Waste from National Road Construction Projects published by the National Roads Authority in 2008.

In the worst-case scenario, subsoil may be exposed to inclement weather during construction and may result in the erosion of soils. However, with the proposed mitigation measures the quantity of soils exposed and the duration of that exposure will be minimised.

6.8 Risks to Human Health

A potential risk to human health due to the associated works during construction is the direct contact, ingestion or inhalation of receptors (i.e. construction workers) with any soils which may potentially contain low level hydrocarbon concentrations from site activities (potential minor leaks, oils and paint).

No human health risks associated with long term exposure to contaminants (via. direct contact, ingestion, or inhalation) resulting from the proposed development are anticipated.

6.9 Monitoring

6.9.1 Construction Phase

Monitoring during the construction phase will be carried out, in particular in relation to the following:

- Adequate protection of topsoil stockpiled for reuse.
- Adequate protection from contamination of soils for removal.
- Monitoring of surface water discharging to any existing watercourses, particularly the River Mayne and the existing lakes, to ditches and to the public network.
- Monitoring cleanliness of the adjoining road network.
- Monitoring measures for prevention of oil and petrol spillages.
- Dust control by dampening down measures close to the boundaries of the site, when required due to unusually dry weather conditions.

6.9.2 Operational Phase

During the operational phase, the surface water network (drains, gullies, manholes, AJs, SuDS devices) will be regularly maintained and where required cleaned out. A suitable maintenance regime of inspecting and cleaning will be incorporated into the safety file/maintenance manual for the development.

6.10 Reinstatement

Excavations and trenches opened during construction will be backfilled with subsoil to reinstate existing ground levels. Upon completion no impact is foreseen.

6.11 Interactions

The interactions between Chapter 6 (Land and Soils) and the other chapters of the EIAR are set out below:

6.11.1 Population & Human Health (Chapter 4)

Dust from the site and from soil spillages on the existing road network around the site may impact human health, especially during dry conditions. Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works.

6.11.2 Biodiversity (Chapter 5)

Accidental oil or diesel spillages from construction plant and equipment may impact local flora and fauna. Such spills will be mitigated in accordance with Chapter 6 of this EIAR.

6.11.3 Water (Chapter 7)

Accidental oil or diesel spillages from construction plant and equipment, in particular at refuelling areas, may result in oil contamination of the soils and underlying geological structures, including surface water and groundwater. Measures will be implemented throughout the construction stage to prevent contamination of the soil and adjacent watercourses from oil and petrol leakages.

6.11.4 Air Quality (Chapter 8)

Dust from the site and from soil spillages on the existing road network around the site may impact air quality, especially during dry conditions. Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works.

Air Quality will be controlled and monitored as set out in Chapter 8 of this EIAR.

6.11.5 Noise & Vibration (Chapter 9)

Heavy machinery used for excavations may impact on noise and vibration. Both will be controlled and monitored as set out in Chapter 9 of this EIAR.

6.11.6 Material Assets - Traffic and Transport (Chapter 12)

Excess soil excavated during construction works for the development will be transported by road for disposal in approved locations as provided for in this EIAR. Movements of construction traffic will be managed in accordance with the Construction Traffic Management Plan, to be developed by the Main Contractor.

6.12 Difficulties Encountered When Compiling

There were no difficulties encountered when undertaking this assessment.

6.13 References

The following documents and sources were consulted during the preparation of Chapter 6:

- Geological Survey Ireland (GSI) Public Data Mapping;
- Site Investigation Ltd.'s Site Investigation Report (included as an Appendix to this Chapter);
- EPA's Guidance on waste acceptance criteria at authorised soil recovery facilities;
- Waste Management Acts, 1996-2021;
- NRA's Guidelines for the Management of Waste from National Road Construction Projects; and
- European Union (Waste Management (Environmental Impact Assessment) Regulations 2020 S.I. 130 of 2020.

In addition to the sources listed above, design information from the other members of the project team was incorporated in Chapter 6 (Land and Soil).

7.0 WATER

7.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) provides an assessment of the impact that the Strategic Housing Development (SHD) in Belcamp, Dublin 17, located north of the Northern Cross Route, R139, to the east of the IDA lands, and to the west of the Malahide Road (R107), will have on the network of water (water supply, foul drainage, natural and constructed surface water networks, & natural groundwater table) in the vicinity of the site. It also sets out mitigation measures and methods of monitoring while the development is both under construction and operational.

A full description of the development can be found in Chapter 2: Site Location and Description of the Proposed Development.

This chapter was completed by Waterman Moylan Consulting Engineers.

7.2 Research Methodology

This document has been prepared in accordance with the Guidance on the Preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU), and Guidelines on the information to be contained in Environment Impact Assessment Reports, by the EPA.

7.2.1 Water Supply

Research for this section included a review of the existing watermain layout from Irish Water records for the area.

7.2.2 Foul Water Drainage

Research for this section included a review of the existing foul water layout from Irish Water records for the area.

7.2.3 Surface Water Drainage

Research for this section included a review of Ordnance Survey and Topographical surveys of the subject site and surrounding area and a review of the existing surface water layout from Irish Water / Fingal County Council and Dublin City Council records for the area. Maps of the OPW Catchment Flood Risk and Management Studies, OPW Past flood event maps, and the Public Data Viewer Series mapping for groundwater vulnerability were also consulted.

7.3 Baseline Environment

7.3.1 Water Supply

The 600mm diameter trunk North Fringe Watermain traverses through the subject site, within the Dublin City Council lands. There is also an existing 300mm ductile iron watermain in the R139, constructed in 1994 and travelling parallel to the North Fringe Watermain. A 100mm watermain, constructed in 1997, runs for approximately 400m on the southern side of the R139.

The existing 300mm watermain includes a spur at the agricultural road through the southern portion of the site.

A new 300mm diameter trunk watermain is under construction in College Avenue, east of the subject site, as part of the Phase 1 works (Planning Reference F15A/0609). This watermain feeds the Phase 1 site and by prior coordination with Irish Water, has been designed accordingly to also accommodate the subject development. It is connected to the existing Irish Water network at the Malahide Road.

The site is exceptionally well served by water supply mains, with the main North Dublin watermain within the lands along the southern boundary and the trunk Malahide water main along the eastern boundary.

7.3.2 Foul Water Drainage

The existing North Fringe Northern Interceptor Sewer (NFNIS) traverses the southern portion of the subject site. The NFNIS is a 1,050mm diameter gravity sewer draining much of north-west Dublin and discharging eastwards to Sutton Pumping Station, which in turn pumps wastewater to the Ringsend Wastewater Treatment Works.

A 525mm diameter foul water sewer is under construction in College Avenue as part of the Phase 1 works (Planning Reference F15A/0609). This sewer is designed to the requirement of Irish Water to accommodate the Belcamp Lands and facilitate future development beyond the scope of this subject application, and drains to an existing 525mm diameter trunk sewer, recently extended by the Applicant across the Malahide Road from the Hermitage Apartments. The Malahide Road 525mm sewer outfalls to the 1,050mm diameter NFNIS at Parkway Boulevard.

7.3.3 Surface Water Drainage

The proposed development site is a greenfield site. The Mayne River traverses the site, flowing from west to east. There are two existing off-line lakes at the northern edge of the Mayne River that a portion of the existing Belcamp Lands discharge to (refer to the following paragraphs, for further information on the catchment areas).

The Mayne River which traverses the site has been assessed for flood risk by modeling incorporated to form the CFRAM maps. These maps were consulted and show that certain areas of the site, as well as downstream of the subject site, are subject to fluvial flooding from the Mayne River. A comparison of the areas at risk of flood to the site topographic survey indicates that the flooding on-site is due to the existing culverts and their available capacity to allow surface water flows pass during weather events.

The OPW flood event map indicates a historic flood event at Balgriffin Park, approximately 600m west, and downstream, of the point where the River Mayne exits the subject site on its eastern boundary. This flood event occurred on June 10th 1993, with an event reference of ID-677. It is noted that upon review of the information available online at floodinfo.ie *“The Local Authority who provided this Flood Information Item wishes to point out that a number of defense assets were put in place since one or more of the flood events described by this item”*. There is no record of any further flood event at this site since the 1993 flood event, however the open space in this area, at Node Point 1MA2273 as per the CFRAM mapping, is still indicated as at risk of flooding during the mapped flood event scenarios.

A Flood Risk Assessment Report has been provided by Waterman Moylan Consulting Engineers, and accompanies this package under a separate cover. This report has been prepared in accordance with the DEHLG/OPW Guidelines on the Planning Process and Flood Risk Management published in November 2009.

On-site, there is an existing bridge separating the two lakes, and water discharges from the western lake to the eastern lake via a weir under the existing bridge. Water discharges from the eastern lake to the Mayne River via another weir structure. The lakes are substantially higher than the Mayne River at the discharge point from the eastern lake.

The River Mayne is a monitored waterbody, as per information available from the website www.watermaps.wfdireland.ie website, and is shown as having a poor overall status. It has a poor macroinvertebrate status, moderate general physio-chemical status, and a poor overall ecological status. There is no description of the overall chemical status. It is further classified as 1a – at risk of not achieving good status. No information was found as to the status of the lakes internal to the site.

A survey was carried out at the site, and the survey drawing includes all existing watercourses and existing flood routing. Ditches convey surface water from the site as part of three separate catchments, one to the south and two to the north of the Mayne River, as described in the sections below:

Existing Catchment South of Mayne River

The southern portion of the site falls generally from south-west to north-east towards the Mayne River, with a high point of c.35.5m at the south-west of the site and a low point of c.26.5m at the north-east of the main development area. The strip of land proposed as a greenway continues to fall to a low point of c.17m close to the Malahide Road.

There are several ditches on this southern portion of the site which fall from south to north, draining surface water to the Mayne River. A walk-through of the site revealed that the four north-south ditches traversing the site do not receive any inflow of surface water from upstream of the ditches. The ditch at the western boundary of the site does receive surface water draining from upstream catchment areas before discharging to the river. The ditch at the eastern boundary of the site, adjacent to the existing neighbouring mixed-use development, may receive some minor inflows from lands outside the site boundary.

The adjacent R139, at the southern boundary of the site, is independently drained to a separate storm water network in the road.

Existing Catchments North of Mayne River

Ditches convey surface water from the northern portion of the site as part of two separate catchments. The majority of the northern portion of the site drains in a southerly direction towards the lakes adjacent to the Mayne River via a series of ditches, ultimately discharging to the river via the existing weir.

A portion of the lands to the north-east drain in a north-easterly direction towards a ditch at the northern boundary of the Belcamp Lands, which discharges through the car park entrance of the

Balgriffin Inn (previously Campions Pub) via a culvert, outfalling south of the graveyard to the Cuckoo Stream, a tributary to the Mayne River, via an existing headwall.

7.4 Characteristics of the Proposed Development

7.4.1 General

The proposed development comprises a total of 473 houses, 274 duplexes and 1,780 apartment units in 18 no. blocks, all on a c.67 ha site. All of the proposed houses/duplexes are in the northern portion of the site, within Fingal County Council, and there are 550 apartment units proposed in this portion of the site, with 1,230 apartment units proposed in the southern portion of the site, within Dublin City Council. The schedule of accommodation is set out in the Table below:

Description		1-Bed	2-Bed	3-Bed	4-Bed	Total Residential	Commercial Space
Dublin City Council	Block 1	94	139	40	-	273	-
	Block 2	71	73	16	-	160	-
	Block 3	96	176	25	-	297	925.8m ² (Café/Retail and Childcare)
	Block 4	70	178	37	-	285	-
	Block 5	37	51	8	-	96	-
	Block 6	19	80	20	-	119	-
	DCC Subtotal	387	697	146	0	1,230	925.8m²
Fingal County Council	Houses	-	16	385	72	473	-
	Duplexes	24	40	210	-	274	-
	Block A	8	15	-	-	23	-
	Block B	8	15	-	-	23	-
	Block C	7	20	-	-	27	-
	Block D	22	15	5	-	42	1,020.5m ² Pub/Restaurant & Retail
	Block F	44	56	3	-	103	1,162.0m ² Café/Bar/Restaurant & Retail
	Block G	29	36	-	-	65	140.0m ² Retail
	Block H	20	26	-	-	46	-
	Block J	16	24	-	-	40	472.0m ² Retail
	Block L	20	26	-	-	46	-
	Block M	24	32	-	-	56	-
	Block N	26	25	5	-	56	-
	Block P	5	18	-	-	23	-
	Crèche	-	-	-	-	-	606.7m ² Childcare
	Clubhouse	-	-	-	-	-	97.0m ² Changing Rooms
FCC Subtotal	253	364	608	72	1,297	3,498.2m²	
TOTAL	640	1,061	754	72	2,527	4,424.0m²	

Table 7-1 | Schedule of Accommodation

The eastern portion of the site, between the Mayne River to the north and existing development to the south, is proposed to be used as a greenway. It will serve as a connection for pedestrians and cyclists between the subject site and the Malahide Road (R107).

There is a large open space proposed at the north-west of the site, in addition to several smaller open spaces throughout the development.

The proposed development includes new wastewater and water supply connections to the public network, as well as a surface water network.

7.4.2 Water Supply

It is proposed to provide a new connection at the east of the site to the existing district metered area supplied from the 300mm trunk main on College Avenue, currently under construction as part of the Phase 1 works. Two connections are also proposed at the R139; one connection to the 600mm main with a pressure reducing valve and metred connection, with a secondary connection to the 300mm main that runs parallel to the site boundary.

Water will be fed from these connections to the individual blocks and housing units via a series of 100mm and 150mm watermains, with individual unit connections complete with meter boxes.

Irish Water have issued a Confirmation of Feasibility letter and a Statement of Design Acceptance for the proposal. These letters are included in Appendix 7-1 and Appendix 7-2, respectively.

The calculated water demand at the subject development is set out in the below table. The average domestic demand has been established based on an average occupancy ratio of 2.7 persons per dwelling with a daily domestic per capita consumption of 150 litres per head per day and with a 10% allowance factor. The average day/peak week demand has been taken as 1.25 times the average daily domestic demand, while the peak demand has been taken as 5 times the average day/peak week demand, as per Section 3.7.2 of the Irish Water Code of Practice for Water Infrastructure.

Description	Total Population	Water Demand	Average Demand	Average Peak Demand	Peak Demand	
	No. People	l/day	l/s	l/s	l/s	
DCC Apartments (1,230 Units)	3,321.0	547,965	6.342	7.928	39.639	
FCC Houses (473 Units)	1,277.1	210,722	2.439	3.049	15.243	
FCC Duplexes (274 Units)	739.8	122,067	1.413	1.766	8.830	
FCC Apartments (550 Units)	1,485.0	245,025	2.836	3.545	17.725	
Pre-school/Crèche (1,115m ²)	Staff	40	3,960	0.046	0.057	0.286
	Children	200	19,800	0.229	0.286	1.432
Restaurant/Pub/Café (479m ²)	Staff	75	3,713	0.043	0.054	0.269
	Customers	500	16,500	0.191	0.239	1.194
Retail (2,733m ²)	Staff	100	9,900	0.115	0.0143	0.716
	Customers	1,200	15,840	0.183	0.229	1.146
Total	-	1,195,491	13.837	17.296	86.479	

Table 7-2 | Calculation of Water Demand for the Development

Based on these figures, the water demand that will be generated by the development is approximately 13.837 l/s, or 1,196m³ per day, with a peak demand of 86.479 l/s.

7.4.3 Foul Water Drainage

It is proposed to discharge wastewater from the southern portion of the site via a series of 150mm, 225mm, and 375mm sewers eastwards, outfalling to the existing NFNIS via a new connection at the east of the site.

It is proposed to discharge wastewater from the northern portion of the site via a series of 150mm and 225mm sewers to the 525mm trunk sewer currently under construction as part of the Phase 1 works.

These networks will ultimately flow to the wastewater pumping station located at Sutton from where it will be pumped to the wastewater treatment facility at Ringsend.

Irish Water have issued a Confirmation of Feasibility letter and a Statement of Design Acceptance for the proposal. These letters are included in Appendix 7-1 and Appendix 7-2, respectively.

Refer to the accompanying drawing no.'s 19-114-P2000 to P2111 for the existing and proposed foul water drainage layouts.

The calculated foul water flows at the subject development are set out in the Table below. Domestic wastewater loads have been calculated based on 2.7 persons per unit with a per capita wastewater flow of 150 litres per head per day along with a 10% unit consumption allowance, in line with Section 3.6 of the Irish Water Code of Practice for Wastewater Infrastructure. Per capita wastewater flows for the commercial areas have been based on the flow rates set out in Appendix C of the Code of Practice, and a peak flow multiplier of 3 has been used, as per Section 2.2.5 of Appendix B of the Code of Practice.

Description		Total Population	Load per Capita	Daily Load	Total DWF	Peak Flow
		No. People	l/day	l/day	l/s	l/s
DCC Apartments (1,230 Units)		3,321.0	150	547,965.0	6.342	15.855
FCC Houses (473 Units)		1,277.1	150	210,721.5	2.439	6.097
FCC Duplexes (274 Units)		739.8	150	122,067.0	1.413	3.532
FCC Apartments (550 Units)		1,485.0	150	245,025.0	2.836	7.090
Pre-school/Crèche (1,115m ²)	Staff	40	90	3,960.0	0.046	0.115
	Children	200	90	19,800.0	0.229	0.573
Restaurant/Pub/Café (479m ²)	Staff	75	45	3,712.5	0.043	0.107
	Customers	500	30	16,500.0	0.191	0.477
Retail (2,733m ²)	Staff	100	90	9,900.0	0.115	0.286
	Customers	1,200	12	15,840.0	0.183	0.458
Total		-	-	1,195,491.0	13.837	34.592

Table 7-3 | Calculation of Total Foul Water Flow from the Development

The total dry weather flow from the development is 13.837 l/s, with a peak flow of 34.592 l/s.

7.4.4 Surface Water Drainage

It is proposed to drain the site as three separate catchments: one to the south of the Mayne River (Catchment D1) and two to the north (Catchment A1 & A2), as indicated on the Figure below. There are a number of other catchments within the overall Belcamp Lands which overlap with the red line for the SHD. Catchment B1 and B2 are serving Phase 1, already granted and substantially built. Catchment C1 serves, for the most part, the proposed Phase 1B site, submitted for planning in late July 2021.

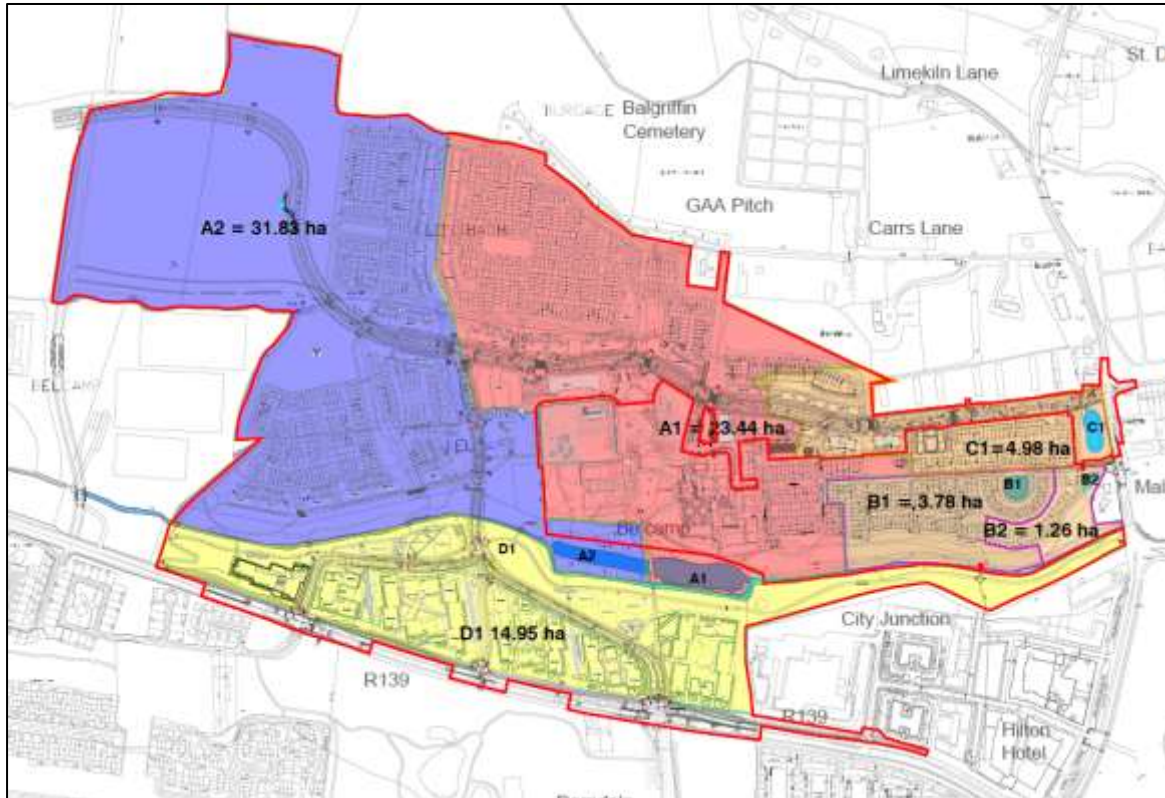


Figure 7-1 | Proposed Surface Water Catchments

Proposed Catchment South of Mayne River

South of the Mayne River, it is proposed to utilise the existing ditches that run south to north along the existing hedge-lines as open surface water features, but these are not needed or desirable for attenuation as there are trees lining both sides of the ditch. Each proposed block will drain to a ditch via underground surface water drains. The ditches will, in turn, each flow into a headwall before culverting under the road and ultimately discharging to the Mayne River. Steps will be provided into/out of each of the ditches as a health and safety feature. The main regional attenuation will be provided in the open space adjacent to the Mayne River, east of the main road in a dry detention format. A Downstream Defender unit is proposed upstream of the basin to remove pollutants and debris and protect the hydrobrake outfall chamber from siltation.

In developing the drainage proposals for the portion of the site within DCC's jurisdiction, Waterman Moylan have liaised with Maria Treacy of the DCC Drainage Division, who provided feedback and commentary on the emerging strategy.

Proposed Catchments North of Mayne River

Fingal County Council identified capacity constraints in the culvert at the north-east of the site that discharges under the existing access of the Balgriffin Inn (formerly Campions Pub). It is proposed to redirect a significant portion of the catchment from this culvert to maintain its capacity for the C1 catchment (Belcamp Phase 1B and the eastern extents of the EWLR). This diverted catchment will flow to the lower lake south of Belcamp Hall adjacent to the Mayne River. The C1 catchment is to be attenuated in the Phase 1B lands (which has received a decision to grant under Reg. Ref. F21A/0401, and is awaiting final grant of permission). Attenuation within the Phase 1B site, illustrated in orange as C1 (Catchment 1), includes a small area of the northeast SHD lands (the orange shaded lands within the reline boundary) as indicated in the Figure above. All flows that originate from outside the Belcamp lands will be factored into the attenuation of the lake so that only the catchment that is on the Gannon Lands will be attenuated. FCC will need to ensure that any future development upstream of the Belcamp site, to the northwest, that wishes to discharge to the Belcamp network is attenuated upstream to greenfield rates, unless an alternative outfall is found, which is preferable.

All of the lands east of the proposed Belcamp Parkway (main road that runs north/south through the DCC and FCC sites) will drain to the lower eastern lake (Catchment A1), while all lands to the west of the proposed Belcamp Parkway will drain to the upper western lake (Catchment A2). Drainage for the eastern sub-catchment, to the lower lake, will discharge through a new surface water sewer under construction as part of the Phase 1 works. This sewer has been designed to cater for flows from the subject development.

Utilising the natural treatment and storage potential of the existing lakes is an environmentally and ecologically sound solution that will benefit the receiving waters of the Mayne River.

The proposed development has been designed to incorporate best drainage practice, including a Storm Water Management Plan through the use of various SuDS techniques to treat and minimise surface water runoff from the site. The methodology involved in developing a Storm Water Management Plan for the subject site is based on recommendations set out in the Greater Dublin Strategic Drainage Study (GSDSDS) and in the SuDS Manual (Ciria C753). Treatment and storage of surface water at source will intercept and slow down the rate of runoff from the site to the existing surface water sewer system.

Based on three key elements, Water Quantity, Water Quality and Amenity, the targets of the SuDS train concept have been implemented in the design, providing SuDS devices for Source Control, Site Control and Regional Control.

It is proposed to introduce permeable paving as a source control device in private courtyard areas throughout the development. Downpipes from the roofs of the blocks will drain to filter drains beneath the permeable paving to facilitate maximum infiltration of surface water from paved and roof areas. The goal of permeable paving is to control stormwater at the source to reduce runoff. In addition to reducing surface runoff, permeable paving has the dual benefit of improving water quality

by trapping suspended solids and filtering pollutants in the substrata layers. The proposed locations for the permeable paving are shown on drawings 19-114-P1050-P1052, the filter drain locations are shown on drawings 19-114-P2101-P2111, submitted as part of the Civil Engineering drawing package.

Green roofing is also proposed as a source control device. Each block will have green roofing introduced on at least 70% of the roof area. The substrate and the plant layers in a green roof absorb large amounts of rainwater and release it back into the atmosphere by transpiration and evaporation. They also filter water as it passes through the layers, so the run-off, when it is produced, has fewer pollutants. Rainfall not retained by green roofs is detained, effectively increasing the time to peak and slowing peak flows. The introduction of the Green roofs to the FCC portion of the site is in accordance with FCC's Green/blue Infrastructure for Development Guidance note December 2020, Section 3.6.7 which requires a minimum of 60% coverage for roof areas greater than 300m². In a similar fashion for the DCC lands, this is also in accordance with the Table on Page 9 of the DCC Green and Blue Roof Guide, 2021, which instructs that for an extensive type of green roof the minimum coverage (% of total roof area being developed) is required to be 70%.

Open grassed areas with low level planting are proposed at the ground floor around each apartment block. This will act as soft scape and will significantly slow down and reduce the amount of surface water runoff from the open spaces. Planter boxes and planted areas will also take surface water runoff from the downpipes from buildings before draining to filter drains beneath the permeable paving. These items will be in accordance with the plans as specified by Ronan MacDiarmada & Associates Ltd. Landscape Architects.

The two existing lakes, parallel to the Mayne River, will be used to attenuate the development north of the Mayne. These lakes have natural reeds and lake vegetation assisting with pollution and hydrocarbon removal. Excess surface water runoff, over and above the greenfield runoff, will be attenuated within the lakes above the permanent water level.

For Catchment A1, a new hydrobrake or similar approved flow control device will be provided on the lower lake weir to the river to regulate the discharge rate, limiting flows to the greenfield equivalent runoff rate. This flow control has been designed and provided for under phase 1. Please refer to drawing P2405 for details of this hydrobrake manhole which serves as a walkway around the existing weir, which maintain as much as possible the function and visibility of the weir.

Flows to the upper lake, from Catchment A2, will be through the existing ditch immediately east of the distributor road over the Mayne. This ditch flows into the upper lake which in turn flows into the lower lake and over the weir into the Mayne. It may be necessary to discharge the upper lake directly to the River Mayne to avoid hydraulic inefficiencies as the two lakes increase in depth, inhibiting free flow of water to the lower lake. This is also an opportunity to combine the overflow from the upper lake with the outfall manhole. Please refer to drawing 19-114-P2401 for details. The flows in the upper lake will be attenuated by means of a hydrobrake and isolating penstock. It is not feasible to utilise the existing culvert and its levels between the two lakes without compromising the hydraulic performance of the outfall from the upper lake. However, it is intended to keep this in place for historical and conservation reasons. It is in a poor state of repair and its rehabilitation is covered under

the proposals supplied by CORA, Conservation Engineers as part of this application. Final detail of the lakes and their flow controls are subject to Agreement with Fingal County Council.

The DCC catchment is split by the main distributor road, but it is intended to amalgamate the attenuation into one offline dry detention basin east of the distributor road where levels are most suitable. A hydrobrake at the outfall will limit flows to the greenfield equivalent rate, with excess surface water attenuated at the dry detention basin. Ample attenuation is provided for each catchment to accommodate the 1-in-100-year storm, accounting for a 20% increase due to climate change.

7.5 Potential Impact of the Proposed Development

7.5.1 Water Supply

Construction Stage

The site is currently primarily greenfield. Site offices and construction activities will create a demand for water supply to the site. Commencement of construction will therefore result in a net increase in the water demand for the site. The required water supply will need to be agreed with Irish Water by way of a temporary connection application. However, it is noted that construction is currently under way at Phase 1 of the Belcamp Lands, with site offices, toilets and construction activities already creating a water demand for the Belcamp lands.

The connectivity between the subject development and the Phase 1 site will create a cumulative impact in regard to water demand. Water will be required for construction purposes for the subject site, and there will be a demand for the Phase 1 site for both the completion of construction, and also of that of occupied units. The Irish Water Confirmation of Feasibility letter, included as an appendix, advises that the water supply to facilitate the fully occupied subject development is feasible without any upgrade required to the public network, and will have taken into account the occupancy of the Phase 1 development currently under construction. Thus, the cumulative impact of the combined water demand will not create a negative impact scenario.

There is a risk of contamination to the existing water supply during connection to the public water supply. This would lead to sections of the public watermain infrastructure to require flushing to expel contaminated volumes. Although the likelihood of this scenario is considered low, this would have a slight and temporary impact on users connected to the watermain infrastructure while volumes and pressures lost by flushing are replenished.

Operational Stage

A connection application will be made to Irish Water at the appropriate time (after Final Grant of Planning Permission), and a connection agreement will be in place prior to any construction of the watermain network.

During the operational stage of the development, there will be an average demand for water from the public water supply of 13.837l/s, with a peak demand of 86.479l/s, whereas in the do-nothing scenario there is no water demand for the site.

As mentioned above, the Confirmation of Feasibility Letter confirms there are no constraints in the water network that would impede the required supply to the subject development.

A Statement of Design Acceptance has been received from Irish Water for the proposed watermain network and is included as an appendix to this report.

There is the potential for a leak to occur on the live watermain infrastructure when operational. The impact of a leak is difficult to determine but in a worst-case scenario would likely be moderate in impact to users of the network in the immediate locality with regard to their water supply. In the case of an occurrence of a worst-case scenario leak there will be a subsequent impact to the groundwater table, which will experience a rise in level due to the additional water from the leak. As noted in the Flood Risk Assessment Report, the site is located in an area of low to moderate groundwater vulnerability, meaning the groundwater table is likely to be able to absorb additional water volumes without these appearing at surface level. Groundwater vulnerability and mitigation measures are discussed in full in the Flood Risk Assessment Report, however, should the groundwater levels rise to the surface, the layout and levels designed for the development provide an overland flood route by which surface water can be directed away from units to open space and natural watercourses. Units finished floor levels are typical designed to be 300mm higher than the adjacent channel lines through which surface water will flow along the road surface. In the unlikely occurrence that a watermain leak penetrates to the surface the likely impact of this is slight, temporary, and localised.

7.5.2 Foul Water Drainage

Construction Stage

There will be the requirement for a temporary foul water network to be constructed to serve the site compound during the course of the construction phase. A temporary connection application will need to be submitted and an agreement made with Irish Water prior to connection of the temporary network to the public infrastructure. This temporary connection will connect to the existing foul water network which flows to the pumping station at Sutton and is then pumped to the wastewater treatment plant at Ringsend for treatment.

There is no negative impact predicted for this outflow volume as it will be very minor in comparison to that of when the subject development is fully occupied. The Confirmation of Feasibility Letter indicates there are no capacity constraints in the existing foul water network to which outfall connections are proposed

Operational Stage

A connection application will be made to Irish Water at the appropriate time (after final Grant of Planning Permission), and a connection agreement will be in place prior to any construction of the foul water network. This foul water network will flow via public infrastructure to the pumping station at Sutton, from where it is pumped for treatment at Ringsend Wastewater treatment plant.

During the construction of the foul sewers there is the potential for surface water to be discharged to the existing public foul sewer system due to pipes and manholes being left open. This would result in a minor dilution by the surface water volumes to the foul water volumes in the foul network. It would

also create an unnecessary additional loading to the Sutton pumping station and Ringsend wastewater treatment plant. The overall impact of this should it occur would be slight and temporary.

During the operation stage of the development when fully occupied, the total dry weather flow from the development is 13.837 l/s, with a peak flow of 34.592 l/s, whereas in the do-nothing scenario there is no foul water flow from the site.

As mentioned previously, the Confirmation of Feasibility Letter indicates there are no capacity constraints in the existing foul water network to which outfall connections are proposed. This letter has considered the requirements of foul water disposal for the Phase 1 development, and there is no negative cumulative impact from the combined foul water volumes in the existing infrastructure, including Sutton and Ringsend.

There has been liaison with Irish Water as part of the subject development and also for earlier Belcamp phases. The trunk sewer in the EWLR could serve the subject development and those under construction with a 375mm dia. pipe however, it was agreed to construct the trunk network using a 525mm dia. pipe in order to “futureproof” the network to facilitate further potential for development of lands adjacent to the subject application.

A Statement of Design Acceptance has been received from Irish Water for the proposed foul network and is included as an appendix to this report.

There is a risk of pollution of groundwater and water courses by accidental spillage of foul effluent during connection being made to live sewers. Should this occur the impact is likely to be slight and temporary.

There is a possibility of some surface water ingress into the foul water drainage system due to poor workmanship. There is also a possibility of leakage from sewers and drains within the site and along the route to the outfall sewer. Any foul water leakage would result in local contamination of soil and ground waters in the area. Mitigation measures discussed later will make the impact of any such occurrence slight.

7.5.3 Surface Water Drainage

Construction Stage

Surface water currently infiltrates the ground, with any excess surface water discharging to the existing ditch network and ultimately to the River Mayne or to the public drainage network in Malahide Road. There is a possibility of temporary contamination to the surface water network during construction activities. Sedimentation and silt arising from construction activities could contaminate the surface water network. Refuelling of vehicles may result in spillages, which could impact local surface water bodies. The impact of any such event will be dependent on the level of contaminants entering the system however, in a worst-case cumulative scenario, with no mitigation measures, the impact could be temporary and moderate.

Operational Stage

The proposed flow control devices at the lakes and the dry detention basin are to be limited to the greenfield equivalent runoff rate, and SuDS measures proposed to maximise the infiltration as set out above. The net runoff volume from the site will therefore remain unchanged. There is a possibility of some foul water ingress into the surface water drainage system due to poor workmanship. Any such cross connections could result in pollution of the surface water network. The impact of this would be moderate and long-term (until the issued is resolved by reinstatement methods).

The runoff from the roads and hardstanding areas will discharge contaminants, including oils and silts, to the surface water system which might result in pollution to the surface water network. The SuDS treatment train which has been designed into the surface water drainage network, acts as a mitigation measure, as discussed in the next section and treats the surface water, thus making the likelihood of this occurring extremely low.

7.6 Avoidance & Mitigation Measures

7.6.1 Water Supply

Construction Stage

A method statement setting out in detail the procedures to be used when working in the vicinity of existing watermains will be produced by the contractor for any construction works within the vicinity of watermains and for roads or services crossing watermains.

All watermains will be cleaned and tested in accordance with Irish Water guidelines prior to connection to the public watermain. Irish Water will require in advance of the connection to the live infrastructure, a confirmation letter from the Main Contractor and the Design Engineers confirming that the watermain network has been constructed to the methods and material specification as per the Irish Water standards, and that the layout of the constructed network and location of its associated fittings are in accordance with the permitted design which was submitted for agreement via the connection application process. All connections to the public watermain will be carried out by, or under the supervision of, Irish Water. Irish Water will vest the network upon connection to the Irish Water network.

Potential negative impacts during construction stage will be short term only.

Operational Stage

Water meters will be installed at the connection points, with the locations to be agreed and approved by Irish Water, and these meters will be linked to Irish Water's monitoring system by telemetry. The meters will facilitate the early detection, via the Irish Water monitoring programme, of unusual water usage in the network and identify potential leaks in the system.

All plumbing fixtures and fittings and sanitary wear to be installed within the development should be to the current best practice for water consumption to minimise future water usage.

No further mitigation measures will be necessary on completion.

7.6.2 Foul Water Drainage

Construction Stage

In order to reduce the risk of defective or leaking foul sewers, the following mitigation measures will be implemented: -

- All new foul sewers will be tested by means of an approved air test during the construction stage in accordance with Irish Water's Code of Practice and Standard Details.
- All private drainage will be inspected and signed off by the design Engineer in accordance with the Building Regulations Part H and BCAR requirements.
- Foul sewers will be surveyed by CCTV to identify possible physical defects.
- The connection of the new foul sewers to the public sewer will be carried out under the supervision of Irish Water and will be checked prior to commissioning.

Prior to commencement of excavations in public areas, all utilities and public services will be identified and checked, to ensure that adequate protection measures are implemented during the construction stage.

Irish water will vest the network upon connection to the public infrastructure.

Operational Stage

All foul drains will be tested and surveyed prior to connection to the public sewers to minimise the risk of uncontrolled ground water penetration or leakage of the foul water to groundwater on the site.

Otherwise, no mitigation measures are deemed to be necessary after completion of the proposed development, other than normal maintenance of the foul sewer system.

7.6.3 Surface Water Drainage

Construction Stage

The Main Contractor will utilise the Construction Environmental Management Plan and the Preliminary Construction Demolition and Waste Management Plans submitted as part of the subject application, to prepare and implement their Construction Management Plan. These reports contain details of mitigation measures which must be incorporated into the Main Contractors own reports. The mitigation measures contained within these reports outline the requirements for the storage and handling of fuel, including the refuelling of vehicles in designated refuelling zones to minimise the risk of spillages, and the impact of spillages should they occur.

The Construction Management Plan will also inform on the utilisation of sedimentation controls, including silt traps, tailings ponds and silt fences during the construction period.

Private drainage will be inspected and signed off by the design Engineer which confirms that the drainage network constructed is in accordance with the Building Regulations Part H and Building Control (Amendment) Regulations (BCAR) requirements.

Operational Stage

The proposed flow control devices are to be limited to the greenfield equivalent runoff rate. The net runoff volume from the site will therefore remain unchanged. This ensures that there will be no increase in the amount of water leaving the site and will be the same as to the situation prior to construction of the development. This mitigates against the possibility of increasing the potential for flooding downstream. Full details on the sources, potential for flooding of the site and also downstream on the River Mayne, and the mitigation measures that have been incorporated against these risks are discussed in full in the Flood Risk Assessment Report, submitted under a separate cover. We politely advise the reader to review this report for full details on this topic. However, included below as Table 7-4, is a table extracted from the conclusion and recommendations section of the Flood Risk Assessment Report. This table confirms that following the implementation of the mitigation measures specified that the residual risk associated with flooding is low to extremely low.

Source	Pathway	Receptor	Likelihood	Consequence	Risk	Mitigation Measure	Residual Risk
Tidal	Irish Sea & Mayne River	Proposed development	Extremely low	None	Extremely low	None	Extremely low
Fluvial	Mayne River	Proposed development	Low	Low	Extremely Low	Setting of floor levels & freeboard, overland flood routing	Extremely Low
Pluvial	Private & Public Drainage Network	Proposed development, downstream properties and roads	Ranges from high to low	Moderate	Ranges from high to low	Appropriate drainage, SuDS and attenuation design, setting of floor levels, overland flood routing	Low
Ground Water	Ground	Underground services, ground level of buildings, roads	Moderate	Moderate	Moderate	Appropriate setting of floor levels, flood routing, damp proof membranes	Low
Human/Mechanical Error	Drainage network	Proposed development	High	Moderate	High	Setting of floor levels, overland flood routing, regular inspection of SW network	Low

Table 7-4 | Summary of the Flood Risks from the Various Components

It is important to note that some of the mitigation measures, as part of the table above, includes mechanical components. These components will require periodic inspection and maintenance in accordance with that as specified by the manufacturer of the component. A safety file/maintenance file/handover file will be prepared by the Main Contractor and will be used to create a programme for the required inspection and maintenance of these components. The developer will be required to

maintain these components until such a time as they are Taken in Charge by the Local Authority, where they will then assume responsibility for this task.

As noted above, the mechanical components will require inspection and maintenance. So too will the drainage network itself which comprises non-mechanical components such as Gullies etc. A regime for inspection and maintenance of these components will also be incorporated into the maintenance file for the development.

There is a possibility of some foul water ingress into the surface water drainage system due to poor workmanship. Any such cross connections could result in pollution of the surface water network. The mitigation measures against this are discussed previously in the construction stage mitigation measures for the foul water network section.

The SuDS devices outlined in Section 7.4.4 will reduce and slow down the rate of surface water runoff from the site. This will minimise peak flows in the downstream system during major storm events.

The SuDS treatment train will also treat the surface water discharging to the public network, removing pollutants from the surface water runoff. Maintenance of these SuDS devices will be required to ensure that they continue to treat the surface water as designed.

7.7 Residual Impacts

7.7.1 Water Supply

Construction Stage

Due to the mitigation measures outlined above, no significant adverse impacts are expected to arise on the water supply network during the construction stage of the development.

Operational Stage

There will be a water demand for the implementation of the development of approximately 1,196m³ per day. Irish Water have confirmed that connection to the existing water supply network is feasible without any upgrades to the existing infrastructure, as per the confirmation of Feasibility letter included as an appendix to this document. Based on this, there is no negative impact associated with the operational stage of the proposed development.

7.7.2 Foul Water Drainage

Construction Stage

During the construction stage of the development, some short-term negative impacts may result as identified above. However, with the implementation of the mitigation measures as noted earlier, the impact of the development during the construction stage will be minimised and no significant long-term impacts will result from the construction works.

Operational Stage

Wastewater will discharge from the completed and occupied development at a rate of approximately 1,196m³ per day. Irish Water have confirmed that there is sufficient capacity in the public network to

cater for the development without upgrades. Based on this, there is no negative impact associated with the operational stage of the proposed development.

7.7.3 Surface Water Drainage

Construction Stage

During the construction stage, some short-term negative impacts may result, as identified above. However, with the implementation of the mitigation measures, the impact of the development during the construction stage will be minimised and no significant long-term impacts will result from the construction works. The implementation of the SuDS train to the surface water network will further ensure there is no negative impact to the WFD status of the River Mayne.

Operational Stage

By introducing flow control measures and appropriately sized attenuation, the surface water runoff rate from the site will remain unchanged from the current scenario. Introduction of appropriate interception and treatment SuDS devices will ensure that a high runoff water quality is maintained. No significant adverse impacts are envisaged to the environment, including to the WFD status of the River Mayne. It is further noted that the proposed development may actually contribute to a better water quality status due to the natural surface watercourse rehabilitation works proposed as part of the subject development.

7.8 Monitoring

7.8.1 Water Supply

Water usage and potential leakage will be monitored by Irish Water using the water meters which will be installed on the supply pipes so that the development can be monitored in sections. The location of these meters will be agreed with Irish Water and the meters will be linked to Irish Water's monitoring system via telemetry.

7.8.2 Foul Water Drainage

Following completion of construction of the development there are no monitoring requirements envisaged other than normal monitoring and maintenance of the wastewater system by Irish Water.

7.8.3 Surface Water Drainage

The surface water network (drains, gullies, manholes, AJs, SuDS devices, attenuation system etc.) will need to be regularly maintained and where required cleaned out. A suitable maintenance regime of inspecting and cleaning shall be incorporated into the safety file/maintenance manual for the development. This maintenance manual will be implemented by the developer until such a time that the subject site is Taken in Charge by the Local Authority, who will then assume responsibility for its implementation.

7.9 Reinstatement

Any existing roads, footpaths and park spaces that are opened to facilitate water supply, foul water drainage and surface water drainage connections will be reinstated.

7.10 Interactions

The interactions between Chapter 7 (Water) and the other chapters of the EIAR are set out below:

7.10.1 Population & Human Health (Chapter 4)

There is a risk of pollution of groundwater and water courses by accidental spillage of foul effluent during connections being made to live sewers, which could impact human health. This risk will be mitigated in accordance with Chapter 7 of this EIAR.

7.10.2 Biodiversity (Chapter 5)

There is a risk of pollution of groundwater and water courses by accidental spillage of foul effluent during connections being made to live sewers, which could affect local flora and fauna. Such spills will be mitigated in accordance with Chapter 7 of this EIAR.

7.10.3 Land and Soil (Chapter 6)

There is a risk of pollution of groundwater by accidental spillage of foul effluent during connections being made to live sewers. This risk will be mitigated in accordance with Chapter 7 of this EIAR.

7.10.4 Noise & Vibration (Chapter 9)

Heavy machinery used for excavations to facilitate watermains, drainage and attenuation may impact on noise and vibration. Both will be controlled and monitored as set out in Chapter 9 of this EIAR.

7.11 Conclusion

This Chapter of the EIAR has reviewed the existing (baseline), and proposed site conditions, both during the construction and operational phases. Potential impacts have been identified, and where applicable the likelihood and potential significance of the impact described. Mitigation measures against these impacts have been explored and as a result of their implementation, the residual impact has been discussed.

In summary, there are no significant adverse impacts associated with the construction or operational phases of the proposed development with the implementation of the prescribed mitigation measures.

While the potential for flood risk of both the constructed and natural surface water course are discussed in this document, we politely refer the reader to the Flood Risk Assessment which accompanies this planning package under as separate cover, for full flood risk and mitigation details. The residual risk of flooding both to the subject site and downstream on the River Mayne are confirmed as low to extremely low.

7.12 Difficulties Encountered When Compiling

There were no difficulties encountered when undertaking this assessment.

7.13 References

The following documents and sources were consulted during the preparation of Chapter 7:

- Irish Water's Code of Practice for Water Infrastructure;
- Irish Water's Water Infrastructure Standard Details;
- Irish Water's Code of Practice for Wastewater Infrastructure;
- Irish Water's Wastewater Infrastructure Standard Details;
- Building Regulations Technical Guidance Document H – Drainage and Waste Water Disposal;
- Building Control (Amendment) Regulations (BCAR);
- Greater Dublin Regional Code of Practice for Drainage Works;
- CIRIA design manual C521;
- Ciria C753 SuDS Manual; and
- DEHLG/OPW Guidelines on the Planning Process and Flood Risk Management.

In addition to the sources listed above, design information from the other members of the project team was incorporated in Chapter 7 (Water).

8.0 AIR QUALITY

8.1 Introduction

Chapter 8 of this Environmental Impact Assessment has been prepared by DKP Environmental (DKP_{EV}) and assesses the air quality impacts associated with the proposed development at Belcamp, Co. Dublin. The proposed development consists of 2,527 no. residential units comprising houses, apartments and duplex units, 2 no. childcare facilities; 1 no. sports changing facilities building; 3 no. cafés/restaurants; 18 no. retail/commercial units; and all associated engineering and site works necessary to facilitate the development. This chapter examines the existing air quality in the vicinity of the development site and the potential impact of the proposed development during the construction phase and operational phase. The assessment includes recommended mitigation measures to control and minimise the impact that the development may have on local air quality. This assessment has been prepared in accordance with the EIA Directive 2014/52/EC and current Environmental Protection Agency (EPA) guidelines. This section should be read in conjunction with the site layout plans and project description sections of this EIAR.

8.2 Methodology

Research for this section included a review of the Air Quality Standards Regulations (S.I. 180 of 2011) and the EPA annual reports on air quality in Ireland. Predicted air quality emissions for the main traffic-derived pollutants have been modelled using the screening air quality assessment from the U.K Highway Agency Design Manual for Roads and Bridges (DMRB) and data from chapter 12 transport Assessment undertaken for the residential development at Belcamp. Analysis for this chapter included a review of the following guidelines and recommendations:

- Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports Draft (EPA, 2017)
- Advice Note on Preparing Environmental Impact Statements – Draft (EPA, 2015)
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment 2013.
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment August 2018
- Guidance on the Assessment of Dust from Demolition and Construction Version 1.1 (Institute of Air Quality Management (IAQM), 2014)

8.2.1 Legislation and guidelines

To reduce the risk of poor air quality impacts, National and European statutory bodies have set limit values in ambient air for a range of air pollutants. EU directives set baseline standards for monitoring air quality and reducing emissions. The applicable standards in Ireland include the Air Quality Standards Regulations 2011, which incorporate EU Directive 2008/50/EC, which has set limit values for a number of pollutants. These limits are for the protection of human health and are presented in Table 8.1. Air quality significance criteria are assessed on the basis of compliance with the standards.

Table 8-1. Air quality standards regulations (S.I.180)

Pollutant	Limit Value Objective	Averaging Period	Value Limit ($\mu\text{g}/\text{m}^3$)
Nitrogen Dioxide (NO_2)	Protection of Human Health	Calendar year	40
		1 hour	200
Benzene Carbon Monoxide (CO)	Protection of human health	Calendar year	5
	Protection of human health	Calendar year	10,000
Lead	Protection of human health	Calendar year	0.5
Sulphur Dioxide (SO_2)	Protection of human health	1 hour	350
Particulate Matter (PM_{10})	Protection of human health	24 hours	125
		24 hours	50
		Calendar year	40
Particulate Matter (PM_{25})	Protection of human health	Calendar year	25

8.2.2 National air quality network

The EPA is the authority with responsibility for ambient air quality monitoring in Ireland and measures the levels of a number of atmospheric pollutants. Ambient air quality monitoring is carried out in accordance with the requirements of the CAFE Directive which has been transposed into Irish national legislation by the Air Quality Standards Regulations 2011. For the purposes of detailing ambient air quality in Ireland, it is divided into four zones: Zone A: Dublin, Zone B: Cork, Zone C: Other cities and large towns, Zone D: Rural Ireland. In Ireland, the network is managed by the EPA in partnership with Local Authorities and other public/semi-state bodies. A series of monitoring stations are located across the country, these stations collect air quality data for public information.

The proposed development site is located within Zone A, Dublin. The EPA monitor at local sites and national sites. The nearest local EPA air quality monitoring station from the development site is Coolock, Dublin 5. These local monitoring stations give people a rapid and up-to-date indication only, of air quality in their locality. The nearest national EPA air quality monitoring station from the development site is Dublin Airport.

8.2.3 Dust deposition guidelines

The concern from a health perspective is focussed on particles of dust which are less than 10 microns (PM_{10}) and less than 2.5 microns ($\text{PM}_{2.5}$) and the EU ambient air quality standards outlined in Table 8.1 have set ambient air quality limit values for PM_{10} and $\text{PM}_{2.5}$. With regards to larger dust particles that can give rise to nuisance dust, there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction phase of a development in Ireland. Furthermore, no specific criteria have been stipulated for nuisance dust. With regard to dust deposition, there are currently no national or European Union air quality standards with which levels of dust deposition can be compared. To measure dust deposition a figure of 350 $\text{mg}/\text{m}^2/\text{day}$ (as measured using Bergerhoff type dust deposit gauges as per German Standard Method for determination of dust deposition rate, VDI 2129) can be applied to ensure that no nuisance effects will result. The IAQM guidelines outline an assessment method for predicting the impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts.

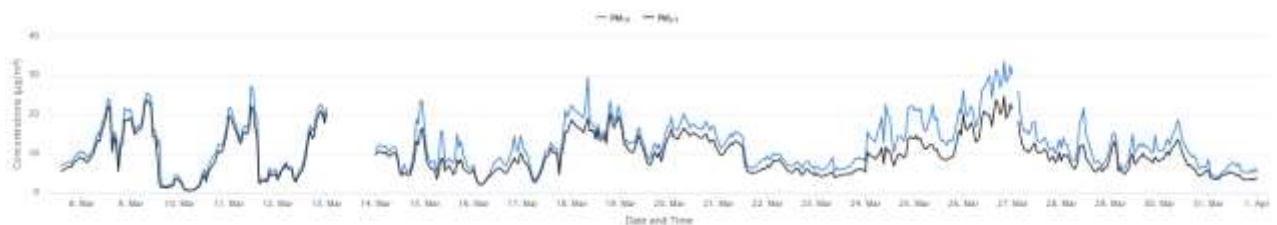
8.3 Receiving Environment at Belcamp, Balgriffin

The proposed development site at Belcamp is located off the Malahide Road in Balgriffin in the northern suburbs of Dublin. Balgriffin lies within southern Fingal in the traditional County Dublin and it is partly in the jurisdiction of Dublin City Council and partly that of Fingal County Council, situated approximately 8km from Dublin city centre. The site is approximately 7km from Dublin Airport. The proposed development site at Belcamp borders existing agricultural open fields to the north and west. Located east are business / office units. Located south is the R139 with existing residential estates further south.

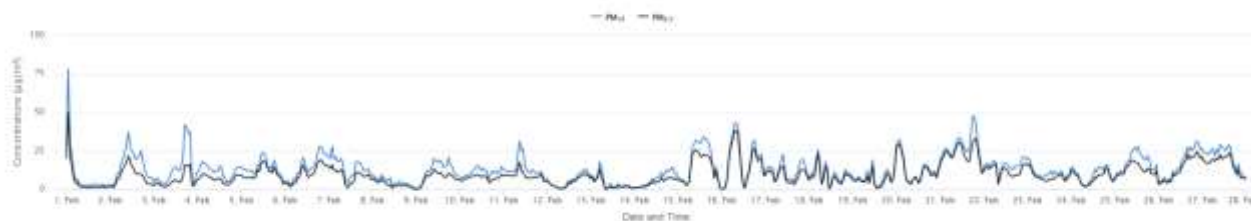
The development area is located within an area which includes sources of transportation related air emissions principally from the R139 and R107 and local sources of domestic heating from nearby residential housing estates located south and east. There is currently 1 no. of business activities which requires an IPC license in the immediate radius of 3km. This is located in the Malahide Road Industrial Park, 1.5km south of the proposed development. This IPC licence activity class is 'Food and Drink'. This business would not have an adverse impact on future resident's air quality at the proposed development and on inspection the site is not in any immediate location of facilities that generate industrial emissions on a large scale.

8.3.1 EPA air quality monitoring results

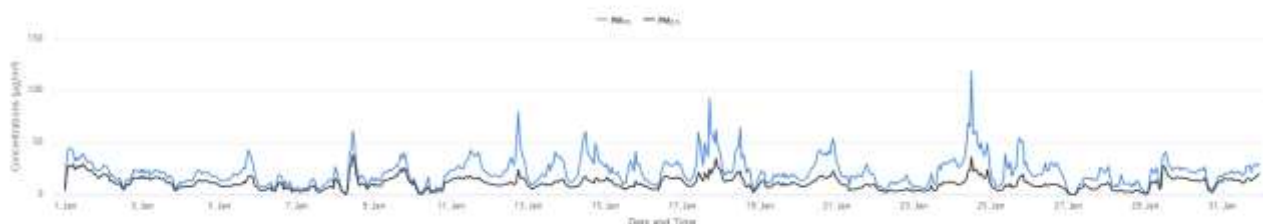
The EPA publish annual reports on air quality in Ireland. These reports can be accessed via the EPA website at www.epa.ie. The most current EPA report 'Air Quality in Ireland 2020' has been examined in order to describe the existing air quality conditions and to provide information on background concentrations. The ambient air quality data collected and reviewed for the purpose of this study focused on the principal substances (NO₂ and PM emissions) which may be released from the site during the construction and operation phases, and which may exert an influence on local air quality. The proposed Phase 5 residential development site is located within Zone A, the Dublin conurbation. The EPA monitor locally and nationally. The nearest local EPA air quality monitoring station from the development site is Coolock, Dublin 5, approximately 2.5km away. Local monitoring stations give people a rapid and up-to-date indication only, of air quality in their locality. Local monitoring data for PM can only be obtained up to a couple of months previous. The previous 4 months graphs for PM local emissions are illustrated below:



1st Mar – 31st Mar 2022 monitoring data. Copyright EPA



1st Feb – 28th Feb 2022 monitoring data. Copyright EPA



1st Jan – 31st Jan 2022 monitoring data. Copyright EPA



1st December - 31st December 2021 monitoring data. Copyright EPA

The nearest national EPA air quality monitoring station from the development site is Dublin Airport, approximately 7km away. The national EPA air quality annual mean value concentrations measured at this monitoring site for 2020, 2019, 2018 and 2017 are shown in Table 8.2.

Table 8-2. Summary of data from the EPA ambient air monitoring report 2020, 2019, 2018 and 2017

Pollutant	2020 mean concentration (µg/m ³)	2019 mean concentration (µg/m ³)	2018 mean concentration (µg/m ³)	2017 mean concentration (µg/m ³)	4-year Average	Annual Limit for Protection of Human Health (µg/m ³)
Sulphur Dioxide (SO ₂)	3.8	1.50 *	2.10 *	1.66 *	2.2	20
Particulate Matter (PM10) (With a diameter <10 microns)	13.10 *	14.5 *	14.10 *	12.40 *	13.53	40
Particulate Matter (PM2.5) (With a diameter <2.5 microns)	7.60 *	9.20 *	8.55 *	7.50 *	8.21	20

Nitrogen Dioxide (NO₂)	23.0	27.0 *	24.0 *	23.0 *	24.0	40
Carbon Monoxide (CO) (mg/m³)	0.30	0.30 *	0.20 *	0.28 *	0.27	10
Benzene	0.52 *	0.16 *	0.30 *	0.92 *	0.46	5
Lead (Pb)	0.04 *	0.07 *	0.06 *	0.05 *	0.06	0.5
Ozone (O₃)	46.0 *	49.0 *	51.0 *	49.0 *	48.7	120

* DAA monitoring station does not record all ambient air quality parameters outlined in the Directive. Therefore, air quality in the receiving environment was assessed using the average annual mean value concentrations from all measured monitoring stations in Zone A for that year.

8.3.2 Significance of EPA results

The EPA data of 2020 (and pre lockdown levels in 2019) pollutants show air quality parameters are all below the air quality limit values. It can be seen that the existing baseline air quality at the Belcamp site can be characterised as being good with no exceedances of the National Air Quality Standards Regulations limit values of individual pollutants.

8.4 Impact Assessment

The proposed development is described in Section 2 of this EIAR. When considering a development of this nature, the potential impact must be considered for each distinct stage:

- the short-term impact of the construction phase and
- the longer-term impact of the operational phase.

During the construction stage the main source of air quality impacts will be as a result of fugitive dust emissions from site activities. The primary sources of air emissions in the operational phase are considered long term and will involve the change in traffic flows in the local areas which are associated with the development.

8.4.1 Predicted impact of the proposed development

8.4.1.1 Construction phase

Air Quality:

The construction phase of the development has the potential to generate short term dust emissions. Dust emissions can lead to elevated PM₁₀ and PM_{2.5} concentrations and may also cause dust soiling. The potential for dust to be emitted depends on the type of construction activity being conducted in conjunction with ambient conditions, including rainfall, wind speed and the distance to potentially sensitive locations. Potential impacts from dust deposition will typically be near to the source. There is a risk that dust can cause an impact to sensitive receptors that are in close proximity to the source of the generated dust. It is not easy to accurately quantify dust emissions arising from construction activities. A semi-quantitative approach is recommended by the National Roads Authority (NRA) Guidelines 2011 to determine the likelihood of a significant impact. The construction assessment guidelines reproduced from the NRA guidance, are set out in Table 8.3.

Table 8-3. Assessment criteria for the impact of dust from construction activities with standard mitigation in place (NRA 2011)

Scale	Source Description	Potential Distance for Significant Effects (distance from source)		
		Soiling	PM10	Vegetation Effects
Major	Large Construction sites, with high use of haul routes.	100m	25m	25m
Moderate	Moderate Construction sites, with moderate use of haul routes.	50m	15m	15m
Minor	Minor Construction sites, with minor use of haul routes.	25m	10m	10m

While dust from construction activities tends to be deposited within 200m of a construction site, the majority of the deposition occurs within the first 50m.

There are high sensitivity receptors (existing residential properties) to the south and east of the site boundary. Avoidance and mitigation measures will be put in place to reduce the impact levels such as wind breaks, barriers and frequent cleaning and watering of the construction site roads, further detailed mitigation measures discussed in section 8.6.

The significance of impacts due to vehicle emissions during the construction phase will be dependent on the number of additional vehicle movements, HGVs and the closeness of sensitive receptors to the site. Increases in levels to PM and pollutants related to increased construction traffic can be predicted however relative to baseline levels, the impact of the proposed development during construction will not have an adverse impact in concentrations over the limit of regulation values.

Human Health:

Dust emissions from the construction phase of the proposed development have the potential to impact human health through the release of PM emissions. As per guidelines in table 8.3 significant PM10 emissions can occur within 15m of the site for a development of this scale. There are a number of high sensitivity (residential) receptors to the south and north east of the site however, only two properties are within 25m of the site boundary. Therefore, in the absence of mitigation there is the potential for slight, short-term impacts to human health as a result of the proposed development.

8.4.1.2 Summary of construction stage predicted impacts

Mitigation measures outlined in section 8.5 and the dust management plan will be put in place during construction phase of the proposed development. This will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. the impact of the proposed development in terms of dust soiling will be short-term and imperceptible at nearby receptors.

8.4.1.3 Operational phase

Air quality: The design and construction of buildings in accordance with National Building Regulations (The Irish Building Regulations Technical Guidance Document L – Conservation of Fuel & Energy – Dwellings) will ensure that modern building materials are used and that they are designed to be thermally efficient resulting in a reduction in the volume of fossil fuels required to heat the buildings. In order to counteract the impact of the development on the existing and future air quality the design of the proposed residential apartments and houses has considered a number of sustainable heating and energy saving features.

The operational phase of the proposed development also has the potential to result in an impact on local air quality primarily as a result of the increased traffic movements associated with the development. It is envisioned that a proportion of the commuting residents will avail of Dublin Bus / Dart commuter services. The availability of public transport will significantly reduce the number of private vehicles exiting and entering the development. The DMRB screening air quality spreadsheet from the U.K Highway Agency Design Manual for Roads and Bridges, was used to assess the impact of increased traffic associated with the new development.

Using the DMRB spreadsheet tool the following model inputs are required to complete the assessment: receptor locations, annual average daily traffic movements (AADT), percentage heavy goods vehicles (%HGV), annual average traffic speeds and background concentrations. The model predicts the road traffic contribution to ambient ground level concentrations at the sensitive receptors. The DMRB model uses conservative emission factors, to give the worst-case predicted ambient concentrations. The worst-case ambient concentrations are then compared with the relevant ambient air quality standards to assess the compliance of the proposed development with these ambient air quality standards. The principal local receptors, see image 8.1, that may be impacted by the development are existing residential dwellings to the south, commercial / residential units to the east and existing residential dwellings to the north east.

Image 8-1: Location of Sensitive Receptors

- 1 - Existing: Northern Cl, Priorswood, residential estate
- 2 - Existing: Belcamp Ln, Priorswood, private houses
- 3 - Existing: Office / commercial units
- 4 - Under construction units
- 5 - Existing: private houses

Annual Average Daily Traffic Flow (AADT) information was obtained from Chapter 12 on this project. background concentrations of pollutants, sourced from the EPA reports, 4-year average values in table 8.2 were used. Results were generated using an average speed of 40 km/h assuming congested traffic conditions.

In order to quantify the magnitude of change in pollutant concentrations, the descriptors in table 8.4 were used. To describe the significance of the impact, table 8.5 was then used. These descriptor tables are from the Transport Infrastructure Ireland Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes which detail a methodology for determining air quality impact significance criteria for road schemes and has been adopted for this assessment. The degree of impact is determined based on both the absolute and relative impact of the proposed development. Results are compared against the 'Do-Nothing' scenario, which assumes that the proposed development is not in place in future years, in order to determine the degree of impact.

Table 8-4. Definition of impact magnitude for changes in ambient air pollutant concentrations.

Magnitude of Change	Annual Mean NO ₂ / PM ₁₀ (µg/m ³)	No. of Days with PM ₁₀ concentration >50µg/m ³	Annual Mean PM (µg/m ³)
Large	Increase/decrease ≥4	Increase/decrease >4 days	Increase/decrease ≥2.5
Medium	Increase/decrease 2 - <4	Increase/decrease 3 or 4 days	Increase/decrease 1.25 - <2.5
Small	Increase/decrease 0.4 - <2	Increase/decrease 1 or 2 days	Increase/decrease 0.25 - <1.25
Imperceptible	Increase/decrease <0.4	Increase/decrease <1 day	Increase/decrease <0.25

Table 8.5: Air quality impact descriptors for changes in annual mean NO₂, PM₁₀ and PM_{2.5} concentrations.

Absolute Concentration in Relation to Objective /Limit Value	Changes in Concentration		
	Small	Medium	Large
Increase with Scheme			
Above Limit Value with Scheme (≥40µg/m ³ of NO ₂ or PM ₁₀) (≥25µg/m ³ of PM _{2.5})	Slight Adverse	Moderate Adverse	Substantial Adverse
Just Below Limit Value with Scheme (36-<40µg/m ³ of NO ₂ or PM ₁₀) (22.5-<25µg/m ³ of PM _{2.5})	Slight Adverse	Moderate Adverse	Moderate Adverse
Below Limit Value with Scheme (30-<36µg/m ³ of NO ₂ or PM ₁₀) (18.75-<22.5µg/m ³ of PM _{2.5})	Negligible	Slight Adverse	Slight Adverse
Well Below Limit Value with Scheme (<30µg/m ³ of NO ₂ or PM ₁₀) (<18.75µg/m ³ of PM _{2.5})	Negligible	Negligible	Slight Adverse

The results of the impact assessment arising from increased transport are presented in Table 8.6 and 8.7. The results predict the future air quality relative to the existing baseline.

Image 8-2: Location of Receptors used for predicted modelling.



Table 8.6: Modelled results for receptor 1

R 1	Annual Average NO ₂ (µg/m ³)	Annual Average PM ₁₀ (µg/m ³)	Annual Average (µg/m ³)Benzene	Annual Average CO (µg/m ³)
Background (2022)	24.0	13.53	0.46	0.27
Limits	40	40	5	10
Do Nothing (2030)	24.40	13.89	0.48	0.29
Increase	+0.40	+0.36	+0.02	+0.02
Magnitude	imperceptible	imperceptible	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible
Do Something (2030)	25.62	15.44	0.51	0.31
Increase	+1.62	+1.91	+0.05	+0.04
Magnitude	small	small	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible

Table 8.7: Modelled results for receptor 2

R 2	Annual Average NO ₂ (µg/m ³)	Annual Average PM ₁₀ (µg/m ³)	Annual Average (µg/m ³)Benzene	Annual Average CO (µg/m ³)
Background (2021)	24.0	13.53	0.46	0.27
Limits	40	40	5	10
Do Nothing (2030)	24.53	14.19	0.49	0.30
Increase	+0.53	+0.66	0.03	0.03
Magnitude	small	small	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible
Do Something (2030)	25.55	15.35	0.51	0.31
Increase	+1.55	+1.82	+0.05	+0.04
Magnitude	small	small	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible

Table 8.8: Modelled results for receptor 3

R 3	Annual Average NO ₂ (µg/m ³)	Annual Average PM ₁₀ (µg/m ³)	Annual Average (µg/m ³)Benzene	Annual Average CO (µg/m ³)
Background (2021)	24.0	13.53	0.46	0.27
Limits	40	40	5	10
Do Nothing (2030)	24.39	13.86	0.48	0.29
Increase	+0.39	+0.33	+0.02	+0.02
Magnitude	imperceptible	imperceptible	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible
Do Something (2030)	25.51	15.30	0.50	0.31
Increase	+1.51	+1.77	+0.04	+0.04
Magnitude	small	small	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible

Levels of traffic-derived air pollutants for the proposed development at receptor 1, 2 and 3 (see image 8.2 for receptor location) show an expected increase in annual NO₂, PM₁₀, benzene and CO but each parameter remain well below the limit values for EU regulations and will not exceed the ambient air quality standards either with or without the proposed development in place. Using the assessment criteria outlined previously, the impact of the development in terms of PM₁₀, CO, NO₂ and benzene is negligible and would not result in a perceptible change in the existing local air quality environment.

Human Health: Traffic related air emissions have the potential to impact air quality which can affect human health. However, air dispersion modelling of traffic emissions has shown that levels of all pollutants are well below the ambient air quality standards set for the protection of human health.

8.4.1.3 Summary of operational phase predicted impacts

Air dispersion modelling of operational traffic emissions associated with the proposed development was carried out using the UK DMRB model. The modelling assessment determined that the change in emissions of NO₂, PM, benzene and CO at nearby sensitive receptors will be small, which equates to negligible impacts. Therefore, the operational phase impact to air quality is long-term, and imperceptible. As the air dispersion modelling has shown that emissions of air pollutants are significantly below the ambient air quality standards which are based on the protection of human health, impacts to human health are also long term and imperceptible.

8.5 Mitigation Measures

8.5.1 Remedial and Reductive Measures

Construction phase

There is the potential for a number of impacts to air quality during the construction phase of the proposed development. Full details of the dust management plan can be found in Appendix 8.1. At all times, the procedures within the plan will be monitored and assessed. Summary of mitigation measures include:

- Avoid unnecessary vehicle movements and limit speeds on site so as to minimise the generation of airborne dust.
- Use of rubble chutes and receptor skips during construction activities.
- Site roads shall be regularly cleaned and maintained as appropriate, especially during dry and/or windy conditions. Any unsurfaced roads shall be restricted to essential site traffic only.
- A mobile wheel wash unit shall be installed at the site exit to wash down the wheels of all trucks exiting the site.
- The overloading of tipper trucks exiting the site shall not be permitted and aggregates will be transported to and from the site in covered trucks.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind, stockpiles holding fine or dusty elements including top soils shall be covered with tarpaulins. Water misting or sprays will be used as needed if particularly dusty activities are necessary during dry or windy periods.
- Where drilling or pavement cutting operations are taking place, measures to control dust emissions will be used to prevent unnecessary dust emissions by the erection of wind breaks or barriers.
- All vehicles which present a risk of spillage of materials, while either delivering or removing materials, will be loaded in such a way as to prevent spillage.
- A complaints log shall be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated.

Operational phase

The impact of the operational traffic associated with proposed development on air quality is predicted to be imperceptible and will not generate air emissions that would have an adverse impact on local ambient air quality. Therefore, no additional site-specific mitigation measures are required. Also, the

government aims to promote sustainability by enhancing public transport with regular and ongoing increases in the public transport capacity, both road and rail and to reduce dependency on the use of the private car. The mitigation by design measures to minimise the impact of the development on air quality during the operational phase include the Inclusion of electric car charging points to encourage electric vehicle ownership and the sites proximity to public transport will reduce private vehicle use.

8.5.2 Monitoring

Construction phase: If the construction contractor adheres to good working practices and the mitigation measures are in place, the levels of emission generated are assessed to be minimal and are unlikely to cause an impact on air quality during the construction phase, there is no monitoring recommended.

Operational phase: There is no monitoring recommended for the operational phase of the development as impacts to air quality are predicted to be negligible.

8.5.3 Interactions

The main interactions relating to air quality are human health and transportation. The construction phase has the potential to cause health issues due to potential dust impacts. The mitigation measures that will be put in place at the proposed development will ensure that the impact of the proposed development complies with all ambient air quality legislative limits and therefore the predicted impact is long term and neutral with respect to human health. Interactions between air quality and transportation can be considerable with increased vehicle movements and congestion due to traffic. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between traffic and air quality are considered to be imperceptible.

8.5.4 Cumulative effects

For the cumulative effect we have taken in account planning permissions in neighbouring areas totalling 1136 no. units. These arise out of details gathered from Fingal County Council, Dublin City Council and An Bord Pleanala as listed in the table below.

Table 8.9 : Synopsis of planning permissions in neighbouring areas

Reg. Ref.	Location	Description	Decision
Reg.Ref. F05A/1388	Belcamp College, Malahide Road, Balgriffin, Dublin 13.	Planning permission was granted for alterations to Belcamp hall for residential use. Equivalent no units : 25	Permission
Reg.ABP Ref. PL06F. 248052)	Belcamp, Malahide Road, Dublin 17.	Residential development at Belcamp. Permission was granted for 175 residential dwellings and apartment units. Equivalent no units : 175	Permission
F18A/0167	Campions Public House, its carpark and lands to its rear, Malahide Road, Balgriffin, Co. Dublin.	Modifications to previously granted planning application Reg. Ref. F15A/0093 (An Bord Pleanala Ref. No. PL06F.245710) Equivalent no units : 13	Permission
F18A/0554	Adjacent to Champions Public House, Malahide Road, Balgriffin, County Dublin	Demolition of existing single storey commercial building and construction of new two storey building, Equivalent no units : 4	Permission

Reg.Ref. F18A/0058	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052, at Belcamp, a protected structure (RPS No. 463), Equivalent no units : 0	Permission
Reg. Ref. F19A/0220	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted developments Reg. Ref. F15A/0609, PL06F.248052 and F18A/0058 Equivalent no units : 89	Permission
Reg. Ref. F19A/0221	Belcamp, Malahide Road, Dublin 17.	Revisions to layout and house types of 49 no. two storey houses Equivalent no units : 49	Permission
Reg. Ref F21A/0401	Lands at Belcamp Hall, Malahide Road, Dublin 17	Planning permission was granted by Fingal County Council for Equivalent no units : 78	Permission
F21A/0390	The former Campions Public House, Malahide Road, Balgriffin, Co. Dublin.	Modifications to a previously granted planning application Reg. Ref. F18A/0167. .Equivalent no units : 1	Permission
Reg. Ref F21A/0488	Belcamp Hall, Malahide Road, Dublin 17.	Development on lands at Belcamp consisting of the construction of 77 no. residential units Equivalent no units : 77	Permission
ABP Ref. PL06F.248052.	Belcamp North	Total of 40 units, a childcare facility, conservation works to the Walled Garden and café; Equivalent no units : 45	Permission
Reg. Ref. F18A/0167,	Belcamp	Campions has planning permission for a total of 54 no. residential units. Equivalent no units : 54	Permission
	eastern side of the Malahide Road, known as 'Parkside'	approximately 185 no. residential units on a site extending to c.3.1 hectares Equivalent no units : 185	Permission
Reg. Ref. 3238/17	Malahide Road, Churchwell Avenue and Belmayne Road, Ayrfield, Dublin 13	This development comprises 150 apartment units approved under Part VIII. Equivalent no units : 150	Permission
Reg. Ref. 2600/20	Belmayne Avenue	Permission has been granted for 2 no. schools – a temporary post primary and primary school. Equivalent no units : 0	Permission
ABP-307887-20	Northern Cross SHD Mayne River Avenue	Strategic Housing Development under for 191 no. apartments and associated site works Equivalent no units : 191	Permission
		Overall equivalent no units : 1136	

Construction phase: There is the potential for cumulative dust emissions to impact the nearby sensitive receptors. The dust produced from construction activities tends to be deposited within 200m of a construction site and the majority of the deposition occurs close to the source, typically within the first 50m. If construction activities are to occur at the same time as other neighbouring projects, the dust mitigation measures outlined in section 8.5 along with the Dust management plan will need to be applied throughout the construction phase of the proposed development. This will avoid significant cumulative impacts on air quality. With mitigation measures in place and adhered

to, the predicted cumulative impacts on air quality associated with the construction phase of the proposed development are deemed short-term and not significant.

Operational phase: The cumulative effects during the operational phase were assessed from changes in traffic flows during the operational phase due to the additional residents. As described in section 8.4.1.3 these modelled results show that concentrations of ambient air pollutants will remain well below the limit values for air quality. The cumulative effects on air quality and associated additional vehicular traffic was assessed for the potential neighbouring projects totalling 1136 units (see table 8.9 for project details). Levels of traffic-derived air pollutants associated with the additional 1136 units for receptor 3 (see image 8.2 for receptor location) show an expected increase in annual NO₂, PM₁₀, benzene and CO, table 8.10 shows these cumulative air quality modelled results.

Table 8.10: Modelled results for receptor 3 + cumulative units from neighboring projects.

R 3	Annual Average NO ₂ (µg/m ³)	Annual Average PM ₁₀ (µg/m ³)	Annual Average (µg/m ³)Benzene	Annual Average CO (µg/m ³)
Background (2021)	24.0	13.53	0.46	0.27
Limits	40	40	5	10
Belcamp + cumulative units from neighbouring projects	25.79	14.54	0.52	0.32
Increase	+1.79	+2.01	+0.06	+0.05
Magnitude	small	medium	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible

The results found each parameter will remain well below the limit values for EU regulations and will not exceed the ambient air quality standards. Using the assessment criteria outlined previously, the impact of the development in terms of PM₁₀, CO, NO₂ and benzene is negligible. Therefore the predicted cumulative impacts on air quality is negligible and would not result in a perceptible change in the existing local air quality environment.

8.5.5 Difficulties encountered in compiling the chapter

There were no difficulties met when conducting this assessment.

8.5.6 References

- EPA. Air Quality Monitoring Report 2019 (and previous annual reports)
- EPA. Ireland's Provisional Greenhouse Gas Emissions 1990 – 2019
- EPA Air Quality Index for health. AirQuality.ie
- Met Eireann (2021). Met Eireann website: www.met.ie
- TII (2011). Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes
- UK Highways Agency (2019b). UK Design Manual for Roads and Bridges (DMRB) Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 14 LA 114 Climate

- Transport Infrastructure Ireland (TII) 2011 Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes Revision 1.
- The Irish Building Regulations Technical Guidance Document L 'Conservation of Fuel & Energy Dwellings'

9.0 NOISE AND VIBRATION

9.1 Introduction

This chapter of this Environmental Impact Assessment has been prepared by DKP Environmental (DKPEV) and assesses noise and vibration impacts associated with the proposed development at Belcamp, Dublin 17. The proposed development consists of 2,527 no. residential units comprising houses, apartments and duplex units, 2 no. childcare facilities; 1 no. sports changing facilities building; 3 no. cafés/restaurants; 18 no. retail/commercial units; and all associated engineering and site works necessary to facilitate the development. This chapter will identify and assess the impact of the proposed development in terms of noise and vibration during the construction phase and operational use with particular attention to the nearby residential units. Increased traffic volumes associated with the subject site is likely to be the main impact source. Traffic volumes for the proposed scheme have been projected and therefore the noise impact assessment for the operational phase of the subject site will consider the cumulative impact of the existing and new predicted volumes.

This assessment was prepared in accordance with the EIA Directive 2014/52/EC and current EPA guidelines. This section should be read in conjunction with any guidance documents for the site and project description sections of this EIAR.

9.2 Research Methodology

9.2.1 Construction Noise Criteria

The level of environmental noise generated during the construction phase of any development is determined primarily by the exact construction methods employed. The level of the noise impact of these methods will arise from the specific sound power levels generated by the plant and machinery used, the duration of each particular construction activity, as well as the time and location in which the equipment is used. The potential sources of environmental noise during the construction phase of the development will primarily arise from increased traffic on the surrounding roads (from construction workers and delivery of plant and materials) and actual on-site works where plant and machinery will be deployed.

As at this point of time we do not have an any actual specific construction plan to outline details of plant and machinery to be used, materials, construction phasing and working hours) it is not possible to accurately model construction noise levels using the recommended standard ISO 9613:1996 - Acoustics, Attenuation of sound during propagation outdoors however a basic analysis of worst-case noise levels has been calculated. This basic calculation was based on the current construction methods applied on site to complete the works and assessed noise impacts for the anticipated construction equipment.

As we do not have any published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project however local authorities normally control construction activities by imposing limits on the hours of operation with certain noise limits at their discretion. For this report we applied the British Standard BS 5228-1:2009+A1: 2014 - Code of practice for noise and vibration control on construction and open sites.

BS 5228-1:2009+A1: 2014 sets out a method of calculating the propagation of sound towards a receiver from the use of certain construction plant and machinery on a construction site. The standard describes single octave sound power level data for a range of standardised plant and machinery as would be expected to be the norm on construction sites.

9.2.2 Construction Vibration Criteria

During the construction phase of a development certain aspects of the site work may result in increased levels of vibration in the vicinity of the site. BS 5228-2:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites: - Part 2: Vibration, outlines a number of calculation methods for predicting peak particle velocity (PPV) resulting from construction works on open sites.

The prediction methods require specific information relating to the soil composition and compaction levels within the propagation path between the construction area and nearest receiver, as well as highly detailed information regarding the type and location of plant and machinery. As such specific data is not available a quantitative impact of vibration will not be undertaken as part of this assessment. Construction practices employed should have regard to best practice as recommended in the following standards and guidance:

- BS 7385-1 (1990) Evaluation and Measurement for Vibration in Buildings - Guide for Measurement of Vibration and evaluation of their effects on buildings.
- BS 7385-2 (1993) Evaluation and Measurement for Vibration in Buildings - Guide to damage levels from Ground borne Vibration.
- BS 5228-2:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.
- BS 6472-1 (2008) Guide to evaluation of Human Exposure to Vibration in Buildings - Vibration sources other than Blasting.

9.2.3 Operational Noise Criteria

As we do not have any statutory limits, it is therefore necessary to reference appropriate best practice guidance and standards in order to determine the impact of the subject site on the noise climate in the surrounding area during the operational phase. It is important to note that the primary potential source of noise arising during the operational phase is that of road traffic associated with the increased population of the area.

For the calculation and assessment of road it has generally been best practice to assess road traffic noise on the basis of the LA10 18-hour parameter as outlined in the CRTN document. Transport Infrastructure Ireland (formerly the National Roads Authority (NRA)) have produced guidelines for national road schemes however in this development we do not have any national primary road hence this standard would not apply.

The World Health Organisation propose guideline values for the prevention of moderate and serious nuisance in outdoor areas as 50dB LAeq (16 hour) and 55dB LAeq (16 hour) respectively although a more appropriate criteria for assessing disturbance or annoyance from noise arising from the site would be related to the significance of changes in noise levels as perceptible to human beings.

The information in the table below is taken from the 'Guidelines for Noise Impact Assessment' produced by the Institute of Environmental Management and Assessment (IEMA). This document replaces the draft guidelines published by the Institute of Acoustics (IOA) and IEMA in April 2002 and shows an appropriate impact.

Table 9.1: Change in noise level impact categories.

Change in Noise Level	Subjective Reaction	Impact Guidelines for Noise Impact assessment significance. (IEMA)	Impact Guidelines on the Information to be contained in EIAR's (EPA)
0 dB	No change	None	Imperceptible
0.1 to 2.9 dB	Barely perceptible	Minor	Slight
3.0 to 4.9 dB	Noticeable	Moderate	Moderate
5.0 to 9.9 dB	Up to a doubling	Substantial	Significant
10 dB or more	More than a doubling	Major	Profound

The following tasks were carried out in order to assess the noise impacts of the subject site on identified receptors during the operational phase of the scheme:

- A survey has been conducted to establish baseline noise levels or background noise levels at the nearest noise sensitive receptor surrounding the site.
- A calculation of anticipated noise levels arising at the nearest noise sensitive receptors due to current and forecast increases in traffic arising from the subject site as per basis of the LA10 18hour parameter as outlined in the CRTN document.
- An assessment of the cumulative calculated anticipated noise levels and potential impact upon noise sensitive receptors was carried out with reference to best practice guidelines in the assessment of environmental noise.

9.2.4 Vibration Assessment Criteria

There are generally accepted criteria for vibration levels that would be likely to lead to complaints and vibration levels that would be likely to lead to structural damage. These levels are outlined in the guidance documents BS6472: 1992 Guide to Evaluation of human exposure to vibration in buildings (1Hz to 80Hz), and BS7385: Part 2 1990: Evaluation and measurement for vibration in buildings - Guide to damage levels from ground-borne vibration.

9.2.5 Operational Vibration Criteria

Traffic has been identified as the only likely source of vibration during the operational phase of the scheme. In the case of nominally continuous sources of vibration, such as traffic, vibration is perceptible at around 0.5 mm/s PPV and may become disturbing or annoying at higher magnitudes. Currently no major sources of vibration exist on the site. It would therefore be appropriate to assume that negligible vibration impacts will occur during the operation of the subject site and no further assessment is deemed to be required.

9.3 Receptor Location Identification

In this chapter an assessment was made on receptor location having due regard to several considerations including:

- Determining the most exposed or nearest sensitive receptor (NSR) to potential sources of environmental noise related to current and future increases in traffic volumes.
- Ensuring that the number of receptors assessed would allow for sufficient baseline data to be obtained in the allocated background measurement period but also that the spatial spread of receptor locations was such that all locations in and around the subject site were assessed.

The table below represents the background noise monitoring location chosen and image 9.1 highlights the monitoring station on a site map.

Table 9.2: Back ground noise level survey locations.

Measurement location	Location	Measurement Type	Justification
Station 1	Junction of Malahide road R107 and Balgriffin road R123	Manual	To determine back ground noise levels
Station 2	R139 due South of the proposed development.	Manual	To determine back ground noise levels

Image 9.1: Receptor locations on google maps highlighted in yellow. ●



Image 9.2: Receptor locations on architects drawings highlighted in yellow. ●



9.3.1 Calculated Noise levels

For the anticipated road traffic noise levels and cumulative noise levels the measured noise level data was applied and calculated on the basis of the LAeq / LA10 18hour parameter as outlined in the CRTN document issued by Transport Infrastructure Ireland (formerly the National Roads Authority (NRA)). Using the Chapter 12 traffic report for the increased volume of traffic in/out of the proposed development at the Malahide Road / Balgriffin road junction and due South of the proposed development on the R139 between the Northern Cross junction and the and Clayton Hotel roundabout.

9.3.2 Receiving Environment

The proposed development site at Belcamp is located off the Malahide Road in Balgriffin in the northern suburbs of Dublin. Balgriffin lies within southern Fingal in the traditional County Dublin and it is partly in the jurisdiction of Dublin City Council and partly that of Fingal County Council, situated approximately 8km from Dublin city centre. The site is approximately 7km from Dublin Airport. The proposed development site at Belcamp borders existing agricultural open fields to the north and west. Located east are business / office units. Located south is the R139 with existing residential estates further south.

9.3.3 Back-ground Noise Survey

To assess the surrounding background noise levels, a daytime background noise survey was carried out on December 1st and 2nd 2021 outside the covid lockdown period. During the survey the station

was monitored and at the station three consecutive 15-minute measurements were recorded during the period from 07:00 to 07:00 or a full 24hr. The measurements taken are deemed to be representative of typical noise levels on the relevant roads.

The measurements have been performed using a Bruel & Kjaer Type 2260 sound level meter and Bruel & Kjaer 4231 sound level calibrator. All measurements were carried out in accordance with ISO 1996: 'Acoustics-Description and measurement of environmental noise'. Weather conditions during the survey were in line with the conditions described within ISO 1996, Acoustics 'Description and Measurements of Environmental Noise'. Weather conditions were rainy and cool with a moderate wind.

The following environmental noise parameters were measured which are defined below.

- **LAeq** is the A-weighted equivalent continuous steady sound level during the measurement period and effectively represents an average ambient noise value.
- **LAm_{ax}** is the maximum A-weighted sound level measured during the measurement period.
- **LAm_{in}** is the minimum A-weighted sound level measured during the measurement period.
- **LA10** is the A-weighted sound level that is exceeded for 10% of the sample period; this parameter is typically used to quantify traffic noise.
- **LA90** is the A-weighted sound level that is exceeded for 90% of the sample period; this parameter is typically used to quantify background noise.

Typical ranges of noise levels are presented in the table below comparing against the baseline noise levels measured:

Table 9.3: Typical activities related to typical noise levels.

Sound level (dB (A))	Description of Activity
0	Absolute silence
25	Very Quiet
35	Rural night-time
55	Suburban roadway 0.5km away
70	Busy Restaurant
85	Very busy pub, voice is raised to be heard
100	Rock concert
120	Uncomfortably loud, conversation impossible
140	Noise causes pain in ears

9.3.5 Back-ground Noise Survey Data

The following tables are the measured and calculated (average) background noise levels from the monitoring location.

Table 9.4: Survey station 1 monitoring data.

Station 1						Malahide rd/ Balgriffin Rd
Time	LAeq	LAm _{ax}	LAm _{in}	LA10	LA90	Comments
3	51.7	50.2	55.0	55.8	53.3	Main artery road

5	52.3	53.7	57.9	59.3	56.8	Mainly general traffic noise with occasional lorry for construction site Laeq Avg 23.00 hr : 7.00 hr = 52.3 dB Laeq Avg 7.00 hr : 23.00 hr = 65.7 dB Laeq Avg = 64.1 dB
7	62.3	71.6	57.9	69.8	59.2	
9	69.2	82.4	66.1	79.5	65.1	
11	66.0	75.9	63.7	73.3	58.0	
13	71.6	79.5	64.9	74.0	66.3	
17	71.0	81.0	65.5	73.3	65.7	
21	63.5	64.5	59.1	67.7	60.4	
23	56.1	62.3	56.8	64.9	56.8	
1	53.0	55.9	55.6	61.4	53.3	
Avg	64.1	71.6	61.2	70.5	60.6	

Table 9.5: Survey station 2 monitoring data.

Station 2						R139
Time	LAeq	LAm _{ax}	LAm _{in}	LA10	LA90	Comments
3	52.6	50.4	55.3	56.1	53.5	Main artery road Mainly general traffic noise with occasional lorry for construction site Laeq Avg 23.00 hr : 7.00 hr = 53.2 dB Laeq Avg 7.00 hr : 23.00 hr = 66.0 dB Laeq Avg = 64.5 dB
5	53.2	54.0	58.2	59.6	57.1	
7	62.6	72.0	58.2	70.1	59.5	
9	69.5	82.8	66.4	79.9	65.4	
11	66.4	76.3	64.0	73.6	58.3	
13	72.0	79.9	65.2	74.3	66.6	
17	71.4	81.3	65.8	73.6	66.0	
21	63.9	64.8	59.4	68.0	60.7	
23	56.3	62.6	57.1	65.2	57.1	
1	53.8	56.2	55.9	61.7	53.5	
Avg	64.5	72.0	61.5	70.8	60.9	

9.3.6 Basic Noise Measurement Overview

For both survey stations the daytime and night time noise levels were reasonably high in line with traffic noise from a major traffic corridor. During daytime periods average ambient noise levels were in the range 56 to 72dB LAeq Average background noise levels were in the range 52 to 54dB LA90 and average LA10 values, typically used to describe traffic noise were in the range 56 to 74dB, indicating that most of the measured noise levels would have arisen from traffic noise.

9.3.7 Back-ground Vibration Survey

Only minor vibration was observed during the noise measurements and therefore it has not been considered necessary to undertake baseline vibration monitoring as there is no evidence to suggest that existing receptors are currently affected by appreciable environmental vibration.

9.4 Characteristics of the Proposed Development

The proposed development consists of 2,527 no. residential units comprising houses, apartments and duplex units, 2 no. childcare facilities; 1 no. sports changing facilities building; 3 no. cafés/restaurants; 18 no. retail/commercial units; and all associated engineering and site works necessary to facilitate the development.

Table 9.6 : Project accommodation schedule.

Phase	Council	Type	1 bed unit	2 bed unit	3 bed unit	4 bed unit	Total type	Sub total	Total
Phase SHD 1	FCC	Houses	0	9	194	40	243	774	1504
		Duplex units	4	0	112	0	116		
		Apartments	174	233	8	0	415		
	DCC	Houses	0	0	0	0	0	730	
		Duplex units	0	0	0	0	0		
		Apartments	261	388	81	0]		
Phase SHD 2	FCC	Houses	0	7	117	18	142	345	630
		Duplex units	0	0	68	0	68		
		Apartments	55	75	5	0	135		
	DCC	Houses	0	0	0	0	0	285	
		Duplex units	0	0	0	0	0		
		Apartments	70	178	37	0	285		
Phase SHD 3	FCC	Houses	0	0	74	14	88	178	393
		Duplex units	20	40	30	0	90		
		Apartments	0	0	0	0	0		
	DCC	Houses	0	0	0	0	0	215	
		Duplex units	0	0	0	0	0		
		Apartments	56	131	28	0	215		
Total for all SHD Phases:								2527	

9.5 Potential Impact of the Proposed Development

The anticipated noise impacts on the surrounding environment must be considered for both the short-term impact of the construction phase and the operational phase.

9.5.1 Construction Phase

Short-term noise impacts are only to occur during the construction phase of the development due to the requirement to use plant and machinery on and to the construction site. In the absence of specific construction information regarding the construction stage, construction noise impacts cannot be fully quantified at this point, therefore sample calculations have been provided. Minor short-term vibration impacts may occur during the construction phase as a result of the use of heavy plant and machinery; however, these impacts will be unlikely to propagate beyond the construction site boundary.

9.5.2 Operational Phase

As per measured noise level data the main potential noise source that would be evident during the operational phase of the development would be that of increased road traffic noise associated with the subject site. In general, this can be categorised as:

- Residents small vehicular traffic in and out of the development site.
- Delivery and service vehicles servicing the dwelling houses.
- General activities, landscape maintenance, cleaning, energy producing equipment etc.
- Vibration is not anticipated to be a contributing factor in the operational phase.

9.6 Predicted Impact of the Proposed Development

9.6.1 Construction Noise

Using the method outlined in BS5228, a worst case LAeq value at potential NSRs at distances of 100m, 150m, 200m and 250m have been calculated for a range of construction plant. The following plant has been applied to give an example of the potential construction noise levels:

- Heavy delivery trucks.
- Ground works excavators.
- Noisy construction plant (mixers, vibrators).

We have used BS 5228-1:2009+A1: 2014 to anticipate/calculate the construction noise levels in the proposed development. This methodology relates to the method for construction vehicles/plant in a defined construction area. The prediction of the LAeq from construction plant operating over a small area or on site can be used for other activities when items of construction plant are operating in close proximity to the reception point, taking into account the adjustment of the predicted LAeq for standing and idling time of the plant. It is assumed that over a 1-hour period, all construction plant will be operational for 80% of the time. The results of these calculations are presented in the tables below.

Table 9.7: Typical heavy construction equipment noise levels.

Noise Source	Sound Power LWA dB
Heavy delivery truck	102
Ground works excavator	100
Noisy construction plant (mixers, vibrators)	106

Table 9.8: Calculated predicted noise levels at fixed distances.

Distance of Potential NSR from construction site	Calculated predicted Noise levels at NSR LAeq dB	BS5228-1 (2009) maximum recommended Noise levels	
		Monday-Friday (07.00–19.00)	Saturday (07.00–13.00)
100m	59	70	65
150m	56		
200m	53		
250m	51		

As most of the construction sites will generally be within 100m of an occupied building the results of the indicative construction calculations shows that the resultant LAeq (1 hour) values of using such construction plant and vehicles would be in the region of 59db LAeq and below the maximum allowable day time ambient level of 70dB LAeq. BS5228-1 (2009) +A1: 2014 specifies that a daytime limit of 70dB LAeq shall apply on weekdays and a daytime limit of 65dB LAeq shall apply on Saturday.

The ambient noise levels at the nearest noise measurement location with construction noise (NSR2) are comfortably below the BS5228-1 limits and will be short-term in duration also. The construction phase generally has no noticeable change on the noise environment in the longer term.

9.6.2 Construction Vibration

We only anticipate minor temporary ground borne vibration events during the construction phase, but the exact impact of these vibration impacts cannot accurately be quantified.

9.6.3 Operational Noise

The anticipated noise impacts from the overall development during its operational phase will mainly be as a result of increased small vehicle traffic flows along the incoming and outgoing routes into the proposed development site. It is anticipated that the additional road traffic noise attributable to the development (cumulatively with existing Road traffic will result in a fractional increase in the baseline noise environment. For this report we have anticipated the 45% of the development traffic will use the R139 and 55% of the development traffic will use the extended Balgriffin road (R123).

Table 9.9 : Station 1 current and predicted ambient noise levels as a result of increased traffic.

Station 1				Noise Impact assessment significance	EPA noise Impact guideline	Malahide rd/ Balgriffin Rd
Time	LAeq	Laeq P	+ / -			Comments
3	51.7	52.5	0.77	Minor	Slight	The predicted increase in noise level varies from 0.25 to 0.84 dB or an average increase of 0.64 dB
5	52.3	53.5	1.15	Minor	Slight	
7	62.3	62.9	0.62	Minor	Slight	
9	69.2	69.8	0.69	Minor	Slight	
11	66.0	66.7	0.66	Minor	Slight	
13	71.6	72.4	0.72	Minor	Slight	
17	71.0	71.7	0.71	Minor	Slight	
21	63.5	64.2	0.64	Minor	Slight	
23	56.1	56.3	0.25	Minor	Slight	
1	53.0	53.8	0.84	Minor	Slight	
Avg	64.1	64.7	0.64	Minor	Slight	

Table 9.10 : Station 2 current and predicted ambient noise levels as a result of increased traffic.

Station 2				Noise Impact assessment significance	EPA noise Impact guideline	R139
Time	LAeq	Laeq P	+ / -			Comments
3	52.6	52.7	0.15	Minor	Slight	The predicted increase in noise level varies from 0.22 to 0.72 dB or an average increase of 0.57 dB
5	53.2	53.7	0.53	Minor	Slight	
7	62.6	63.2	0.63	Minor	Slight	
9	69.5	70.2	0.69	Minor	Slight	
11	66.4	67.0	0.66	Minor	Slight	
13	72.0	72.7	0.72	Minor	Slight	
17	71.4	72.1	0.71	Minor	Slight	
21	63.9	64.5	0.64	Minor	Slight	
23	56.3	56.6	0.25	Minor	Slight	
1	53.8	54.1	0.22	Minor	Slight	
Avg	64.5	65.0	0.57	Minor	Slight	

The calculated predicted increase in noise levels as a result of the proposed development nearly all residential traffic noise varies from 0.22 to 0.72 dB for station 2 (R139) and from 0.25 to 0.84 dB for station 1 (extended R123).

The change in noise levels and the significance of such changes can be categorised by the Guidelines for Noise Impact Assessment, Institute of Environmental Management and Assessment and EPA. The previous table 9.1 details the impact/category.

Based on this table the anticipated increase in noise levels for the operational noise impact to be categorised as “Minor” and ‘Slight’ at the worst case. The increase in traffic associated with the proposed development scheme is therefore not expected to give rise to any significant noise nuisance in the area. We note that as part of the Government Climate Change action plan that petrol and diesel passenger vehicles are being phased out and replaced by quieter electric vehicles eventually leading to less operational noise.

9.6.4 Operational Vibration

Operational vibration is deemed not to have any noticeable impacts on the development.

9.7 Remedial and Reductive Measures

DKPEV do not anticipate the requirement of any remedial measures but list the following recommendations mainly for the construction sites;

- Ensure that the local authority guidelines or planning directives to noise levels and operational times are adhered to.
- Prepare a construction phase operational plan with regards to limiting noise nuisance.
- Ensure all construction vehicles and plant are regularly maintained including any noise control measures such as attenuators, filters etc.
- Limit any construction noise spreading to neighbouring site by erecting temporary noise barriers (site boundary hoarding).
- Schedule particular high-level noise activities for times when increased noise levels are less sensitive or notify neighbouring residents or any sensitive sites.

9.8 Monitoring

No noise monitoring is deemed necessary for the operational phase however noise monitoring will most likely be a requirement as directed by the local authority for the construction phase based on the local authorities imposed limits on the hours of operation and noise limits. No vibration monitoring is deemed necessary for both the operational and construction phase.

9.8.1 Interactions

The main interactions relating to noise and vibration are population and human health and transportation.

9.9 Cumulative effects.

For the cumulative effect we have taken in account planning permissions in neighbouring areas totalling 1136 no. units. These arise out of details gathered from Fingal County Council, Dublin City Council and An Bord Pleanála as listed in the table below.

Table 9.11 : Synopsis of planning permissions in neighbouring areas

Reg. Ref.	Location	Description	Decision
Reg.Ref. F05A/1388	Belcamp College, Malahide Road, Balgriffin, Dublin 13.	Planning permission was granted for alterations to Belcamp hall for residential use. Equivalent no units : 25	Permission
Reg.ABP Ref. PL06F. 248052)	Belcamp, Malahide Road, Dublin 17.	Residential development at Belcamp. Permission was granted for 175 residential dwellings and apartment units. Equivalent no units : 175	Permission
F18A/0167	Campions Public House, its carpark and lands to its rear, Malahide Road, Balgriffin, Co. Dublin.	Modifications to previously granted planning application Reg. Ref. F15A/0093 (An Bord Pleanála Ref. No. PL06F.245710) Equivalent no units : 13	Permission
F18A/0554	Adjacent to Champions Public House, Malahide Road, Balgriffin, County Dublin	Demolition of existing single storey commercial building and construction of new two storey building, Equivalent no units : 4	Permission
Reg.Ref. F18A/0058	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052, at Belcamp, a protected structure (RPS No. 463), Equivalent no units : 0	Permission
Reg. Ref. F19A/0220	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted developments Reg. Ref. F15A/0609, PL06F.248052 and F18A/0058 Equivalent no units : 89	Permission
Reg. Ref. F19A/0221	Belcamp, Malahide Road, Dublin 17.	Revisions to layout and house types of 49 no. two storey houses Equivalent no units : 49	Permission
Reg. Ref F21A/0401	Lands at Belcamp Hall, Malahide Road, Dublin 17	Planning permission was granted by Fingal County Council for Equivalent no units : 78	Permission
F21A/0390	The former Champions Public House, Malahide Road, Balgriffin, Co. Dublin.	Modifications to a previously granted planning application Reg. Ref. F18A/0167. .Equivalent no units : 1	Permission
Reg. Ref F21A/0488	Belcamp Hall, Malahide Road, Dublin 17.	Development on lands at Belcamp consisting of the construction of 77 no. residential units Equivalent no units : 77	Permission
ABP Ref. PL06F.248052.	Belcamp North	Total of 40 units, a childcare facility, conservation works to the Walled Garden and café; Equivalent no units : 45	Permission
Reg. Ref. F18A/0167,	Belcamp	Campions has planning permission for a total of 54 no. residential units. Equivalent no units : 54	Permission
	eastern side of the Malahide Road, known as 'Parkside'	approximately 185 no. residential units on a site extending to c.3.1 hectares Equivalent no units : 185	Permission
Reg. Ref. 3238/17	Malahide Road, Churchwell Avenue and Belmayne Road, Ayrfield, Dublin 13	This development comprises 150 apartment units approved under Part VIII. Equivalent no units : 150	Permission
Reg. Ref. 2600/20	Belmayne Avenue	Permission has been granted for 2 no. schools – a temporary post primary and primary school. Equivalent no units : 0	Permission
ABP-307887-20	Northern Cross SHD Mayne River Avenue	Strategic Housing Development under for 191 no. apartments and associated site works Equivalent no units : 191	Permission
		Overall equivalent no units : 1136	

Construction phase

The construction noise/vibration assessment in the previous sections represents the worst-case scenarios and it is very unlikely that the same noise/vibration event would happen to coincide at the same time of other potential developments giving rise to a theoretical increase in predicted noise levels. However, the impact of any predicted cumulative noise or vibration levels on nearby sensitive receptors is assumed not to exceed the worst-case scenario and is temporary and deemed not significant.

Operational phase

The anticipated noise impacts from the development during the operational phase will mainly be as a result of increased vehicle traffic flows along the incoming and outgoing routes into the proposed development site. It is anticipated that additional road traffic noise attributable to the overall masterplan will result in an increase in the baseline noise environment. The change in noise levels and the significance of such changes can be categorised by the Guidelines for Noise Impact Assessment, Institute of Environmental Management and Assessment.

Whereas not all 1136 no. units will add to noise level changes through the 2 no. survey point we non-the-less calculated the predicted increase in noise levels by adding the full 1136 to both station data resulting in an increase of 34.7% to the new proposed development noise level increase noted in tables 9.9. and 9.10. This means a cumulative increase varying from 0.29dB to 0.96dB for station 2 (R139) and from 0.33dB to 1.12dB for station 1 (extended R123).

Based on these guidelines the anticipated increase in noise levels are categorised as 'Slight' at the worst case. The increase in traffic associated with the proposed development scheme together with other potential developments is therefore not expected to give rise to any significant noise nuisance in the area. We note that as part of the Government Climate Change action plan that petrol and diesel passenger vehicles are being phased out and potentially replaced by quieter electric vehicles eventually leading to less operational noise.

Traffic/transportation has been identified as the only likely source of vibration during the operational phase of the scheme. In the case of nominally continuous sources of vibration, such as traffic, vibration is perceptible at around 0.5 mm/s PPV and may become disturbing or annoying at higher magnitudes. There may, in theory, be a small increase (+/-10%) in vibration levels as a result of increased traffic from the other potential developments, however, it would still be appropriate to assume that negligible vibration impacts will occur during the operation and no further assessment is deemed to be required. The cumulative noise / vibration impact is determined to be not significant.

10.0 CLIMATE

10.1 Introduction

Chapter 10 of this Environmental Impact Assessment has been prepared by DKP Environmental (DKPEV) and assesses the effects of the proposed development on Carbon Dioxide (CO₂) emissions effecting the current climatic conditions. The proposed development consists of 2,527 no. residential units comprising houses, apartments and duplex units, 2 no. childcare facilities; 1 no. sports changing facilities building; 3 no. cafés/restaurants; 18 no. retail/commercial units; and all associated engineering and site works necessary to facilitate the development. This section will identify and assess the impact of the proposed development in terms of CO₂ emissions during the construction phase and when in full operational use. We note that although the construction phase contributes to CO₂ emissions through the type of construction methods, choice of materials, transport / traffic requirements etc its impact compared with the operational use is minimal. This assessment was prepared in accordance with the EIA Directive 2014/52/EC and current EPA guidelines.

10.2 Research Methodology

CO₂ is the largest and most important contributor to climate change. Methane, nitrous oxide, other gases, and ozone are also important greenhouse gases. CO₂ is particularly important owing to its role in the global carbon cycle, which is central to life on Earth. This cycle is being significantly disrupted by the combustion of fossil fuels. Consequently, CO₂ is accumulating in the atmosphere, where it is the key driver of global climate change. It is difficult to accurately apportion any increase in CO₂ emissions as a result of the proposed development at Belcamp to any specific climate impacts other than noting that any increase large or small will more than likely also effect the climate or climate change.

We have therefore concentrated the report on the proposed development's CO₂ emission impact and methods to reduce this to a minimum on both the construction and operational stages in line with Ireland's National Policy Position on 'Climate Action and Low Carbon Development'.

10.2.1 Climate Policy

The National Policy Position on Climate Action and Low Carbon Development was published in April 2014 but was updated with the government's latest plan in January 2021. The policy sets a fundamental national objective to achieve transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. The National Policy Position envisages that development of National Mitigation Plans will be guided by a long-term vision of low carbon transition based on aggregate reduction in CO₂ emissions of at least 80% compared to 1990 levels by 2050 across the construction and transport section relative to this planning application.

10.2.2 Transport

Transport / road transport is currently the second largest contributor of greenhouse gas emissions (after agriculture) at +/- 20%. Between 1990 and 2015, the transport sector showed the greatest overall increase of +/- 130% and increases are linked to economic prosperity with year-on-year

increases observed up to 2007 followed by six years of year on year decrease during the economic downturn.

The latest EPA projections from ‘An Integrated Assessment 2020’ state greenhouse gas emissions from transport accounted for 20.3 per cent of Ireland’s total national emissions in 2019. EPA projections indicate that transport emissions are projected to decrease by 38.6 per cent over the period 2021-2030 to 7.6 Mt CO₂ eq under the ‘with additional measures’ scenario, which assumes that 936,000 electric vehicles, including approximately 840,000 passenger cars, will be on the road by 2030.

10.2.3 Residential

Emissions from the residential sector have fluctuated in the period 1990 to 2015 but overall, the 2015 emissions are +/- 20% lower than their 1990 level. Initially there was a sharp reduction in emissions in the early 1990’s from residential fuel switching to cleaner fuels. The increase in housing stock drove a gradual upward trend in the emissions from the residential sector after 1998 to reach a peak in 2010. For the residential sector under the various (energy reduction) schemes the CO₂ emissions are targeted to be reduced by 60% for new dwellings mainly through the implementation of the new Nearly Zero Energy Building (NZEB) regulations (Part L 2017 for non-residential units and Part L 2019 for residential units) and increased use of renewable energy.

The latest EPA projections from ‘An Integrated Assessment 2020’ state emissions are projected to decrease by 52.4 per cent between 2021 and 2030 to 2.9 Mt CO₂ eq under the ‘with additional measures’ scenario. This scenario assumes full implementation of the measures in Ireland’s Climate Action Plan, including upgrades to homes and significant supports for heat pumps.

10.3 Receiving Environment

The proposed development site at Belcamp is located off the Malahide Road in Balgriffin in the northern suburbs of Dublin. Balgriffin lies within southern Fingal in the traditional County Dublin and it is partly in the jurisdiction of Dublin City Council and partly that of Fingal County Council, situated approximately 8km from Dublin city centre. The site is approximately 7km from Dublin Airport. The proposed development site at Belcamp borders existing agricultural open fields to the north and west. Located east are business / office units. Located south is the R139 with existing residential estates further south.

10.3.1 Average unit size approach

To get the overall project emissions correctly calculated we have applied construction and operational emissions rates (CO₂/m²) on the project’s average unit size representing the average unit floor area, exposed floor area, exposed façade (wall) area, exposed roof area, glazed area, orientation, etc of the total no. of 2527 units.

Table 10.1: Project accommodation schedule.

Phase	Council	Type	1 bed unit	2 bed unit	3 bed unit	4 bed unit	Total type	Sub total	Total
Phase SHD 1	FCC	Houses	0	9	194	40	243	774	1504
		Duplex units	4	0	112	0	116		
		Apartments	174	233	8	0	415		

Phase	Council	Type	1 bed unit	2 bed unit	3 bed unit	4 bed unit	Total type	Sub total	Total
	DCC	Houses	0	0	0	0	0	730	
		Duplex units	0	0	0	0	0		
		Apartments	261	388	81	0]		
Phase SHD 2	FCC	Houses	0	7	117	18	142	345	630
		Duplex units	0	0	68	0	68		
		Apartments	55	75	5	0	135		
	DCC	Houses	0	0	0	0	0	285	
		Duplex units	0	0	0	0	0		
		Apartments	70	178	37	0	285		
Phase SHD 3	FCC	Houses	0	0	74	14	88	178	393
		Duplex units	20	40	30	0	90		
		Apartments	0	0	0	0	0		
	DCC	Houses	0	0	0	0	0	215	
		Duplex units	0	0	0	0	0		
		Apartments	56	131	28	0	215		
Total for all SHD Phases:								2527	

Table 10.2: Project unit breakdown and average unit size data.

Unit type	Qty	Area	Avg size
Houses	473	66250	140.1
Duplexes	274	28210	103.0
Apartments	1780	138822	77.99
Average project unit	2527	233282	92.32

Both the Fingal FCC lands and Dublin DCC lands applications have a small element of commercial within the proposals however as this represents approximately 1.8% of the total floor area and will not affect the overall CO₂ emission calculations by any margin it was for this purpose of this report omitted.

10.4 Potential CO₂ Emission Effect

The CO₂ impact in this development is affected by the construction phase and operational residential phase with the latter dominating the emissions. In essence any new development will add to existing CO₂ emissions until we have managed to construct & operate at zero emissions however in the meantime it is key to limit the additional CO₂ emissions to a minimum.

10.4.1.1 The construction phase base line

The base line construction transport CO₂ data is based on an average distance of vehicular movement of HGV's (50%), LGV's (35%) and private cars (15%) with a combined average carbon output of 255 gr/km/CO₂ taken from the Irish Construction Federation statistics resulting in emission totalling +/- 1100 kg CO₂ for the construction period.

The base line embodied CO₂ data is taken from the data base available from the university of Bath CO₂ embodied carbon dioxide tables with a typical average residential unit (92.32m²) to embody +/- 23,500 kg CO₂ using typical traditional building materials.

Table 10.3: Construction phase base line CO₂ emissions

Construction phase base line CO ₂ emissions	Single unit emission rate kgCO ₂ /m ²	Single unit emissions ton-CO ₂
Construction transport	35.0	3.23
Construction embodied CO ₂	255	23.5
Total impact	290	26.8

From the table above we note the total baseline construction emissions to be 26.8 tonCO₂ for the single unit. This is made up of 3.2 tonCO₂ or 12.1%, for the transport element and 23.5 tonCO₂ for the or 87.9% for the embodied carbon dioxide element.

10.4.2 Operational Phase

The operational phase of the buildings also has 2 no typical CO₂ emission sources: Transport and energy mainly for heating/hot-water use. During the operational phase a residential development emits CO₂ through vehicular traffic into and out of the development and energy usage within the buildings. Vehicular impact is mainly addressed using a predicted traffic count based on general transport use for a residential development taking in account any proposed central locations for schools, social / recreational spaces, and the inclusion of options for pedestrian and bicycle movement with a view to encouraging public transport.

We note that the Governments Climate Change policy sets out to phase out petrol and diesel cars by 2030 hence this will result in a significant CO₂ reduction it is envisaged at least 936,000 electric vehicles, both passenger and commercial, will be on the road by 2030 with additional charging infrastructure to cater for planned growth.

Transport emissions from the residential sector have fluctuated in the period 1990 to 2015 but overall, the 2015 emissions are +/- 20% lower than their 1990 level. Initially there was a sharp reduction in emissions in the early 1990's from residential fuel switching to cleaner fuels. The increase in housing stock drove a gradual upward trend in the emissions from the residential sector after 1998 to reach a peak in 2010.

CO₂ emissions from energy supplies to buildings is the more significant part of the overall operational development operational contribution. The main energy supply CO₂ emissions in residential developments come from providing space heating and domestic hot-water heating. In recent years great strides have been made with regards to reducing energy for space heating using efficient technologies (heat pumps, photovoltaic solar panels) however hot-water heating is determined mainly by its use and therefore reductions are harder to achieve.

The operational phase of a building is much longer than the construction phase with the standard building life cycle period of 60 years. As a result of the much longer operational phase any reductions made to this have significant impacts on the CO₂ emissions over the life cycle period of the building.

10.4.2.1 Operational Phase base line

The base line construction transport CO₂ data for residential vehicular movement CO₂ emissions are based on an average of 10,000km/year per residential unit with a current vehicular output of 175 gr/km to represent private and LGV's manufactured between 2005 and 2022.

The base line CO₂ emissions from energy supplies to buildings is the more significant part of the overall development's operational phase contribution. Using the national DEAP software the CO₂ emissions attributed to energy supplies for the average project reference unit are calculated to represent a Part L 2019 compliant unit using the minimum requirements.

Table 10.4: Operational phase base line CO₂ emissions.

Operational phase base line CO ₂ emissions.	Single unit emission rate kgCO ₂ /m ²	Single unit annual emission ton-CO ₂	Single unit life cycle emission ton-CO ₂
Transport	14.3	1.32	79.2
Energy (heat & hotwater)	32.1	2.96	177.7
Total impact	46.4	4.28	256.9

From the table above we note the total baseline **annual** operational emissions of 4.3 tonCO₂ for the for the single unit. This is made up of 1.3 tonCO₂ or 30.8%, for the annual transport element and 3.0 tonCO₂ or 69.2% for the annual energy supply CO₂ element.

For the single unit overall **life cycle** emissions this is 79.2 tonCO₂ for the transport element and 177.7 tonCO₂ for the energy supply related element with a combined total emission of 256.9 tonCO₂

10.4.2.2 Irelands National current annual base line

Irelands current national base line taken from the EPA 2020-2040 Irelands Greenhouse Gas report issued June 2020. Nb; the data is given below is in Mton representing 1,000,000 (mega) ton.

Table 10.5: Ireland's 2022 base line CO₂ emissions.

Project CO ₂ emission impact on National emissions	National total emissions Mt-CO ₂ /yr	Transport emissions Mt-CO ₂ /yr	Residential emissions Mt-CO ₂ /yr
2022	60	11	7.5

10.5 Minimising CO₂ Emissions

The following sections are reduction measures implemented in the project's CO₂ emission calculations to illustrate the effects of such reductions on the environment.

10.5.1 Construction phase transport

CO₂ reduction measures to minimise impacts from transport during the construction phase include the following:

- Local sourcing of construction materials such as the recycling of material from excavations for reuse on site.
- Implementation of the Traffic Management Plan to minimise congestion and queuing, reduce distances of deliveries and eliminate unnecessary loads.
- Reducing the idle times by providing an efficient material handling plan that minimises the waiting time for loads and unloads. Reducing idle times could save up to 10% of total emissions during construction phase.
- To turn off engines when machinery is not required to operate in the relative short term unless this is an issue for security or functionality reasons.
- Periodic maintenance of plant and equipment.
- Technical inspection of vehicles to ensure they will perform the most efficiently.
- Possible use of electric construction equipment / vehicles

10.5.2 Construction phase Embodied CO₂

Embodied CO₂ is the amount of carbon dioxide a material emits to the environment per unit (weight / volume) including its exploration, manufacturing process, transport to site, its 60-year use and end-of-life requirements also known as the Cradle-to-Grave impact. Embodied CO₂ is attributed to all materials to be used on site and by minimising or avoiding certain materials the impact on CO₂ emissions can be reduced by:

- Increasing the use of locally available recycled materials.
- Reducing the use of materials with a high embodied CO₂ element.
- Increasing the use of “green” concrete (Granulated Blast Furnace Slag to replace Portland cements as the latter has significant embodied CO₂.)
- Reducing the use of metals. Metals generally contain the highest embodied CO₂ element of all materials mainly due to their exploration and manufacturing processes.

10.5.3 Operational phase transport

Transport emissions personal and delivery vehicles are being reduced through EU and national initiatives and regulation on a continuous basis. CO₂ emissions from cars are regulated through EU legislation which sets statutory maximum emission targets for new vehicles currently set to achieve an average of 95 grams of CO₂ per km in 2022. The following is applied to lower CO₂ emissions as a result of transport:

- Encourage the use of electric cars.
- Encourage the use of new low CO₂ petrol cars.
- Utilise available fiscal measures for the use of electric vehicles or renewable fuels.
- Design and plan the overall project in such manner as to encourage walking and cycling.
- Design and plan certain required facilities like schools, medical centres, shopping areas recreational spaces, within the development to lower the need to use motorised vehicles.

- Design and plan public transport routes throughout the development to encourage the use of public transport.

10.5.4 Operational phase energy CO2 Emissions

Under the new building regulation requirements (NZEB), in not so many words, the electrical and thermal energy systems in buildings must be designed and constructed to deliver at least a 70% primary energy reduction and a 60% CO₂ reduction over the Part L reference dwelling and have at least 20% primary energy equivalent energy coming from on-site produced renewable energy. To achieve these reductions to following outline specification can be applied:

- Ground floors: $U \leq 0.110 \text{ W/m}^2\text{K}$
- External walls: $U \leq 0.150 \text{ W/m}^2\text{K}$
- Party walls: $U = 0.0 \text{ W/m}^2\text{K}$ (solid party wall)
- Roofs: $U \leq 0.125 \text{ W/m}^2\text{K}$
- Window & frame: $U \leq 1.20 \text{ W/m}^2\text{K}$, Solar transmittance ≤ 0.64
- External (unglazed) door & frame: $U \leq 1.2 \text{ W/m}^2\text{K}$
- Cold bridging: $U \leq 0.08 \text{ W/m}^2\text{K}$ special construction joints applied.
- Thermal mass: TP250
- Ventilation: Humidity controlled natural ventilation / intermittent extracts or full MVHR.
- Air tightness: Design assumption $\leq 2.75 \text{ m}^3/\text{m}^2\cdot\text{h}$
- Lighting: 100% LED
- Controls: Time clock/ thermostatic control for each separate heating/hot-water zone
- Circulation pumps: Class A variable speed pump
- Heating / hot-water system: Air source heat pump / exhaust air heat pump.
- Renewable energy: Air source heat pump / exhaust air heat pump.

10.6 Effects of reductions measures

Applying the reduction measures listed in sections 10.5.1,-2,-3,-4 has reduced the base line CO₂ emissions for both the construction and operational phase. The following tables represent the baseline and reduced emission data for the single average unit and for the proposed total combined number of residential units tabled below.

10.6.1 Construction phase

Table 10.6: Construction phase base line CO₂ emissions and effects of reductions.

Construction phase base line CO ₂ emissions and effects of reductions	Single unit emission rate kgCO ₂ /m ²		Single unit emissions ton-CO ₂		2527 units emissions ton-CO ₂	
	baseline	reduced	baseline	reduced	baseline	reduced
Construction transport	35.0	30.7	3.23	2.8	8165	7165
Construction embodied CO ₂	255	212	23.5	19.6	59490	49525
Total impact	290	243	26.8	22.4	67655	56690

From the table above we note a total reduction of 4.3 tonCO₂ for the single unit and 10,965 tonCO₂ for the combined total of 2527 units representing an overall reduction of 16.2% for the construction phase. This was achieved by a 12.3% reduction on transport and 16.8% on embodied CO₂. Total final emissions for the construction phase are 22.4 tonCO₂ for the single unit and 56,690 tonCO₂ for the combined total of 2527 units.

10.6.2 Operational phase

Table 10.7: Operational phase base line CO₂ emissions and effects of reductions.

Operational phase base line CO ₂ emissions and effects of reductions.	Single unit emission rate		Single unit annual emission		2527 units annual emission		Single unit life cycle emission		2527 units life cycle emission	
	kgCO ₂ /m ²		ton-CO ₂ /yr		ton-CO ₂ /yr		ton-CO ₂		ton-CO ₂	
	baseline	reduced	baseline	reduced	baseline	reduced	baseline	reduced	baseline	reduced
Transport	14.3	12.5	1.32	1.15	3336	2906	79	69	200165	174384
Energy (heat & hotwater)	32.1	7.4	2.96	0.68	7485	1726	178	41	449127	103534
Total impact	46.4	19.9	4.28	1.83	10822	4632	257	110	649292	277918

From the table above we note a total **annual** reduction of 2.4 tonCO₂ for the single unit and 6,190 tonCO₂ for the combined total of 2527 units representing an overall reduction of 57.2% for the operational phase. This was achieved by a 12.9% reduction on transport and 76.9% on energy supply CO₂. Total final annual emissions for the operational phase are 1.8 tonCO₂ for the single unit and 4,632 tonCO₂ for the 2527 units.

Total final **life cycle** emissions for the operational phase are 110.0 tonCO₂ for the single unit and 277,918 tonCO₂ for the 2527 units. Total life cycle operational CO₂ emissions reduction achieved is 371,374 tonCO₂ which represent a significant reduction.

10.7 National 2022 and 2030 CO₂ emissions

The impact on Irelands current and 2030 predicted CO₂ emissions are based on the EPA data issued in their “Greenhouse Gas Emissions projection report 2020-2040” report. For this chapter we have targeted the current and 2030 data being the first major milestone for European. The emissions are expressed in Mt or one million (Mega) tons.

Table 10.8: National overall CO₂ emissions in 2022 and 2030.

Project CO ₂ emission impact on National emissions	National total emissions Mt-CO ₂ /yr	Transport emissions Mt-CO ₂ /yr	Residential emissions Mt-CO ₂ /yr
2022	60	11	7.5
2030	58	11	4.6
2030 = additional measures	47.5	9.0	3.8

10.7.1 Proposed development CO₂ emissions

Using the final emission data from tables 10.6 and 10.7 we have combined the construction and operational CO₂ emissions for comparison with the National CO₂ emissions using the same unit rate (Mt-CO₂/year). For the purpose of this chapter and calculation of CO₂ impacts we assumed the construction phase to be executed in one year (2022). This is not likely to be executed in this manner but it represents the worse scenario for this comparison.

Table 10.9: Proposed project CO₂ emissions in 2022 and 2030.

Total project annual CO ₂ emissions	2527 units construction Mt-CO ₂	2527 units operational Mt-CO ₂ /yr	2527 units combined Mt-CO ₂ /yr
2022	0.05669	0.00463	0.06132
2030	0.00000	0.00463	0.00463

We note the 2030 operational emissions to be taken at the same value as the 2022 emissions whereas in real terms the 2030 emissions will be lower to some degree as a result of the government's target to de-carbonising the national electricity supply grid.

10.7.2 Effects of the proposed project CO₂ emissions on the national emissions

Using the data from tables 10.5 and 10.6 we have calculated to CO₂ emissions from the proposed project and compare these with the National (EPA) listed emissions for 2022 and 2030.

Table 10.10: Effect of proposed project CO₂ emissions on national emissions in 2022 and 2030.

Project CO ₂ emission impact on National emissions	National emissions Mt-CO ₂ /year	2527 units emissions Mt-CO ₂ /yr	fraction %
2022	60.0	0.06132	0.10220
2030	58.0	0.00463	0.00799
2030 + additional measures	47.5	0.00463	0.00975

The national impact;

The impact of this 2527 unit development/phase of 0.06132 MtCO₂ on Ireland's current emissions (2022) of 60 MtCO₂/year represents an increase of 0.10220%. The impact of this 2527 unit development/phase of 0.00463 Mt-CO₂ on Ireland's projected 2030 emissions of 58 Mt- CO₂/year represents an increase of 0.00799%. The impact of this 2527 unit development/phase of 0.00463 Mt- CO₂ on Ireland's projected 2030 plus additional measures emissions of 47.5 Mt- CO₂/year represents an increase of 0.00975%.

Based on the above findings we note the impacts on the national CO₂ emission at worse to be very fractional. CO₂ emissions from the construction and operational phase have been reduced to a minimum and the impact on National emissions for the construction phase are therefore deemed to be imperceptible and short term and for the operational phase to be deemed imperceptible and long term both in 2022 and 2030.

Any new development in essence will increase CO₂ emissions to the national and global environment however by introducing the reduction measures at design stage the increase has been kept to a reasonable minimum.

10.8 Mitigation measures

There are no particular mitigation measures noted. All the recommended reduction measures at design stage and as applied in the CO₂ reduction tables are for the greater part mandatory to comply to the relevant regulations and standards. As each development/building can only be certified for compliance under the Building Control Amendment Regulations (BCaR) if the minimum criteria set at design stage is met in full it is very unlikely that noncompliance i.e., mitigation occurs.

10.8.1 Monitoring

Construction phase: No CO₂ monitoring is deemed necessary for the construction phase as the CO₂ output / emission is relatively small and the duration of the construction phase is short-term.

Operational phase: No CO₂ monitoring is deemed necessary for the operational phase as the current and future mandatory CO₂ reduction requirement (BER) are a secure process to ensure compliance.

10.8.2 Interactions

The main interactions relating to climate are population and human health and transportation.

10.9 Cumulative effects

For the cumulative effect we have taken in account planning permissions in neighbouring areas totalling 1136 no. units. These arise out of details gathered from Fingal County Council, Dublin City Council and An Bord Pleanála as listed in the table below.

Table 9.11: Synopsis of planning permissions in neighbouring areas

Reg. Ref.	Location	Description	Decision
Reg.Ref. F05A/1388	Belcamp College, Malahide Road, Balgriffin, Dublin 13.	Planning permission was granted for alterations to Belcamp hall for residential use. Equivalent no units : 25	Permission
Reg.ABP Ref. PL06F. 248052)	Belcamp, Malahide Road, Dublin 17.	Residential development at Belcamp. Permission was granted for 175 residential dwellings and apartment units. Equivalent no units : 175	Permission
F18A/0167	Campions Public House, its carpark and lands to its rear, Malahide Road, Balgriffin, Co. Dublin.	Modifications to previously granted planning application Reg. Ref. F15A/0093 (An Bord Pleanala Ref. No. PL06F.245710) Equivalent no units : 13	Permission
F18A/0554	Adjacent to Champions Public House, Malahide Road, Balgriffin, County Dublin	Demolition of existing single storey commercial building and construction of new two storey building, Equivalent no units : 4	Permission
Reg.Ref. F18A/0058	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052, at Belcamp, a	Permission

Reg. Ref.	Location	Description	Decision
		protected structure (RPS No. 463), Equivalent no units : 0	
Reg. Ref. F19A/0220	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted developments Reg. Ref. F15A/0609, PL06F.248052 and F18A/0058 Equivalent no units : 89	Permission
Reg. Ref. F19A/0221	Belcamp, Malahide Road, Dublin 17.	Revisions to layout and house types of 49 no. two storey houses Equivalent no units : 49	Permission
Reg. Ref. F21A/0401	Lands at Belcamp Hall, Malahide Road, Dublin 17	Planning permission was granted by Fingal County Council for Equivalent no units : 78	Permission
F21A/0390	The former Campions Public House, Malahide Road, Balgriffin, Co. Dublin.	Modifications to a previously granted planning application Reg. Ref. F18A/0167. . Equivalent no units : 1	Permission
Reg. Ref. F21A/0488	Belcamp Hall, Malahide Road, Dublin 17.	Development on lands at Belcamp consisting of the construction of 77 no. residential units Equivalent no units : 77	Permission
ABP Ref. PL06F.248052.	Belcamp North	Total of 40 units, a childcare facility, conservation works to the Walled Garden and café; Equivalent no units : 45	Permission
Reg. Ref. F18A/0167,	Belcamp	Campions has planning permission for a total of 54 no. residential units. Equivalent no units : 54	Permission
	eastern side of the Malahide Road, known as 'Parkside'	approximately 185 no. residential units on a site extending to c.3.1 hectares Equivalent no units : 185	Permission
Reg. Ref. 3238/17	Malahide Road, Churchwell Avenue and Belmayne Road, Ayrfield, Dublin 13	This development comprises 150 apartment units approved under Part VIII. Equivalent no units : 150	Permission
Reg. Ref. 2600/20	Belmayne Avenue	Permission has been granted for 2 no. schools – a temporary post primary and primary school. Equivalent no units : 0	Permission
ABP-307887-20	Northern Cross SHD Mayne River Avenue	Strategic Housing Development under for 191 no. apartments and associated site works Equivalent no units : 191	Permission
		Overall equivalent no units : 1136	

It could be assumed that any dwellings constructed at this point would be included in the national greenhouse gas emission data of 2022 which leaves us to add the units in neighbouring projects to be added. For ease of calculation for the national impact we have assessed the commercial element as

residential units also as the CO₂ emissions would be similar for this report purpose. The total cumulative unit come to 2527 + 1136 = 3663 units.

Project CO ₂ emission impact on National emissions	National emissions Mt-CO ₂ /year	3663 units emissions Mt-CO ₂ /yr	fraction %
2022	60.0	0.08889	0.14815
2030	58.0	0.00671	0.01158
2030 + additional measures	47.5	0.00671	0.01414

The impact of this 3663 unit development/phase of 0.08889 Mt-CO₂ on Ireland's current emissions (2022) of 60 Mt-CO₂/year represents an increase of 0.14815%. The impact of this 3663 unit development/phase of 0.00671 Mt-CO₂ on Ireland's projected 2030 emissions of 58 Mt-CO₂/year represents an increase of 0.01158%. The impact of this 3663 unit development/phase of 0.00671 Mt-CO₂ on Ireland's projected 2030 plus additional measures emissions of 47.5 Mt-CO₂/year represents an increase of 0.01414%.

Based on the above findings we note the cumulative impacts on the national CO₂ emission at worse to be very fractional. CO₂ emissions from the construction and operational phase have been reduced to a minimum. The impact on National emissions for the construction phase are therefore deemed to be short term and imperceptible. For the operational phase it is deemed long term and imperceptible both in 2022 and 2030. Any new development in essence will increase CO₂ emissions to the national and global environment however by introducing the reduction measures at design stage the increase has been kept to a reasonable minimum.

11.0 LANDSCAPE AND VISUAL ASSESSMENT

11.1 Introduction

The landscape and visual impact assessment was conducted by The Big Space landscape architects to assess the potential impacts of the proposed development on the surrounding landscape. The landscape and visual impact assessment examines and evaluates the implications of the proposed scheme in terms of landscape character and visual alterations arising from the scheme. The assessment also describes outline landscape treatment proposals to mitigate and attempt to achieve a longer-term integration of the proposed development with its surrounding landscape area.

11.2 Assessment Methodology

The procedure used for the landscape and visual assessment entailed:

- A desk top study of the site in relation to its overall context both locally and regionally.
- Visiting the site and its environs to assess the following:
 - Quality and type of views of the area
 - The character and quality of the site area and the surrounding landscape

11.2.1 Guidelines

The structure for assessing the landscape impact of the proposed development is based upon the following guidelines:

- Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, July 2017)
- Guidelines for Landscape and Visual Impact Assessment (Landscape Institute & I.E.M.A., UK 2013)

The criteria for describing the significance, quality and duration of the effects of the proposed development are outlined in Table 11.1 below:

Table 11.1: Landscape – Visual Assessment Criteria (as per Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA - July 2017))

Significance of Effects	Criteria
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.

Significance of Effects	Criteria
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound Effects	An effect which obliterates sensitive characteristics
Quality of Effects	Criteria
Positive Effects	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
Neutral Effects	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Negative/adverse Effects	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Duration and Frequency of Effects	Criteria
Momentary Effects	Effects lasting from seconds to minutes
Brief Effects	Effects lasting less than a day
Temporary Effects	Effects lasting less than a year
Short-term Effects	Effects lasting one to seven years.
Medium-term Effects	Effects lasting seven to fifteen years.
Long-term Effects	Effects lasting fifteen to sixty years.
Permanent Effects	Effects lasting over sixty years
Reversible Effects	Effects that can be undone, for example through remediation or restoration

A series of photomontages were prepared by the Digital Dimensions to represent, as accurately as possible, the physical and visual characteristics of the proposed development from a variety of distances and direction around the site. Priority was given to views from the public domain, such as main roads and to views from potentially sensitive locations such as historical vistas and amenity pathways. The location of all views are shown on Figure 11.13. For each of the visuals, an existing and a proposed view is presented and where the proposed development is not visible in the view the elements of the development will be shown as a red outline.

11.3 Receiving Environment

11.3.1 Landscape Context & Site Description

The subject site covers an area of c.62 hectares, it was originally part of the Belcamp Hall estate which was built in the 1700s. The subject site is accessed off the R139 to the south and Malahide Road to the east and is located c.8 km north of Dublin city centre. The subject site is located c.4 km south-east of Dublin Airport, c.2.5 km east of the M1/M50 motorway interchange (via R139) and c.2.5km west of Clongriffin Dart Station.

The subject site is bound by Malahide Road and Phase 1 of the Belcamp residential development to the east. The R139 road, Bewley’s Head Office and the City Junction Business Park are located to the south of the subject site. The Craobh Chiaráin GAA club and pitches are located to the south-west of the subject site and agricultural lands and hedgerows are located to the west and north of the subject site. The Mayne River, which flows eastwards through the subject site, divides the FCC lands (45.5ha) to the north from the DCC lands (16.5ha) to the south. Weirs and two man-made lakes are also located along a redirected portion of the river, which are the divided by the causeway/ access road to the south.

While much of the subject site is relatively level, the lands to the south of Belcamp Hall is divided by the Mayne River, the course of which forms a substantial change in level between the main site to the north and the adjoining lands to the south and contains significant woodland. The lands include the original environs of Belcamp Hall as well as a substantial amount of agricultural land. Whilst the agricultural lands support few trees, other than those arising from field demarcations, the lands that surround Belcamp Hall supports substantial woodland. The cumulative effect is an extensive but highly variable landscape across the site, from clear arable agricultural lands to significant woodland within the river valley and environs.



Figure 11.1: Subject Site Location



Figure 11.2: Subject site location with wider context (TBS, 2022)



Figure 11.3: Subject site location with local context (TBS, 2022)

11.3.2 Planning Policy Context

The two main texts that were referred to in the compilation of this report were:

- Fingal Development Plan (FDP) 2017-2023
- Dublin City Development Plan (DCDP) 2016–2022

Fingal Development Plan 2017-2023:

Within the FDP 2017-2023 the majority of subject site is located within lands zoned as residential and contain the following zoning objective:

“Zoning objective RA: to provide for new residential communities subject to the provision of the necessary social and physical infrastructure. The vision for this zoning is to ensure the provision of high quality new residential developments with good layout and design, within close proximity to community facilities, and with an appropriate mix of house sizes, types and tenures.”

Lands along the River Mayne and in the north-west of the subject site contain the following zoning objective:

“Zoning Objective “OS” Open Space Objective: Preserve and provide for open space and recreational amenities. Vision: Provide recreational and amenity resources for urban and rural populations subject to strict development controls. Only community facilities and other recreational uses will be considered and encouraged by the Planning Authority”

Small sections of the land within the subject site to the north-west and north-east contain the following zoning objective:

“Zoning Objective “GB” Greenbelt Objective: Protect and provide for a Greenbelt. Vision: Create a rural/urban Greenbelt zone that permanently demarcates the boundary (i) between the rural and urban areas, or (ii) between urban and urban areas. The role of the Greenbelt is to check unrestricted sprawl of urban areas, to prevent coalescence of settlements, to prevent countryside encroachment and to protect the setting of towns and/or villages. The Greenbelt is attractive and multifunctional, serves the needs of both the urban and rural communities, and strengthens the links between urban and rural areas in a sustainable manner. The Greenbelt will provide opportunities for countryside access and for recreation, retain attractive landscapes, improve derelict land within and around towns, secure lands with a nature conservation interest, and retain land in agricultural use. The zoning objective will have the consequence of achieving the regeneration of undeveloped town areas by ensuring that urban development is directed towards these areas.”

The FDP 2017-2023 contains the following ‘Development Strategy’ in relation to the lands at Balgriffen and Belcamp: *“Consolidate the new and existing areas of Balgriffin and Belcamp to create vibrant residential communities with appropriate local services and community facilities to serve the new population. Ensure that the necessary infrastructure is delivered in tandem with development and*

that the new built form respects the rich built and natural heritage of the surrounding environment and recognises the ecological sensitivity and hydrological connection with adjacent European Sites.”

This development plan also states that the lands within subject site are identified with LAP 9.B. The FDP 2017-2023 contains the following ‘Development Plan Objectives’ in relation to Balgriffin and Belcamp :

- *“Objective BALGRIFFIN/BELCAMP 1: Promote high quality residential development which meets the needs of all stages of the life cycle through an appropriate mix of house type and local amenities.*
- *Objective BALGRIFFIN/BELCAMP 2: Ensure that new communities are adequately served with accessible local services.*
- *Objective BALGRIFFIN/BELCAMP 3: Facilitate the protection of Belcamp House and ensure that new development respects the historic character and setting of Belcamp House, including both its natural and built heritage, and biodiversity assets.*
- *Objective BALGRIFFIN/BELCAMP 4: Promote green infrastructure linkages, in particular ensuring permeability between the lands at Belcamp, Balgriffin, Belmayne and the Regional Park at Racecourse Park, facilitating access to the Fingal Coastal Way.*
- *Objective BALGRIFFIN/BELCAMP 5: Consider a limited quantum of development on the Belcamp LAP lands to facilitate the rehabilitation and preservation of Belcamp House prior to the adoption of Belcamp LAP. A design brief including the quantum and location of any such development, which shall not prejudice any future road requirements, shall be agreed with the Planning Authority prior to a planning application being lodged. Not more than 50% of any residential units permitted shall be sold or occupied pending the full re-instatement of Belcamp House to the satisfaction of the Planning Authority.*
- *Objective BALGRIFFIN/BELCAMP 6: Prepare a Local Area Plan for lands at Belcamp to provide for a sustainable mixed use urban district including residential, community and recreational facilities subject to the delivery of the necessary infrastructure and rehabilitation and restoration of Belcamp House.*
- *Objective BALGRIFFIN/BELCAMP 7: Promote improved pedestrian and cycle linkage between Balgriffin/Belcamp and Portmarnock Rail Station.”*

Dublin City Development Plan 2016–2022

The subject site is located within the “Strategic Development and Regeneration Area 1 - North Fringe (Clongriffin–Belmayne)”, as identified within the DCDP 2016-2022 and this SDRA is based on the following key objectives/guiding principles:

- 1 *“To create a highly sustainable, mixeduse urban district, based around highquality public transport nodes, with a strong sense of place.*
- 2 *To achieve a sufficient density of development to sustain efficient public transport networks and a viable mix of uses and community facilities.*
- 3 *To establish a coherent urban structure, based on urban design principles, as a focus for a new community and its integration with the established community, comprising the following elements:*

- *A central spine route, in the form of a boulevard or high street, linking the Malahide Road with the proposed train station to the east*
- *Two high quality urban squares (one at the junction of the Malahide Road with the Main Street boulevard and the other adjacent to the rail station) as the main focus for commercial and community activity*
- *A series of smaller urban squares as significant place markers and activity nodes, e.g. a recreation square adjacent to Father Collins Park*
- *A flagship urban park in the redesigned Father Collins Park*
- *A new perimeter route running north from the Malahide Road via Belcamp Lane, relieving traffic pressure from the N32 and from the proposed Main Street boulevard*
- *An interconnected network of streets and public spaces*
- *To promote the creation of a high-quality public domain by establishing a high standard of design in architecture and landscape architecture*
- *To use building heights to define key landmark locations, including:*
 - *Minimum heights of 5 storeys for the key district centres at Clongriffin rail station and the N32/Malahide Road junction*
 - *Minimum heights of four to five storeys for the Main Street boulevard*
 - *A landmark structure of 10-14 storeys (office height) adjacent to the rail station.*
- *To develop the amenity potential of the Mayne River in the creation of a linear park*
- *To develop an urban design strategy for the lands at St Michael's Cottages that is co-ordinated with the overall strategies for the developing areas."*

11.3.4 Protected Structures or Recorded Monuments

Recorded Monuments are structures that are protected under the National Monuments (Amendment) Act, 1994.

Protected Structures are structures that are considered to be of special architectural, historic, archaeological, artistic, cultural, scientific, social or technical interest.

National Inventory of Architectural Heritage (NIAH): Inventory of post-1700 architectural heritage of Ireland, carried out to aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS).

Recorded Monuments: Structures that are protected under the National Monuments (Amendment) Act, 1994.

The Protected Structures, Recorded Monuments and NIAH structures that are in close proximity to the subject site are listed in Tables 11.2, 11.3 and 11.4:

Table 11.2: Recorded Monuments within the vicinity of the subject site (Source: National Monuments Service, Government of Ireland)

Reference	Townland	Description
DU015-116	Belcamp	Ring-ditch
DU015-033	Belcamp	Ringfort

Table 11.3: Record of Protected Structures within the vicinity of the subject site (Source: National Monuments Service, Government of Ireland)

RPS Ref.	Name	Address	Description
0463	Belcamp Hall	Belcamp College, N32 Road, Belcamp, Balgriffin, Dublin 17	Former Belcamp College school complex (incl 18th century original house, Washington Monument, walled garden, bridge & early 20th century chapel)
0789	Belcamp Hutchinson	Carr's Lane, off Malahide Road, Belcamp, Balgriffin, Dublin 17	18th century five-bay three-storey house, walled garden and gate lodges

Table 11.4: NIAH structures within the vicinity of the subject site (Source: National Monuments Service, Government of Ireland)

Reg. No.	Name & Location	Original Use	In Use	Rating	Date
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11350035	Belcamp College Roman Catholic Chapel, Belcamp	Church/ chapel	Church/ chapel	Regional	1900 – 1905
11350024	Belcamp Hall	House	School	Regional	1770 - 1780
11350036	Belcamp College	Dormitory building	Dormitory building	Regional	1890 - 1910
11350037	Belcamp College	School	School	Regional	1920 - 1930
11350025	Washington Memorial Tower	Monument	Monument	Regional	1775 - 1780
11350040	Belcamp College	Bridge	Bridge	Regional	1825 - 1875

11.3.5 Statutory Designations

There are no Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Natural Heritage Areas (NHA) within the subject site, as shown on Figures 11.6 and 11.7 below:

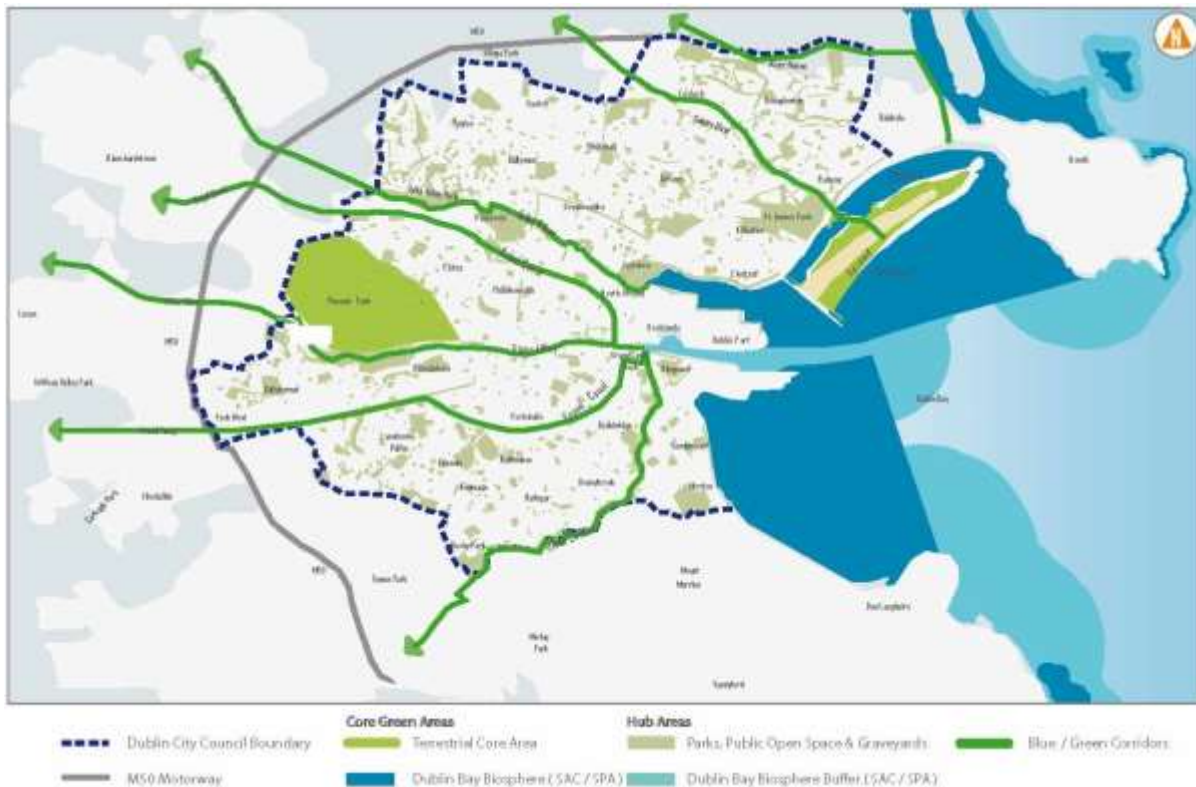


Figure 11.6: Strategic Green Network (Source DCDP 2016-2022) Indicates location of SACs & SPAs

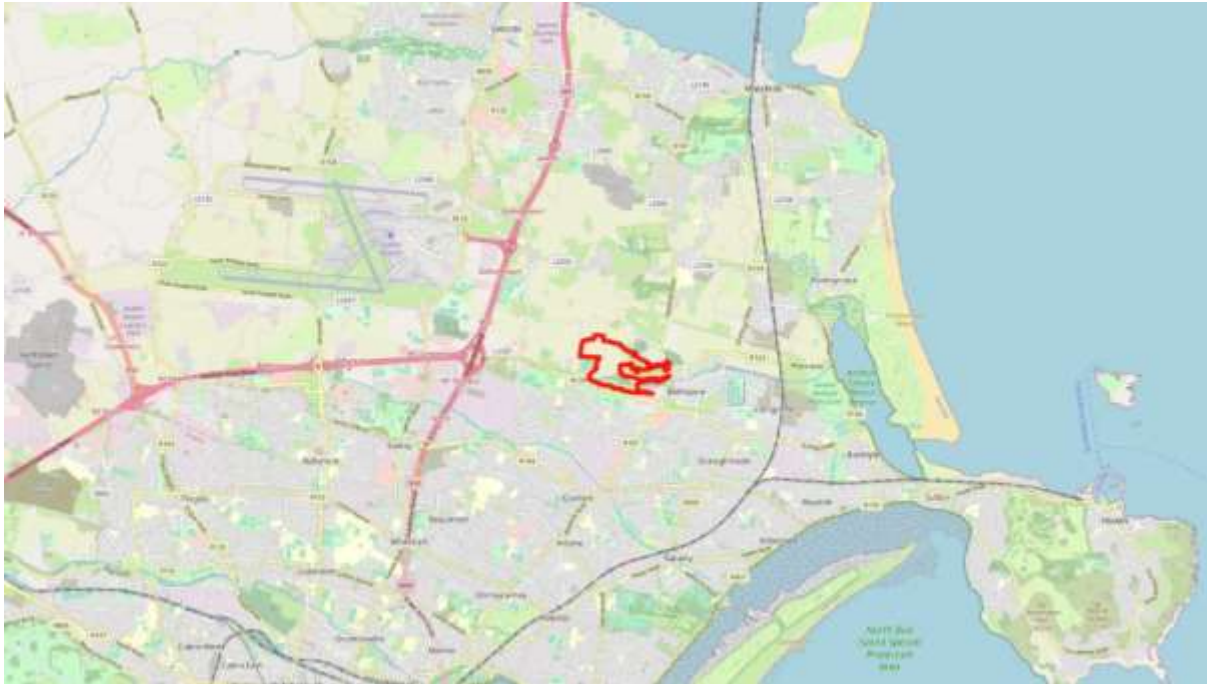


Figure 11.7: Location of SACs, SPAs and NHAs relevant to the subject site (Source: EPA, 2022)

11.3.6 Landscape Character Assessment & Historic Landscape Characterisation

11.3.6.1 Landscape Character

The landscape character of the wider area that surrounds the subject site varies from semi-rural to urban. The lands within the subject site are composed of agricultural fields bound by hedgerows, tree belts, woodlands and the Mayne River. The Belcamp Hall estate which was built in the 1700s, including the walled garden, the Washington Monument and the man-made lakes are defining features within this designed landscape. The subject site is bound by Malahide Road and Phase 1 of the Belcamp residential development to the east. The R139 road, Bewley’s Head Office and the City Junction Business Park are located to the south of the subject site. The Craobh Chiaráin GAA club and pitches are located to the south-west of the subject site and agricultural lands and hedgerows are located to the west and north of the subject site. The Mayne River, which flows eastwards through the subject site, divides the FCC lands to the north from the DCC lands to the south. Weirs and two man-made lakes are also located along a redirected portion of the river, which are the divided by the causeway/ access road to the south.

While much of the subject site is relatively level, the lands to the south of Belcamp Hall is divided by the Mayne River, the course of which forms a substantial change in level between the main site to the north and the adjoining lands to the south and contains significant woodland. Whilst the agricultural lands support few trees, other than those arising from field demarcations, the lands that surround Belcamp Hall supports substantial woodland.

The Historic Landscape Report (TBS, 2022) describes the historical aspects of this landscape in further detail, and an extract is included below:

“Georgian architecture is based on a more refrained design style, with straight edges and often square symmetrical shapes predominating. Many of the houses were also placed in grand landscapes and the landscape architectural movement of the time however couldn’t have been more different. The inspiration for the design of the landscape at Belcamp Hall and many of the large houses throughout Ireland and the UK came from the English landscape garden. The philosophy behind the English Landscape garden was Naturalism, favouring curved lines, gentle slopes, lakes and woodlands moving away from the strict formal geometric gardens of the Baroque period. These gardens were designed to look natural and be a place for meditation and relaxation, encouraging visitors to wander throughout the landscape finding hidden ornamentation in nature to give a sense of mystery to the landscape. Lancelot ‘Capability’ Brown was the most successful practitioner of this approach in the second half of the 18th century. He was responsible for the design of over 200 parklands across England, at least 150 of which had as one of their principle features a newly created lake. Brown’s materials could scarcely have been simpler, utilising earth, water and trees, all of which were employed at Belcamp Hall. Employing the English garden design principles were popular as they were much cheaper to construct than the formal gardens of the past. Characteristics of the English Landscape Garden included:

- *Vistas*
- *Drive*
- *Parkland setting*
- *Woodland*
- *Waterways*
- *Sculpture, recreational architecture/ruins/follies*
- *Walled garden*
- *Rock House and Ice House*

(Source: The Historic Landscape at Belcamp Hall, TBS 2022)

The Architectural Heritage Report compiled by Sheehan + Barry Architects states that:

“... Belcamp more closely resembles the examples developed in the English garden landscape traditions of the 18th century. The inspiration for the landscape design at Belcamp Hall came from that English landscape garden typology favouring Naturalism, curved lines, gentle slopes, lakes and woodlands; moving away from the strict formal geometric forms of earlier landscape philosophies. These Georgian period gardens were designed to look natural and be a place for meditation and relaxation, encouraging visitors to wander throughout the landscape finding hidden ornamentation in nature to give a sense of mystery to the landscape.

Belcamp Hall, the house, was built at an elevation to capture the vista, with uninterrupted views to the rear of the house (east elevation) over rolling lawns dotted with mature specimen trees and copses, lined either side by woodlands framing the more distant views of the Irish Sea and Irelands Eye. The woodlands along the Mayne River extend up north, along the western, southern and eastern border of the walled garden, thus screening any view from Belcamp Hall, and indeed the driveway. The wooded riverside of the small stream Mayne River, bordering Belcamp Hall to the south, starts at the Gate Lodge and main entrance from Balgriffin, at the east of the estate. A tree-lined avenue follows the river course, winding around the house and terminating in a large forecourt. The tree planting was used to create a parkland setting for the house, framing the views towards the Irish Sea over the large open grass lands and screening off the Gate Lodge. Belcamp Hall estate has no direct connection with the shores of the Irish Sea but instead ‘borrows’ that landscape to extend the vistas. A densely wooded

section to the west of the house is shown to screen the view of the outbuildings and their courtyard from the house and to provide woodland paths for leisure purposes. The river course adds an undulating feature representative of the naturalistic landscape principle of contemporary English garden design. A series of water features in the form of two large man-made lakes and weirs are also incorporated along the course of the river. Crossing the pond is a single arched concrete road bridge or causeway with a modern parapet and inserted cast-iron balusters panels. The bridge was originally built in 1850 although modernised since then, and adds to the picturesque quality of the Mayne River. It is a secluded element amongst the woodland, providing views out over the upper and lower ponds. The woodlands also contain an Ice House beside and to the south of the Mayne River, a below ground structure with a dome fully lined with brick internally, and a Rock House close to the upper part of the lake, constructed in rock, now fallen into ruin. Another feature of the English landscape garden comes in the form of follies and the Washington Monument is an example of this. The monument is located on the north side of the lower lake within a picturesque setting. The monument is of particular interest as it represented one of the earliest known physical tributes to George Washington. The land between the house and the Washington Monument is shown open with some individual tree planting.”

Source: Architectural Heritage Report (Sheehan + Barry Architects, 2022)

11.3.6.2 Landscape Character Assessment

The Landscape Character Assessment within the FDP 2017-2023 divides the County into 6 Landscape Character types, with each type given a value through the consideration of such elements as aesthetics, ecology, historical, cultural, religious or mythological.

The landscape character of the area within and around the subject lands is identified as ‘Low Lying Agriculture Character Type’ within the FDP 2107-2023 (refer to Figure 11.8).

This type is “characterised by a mix of pasture and arable farming on low lying land with few protected views or prospects. The Low Lying Character Type has an open character combined with large field patterns, few tree belts and low roadside hedges. This low lying area is dominated by agriculture and a number of settlements. The area is categorised as having a modest value. It contains pockets of important value areas requiring particular attention such as important archaeological monuments and demesnes.”



Figure 11.8: : Landscape Character Types (extracted from FDP 2107-2023 with subject site highlighted)

11.3.6.3 Landscape Character Types – Sensitivity

This character type is identified as a 'low sensitivity' meaning that *“these landscapes can absorb a certain amount of development once the scale and forms are kept simple and surrounded by adequate screen boundaries and appropriate landscaping to reduce impact on the rural character of the surrounding roads. The protection of views and riparian corridors from inappropriate development is of paramount importance in these areas.*

Principles for Development

- *The skyline should be protected.*
- *Existing tree belts should be retained and managed and older stands of trees restocked. Roadside hedging should be retained and managed. Proposals necessitating the removal of extensive field and roadside hedgerows or trees should not be permitted. Strong planting schemes using native species, to integrate development into these open landscapes, will be required.*
- *Establish riparian corridors free from new development along all significant watercourses in the County. Ensure a 10 to 15 metre wide riparian buffer strip measured from top of bank either side of all watercourses, except in respect of the Liffey, Tolka, Pinkeen, Mayne, Sluice,*
- *Ward, Broadmeadow, Corduff, Matt and Delvin where a 30m wide riparian buffer strip from top of bank to either side of all watercourses outside urban centres is required.*
- *Sites with natural boundaries should be chosen, rather than open parts of larger fields.*
- *Clustering with existing farmhouse and/or farm buildings is generally preferable to standalone locations.”*
(Source: FDP 2107-2023)

Dublin City Council have not yet carried out a Landscape Character Assessment of this area.

11.3.6.4 Historic Landscape Characterisation

The FDP 2017-2023 states that Historic Landscape Characterisation (HLC) seeks to identify and to understand the historic development of today’s landscape by placing emphasis on the contribution that past historic processes make to the character of the landscape as a whole, not just selected ‘special sites’. In relation to HLCs the FDP 2017-2023 has the following objectives:

“Objective NH41: Ensure that the results of the Historic Landscape Character studies undertaken in the County are taken into account in the development of plans and in the assessment of projects on an ongoing basis.

Objective NH42: Ensure development reflects and reinforces the distinctiveness and sense of place of identified historic landscape character types, including the retention of important features or characteristics, taking into account the results of the historic landscape characterisations carried out in the County.”

No Historic Landscape Characterisation has been undertaken by FCC or DCC for the vicinity in which the study area is located at this stage.

11.3.7 Existing Trees and Hedgerows

11.3.7.1 Development and Local Area Plans

FDP 2017-2023

In relation to trees and hedgerows an Objective NH27 of FDP 2017-2023 states:

“Protect existing woodlands, trees and hedgerows which are of amenity or biodiversity value and/or contribute to landscape character and ensure that proper provision is made for their protection and management.”

Dublin City Development Plan 2016-2022

The Dublin City Development Plan 2016-2022 contains the following objectives in relation to trees:

Table 11.5: DCDP 2016-2022 objectives in relation to trees and hedgerows

Objective	Description
GI 25	To protect trees in accordance with existing Tree Preservation Orders (TPOs) and, subject to resources, explore the allocation of additional TPOs for important/ special trees within the city based on their contribution to amenity or the environment.
GI 26	To review ancient and species-rich hedgerows within the city (as identified in the 2006 survey of ancient and species rich hedgerows in Dublin city) and protect existing hedgerow sections.
GI 27	To protect trees, hedgerows or groups of trees which function as wildlife corridors or 'stepping stones' in accordance with Article 10 of the EU Habitats Directive.
GI 28	To identify opportunities for new tree planting to ensure continued regeneration of tree cover across the city, taking account of the context within which a tree is to be planted and planting appropriate tree species for the location.
GI 29	To encourage trees to be incorporated in (a) the provision of temporary green spaces (e.g. pop-up parks) either planted into the soil or within moveable containers as appropriate and (b) within sustainable urban drainage systems (SUDS), as appropriate.

There are no Tree Preservation Orders within the subject site, as shown of Figure 11.9.

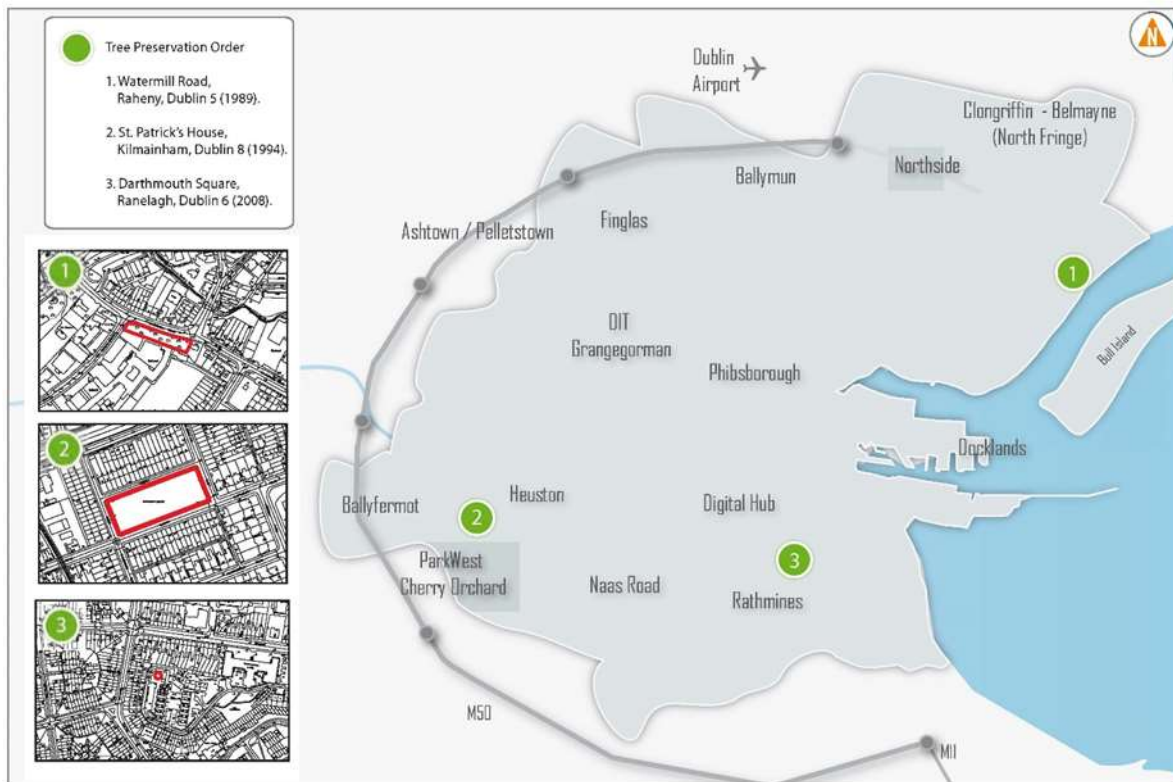


Figure 11.9: Location of Tree Preservation Orders (Source: DCDP 2016-2022)

Green Infrastructure

The FDP 2017-2023 contains the following objectives in relation to green infrastructure that are relevant to the subject site:

Table 11.6: FDP 2017-2023 green infrastructure objectives

Objective	Description
GI 20	Require all new development to contribute to the protection and enhancement of existing GI and the delivery of new green infrastructure, as appropriate.
GI 21	Require all new development to address the protection and provision of GI for the five GI themes set out in the Development Plan (Biodiversity, Parks, Open Space and Recreation, Sustainable Water Management, Archaeological and Architectural Heritage, and Landscape) in a coherent and integrated manner.
GI 24	Ensure biodiversity conservation and/or enhancement measures, as appropriate, are included in all proposals for large scale development such as road or drainage schemes, wind farms, housing estates, industrial parks or shopping centres.
GI 25	Integrate provision for biodiversity with public open space provision and sustainable water management measures (including SuDS) where possible and appropriate.
GI 26	Maximise the use and potential of existing parks, open space and recreational provision, both passive and active, by integrating existing facilities with proposals for new development and by seeking to upgrade existing facilities where appropriate.
GI 27	Provide a range of accessible new parks, open spaces and recreational facilities accommodating a wide variety of uses (both passive and active), use intensities and interests.
GI 28	Provide attractive and safe routes linking key green space sites, parks and open spaces and other foci such as cultural sites and heritage assets as an integral part of new green infrastructure provision, where appropriate and feasible.
GI 31	Ensure the provision of new GI addresses the requirements of functional flood storage, the sustainable management of coastal erosion, and links with provision for biodiversity, Sustainable Drainage Systems (SuDS) and provision for parks and open space wherever possible and appropriate.
GI 32	Seek the creation of new wetlands and/or enhancement of existing wetlands through provision for Sustainable Drainage Systems (SuDS).
GI 33	Seek the provision of green roofs and green walls as an integrated part of Sustainable Drainage Systems (SuDS) and which provide benefits for biodiversity, wherever possible.
GI 34	Ensure, wherever possible and appropriate, that elements of the archaeological and architectural heritage are fully integrated into proposals for new developments at the project design stage.
GI 35	Seek to provide and/or enhance access to archaeological and architectural heritage assets in a sustainable manner, where appropriate, thus facilitating opportunities for education and understanding.
GI 36	Ensure GI provision responds to and reflects landscape character including historic landscape character, conserving, enhancing and augmenting the existing landscapes and townscapes of Fingal which contribute to a distinctive sense of place.

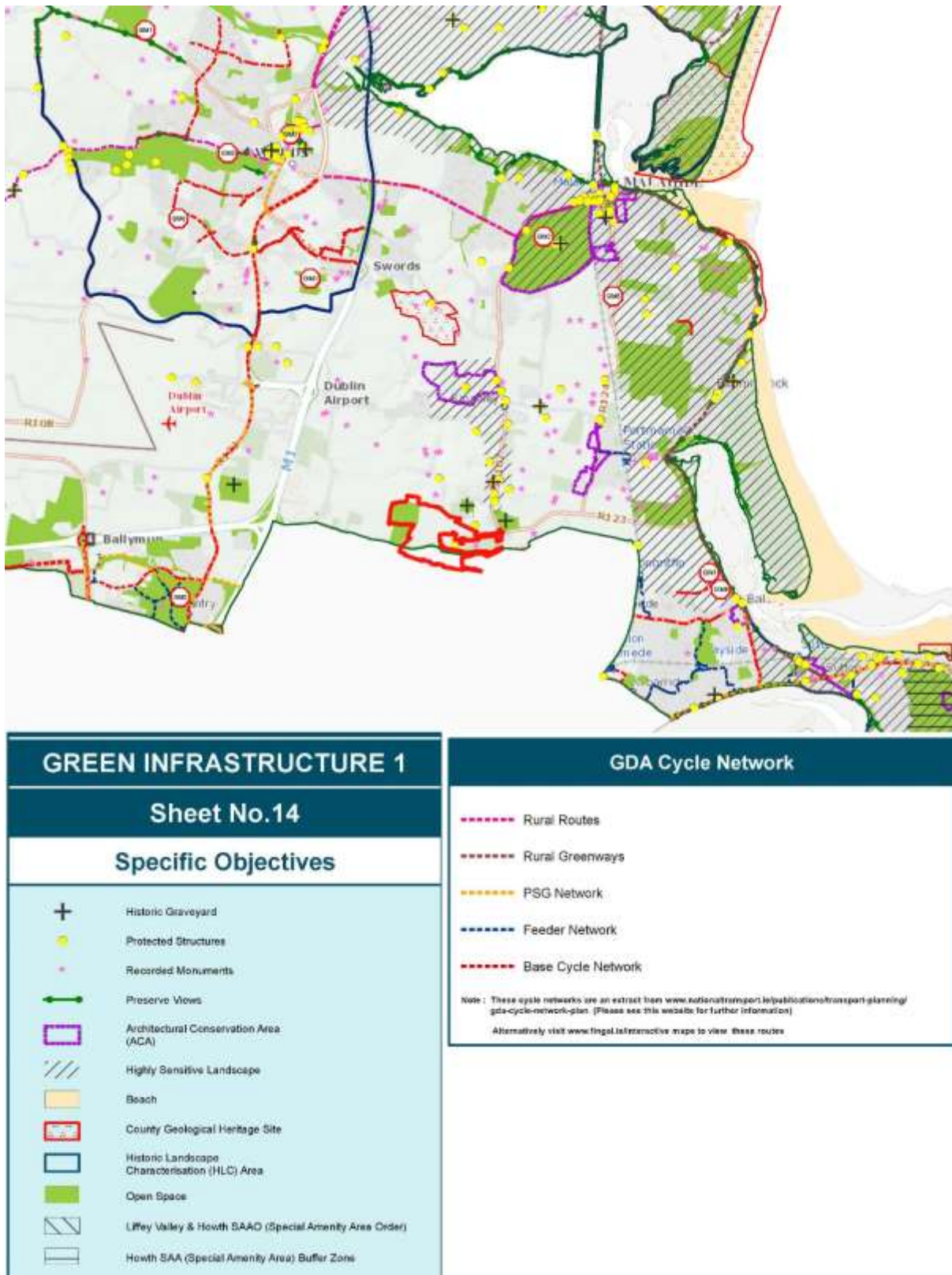


Figure 11.10: FDP 2017-2023 - Green Infrastructure Objectives map extract

The DCDP 2016-2022 contains the following objectives in relation to green infrastructure that are relevant to the subject site:

Table 11.7: DCDP 2016-2022 green infrastructure objectives

Objective	Description
GI 01	To integrate GI solutions into new developments and as part of the development of a GI Strategy for the city.
GI 02	To apply principles of GI development to inform the development management process in terms of design and layout of new residential areas, business/ industrial development and other significant projects.
GI 03	To focus on key streets in the city area between the canals for 'greening' by way of higher standards of planting and amenity along key routes.
GI 04	To improve pedestrian and cycle access routes to strategic level amenities while ensuring that ecosystem functions and existing amenity uses are not compromised and existing biodiversity and heritage is protected and enhanced.
GI 05	To engage with and involve corporate volunteers, landowners and relevant agencies to support their communities in the development and delivery of GI programmes.
GI 30	To support the implementation of the Dublin City Play Plan 2012–2017, which aims to provide inclusive and accessible play opportunities for children and young people.
GI 31	To encourage and facilitate the introduction of amenities in parks such as table tennis, games tables, outdoor gyms, adult exercise equipments, bowling greens, etc.
GI 32	To endeavour to provide play spaces in every neighbourhood in the city, which are open to public use.

11.3.7.2 Site Arboricultural Assessment:

A comprehensive arboricultural survey was carried out by The Tree File Ltd. which should be read in conjunction with this report.

“The site is both extensive and variable. Whilst a large proportion of the site area comprises broadly open, agricultural land, it also supports significant areas of woodland and hedgerows. The layout, format and extent of woodland and hedges appears to relate to the historic context of Belcamp House. Particularly, there is evidence to suggest an original intent to create an ornamental woodland effect between Belcamp House and the Malahide Road and also regarding the substantial wooded area to the south-west of Belcamp House and about the ponds. The agricultural context of the site is also well defined by a number of substantial hedgerows both at boundaries and also dividing fields, typically west of Belcamp House. The tree survey has noted a particularly diverse tree population. The basis of the tree population is inarguably historic, comprising the remnants of planted woodlands, hedgerows and tree lines. Unfortunately however, many of these trees are now old and in poor condition. The review period since the Belcamp state was first reviewed in 2015, has seen much deterioration and natural tree loss. This has created further repercussions, typically relating to exposure and shelter loss that in turn is resulting in increased rates of tree failure. Notwithstanding the above, the site supports extensive populations of young trees. Many of these are emerging from hedges but also from within previously wooded areas. A clear majority of these trees are young, typically being less or substantially less than 50 years of age. Such trees appear to illustrate a cessation in site management and a period whereupon natural regeneration and dereliction occurred. For this reason and without artificial input, biodiversity has decreased with the young tree population being strikingly dominated by Sycamore,

ash and Elm. This dominance by small number of species has raise particular concern, particularly in light of ash dieback disease and Dutch Elm disease that stand to promote Sycamore to a position of species dominance within coming decades. Obviously issues surrounding species monocultures arise and it would be advised that this population be augmented and complemented by artificially planted trees of other species.”

(Source: Extract from Arboricultural Report, The Tree File Ltd, 2022)

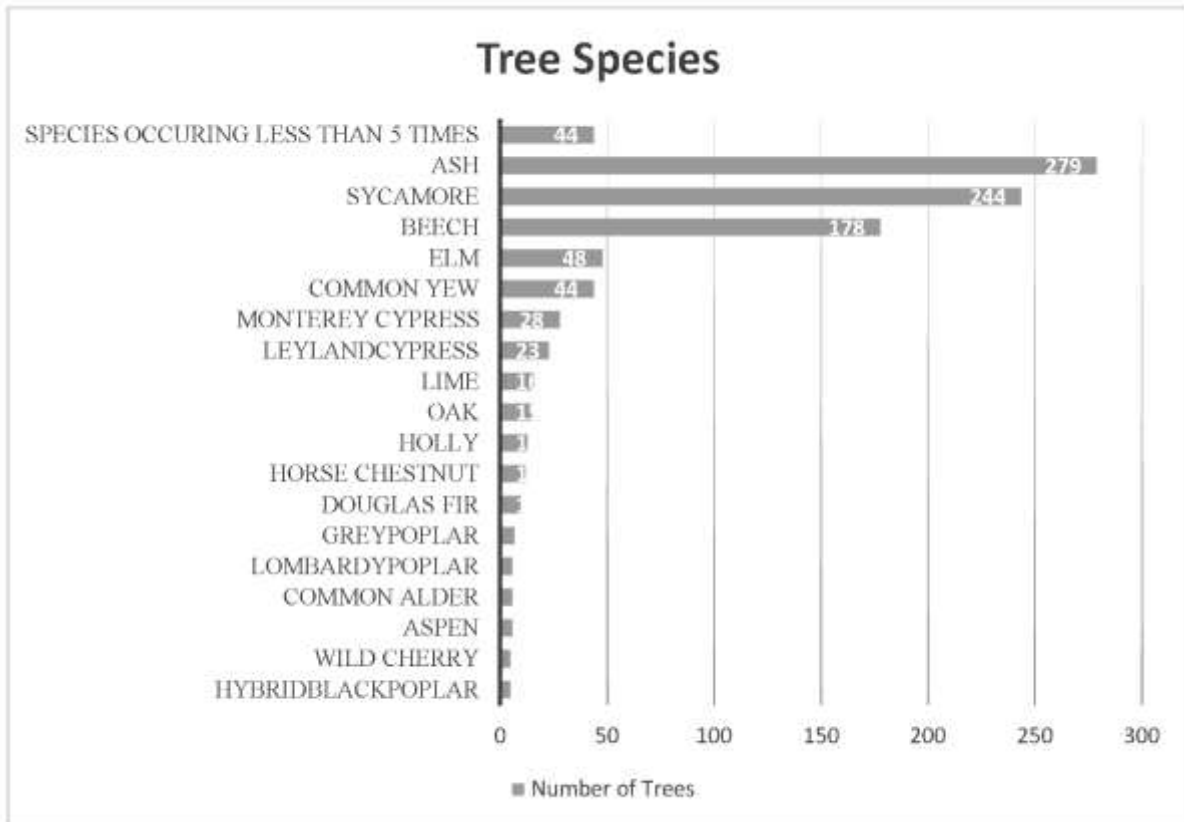


Figure 11.11: Existing Tree Species breakdown (Source: Arboricultural Report, The Tree File, 2022)

11.4 Characteristics of the Proposed Development

A 10-year planning permission is sought by Gerard Gannon Properties for a proposed Strategic Housing Development on lands at Belcamp Hall (protected structure), Malahide Road, the R139 road and Carr's Lane, Belcamp, Dublin 17. The proposed development will consist of the construction of 2,527 no. residential units comprising houses, apartments and duplex units, 2 no. childcare facilities; 1 no. sports changing facilities building; 3 no. cafés/restaurants; 18 no. retail/commercial units; and all associated engineering and site works necessary to facilitate the development.

(Source: Downey Planning Consultants, 2022)

11.4.1 Landscape Proposals:

Refer to the landscape drawings and the Landscape Rationales for full details of the landscape proposals:

Fingal County Council Lands:

- Drawings 1520_300-304 and Public Realm Strategy (The Big Space Landscape Architects)

Dublin City Lands:

- Drawings 1561_1-11 and Landscape Rationale (Ronan Mac Diarmada & Associates)



Figure 11.12: Overall Landscape Plan (TBS & RMDA, 2022)

11.5 Identification of Likely Significant Impacts

11.5.1 Impact on Existing Trees and Hedgerows

The retention of the existing woodlands, trees and hedgerows are a priority of the landscape strategy as they strongly contribute to semi-rural and mature setting of the development and will assist in screening the proposed structures from the adjoining lands and road, as well as providing visual amenity and biodiversity benefits. The design of the development has where possible followed the pattern of existing field boundaries to ensure retention of existing woodland and mature hedgerows where possible and to retain the historical patterns of the landscape. The existing hedgerows that are to be retained will be pruned, tidied and replanted with native species where the hedgerow is of poorer quality. Within the Arboricultural Report (The Tree File Ltd, 2022) it is stated that:

“... the proposed development will see a substantial increase in occupation and use in areas adjoining and supporting trees. For this reason and appreciating the deteriorating nature of many of the trees on site then ongoing and continued tree management will be critical in the future. In this respect, a rudimentary tree and woodland management plan has been provided as part of this report but such a plan will require revisiting and further direction once the likely nature of use and all aspects of safety as may be required for the site, are better understood. The proposed development of the site is extensive involving the widespread construction across much of the site area. The potential impacts to trees extend beyond the designed criteria and include construction related activity and its effect on the tree supporting soil environment and also collateral works that are required to create a final fit between the proposed development works on the existing landscape. This latter issue is of particular pertinence in that the site is of irregular and often undulating contours that do not necessarily match with proposed floor levels, road levels or path levels. In this respect, it is noted that throughout the site substantial elements of cut and/or fill, or grading are required thus requiring construction related activity and the disturbing of soil sometime substantially beyond the design footprint of the various elements of the design proposals. A large proportion of the development comprises principal structures including new homes and commercial buildings. These are added to by way of road infrastructure and the provision of services infrastructure including drainage and water mains amongst others. Such structures, there are requirements for excavation and the provision of foundations are wholly contrary to tree retention. In many instances, it is the construction of these items that is required tree or hedge loss.

Further to the above, there are requirements within the remaining landscape to provide for access and connectivity. Much work has been undertaken by the Landscape Architects to minimise such effects but nonetheless, there are areas where connectivity is required through or beside trees and hedges. In some instances, such connectivity and its required provision of suitable levels and gradients was contrary to tree protection. In other instances, the provision of pathways can be accommodated near trees if specific measures are adopted. Such measures would relate primarily to the adoption of light touch and low impact measures, effectively minimising foundations, using porous surfaces and adopting manual techniques where possible, thus preserving the tree supporting ground environment.

In addition to, but still relating to the historic landscape, note is made of proposals, as part of this development, to carry out works to the historic ponds and parts of the watercourse associated with the Mayne River. The principal works in this area involve the re-contouring of the pond basis, effectively removing existing stilt and possibly relining the ponds. At this stage, it appears that access can be gained to the ponds and that the principal work can be undertaken without causing damage to trees on the pond and stream banks. Nonetheless, it would be advised that prior to commencement, further investigation be undertaken into the precise nature of all aspects of this work as any interference with or disturbance of tree supporting banks will adversely affect tree retention outcomes. The current

iteration of this report notes areas and issue that require further scrutiny. Particularly, note is made of conflicts between the proposed lighting layout and the desire to retain trees and hedges. In this respect, and if the indicated extent of tree and hedge retention is to be achieved, it will be necessary to relocate a number of the currently proposed lighting features. Should this not be possible, then there would be additional tree and hedge losses above those depicted and listed at present. Without doubt, the trees, woodlands and hedges are ecologically and visually significant to the Belcamp estate. Therefore, their retention should be strived for. Within the context of this report, the basic requirements set out in BS 5837 – 2012 have been used both as a basis to evaluate the suitability of attempting tree retention but also regarding the provision of tree protection. Where minimum tree protection cannot be provided or its benefits are mitigated by other circumstances then such trees have been nominated for removal. Where material protection can be attained, it is assumed that such will be provided at construction stage and thereby providing a reasonable expectation of sustainable tree retention. For the most part, and as indicated on the tree protection plan, the primary tree protection strategy will be one of construction activity exclusion. This is attained by the preconstruction erecting of construction exclusion fencing. Such fencing is typically erected at the perimeter of the root protection area prior to the commencement of works and left in situ until all construction works are completed. The only exception to this relates to the undertaking of light touch, low-impact works such as landscape works that can be undertaken manually or with the provision of controlled ground protection for low impact mechanised activities. It is envisaged that a clear majority of tree protection will be provided for by construction exclusion fencing.

In line with suggestions made regarding the development of a tree and woodland management plan, further works and investigations will be necessary. The full effects of works will, in many respects, relate to the manner in which the works are achieved. Therefore, the assessment as provided in this report necessarily makes assumptions as to how such works will proceed. Therefore, and with regard to the provision of suitable tree protection, it is imperative that all details are reviewed once the full extent of works and access requirements are understood. Appreciating the dynamic and often deteriorating nature of the sites tree population then continuous and ongoing tree monitoring must be maintained. As noted above, substantial deterioration in tree loss has occurred since first reviewing this site in 2015. This deterioration and rate of tree loss is expected to continue. Therefore, the potential outcomes of this Arboricultural assessment are subject to ongoing change with time. Such changes can only be identified by continuous review and comparison with prior findings.

This review would be incorporated into the broader tree and woodland management plan. Such a plan must appreciate health and safety issues with regard to woodlands in light of the increase rate of occupation the woodland areas will attain. It is likely that intervention will be required to improve safety, particularly where pathways and routes invite occupation. In this respect, it is advised that notwithstanding the provision of a preliminary woodland management plan as part of this report, the discussions remain ongoing with regard to the agreement of a more detailed and long term plan that addresses a number of significant factors. Primarily, the fact that the plan must address the fact that impromptu tree loss is likely to prove impossible but at the same time, the woodland will comprise a publicly accessible woodland. Additionally, and as noted above, the woodland is in a state of deterioration with many of the older, planted specimens being lost. Because of minimal intervention and replacement planting, the woodland is becoming dominated by a small number of species, 2 of which are under pathological threat. Whilst Sycamore may be viewed as offering a highly desirable degree of resilience for the mid and long term future, nonetheless, biodiversity and other ecological as well as sustainability issues can only be addressed by augmenting the Sycamore population with a more diverse species palette. This would be accomplished as part of a long-term woodland management plan that appreciates the benefits of creating not only a diverse species palette but also a diverse age profile. The Woodlands at present are already becoming dominated by young trees, but of a small number of species. Extensive replanting at a single time will recreate the scenario of the failing woodland by promoting a single age woodland profile. Therefore, replacing trees over time will

be key to creating a sustainable woodland. In this respect, it is appreciated that attempting to timetable a management plan extending for 25 of 50 years ahead itself brings difficulties, this should be strived for as a fundamental part of the plan.”

(Source: The Tree File Ltd., 2022)

Table 11.8: Numeric Representation of Tree Loss/Retention Scenario (Source: Arboricultural Report, The Tree File, 2022)

	Category B	Category C	Category U	Total
Total No. of Trees	311	531	153	995
No. of Trees Retained	300	484	117 (short term only)	902 (inc. short term) 785 (long term)
No. of Trees Removed	11	47	36 (immediately)	93 (immediately) 210 (overall)
Hedge Removal: circa 1,972 metres				

During the construction phase the existing trees and hedgerows that are to be retained will be protected from construction traffic, material storage, ground level changes and any other disturbances, in accordance with the recommendations set out in BS5837: 2012 and detailed in the arborist’s report.

The overall impact on the existing trees and hedgerows will be **slight-moderate and negative** during the construction phase, prior to the establishment of proposed trees and supplementary hedge planting throughout the site.

During the operational phase, and with consideration for the proposed planting measures and the implementation of the woodland management plan recommendations (refer to Arboricultural Report), it is anticipated that the proposed development will have a **slight and negative** impact on the short term, reducing to **not significant and negative** impact on trees and hedgerows in the long term.

11.5.2 Impact on Landscape Character

These lands are subject to land use zoning objectives ‘Residential’ for the majority of the subject site and ‘Open Space’ objective along the Mayne River and in the north-west. The conversion of the agricultural land into a residential development will mean that this area will experience an intensification of use.

The Historic Landscape Report concludes that:

“The design intent of the proposed development is to ensure the protection of the built heritage through the repair, preservation and improvement of its historic fabric and setting. It is acknowledged that the original expansive lawn to the rear of the house will be replaced with housing. However, the restoration of the house, the reinstatement of its curtilage in combination with the elements of the lands that make up the ‘Brownian’ landscape including the woodland, walled garden, watercourses, Washington Monument, Ice House and Rock House and the strategic views as part of the proposed

development, will both help preserve the historic identity of the lands and preserve Belcamp Hall as a piece of history for future generations.”

Source: The Historic Landscape at Belcamp Hall (TBS, 2022)

The proposed development will result in an intensification of land-use which may be perceived as having a **moderate and negative** impact on the character of this landscape during the construction phase, due to the presence of construction cranes, lighting and other visual disturbances caused by construction.

However, the land is zoned for a development of this scale and its impact will lessen once the scheme is operational and the planting mitigation measures such as along the site boundaries and within the open spaces, establish and mature. In this context the operational phase of the proposed development will have a **slight and negative** impact on the landscape character in this area.

11.5.3 Impact on Views

11.5.3.1 General Impacts

Construction Phase:

During the construction phase, the following elements of the proposed development have the potential to cause visual impacts, they will however be short to medium term in duration:

- Two road entrances into the proposed development
- Temporary site works – hoarding, lighting, cranes, car parking, storage areas
- Construction traffic – dust and emissions
- Tree and vegetation clearance
- Groundworks – cut and fill excavations
- Laying of foundations and site services

Operational Phase:

The principal elements which are likely to give rise to landscape and visual impact visual impact in the long term are:

- Removal of some existing trees and hedgerows
- Height of proposed buildings
- New structures, roads, lighting and pathways
- Change of character due to intensification of use, from arable farmland to the residential development
- Proposed tree and shrub planting

11.5.3.2 Impacts on Protected Views

The FDP 2017-2023 and DCDP 2016–2022 does not refer to any protected views to or from the subject site.

11.5.3.3 Impact on Visibility into the site

For this visual impact assessment, viewpoints were selected to represent the likely visual impact from a variety of distances and direction around the site. Priority was given to views from the public domain, such as main roads and to views from potentially sensitive locations such as adjacent residential areas and from the amenity pathways. Photomontages were compiled from the viewpoints shown on Figure 11.13 (the visual analysis section below should be read in conjunction with the baseline and proposed visuals produced by Digital Dimensions).



Figure 11.13: Viewpoint Location Map (Source: Digital Dimensions, 2022)

Visual 1: From Carr's Lane, looking south

Existing View:

This location on Carr's Lane, affords views of the mature hedgerows and trees that form the northern boundary of the subject site.

Proposed Changes and Visual Impact:

It is anticipated that this location will afford views of the proposed pedestrian link between Carr's Lane and the subject site, which will involve the removal of a section of the existing hedgerow and the introduction of a hard surface in this area. The existing mature hedgerow and dwellings prevent further views into the subject site.

Construction Phase:

During the construction phase it is likely that there will be limited views of the construction machinery and cranes within the subject site, from this location, resulting in a **slight and negative** visual impact.

Operational Phase:

During the operational phase the impact on views from this location may be **not significant and negative** due to removal of a section of the existing hedgerow and the pruning of the other sections to facilitate the construction of the pedestrian link. However as the existing trees continue to mature and the proposed tree and hedge planting becomes more established it is anticipated that the visual impact will lessen in the long term.

Visual 2: From Limekiln Lane, looking south

Existing View:

This location along Limekiln Lane affords views of a residential property and associated boundary treatments and planting and the mature trees and hedgerows that demarcate the fields in this area.

Proposed Changes and Visual Impact:

From this location on Limekiln Lane, north of the subject site, the existing dwelling, associated boundary planting and the intervening topography prevent views into the subject site.

Construction Phase:

During the construction phase, while it is likely that the majority of the construction machinery and lighting will not be visible from this location, portions of the cranes that will be required may be visible and therefore the impact may be **slight and negative/neutral**, with much of the impacts screened by the existing vegetation.

Operational Phase:

It is anticipated that views of the proposed development will not be possible or very limited from this location and the visual impact will be **imperceptible and neutral**.

Visual 3: From Baskin Cottages looking south

Existing View:

The location of this viewpoint from Baskin Cottages affords a view of the dwellings and the mature hedgerow along Baskin Lane. The arable fields and hedgerows located between the subject site and this location are also visible preventing views into the site.

Proposed Changes and Visual Impact:

It is anticipated that the proposed development will not be visible from this location, due to the local topography and the existing trees and hedgerows in the foreground.

Construction Phase:

During the construction phase, while it is likely that the majority of the construction machinery and lighting will not be visible from this location, portions of the cranes that will be required may be visible and therefore the impact may be **slight and negative/neutral**, with much of the impacts screened by the existing vegetation.

Operational Phase:

It is anticipated that views of the proposed development will not be possible or very limited from this location and the visual impact will be **imperceptible and neutral**.

Visual 4: From Clonsaugh Road/ Stockhole Lane, looking south-east

Existing View:

From this elevated location along Stockhole Lane, the mature trees and hedgerow dominate the view and the intervening topography and mature vegetation prevent views into the subject site, from this location.

Proposed Changes and Visual Impact:

It is anticipated that the proposed development will not be visible from this location, due to the local topography and the existing trees and hedgerows in the foreground.

Construction Phase:

During the construction phase, while it is likely that the majority of the construction machinery and lighting will not be visible from this location, portions of the cranes that will be required may be visible and therefore the impact may be **slight and negative/neutral**, with much of the impacts screened by the existing vegetation.

Operational Phase:

It is anticipated that views of the proposed development will not be possible or very limited from this location and the visual impact will be **imperceptible and neutral**.

Visual 5: From Stockhole Lane, looking south-east

Existing View:

Due to the lower height of the hedgerow along this part of Stockhole Lane, the trees that form the western boundary of the subject site are visible from this location.

Proposed Changes and Visual Impact:

While it is anticipated that the existing trees and hedgerows, coupled with the local topography will screen much of the views of the proposed development from this location, it is likely that there will be partial views of the upper floors of the proposed buildings within the development.

Construction Phase:

During the construction phase, while it is likely that the majority of the construction machinery and lighting will not be visible from this location, portions of the cranes that will be required may be visible and therefore the impact may be **slight-moderate and negative**, with much of the impacts screened by the existing vegetation.

Operational Phase:

When the subject lands are in the operational phase it is anticipated that the impact on views from this location will be **slight-moderate and negative** in the short term, as while the existing and proposed planting will assist in screening views of the lower parts of the proposed development, parts of the proposed buildings will likely still be visible against the skyline, from this location in the short to medium term. It is anticipated that as the existing trees continue to mature and the proposed tree planting becomes more established it is anticipated that the visual impact will lessen to **slight and negative** in the long term.

Visual 6: From Clonshaugh Road/ Stockhole Lane, looking east

Existing View:

This field gate along Stockhole Lane permits views of arable fields and the trees that form the western boundary of the subject site.

Proposed Changes and Visual Impact:

While it is likely that the majority of proposed development will not be visible from this location, due to the presence of the existing residential buildings, tree belts and hedgerows, it is anticipated that the upper floors of the proposed apartment buildings in the northern part of the site may be visible from this viewpoint.

Construction Phase:

During the construction phase it is likely that there will be limited views of the construction machinery, scaffolding and cranes within the subject site, from this location, resulting in a **slight and negative** visual impact.

Operational Phase:

When the subject lands are in the operational phase it is anticipated that the impact on views from this location will be **slight and negative** in the short term, as while the existing and proposed planting will assist in screening views of the lower parts of the proposed development, parts of the apartment buildings will likely still be visible against the skyline, from this location in the short to medium term. It is anticipated that as the existing trees continue to mature and the proposed tree planting becomes more established it is anticipated that the visual impact will lessen to **not significant and negative** in the long term.

Visual 7: From Stockhole Lane, looking south-eastExisting View:

This viewpoint on Stockhole Lane is dominated by a mature tree belt at the entrance to a commercial facility and the buildings within it. The large substations and the hedgerows surrounding the ESB facility screen views of the subject site from this location.

Proposed Changes and Visual Impact:

It is anticipated that the proposed development will not be visible from this location, due to the existing structures and the intervening topography and the existing trees and hedgerows.

Construction Phase:

During the construction phase, while it is likely that the majority of the construction machinery and lighting will not be visible from this location, portions of the cranes that will be required may be visible and therefore the impact may be **slight and negative/neutral**, with much of the impacts screened by the existing vegetation.

Operational Phase:

It is anticipated that views of the proposed development will not be possible or very limited from this location and the visual impact will be **imperceptible and neutral**.

Visual 8: From Stockhole Lane, looking south-eastExisting View:

From this location at the access road to a number of hotels and office complex, the view is dominated by the road infrastructure and associated structures and site furniture, such as lighting columns, roundabout and traffic islands. The intervening topography and hedgerows prevent views into the subject site from this location.

Proposed Changes and Visual Impact:

It is anticipated that the proposed development will not be visible from this location, due to the intervening structures, topography and the existing trees and hedgerows.

Construction Phase:

During the construction phase, while it is likely that the majority of the construction machinery and lighting will not be visible from this location, portions of the cranes that will be required may be visible and therefore the impact may be **slight and negative/neutral**, with much of the impacts screened by the existing vegetation.

Operational Phase:

It is anticipated that views of the proposed development will not be possible or very limited from this location and the visual impact will be **imperceptible and neutral**.

Visual 9: Near roundabout of Clonshaugh Road – R139, looking eastExisting View:

The view from this location near the R139-Clonshaugh Road is dominated by the road infrastructure and associated structures and site furniture, such as lighting columns, traffic islands and signage. The intervening topography and the planting along the R139 screens views into the subject site from this location.

Proposed Changes and Visual Impact:

It is anticipated that the proposed development will not be visible from this location, due to the local topography and the existing trees and hedgerows along the R139. During the construction and operational phases, it is anticipated that the proposed development will not be visible from this location and therefore the visual impact will be **imperceptible and neutral**.

Visual 10: Belcamp Park, looking eastExisting View:

From this location within Belcamp Park, the pitches and the mature trees within the park and that form the boundary with the R139 road dominate the view. This mature vegetation coupled with the local topography prevent views into the subject site from this location.

Proposed Changes and Visual Impact:

It is anticipated that the proposed development will not be visible from this location, due to the local topography and the existing trees and hedgerows along the R139. During the construction and operational phases, it is anticipated that the proposed development will not be visible from this location and therefore the visual impact will be **imperceptible and neutral**.

Visual 11: R139 near entrance to St. Michael's House, looking eastExisting View:

From this location at the entrance to St. Michael's House, the mature hedgerow that lines the northern side of the R139 and the boundary between the Cara Park residential area and R139 dominate the view.

Proposed Changes and Visual Impact:

Due to the removal of sections of the existing hedgerow that lines the R139 to facilitate the construction of the proposed road infrastructure and buildings, it is anticipated that there will be partial views of the upper floors of the proposed apartment buildings that will be located in the southern part of the development.

Construction Phase:

During the construction phase it is anticipated that the impact on views from this area will possibly be **moderate and negative**, due to the anticipated increase in construction vehicles, the presence of site hoarding, construction cranes and lighting.

Operational Phase:

The development is consistent with existing and emerging development of land in this area and during the operational phase the impact on views from this location may be **moderate and negative** in the short term, however as the existing trees continue to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight and negative** in the long term.

Visual 12: R139 near Cara Park residential area, looking east

Existing View:

The location of this viewpoint affords view of the mature hedgerows and light standards that line the R139 and the entrance to the Craobh Chiarans GAA Club. The business park and commercial buildings at Northern Cross are also visible in the distant background.

Proposed Changes and Visual Impact:

In order to facilitate the construction of the proposed road infrastructure and buildings, it will be necessary to remove sections of the existing hedgerow that lines the R139 and therefore it is anticipated that there will be views of the western elevation of Apartment Block 6 located in the southern part of the development. It is also likely that there will be partial views of the upper floors of the other proposed apartment buildings that overlook the R139, that will be partially screened by the existing and proposed planting.

Construction Phase:

During the construction phase it is likely that there will be views of the construction machinery, lighting, scaffolding and cranes within the subject site, from this location, resulting in a **moderate-significant and negative** visual impact.

Operational Phase:

In the short term it is anticipated that the visual impact from this location will be **moderate and negative**, however as the existing trees continue to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight and negative** in the long term.

Visual 13: R139 at entrance to Northern Close/ Tara Lawns residential area, looking north-east

Existing View:

The mature hedgerows that line the R139 are the dominate feature from this location and screen views into subject site.

Proposed Changes and Visual Impact:

It is anticipated that there will be views of the proposed road junction and the Apartment Blocks 4 and 5 that will overlook the R139, due to the partial removal and pruning of the existing hedgerow. This position will also afford views of the proposed tree planting in this area.

Construction Phase:

During the construction phase it is likely that there will be views of the construction machinery, lighting, scaffolding and cranes within the subject site, from this location, resulting in a **significant and negative** visual impact.

Operational Phase:

It is anticipated that the visual impact from this location will be **moderate and negative** in the short term. However as the existing trees and hedgerows continue to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight and negative** in the long term, as the proposed development is consistent with existing and emerging development of land in this area

Visual 14: Darndale Park (near Belcamp Gardens) looking north-east

Existing View:

This location within Darndale Park affords views of the park in the foreground with the mature hedgerows that line both sides of the R139 visible in the background.

Proposed Changes and Visual Impact:

It is anticipated that there will be views of the upper floors of the proposed apartment buildings that will overlook the R139, from this location within Darndale Park.

Construction Phase:

During the construction phase it is likely that there will be views of the construction machinery, lighting, scaffolding and cranes within the subject site, from this location, resulting in a **moderate-significant and negative** visual impact.

Operational Phase:

In the short term it is anticipated that the visual impact from this location will be **moderate and negative**. However as the existing trees and hedgerows continue to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight and negative** in the long term, as the proposed development is consistent with existing and emerging development of land in this area

Visual 15: From Tulip Court/ Darndale Park, looking north

Existing View:

From this location near the Tulip Court residential area, the playground and pitches within Darndale Park dominate the view. The tree belts located both sides of the R139 road are visible in the background and prevent views into the subject site.

Proposed Changes and Visual Impact:

From this location within Darndale Park, near Tulip Court, it is anticipated that there will be views of the upper floors of the proposed apartment buildings that will overlook the R139, as the lower sections of the proposed buildings will likely be screened by the existing vegetation that lines both sides of the R139 and the proposed planting.

Construction Phase:

During the construction phase it is likely that there will be views of the construction machinery, lighting, scaffolding and cranes within the subject site, from this location, resulting in a **moderate-significant and negative** visual impact.

Operational Phase:

It is anticipated that the visual impact from this location will be **moderate and negative** in the short term. However as the existing trees and hedgerows continue to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight and negative** in the long term, as the proposed development is consistent with existing and emerging development of land in this area.

Visual 16: From R139 at southern entrance to Belcamp lands, looking north

Existing View:

This location on the R139 permits views of the southern access road entrance to Belcamp Hall. The hedgerow that lines the R139 is also a dominant feature from this location and screens further views into the subject site.

Proposed Changes and Visual Impact:

It is anticipated that there will be views of the proposed road junction and the Apartment Block 1 that will overlook the R139, due to the partial removal and pruning of the existing hedgerow. This position will also afford views of the proposed tree planting in this area.

Construction Phase:

During the construction phase it is likely that there will be views of the construction machinery, lighting, scaffolding and cranes within the subject site, from this location, resulting in a **significant and negative** visual impact.

Operational Phase:

In the short term it is anticipated that the visual impact from this location will be **moderate and negative**. However as the existing trees and hedgerows continue to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight and negative** in the long term, as the proposed development is consistent with existing and emerging development of land in this area

Visual 17: From R139, near entrance to business park, looking north-westExisting View:

This viewpoint on the R139 is dominated by the road and associated structures, such as lighting, traffic islands, signage and traffic lights. This location also affords views of the commercial buildings in this area such as Bewley's Head Office and the mature planting that lines both side of the R139 road.

Proposed Changes and Visual Impact:

It is anticipated that there will be views of upper floors of the proposed apartment buildings that overlook the R139 in the south-eastern part of the subject site, which will likely be partially screened by the existing and proposed planting.

Construction Phase:

During the construction phase it is likely that there will be views of the construction machinery, lighting, scaffolding and cranes within the subject site, from this location, resulting in a **moderate-significant and negative** visual impact.

Operational Phase:

In the short term it is anticipated that the visual impact from this location will be **moderate and negative** however, the development is consistent with existing and emerging development of land in this area. As the existing trees continue to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight and negative** in the long term.

Visual 18: From within the business park, looking westExisting View:

From this location at the entrance to Bewley's Head Office, the commercial buildings and car park dominate the view. The planting that forms the boundary with this complex and the subject site are also a dominant feature from this location and prevent views into the site.

Proposed Changes and Visual Impact:

It is anticipated that there will be partial views of the upper floors of Apartment Block 1 located within the south-eastern part of the site, from this location within the business park. However, it is likely that

views of the remainder of the proposed development north of the river will be screened by the existing woodland and trees.

Construction Phase:

During the construction phase it is likely that there will be views of the construction machinery, lighting, scaffolding and cranes within the subject site, from this location, resulting in a **moderate and negative** visual impact.

Operational Phase:

In the short term it is anticipated that the visual impact from this location will be **moderate and negative**. However as the existing trees and hedgerows continue to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight and negative** in the long term, as the proposed development is consistent with existing and emerging development of land in this area

Visual 19: From roundabout (Malahide Road-Blunden Drive-Priorswood Road), looking north-west

Existing View:

The road infrastructure and the associated structures and street furniture, such as lighting, traffic islands and signage are visible from this location. The dwellings within the residential areas of Buttercup Park and Crescent are visible in the background.

Proposed Changes and Visual Impact:

It is anticipated that the proposed development will not be visible from this location, due to the local topography and the existing trees and hedgerows along the R139. During the construction and operational phases, it is anticipated that the proposed development will not be visible from this location and therefore the visual impact will be **imperceptible and neutral**.

Visual 20: From Malahide Road, near junction with Belcamp Lane, looking north-west

Existing View:

This location near the entrance to Clarehall shopping complex, affords views of the lighting, the boundary fence that runs along Malahide Road and the dwellings along Belcamp Lane. The dwellings within Newtown Court, the Bewley's Head Office complex and the planting that runs along either side of the R139 road are also partially visible in the background from this location.

Proposed Changes and Visual Impact:

Due to the intervening topography, existing buildings and planting, the majority of the proposed development will be screened from this location on Malahide Road. However, it is anticipated that that there will be glimpsed views of Apartment Block 1 through the gap between the existing buildings.

Construction Phase:

During the construction phase, while it is likely that the majority of the construction machinery and lighting will not be visible from this location, portions of the cranes that will be required may be visible and therefore the impact may be **not significant and neutral**, with much of the impacts screened by the existing vegetation and buildings.

Operational Phase:

Due to the local topography, existing vegetation and the existing buildings within Newtown Court and City Junction Business Park, it is anticipated that there will be limited views of the proposed development and the impact on views from this location will be **not significant-slight and negative** in the short term. The development is consistent with existing and emerging development of land in this area and the visual impact will decrease in time as the proposed and existing vegetation continues to mature, to **not significant and negative** in the long term.

Visual 21: At junction of Malahide Road – R139 looking north-west

Existing View:

From this location at the junction of Malahide Road-R139, the hotel and the mixed-use buildings within the City Junction Business Park dominate the view from this location and screen views into subject site.

Proposed Changes and Visual Impact:

It is anticipated that due to the local topography, existing vegetation and the existing buildings within Newtown Court and the City Junction Business Park, the majority of the proposed development will not be visible from this location. It is likely that through a gap between the existing vegetation and the Bewley's Head Office complex there will be a very limited view of the upper floor of Apartment Block 1.

Construction Phase:

During the construction phase, while it is likely that the majority of the construction machinery and lighting will not be visible from this location, portions of the cranes that will be required may be visible and therefore the impact may be **not significant and neutral**, with much of the impacts screened by the existing buildings and vegetation.

Operational Phase:

During the operational phase it is anticipated that there will be limited views of the proposed development from this location and the impact will be **imperceptible-not significant and neutral**, as it is consistent with the existing development of land in this area.

Visual 22: Malahide Road, at eastern entrance, looking west

Existing View:

This location at the eastern access road off Malahide Road permits views of the entrance, the recently constructed dwellings, the access road and the construction compound within the Phase 1 of the Belcamp development (Planning References: F15A/0609; F19A/0220; F20A/0379 and F21A/0401) and the mature trees associated with the existing dwelling located to the south of the entrance. The mature tree belts that bound the subject site, Belcamp Hall and the mature woodlands to the west of this building are also visible in the background.

Proposed Changes and Visual Impact:

It is anticipated that due to intervening topography, existing buildings and vegetation the majority of the proposed development will not be visible from this location, however it is likely that there will be limited views of the upper floor of the proposed duplex building within the north-eastern part of the subject site.

Construction Phase:

During the construction phase, while it is likely that the majority of the construction machinery and lighting will not be visible from this location, portions of the cranes that will be required may be visible and therefore the impact may be **not significant and negative** with much of the impacts screened by the existing buildings and vegetation.

Operational Phase:

During the operational phase it is anticipated that there will be limited views of the proposed development from this location and the impact will be **not significant and negative**, as it is consistent with the existing development of land in this area.

Visual 23: From access road within the Belcamp residential development (Phase 1), looking west

Existing View:

This location affords views of the recently constructed dwellings and access road and the construction compound within the Phase 1 of the Belcamp development (Planning References: F15A/0609; F19A/0220; F20A/0379 and F21A/0401). Belcamp Hall and the mature hedgerows and trees along within the field boundaries of the subject site, are also visible in the background.

Proposed Changes and Visual Impact:

It is anticipated that once the buildings within Phase 1 of the Belcamp development (as indicated with a blue line in the accompanying photomontages) are complete they will prevent views of the proposed development from this location.

Construction Phase:

During the construction phase, while it is likely that the majority of the construction machinery and lighting will not be visible from this location, portions of the cranes that will be required may be visible and therefore the impact may be **slight and negative** with much of the impacts screened by the existing buildings and vegetation.

Operational Phase:

During the operational phase it is anticipated that there will be limited views of the proposed development from this location and the impact will be **not significant and negative**, as it is consistent with the existing development of land in this area.

Visual 24: From southern entrance road (near bridge), looking north

Existing View:

This viewpoint on the southern entrance road to Belcamp Hall affords views of the arable fields and the mature trees that line the River Mayne. There are also glimpsed views of Belcamp Hall through the trees from this location.

Proposed Changes and Visual Impact:

From this location with the proposed plaza south of the reiver and west of Apartment Block 1, it is anticipated there will be views of the pathways, bridge and the ornamental planting that are proposed in this area. It is likely that the existing dense woodland trees along the river and associated with Belcamp Hall with prevent further views of the proposed development from this area.

Construction Phase:

During the construction phase the impact on views from this location will be likely be **moderate and negative**, due to the anticipated increase in construction vehicles, the presence of site hoarding, construction cranes, lighting and ground works that will be taking place onsite.

Operational Phase:

When the subject site is in the operational phase and the proposed vegetation matures, it is anticipated that the impact on views from this location would lessen to **slight and negative** in the short term and likely continue to lessen to **slight and neutral** in the long term.

11.5.4 Cumulative Impacts

There are existing residential developments located to the south of the R139 and the the City Junction Business Park north of the R139 (south-west of the subject site). There is also Phase 1 of the Belcamp residential development (Planning References: F15A/0609; F19A/0220; F20A/0379 and F21A/0401) to the east of the subject site, where certain parts are complete and others are still under construction. Cumulatively these developments together with the proposed development, in the absence of any

mitigation measures have the potential to have a **slight-moderate and negative** impact on the character and views of the landscape, particularly from the east and south due to the intensification of land use, as it changes from agricultural to suburban development with its associated structures and infrastructural works. However, if the proposed mitigation measures proposed as part of this development, are fully implemented:

- The proposed planting will provide an attractive visual backdrop and assist in screening this development
- The Preliminary Woodland Management Plan (detailed within the Arboricultural Report), if fully implemented will address the possible decline of the existing woodland and hedgerows, through the necessary tree works, replacement and infill tree planting, which will secure the extensive tree cover in this area into the future.
- Reinstatement of historical field boundaries through replanting and strengthening existing hedgerows that are in poor condition

Due to the existing zoning objectives for these lands, infrastructural and residential development will take place within the subject site and therefore there will be some degree of negative impact on the views towards these lands and on the landscape, as it changes from agricultural to suburban in character. It is anticipated that once the mitigation measures that are proposed within this development are implemented, the cumulative impact on the landscape and views from the surrounding areas will be reduced to **slight and negative**, and their visual impact will continue to lessen as the planting proposals establish and mature.

11.5.5 Do Nothing Scenario

If this particular development is not undertaken it is likely that the land will continue in its current use, as agricultural lands.

The lands within which the subject site is located are zoned for residential development and it is likely that some form of residential development will take place on this site in the near future.

11.6 Mitigation Measures

Consideration was given to the avoidance of impacts wherever possible during the design of the proposed scheme. However, as with any development some degree of impact is inevitable and wherever possible measures have been proposed to mitigate the adverse nature of these impacts.

11.6.1 Construction Phase:

It is proposed that careful attention will be paid to avoiding any potentially adverse construction-related effects on the adjacent residences and agricultural lands. Operating a well-managed, organised and planned construction site, with adequate control of construction traffic and working activity, is key to avoiding/minimising such impacts. In addition, any lighting required during the construction phase should be located sensitively to avoid unnecessary light spill into the surrounding residential areas and into the woodlands. The construction works and the habitat protection measures will be carried out in accordance with measures outlined by the project ecologist, FCC and DCC.

11.6.2 Operational Phase:

The careful and considered approach to the layout of the proposed development is to minimise negative visual impact both locally and from the wider surrounding area. The landscape strategy below details the landscape proposals that will assist in mitigating the landscape and visual impacts of the proposed development: refer to landscape drawings 1520_300-304 (FCC lands) and 1561_1-11 (DCC lands), Public Realm Strategy and Landscape Rationale Reports. The key objectives included:

- Retention and protection of the vegetation along existing field boundaries where possible.
 - This helps to retain a mature, established character to the site and provide a unifying, cohesive landscape framework that relates it to the surrounding landscape and its historical context, as well as being of ecological benefit.
 - Generally this will involve retention of mature good quality trees within the woodlands, tree belts and hedgerows, pruning and tidying of the retained hedgerow and replanting where the hedgerow is of poorer quality (as outlined in the Arboricultural Report).
 - The design of the development has, where possible, followed the pattern of exiting field boundaries to ensure the retention of the vegetation where possible and to retain the historical patterns of the landscape.
- Integration of the development into the surrounding landscape, minimising landscape and visual impact in particular upon nearby residential dwellings, from amenity areas and from public roads
 - This is largely to be achieved by an extensive planting programme within the site and along the site boundaries and working with the existing topography of the site as much as possible.
- Roadway lighting and lighting of cycle/ pedestrian walkways will be by means of high quality, modern standing fixtures. They will include full cut-off (FCO) and energy efficient lighting where practicable to reduce the impacts of light pollution on the surrounding area and sky.

Introduction of usable amenity spaces, as indicated on drawings 1520_300-304 (FCC lands) and 1561_1-11 (DCC lands), and which will be planted with appropriate species as described in the Public Realm Strategy and the Landscape Rationale Report.

The planting proposals within the scheme will be employed to:

- assist in the successful integration of the proposed scheme into its landscape setting
- structured tree planting is proposed within the open spaces and along the proposed roads.
- provide a sense of enclosure at the transitions between public areas to communal areas and the proposed buildings, while also permitting passive surveillance of the open space areas
- act as a buffer and assist in partially screening and filtering views of the proposed development from the surrounding area e.g. adjacent residential areas, public roads.
- assist in defining areas and reinforcing the character of the various spaces
- provide visually attractive spaces for future residents and the local community to relax, move and/ or socialise within
- open lawn and grassland meadows are proposed throughout the public spaces which provide space for informal play and passive recreation.
- create visual interest and a sense of place

- compensate for any loss/ enhance biodiversity benefits with an emphasis on pollinator friendly plant species.

11.7 Residual Impacts

Given the planning policy for the area, development of this site is inevitable, and it is likely that any proposed viable development will give rise to impacts of a similar nature. While none of the proposed measures, as discussed in the previous section, can fully mitigate against the intensification of land use, as it changes from agricultural land into a residential development, the proposals will be of benefit both locally and to the wider surrounding area by:

- Proposing a variety of planting material - trees, hedges, herbaceous planting and wildflower meadows throughout the subject site, which will improve local biodiversity.
- Future proofing the woodlands and tree belts through the implementation of the Preliminary Woodland Management Plan as outlined within the Arboricultural Report.
- Providing recreational amenities for future residents and the public through the creation of the public open space and access to the existing woodlands and river, that were previously inaccessible to the general public.

Whilst it is inevitable that there will be some negative impacts arising from this development, it's considered that the benefits outweigh the negative aspects of the proposal, resulting in the potential for **slight and negative-neutral** residual impacts.

11.8 Monitoring

Monitoring, particularly during construction phase will be on an ongoing basis and will be crucial at certain stages such as:

- During site establishment stage– prior to any works taking place, clearly identify trees and hedgerows that are to be retained and protected – ensuring tree protection measures are then place. Clearly identify trees and hedgerows that are to be removed.
- During site excavation stage – ensure existing vegetation is being adequately protected and that topsoil is being correctly stripped and stored for landscape reinstatement
- During construction stage: ensure that landscape proposals are being implemented correctly
- Post-construction stage: periodic visits will be required to ensure that any defects that may occur are rectified, that the landscape proposals are successfully establishing and being correctly maintained.

11.9 References

The following documents were referred to in relation to planning policies, objectives, statutory designations, context and visualisation in respect of the proposed site and the surrounding area:

- Fingal Development Plan 2017-2023
- Dublin City Development Plan 2016–2022
- Aerial photography
- Photomontages prepared by Digital Dimensions

- Arboricultural Survey & Report carried out by The Tree File Ltd, 2022
- Architectural Heritage Report, Sheehan + Barry Architects, 2022
- The Historic Landscape Report, TBS, 2022
- Landscape drawings & Public Realm Report, TBS, 2022
- Landscape drawings & Landscape Rationale, RMDA, 2022
- Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, July 2017)
- Guidelines for Landscape and Visual Impact Assessment (Landscape Institute & I.E.M.A., UK 2013)

12.0 MATERIAL ASSETS – TRAFFIC AND TRANSPORT

12.1 Introduction

This chapter has been prepared by Waterman Moylan Consulting Engineers.

This section assesses the likely effects of the proposed development in terms of vehicular, pedestrian and cycle access during the construction and operational phases of the proposed development.

The chapter describes: the methodology; the receiving environment at the application site and surroundings; the characteristics of the proposal in terms of physical infrastructure; the potential impact that proposals of this kind would be likely to produce; the predicted impact of the proposal examining the effects of the proposed development on the local road network; and the remedial or reductive measures required to prevent, reduce or offset any significant adverse effects.

12.2 Research Methodology

The following methodology has been adopted for this assessment:

- Review of relevant available information including, current Development Plan, existing traffic information and other relevant studies;
- Site visit to gain an understanding of the site access and observe the existing traffic situation;
- Consultations with Fingal County Council and Dublin City Council to agree the site access arrangements and determine the scope of the traffic analysis required to accompany a planning application;
- Detailed estimation of the transport demand that will be generated by the development. The morning and evening peak times will be addressed as well as an estimation of under-construction and potential future developments in the surrounding area;
- Assessment of the impact of traffic on local junctions and accessibility of the site by sustainable modes including walking, cycling and public transport

12.3 Receiving Environment at Belcamp, Dublin 17

This section considers the baseline conditions, providing background information for the site in order to determine the significance of any traffic implications. This section also considers the existing accessibility of the site by sustainable modes of transport.

12.3.1 Site Location

The subject site is located in Belcamp, Dublin 17. It is bounded to the west and north by agricultural lands, to the south by the R139 and to the east by the Malahide Road (R107). Mayne River runs west to east through the subject site and forms the boundary between Fingal County Council (FCC) and Dublin City Council (DCC). The subject site is located within the administrative areas of both FCC and DCC authorities. In the eastern portion of the Applicant's ownership lands to the north of Mayne River (FCC jurisdiction), Phase 1 of the Belcamp received a grant of planning permission under Planning Reference F15A/0609 and is currently under construction.

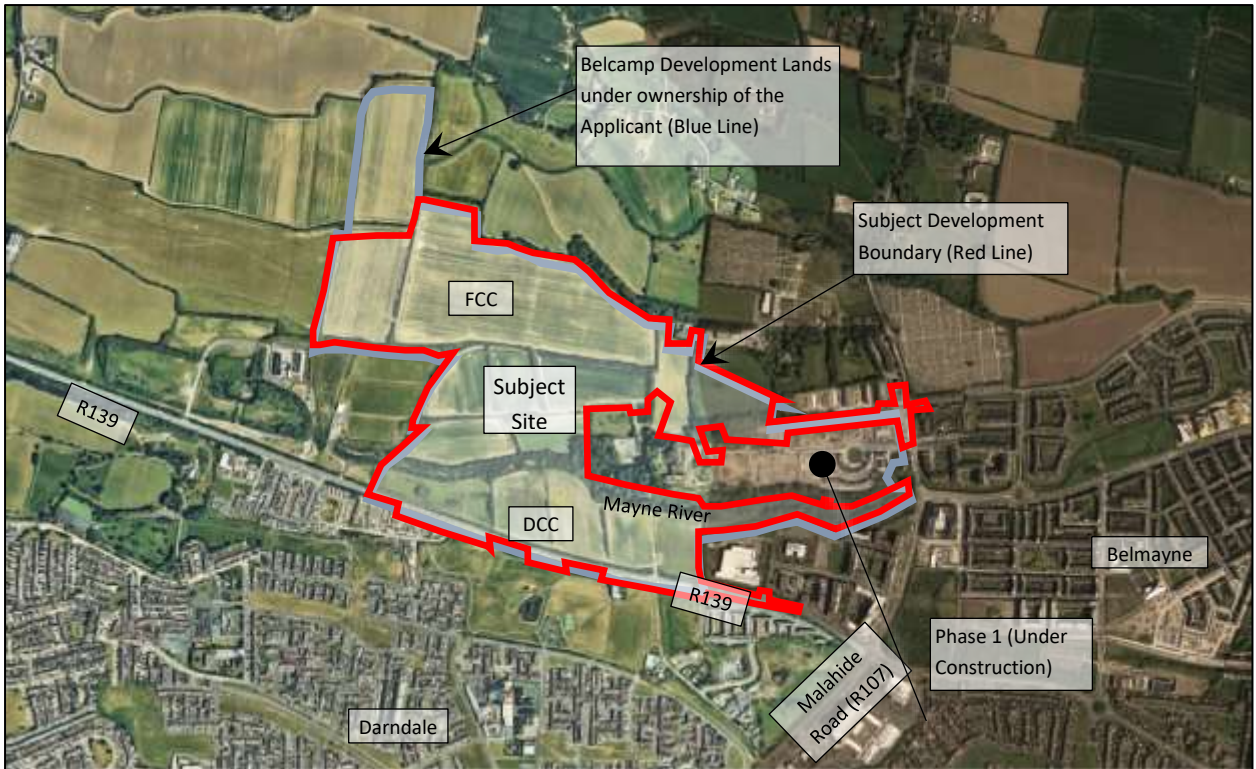


Figure 12-1: Belcamp SHD - Site Location

12.3.2 Existing Road Network

The subject Belcamp lands are situated immediately west of Malahide Road (R107) and north of R139. The existing main roads surrounding the subject Belcamp lands are illustrated in Figure 12.2 below.



Figure 12-2: Belcamp SHD – Existing Road Network

Malahide Road (R107) is a regional road running south-north along the eastern boundary of the Belcamp site. This road is approximately 6.5km in length from the site to Fairview and 5.7km to Malahide. The carriageway of the Malahide Road between its intersections with Belmayne and R123 Balgriffin Road is approximately 9.0m wide with footpaths running along both sides and no cycle lanes provided. It is a dual carriageway road in front of the Northern Cross development and connects south to the city. From Northern Cross development, Malahide Road (R107) is a QBC.

R139 is a regional road running east west to the south of the subject Belcamp lands. Approximately 3.2km west of the junction with Malahide Road (R107), R139 provides connection to M1 and M50 motorways (M1 Exit 1 and M50 Exit 3). Along the development lands frontage, R139 has a carriageway of 15m with two lanes on both sides and dedicated right turning pocket lanes which currently facilitate access to some residential and non-residential developments, and also to the subject Belcamp lands. There is a right turning lane from the R139 into the development site and there is a signal-controlled pedestrian crossing at the existing access. A Footpath is provided along both sides for the entirety of the road. Cycle lanes (shared with bus lane) are only provided to the east of Malahide Road (R107).

12.3.3 Primary Junctions

The primary existing junctions surrounding the subject Belcamp Lands are: -



Figure 12-3: Primary Junctions

Junction A (Existing Signalised T-junction): Malahide Road (R107) / Balgriffin Road (R123).

Junction A is an existing signal-controlled T-junction located immediately east of the subject Belcamp lands as illustrated in Figure 12-3. This T-junction currently comprises an additional minor arm (western approach) which is not incorporated into the existing signal system and provides access to a single property only. The southern approach (Malahide Road) currently comprises a straight/left

turning lane and a dedicated right turning lane with capacity to accommodate approximately 10 vehicles. This lane configuration provides easier access for those wishing to ingress the Balgriffin Road (R123) by segregating them from the straight/left turning movements. The Balgriffin Road (R123) (East) currently comprises a single typical lane which diverges into one straight/left turning lane and one dedicated right turning pocket lane just before approaching the junction. The northern approach (Malahide Road (R107)) comprises one typical lane with no provision of dedicated right turning or left slip lane. Dedicated pedestrian crossings are provided on the eastern and northern approaches of the junction. These pedestrian crossings are incorporated into the traffic system for the junction

Junction B (Existing T-junction): Malahide Road (R107) with access to Belcamp Phase 1.

Junction B is an existing priority-controlled T-junction located to the east of subject Belcamp lands as illustrated in Figure 12-3. All approaches of the junction comprise one single lane with no dedicated turning lanes provided. The eastern approach is an access road to a residential development and comprises a dedicated pedestrian crossing (unsignalised) with dropped kerbs and tactile paving. An upgraded layout for Junction B was approved under Belcamp Phase 1 development (Reg. Ref. F15A/0609). The new layout comprises of the signalisation of the junction and the inclusion of the western approach (College Avenue).

Junction C (Existing Signalised T-junction): Malahide Road (R107) / Belmayne.

Junction C is an existing signal-controlled T-junction located to the east of the subject Belcamp lands as illustrated in Figure 12-3. The southern approach (Malahide Road) currently comprises a straight through lane and a dedicated right turning lane with capacity to accommodate approximately 7 vehicles. As for Junction A, this lane configuration on the southern approach of Junction C provides easier access for those wishing to ingress the Belmayne by segregating them from the heavier straight through movement. The eastern approach (Belmayne) currently comprises one lane dedicated for right turns and one lane dedicated for left turns. The northern approach (Malahide Road) comprises a single lane which diverges into a straight through lane and a left slip lane just before approaching the junction. Dedicated pedestrian crossings are provided on the eastern and southern approaches and are incorporated into the traffic system for the junction. Floor painting on this junction is relatively new and well-delineated. This condition helps with the desirable day-to-day functionality of the junction and helps minimising the occurrence of any potential incidents

Junction D (Existing Signalised Crossroads): Malahide Road (R107) / R139 (Clarehall Junction).

Junction D is an existing signal-controlled crossroads located southeast of the subject Belcamp lands as illustrated in Figure 12-3. The southern approach (Malahide Road) currently comprises two straight through lanes, one left turning slip lane and one dedicated right turning lane with capacity to accommodate approximately 10 vehicles. The northern approach (Malahide Road) currently comprises two straight through lanes, one left turning slip lane and one dedicated right turning lane with capacity to accommodate approximately 11 vehicles. The western approach (R139) currently comprises two straight through lanes, one left slip lane and one dedicated right turning lane with capacity to accommodate approximately 18 vehicles. The eastern approach (R139) currently comprises one straight through lane, one straight through/right turning lane and one left turning slip lane. Dedicated staggered pedestrian crossings are provided on the southern, eastern and western

approaches. These pedestrian crossings are incorporated into the traffic signal system for the junction. Advanced stop lines for cyclists are provided on all approaches which currently provide a safe area for cyclists in front of vehicular queues and help them position themselves correctly for their turning movements. Floor painting on this junction is relatively new and well-delineated

Junction E (Existing Signalised T-junction): R139 / Access Road to Bewley's Tea and Coffee.

Junction E is an existing signal-controlled T-junction located to the southeast of the subject Belcamp lands as illustrated in Figure 12-3. The eastern approach (R139) currently comprises two straight through lanes and a dedicated right turning lane with capacity to accommodate approximately 17 vehicles. This lane configuration on the eastern approach provides easier access for those wishing to ingress the commercial developments at Northern Cross by segregating them from the heavier straight through movement. The western approach (R139) currently comprises of two lanes, one for straight through/left turn movements and one dedicated for straight through. The northern approach comprises a single normal lane and an exit lane. A dedicated pedestrian crossing with dropped kerbs and tactile paving is provided on the northern approach

Junction F (Existing T-junction with pedestrian signals): R139 / Access Road to Belcamp Lands.

Junction F is an existing priority-controlled T-junction located immediately south of the subject Belcamp lands as illustrated in Figure 12-3. The eastern and western approaches of the junction (R139) comprise of two lanes in both directions with a dedicated right turning lane – with capacity to accommodate 9 vehicles, provided on the eastern approach for those wishing to access the subject Belcamp lands. The northern approach is gated for private access only. A dedicated staggered signalised pedestrian crossing is provided on the western approach to the junction

Junction G (Existing T-junction): R139 / Priorswood.

Junction G is an existing priority-controlled T-junction located immediately south of the subject Belcamp lands as illustrated in Figure 12-3. The eastern and western approaches of the junction (R139) comprise of two lanes in both directions with a dedicated right turning lane – with capacity to accommodate 13 vehicles, provided on the western approach for those wishing to access the existing Tara Lawns halting site to the south. The southern approach comprises of a single normal lane and an exit lane

Junction H (Existing T-junction): R139 with access to a residential estate.

Junction H is an existing priority-controlled T-junction located to the southwest of the subject Belcamp lands as illustrated in Figure 12-3. The eastern and western approaches of the junction (R139) comprise of two lanes in both directions with a dedicated right turning lane – with capacity to accommodate 7 vehicles, provided on the western approach for those wishing to access the road to the south. The southern approach comprises of a single normal lane and an exit lane.

12.3.4 South Final Transport Study (SFTS) – Transportation Modelling

In order to update and refine the development strategy in South Fingal in terms of transportation, FCC commissioned SYSTRA to prepare the South Fingal Transportation Study. As part of this study SYSTRA

prepared a regional transportation model of the Fingal Dublin Fringe Area (South Fingal area with a part of north Dublin City).

This model includes the strategic transportation demand and infrastructure in the vicinity of the subject application site and as such provides the strategic traffic and transport assessments for the area in the medium and long terms. The SFTS model therefore forms basis of the local road infrastructure proposed as part of this application including the nature of the part of the East West Link Road proposed.

The regional transportation modelling was carried out by SYSTRA using the NTA Eastern Regional Model (ERM).

This is a sophisticated strategic model which includes all modes of transport (including active modes) and provides for extensive predictive modelling based on demand forecasting and supply changes in terms of new road and public transport infrastructure.

The model has been calibrated and used for predictive analysis of trip distributions by mode, network analysis to identify journey times, junction volumes, public transport line flows etc. for various scenarios of development and infrastructure provision.

The DoMin Scenario “assumes no changes are made to the transport to the transport network; this scenario, therefore, represents what could happen on the transport network due to population and employment growth if no improvements were made to accommodate the increased travel.

In addition, local area modelling was also carried out by SYSTRA to assess the impacts of various scenarios of road infrastructure within the three study areas.

Section 4.2 of the *South Fingal Transport Study – Fingal Dublin Fringe Sub Area Report* sets out details of the Local Area Model (LAM) which was developed based on the ERM. The LAM was used for a detailed assessment of route choices based on the ERM demand and modal choice.

As set out in Section 4.3 of the that document, various infrastructure scenarios were tested using a combination of the ERM and the LAM. The tested scenarios are presented in Table 10 – extracted from *Figure 4.1 Matrix of Model Scenarios* within the *South Fingal Transport Study – Fingal Dublin Fringe Sub Area Report*.

A description of the tested scenarios, as detailed in the *Fingal Dublin Fringe Sub Area Report*, are presented below:

“DoMin assumes no changes are made to the transport to the transport network; this scenario, therefore, represents what could happen on the transport network due to population and employment growth if no improvements were made to accommodate the increased travel.

***GDA Strategy** assumes the NTA GDA Strategy is implemented with respect to its bus network improvement programme, MetroLink and increased DART frequencies as part of DART expansion.*

FDP Roads includes all potential future road schemes in the main strategic model run, on top of the GDA Strategy scenario.”

The road scheme tested includes the East West Link Road (Clonshaugh section), East West Link Road (Airport section), Clarehall Junction Relief Road and the R107 Kinsealy bypass.

Scenario Name	Growth	Bus Connects / DART Expansion etc.	Additional Roads
DoMin 2016	No Growth (2016)		
DoMin 2027	Recognised Development		
GDA Strategy	Recognised Development	☑	
FDP Roads	Recognised Development	☑	☑

Figure 12-4: Tested Scenarios - Extracted from figure 4.1 of Fingal Dublin Fringe Sub Area Report

As indicated by the name of the document, the ‘Fingal Dublin Fringe Sub Area Report’ assess the impact on the road network of the Fingal/Dublin Fringe area as whole. This assessment was undertaken by comparing the above tested scenarios against each other in order to identify network changings in terms of future traffic volumes, junction’s Volume/Capacity (V/C), junction’s delays, amongst others. This section extracted from the TTA (Traffic and Transport Assessment), submitted under a separate cover provides an overview of the changes on the local road network, which are expected to occur with the reconfiguration of the overall transportation network of the Fingal/Dublin Fringe area.

Section 4.4.4 of the ‘South Fingal Transport Study – Fingal Dublin Fringe Sub Area Report’ sets out that, “the high-level trip generation modelling indicates that private vehicular demand will rise substantially over the 2016 modelled levels, almost doubling in the general Fingal/Dublin Fringe areas as the population grows to its full potential. There is a high demand for public transport within this population growth, but the capacity of the system and the fact that many trips are not city-centre bound, place a limit on the share of future travel demand that public transport is capable of accommodating. Therefore, it is prudent to begin planning now for significant upgrades to the road network, incorporating public transport priority, in order to provide relief of the impacts associated with the full build-out of both the Fingal and Dublin City lands comprising this growth area.”

As part of the GDA Strategy to accommodate the BusConnects Core Bus Corridor scheme and to provide a more pedestrian-friendly environment and favour active modes, the downsizing of the Clarehall Junction is required. The downsized scheme has been modelled within the SFTS report and the results indicated that, while creating a more active friendly environment, this measure would elevate the level of congestion on this junction.

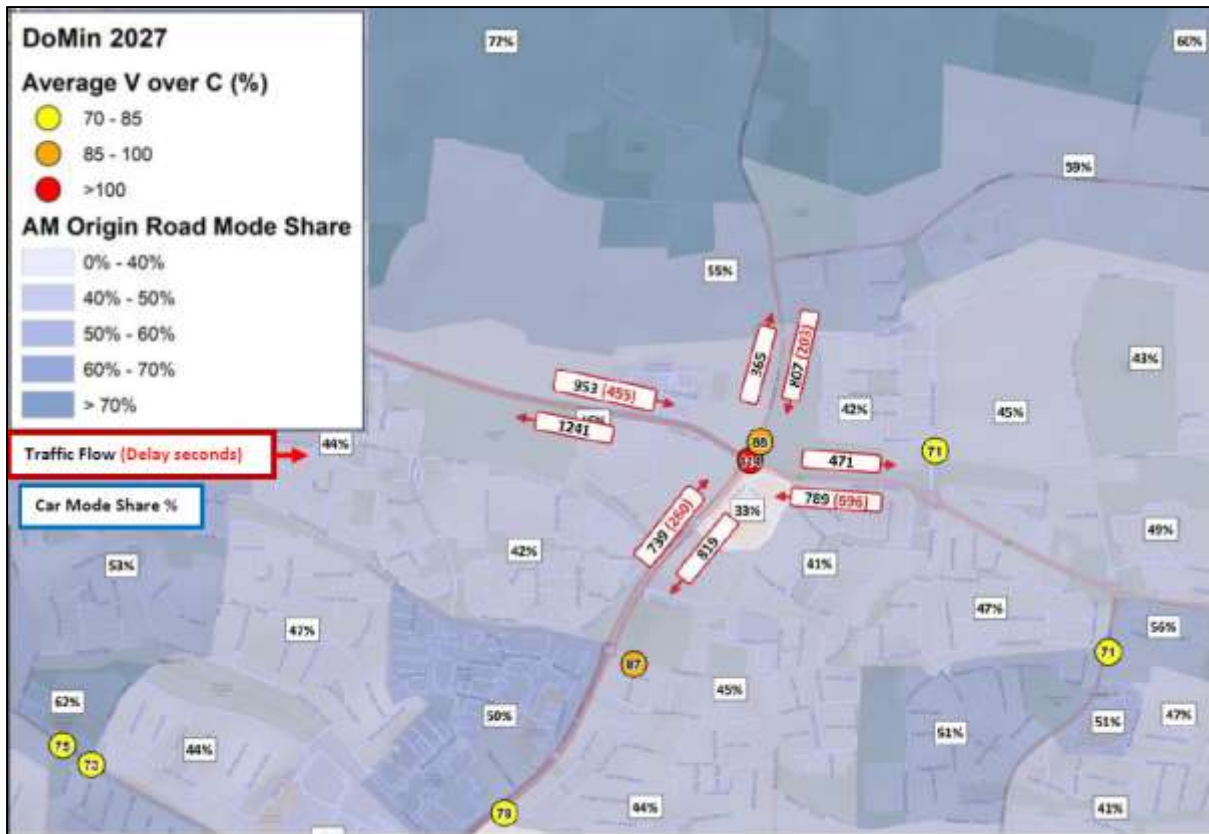


Figure 12-5: DO Minimum - Extracted from Figure 4.18 of the SFTS.

In order to identify measures to alleviate this elevated level of congestion due to the downsized scheme, Section 4.5 of the 'SFTS – Fingal Dublin Fringe Sub Area Report' sets out a wide range of additional road scenarios to investigate alternatives to the R107 Malahide Road Bypass and the East West Link Road. The investigate alternatives are as follows:

- 1) DCC Relief Road (e.g. partial Clarehall Junction Relief Road)
- 2) DCC and FCC Relief Road (full Clarehall Junction Relief Road)
- 3) Clarehall Junction Relief Road with East West Link Road to Stockhole Lane.

The analysis results on V/C for each alternative road network is reproduce in Figures 12-6 and 12-7 below – all extracted from South Fingal Transport Study.

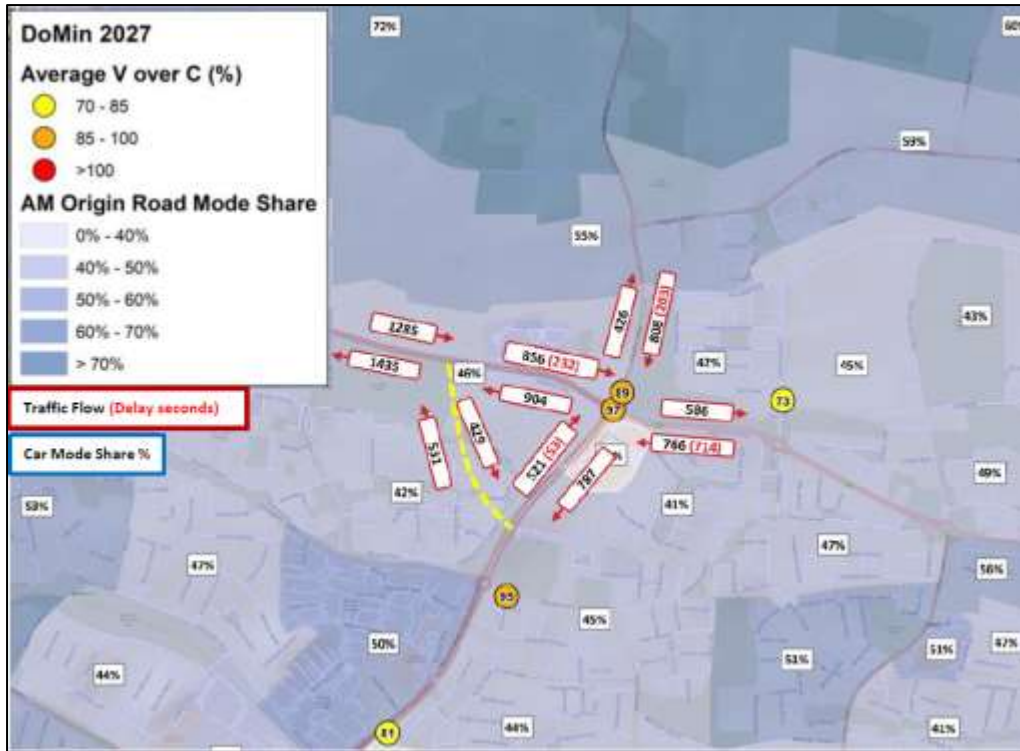


Figure 12-6: Alternative No. (1) - Extracted from Figure 4.19 of the SFST

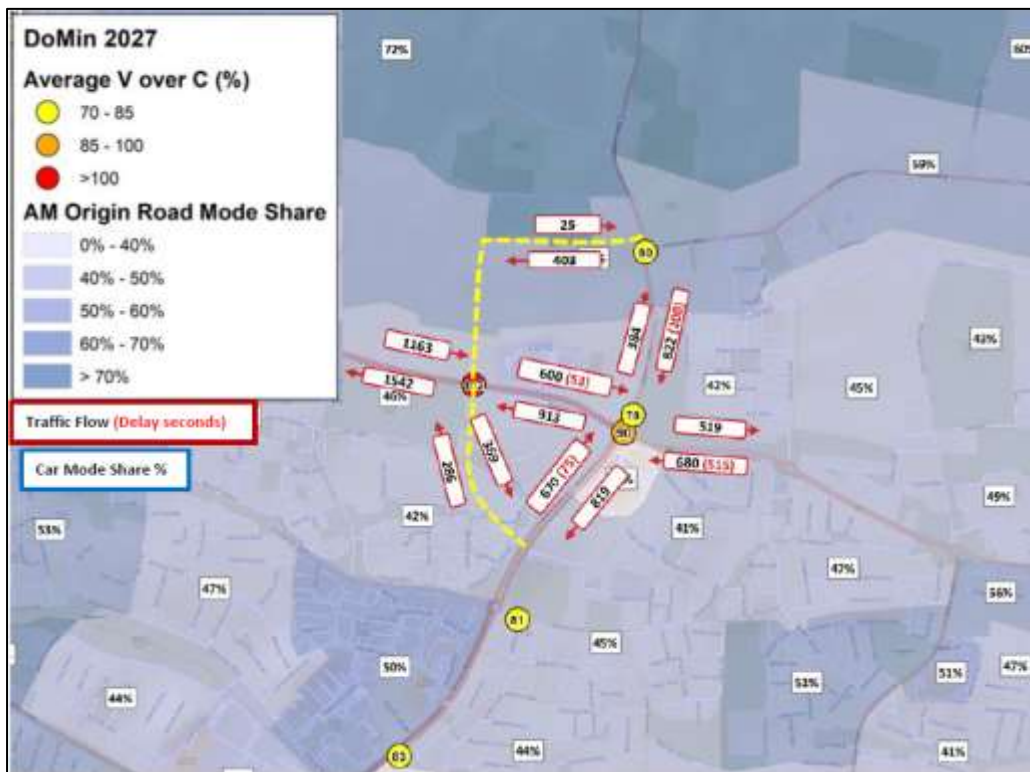


Figure 12-7: Alternative No. (2) - Extracted from Figure 4.20 of the SFSTs.

12.3.5 Pedestrian and Cycling Facilities

The Malahide Road (R107) located to the east of the subject Belcamp site and the R139 to the south, comprise footpaths along both sides of their carriageways. These footpaths, which join up at the Clarehall junction, are of good quality with consistent width throughout and offer walking connections

to a number of facilities including bus stops, retail, educational and employment. Dedicated pedestrian crossings with dropped kerbs and tactile paving are provide at every road crossing point towards these facilities.

The existing pedestrian facilities in the surrounding area comprise an inter-connected network of footpaths linking the various neighbourhoods to each other, to the existing schools and commercial/retail, to the Clongriffin train station, to public parks and to the surrounding public network.

Cyclists can benefit from the provision of dedicated cycle lanes along both sides of the carriageway on Belmayne, Malahide Road (R107), Hole In The Wall Road and Main Street (Clongriffin). These cycle lanes currently facilitate access to Clongriffin train station, Malahide Road Industrial Park and Dublin city centre. Figure 12-8 is an extract of the Cycle Network Plan for the Greater Dublin Area which illustrates the existing cycling infrastructure within the surrounding area.

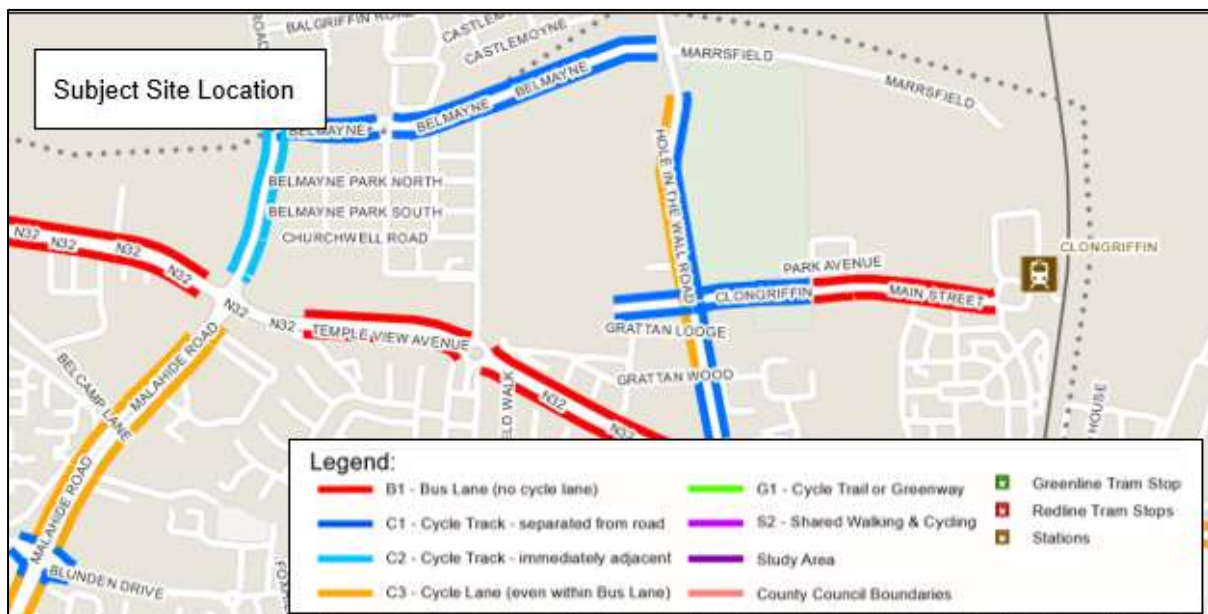


Figure 12-8: Belcamp SHD - Site Location

12.3.6 Existing Public Transport

Existing Bus

The subject Belcamp lands are served by public bus services to the east of the site. The closest bus stops are located on Malahide Road (R107), being Bus Stops No. 1217 (southbound) and No. 1206 (northbound). The location of the subject bus stops in relation to subject Belcamp lands is illustrated in Figure 12-9. These bus stops are served by Dublin Bus Route 42 and Route 43. Route 42 operates between Talbot Street in Dublin city centre and Sand's Hotel in Portmarnock. Route 43 operates between Talbot Street in Dublin city centre and Swords Business Park. The surrounding area is also served by Dublin Bus Route 15 and Route 27. The closest bus stops served by these routes are located on R139 southeast of the subject Belcamp lands. A summary of the frequency of these routes is presented in Table 12-1.

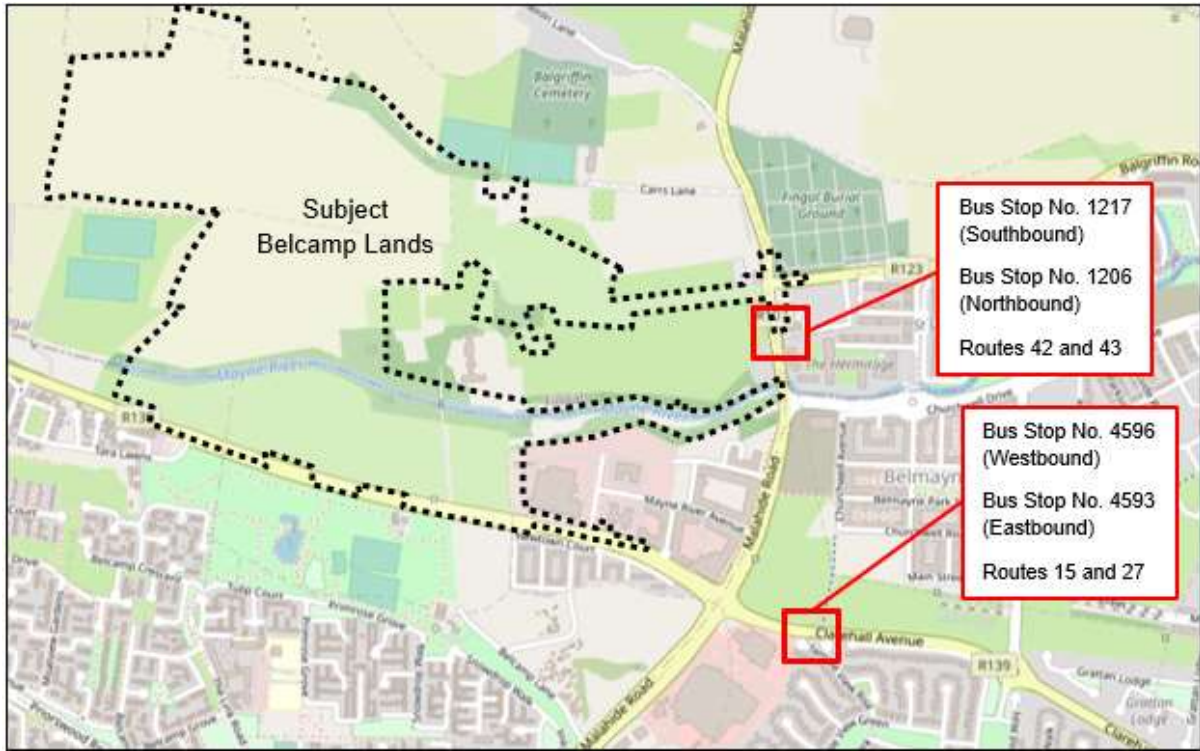


Figure 12-9: Location of nearest Bus Stops

Travel time from the subject bus stop on Malahide Road (R107) to Talbot Street in Dublin city centre is approximately 16 minutes. On the opposite direction, the travel time from the subject bus stop on Malahide Road (R107) to Malahide is approximately 16 minutes, and to Swords Business Park is approx. 20 minutes.

It is worth mentioning that the bus frequency data presented in Table 12-1 below was based on the time that buses leave the first bus stop. The information was obtained by consultation of the Dublin Bus website.

Weekday Frequency						
Route No.	Direction	00:00 to 07:00	07:00 to 09:00	09:00 to 17:00	17:00 to 19:00	19:00 to 00:00
42	From Dublin	1 service	6 services	17 services	6 services	9 services
	To Dublin	4 services	6 services	17 services	6 services	9 services
43	From Dublin	2 services	6 services	13 services	4 services	4 services
	To Dublin	3 services	7 services	13 services	4 services	4 services
15	From Dublin	18 services	17 services	Every 9-12min	13 services	20 services
	To Dublin	18 services	Every 8-12min	Every 8-12min	13 services	20 services
27	From Dublin	13 services	Every 10min	Every 10min	Every 10min	12 services
	To Dublin	11 services	Every 10min	Every 10min	Every 10min	15 services
Saturday Frequency						

Route No.	Direction	00:00 to 07:00	07:00 to 09:00	09:00 to 17:00	17:00 to 19:00	19:00 to 00:00
42	From Dublin	-	3 services	21 services	6 services	10 services
	To Dublin	1 service	4 services	21 services	5 services	10 services
43	From Dublin	1 service	2 services	10 services	3 services	4 services
	To Dublin	2 services	2 services	9 services	3 services	4 services
15	From Dublin	16 services	Every 15min	Every 15min	Every 15min	Every 15min
	To Dublin	16 services	Every 15min	Every 15min	Every 15min	Every 15min
27	From Dublin	4 services	5 services	Every 10min	Every 10min	13 services
	To Dublin	4 services	5 services	Every 10min	Every 10min	13 services
Sunday Frequency						
Route No.	Direction	00:00 to 07:00	07:00 to 09:00	09:00 to 17:00	17:00 to 19:00	19:00 to 00:00
42	From Dublin	-	-	13 services	5 services	6 services
	To Dublin	-	1 service	14 services	4 services	5 services
43	From Dublin	-	-	10 services	3 services	4 services
	To Dublin	-	1 service	10 services	3 services	4 services
15	From Dublin	14 services	4 services	Every 15min	Every 15min	Every 15min
	To Dublin	14 services	5 services	Every 15min	Every 15min	Every 15min
27	From Dublin	-	3 services	Every 15min	Every 15min	13 services
	To Dublin	-	3 services	Every 15min	Every 15min	13 services

Table 12-1: Dublin Bus Timetables

In addition to the routes above, Dublin Bus also operates Route 27x from Clarehall towards UCD Belfield. It is a Monday to Friday service, with one bus leaving Clarehall at 07:35 towards UCD Belfield in the morning and one bus leaving UCD Belfield at 17:05 in the evening towards Clarehall.

A public transport capacity assessment has been carried out to inform this Traffic and Transport Assessment. The results show the existing bus services currently have capacity to accommodate the Belcamp Site following the phasing programme. The assessment included bus capacity surveys at both bus stops listed above during peak rush hour times, the impact of the Belcamp site was then included to find the spare capacity of the existing public transport network. The findings of this assessment are reported in a stand-alone report, "Public Transport Capacity Assessment", which is included at Appendix 12-1.

The main conclusions of the Public Transport Capacity Assessment report are:

1. The Belcamp SHD site is well positioned to both the existing and the proposed, enhanced, Bus Connects and DART+ public transport network.

2. There are significant levels of spare capacity on the current bus network in the immediate area of the subject site, as shown by the bus stop surveys undertaken for this report.
3. The detailed layout of the SHD scheme contains key infrastructure of immense benefit to buses, both in the short and long term.
4. The NTA’s BusConnects project proposals include attractive new orbital and radial routes of direct benefit to the development.

Existing Rail

The subject Belcamp lands are not directly served by rail service. The closest train station is Clongriffin, located approximately 2.5km east of the site. See Figure 12-10. Clongriffin is served by Commuter Rail and DART services. The Commuter Rail service through Clongriffin Station serves all main stations from Dundalk through Dublin City Centre to Gorey. The service operates at 3 – 4 services per hour in both direction on weekdays. The DART service through Clongriffin Station serves all station from Malahide through Dublin City Centre to Bray and Greystones. On weekdays, this service operates at a 20-minute frequency in both directions. Journey time from Clongriffin Station to Connolly Station is c. 20 minutes. Dublin Bus Route 15 provides a connection between the subject Belcamp Lands and Clongriffin Station.



Figure 12-10: Location Map of Clongriffin Train Station (Source: Google Earth).

12.4 Transportation Improvements

12.4.1 Dart+

Clongriffin Station, located approximately 3.6km from the proposed Belcamp Town Square, is part of the northern route of the DART railway network. The DART+ Programme aims to improve current rail services across Dublin City and Greater Dublin, by modernising and providing an electrified and more

frequent and reliable rail service, enhancing capacity on the rail corridor. As part of the programme, the rail service between Drogheda and Dublin City Centre (via Clongriffin) is planned to be electrified with higher frequency. New rail frequency on Clongriffin has not been confirmed at the time of writing, however, significant increase in capacity is expected by purchase of new rolling stock. Improvements to the northern route are expected to be in place by 2028, with new rolling stock expected to come into service by late 2022.

12.4.2 Bus Connects

The Bus Connects project currently being promoted by the National Transport Authority aims to deliver a much-enhanced bus service to the Greater Dublin Area. The bus services will be dominated by high frequency “Spine routes” that follow the main radial corridors in the city centre, and beyond. In tandem with these service re-designs, the bus route alignments will be upgraded to radically enhance bus priority measures. As of April 2022, Phase 1 and 2 of the Bus Connects project have been launched. Phase 1 included the launch of the H Spine bus route which is located near the Belcamp SHD site.

The subject site is located in close proximity to the proposed CBC Route 1 – Clongriffin to City Centre – See Section 4.2.1 below. Three “spine” routes and four “local/radial/orbital” routes are proposed to serve the subject Belcamp lands. These are: the Spine Routes D1, D2 and D3, the Radial Routes 20 and 21, the Orbital Route N8 and the Local Route L80 – See Figure 12-11 below. A summary of the frequency of these proposed routes is presented in Table 12-2.

The Spine Routes D1, D2 and D3 will become operational in the 4th quarter of 2023 and Orbital Route N8 4th quarter 2024.

The closest bus stops to be served by these proposed routes will be located on Malahide Road (R107) just east of the subject Belcamp lands, on R139 and on the extension of Belmayne Main Street to the southeast of the subject Belcamp lands.



Figure 12-11: Bus Connects Route Map

Weekday Frequency					
Route No.	Before 07:00	07:00 to 09:00	09:00 to 15:00	15:00 to 18:00	After 18:00
20	30 min	30 min	30 min	30 min	30 to 60 min
21	30 min	30 min	30 min	30 min	30 to 60 min
N8	30 to 60 min	30 min	30 min	30 min	30 to 60 min
D1	15 to 30 min	15 min	15 min	15 min	15 to 30 min
D2	15 to 30 min	15 min	15 min	15 min	15 to 30 min
D3	15 to 30 min	15 min	15 min	15 min	15 to 30 min
L80	40 min	20 min	40 min	20 min	40 to 60 min
Saturday Frequency					
Route No.	Before 07:00	07:00 to 09:00	09:00 to 15:00	15:00 to 18:00	After 18:00
20	60 min	60 min	30 min	30 min	30 to 60 min
21	60 min	60 min	30 min	30 min	30 to 60 min
N8	60 min	60 min	30 min	30 min	30 to 60 min
D1	20 min	20 min	15 min	15 min	15 to 30 min
D2	20 min	20 min	15 min	15 min	15 to 30 min
D3	20 min	20 min	15 min	15 min	15 to 30 min
L80	60 min	60 min	60 min	60 min	60 min
Sunday Frequency					
Route No.	Before 08:00	08:00 to 10:00	10:00 to 15:00	15:00 to 18:00	After 18:00
20	-	60 min	30 min	30 min	30 to 60 min
21	-	60 min	30 min	30 min	30 to 60 min
N8	-	60 min	30 min	30 min	30 to 60 min
D1	-	30 min	20 min	20 min	20 to 30 min
D2	-	30 min	20 min	20 min	20 to 30 min
D3	-	30 min	20 min	20 min	20 to 30 min
L80	60 min	60 min	60 min	60 min	60 min

Table 12-2: Bus Connects Timetables

According to Bus Connects, “a CBC is an existing road with bus priority so that buses can operate efficiently, reliably and punctually. This generally means full length dedicated bus lanes on both sides of the road from start to finish of each corridor or other measures to ensure that buses are not delayed in general traffic congestions. The bus lanes will be alongside general traffic and segregated cycle lanes/tracks where feasible.”

CBC Route 1 – Clongriffin to City Centre commences at Clongriffin DART Station and is routed via Clongriffin Main Street which will be extended to join the Malahide Road (R107) at a new junction to the north of Clarehall junction, to include a new bus, cycle and taxi only access (bus gate) with general traffic not permitted to use this access. The layout of the approved bus gate is as approved under the Dublin City Council’s *‘Belmayne Main Street and Belmayne Avenue PART VIII Scheme’*.

From this bus gate, the CBC Route 1 is then routed via Malahide Road (R107) to the junction with Marino Mart/Fairview. From that point the CBC ties into a separate project, Clontarf to City Centre Cycle & Bus Priority Project which is currently under construction by Dublin City Council and in summary aims to a) deliver a high quality, continuous and consistent cycling facilities to cater for existing and future demand; b) provide additional pedestrian crossings; c) improve bus journey times and reliability; d) reduce reliance on private car and e) provide for a reduction in transport emissions through encouraging a modal shift to active travel and public transport project.

Belmayne Main Street and Belmayne Avenue Scheme – Part VIII DCC

In accordance with the Clongriffin – Belmayne Local Area Plan requirements, Dublin City Council is proposing to complete the unfinished Belmayne Main Street – Belmayne Avenue roadway, which includes:

- Signalised junctions at Belmayne Avenue/Belmayne Main Street and at Belmayne Main Street/Malahide Road.
- Bus lane facilities along Belmayne Main Street, including a bus lane in both directions and a new bus-gate link to the Malahide Road (R107).
- Construction of carriageway with central median island, footpaths and cycleways along the Belmayne Main Street.

As set out in the *‘Part VIII Report for Belmayne’*, prepared by DBFL in October 2018, the overall proposed scheme is divided into four sections. Section 4, which will comprise the bus gate onto Malahide Road (R107) is illustrated in Figure 12-12 – extracted from the *‘PART VIII Report for Belmayne’*.

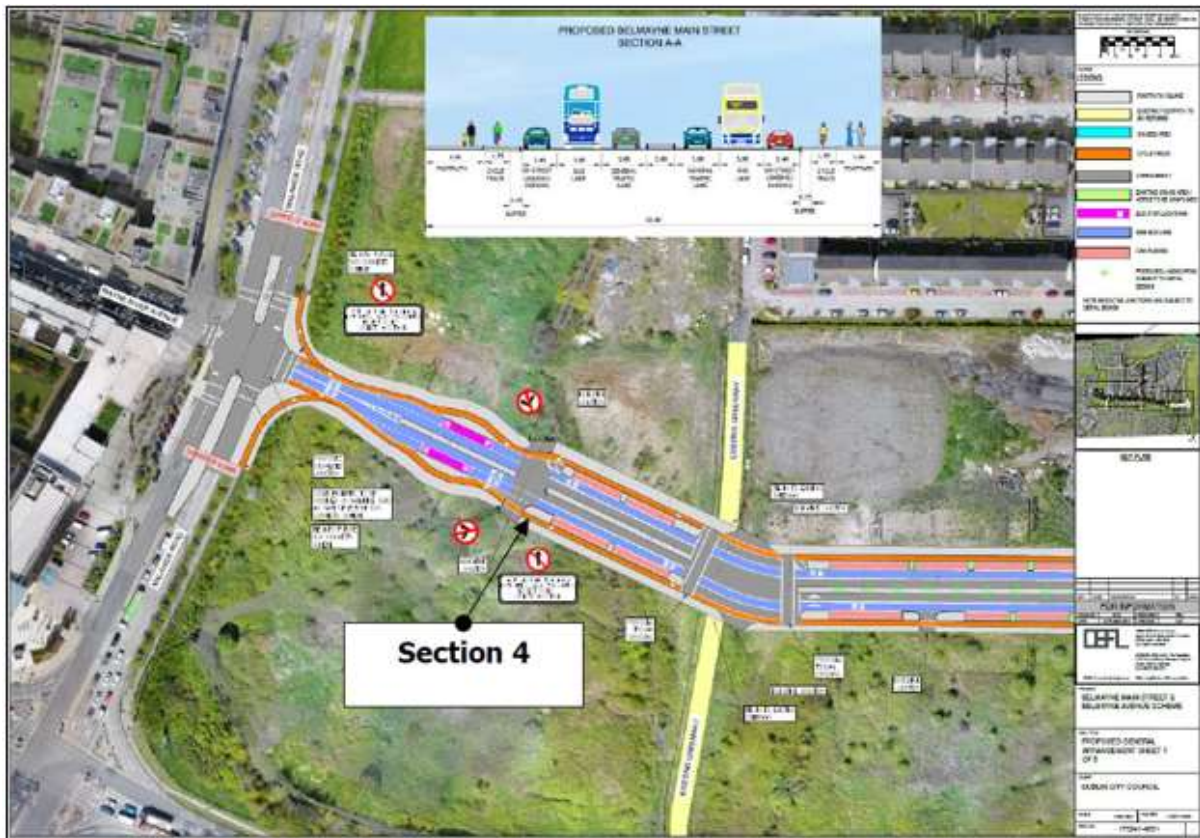


Figure 12-12: Approved Scheme for Belmayne Main Street and New Bus-gate Link.

As can be seen from the above, the proposed bus gate requires the conversion of the existing three-armed priority-controlled junction between Malahide Road (R107)/Mayne River Street to a four-armed signal-controlled junction with the eastern arm forming the new bus gate.

12.4.3 Metrolink

MetroLink is a proposed high-capacity, high-frequency rail line running from Swords through Dublin Airport and Dublin City Centre to Charlemont. MetroLink will carry up to 50 million passengers annually, cutting journey times from Swords to the city centre to 25 minutes. Although initially forecast to be operational by 2027, the MetroLink scheme is currently assumed to be in place between 2030 and 2043.

12.4.4 GDA Cycle Network

Proposals for the Greater Dublin Area Cycle Network Plan were published by the National Transport Authority in December 2013. The plan sets out a vision and a strategy for the construction and/or designation of a comprehensive network of cycling routes throughout the Greater Dublin Area (Counties Dublin, Meath, Kildare and Wicklow). An extract from Sheet N3 (Proposed Cycle Network for Dublin North Central), where the subject Belcamp lands are located, is reproduced in Figure 12-13 below.



Figure 12-13: GDA Cycle Network Plan - Proposed Cycle Network Upgrades.

A draft version of the updated GDA Cycle Network Maps 2021 is currently available and shown in Figure 12-14 below. The plan includes an additional Greenway through the site and further development of the secondary cycle pathways surrounding the subject site. This Greenway connects Belcamp to Clongriffin Dart Station and the coastal roads.

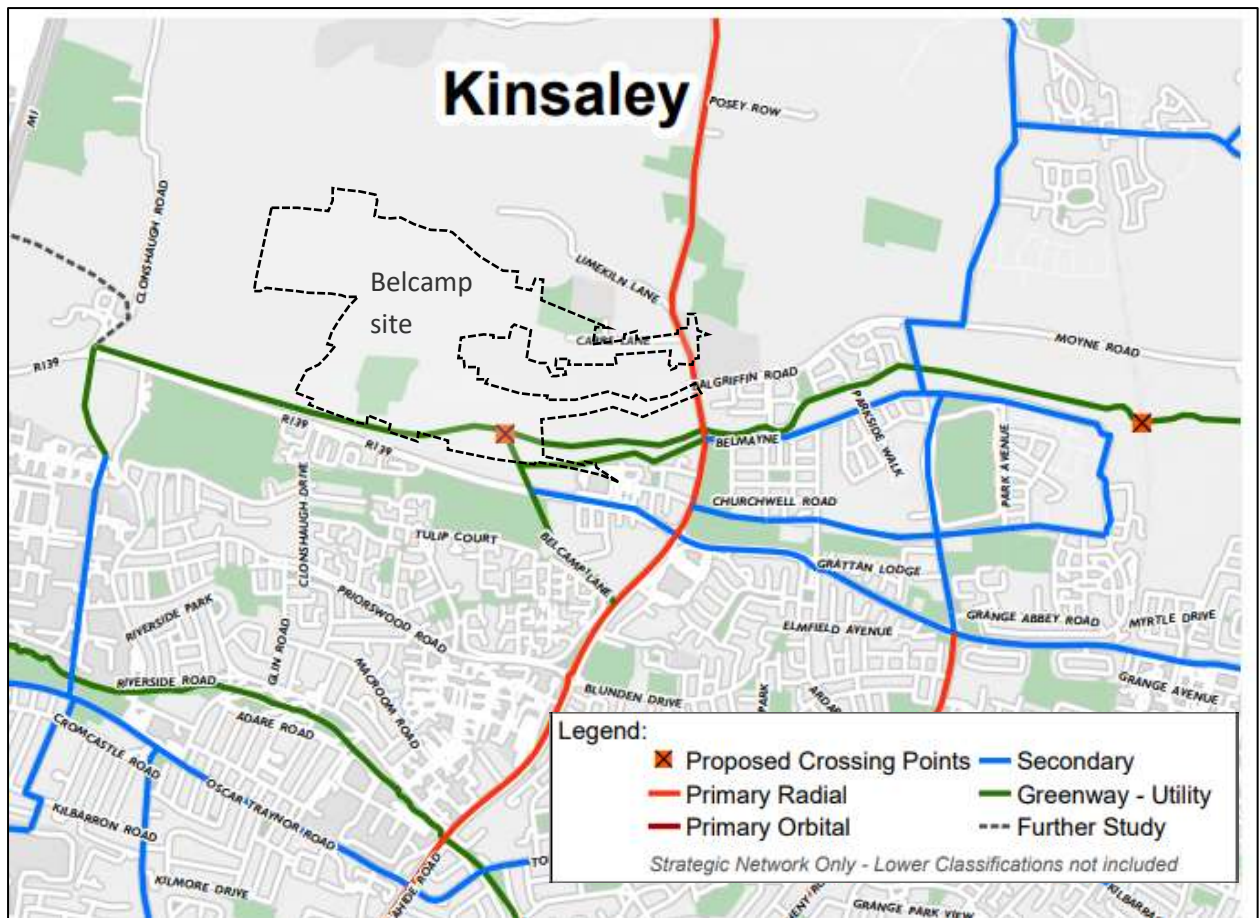


Figure 12-14: GDA Cycle Network Plan - 2021 Proposed Cycle Network Upgrades

12.5 Characteristics of the Proposed Development

12.5.1 General

The subject site is proposed to be delivered in a phased manner, with the initial phases proposed on the eastern portion of the lands (within FCC jurisdiction), immediately adjacent to Malahide Road (R107), north of Mayne River. Phase 1 of Belcamp received grant permission by Fingal County Council in June 2017 under Reg. Ref. F15A/0609 and is currently under construction. Access to Phase 1 will be provided via College Avenue, a new east-west street accessed via a new junction with the Malahide Road (R107).

It is proposed to include the main internal transportation infrastructure as part of the first phase of development, including Belcamp Parkway and the East-West Link Road, to ensure there is adequate transportation provision in place before the development is occupied. It is proposed to provide a transport hub at Belcamp Town Square with bus stops, E-bike charging stations, bicycle racks, E-car charging points and multiple designated car-share fleet parking spaces.

It is also proposed to include the main pedestrian and cycle links from Belcamp Town Square to Belmayne Commercial Area and bus gate, via the River Mayne 4.5m wide path and along the new 5.0m wide pedestrian/cycle link along the R139. It is proposed to provide open space within Phase 1, which will again attract active modes of transport internally and minimise the number of external car trips. In addition to the transport infrastructure, it is proposed to provide commercial infrastructure

within Phase 1 in both the DCC and FCC sides, to contribute towards a self-sufficient development from an early stage. This will assist with minimising the number of external trips by car from an early stage in the Belcamp Development. The Figure below shows the proposed Phasing Plan. This Phasing Plan is also included as part of the accompanying A1 drawing package, for ease of reading at suitable scale.

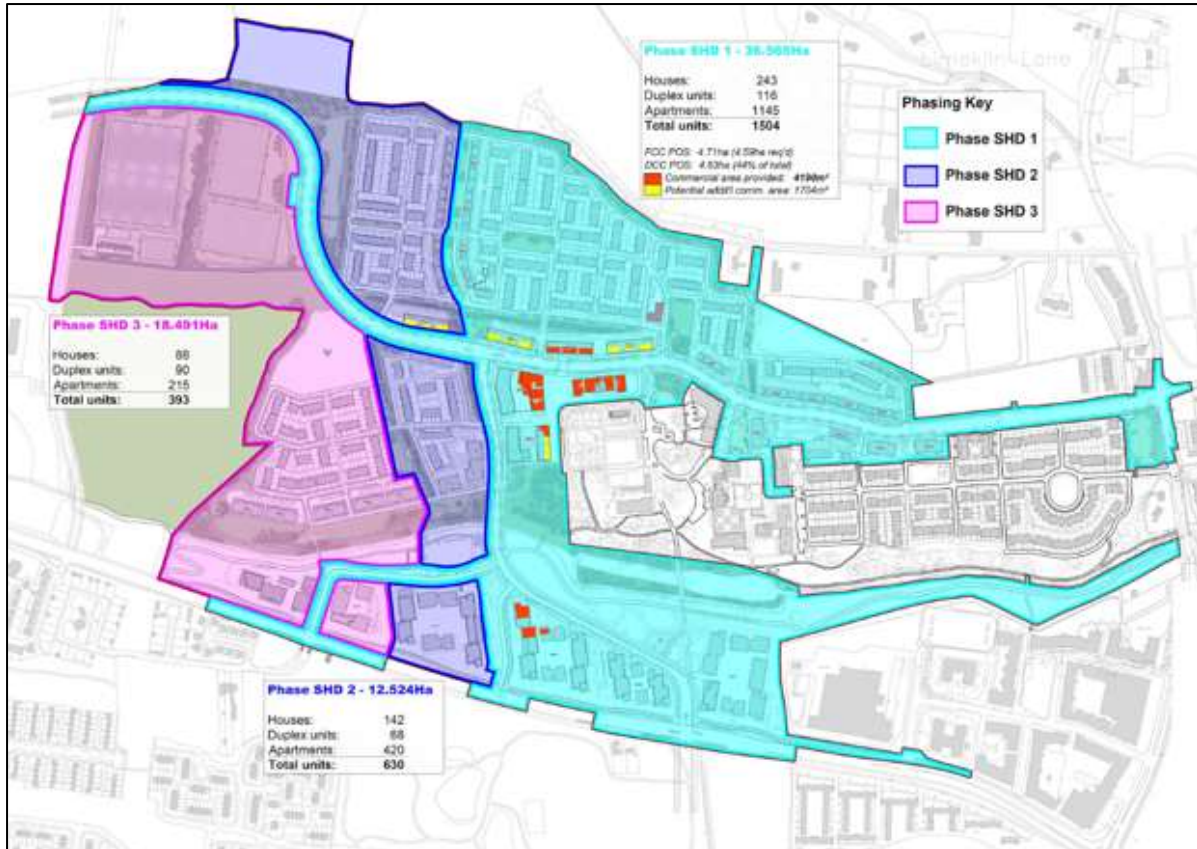


Figure 12-15: Belcamp SHD - Phasing Programme

The schedule of accommodation for each phase, along with the proposed construction schedule, is set out in the Table below:

Phase	Description	No. of Units
Phase SHD 1 36.565Ha Q1 2023 - Q3 2028 (Main Road infrastructure by Q1 2025)	Houses	243
	Duplex Units	116
	Apartments	1,145
	Phase SHD 1 Total	1,504
Phase SHD 2 12.524Ha Q3 2028 - Q3 2030	Houses	142
	Duplex Units	68
	Apartments	420
	Phase SHD 2 Total	630
	Houses	88

Phase SHD 3 18.491Ha <i>Q3 2030 - Q4 2032</i>	Duplex Units	90
	Apartments	215
	<i>Phase SHD 3 Total</i>	393
TOTAL		2,527

Table 12-3: Belcamp SHD Phasing Programme

12.5.2 Physical Infrastructure

The proposed road hierarchy within the subject Belcamp SHD will comprise of two new arterial roads (the East-West Link Road and the Belcamp Parkway), several new link streets, and a series of new local access roads, including shared surface/homezones.

The Belcamp Parkway is a north-south arterial road and will form a new junction with the R139, in DCC, where there is currently a private gated access. A new link road will form a second new junction along the R139, adjacent to the existing Tara Lawns halting site access. A new Bus Gate is also proposed as part of the Belcamp Parkway Road in order to accommodate the proposed Bus Connects routes.

The East-West Link Road (EWLR) traverses the portion of the Belcamp lands within FCC's jurisdiction, extending from Malahide Road (R107) at the east as far as the western boundary of the Applicant's lands. The road is designed to facilitate continuation west beyond Belcamp, in accordance with the Fingal Development Plan 2017 – 2023. This street has been designed to incorporate high quality public transport facilities including a dedicated bus lane in both directions and high-quality bus stops strategically located to serve the proposed development. An emphasis has been placed on active modes of transport and links to the surrounding areas.



Figure 12-16: Belcamp SHD - Proposed Road Layout

There is a high standard of pedestrian, cyclist and public transport facilities provided. This will give way to a clear, comprehensive and high-quality transport network for residents and visitors.

The design principles set out in the Design Manual for Urban Roads and Streets (DMURS) have been considered at the overall design stage and will be implemented during the detail design phase.

The four principles set out in DMURS have been considered in the design of the road network. Extracted from DMURS Report and Statement of Design Consistency submitted under a separate cover with the planning application. These comprise:

- Design Principle 1: To support the creation of an integrated street networks which promote higher levels of permeability and legibility for all users, and in particular more sustainable forms of transport.
- Design Principle 2: The promotion of multi-functional. Place based streets that balance the needs of all users within a self-regulating environment.
- Design Principle 3: The quality of the street is measured by the quality of the pedestrian environment.
- Design Principle 4: Greater communication and co-operation between design professionals through the promotion of a plan-led, multidisciplinary approach to design.

Alternative EWLR Alignment – Option B

The previously proposed road alignment, at consultation stage, provided a straighter alignment for the proposed East West Link Road (EWLR). However, alternative design options have since been

explored by the design team in consultation with key stakeholders, including the IDA, who are landowners of the strategic employment lands adjoining the western boundary of the application lands. Following this consultation, it was considered that the previous alignment did not represent the optimal design solution for the Belcamp lands and the surrounding context, including the adjoining IDA High Technology employed zoned lands to the west of the site. At a strategic and spatial level, the discussions took place with representatives of the IDA and it is the position of the IDA that the IDA have taken the Development Plan alignment as the default position of the road for their future proposals for their landholding. In order to facilitate the potential of a large single user on the site and maintain their landbank as a strategic whole, the IDA is not in a position to agree on the east-west alignment that divides their lands and thus there is a requirement for the EWL to align as per the now preferred road design, i.e. to the north west of the Belcamp lands. In light of this, the applicant has brought forward this preferred route, which is submitted as part of this planning application and is the preferred route for the application.

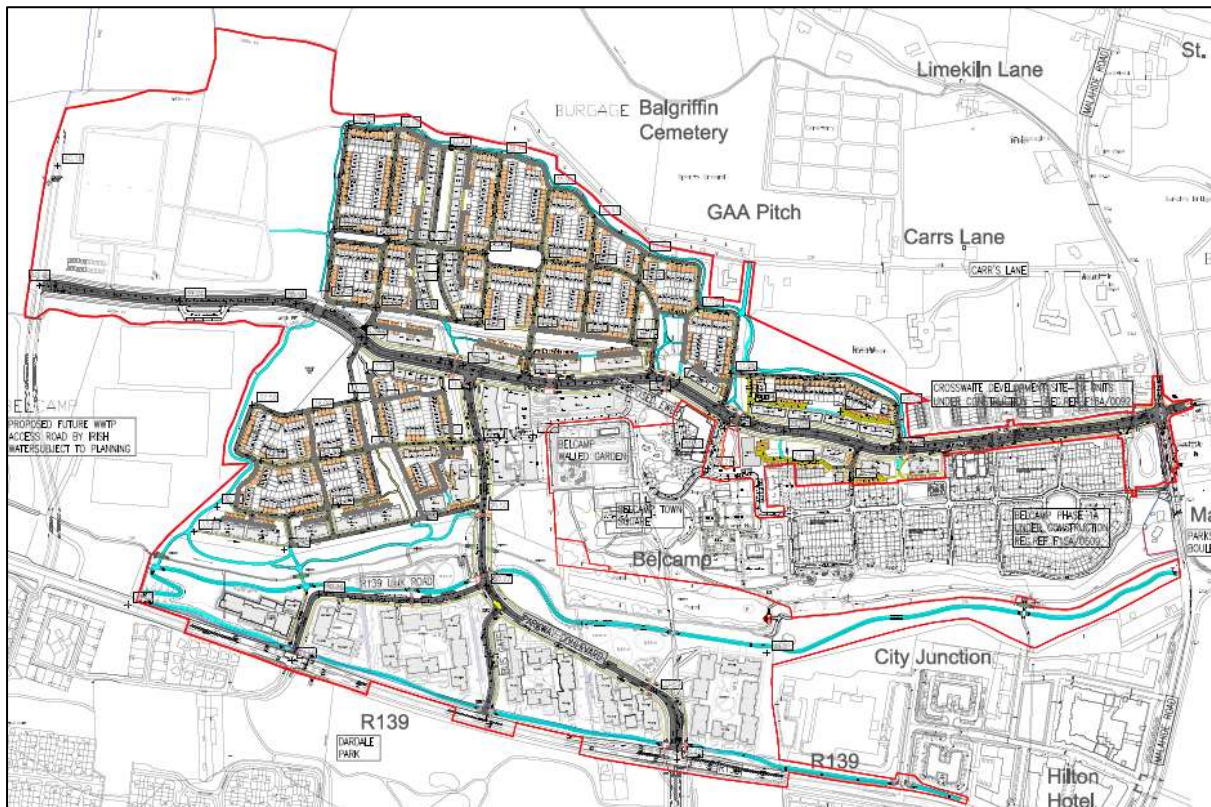


Figure 12-17: Alternative EWL Alignment - Option B

At a site level, the previous consultation stage road layout segregated the proposed school reserved site from the playing pitches and meant that students would have to cross this EWL to access the playing pitches, which represented a safety risk. The 'S' bend now proposed in the road will act as a speed reducing measure for vehicles travelling from the west as it approaches the Belcamp school site and Town Square at the heart of the scheme. It is important to note that the realignment of the road means that the open space and playing fields are now connected to the future reserved school site and ensures that the school can use these facilities without the need to directly cross the EWL.

12.5.3 Proposed Access to Belcamp SHD

The overall Belcamp SHD development will benefit from five approved, proposed and potential future junctions located on both Malahide Road (R107) to the east and R139 to the south – See Figure 12-16. These junctions are outlined below:

- **Junction A:** is an existing signal-controlled T-junction which currently comprises an additional minor arm (western approach) that is not incorporated into the existing signal system and provides access to a single property only. The upgrade of this junction into a signalised crossroads is approved by FCC but is currently under appeal by a third party to An Bord Pleanála. The western approach will form the eastern section of the East-West Link Road and is also proposed under Phase 1B works.
- **Junction B:** existing priority-controlled T-junction approved to be upgraded to a signalised crossroads with the western arm forming the new College Avenue approach approved under Belcamp Phase 1 (Reg. Ref. F15A/0609). This junction layout was also approved under Belcamp Phase 1.
- **Junction C:** existing priority-controlled T-junction which currently provides access to the subject Belcamp lands via an existing gated entrance (northern approach). This junction is proposed to be upgraded to a signalised crossroads between the R139 (east-west) and the proposed Belcamp Parkway (north-south).
- **Junction D** existing priority-controlled T-junction which currently provides access to the existing Tara Lawns halting site to the south of R139. As part of the subject Belcamp SHD application, this junction is proposed to be upgraded to a signalised crossroads with the new northern approach forming a link road between Belcamp Parkway and R139.
- **Junction E:** is a proposed signal-controlled T-junction to operate as a bus-gate for the proposed N8 orbital route.

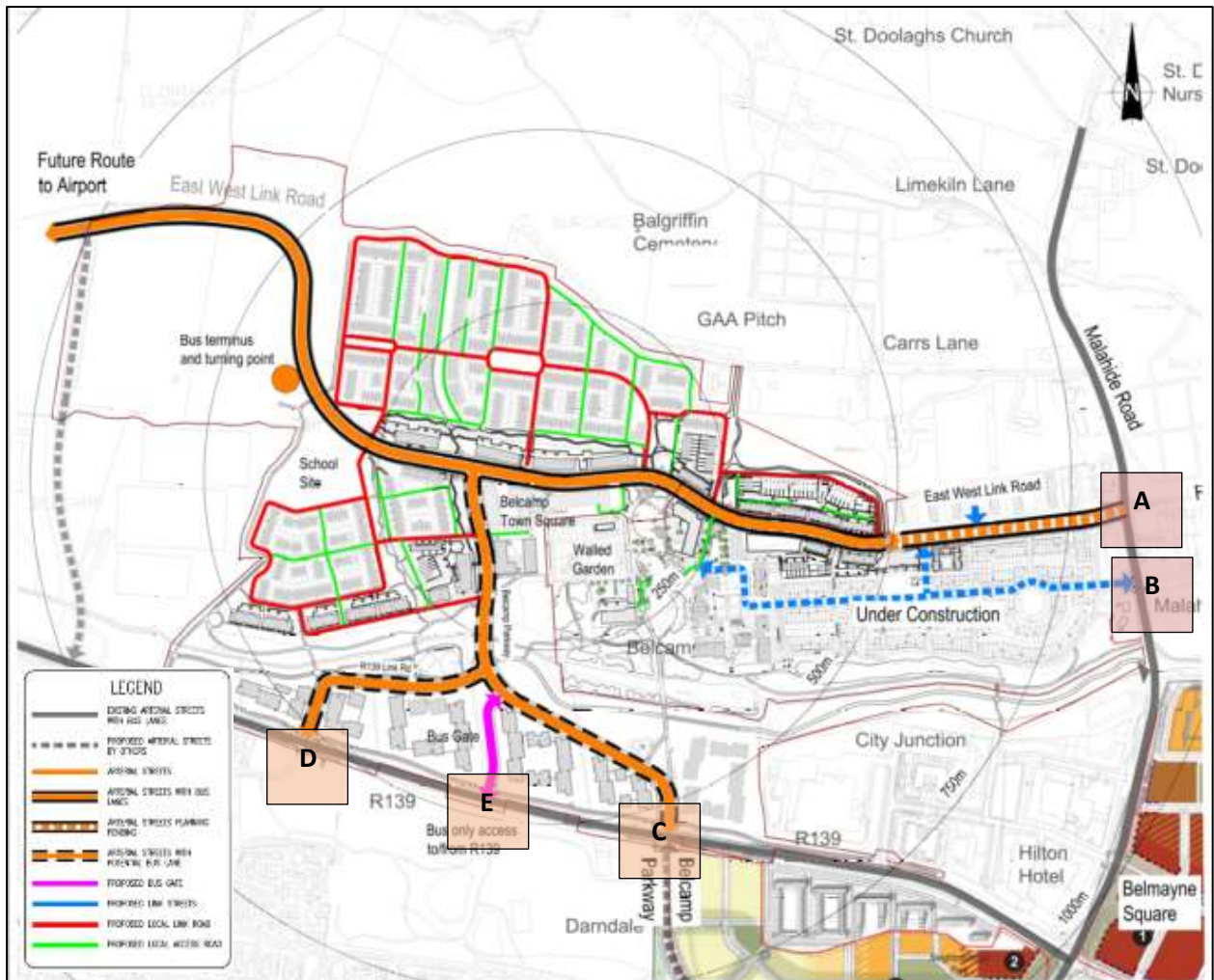


Figure 12-18: Proposed Development Roads and Junctions

12.5.4 New Proposed Bus Connects Routes

The EWLR is envisaged as a core bus route, providing east–west linkages to the fringe area and ultimately to the airport environs. Accordingly, this road is designed to comply with the principles of a Core Bus Corridor, including dedicated bus lanes and new bus stops, and to accommodate optimum cyclist and pedestrian facilities.

Waterman Moylan met with representatives from the NTA, FCC and DCC in March 2022 to discuss the transport requirements of the proposed Belcamp SHD development. The current N8 BusConnects route departs from Clongriffin train station, continuing along Main Street before turning south onto the Hole in the Wall Road and then continuing west along the R139. At the meeting, the NTA advised that they envisaged the N8 BusConnects Route being altered to run through the subject development along the East–West Link Road (EWLR) into Belcamp town square and then, preferably, directly south onto the R139.

The proposed road layout was amended following this meeting, to ensure that the requirements of the NTA are met. The amended proposal provides a bus gate linking directly southwards from the EWLR onto the R139. As noted above, the bus gate was introduced to give bus priority over cars and to provide a direct south link from the EWLR onto the R139, as discussed with the NTA in March 2022.

The revised N8 route will benefit from a newly proposed bus gate, indicated in the Figure below, providing a bus-only route onto the R139, with signal control on demand. During the meeting with the NTA, FCC and DCC, the NTA noted that they would welcome the use of bus gates to prioritise public transport ahead of cars and to ensure that buses do not get stuck in traffic.

Belcamp Parkway and the R139 Link Road have both also been designed to be bus capable and can accommodate bus routes with 3.25m wide lanes, locations for bus stops and signalised junctions that can provide bus priority. This provides a robust, flexible design with options for future bus routes. The removal of the bus gate and the use of the R139 link Road as N8 bus route can be accommodated without compromise to the proposed submission, if that is the NTA’s preference for the N8 BusConnects route.

The current N8 BusConnects route and the proposed altered routes are shown in the Figure below:

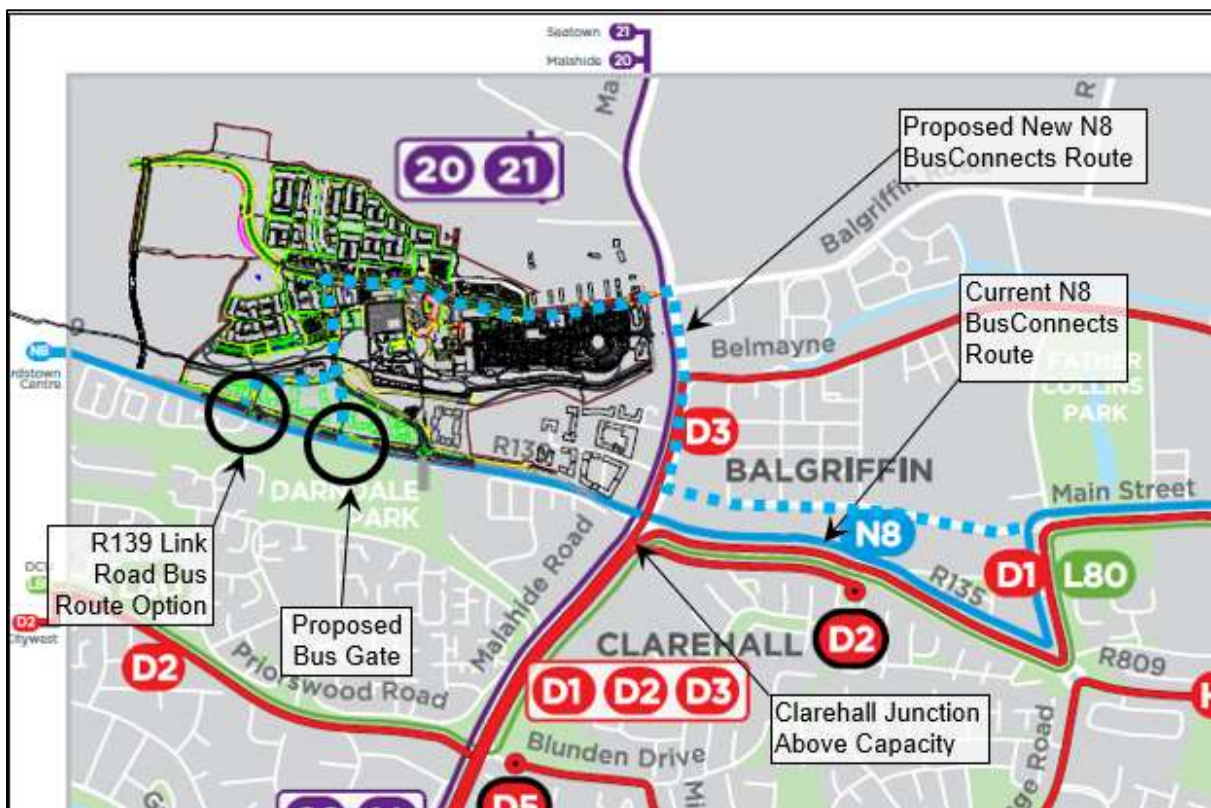


Figure 12-19: Proposed N8 Orbital Bus Route

This proposed altered route would avoid the Clarehall junction between R107 and R139, which is currently above capacity and suffers from long queues and delays. The Bus Gate also avoids any traffic, given that it provides bus-only access, and on-demand signal controls will ensure efficient wait times before turning onto the R139.

This proposed altered route provides several benefits:

- The new route would avoid the Clarehall junction between R107 and R139, which is currently above capacity and suffers from long queues and delays.

- The East–West Link Road is envisaged as a core bus route, and accordingly, this road is designed to comply with the principles of a Core Bus Corridor, including dedicated bus lanes, new bus stops, and segregated cycle lanes.
- The inclusion of a Bus Gate at the south of the site ensures that the bus route will follow a direct path and will avoid a meandering route through the site.
- The Bus Gate also avoids any traffic, given that it provides bus-only access, and on-demand signal controls will ensure efficient wait times before turning onto the R139.
- The new route will serve a large population in Belcamp.

The NTA advised that there are currently no proposals to bring one of the D routes through the Belcamp development. However, BusConnects routes are subject to future change depending on demand and future development. As such, emphasis has been placed on providing a robust design that can facilitate various future bus routes through the site.

Belcamp Parkway has therefore been designed to accommodate a possible future route for one of the D routes and has been designed with a 3.25m wide verge that can facilitate future bus lanes. This route would divert buses from the Malahide Road onto Belcamp Lane through the DCC Masterplan lands, south of the R139, through a signalised junction on the R139. This D route would not use the proposed Bus Gate, which is part of the N8 route. This will ensure a straight-through crossing of the R139, as shown in the Figure below.

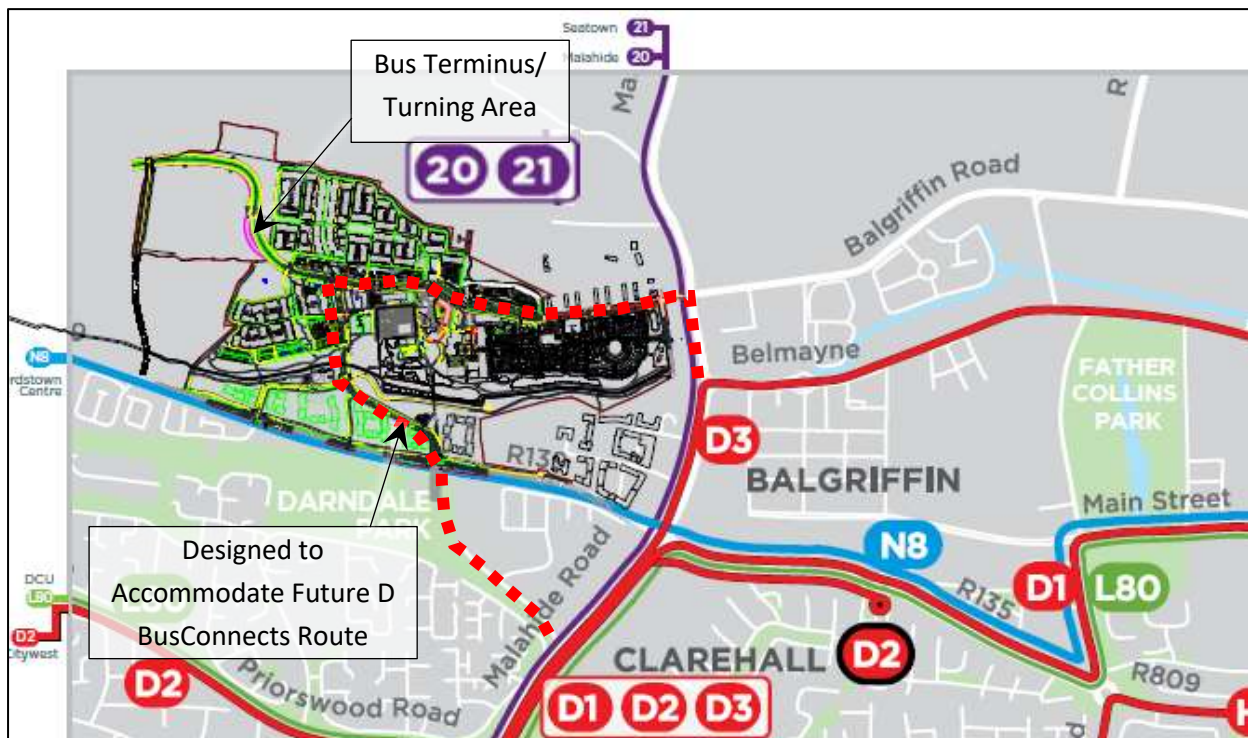


Figure 12-20: Proposed D Bus Route

This proposed bus route through the subject lands can also facilitate possible future routes from DCC to the Airport, while avoiding the congested Clarehall junction. The Belcamp Parkway route from the

R139 to the EWLR follows the alignment provided in FCC / DCC Development Plans, the Belcamp / Belmayne Masterplan and the South Fingal Transportation Study.

A bus terminus/turning area is provided along the EWLR, within the open space at the west of the proposed Belcamp Development. This again allows for a robust design of bus routes that can come into Belcamp, turn around and travel back along the same route alignment.

Proposed routes and associated junctions have been auto-tracked using the same bus type used for the N8 and D routes, as provided by the NTA – refer to drawing 19-114-P1135 for swept path analysis of each of these bus routes.

12.6 Potential Impact of the Proposed Development During Construction Stage

There is potential for construction traffic to impact from a noise and dust perspective in relation to the surrounding road network. Deliveries to and from the site by heavy good vehicles will impact on noise levels, whilst dust may result from vehicles travelling along gravel roads and from general earthwork activities. There is also potential for traffic congestion, due to increased heavy good vehicles on the road network which may also perform turning movements, unloading, etc., in areas that impact on traffic. The potential for inappropriate parking whilst waiting for access to the site, may also impact local road users.

There is potential for construction traffic to have a moderate effect on the surrounding environment. However, the duration of this impact will be short-term (i.e., one to three years).

12.7 Potential Impact of the Proposed Development During Operational Stage

12.7.1 Trip Generation

As mentioned previously, to guide and assess the design of the Belcamp lands for this SHD application and the preparation of the subject Traffic and Transport Assessment, Gerard Gannon Properties (the Applicant) commissioned SYSTRA to prepare a Sustainable Transport Strategy (STS) study for the subject Belcamp SHD. As part of this study, a detailed trip generation exercise - with two consultations of TRICS database and reference to approved trip rates for a nearby approved development (South Portmarnock Phase 1C), was carried out for the subject Belcamp SHD and the results are summarised below.

Three sets of trip rates were investigated by SYSTRA in order to conduct a comparison and identify the most suitable trip rates for the proposed development. These are showed below:

1. South Portmarnock Phase 1C: extracted from the Transport Assessment prepared for the site and approved in January 2020.
2. TRICS Consultation 1: using TRICS version 7.7.4 and the selection of the below criteria:
 - Sites located within the Republic of Ireland.
 - Sites categorised as Suburban or Edge of Town.
 - Maximum Parking ratio of 1.5 spaces per dwelling.

This TRICS consultation returned two sites, located within the urban areas of Dublin and Galway.

3. TRICS Consultation 2: using TRICS version 7.7.4 with the same selection criteria as TRICS Consultation 1, except the maximum parking ratio.

This consultation of TRICS returned four sites – the two sites returned in Consultation 1 plus two additional sites in South Dublin located within walking distance to stations on the DART line serving the coastal suburbs.

Source	Trip Rate Type	AM Peak Hour		PM Peak Hour	
		Arrivals	Departures	Arrivals	Departures
South Portmarnock Phase 1C	<i>Person</i>	0.124	0.359	0.314	0.170
	<i>Vehicle</i>	0.081	0.234	0.204	0.110
TRICS Consultation 1	<i>Person</i>	0.040	0.667	0.477	0.293
	<i>Vehicle</i>	0.029	0.305	0.282	0.092
TRICS Consultation 2	<i>Person</i>	0.091	0.606	0.415	0.241
	<i>Vehicle</i>	0.033	0.261	0.245	0.083

Table 12-4: TRIC Rates

SYSTRA considered that the trip rates from TRICS Consultation 2 would be the ones to most reflect the situation of the Belcamp SHD - which is located in relatively close proximity to Clongriffin Railway Station served by DART services to Dublin city centre and also located close to the frequent Malahide Road Bus Corridor.

In comparison with TRICS Consultation 1 (trip rates for sites with restricted parking ratio), it was noted by SYSTRA that, for sites of Belcamp SHD's nature, proximity to public transport services may have a greater influence on the overall vehicle trip rates than the number of parking spaces provided, and therefore, enhancing public transport connections to and from the site, by improving walking and cycling facilities and direct bus links, could potentially assist in this regard.

Potential trip generation for the subject Belcamp SHD is presented in Table 12-5 below. It has been based on:

- Trip rates from TRICS Consultation 2 as presented in Table 12-4 above.
- Belcamp SHD - Phase 1 with 1,504 residential units, expected to be fully in place by 2028.
- Belcamp SHD – Phase 2 with 630 residential units, expected to be fully in place by 2030.
- Belcamp SHD – Phase 3 with 393 residential units, expected to be fully in place by 2032.

Year	Belcamp SHD	Trip Type	AM Peak Hour		PM Peak Hour	
			Arrivals	Departures	Arrivals	Departures
2028	Phase 1	<i>Person</i>	137	911	624	363
		<i>Vehicle</i>	50	393	369	125
2030	Phase 2	<i>Person</i>	57	382	262	152
		<i>Vehicle</i>	21	164	154	52
2032	Phase 3	<i>Person</i>	36	238	163	95

		<i>Vehicle</i>	13	103	96	33
Total Belcamp Site		<i>Person</i>	230	1531	1049	610
		<i>Vehicle</i>	84	660	619	210

Table 12-5: Belcamp SHD – Potential Trip Generation for Belcamp SHD Phases 1, 2 & 3.

It can be seen from the calculations above that, in 2028, the labelled Phase 1 of Belcamp SHD is estimated to generate a total of 443 vehicle trips in the AM peak hour (50 arrivals and 392 departures) and a total of 494 vehicle trips in the PM peak hour (369 arrivals and 125 departures). For the Belcamp SHD full build out, in 2032, 744 vehicle trips were estimated for the AM peak hour (84 arrivals and 660 departures) and 829 vehicle trips for the PM peak hour (619 arrivals and 210 departures).

12.7.2 Trip Length and Mode Share

In order to understand the trip patterns expected to arise from the subject development when it is in place - such as trip lengths and mode choices, SYSTRA carried out two ERM model runs for the Belcamp SHD; the 2028 “with development” as a representation of Phase 1 and the 2040 “with development” with the overall Belcamp SHD in place. The trip rates from TRICS Consultation 2 were used to inform the preparation of the models and a summary of the results is provided below.

The 2028 “with development” ERM model prepared is a customised version of a 2028 “do minimum” ERM model, which was prepared to support and develop the Bus Connects scheme and its associated elements. The 2040 “with development” ERM model includes further transportation improvements for the area such as DART+ Programme and MetroLink.

SYSTRA’s analysis of trip patterns was focused on the “dominant trips” in each peak hour. For the AM Peak Hour, dominant trips are those leaving the subject Belcamp SHD to external destinations (outbound trips), whilst for the PM Peak Hour, the dominant trips are those made from outside locations to the subject Belcamp SHD site (inbound trips).

AM Peak Hour findings from ERM models

The results of the AM Peak Hour of the 2028 “with development” model indicated that the vast majority of trips leaving the Belcamp SHD have their destinations within the range of 10km from the site, with a particular high proportion of trips made by car - see the Figure below extracted from SYSTRA’s study. For trips within the 5 to 20km range, a fairly high proportion of public transport trips from the site is noted. This is generally representative of travels into Dublin City Centre and its immediate surroundings. For longer trips (more than 20km), the proportion made by car is above 80%.

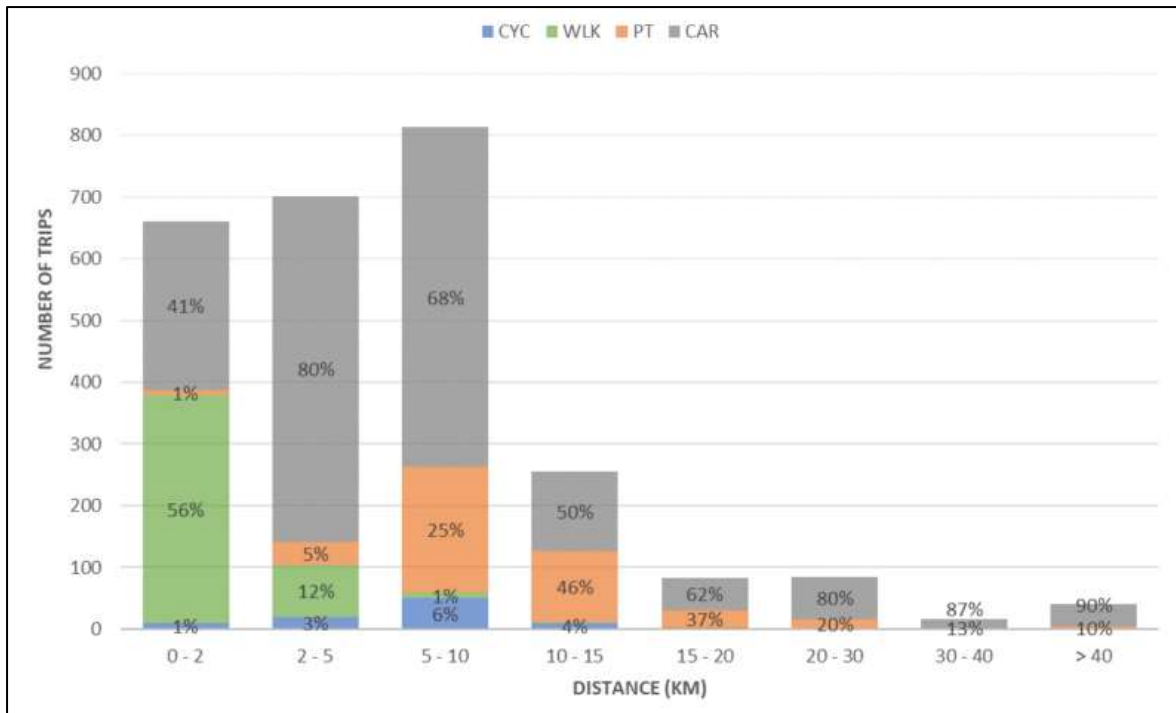


Figure 12-21: AM Peak Outbound Trips - Trip Length and Mode (2028 with development)

In general, considering all trip length categories set out in Figure 12-19 above, the following modal split was identified for Belcamp SHD outbound trips in the AM peak hour.

- Car: 63%
- Public Transport: 16%
- Walking: 18%
- Cycling: 3%

However, as can be noted, this does not relate specifically to any “km bands” set out in the chart above, where a higher proportion of trips are made on foot within the 0-2 km band, a higher proportion of trips are made by public transport in the 5 to 30km bands, and a higher proportion of trips are made by car for longer trips (more than 20 km).

By 2040, with the full Belcamp SHD in place, the overall proportion of car trips reduces from 63% to 55%.

PM Peak Hour findings from the ERM models

The results of the PM Peak Hour of the 2028 “with development” model also indicated that the vast majority of trips to Belcamp SHD originates within the range of 10km from the site, with also a high proportion of trips made by car, specially from the 2-5km and 5-10km bands (at 74% and 75%, respectively). As observed in the AM peak data above, the high proportion of public transport modes in the 5-10km and 10-15km bands corresponds with the City Centre (and immediate surroundings) trips. For the longer trips (more than 20km), as in the AM peak, car trips are also prevalent in the PM.

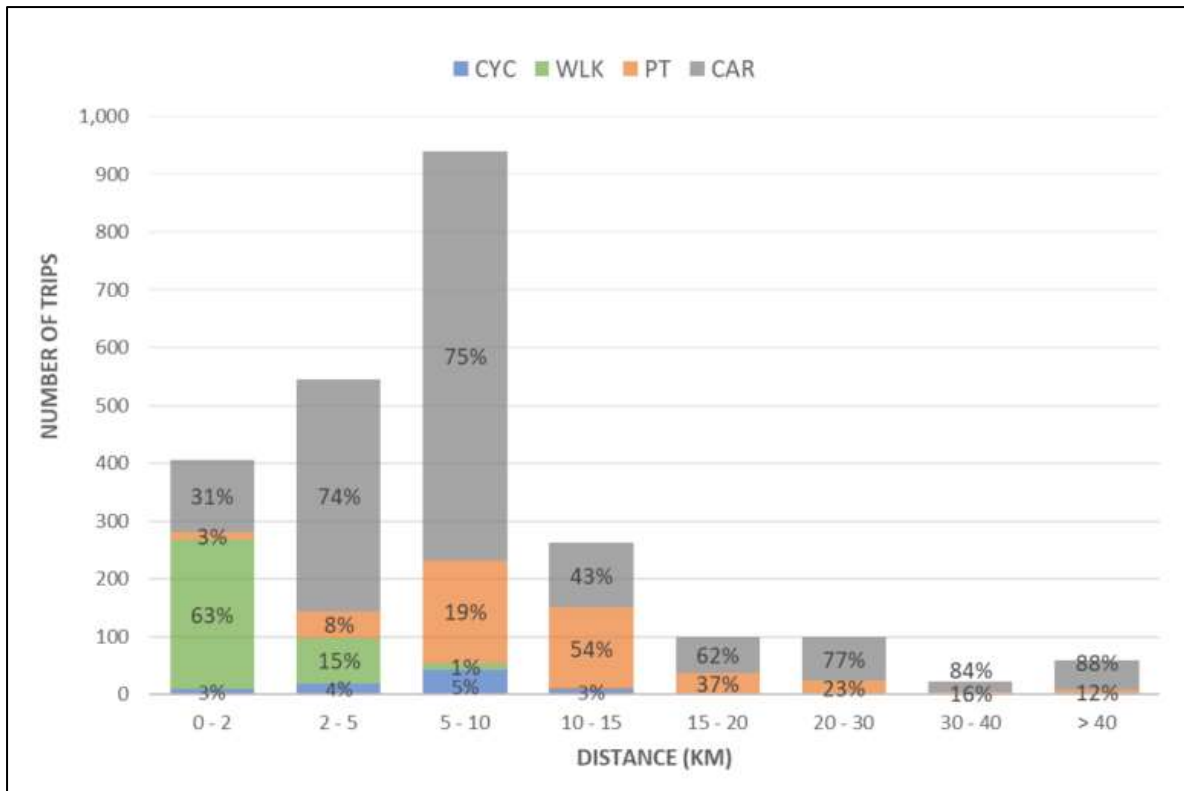


Figure 12-22: PM Peak Inbound Trips - Trip Length and Mode (2028 with development)

For the Belcamp SHD inbound trips in the PM, the following modal split was identified.

- Car: 64%
- Public Transport: 19%
- Walking: 14%
- Cycling: 3%

In comparison with the AM outbound trips as outlined previously, the percentage of car and cycle trips are very consistent between both peak hours. Public transport proportion is slightly higher in the PM when compared to the AM (at 19% vs. 16% in the AM) while walking trips are slightly lower (at 14% in the PM vs. 16% in the AM).

By 2040, with the full Belcamp SHD in place, the overall proportion of car trips in the PM reduces from 64% to 62%.

12.7.3 Belcamp SHD – Sustainable Transport Strategy (2021)

Introduction and Assessed Models

As previously introduced, to support this planning application, the Applicant commissioned SYSTRA to prepare a comprehensive Sustainable Transport Strategy (STS) for the subject Belcamp SHD. This document consists of a strategic transport modelling – which include all modes of transport, along with sustainable transport strategies for the subject Belcamp SHD.

With the aim of assessing the expected all mode transport demands associated with the proposed Belcamp SHD and develop a Sustainable Transport Strategy for the site, SYSTRA has made use of the existing NTA Eastern Regional Model (ERM) as basis to identify potential travel patterns associated with the site.

The following three models have been developed by SYSTRA:

- *“2028 “do minimum”: the 2028 ERM prepared to support and develop the Bus Connects scheme, with the relevant elements of those works present in the model.”*

The subject Belcamp SHD site is located in close proximity to the well-advanced Bus Connects network and was therefore considered by SYSTRA that including the elements of Bus Connects in the 2028 “do minimum” model would be a good starting point for the modelling exercise.

- *“2028 “with development”: a customised version of the 2028 “do minimum” model, which includes representation of 1,000 new dwellings at the Belcamp site, an upgraded version of the existing access to the Malahide Road and a new access on to the R139”*

This model was developed to assess the Belcamp SHD Phase 1 (first 1,000 residential units) in advance of the full build out of the site to understand the initial travel demands expected to arise in this Phase of development and explore the feasibility of sustainable transport measures.

- *“2040 “with development”: a model which includes the full Bus Connects scheme, DART+ and Metro schemes, the full East-West Link Road, all main Belcamp SHD internal roads, and the additional “riverside” access point to the Malahide Road with corresponding new connection to the R139.”*

The 2040 ERM model (2040 “with development”) provides a representation of how the future surrounding transportation network is expected to operate in the long-term scenario with the overall proposed Belcamp SHD in place.

Growth Areas and Existing Planning Permissions

In the preparation of the 2028 “with development” and 2040 “with development” models, in order to provide a robust and complete assessment of the study area, SYSTRA has reviewed the South Fingal/North Dublin Fringe area with regards to growth areas and relevant committed developments in the locality, which are expected to be developed by the assessed years. A number of Growth Areas were identified by consulting the FCC South Fingal Transport Study as well as three nearby sites which received grant permission between July 2019 and December 2020. See Figure 12-23 below – extracted from Figure 4 of the *“Belcamp SHD – Sustainable Transport Strategy (2021)”*, where “red” means Belcamp SHD (including under-construction Phase 1 and approved planning application Phase 1B), “green” means Growth Areas and “blue” means nearby approved sites.

For modelling purposes, it was assumed by SYSTRA that by the 2028 “with development” scenario, the three nearby sites and 30% of the Growth Areas will be in place, with the remaining 70% of the Growth Areas being included in the 2040 “with development” model.

Taken as a whole, the identified Growth Areas sums up to 6,500 new dwellings and 500 new jobs, of which 1,950 dwellings and 500 jobs are assumed to be in place by 2028 and the remaining 4,550 dwellings by 2040. The three nearby approved sites amount to 645 new dwellings.

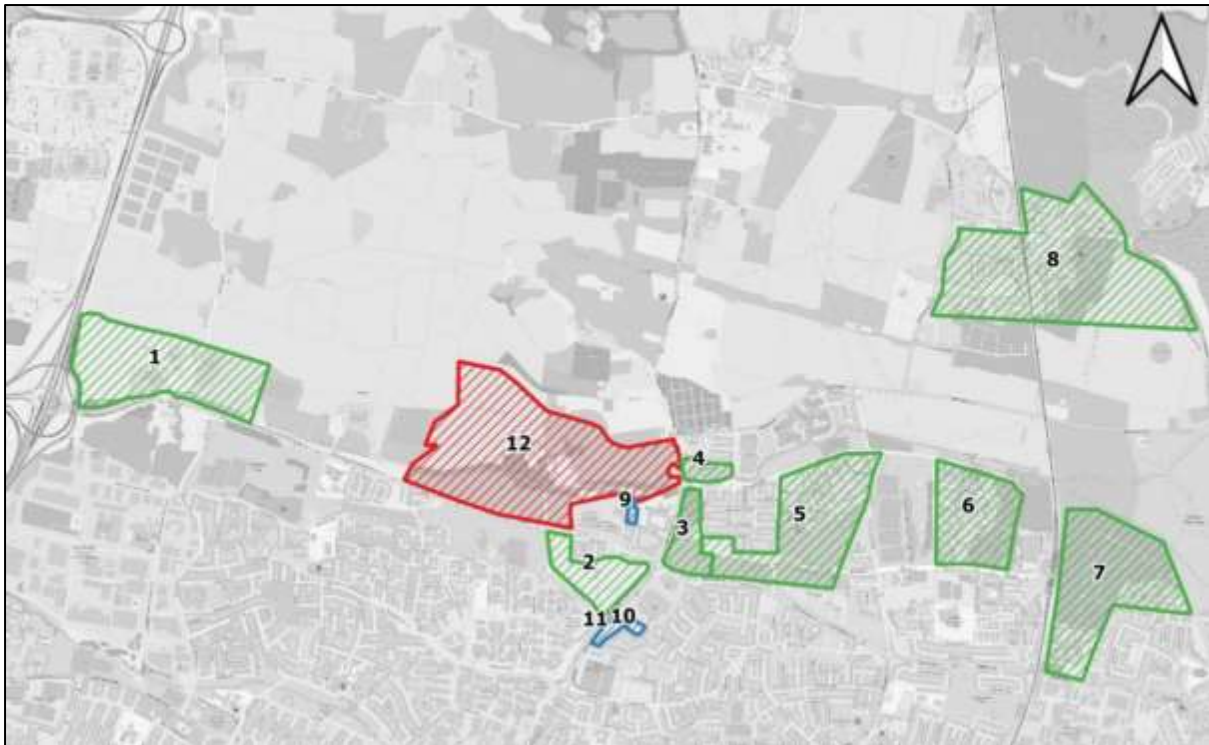


Figure 12-23: Location Map for Belcamp SHD, Growth Areas and Existing Permissions

Assessed Junctions

Eleven junctions were assessed as part of the models carried out by SYSTRA. However, for the purpose of the subject application, only analysis results for the below junctions are described.

- Malahide Road (R107) / R139 (known as Clarehall Junction) – existing signalised crossroads.
- Malahide Road (R107) / Belmayne – existing signalised T-junction.
- Malahide Road (R107) / Balgriffin Cottages – existing signalised T-junction with additional unsignalised western arm.
- R139 / Belcamp Parkway – new signalised crossroads.

Summary of 2028 “do minimum” model – Junctions Results

The 2028 “do minimum” model (with Bus Connects system) indicated that all approaches of the Clarehall junction (Malahide Road (R107) / R139) would operate at or above capacity during the AM and PM peak hours, with the eastern approach being the most congested in the AM recording a V/C ratio (Volume to Capacity Ratio) of 1.23 and with the highest V/C value at 1.17 at the western (R139) and southern (Malahide Road R107) approaches in the PM.

For the Malahide Road (R107) / Belmayne junction, the results indicated that the junction would operate well within capacity during both peak hours with the highest V/C below 0.90.

The results for the Malahide Road (R107) / Balgriffin Cottages junction indicated that the junction would operate above capacity during both peak hours with the highest V/C at 1.01 in the AM and at 1.01 in the PM, both recorded at the eastern approach (Balgriffin Cottages).

As the new junctions on R139 is proposed to be developed as part of the subject application, the analysis results for it are only available from the 2028 and 2040 “with development” models.

In summary, SYSTRA noted that, for the 2028 “do minimum” “with Bus Connects scheme in place, there will be significant congestion at a number of junctions within the vicinity of the site, most significantly at the Malahide Road / Clarehall junction. These locations are understood to presently suffer from regular congestion at peak times, and from the junction data it can be seen that the introduction of Bus Connects will lead to some improvement for those routes used by buses, but in some cases this comes at the expense of general traffic capacity.”

Summary of 2028 “with development” model – Junctions Results

The 2028 “with development” model (with the initial 1,000 residential units in place at the subject Belcamp SHD) indicated that all approaches of the Clarehall junction would operate above capacity during the AM and PM peak hours, except the western approach (R139) in the AM which a V/C below 1.00 was recorded.

For the Malahide Road (R107) / Belmayne junction, the results indicated that it would continue to operate within capacity during both peak hours with a V/C below 0.90 recorded on all approaches.

The results for the Malahide Road (R107) / Balgriffin Cottages junction indicated that it would operate above capacity during the AM peak hour with the highest V/C at 1.02 recorded at the eastern approach (Balgriffin Cottages R123). The same approach is also recorded as the most congested in the PM peak hour, however the recorded V/C is 0.92. For the 2028 “with development” model, this junction was considered by SYSTRA’s to be upgraded to a signalised crossroads with the western arm forming the East West Link Road (which is included in both FCC Development Plan and FCC South Fingal Transport Study). Note that the upgraded layout for this junction (including a portion of the EWLR) it was approved by the Applicant under a separate planning application labelled as Phase 1B.

For the R139 / Belcamp Parkway junction (new signalised crossroads proposed as part of the subject application and included in both DCC Development Plan and FCC South Fingal Transport Study), the SYSTRA analysis results indicated that this junction would operate within capacity during both peak hours across all approaches.

Summary of 2040 “with development” model – Junctions Results

The 2040 “with development” model (with the EWLR, the Clarehall Junction bypass and the Belcamp SHD fully developed) indicated that this junction would operate above capacity during both peak hours

with V/Cs above 1.00 on the Northern, Eastern and Southern approaches in the AM and with V/Cs above 1.00 recorded on the Eastern and Southern approaches in the PM.

For the Malahide Road (R107) / Belmayne junction, the results indicated that it would operate above capacity in the AM peak hour with the highest V/C recorded at 1.09 on the eastern approach (Belmayne) and within capacity in the PM peak hour with the highest V/C at 0.95 also recorded at the eastern approach.

The analysis results for the Malahide Road (R107) / Balgriffin Cottages junction indicated that it would operate above capacity during both peak hours with a V/C above 1.00 recorded on the eastern (Balgriffin Cottages) approach in the AM and with V/C above 1.00 also recorded on the same approach in the PM.

For the new R139 / Belcamp Parkway junction the modelling results indicated that this junction would continue to operate within capacity during both peak hours across all approaches.

Detailed junction modelling for 2028 “with development” and 2040 “with development” scenarios have been carried out as part of this assessment and is provided in the following Section 8.

Strategic Model – Relevant Findings from 2028 “with development” model

From the assessment of the 2028 “with development” model, SYSTRA identified some AM and PM trip patterns (trip distribution, length and modes) which were examined and used to identify opportunities to be incorporated in the Sustainable Transport Strategy (STS) to encourage a modal shift away from private car and target a modal shift to sustainable transport modes. These are listed below.

- *“A large majority of trips associated with Phase 1 of the development are less than 15km and therefore in principle could be made by modes other than private car. This is expected to be consistent across all Phases.*
- *Education trips play a significant role in AM peak trip patterns. Whilst there are a substantial number of trips made by sustainable modes, a similar number are made by car.*
- *PM Peak travel patterns are dominated by commuting but show similar concentrations around particular zones to the AM peak excluding known education areas.*
- *A large majority of trips into the City Centre which will be made by residents of the proposed development are predicted by the models to be made by public transport with relatively few made by car.*
- *Furthermore, as public transport capacity is improved so is the potential for those living in the development to choose employment and non-work activities at locations served by the routes. The corollary of this effect is a potential reduction in proportion of local residents who choose employment and other activities that required a car to get to.*

- *The “potential” of walking and cycling provision within the site could be supported through external improvements, particularly to the immediate networks to the east and south of the site; it is recognised that the delivery of these elements would rest with the local Highway Authority.*
- *The sustainable transport strategy should include a focus on making short trips easy and convenient for walking and cycling.*
- *Providing a direct and attractive link to Clongriffin Station has potential to reduce trips by car, as evidenced by the model origins and destination analysis.*
- *Whilst recognising local congestion issues, outside of specific destinations it is unlikely that more car use can be significantly discouraged without direct action to manage parking provision within the site.”*

Based on the key findings, a number of measures for inclusion in the Sustainable Transport Strategy have been proposed by SYSTRA and are set out below.

<i>IDENTIFIED ISSUE / OPPORTUNITY</i>	<i>PROPOSED MEASURE OR ACTION</i>	<i>NOTES</i>
High proportion of trips made are of relatively short length (i.e. AM peak 82% 10km or less, PM peak 78% 10km or less)	Identification of key origins and destinations with concentration of trips within these distances, and subsequent development of proposals for improvements to access by sustainable modes.	Examination of any potentially complementary strategies or aspirations within relevant local transport plans.
Relatively high proportion of very short trips (under 2km) are made by car (i.e. 41% of trips are made by car in the AM peak, and 30% in the PM peak)	As above, plus consideration of factors such as parking availability and role of facilities within the development area.	
High proportion of short trips (2 to 5km) are made by car (i.e. 80% of trips are made by car in the AM peak, and 73% in the PM peak)	As above, plus consideration of factors such as parking availability.	
Concentration of car trips in the AM peak corresponding to zone with primary school provision	Improvement to walking and cycling infrastructure on off-site parts of routes to identified zone to be supported (subject to implementation by LHA).	Earlier implementation of a primary school development within the Belcamp SHD area (understood to also be recommended by Fingal CC)

		with regard to Education comments)
Concentration of car trips in the AM and PM peaks associated with Airport (commuting)	Examination of potential Public Transport improvements (either short term using existing road networks, or longer term using new east-west link road)	Examination of on-site parking provision
Concentration of car trips in the AM and PM peaks associated with hospital / healthcare (based on zone trip numbers)	Examination of improvements to access to Bus Connects corridor, and to off-site cycling infrastructure provision (where feasible).	Examination of on-site parking provision
Concentration of car trips in the AM and PM peaks associated with “park and ride / kiss and ride” activity at Clongriffin Station	Test introduction of dedicated bus service linking site directly with station; longer term potential to integrate with direct service to Airport.	Examination of on-site parking provision

Table 12-6: Key Findings and Observations - extracted from Table 75 of Belcamp SHD - STS

12.7.4 Junction Assessment

Background

The junction modelling exercise described in this section was carried out by Waterman Moylan using the industry standard software package TRANSYT.

TRANSYT is a computer program for studying everything from isolated road junctions to large signal-coordinated networks. It is capable of developing optimum signal settings for representative traffic conditions of a system. Priority intersections (non-signalised junctions) and roundabouts can also be modelled using TRANSYT, however this is only appropriate where these junctions form part of a larger network comprised of signalised junctions.

TRANSYT contains two main components – a traffic model and a signal optimiser. The traffic model predicts a Performance Index (PI) for a network based on a fixed signal timing plan and set of average traffic flows. The PI is a measure of the overall cost associated with congestion and is a weighted combination of total vehicle delay and stops experienced by traffic within the modelled network. The signal optimisation component within TRANSYT modifies signal timings and assesses whether those adjustments have reduced the PI.

The output report of a TRANSYT model also includes a number of other results to evaluate the modelled system, such as Degree of Saturation percentage (DOS%) figure, Mean Maximum Queue (MMQ) and Mean Delay per Passenger Car Unit (PCU) for each link on the road network.

Degree of Saturation (DOS):

DOS, also referred to as Volume to Capacity Ratio (v/c), is a measure of performance which represents the capacity of a junction/traffic lane/link to accommodate the vehicular demand and indicates how near the network is to the maximum capacity available. A DOS less than 85% generally indicates that adequate capacity is available, and vehicles are not expected to experience significant queues and delays. As the DOS approaches 100%, traffic flow may become unstable, and delay and queuing conditions may occur.

Mean Maximum Queue (MMQ):

MMQ is the highest estimated mean number of Passenger Car Units (pcu) queued in any lane of a junction approach link, averaged over the entire analysis period.

Mean Delay per Vehicle (seconds):

Mean Delay per vehicle is the average delay experienced by a vehicle on a junction approach link or traffic stream as a result of having to queue at signals or having to give way at a priority junction.

Junctions Modelled

The junctions modelled in this assessment are the following:

- Junction 1 (existing signalised crossroads): Malahide Road (R107) / Balgriffin Road / EWLR.
- Junction 2 (existing signalised crossroads): Malahide Road (R107) / R139.
- Junction 3 (proposed signalised crossroads): R139 / Belcamp Parkway.
- Junction 4 (proposed signalised T-junction): R139 / R139 Link Road



Figure 12-24: Junctions Assessed

Junction 1 is an existing signalised T-junction which is proposed to be upgraded to a new signalised crossroads with the western arm forming the East West Link Road (EWLR). This junction upgrade is approved by the Applicant under a separate planning application (Belcamp Phase 1B). For the modelling exercise, Junction 1 has been assessed based on its approved configuration.

Junction 2 is the Clarehall junction. Several studies in the area recommend this junction to be the upgraded to a more pedestrian, cyclist and public transport friendly intersection. An emerging future layout for this junction has been designed by BusConnets under their Clongriffin to City Centre CBC scheme and was used in this assessment for modelling purposes.

Junction 3 is a non-existing (proposed) signalised crossroads identified and tested in a number of studies for the area. As part of the subject development works, this junction is proposed to be constructed as part of the subject works.

Junction 4 is a non-existing (proposed) signalised crossroads identified and tested in a number of studies for the area. As part of the subject development works, this junction is proposed to be constructed as part of the subject works.

TRANSYT Set Up

Typical input data to set up a junction model in TRANSYT include traffic flows (vehicles or pcu per time segment), traffic signal controller phases and stages, intergreen times, saturations flows and lane lengths.

Traffic Flows

As part of the subject application, no traffic survey was commissioned. Instead, output traffic flows for each assessed junction supplied by SYSTRA (extracted from their models) have been used. As mentioned above, SYSTRA assumed that 1,000 residential units would in place in Belcamp in 2028, whilst in this assessment, the phasing programme proposal indicates 1,504 units by this year. Similar situation occurs in the 2040 scenario, where SYSTRA conservatively assumed 3,700 residential units in Belcamp (fully developed) whilst the subject proposal is for a total of 2,527 residential units. In that case, for the 2028 scenario, 504 new units have been included in the model and for the 2040 scenario 1,173 units have been removed. The traffic flows supplied by SYSTRA are provided in Appendix 12-2. Traffic flows used in the modelling are showed on TRANSYT Output Reports in Appendix 12-3.

Pedestrian Movements

No pedestrian movement survey was carried out for this application. Instead, a very conservative assumption of 300 pedestrian movements on each pedestrian crossing of each assessed junction has been applied. This would equate to c. 5 people crossing a given pedestrian crossing per minute per way.

Phases and Stages

Details of the phases and stages set for each assessed junction is summarised later in this report and provided in full in Appendix 12-3 – TRANSYT Output reports. The TRANSYT Output reports include information on pedestrian and normal traffic phases, and the sequence and times of which they have been modelled/optimised.

It is worth mentioning that all assessed junctions are new junctions (proposed/approved by the Applicant or by others) to be constructed or upgraded and therefore, for the purpose of this TTA, stage sequencies for these junctions were optimised by TRANSYT.

Intergreens

An intergreen period refers to the period of time between the end of the green signal giving right of way for one phase and the beginning of the green signal for the next phase. The normal minimum value of an intergreen period is 5 seconds (3 seconds amber and 2 seconds all red), but this is very often longer for larger junctions. The 'Traffic Management Guidelines' published by the Stationery Office states the following with regards to intergreen times:

"The intergreen times can vary between 5 seconds for compact junctions and 10 seconds or more for junctions with a long distance between entries and exits. Particular care is needed when pedestrian phase follows a traffic phase."

Intergreen values for each stage of each signalised junction have been set automatically by TRANSYT, which uses as reference for calculations the determination of intergreen times set out in the "Department of Transport – Traffic Advisory Leaflet 1/06".

Saturation Flows

Saturation flow is a common concept in Traffic Engineering and largely used in junction modelling. For a signalised intersection, a Base (or unadjusted) Saturation Flow can be defined as the maximum amount of flow crossing a stop line if the signals were permanently on green, and is given by the following relationship:

$$S = 3600 / h$$

Where: S = Saturation Flow (pcu/hour or Vehicle/hour); h = Saturation headway (sec/pcu or sec/veh); 3600 = number of seconds in one hour.

When developing a model with TRANSYT, the software initially adopts all signalised lanes of the network as having a Base Saturation Flow of 1,800 pcu/hour based on a saturation headway value of 2 seconds per pcu (or vehicle). This value represents a base or unadjusted saturation flow, however, for the purpose of this assessment, saturation flows for each lane on the modelled junctions have been defined as 1,800 pcu/hr

Junction 1: Malahide Road (R107) / Balgriffin Road / EWLR

As mentioned previously, under a separate planning application (Belcamp Phase 1B), the Applicant received grant permission to upgrade Junction 1 to a signalised crossroads. A section of the EWLR was also approved under that application and is projected to form the western approach of the junction.

The arms of the junction were labelled as follows within the model:

- Arm A: Balgriffin Road (E).
- Arm B: Malahide Road R107 (S).
- Arm C: EWLR (W).
- Arm D: Malahide Road R107 (N).

Arm	Mov.	AM Peak Hour		PM Peak Hour	
		Queue (pcu)	DOS (%)	Queue (pcu)	DOS (%)
2028 "with development"					
A	R	15.71	105	9.00	86
	S/L	8.02	89	11.03	94
B	R	9.25	82	10.12	81
	S/L	11.32	66	11.41	69
C	L	0.86	16	0.32	10
	S/R	6.42	77	4.37	76
D	R	0.00	0	0.17	2
	S/L	15.10	79	13.43	77
2040 "with development"					
A	R	0.26	4	0.55	7
	S/L	18.94	105	12.27	94
B	R	4.51	73	7.37	78
	S/L	17.09	82	10.93	65
C	L	0.67	11	0.12	3
	S/R	12.58	97	4.90	74
D	R	0.32	10	0.00	0
	S/L	12.92	69	15.62	82

Table 12-7: Junction 1 - TRANSYT Analysis results

From the TRANSYT analysis as summarised above, the eastern approach of Junction 1 (Balgriffin Road) would operate above capacity for the assessment years of 2028 and 2040 "with development" during the AM peak hour and at capacity during the PM peak hour.

Junction 2: Malahide Road (R107) / R139

Junction 2 is the existing signalised crossroads known as Clarehall Junction. As described previously in this report, several studies in the FCC/DCC Fringe area recommend Clarehall junction to be the upgraded to a more pedestrian, cyclist and public transport friendly intersection, by reducing the number of pedestrian crossings and prioritising public transport and active modes.

BusConnects, under their Clongriffin to City Centre CBC scheme, provides an emerging/potential future layout for this junction. It has been assumed in this modelling exercise that, by the year of 2028 with the Clongriffin to City Centre CBC in place and fully operational, Junction 2 will be upgraded as per the BusConnects proposal and, for the 2028 "with development" and 2040 "with development" scenarios, was modelled as such.

The TRANSYT analysis results for the 2028 "with development" and 2040 "with development" scenarios are summarised in Table 12-8 below. The arms of the junction were labelled as follows within the model:

- Arm A: R139 (E).
- Arm B: Malahide Road R107 (S).
- Arm C: R139 (W).
- Arm D: Malahide Road R107 (N).

Arm	Mov.	AM Peak Hour		PM Peak Hour	
		Queue (pcu)	DOS (%)	Queue (pcu)	DOS (%)
2028 "with development"					
A	S	11.07	80	7.74	76
	L	0.00	0	0.00	0
	R	11.07	80	7.74	76
B	S	8.48	59	11.50	72
	L	12.66	82	12.72	80
	R	3.65	61	5.00	69
	Bus Lane	1.37	12	1.34	11
C	S	13.16	79	13.97	78
	L	5.33	37	5.44	36
	R	8.38	62	5.48	41
D	S	8.78	58	8.04	52
	L/Bus Lane	1.33	11	5.39	37
	R	4.77	73	5.88	76
2040 "with development"					
A	S	9.87	69	6.96	65
	L	0.00	0	0.00	0
	R	9.87	69	6.96	65
B	S	8.65	71	9.77	75
	L	0.17	2	1.70	18
	R	3.68	58	5.08	67
	Bus Lane	1.48	15	1.47	14
C	S	11.45	70	12.58	70
	L	3.58	25	3.97	26
	R	4.12	32	3.95	29
D	S	7.85	61	6.31	50
	L/Bus Lane	1.44	13	5.75	46
	R	4.47	67	5.32	69

Table 12-8: Junction 2 - TRANSYT Analysis Results

From the TRANSYT analysis as summarised above, Junction 2 with the BusConnects upgraded layout would operate within capacity for the assessment years of 2028 and 2040 "with development" across all approaches during both peak hours.

Junction 3: R139 / Belcamp Parkway

Junction 3 is a signalised crossroads proposed as part of the subject application. This junction is proposed on R139 just south of the proposed Belcamp SHD site and approximately 600 metres west of Clarehall junction. It has been modelled based on its proposed layout and the TRANSYT analysis results for both 2028 and 2040 "with development" scenarios are summarised in Table 12-9.

The arms of the proposed junction were labelled as follows within the model:

- Arm A: R139 (E).
- Arm B: Belcamp Parkway (S).
- Arm C: R139 (W).

- Arm D: Belcamp Parkway (N).

Arm	Mov.	AM Peak Hour		PM Peak Hour	
		Queue (pcu)	DOS (%)	Queue (pcu)	DOS (%)
2028 "with development"					
A	S	13.38	80	12.31	73
	S/L	13.38	80	12.31	73
	R	0.00	0	0.00	2
B	S/R	0.85	28	3.25	71
	L	0.29	10	0.32	10
C	S	23.27	90	27.31	90
	S/L	24.43	90	13.13	60
	R	2.13	39	0.48	9
D	S/L	2.11	45	0.50	12
	S/R	0.29	10	0.13	4
2040 "with development"					
A	S	11.38	81	8.19	62
	S/L	11.38	81	8.19	62
	R	0.12	3	0.74	19
B	S/R	4.51	49	2.19	29
	L	5.79	61	6.99	76
C	S	17.21	81	23.61	88
	S/L	17.21	81	11.94	58
	R	2.05	41	0.78	15
D	S/L	2.61	41	2.64	54
	S/R	0.12	3	0.00	1

Table 12-9: Junction 3- TRANSYT Analysis Results

From the TRANSYT analysis as summarised above, Junction 3 with its proposed layout would operate within satisfactory capacity for the assessment years of 2028 and 2040 "with development" across all approaches during both peak hours

Junction 4: R139 / R193 Link Road

Junction 4 is a signalised crossroad proposed as part of the subject application. This junction is proposed on R139 just south of the proposed Belcamp SHD site and approximately 1km west of Clarehall junction. It has been modelled based on its proposed layout and the TRANSYT analysis results for both 2028 and 2040 "with development" scenarios are summarised in Table 12-10.

The arms of the proposed junction were labelled as follows within the model:

- Arm A: R139 (W).
- Arm B: Tara Lawns
- Arm C: R139 (E).
- Arm D: R139 Link Road (N).

Arm	Mov.	AM Peak Hour		PM Peak Hour	
		Queue (pcu)	DOS (%)	Queue (pcu)	DOS (%)
2028 "with development"					
A	S	40.24	89	24.76	72
	S/L	40.24	89	24.76	72
	R	0.00	0	51.12	2
B	S/R/L	0.00	0	0.00	0
C	S	63.75	94	24.38	60
	S/L	63.75	93	40.32	88
	R	70.86	53	0.00	0
D	S/L	0.00	0	0.00	0
	S/R	115.54	92	77.64	53
2040 "with development"					
A	S	69.36	94	31.65	70
	S/L	69.36	94	31.65	70
	R	52.21	3	0.00	0
B	S/R/L	0.00	0	0.00	0
C	S	89.68	96	54.02	87
	S/L	89.68	96	92.66	99
	R	77.84	58	0.00	0
D	S/L	0.00	0	0.00	0
	S/R	120.89	97	140.67	94

Table 12-10: Junction 4 - TRANSYT Analysis Results

From the TRANSYT analysis as summarised above, Junction 4 with its proposed layout and operating within capacity for the assessment years of 2028 and 2040 "with development" across all approaches during both peak hours.

12.8 Do Nothing Scenario

Should the proposed development not take place, the access roads and infrastructure will remain in their current state and there will be no change. Background traffic would be expected to grow over time. Given the location and zoning of the subject site, it is reasonable to assume that a similar development, with a potentially more intensive requirement for vehicular trips would be established on this site at some stage in the future.

12.9 Risks to Human Health

Construction Stage

A number of temporary risks to human health may occur during construction phase related to noise, dust, air quality and visual impacts which are addressed in other sections of this EIAR. Traffic impacts are considered to be negligible due to the implementation of mitigation measures identified in Section 12.10.

Operational Stage

There will be increase in traffic on the local road network.

12.10 Mitigation Measures

In order to eliminate or reduce the potential impacts described above, remedial and mitigation measures will be implemented as set out below and in the Preliminary Construction Management Plan included under a separate cover with this application.

Construction Stage

- Adequate signposting will be located on site to ensure safety of all road users and construction workers.
- Care will be taken to ensure existing pedestrian and cycling routes are suitably maintained or appropriately diverted as necessary during the construction period, and temporary car parking is provided within the site for contractor's vehicles. It is likely that construction will have a negligible impact on pedestrian and cycle infrastructure.
- The main contractor as part of their site set up arrangements, shall appoint a Coordinator responsible for the implementation of a Construction Stage Mobility Management Plan and shall carry out the following tasks as part of their role:
 - Provide an extensive information service for public transport options and routes at public location(s) within the development for construction workers;
 - Update the public transport information adjacent to the development on on-going basis; and
 - Advise company staff of tax incentives for public transport and bicycles.
- For those wishing to cycle to and from the development, dedicated cycle parking will be provided for the duration of the works within the site. Shower facilities and lockers will also be provided.
- A dedicated "construction site" access/egress system will be implemented during the construction phases. It is intended that deliveries to the construction site will typically be made to one of 2 main access points. The site south of the Mayne River will be served by an access point from the R139, and the lands north of the Mayne River will be served via the east-west link road (through Belcamp Phase 1B), just off the R107 (Malahide Road).
- Hoarding will be set up around the perimeter to prevent pedestrian access.
- Dedicated construction haul routes will be identified and agreed with the local authority prior to the commencement of constructions activities onsite.
- A material storage zone will also be provided in the Construction Compound area. This storage zone will include material recycling areas and facilities.
- A detailed Construction and Traffic Management Plan will be prepared by the contractor and agreed with the Local Authority prior to commencing works on site.

Operational Stage

- To reduce traffic impact and to promote more sustainable modes of transport a Mobility Management Plan will be prepared for the development
- A management company will be appointed by the developer to manage the development. A senior member of staff from the management company who supports the philosophy of the Plan will be appointed as the Co-ordinator. The Co-ordinator will be responsible for:
 - Implementation and maintenance of the Plan;
 - Monitoring progress of the Plan
 - Liaison with public transport operators and officers of the Planning and Highway Authorities;
 - Production of information reports for the Developer, the occupier(s) and the Planning and Highway Authorities; and
 - Ongoing assessment of the objectives of the Plan.
- Up to date local bus timetables will be maintained within the tenant amenity area and other fixed points within the buildings on the site. Residents will be advised of their location. In addition, internet access to travel information will be provided. The developer will provide all new residents with a travel pack showing alternative modes of travel to the development. Where possible, the developer will advise visitors to the site of alternative modes of travel to that of the car.
- Secure parking facilities will be provided for residents, visitors and Creche users. Local cycle route information will be provided in the tenant amenity area and at other fixed points within the development and residents will be advised of their location. Details of cycle parking provided is included in the Traffic and Transport Assessment provided with the planning submission.
- 5 No. go Car spaces will be initially provided and details of how to join the scheme will be provided to all residents. Information will also be displayed within the resident amenity area and updated when required.
- The Co-ordinator will be responsible for the management of inappropriate parking within the development. This parking management will ensure that spaces are reserved for those who have rented the space and will be accessible only to those users.

12.11 Residual Impacts of the Proposed Development

Construction Stage

Due to the proposed mitigation measures outlined above, the impact of the proposed development will be temporary and minimised during the construction stage.

Operational Stage

- There will be increase in the use of the road network by private vehicles. But as shown in section 12.7.4 the overall road network will not be above capacity levels with the inclusions of the proposed development. A mobility management plan will promote more sustainable forms of transport.

There will be an increase in the number of pedestrians and cyclists in the surroundings of the development. However, footpaths and cycling paths are provided as part of the proposed development, thus, impact should be minimal.

12.12 Monitoring

Construction Stage

Traffic management and deliveries will be carefully monitored during the construction stage as part of the Construction Management Plan. The appointed contractor will monitor their mobility management plan to ensure that it is operating effectively. Local residents will be kept fully informed of construction activities through mail leaflets, email and site notices.

Operational Stage

During the operational stage the Travel Plan/Mobility Management Plan will be monitored by the Co-ordinator. The travel survey will establish the initial modal split of travel by residents.

The Co-ordinator, in consultation with the Developer, the Occupiers, and the Local Authority or its agents, will agree annual targets, following completion and analysis of the travel survey, for increasing the percentage of non-car modes.

The Co-ordinator will:

- Meet with officers of the Local Authorities or its agents within a period of 6 months following occupation of the building(s) and thereafter every 12 months to assess and review progress of the Plan and agree objectives for the next 12 months, and
- Prepare and submit to senior management of the Developer, the Occupier(s) and the Local Authorities or its agents, an annual Monitoring Report.

12.13 Interactions

Construction Stage

Temporary negative impacts to human health may be likely during the Construction Phase due to noise, dust, air quality and visual impacts which are discussed in the relevant chapters of this EIAR. Temporary traffic management will be required to facilitate connections to existing utilities in the existing roads.

The traffic impacts, which would be temporary in duration are not considered to be significant due to the implementation of the mitigation measures identified in Section 12.10 and a more detailed analysis will be carried out by the Main Contractor.

Operational Stage

Noise generated by increased traffic flows have been assessed in the Air and Noise Chapters of the EIAR.

12.14 Difficulties Encountered

There were no difficulties encountered.

12.15 References

Dublin BusConnects Website: [New Dublin Area Bus Network - BusConnects](#)

Design Manual for Urban Roads and Streets (DMURS), Department of Transport, Tourism and Sport

Irish Rail Website: www.irishrail.ie

Fingal County Council Development Plan 2017 – 2023

Dublin City Council Development Plan 2016 – 2022

Fingal County Council South Fingal Transport Study – 2019

Belmanyne and Belcamp Lane Masterplan – July 2020

Belcamp SHD – Sustainable Transport Strategy (2022)

NRA Guidelines, Traffic and Transportation Assessment Guidelines (2014), National Roads Authority

Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections, (May 2019), Transport Infrastructure Ireland Publications

Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts, (2016), Transport Infrastructure Ireland Publications

Transport for Ireland (TFI): www.transportforireland.ie

13.0 CULTURAL HERITAGE

13.1 Introduction

Chapter 13 of this Environmental Impact Assessment has been prepared by Courtney Deery Heritage Consultancy Ltd. The cultural heritage (comprising cultural heritage, archaeological and architectural heritage) background relating to the proposed SHD site at Belcamp, Malahide Road, Dublin 17.

The objective of the report is to assess the impact of the proposed development on the receiving cultural, archaeological and archaeological heritage environments and to propose ameliorative measures to safeguard any monuments, features, finds of antiquity or features of architectural or cultural heritage merit.

This assessment has been prepared in accordance with the EIA Directive 2014/52/EC and current Environmental Protection Agency (EPA) guidelines. This section should be read in conjunction with the site layout plans and project description sections of this EIAR.

13.2 Methodology

This assessment was based on the combination of a desk study, geophysical survey, and archaeological testing within the application area. It was also informed by an architectural heritage impact assessment and structural condition appraisal that were undertaken in relation to the historic buildings within and in proximity to the proposed SHD site. The following sources were availed of:

- The National Monuments, Preservation Orders and Register of Historic Monuments lists were sourced directly from the Department of Housing, Local Government and Heritage (DHLGH);
- Record of Monuments and Places (RMP) and Sites and Monuments Record (SMR). The SMR, as revised in the light of fieldwork, formed the basis for the establishment of the statutory RMP in 1994 (RMP; pursuant to Section 12 of the National Monuments (Amendment) Act, 1994). The RMP records known upstanding archaeological monuments, their original location (in cases of destroyed monuments) and the position of possible sites identified as cropmarks on vertical aerial photographs. The information held in the RMP files is read in conjunction with published constraint maps. Archaeological sites identified since 1994 have been added to the non-statutory SMR database of the Archaeological Survey of Ireland (National Monuments Service, DHLGH), which is available online at www.archaeology.ie and includes both RMP and SMR sites. Those sites designated as SMR sites have not yet been added to the statutory record, but are scheduled for inclusion in the next revision of the RMP;
- Record of Protected Structures (RPS) and Architectural Conservation Areas (ACAs), Fingal County Development Plan (2017-2023) and Dublin City Development Plan (2016-2022);
- The National Inventory of Architectural Heritage (NIAH) Building Survey and Garden Survey (DHLGH) highlight a representative sample and raises awareness of the wealth of architectural heritage in the county. The NIAH surveys can be reviewed at www.buildingsofireland.ie;
- The topographical files of the National Museum of Ireland;
- Cartographical sources included de Gomme (1673), Bolton, (1717), Brooking (1728), Rocque (1756), Taylor (1816), Clarke's map of a conjectural medieval city superimposed on the 1943 edition of the Ordnance Survey (OS) map (not shown) and various editions of the OS Maps;
- Excavations Bulletins and Excavations Database (1970-2021);

- Aerial imagery (Google Earth 2001–2020, Bing 2013; OSi 1995, 2000, 2006);
- Archaeological Testing Report, Licence No. 21E0787 (McCormick 2021; Appendix 13.3);
- Geophysical Survey Report, Detection Licence No. 21R0190 (Gimson 2021; Appendix 13.4);
- Architectural Heritage Report for protected structure Belcamp Hall (Sheehan & Barry Architects 2022);
- Condition survey of historic landscape features (structures associated with the two lakes – Inlet, Causeway and Weir; Bridge over Mayne; Rock House and Icehouse), CORA Consulting Engineers (2022); and
- Other documentary sources (as listed in the references, Section 13.10).

13.2.1 Standards and Guidelines

The following legislation, standards and guidelines were considered and consulted for the purposes of the report:

- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999 and the Planning and Development Act 2000 to 2006;
- CAAS Environmental Ltd on behalf of the Environmental Protection Agency (EPA) (2002), Guidelines on the information to be contained in Environmental Impact Statements;
- CAAS Environmental Ltd on behalf of the EPA (2003), Advice Notes on Current Practice (in preparation of Environmental Impact Statements);
- Council of Europe (1985). Convention for the Protection of the Architectural Heritage of Europe (ratified by Ireland 1997), ‘Granada Convention’;
- Council of Europe (1992). European Convention on the Protection of the Archaeological Heritage (ratified by Ireland 1992), ‘Valetta Convention’;
- Council of Europe (2005). Framework Convention on the Value of Cultural Heritage for Society, ‘Faro Convention’;
- Department of Arts, Heritage, Gaeltacht and Islands (1999) Frameworks and Principles for the Protection of the Archaeological Heritage;
- EPA (2017). Revised Guidelines on the information to be contained in Environmental Impact Statements, Draft August 2017;
- EPA (2002). Guidelines on the information to be contained in Environmental Impact Statements;
- EPA (2003). Advice Notes on Current Practice (in preparation of Environmental Impact Statements);
- EPA (2015). Advice Notes for preparing Environmental Impact Statements, Draft September 2015;
- European Commission (2017). Environmental Impact Assessment of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report;
- Heritage Act, 1995 (as amended);
- Historic England (2017) The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning Note 3 (Second Edition);
- Historic Scotland (2010) Managing Change in the Historic Environment; and

- National Monuments Acts, 1930-2004
- The Planning and Development (Strategic Infrastructure) Bill, 2006.

Excerpts from the relevant legislation are contained in Appendix 13.1 and 13.2.

13.2.2 Assessment Criteria/Indicators

Archaeological Heritage

The significance criteria used to evaluate an archaeological site, monument or complex are as follows: existing status (level of protection), condition or preservation, documentation or historical significance, group value, rarity, visibility in the landscape, fragility or vulnerability, and amenity value. In accordance with the EPA guidelines (EPA, 2003, 139) the removal of archaeological remains will result in a negative, direct and significant impact. This impact can, however, be mitigated by excavation in which a detailed record and archive of each site and also the publication of the results are provided, thereby ensuring preservation by record. Archaeological features may, in some situations, be considered as architectural heritage and therefore, may appear on both the RMP and RPS. This means that these features are protected by both the National Monuments Act and the Planning and Development Act 2000 and 2006.

Architectural Heritage

‘Architectural heritage’ is defined as all structures and buildings (together with their settings and attendant grounds, fixtures and fittings, groups of such structures and buildings and sites), which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Architectural heritage is generally visible and has a presence in the landscape which requires assessment (Architectural Heritage Guidelines for Local Authorities 2006). The Record of Protected Structures (RPS) was set up to protect structures determined to be of special interest and its effect is to seek to retain the special character and features that make these structures significant. A direct impact is where a feature or site of architectural heritage merit is physically located in whole or in part within the footprint of a potential development site. Recommendations are based on the architectural heritage merit of a structure or building, and whether this necessitates its preservation, either by avoidance, or by carrying out a record of the past prior to removal or if possible, relocation.

The management and protection of architectural heritage in Ireland is achieved through a framework of European and international conventions and national laws and policies (Department of Arts, Heritage, Gaeltacht and the Islands, Framework and principles for the protection of the archaeological heritage 1999, 35). The Convention for the protection of Architectural Heritage in Europe (the Granada Convention, 1985) was ratified by Ireland in 1997. The Convention emphasises the importance of inventories in underpinning conservation policies. The National Inventory of Architectural Heritage (NIAH) was established to fulfil Ireland’s obligations under the Granada Convention.

Cultural Heritage

‘Cultural heritage’ is a general term used to describe aspects of the environment which are valued for their age, beauty, history or tradition. It encompasses aspects of archaeology, architecture, history, landscape and garden design, folklore and tradition and topography. Cultural heritage is expressed in

the physical landscape in numerous and often interrelated ways. Cultural heritage is bound up with the beliefs and oral traditions of local populations, and any items of interest made known by local inhabitants during the course of site work will be duly considered, recorded and assessed. Site work was augmented by an examination of local publications and historic map sources, namely Ordnance Survey six-inch maps. In terms of impact on cultural heritage the EIAR only details the features that will be physically or socially (human beings chapter) impacted by the scheme.

13.3 Receiving Environment

13.3.1 Archaeological and Historical Background

13.3.1.1 Introduction

The proposed SHD development site is located in the townlands of Belcamp and Balgriffin in the parish of Balgriffin, and Clonshagh (E.D. Coolock) in the parish of Santry, within the barony of Coolock. The site is located to the north of the R139 road and is bounded to the east by the R107 road (to Kinsaley and Malahide) and to the southeast by existing industrial development. It includes part of the former 18th century estate of Belcamp Hall (RPS 463; on the site of an earlier house), which was the residence of Edward Newenham MP. Belcamp Hall was in use as a school until 2009; Belcamp College, which had been run by the Oblate Fathers since 1893. The house and the majority of its former demesne lie outside the proposed SHD site, within an area currently under development. A portion of the former estate lands associated with another 18th century house, Belcamp Hutchinson (RPS 468), lie within the north-eastern part of the proposed SHD site.

The Mayne River flows through Belcamp and this presents a potentially rich archaeological environment, as both settlement and ritual activity (in the form of the deposition of artefacts) are often associated with rivers. The presence of known archaeological monuments in its vicinity suggests that this river was indeed a focus of medieval settlement (e.g. at nearby Balgriffin Park) and presumably also earlier activity. The river and the placename of Mayne is referenced in the Dindsheanchas and owes its origins to the son of Maedhbh and Ailill of Connacht (known as Maine or Cichmaine), who is said to have been killed here by fishermen. His burial ground is described as being at the northern end of Inbhearr Cichmaine, the inlet or bay of Cichmaine, where he was killed (i.e. the northern end of present Portmarnock Bay; Morris 1939, in SMR file).

13.3.1.2 Prehistoric Period

The coastal area of north County Dublin has produced relatively large quantities of flints, many of which may date to the Mesolithic, (c. 7000–5000 BC). The first people to come to Ireland at the end of the Ice Age often lived in coastal areas, and shell middens along raised beaches (formed when the sea level dropped after the Ice Age) on this part of the coast are also evidence of the people's seasonal habitation sites. Mitchell discovered both Mesolithic and Neolithic flints at the raised beaches at Sutton during his excavations in the 1950s and 1970s (Mitchell 1990; Stout & Stout 1992). Other prehistoric material is relatively rare in this part of the county, and it has been speculated that centuries of continuous tillage north of the Liffey must have led to the destruction of a large number of archaeological monuments Stout & Stout 1992).

There is also a significant body of Neolithic (c. 4000–2300 BC) material from north County Dublin. The Neolithic saw the arrival of the first farmers and the adoption of the farming economy in Ireland. This period also saw new developments in ritual activity, and the first permanent monuments were built in the Irish landscape. The most famous and spectacular of Neolithic monuments are the megalithic tombs, which are divided up into four classes. Portal tombs, known popularly as dolmens, are dramatic constructions, usually consisting of two large door stones (which give the tomb its name), a back stone and two side stones, on which are balanced a large capstone. They are often situated near streams or rivers. There is a large, well-preserved portal tomb at Howth Demesne, at the foot of Muck Rock. Excavations at Feltrim Hill, situated approximately 5km to the west of Malahide, revealed settlement evidence from the Neolithic consisting of pottery sherds and worked stones, although there were no apparent remains of houses. This whole stretch of coast has a clear view of Lambay Island to the east. Recent excavations on the island have revealed areas of Neolithic activity associated with stone axe and flint tool manufacturing, some of which was of extremely high quality (Cooney 2000). The highest points of Lambay Island also have at least two cairns, mounds of stone that often cover burials, which may also date to the Neolithic.

The Bronze Age (c. 2300–500 BC) is represented in this part of north county Dublin by a rather limited range of monuments, some of which are recorded in the wider landscape. A ring-ditch identified on aerial imagery is located within the proposed SHD site (DU014-128), with another c. 250m north (DU015-141). Barrows are burial monuments of the Bronze Age and Iron Age and usually consist of a circular central area, which may be flat or slightly dished (a ring-ditch) or domed (a ring-barrow), enclosed by a ditch and occasionally by an external bank. In the Belcamp Hall development, on the eastern side of the proposed SHD site, a circular crop-mark that was thought to represent a possible ploughed-out barrow (SMR DU015-116), was subsequently identified by archaeological testing as an early modern designed landscape feature (Cf. Section 13.3.4.2).

13.3.1.3 Early Medieval Period

The early medieval period saw the development of a mixed-farming economy managed by kings, nobles and free farmers. There was an increase in settlement during the early medieval period (c. AD 500–AD 1200), and the ringfort, otherwise known as the ‘rath’ or ‘fairy fort’, is the best-known native monument of this period (Stout 1997). Ringforts are essentially enclosed farmsteads dating to the early medieval period. The majority of these sites are univallate, surrounded by one ditch and bank, but some are surrounded by two and, to a lesser extent, three enclosing ditches and banks (known as bivallate and trivallate raths respectively). Another morphological variation consists of the platform or raised rath – the former resulting from the construction of the rath on a naturally raised area while the latter’s height resulting from prolonged occupation over many centuries. Many raths are circular or oval in shape but they can occur as D-, pear- and sub-rectangular-shaped enclosures (Kinsella 2007).

Ringforts were not simple isolated homesteads, and should be considered within their contemporary settlement landscape, which would have consisted of unenclosed settlements, farms and fields, route ways and natural resources. McCormick (1995) has suggested that, given the value placed on cattle, and the occurrence of cattle raiding during the early medieval period, one of the primary functions of the ringfort may have been to keep cattle within the same boundary as the dwelling, thus allowing the inhabitants to keep a close watch on their livestock. There are references in early Irish legal texts

to watchdogs guarding the byres and sheepfold as well as the home, suggesting that people and animals may all have lived within the same enclosure.

Although ringforts are the most common archaeological site in the country, they are a site type that is relatively scarce in the archaeological record for County Dublin. This is partly because of the urban or suburban nature of much of the county, but also because of the intensive agricultural practices carried out in north County Dublin, which has destroyed surface traces of these sites. The survival of destroyed ringforts or enclosures sub-surface has been demonstrated in the surrounding townlands, where geophysical survey and testing have identified the remains of several possible early medieval enclosed settlements, some of which are quite substantial in size (e.g. SMR sites DU015-117 & DU015-134 in Drumnigh townland). In addition, cropmarks have been recorded in Saint Doolaghs townland which may represent the remains of a ringfort and associated field system (DU015-123 & 124).

There is a tradition of a ringfort (RMP DU015-033) on the grounds of the school at Belcamp Hall, which was thought to have been levelled in the 18th century. It appears as a cropmark on an Ordnance Survey aerial photograph, in the sports ground of Belcamp College, and has now been identified by archaeological testing as an early modern designed landscape feature (Cf. Section 13.3.4.2). The site is not represented on any edition of the OS maps, nor does it appear on Rocque's mid-18th century map, so it is assumed that it built sometime in the later 18th or early 19th centuries and subsequently demolished (McLoughlin 2016). Sir Edward Newenham, who built Belcamp Hall, lived there from 1765–1793 and extensively landscaped the lands; the feature may date to this period.

Where ringforts were the major secular component of early medieval settlement, ecclesiastical centres became the focus of the new religion that was readily adopted in the 5th and 6th centuries. Early medieval monastic settlements tend to be defined by a large curvilinear bank and ditch or stone enclosure (topography permitting), enclosing an area circa 90-120m in diameter, often preserved in the line of townland or field boundaries and roads (Swan 1998). The majority of ecclesiastical settlements had one or more concentric curvilinear enclosures, with the church placed at the centre, in the inner sanctum (frequently preserved in the surviving graveyard boundary), with more secular activities (domestic, commercial and industrial) reserved for the outer enclosures. They usually had a network of radiating roads, with the principal approach road (often from the east) terminating in a triangular market place. Features commonly found to be associated with early ecclesiastical sites include holy wells (usually outside of the main settlement), bullaun stones, high crosses, cross-inscribed stones and round towers.

One such example is the ecclesiastical settlement associated with St Doolagh's Church (RMP DU015-009001) c. 625m north / north-east of the proposed development. Not much is known about the founder of the church, St Doolagh; the earliest reference to him is found in the 9th century Martyrology of Oengus where he is referred to as 'Duilech of Clochar', though he probably lived in the early 7th century (Appleyard 1985). The church itself represents the oldest building in the study area and was constructed in the same style as Cormac's Chapel at Cashel and St Kevin's at Glendalough. The site incorporates most of the other features commonly associated with an ecclesiastical settlement including a burial ground, two holy wells, a cross, and an inner and outer enclosure. A pattern was formerly held at St Doolaghs, but, due to rioting and unruliness, the clergy suppressed it in the last century (Joyce 1912).

13.3.1.4 Viking Settlement in Fingal

The study area is within the bounds of Fingal, the regional name applied to the northern half of County Dublin and although there is no direct evidence for Viking settlement at Belcamp, the Fingal area has strong Viking connections. According to Ball (1920), the name Fingal is used to denote the district into which predatory excursions were made by the Vikings. In the 9th century, a colony of Ostmen, or Northmen, was established in Dublin, ultimately settling in the tract lying northwards along the coast, which became known as *Fine Gall* or 'the territory of the strangers'. According to the poet John O'Dugan, Fingal came under the rule of MacGillamocholmog, who controlled the lands south of Dublin before the arrival of the Anglo-Normans in the late 12th century. Before the battle of Clontarf, Brian Ború is said to have burned Fingal and the district of Howth, and some years later, during a predatory excursion into Fingal, the region is said to have been burned from Dublin to the River Delvin (Ball 1920). Viking rule and settlement influenced the region for over 250 years, from the 9th to the 12th centuries. Bradley suggests Viking Dublin should be looked at as part of 'the rurally settled area of the Dublin Scandinavians' rather than as a number of successful trading settlements strategically located along the coast (in Simms & Fagan 1992). It is known that the Vikings used Baldoyle as a harbour base and the placename probably derives from this settlement (*baile dubh gaill* or 'place of the dark stranger' is likely to be a reference to the Vikings of Danish origin, as they were darker-haired than the Norwegians. The early Viking settlement was located further inland than the present-day village, as the seashore was at a higher level than it is today (Hurley 1983).

13.3.1.5 The Study Area in the Medieval and Post-Medieval Periods

From the 12th century, the Anglo-Normans, with a keen eye for good agricultural land, superimposed the manorial system of landholding they had acquired from England and the Welsh borderlands onto their newly conquered territory in Fingal. The majority of Anglo-Norman manors were on, or close to, rivers, and they often preferred established sites with an existing infrastructure (whether secular or ecclesiastical). The manor of Balgriffin was founded on land granted to a Welsh man by the name of Griffin at the end of the 12th century (it was originally known as Baile Hamund, becoming Baile Griffin – Balgriffin – after the new landowner; Walsh 1888). The manorial castle and church (DU015-062 & -012) were erected in the lands of the present Balgriffin Park, which is located on the opposite side of the R107 road to the proposed development. It was a strategic location, on the north bank of the River Mayne and close to the established ecclesiastical settlement of St Doolagh.

In the Civil Survey of 1654–1656, the parish of Balgriffin (within which the proposed development site is located), was held by James Bath of Drum Conragh and consisted of 480 acres with an annual valuation 'By ye Jury two hundred and forty pounds. By us two hundred and eighty pounds' (Simington 1940). The only specific mention of Belcamp in the Civil Survey is contained in the description of Clonshagh townland, which is bounded on the 'east with BallGriffinon ye south with Great Clonshagh & Bell Campo [Belcamp].....' (Simington 1940).

18th and 19th century houses

The townland of Belcamp had four formal residences dating from the 18th and 19th century: Belcamp Hall (RPS No. 463), Belcamp Hutchinson (RPS No. 468), Belcamp (in ruins; NIAH 11349005) and Belcamp Park (demolished). The Ordnance Survey (OS) first edition six-inch map (1837) shows

Belcamp Hall with Belcamp Hutchinson to the north-east of it, and Belcamp to the west, all situated north of the River Mayne. Belcamp Park stood on the south side of Belcamp Lane and the river. Another 18th century house, Wellfield House (RPS 468), is located on the east side of Malahide Road in Saintdoolaghs townland. These houses were most likely constructed as formal residences for the affluent, on the outskirts of the city away from their townhouses in Dublin City. Of these, the ice house associated with Belcamp Hall is located within the proposed SHD site.

Belcamp Hall was built c. 1780 for Sir Edward Newenham, a member of the Irish parliament and an ardent supporter of the Republican Party in the United States. The house and majority of its associated grounds and structures lie outside of the proposed SHD site, with only the ice house within it. It was designed by James Hoban, who also designed the White House in Washington, and appears to have replaced an earlier structure on the site, which is shown on Rocque's 1760 map. It is a fine three-storey-over basement red brick house which until recently functioned as a school (Belcamp College) and will now be incorporated into a new residential development (Planning Reg. Ref. No. F15A/0609; Decision Order No. PF/0263/16). In 1778 Newenham erected a tower in the grounds in honour of George Washington and American Independence (Bence-Jones 1978; the tower was restored in 1984). In 1893 a chapel and first phase of the school were added to the main house, with additional wings added during the 20th century. The house faces directly onto the former school play-ground and was designed to enjoy the spectacular views across Dublin Bay to Ireland's Eye, though these have been greatly compromised by the modern residential developments at Balgriffin.

The ice house which is contemporary with Belcamp Hall is located on the south bank of the River Mayne, in the townland of Belcamp. It is situated in a wooded area and presents itself as a small earthen-planted mound. The only discerning visible feature from the exterior is the slightly protruding arch entrance leading into the domed vault interior. Ice houses were functional buildings that were usually attached to large country houses throughout Ireland before the days of refrigeration. Many were built with additional design features to create a picturesque or ornamental effect. Ice houses were mostly sited inside the walls of the demesne near the main house, but they were also located near water sources in shady areas. The majority were built in the 18th and early 19th centuries. Until the last quarter of the 19th century, when artificial ice production became established commercially, the ice house was the only reliable means of refrigeration.

Most examples found in Ireland are brick, domed or vaulted, either completely submerged or embedded into the ground or the side of a hill—a design represented by the ice house located in the grounds of Belcamp House. Due to the subterranean nature of the structures, the entrances held the only design element that could be elaborated on by the folly builders. Entrances opened into a short, vaulted passage that led to a shallow domed roof and an inverted cone base, at the bottom of which ice was stored. The ice house at Belcamp is similar in construction and its location beside the river and pond across from the house meant that ice was easily accessible. This ice would have been stocked in layers at the base of the ice house.

13.3.2 Cartographic Analysis

13.3.2.1 Down Survey Map, c. 1656

The Down Survey of 1656-58 was, at the time, the most detailed cartographic survey in the world, undertaken in order to measure the land forfeited from the Catholic population to be redistributed amongst merchant adventurers and loyal English soldiers. The Down Survey baronial map of Coolock (not shown) does not show the site of the proposed development area in any detail; it is located in a large unfortified area marked as 'Lord of Howth his land'. In the parish map (not shown) it lies in 'Balgriffin Howth Parish', but is again unmarked (it lies adjacent to a long-forgotten townland named 'Rickenhead'). Unusually, the County survey map (Figure 13.1) provides slightly more detail, indicating the townland of 'Balcampe' to west of Balgriffin Park. It also names 'Cloneshagh', depicting a castle in the townland.

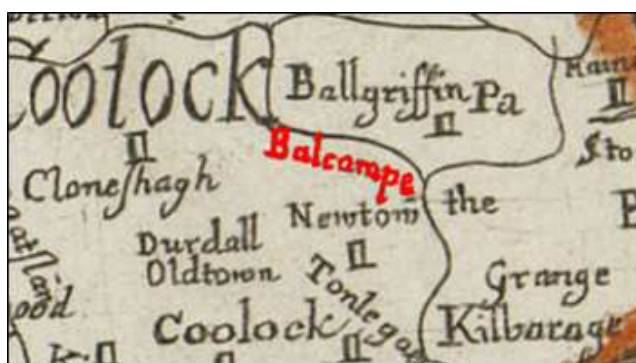


Figure 13.1 – Extract of Down Survey map of County Dublin, c. 1656

13.3.2.2 John Rocque's 'An Actual Survey of the County of Dublin,' dated 1760

In this mid-18th century map (Figure 13.2), there is a house 'Bellcamp' on the site of the later Belcamp Hall, located between two east / west orientated rivers that cut through the landscape (the Mayne and its tributary, though it is significantly closer to the former).

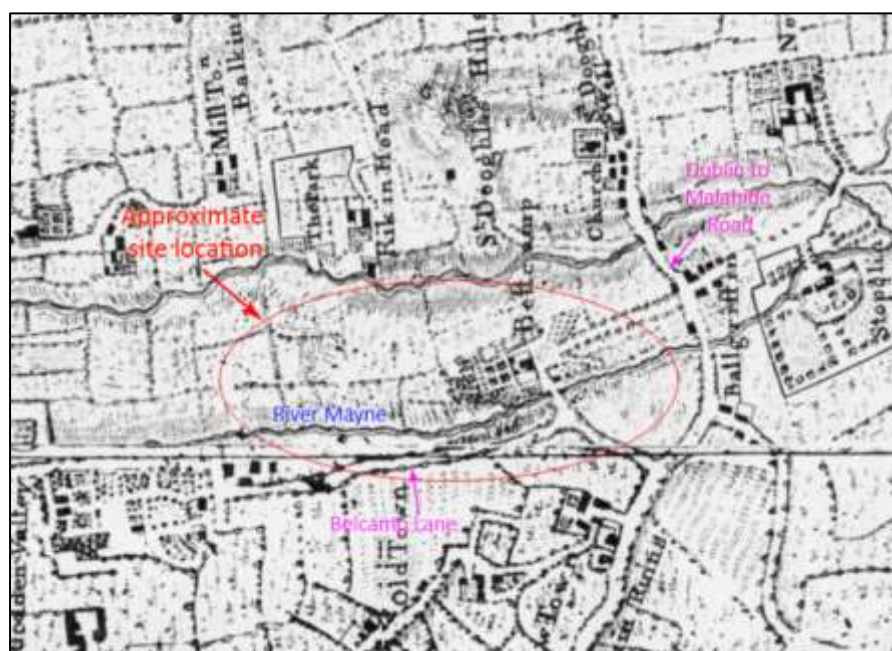


Figure 13.2 – John Rocque's map of Dublin county, 1760

Rocque's map captures an early demesne landscape, with the principal building located at the western end of a long avenue. The formal tree-lined avenue approaches from the east (connecting to the road to Malahide) and is carefully aligned with the principal building, which forms the focal point of the demesne. Outbuildings are located to the west of the main house where there is a series of small plots (perhaps kitchen gardens) and a walled garden. To the east of the main house is a designed garden, laid out in a geometrical pattern, with paths radiating from the main house and a short avenue providing access to the river. A gate lodge is depicted at the main entrance to the estate and the small settlement of Balgriffin is located on the far side of the Malahide road. There is a secondary access to the demesne from the south, crossing the River Mayne. It is not possible to distinguish smaller features, like the ice house, which is not indicated on the map. The neighbouring houses of Belcamp Hutchinson and Belcamp have not yet been built and the land surrounding 'Bellcamp' is shown as agricultural fields.

13.3.2.3 John Taylor's map of the environs of Dublin, dated 1816

Taylor's map (Figure 13.3) does not provide not much additional detail within the proposed site location, but it does capture the growing popularity of this part of the county, with a proliferation of late 18th / early 19th century country villas depicted in the area. The new Belcamp Hall, built c. 1785, is named 'Belcamp', but all that can be seen is the plantation of trees and the river. There is a house to the north called 'Templeview', which may have been a precursor to Belcamp Hutchinson (a country house to the north of Belcamp). The other two Belcamp houses (Belcamp Park and Belcamp) are also now shown, both named simply 'Belcamp'.

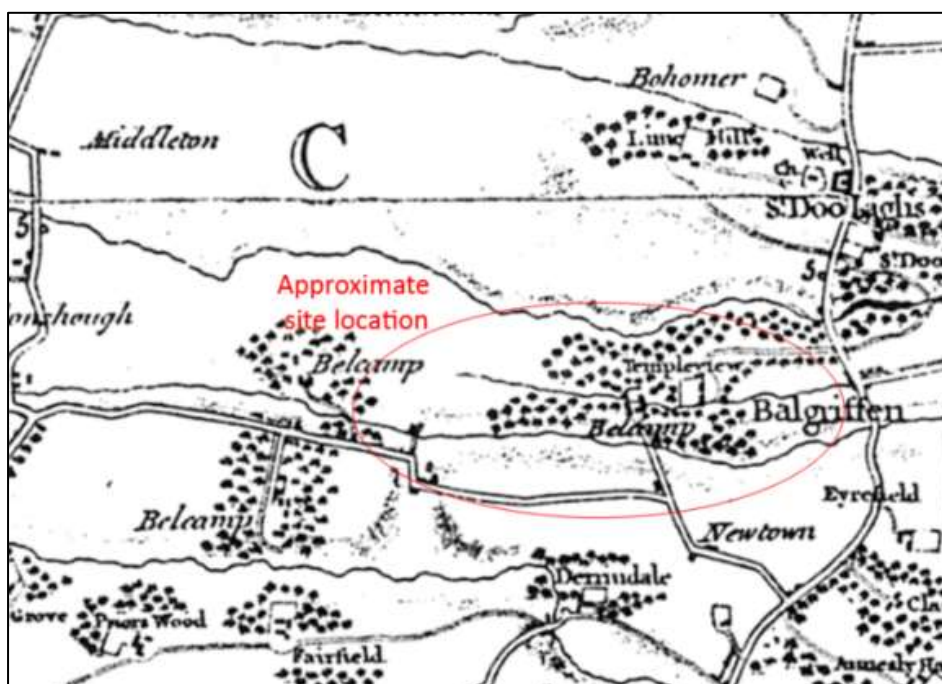


Figure 13.3 – Taylor's map of Dublin, 1816

13.3.2.4 Ordnance Survey (OS) mapping

On the first edition OS six-inch map (1843), Belcamp Hall is named Belcamp House. It presents as a well-established country estate, situated in a wider landscape of agricultural fields dotted with smaller country houses, such as the neighbouring Belcamp Hutchinson (Figure 13.4). The landscaping of the

estate follows the late 18th / 19th century fashion for an informal and naturalised parkland, replacing the old geometric layout depicted on Rocque's 1760 map (Figure 13.2). The broad, tree-lined avenue has been removed and a much less formal approach put in its place; a relatively narrow path follows a swathe of mature trees along the south side of the estate, with a gate lodge marked at the entrance to the path at the Malahide road. Belcamp House is on a slightly different alignment to the structure depicted on Rocque's map, which tallies with the construction date of the existing house in the 1770s. The house is now focused on an open parkland of lawn and clumps and belts of mature trees.

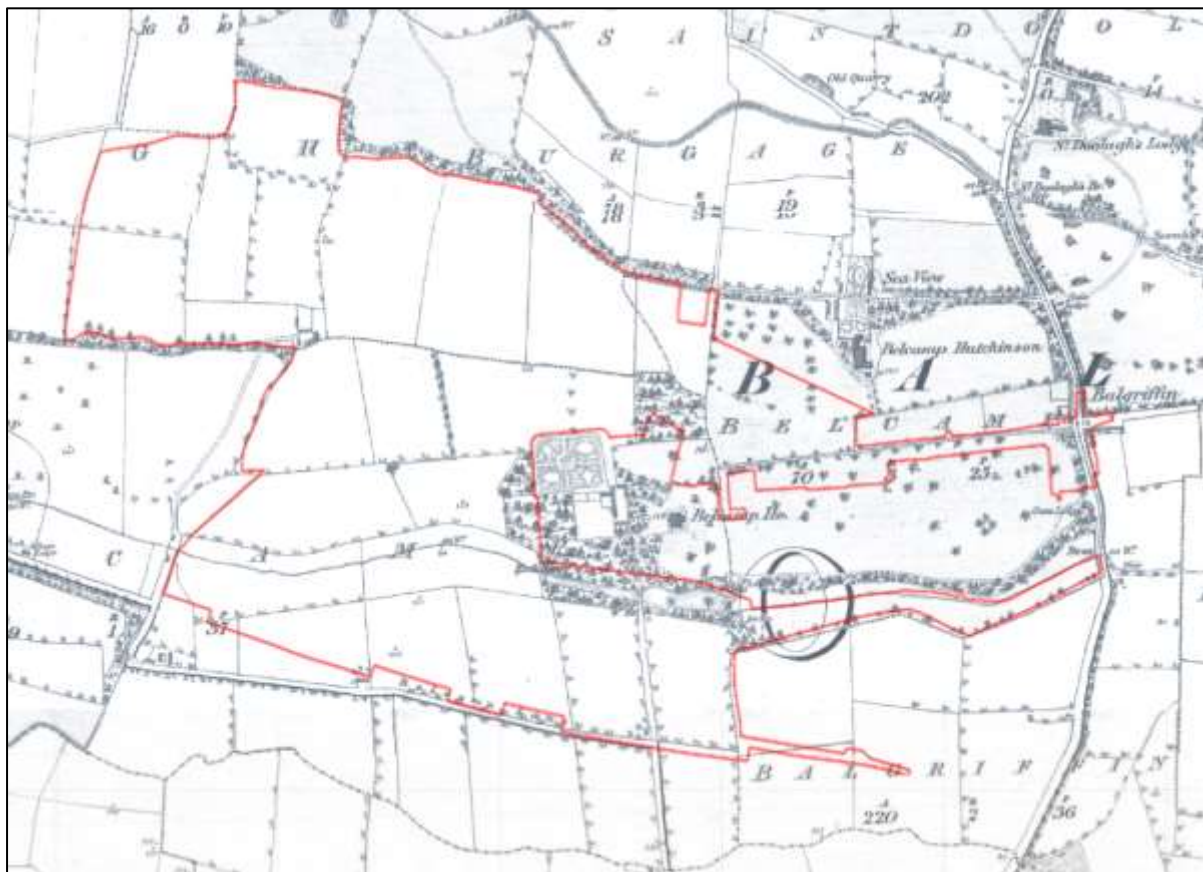


Figure 13.4 – First edition OS six-inch map (1843), showing approximate site location in red

To the south-west of the house are decorative lakes – created by the localised widening of the river Mayne – which were accessed via pathways through woodland surrounding the house. There are also follies, including a 'Rock House', a 'Turret' (the Washington Monument) and an ice house, the latter being within the proposed SHD site (Figure 13.5). To the west of the main house are the associated outbuildings, arranged around a large courtyard and several smaller yards, with a large, well-established walled garden to their north. The secondary entrance road from Belcamp Lane, where a small building (gate lodge) is shown, runs northwards, crossing the River Mayne over a bridge and passing through the woodland to access the rear of the house.

The grounds associated with Belcamp Hutchinson are smaller and less elaborate, with no landscape design elements and only a small walled garden on the north side of the house. The remainder is shown as parkland, with bands of trees around the northern boundaries and possibly a small orchard in the north-western corner. No features are depicted within the area of the proposed SHD site at Belcamp Hutchinson (Figure 13.6 **Error! Reference source not found.**). With the exception of a small

farmstead at the western site boundary, the remainder of the land within the proposed SHD site is depicted as agricultural fields.



Figure 13.5 – Detail of first edition OS six-inch map (1843), showing the Ice House, Rock House and Turret, and the entrance road and gate lodge at Belcamp Lane

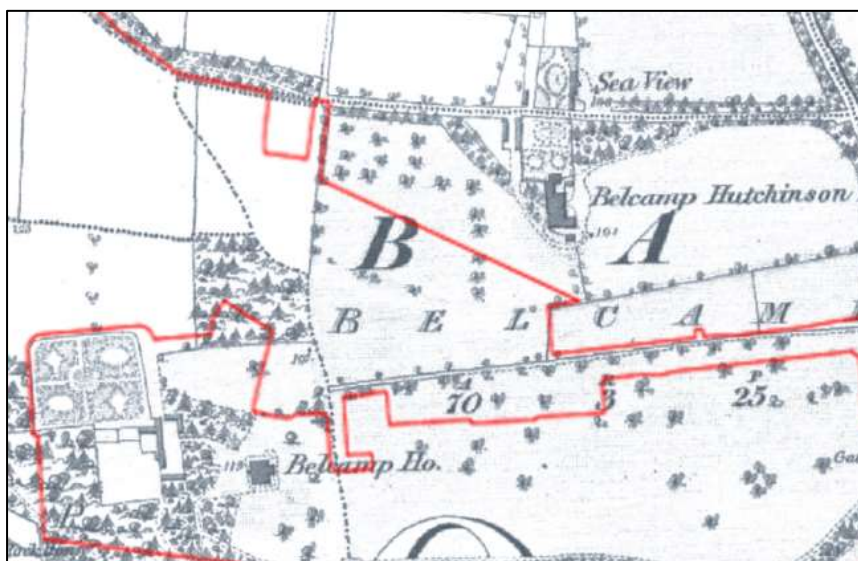


Figure 13.6 – Detail of first edition OS six-inch map (1843), showing Belcamp House and Belcamp Hutchinson

The bridge across the river at Belcamp appears more substantial by the time of the 1866 OS five-foot plan (Figure 13.7), on which the ice house is also clearly depicted as a long rectangular building.

By the time of the revised edition 25-inch OS mapping in 1906-09 (Figure 13.8), the Oblate Fathers were in possession of the Belcamp Hall estate. During this period the chapel and first phase of the school were added to the main house, the chapel being attached the north face elevation and a T-shaped school wing is attached to south side of the house. The walled garden survives as an enclosed space, but the lack of detail within suggests that it has fallen out of use. The ice house is still depicted

and indicated, the Rock House is not longer named on the map, and the Turret is shown but not labelled. Elsewhere within the proposed SHD site, all but one of the buildings at the farmstead have been removed, with the remaining one depicted as unroofed (Figure 13.9). The field in Belcamp Hutchinson, which had been subdivided by the time of the 1866 map, is shown on this later edition map with a well at its centre.



Figure 13.7 – Detail of 1866 OS five-foot plan, showing bridge at Belcamp Hall and Ice House

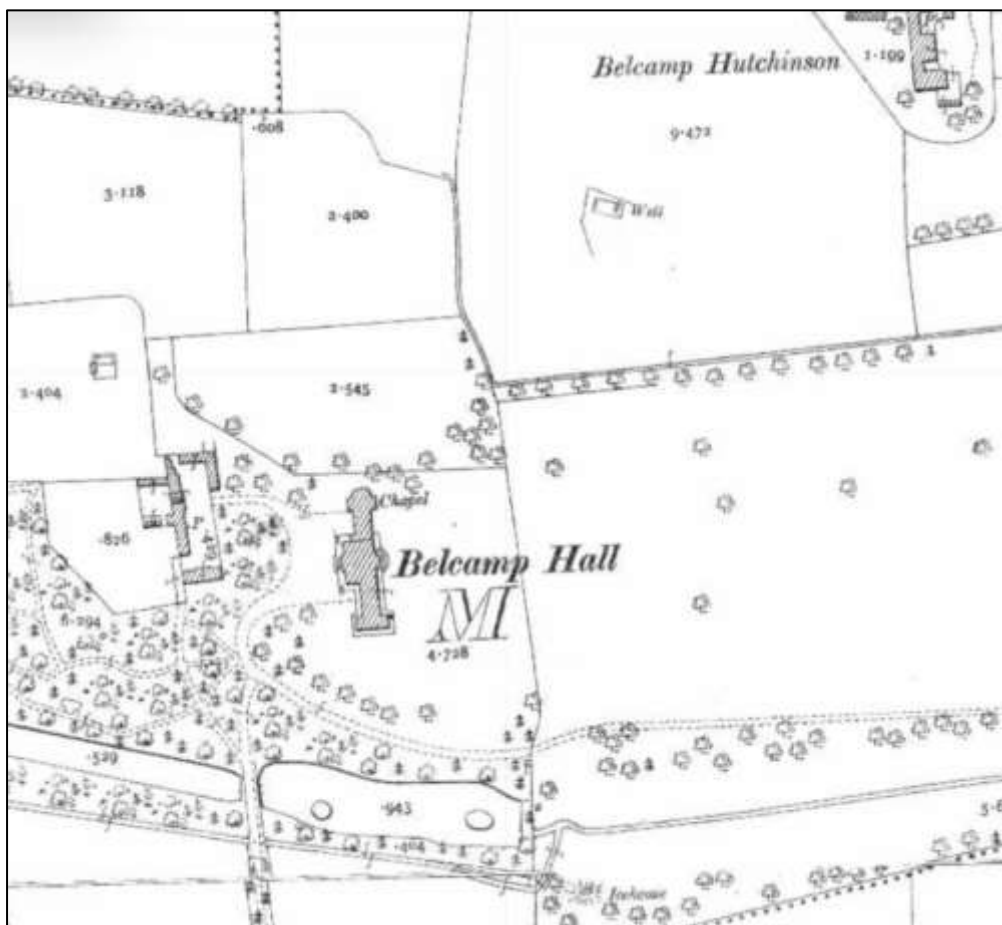


Figure 13.8 – Detail of OS 25-inch map, 1906-09, showing Belcamp Hall and Belcamp Hutchinson

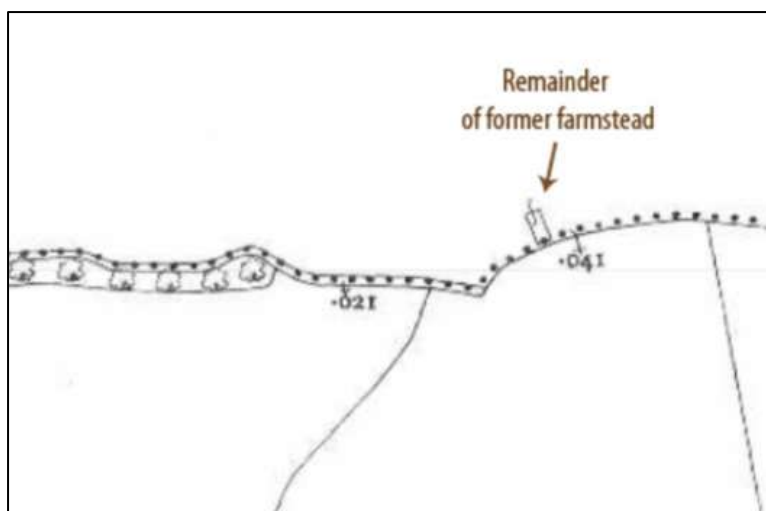


Figure 13.9 – Detail of OS 25-inch map, 1906-09, showing remains of former farmstead

13.3.3 Stray Finds

The Topographical Files of the National Museum of Ireland record no stray finds within the proposed development site or its immediate vicinity. Two records relate to the neighbouring townlands of Balgriffin Park and Saintdoolaghs, on the east side of the Malahide Road, providing further indication of activity in this area during the early medieval period: a fragment of decorated graveslab in Balgriffin Park (Reg. No. 1958:50), presumed to be associated with a predecessor to the medieval parish church there; and, a penannular ring brooch was recovered during metal-detecting of a field in Saintdoolaghs townland in 1986 (Ref. IA/189/86).

13.3.4 Previous Archaeological Investigations

13.3.4.1 Archaeological Investigations within the Proposed SHD Site

Archaeological investigations in 2021, undertaken to inform this assessment

Archaeological testing was carried out in November 2021 (Licence No. 21E0787, McCormick 2021 in Appendix 13.3) to investigate geophysical anomalies identified during a survey carried out under Detection Licence No. 21R0190 (Gimson 2021 in Appendix 13.4). A summary of the results is provided below and the full reports are contained in Appendices 13.3 and 13.4.

Geophysical Survey Results

Geophysical survey was undertaken across the site in September 2021 by Earthsound Geophysics Ltd (Gimson 2021). A magnetometer survey (Figure 13.10) was undertaken at a sample resolution of 0.5m x 0.25m. Significant potential archaeological remains were further investigated using an electromagnetic instrument at a sampling resolution of 0.5 x 0.25 m (Figure 13.11). Within the southwestern fields large areas of magnetic disturbance were detected, suggestive of soil importation or metallic debris and which may have masked any underlying archaeological remains. The fields to the southeast did however reveal a number of possible arcing ditches, a possible enclosure ditch and a number of possible pits. Within the centre of the survey area a large potential double-ditched enclosure was detected alongside a series of possible pits, potential ring-ditches and further possible enclosure ditches. An arcing stone or compact earth feature was also detected which it was thought may be archaeological in origin.

The north-eastern fields revealed a number of highly magnetic and stone deposits which could be archaeological or structural in origin. In addition a large oval potential enclosure was detected which is cut by a later townland boundary. This possible enclosure appeared to contain internal features and boundaries. Within the north-western portion of the survey area the survey appeared to confirm the presence of recorded monument ring-ditch DU014-128 (Figure 13.12). The survey showed a slightly oval ditch punctuated by pits or deposits and a central pit, and possibly a conjoining ring-ditch on its northern edge. Within the vicinity a number of other possible ring-ditches were detected along with an oval enclosure with internal pits.

Further areas of possible pits, enclosures and ring ditches were detected through the north-western portion of the survey area. Of particular note is a potential double ring-ditch on the northern field boundary and a large possible enclosure containing pits. In addition to the possible archaeological remains detected, a large number of relict field boundaries have also been identified (both previously recorded on historic maps and unrecorded). This suggests that the landscape has been intensively cultivated over a long period. When these field boundaries are combined with the evidence of cultivation furrows it becomes apparent that any archaeological remains may have been heavily impacted by agriculture processes.

Archaeological Testing Results

Two trenches (T1 & T4 on Figures 13.13 & 13.14) were excavated across the location of SMR DU014-128, a suspected ring ditch, in order to define its nature and extent. This possible ring ditch was initially identified as a crop-mark in aerial photography and subsequently as a geophysical anomaly. Excavation of trench T1 revealed a curving band of yellow-orange clayey silt, which was tested by hand excavation. This revealed it to be a natural band of subsoil. Excavation of an additional test trench (T4) across the potential ring ditch confirmed the presence of further variations in glacially derived subsoil corresponding to the geophysical anomalies and the cropmark (Images 13.1 & 13.2). The feature is interpreted as a non-archaeological variation in natural glacial deposits.

Trenches T26 and T27 in Field C were placed over a potential ringfort/ ring ditch noted in the geophysical survey (Figure 13.14). No archaeological material was observed in these trenches. The geophysical anomalies in this area may correspond with further variations in subsoil (Image 13.3).

Trench T50 and T51 in Field D (Figure 13.14) displayed large patches of red brick spreads which also contained occasional fragments of table wear pottery across the entirety of both trenches. There was a grassy ridge running across the field suggesting that perhaps there was a relatively modern collapsed wall or dump of debris across this part of the field. These patches correspond with the anomalies on both the gradiometry and resistivity surveys (Image 13.4). Four test trenches displayed possible pit-like features. All the possible pits were half sectioned and found to be either a natural subsoil variation (Test Trenches 22, 24 & 47) or a small residual patch of topsoil (Test Trench 40; Image 13.5).

All trenches displayed plough marks which corresponded in alignment to the plough lines visible in the field today.

No archaeological features were recorded in the course of the test excavations.

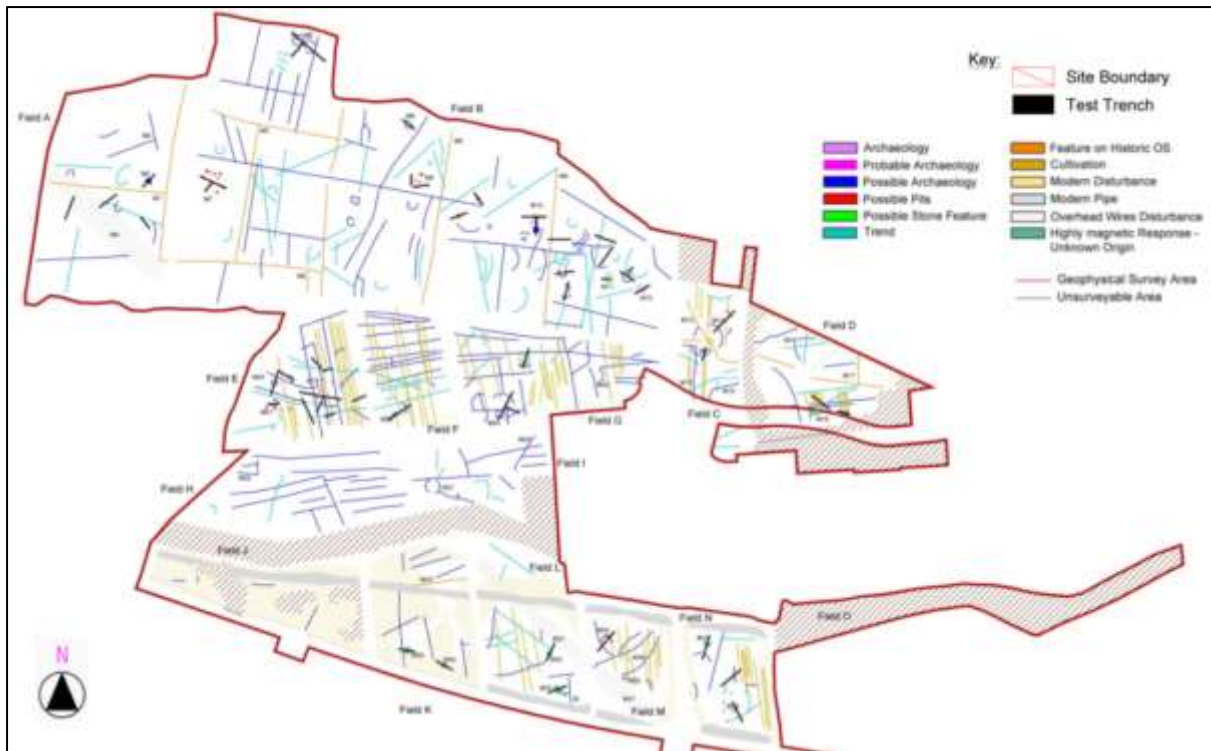


Figure 13.10 – Test trench layout overlaid onto geophysical survey results (gradiometry survey) (after McCormick 2021)

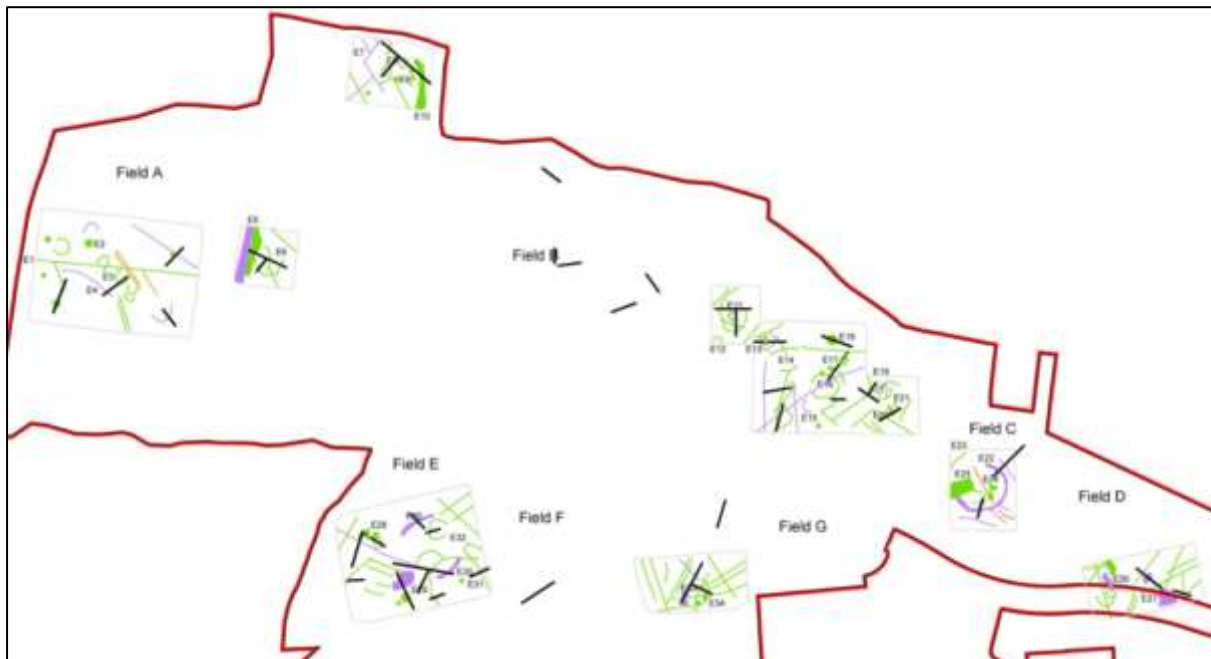


Figure 13.11 – Test trench layout overlaid onto geophysical survey results (resistivity survey) (after McCormick 2021)

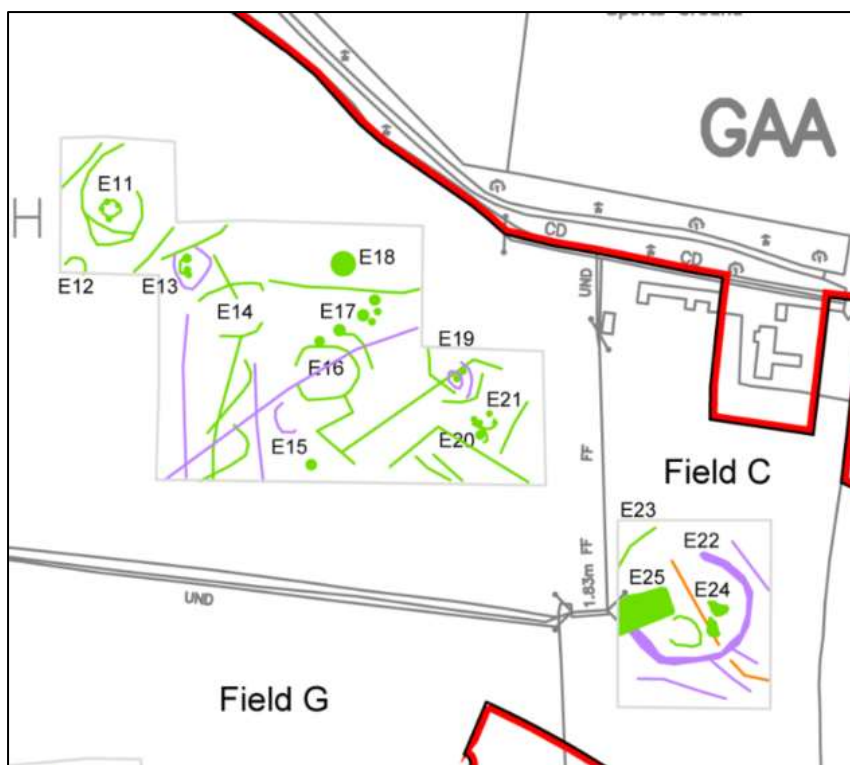


Figure 13.12 – Geophysical survey results (resistivity survey) at SMR ME014-128 (E20 and E21 on image) and in its vicinity (after Gimson 2021)

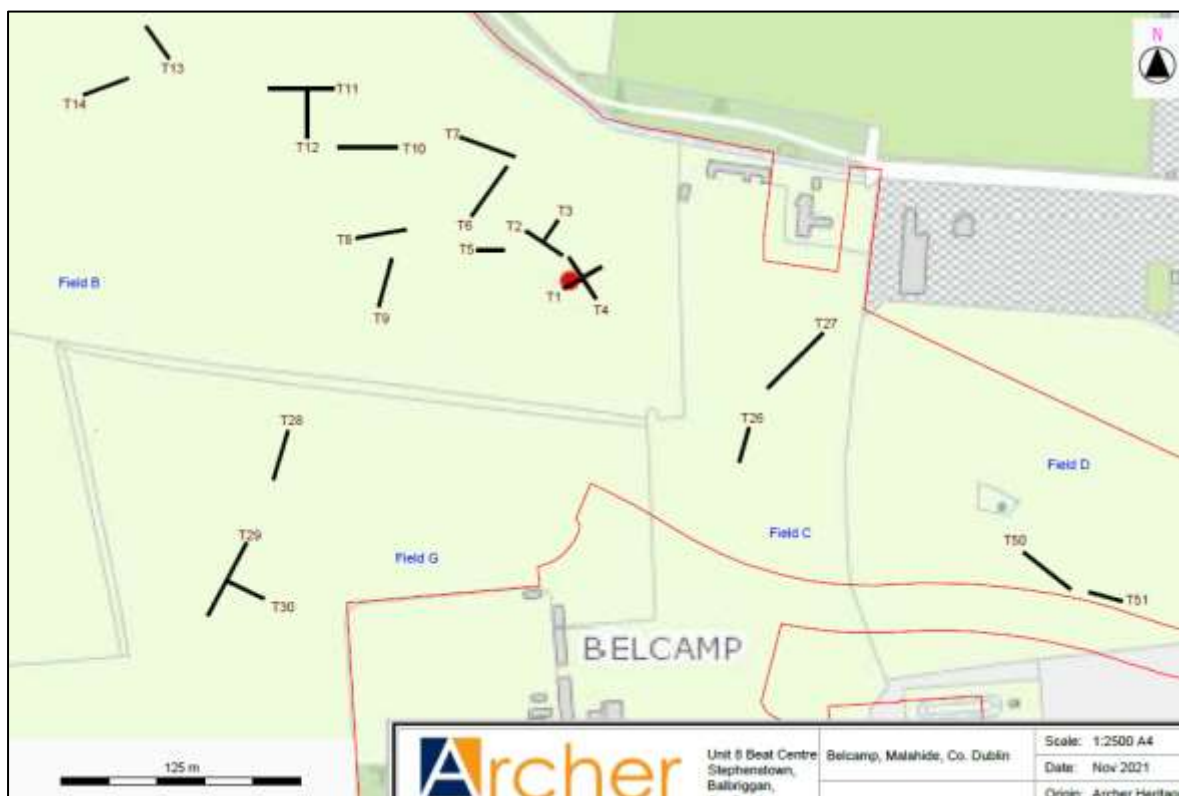


Figure 13.13 – Test trench layout in north-western part of proposed development site, showing location of SMR site DU014-128 (red dot)

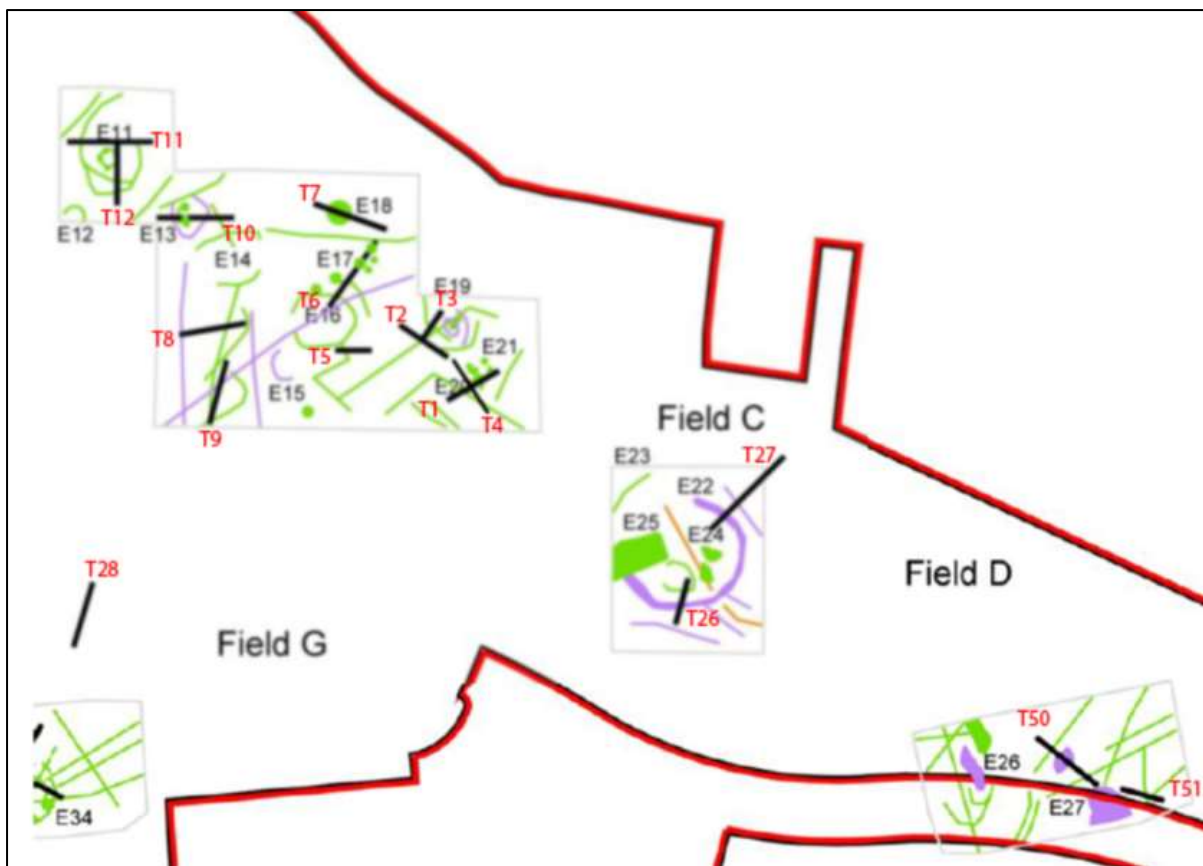


Figure 13.14 – Test trenches overlaid onto geophysical survey results (resistivity survey) at SMR ME014-128 (E20 & E21, T1 & T4 on image) and in its vicinity (after Gimson 2021 & McCormick 2021)



Figure 13.15 – Test trench layout in north-eastern part of proposed development site

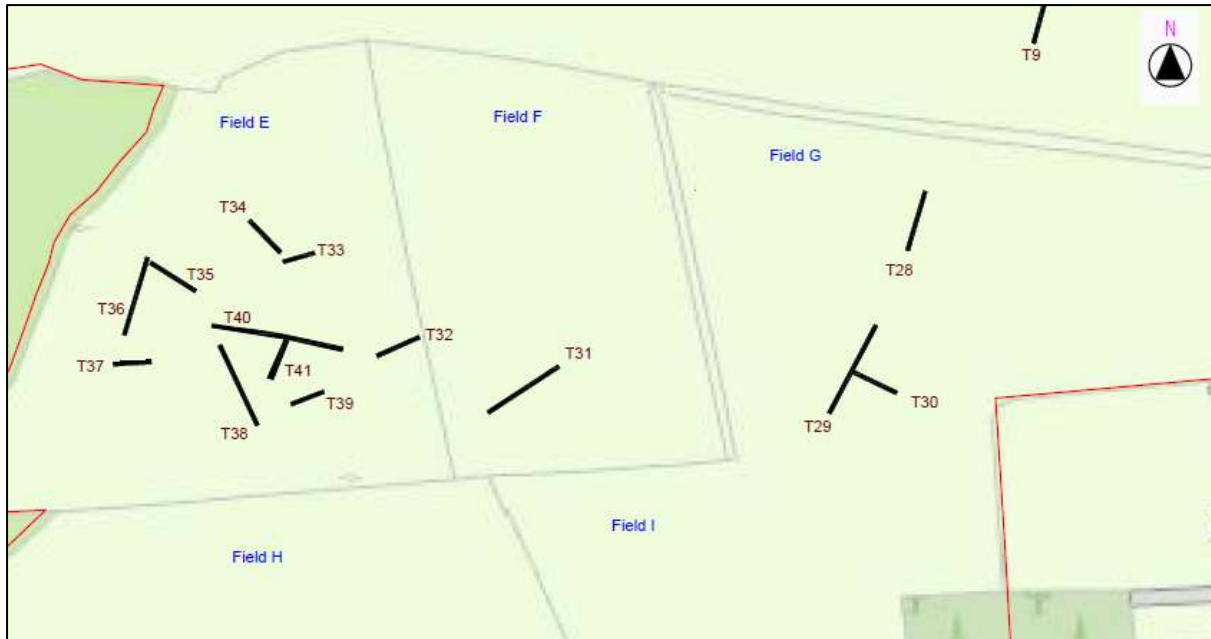


Figure 13.16 – Test trench layout in south-eastern part of proposed development site

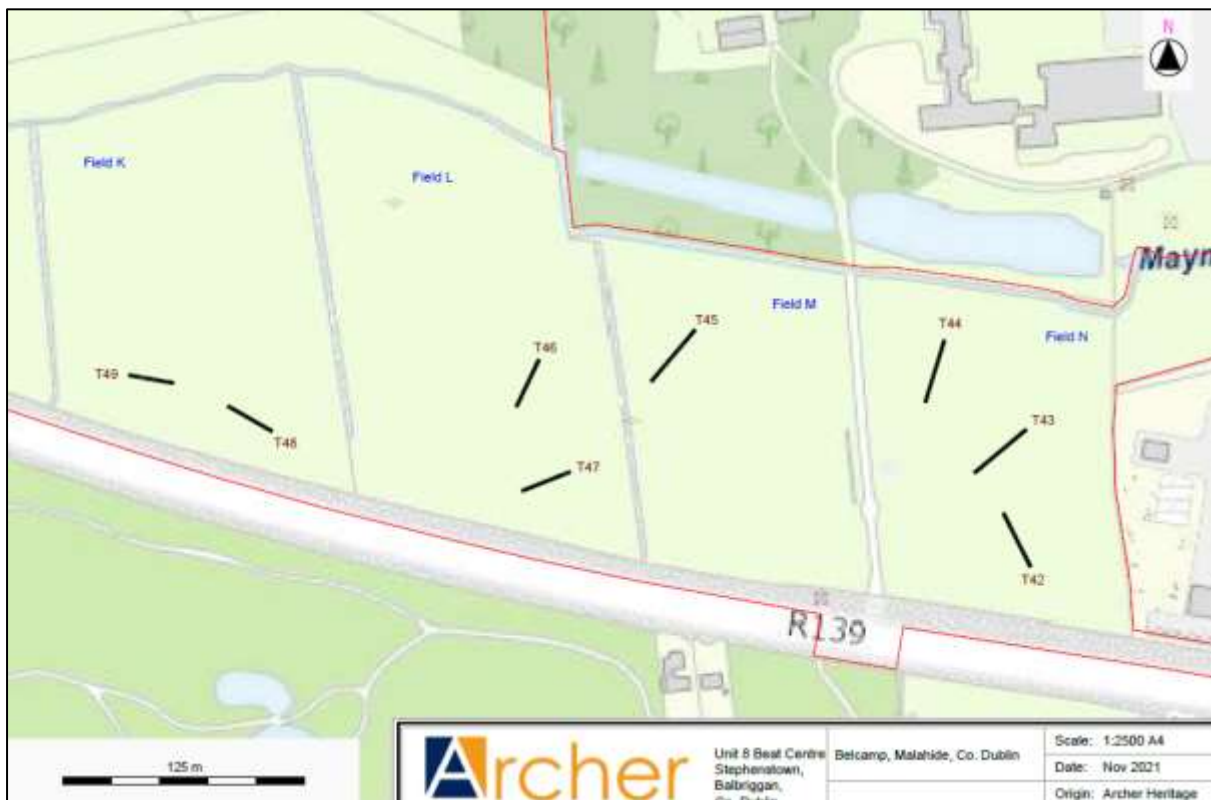


Figure 13.17 – Test trench layout in north-western part of proposed development site



Image 13.1 – Left: T1 & T4 facing W, note curving band of natural; Right: T4, facing SW, note curving band of natural in fore and background (after McCormick 2021)



Image 13.2 – Left: T1 & T4, detail of curving band of yellow natural; Right: T1 & T4, Test pit through curving band of natural, non-archaeological (after McCormick 2021)



Image 13.3 – Trench T6, facing N, note plough furrows (after McCormick 2021)



Image 13.4 – Left: T50, red brick spread, note tableware sherds; Right: T51, red brick spread (after McCormick 2021)



Image 13.5 – Left: T22, possible shallow pit, dismissed as non-archaeological; Right: T40, possible pit feature, dismissed as residual topsoil (after McCormick 2021)

Archaeological investigations undertaken in 2008, partly within the proposed development site

Geophysical survey (Licence No. 08R0023) and archaeological testing (Licence No. 08E0529; McQuade 2008) took place as part of a road-siting study in 2008 in areas along the proposed route options, some of which lie within the proposed SHD site or adjacent to it.

Within the proposed SHD site, archaeological testing was undertaken in Area 2 (Figures 13.18 to 13.21). The testing identified a pit filled with cockle-shell and a potential prehistoric site comprising a large pit, two smaller pits and a linear feature filled with charcoal-rich silty clay and burnt stones. These features may represent the ploughed-out remains of a fulacht fia and, as such, are most likely prehistoric in date (possibly Bronze Age). The presence of a possible fulacht fia is unsurprising given the proximity of the River Mayne, as such sites are commonly found in near to watercourses. Other features identified during testing in Area 2 include an undated refuse pit and two undated ditches, all of which are likely related to a series of post-medieval field drains which were also uncovered in the trenches on this part of the site.

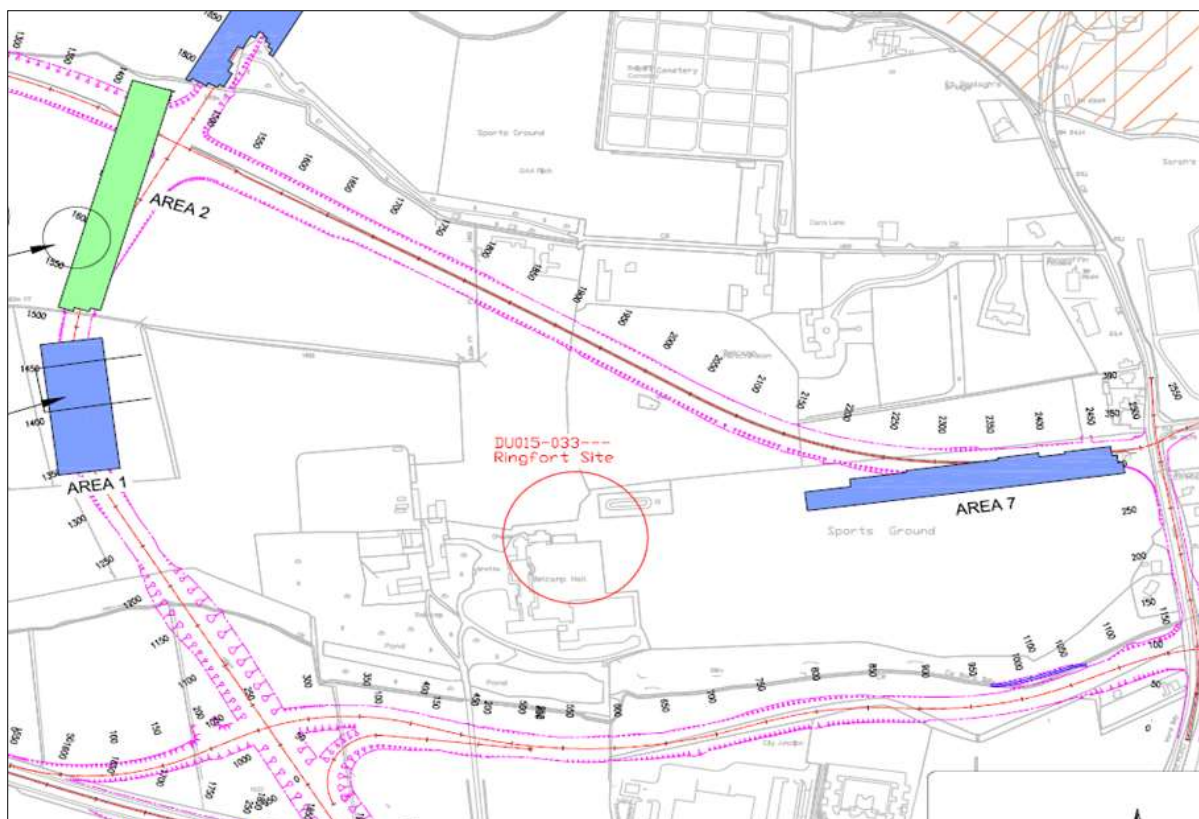


Figure 13.18 – Areas investigated by geophysical survey and archaeological testing in 2008, within / adjacent to the proposed development site (after McQuade 2008)

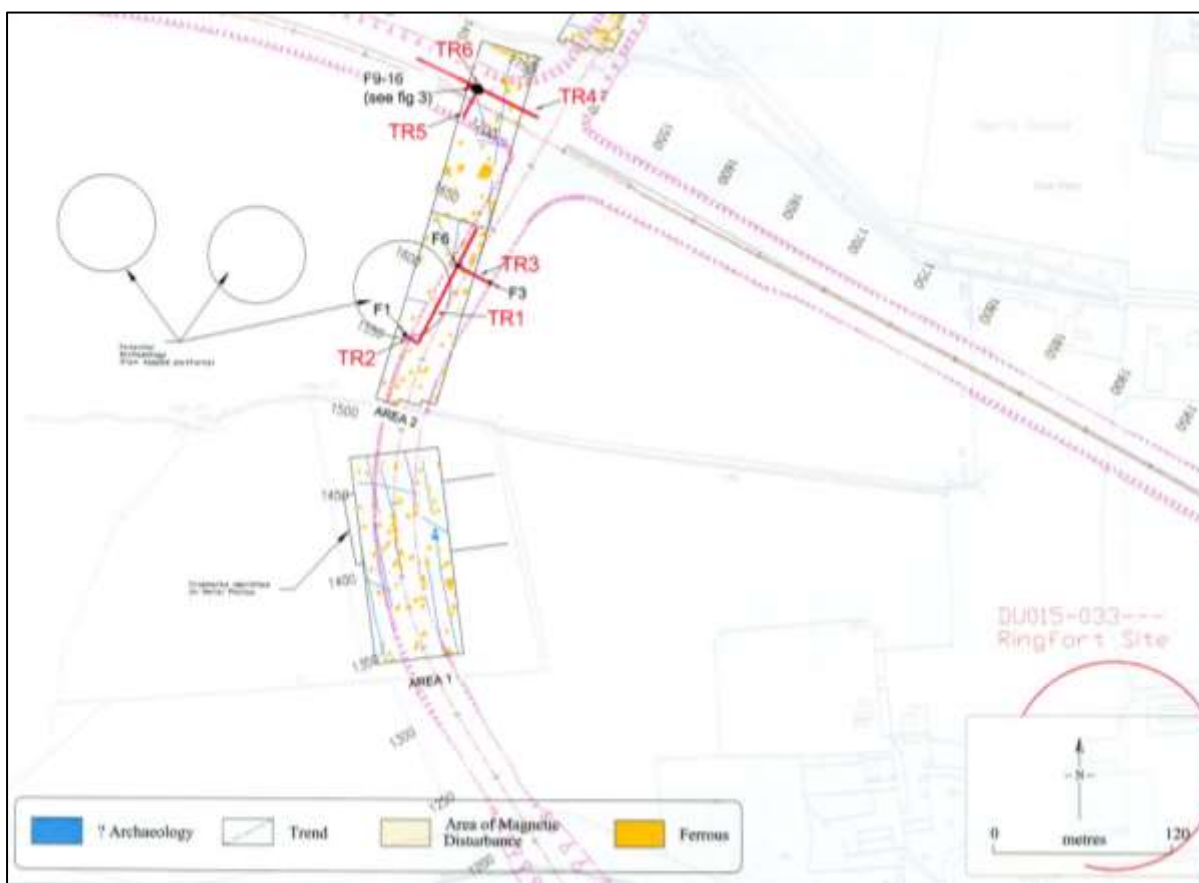


Figure 13.19 – Results of geophysical survey and archaeological testing in Areas 1 and 2, within the proposed development site (after McQuade 2008)

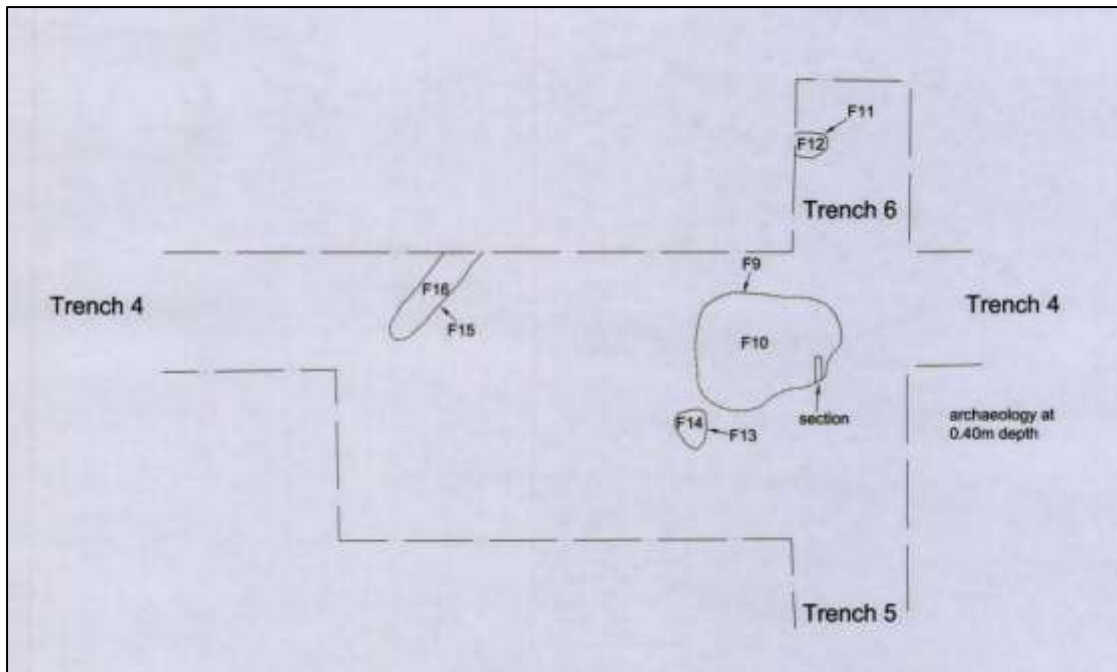


Figure 13.20 – Archaeological features identified in Area 2, within the proposed development site (after McQuade 2008)



Figure 13.21 – Proposed development site layout showing location of archaeological features identified in Area 2

Three areas of archaeological potential ('possible flat-topped platforms') had been identified by an archaeological constraints study (Atkins 2006, cited in McQuade 2008) in the same large field as Area 2. The geophysical survey identified no clear archaeological responses in the vicinity of the possible platforms, the nearest of which was located at the western side of Area 2, or the cropmarks that had been identified from aerial photographs in the same study. Available aerial imagery (1995 to 2018)

was examined for this assessment but it was not possible to identify the possible platforms or cropmarks. Subsequent geophysical survey undertaken throughout the proposed SHD site in 2021 for this EIAR (as detailed above) identified no possible archaeological features in these locations.

In Area 7, just outside the proposed SHD site, an increased background response was identified and although this response could be related to ephemeral archaeological activity, it was thought likely that its origin is modern, probably relating to recent ground disturbance. This was confirmed when the field was archaeologically tested in 2016 (discussed below) and nothing of an archaeological nature was found at this location. Also outside the proposed SHD site the geophysical survey in Area 3 identified a multi-vallate enclosure at RMP site DU015-058 (Figure 13.25), c. 110m north of the site boundary.

13.3.4.2 Archaeological Investigations adjacent to the Proposed SHD Site

Geophysical survey and archaeological testing were undertaken in the lands adjacent to the proposed SHD site in 2016, in the former playing fields to the east of Belcamp Hall. This area is now under construction as part of a permitted residential development (Planning Reg. Ref. F15A/0609, Decision Order No. PF/0263/16). It includes the investigation of a recorded ringfort (RMP site DU015-033), which is located immediately south of the boundary of the proposed SHD site. This site, which had been identified on aerial photography as a cropmark enclosure and given the classification 'ringfort', was shown by archaeological testing to be an early modern landscape feature, probably a tree-ring.

Geophysical Survey

A detailed gradiometer survey was carried out in April 2016 under Licence No. 16-R-0050 (Leigh 2016) in order to locate and identify any potential archaeological features within the survey area, with a particular interest in identifying the location of the two recorded archaeological sites (RMP DU015-033 & SMR DU015-116) (Figures 13.22 & 13.23). The survey data comprised numerous ferrous responses resulting from spreads of modern ferrous debris and litter. Although this complicated interpretation, the two recorded monuments were still successfully identified in the data.

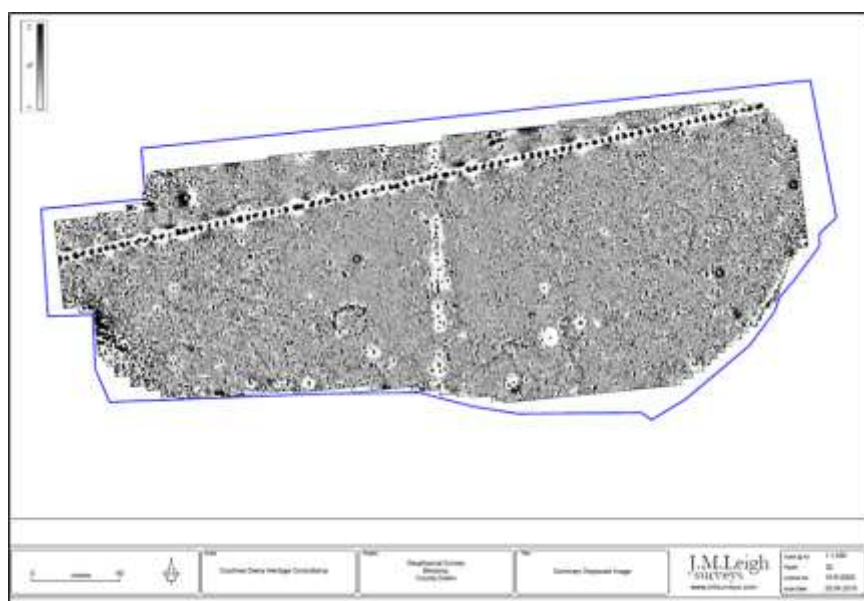


Figure 13.22 – Geophysical survey of proposed development area - summary greyscale image

The results of the survey identified faint circular trends at both recorded sites, along with a faint sub-circular trend in the eastern half of the site, possibly suggesting the presence of a plough-damaged enclosure. Other faint trends were also evident in the survey results, though no clear pattern was evident, and an archaeological interpretation was tentative (Leigh 2016).

Archaeological testing

Archaeological testing was subsequently carried out in May 2016 (Licence No. 16E0193). In total 18 test trenches were excavated within the greenfield area in the eastern half of the site (Figure 13.23), the purpose of which was to determine the nature, date and extent of the recorded cropmark sites – a ringfort (RMP site DU015-033) and ring-ditch (SMR site DU015-116) – and to investigate potential landscape design features identified on aerial photography. These potential landscape features were thought to relate to the entrance alignment of the early house at the site (the predecessor of Belcamp Hall). The archaeological testing also investigated other potential features identified during the geophysical survey and general areas where nothing of archaeological potential was identified.

Other than agricultural furrows, the natural subsoil was quite sterile and had the appearance of having been reduced or levelled somewhat in the past and this corresponds well with the field having been previously used as playing pitches for the school.

The two recorded sites DU015-033 and DU015-116, which were previously thought to be a ringfort and a ring-ditch respectively, were found to be early modern landscape design features. At both sites, the combination of the modern finds recovered from the fills and the drains within the outer edges, suggest that these enclosures are early modern landscape design features, rather than a ringfort and ring-ditch as was previously thought. Based on the testing results, the enclosure of RMP site DU015-033 has an outer diameter of c.14m, while SMR site DU015-116 has an outer diameter of c.24m.

A number of enclosure sites thought initially to have been ringforts or ring-ditches have upon excavation proved to be later enclosures, possibly landscape design features known as tree-rings. Tree-rings are usually situated within the landscaped grounds of country houses. The National Monuments Service definition of a tree-ring is: *“A wall, bank, fosse or an earthwork platform, or any combination of these, usually circular or oval in plan, used to define or enclose a cluster of ornamental trees. These date from the 17th to the 19th century AD”*.

Rocque’s map of 1760 depicts a designed parkland landscape with garden features deliberately laid out geometrically and radiating from the main house, as was the style in early garden design. The two enclosure sites are not depicted, suggesting that they post-date Rocque’s map. On the first edition OS map (1837), the geometric layout depicted on Rocque’s map has been replaced by a naturalised parkland landscape and the linear entrance way has been removed. The two enclosures are not depicted on the OS mapping either and as such are thought likely to date to the late 18th or early 19th century.

No features or finds of archaeological interest were identified in any of the other trenches and there was no evidence for any further possible landscape design features relating to the possible former entrance alignment depicted on Rocque’s map of 1760.

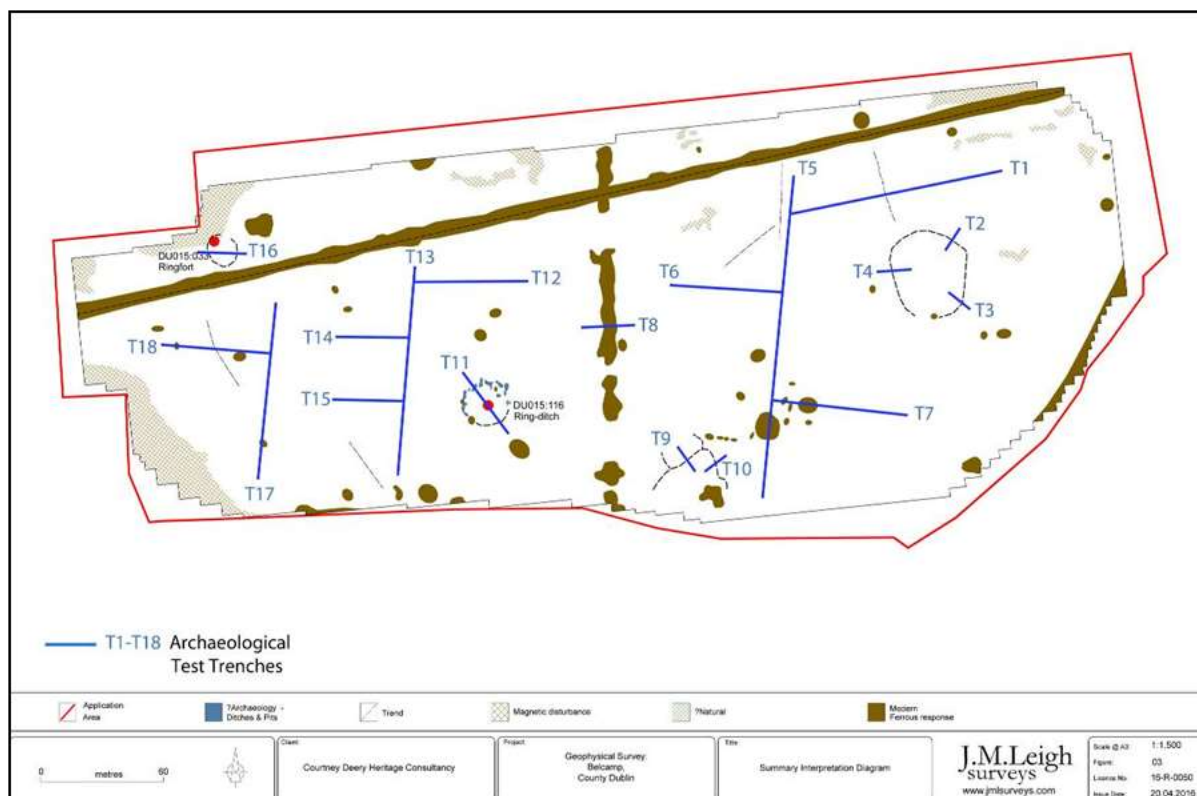


Figure 13.23 – Testing layout overlaid on geophysical interpretation drawing

Archaeological monitoring

A programme of archaeological monitoring under Licence No. 16E0193 took place between February 2018 and May 2020, during which period almost three quarters of the Belcamp Hall site, from the entrance, off the Malahide Road, to its western limits, has been reduced to varying degrees. There has been no evidence of any archaeological soils or structures having survived on the site. This confirms the results from previous surveys and testing. The most recent land use was the cultivation of a potato crop and the east-west drills for growing were clearly in evidence across the field. There was also evidence of multiple episodes of ploughing and of modern stone drains. The drains were composed of medium-sized mostly angular stones, loosely filled, with occasional broken redbrick in some of the drains.

All archaeological monitoring associated with the permitted development has now been completed and no further archaeological mitigation is necessary within the Belcamp Hall site. This is in full compliance with archaeological condition number 23 of Planning Register Ref. No.: PL 06F.248052 (Fingal Co. Co. F15A/0609).

13.3.5 Aerial Photographic Analysis

No new features of cultural heritage interest were identified through aerial photographic analysis with the proposed development site.

13.3.6 Townland Boundaries

Townlands are land divisions that form a unique feature in the Irish landscape. For the majority, their origins are undoubtedly of great antiquity, most certainly pre-Anglo-Norman, and they existed well

before the establishment of parishes or counties. Townland boundaries can take the form of natural boundaries, such as rivers or routeways, as well as artificially constructed earthen banks and ditch divisions. The boundaries are predominantly well-built and often distinguishable from standard field-division boundaries. Townland boundaries recorded by the 19th century Ordnance Survey may be aligned on older land divisions that date to early historic times and may physically overlie archaeological evidence for such early forms of land division. For this reason, they are considered areas of archaeological potential.

The proposed development site is located in the townlands of Belcamp, Clonshagh, and a small portion of Balgriffin. Parts of their associated townland boundaries run through the proposed development site and along its boundaries.

13.3.7 Placename Evidence

Townland names are a rich source of information, not only on the topography, land ownership and land use within the landscape, but also on its history, archaeological monuments and folklore. Where a monument has been forgotten or destroyed, a place name may still refer to it and may indicate the possibility that the remains of certain sites survive below the ground surface. The OS surveyors wrote down townland names in the 1830s and 1840s, when the entire country was mapped for the first time.

The mapmakers, soldiers and antiquarians who collected the placenames and local history varied in their interests and abilities. While most placenames were anglicised or translated relatively accurately, some were corrupted virtually beyond recognition. Nonetheless, a variety of placenames – whether of Irish, Viking, Anglo-Norman, English, or, in very rare cases, Anglo-Saxon origin – appears throughout Ireland, and the appearance of the different languages is often a good indicator of the cultural heritage, and therefore the archaeological record of the area.

The proposed development site is located in the townlands of Belcamp and Balgriffin in the parish of Balgriffin, and Clonshagh (E.D. Coolock) in the parish of Santry, within the barony of Coolock.

Belcamp is described as ‘a fancy name’ by O’Donovan in the OS Name Book (1837), though its meaning or derivation is otherwise obscure. It is first documented in the Civil Survey of 1654-56 as ‘Bell-Campo’, which may derive from the Latin words *bello* and *campo* meaning ‘fair’ and ‘field or plain’ respectively. It is referred to in 1721 as ‘Bellcamp... pt. of Clonshagh’. As no Irish version of the townland name is recorded, it may be that the lands of Clonshagh were subdivided some time before the mid-17th century Civil Survey and subsequently renamed Belcamp.

The townland of Clonshagh (modern placename Clonshaugh) is an anglicised version of the Irish *cluain seach* or *cluain samhach*, meaning meadowy land or sorrel meadow, with its name first documented in the charter of the Abbey of St Mary in Dublin in c. 1230 (<https://www.logainm.ie/en/1436735>).

The manor of Balgriffin was founded on land granted to a Welsh man by the name of Griffin at the end of the 12th century; it was originally known as Baile Hamund, becoming *Baile Griffin* – Balgriffin – after the new landowner (Walsh 1888).

13.3.8 Designated Cultural Heritage Assets

13.3.8.1 Archaeology

National Monuments

There are no national monuments located within the proposed development site or in its vicinity.

Recorded Archaeological Sites (RMP / SMR sites)

There is one SMR site located within the proposed development site (Figure 13.25), a ring-ditch (SMR DU014-128) that was identified on aerial imagery in 2021 (Figure 13.24). The site is described in the online Historic Environment Viewer as follows:

'Located in a large arable field c. 405m SSE of triple-ditched enclosure (DU015-058). An unnamed W-E running stream, a tributary of the Mayne River, is located c. 75m to the S. The ring-ditch can be seen on Google Earth coverage (24 June 2018) where it is visible as a positive cropmark. The ring-ditch is circular in plan (diam. c. 12.7m) defined by a ditch (Wth c. 1.6m). There is no clear evidence for an entrance gap across the ditch.' (<https://maps.archaeology.ie/HistoricEnvironment/>)



Figure 13.24 – SMR site DU014-128, ring-ditch, visible on Google Earth 2018

As detailed in section 13.3.4.1, geophysical survey and archaeological testing were undertaken to investigate the site (DU014-128). Although a response was detected by the geophysical survey, subsequent testing of the anomalies found nothing of archaeological significance at the site. It is thought that variations in the subsoil, in particular a curved band of silty-clay, may explain the geophysical anomalies and the crop marks (McCormick 2021).

A recorded ringfort site (DU015-033), which had been identified on aerial imagery, is located at the boundary between the proposed SHD site and the adjoining permitted development at Belcamp Hall. Archaeological testing in 2016 demonstrated that the enclosure is an early modern landscape design feature (a tree-ring) and not an early medieval ringfort as previously thought (see section 13.3.4.2). A nearby recorded ring-ditch (DU015-116) was also found to be a tree-ring. Subsequent archaeological monitoring across the site identified nothing of archaeological interest.

An enclosure site (DU015-139), also identified on aerial imagery, is located c. 35m north of the proposed SHD site in Burgage townland. The site is not scheduled for inclusion in the next revision of the RMP.

The recorded archaeological sites depicted in Figure 13.25 are discussed in the context of the archaeological and historical background in section 13.3.1.



Figure 13.25 – Site Location and SMR / RMP sites

13.3.8.2 Architectural Heritage

Architectural Conservation Area

There are no architectural conservation areas within or in the vicinity of the proposed SHD site.

Record of Protected Structures (RPS) and National Inventory of Architectural Heritage (NIAH) Sites

An ice house and bridge that form part of the Belcamp Hall protected structure are located within the proposed SHD site (RPS No. 463; Table 13.1, Figures 13.26 & 13.27). The protected structure is recorded in the Fingal County Development Plan (2017-2023) and the record includes the 18th century original house, the Washington Monument, the Walled Garden, the bridge and the early 20th century chapel.

An additional structure, the Rock House (a former harbour, in ruin) (Table 13.1), which is also located within the proposed SHD site and is associated with Belcamp Hall, is not included in the RPS description, nor is it in the NIAH.

Belcamp Hall house is considered of National Importance under the NIAH (Reg. No. 11350024) rating system which informs all listing under the Record of Protected Structure. This is in spite of the recent significant damage that the building has suffered. The house and the remaining structures of the

Belcamp complex (Table 13.2) lie outside of the proposed SHD development site, but in proximity to it, with the proposed site boundaries to the north, south and west of the complex.

The ice house was the subject of an appraisal carried out in 2001 by Margaret Gowen & Co. Ltd (Courtney 2001), which provided a written and photographic record of the structure. It was also included in the Architectural Impact Assessment (AIA) that was undertaken by Deaton Lysaght Architects (DLA) in 2017 for the planned residential development in the lands immediately surrounding Belcamp Hall (Planning Reg. Ref. No. F15A/0609; Decision Order No. PF/0263/16), which also looked at the other historic structures on the site.

More recently, an Architectural Heritage Impact Assessment (AHIA) report was prepared for the current SHD application, which assessed the protected structures within the Belcamp complex, as well as the associated Rock House. The assessment was carried out by conservation architects and the report (Sheehan & Barry Architects 2022) has been submitted with the current application. The assessment included an architectural appraisal of the historic core structures (Belcamp Hall house, Belcamp Chapel, the Walled Garden), historic landscape features (e.g. tree-planting, entrance avenue, etc.), other historic built structures (Belcamp College, Washington Monument, Ice House, Rock House, Bridge). A summary of the assessment of impacts provided by the report in relation to the historic structures is included in section 13.5.

In addition to the AHIA report, a structural appraisal was carried out by CORA Consulting Engineers (CCE) to assess the current condition of the historic landscape features (structures associated with the two lakes – Inlet, Causeway and Weir; Bridge over Mayne; Rock House and Icehouse) (CCE 2022). This report included recommendations for the repair of the historic landscape features within the boundary of the demesne at Belcamp Hall, along with an assessment and guidance on the reduction of impact of new interventions as part of the SHD application.

Table 13.1 – Structures of architectural heritage interest associated with Belcamp Hall, within the proposed SHD site

Structure	RPS No.	NIAH Ref.	Description
Ice house	463	None	Late 18th / early 19th century ice house (depicted on the first edition OS map, 1837), located on the south bank of the River Mayne, in a wooded area. As described in the 2001 appraisal, it ' <i>presents itself as a small earthen-planted mound. The only discerning visible feature from the exterior is the slightly protruding arch entrance leading into the domed vault interior. The exterior is covered by earth and is very overgrown and presents itself visually as an earthen mound. The interior is domed and egg shaped and is constructed of red brick. The entrance feature was possibly longer and more extended at one stage, but now the dome shaped arch leads immediately to the interior. Under the earthen cover, the ice house is covered with slate. The entire structure remains intact and is in a good state of preservation</i> '. This condition was confirmed during the site inspection undertaken for the AIA in 2017.
Bridge	463	11350040	Single-arch concrete road bridge over river, c.1850. Balustraded parapet with cast-iron balusters.
Rock House	None	None	Set within the woodland on the south-west side of the house. Described in the AIA as in a ruinous state and its site overgrown. It functioned as a sheltered arbour from which to view the river and also was designed to be decorative feature.

Table 13.2 – Structures of architectural heritage interest associated with Belcamp Hall, outside the proposed SHD site

Structure	RPS No.	NIAH Ref.	Description
Belcamp Hall	463	11350024	Attached seven-bay three-storey over basement red brick former house, c.1785, originally detached. Built by Edw. Newenham.
Washington Monument	463	11350025	Detached two-stage square-plan memorial, built 1778, with corner towers and crenelated parapet. Date given on plaque with inscription 'Washington memorial tower built by Edw. Newenham in 1778 in honour of American Independence restored 1984'.
Chapel	463	11350035	Attached red brick Gothic Revival style chapel, built 1903, on a cruciform plan
School	463	11350037	Attached eleven-bay two-storey over basement dormitory wing, c.1900
Dormitory building	463	11350036	Attached thirteen-bay three-storey red brick wing with dormer attic, c.1925

The only other protected structure in proximity to the proposed SHD site is Belcamp Hutchinson (RPS No. 789; Figure 13.27 **Error! Reference source not found.**), an 18th century three-storey house, on Carr's Lane, off Malahide Road. It is a two-storey double bow-fronted Georgian House, set within landscaped grounds c. 50m north of the proposed site boundary. Belcamp Hutchinson was built in 1786 by Hely Hutchinson, Provost of Trinity College Dublin (1774). The house faces east and mature tree planting provides screening to the west, south and south-east. The proposed SHD site occupies part of the former estate lands associated with the house, an area that is depicted as parkland on the first edition OS map (1843) and a separate field within the estate from the time of the 25-inch OS map at the end of the 19th century (see section 13.3.2.4). No landscape design features are shown within the part of the estate.

Other structures of architectural heritage interest in the vicinity of the proposed development (Figure 13.27) include: an early 19th century ice house (NIAH 50130214) associated with the former Belcamp Park house, the grounds of which are now a public park; the mid-19th century Belcamp house (NIAH 11349005), the grounds of which once backed onto those of Belcamp Hall; a post box (NIAH 11350026); and, two late 18th century neighbouring houses, Wellfield (NIAH 11350020) and Wellfield House (RPS 468, NIAH 11350021)

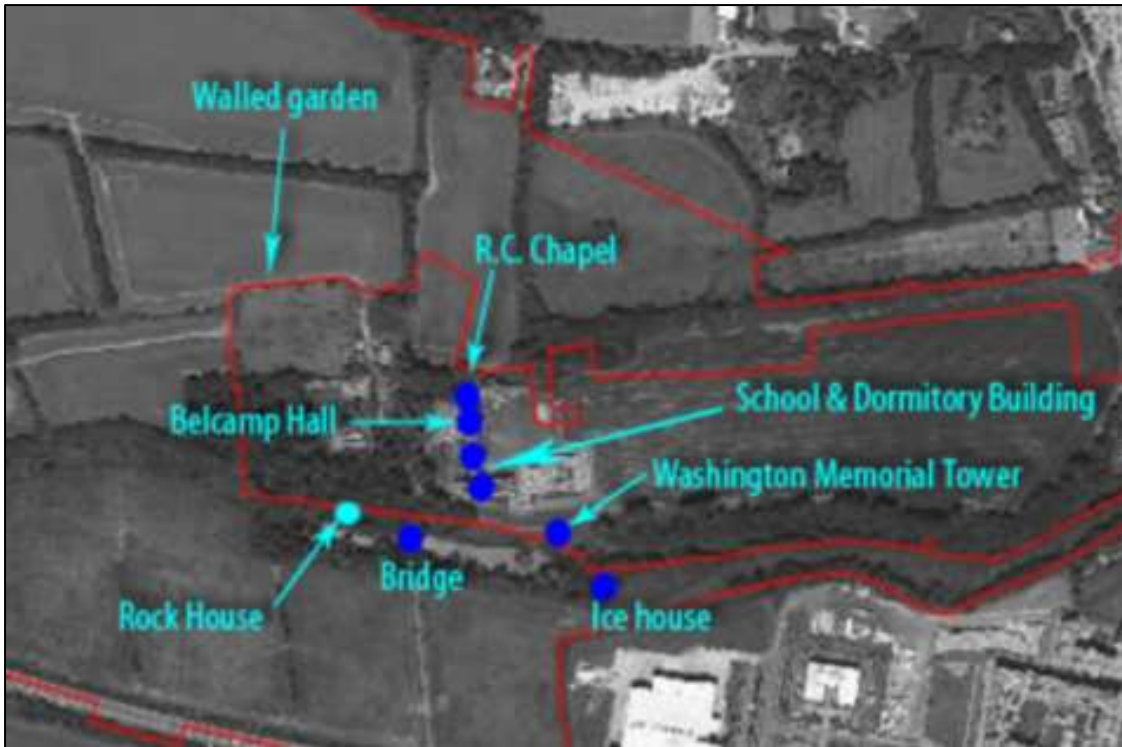


Figure 13.26 – Protected structures within the Belcamp Hall complex, with location of Rock House (undesigned)



Figure 13.27 – Site Location and SMR / RMP sites

13.3.9 Undesignated Cultural Heritage Sites

No undesignated sites of cultural heritage interest were identified.

13.4 Characteristics of the Proposed Development

A 10-year planning permission is sought by Gerard Gannon Properties for a proposed Strategic Housing Development on lands at Belcamp Hall (protected structure), Malahide Road, the R139 road and Carr's Lane, Belcamp, Dublin 17. The proposed development will consist of the construction of 2,527 no. residential units comprising houses, apartments and duplex units, 2 no. childcare facilities; 1 no. sports changing facilities building; 3 no. cafés/restaurants; 18 no. retail/commercial units; and all associated engineering and site works necessary to facilitate the development.

13.5 Potential impact of the proposed Development

13.5.1 Archaeological Heritage

There will be no impact on designated archaeological (SMR / RMP) sites. The entire SHD site was subjected to geophysical survey for the purposes of this assessment and anomalies identified in the survey were investigated by archaeological testing. None of the anomalies proved to be archaeological in origin, including those relating to the cropmark previously identified as a ring ditch (SMR DU014-128). The archaeological testing report (McCormick 2021), which has been submitted to the National Monuments Service (DHLGH), recommended that the recorded site DU014-128 be removed from the Sites and Monuments Record.

In addition, a recorded ringfort site (RMP DU015-033) located at the boundary between the proposed SHD site and the adjoining permitted development at Belcamp Hall, was shown in archaeological testing in 2016 to be an early modern landscape design feature (a tree-ring) and not an early medieval ringfort as previously thought.

The possible ploughed-out remains of a fulacht fia is located within the proposed SHD site (Figure 13.21). The remains were identified in 2008, when archaeological testing was undertaken for a road-siting study (part of the route crossed the proposed SHD site). There will be a direct negative, moderate and permanent impact on the remains that survive below ground.

It is possible that isolated and small-scale archaeological features, deposits, or finds not detected by the archaeological investigations to date may survive subsurface. Any such remains would be impacted by groundworks associated with the proposed development.

13.5.2 Architectural and Cultural Heritage

The development lands under consideration within the SHD application do not contain any of the key Protected Structures nor do they impact directly on retained and restored historic landscape. They will however be adjacent or proximate to the historic core and restored landscape.

No significant negative indirect impacts were identified in relation to architectural heritage.

The following text is extracted from the architectural heritage report by Sheehan & Barry Architects (2021), submitted with this EIAR.

13.5.2.1 Impact on Historic Landscape Setting

The development of the lands under consideration within the SHD application are located to the west, north and south of the historic core of structures at the heart of the Belcamp Estate. The lands are currently unmaintained green wasteland, with overgrown river woodlands, existing hedgerows and drainage ditches. These green wastelands did not form part of the designed landscape instigated by Edward Newenham when he built the house, nor do they contain later built landscape features of particular note. They do surround the earlier walled garden, bind the river woodlands and are laced with historic hedgerows which are considered distinct natural landscape features.

The proposed development layouts include a 'garden city' design (FCC lands) and a perimeter block design (DCC lands) respecting the location and orientation of existing hedgerows, ditches and tree groups, the river valley and woodland, and the historic built core. The hierarchy of the building mass is respectful of the surrounding landscape by decreasing towards the river on DCC lands, and towards the rural boundaries to the north and west on FCC lands.

The retention, rejuvenation and expansion of the historic natural features creates a Green Infrastructure Corridor (GIC) whereby the proposed built and landscape design bases its layouts on the location and distribution of these historic features within the development site. The GIC will include treelined pedestrian and cycling routes, public open spaces and informal recreational areas. It will function as a linkage between existing and new parklands, new tree lines and groups. It will connect the different development areas within and outside the site while also providing and encouraging biodiversity.

The enhancement of the river Mayne woodland and existing ornamental lakes provides a new multifunctional recreational amenity and semi-natural, sustainable water management within the wider development while also providing and encouraging biodiversity.

Clearly the nature of the proposed development changes the context. What was a walled garden within a rural or agricultural setting, will now be a walled garden within a more urbanised setting. The design is conscious of the importance of the structures and accordingly the proposed new structures are well set back from the walls forming the garden enclosure. To the south and east are retained and enhanced existing woodlands and new landscaped open spaces. These assist in maintaining a connection to the landscape context in which it was originally set. The lands to the north and west that are pertinent to this application were not part of a realised demesne or designed landscape understanding that Sir Edward Newenham's ambitions for a wider designed estate were not realised, commensurate with his diminished financial circumstances leading to his disposal of the estate by the 1790s. Later owners or tenants did not develop these lands as a formal designed landscape. Thus, the lands were used for more agricultural purposes right up until recent times.

The impacts therefore are confined to those lands previously used for agriculture and not to part of a realised designed landscape. The impact on the rural northern boundary is to be mitigated by routing the GIC along the boundary, enhancing the current green boundary and creating a natural screen.

13.5.2.2 Layout Impacts on the Historic Structures

The historic buildings on site (mainly on FCC lands) form the 'core of interest' and are constituted by the primary structures. These are Belcamp Hall itself, the adjoining early-twentieth century chapel to the north and the large walled garden to the west connected by landscaped grounds and historical association.

The main vehicular traffic routes (east-west on FCC lands, north-south on DCC lands) pass the historic core to the north and the west respectively, affording awareness of the historic complex and providing views of the features when passing through the development. These routes are well set back from the historic structures and separated by urban blocks which screen the noise and lessen the visual impact, aided by tree planting along those major arteries. The GIC pedestrian and cycling routes come together at the historic core affording direct experience of and access to the natural and built historic core. The wide separation between proposed urban block development surrounding the historic core afford vistas towards and glimpses of the historic structures, as well as the surrounding landscapes.

The overall proposed development layout continues the formal typology design approach, established in the previously permitted works, to the west of Belcamp Hall. Respecting the individual location and setting within the wider development the scale and masses of the proposed buildings varies accordingly. This may be regarded as consistent with an overall approach which is to recognise an opportunity for 'place making' i.e.. that the areas of development relate to and lead one to another in a considered way, creating larger and smaller set pieces, vistas and amenities. Thus, the order and hierarchy of the classical tradition in which Belcamp was conceived is recognised and will be retained.

The proposed new structures and wider development under consideration continues the ordered spatial management established within the earlier phases. Set-backs and landscaping zones are established in the immediate perimeter of the walled garden and primary circulation routes are managed around the core historic ensemble, and in particular the walled garden. The block buildings immediately surrounding the walled garden, as well as the perimeter blocks along the R139 are used to provide edges to parks and traffic routes, and to enclose streets and spaces, whilst ensuring passive supervision of public spaces.

Understanding that the site is moving from a rural to an urban context, the impacts are well managed and mitigated.

13.5.2.3 Visual Impact on the Historic Structures

The impacts of the proposed development are examined in particular where they relate to the historic structures and the wider landscape context. A dialogue was established with the design architects to review and develop the design of the structures immediately addressing the walled garden. This historic structure has a formal and orthogonal character and the design of the new blocks addressing the walled garden responds to that formal character so that views to and spaces around the historic brick walls are curated and managed.

The issue of scale has also been considered so that the height, bulk and scale of the proposed structures immediately adjacent to the walled garden have been designed to be proportionate and appropriately scaled.

Site sections have been examined and have reviewed the overall site development taking into account the development on the south (DCC lands) side of the River Mayne. These have been set back from the conserved woodland and historic landscape formed by the lakes such that their visual impacts are managed and mitigated.

13.5.2.4 Impact on Adjacent Historic Structures

The impacts on the adjacent historic structures may be deemed as acceptable, understanding that the nature of this zoned urbanisation will result in a change of character from a previously rural and agricultural use context to a planned urbanisation. As noted, the historic structure most directly proximate to the development covered within the SHD application is the walled garden and here the proposed new buildings should have managed impacts and mitigated impacts. Scale, form and materiality has been considered as part of a detailed design review process.

The 'core' historic structures formed of the Belcamp hall and Chapel complex continue to form the nexus of the entire development, both on previously permitted phases and on the subject lands within this application. Their formal relationship with the development, as acknowledged within the first phases has been continued so that the act of urban place making retains a consistency.

The smaller landscape structures are situated within amenity area of restored designed parkland which is to be reinvigorated as part of the overall site development. As such the impacts on these smaller but important landscape structures is acknowledged, managed and mitigated in the context of their stabilisation, repair and conservation.

13.6 Remedial and Reductive Measures

13.6.1 Archaeological Heritage

The possible fulacht fia identified by archaeological testing within the proposed SHD site (Figure 13.21) will be preserved by record. This will entail full excavation of the archaeological features under licence to the National Monuments Service (DHLGH) and will be carried out prior to construction.

Monitoring of topsoil-stripping within the entire development site will be undertaken as an archaeological exercise, to determine whether there are any further archaeological features or deposits present. Should any subsurface archaeological stratigraphy be encountered, an appropriate ameliorative strategy will be implemented. This will entail licensed archaeological excavation, in full or in part, of any identified archaeological remains (preservation by record) or preservation in situ.

Archaeological monitoring will be carried out under licence to the DHLGH and the NMI, and will ensure the full recognition of, and the proper excavation and recording of, all archaeological soils, features, finds and deposits which may be disturbed below the ground surface. All archaeological issues will have to be resolved to the satisfaction of the DHLGH and the NMI. The archaeologist will have provision to inspect all excavation to natural soil level and to temporarily halt the excavation work, if and as necessary. They will be given provision to ensure the temporary protection of any features of archaeological importance identified. The archaeologist will be afforded sufficient time and resources to record and remove any such features identified.

The developer will make provision to allow for, and to fund, the necessary archaeological monitoring, inspection and any excavation works that will be needed on the site during and prior to construction, either directly or indirectly via the contractor.

13.6.2 Architectural and Cultural Heritage

The following text is extracted from the architectural heritage report by Sheehan & Barry Architects (2021), submitted with this EIAR.

13.6.2.1 The Historic Buildings - Restoration and Revival Strategy

Permission for the development already granted was contingent upon the successful use and repurposing of the historic structures. The loss of much of the historic fabric to vandalism and arson attacks was a significant set-back.

The design team have been working with the local authority and the client to establish an on-going strategy to restore and consolidate the buildings back to viable re-use and to act as the historic heart of the development and, where appropriate, as community assets or resources. To that end, a series of formal planning applications have been submitted to establish sound conservation methodologies and designs for the phased restoration. These have included strategies for the recovery of historic fabric, its careful categorisation and safe storage off site, and the establishment of interim support measures.

Regular meetings have been established with the FCC Conservation Officer and wider planning team to discuss and monitor progress and to review conservation strategy and methodology.

In pursuit of building a framework of permitted restoration and conservation works, designed to stabilise the historic structures, the following Section 5 Declarations have been submitted and approved:

- **F85/023/21**- Description: a. recovery and analysis of building debris b. Removal of building fabric remains c. Reinstatement of Belcamp House south elevation d. Reinstatement of chapel roof.
- **F85/032/21** - Description: a. Reinstatement of structural floor elements b. Reinstatement of structural roof elements.

A detailed draft timeline / programme for conservation of the House and Chapel was developed and submitted. This acts as a guideline and framework for the works, and will be developed and responded to as investigative and recovery works proceed.

A Feasibility study for re-use and adaptation of the structures following on from the fire damage is in progress.

Regular site visits to progress the conservation strategy are being undertaken. Works to reinstate the roof of the Chapel have commenced on foot of Section 5 permission F85/023/21.

Please also refer to the report as prepared by CORA Consulting Engineers (2022, submitted with this EIAR) which examines the structural condition of the historic landscape structures and make recommendations for their stabilisation, repair and conservation as appropriate.

It is the client's intention to maintain and enhance the significance of the core historic buildings and structures and the designed landscapes. Its importance is recognised within the context of the new development at Belcamp, of which the proposed development forming the SHD application will be a significant part.

It is submitted that the strategy to restore and revitalise the historic built environment at the centre of the contemporary residential development and its community is clear and established.

The proposed re-use of the historic walled garden and its redesign into a public garden alongside the restoration of the house and chapel is viewed as a consistently positive development and complimentary and supportive of the SHD development. The proposed development will strengthen the historic triangle of Belcamp Hall and Chapel, the Walled Garden, and surrounding Woodlands, as the centre of the overall development. It will function as a starting point for explorative and restorative walks, communal and social interaction and the restored buildings will form an important centre piece and historic anchor for the development.

The client is committed to deliver this project under the current on-going development at Belcamp Hall. With the continued engagement between the client and Fingal County Council the on-going restoration process and strategy will continue. In summary, the proposed SHD development accords with established strategy for restoring and consolidating the historic buildings and landscape as the core asset within the overall development.

13.7 Predicted Impact of the Proposed Development

No predicted impacts are envisaged as all archaeological heritage issues will be resolved at the pre-construction stage of the development.

Impacts relating to architectural heritage have been managed and mitigated through engagement in the development design process and the ongoing strategy for the repair and restoration of the historic structures and landscape elements.

13.8 Interactions and Cumulative Impacts

No interactions or cumulative impacts are predicted.

13.9 Monitoring

There will be no requirement for monitoring post-construction.

13.10 References

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List of Appendices:

Appendix 13.1 National monuments legislation 1930-2004

Appendix 13.2 Planning and Development Act, 2000

Appendix 13.3 Archaeological testing report (Licence No. 21E0787)

Appendix 13.4 Geophysical survey report (Detection Licence No. 21R0190)

14.0 MATERIAL ASSETS – UTILITIES AND WASTE

14.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) describes the material assets—utilities and waste—that are potentially impacted by the proposed Strategic Housing Development (SHD) in Belcamp, Dublin 17, located north of the Northern Cross Route, R139, to the east of the IDA lands, and to the west of the Malahide Road (R107). Material assets are resources that are valued and intrinsic to the site of the proposed Project and surrounding environs. Material assets may be of either natural or human origin and the value may arise for economic or cultural reasons.

This Chapter considers and assesses the effects of the proposed Project on the material assets, including major utilities within and around the site during the construction and operational phases such as built services (i.e. gas, electricity, telecommunications, etc.) and waste management. Water, Roads and Traffic are also counted as material assets and are assessed under separate chapters of this EIAR.

The EPA Guidelines (Draft 2017) state that:

‘The meaning of this factor is less clear than others. In Directive 2011/92/EU it included architectural and archaeological heritage. Directive 2014/52/EU includes those heritage aspects as components of cultural heritage. Material assets can now be taken to mean built services and infrastructure. Traffic is included because in effect traffic consumes roads infrastructure. Sealing of agricultural land and effects on mining or quarrying potential come under the factors of land and soils.’

Given the importance of Archaeological and Cultural Heritage and noting established EIA best practice within Ireland, the Archaeological and Cultural Heritage has been comprehensively considered and assessed as a standalone chapter within this EIAR – refer to Chapter 12.

Additionally, water, and road infrastructure have been assessed in Chapter 7 and Chapter 12, respectively, by Waterman Moylan Consulting Engineers. Land and soil have been assessed in Chapter 6, also by Waterman Moylan Consulting Engineers.

A site-specific Preliminary Construction, Demolition & Waste Management Plan (CDWMP) has been prepared by Waterman Moylan Consulting Engineers to deal with management of the construction phase of the proposed Project, including waste generation during the construction phase. This report is included as part of the application package, and was prepared in accordance with best practice guidelines. Operational waste management will be managed by the management companies on site and the appointed licenced waste contractor which will ensure the sustainable management of domestic and commercial waste arising from the development in accordance with legislative requirements and best practice standards.

A full description of the development can be found in Chapter 2: Site Location and Description of the Proposed Development.

This chapter was completed by Waterman Moylan Consulting Engineers.

14.2 Research Methodology

14.2.1 Desktop Study

This chapter has been prepared in accordance with the requirements of the following statutory documents which were consulted in the course of the study:

- Environmental Protection Agency (EPA), Guidelines on the information to be contained in Environmental Impact Statements (March 2002);
- EPA, Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (September 2003);
- EPA, Advice notes for preparing Environmental Impact Statements (September 2015);
- EPA, Guidelines on the Information to be contained in Environmental Impact Assessment Reports (August 2017)
- Circular Letter PI 1/2017: Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive)
- The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018)
- Waste Management Acts 1996 -2001 and associated Regulations
- Protection of the Environment Act 2003 (as amended)
- Litter Pollution Act 1997
- Eastern-Midlands Region (EMR) Waste Management Plan
- Waste Management: Changing Our Ways (1998)
- Preventing and Recycling Waste: Delivering Change (2002)
- Taking Stock & Moving Forward (2004)
- National Strategy on Biodegradable Waste Management (2006)
- A Resource Opportunity Waste Management Policy in Ireland (2012)

The study was also informed by numerous site visits, topographical surveying of the application site, the sourcing of utility information/records from the relevant service providers, and an analysis of the resources consumed, and an estimation of waste generated by the proposed Project at both the construction and operational phases.

14.2.2 Rating of Impacts

Material assets are generally considered to be location sensitive. The likely significance of all impacts is determined in consideration of the magnitude of the impact and the baseline rating upon which the impact has an effect (i.e., the sensitivity or value of the material asset). Having assessed the magnitude of impact with respect to the sensitivity/value of the asset, the overall significance of the impact is then classified as imperceptible, slight, moderate, significant, or profound. The criteria for the assessment of impact significance are as per that set out in the relevant EPA Guidelines and in accordance with the EIA Directive.

14.3 Baseline Environment

14.3.1 Site Location and Context

The Belcamp lands are located centrally in the Dublin Fringe area, north of the Northern Cross Route, R139, to the east of the IDA lands, and to the west of the Malahide Road (R107). The IDA lands are zoned “High Technology” (HT), to provide for office, research and development and high technology/high technology manufacturing type employment in a high quality built and landscaped environment. The total site area of the subject lands is c.67.2 hectares.

The subject site is bounded to the north and west by agricultural lands, to the south by the R139 Regional Road and to the east by an existing mixed-use development, by Phase 1 of the Belcamp development, which is currently under construction by the Applicant, and by the Malahide Road (R107).

The Mayne River flows from west to east through the site. The northern portion of the subject site is within Fingal County Council’s jurisdiction, while the southern portion of the site is within Dublin City Council’s jurisdiction, with the Mayne River forming the border between the two Local Authorities.

Topographic survey data shows that the southern portion of the site falls generally from south-west to north-east, towards the Mayne River, with a high point of c.35.5m OD Malin at the south-west of the site and a low point of c.26.5m OD Malin at the north-east of the main development area. The strip of land proposed as a greenway continues to fall to a low point of c.17m OD Malin close to the Malahide Road.

The northern portion of the site falls generally from north-west to south-east towards the Mayne River, though some of the lands at the north-east of the site fall to the north-east, away from the river and towards a ditch and culvert at the north-eastern boundary of the site.

The subject site is part of a larger proposed multi-phased development which includes lands to the east of the site, which are also under the ownership of the Applicant. Phase 1A of the Belcamp development was approved and is currently under construction under Planning Reference F15A/0609. Phase 1B of the development, immediately north of the Phase 1 lands and south of the Crosswaithe development (which is under construction by others under Planning Reference F18A/0092), has received a Decision to Grant permission under Planning Reference F21A-0401. Planning submissions have been made for Phase 1C, located immediately north of the old Belcamp College building complex. Proposals to conserve the existing walled garden and provide for amenities within the enclosure are included as part of Phase 1C. Future development is proposed at the remainder of the Belcamp lands subject to future planning approvals.

In addition to the development of the Applicant’s Belcamp lands, there is development proposed and underway by others in the vicinity of the site, including development of the Belmayne – Belcamp Lane Masterplan area, located to the south and to the east of the subject lands.

14.3.2 Ownership and Access

The lands subject to the application are within the ownership of the applicant, Gerard Gannon Properties, with the exception of the public roads, which are under the control of the Local Authorities.

Works to the Malahide Road fall within the jurisdiction of Fingal County Council, while works to the R139 are within Dublin City Council. There is also a pedestrian/cycle connection proposed from the site to the Malahide Road south of the Mayne River, within Dublin City Council. The Local Authorities have each provided the necessary letters of consent for works in the public domain.

Access to the subject development is currently from the Malahide Road, to the east, and from the R139, to the south.

A Traffic and Transport Assessment has been prepared by Waterman Moylan Consulting Engineers and is submitted as part of the planning application for the proposed Project. The Traffic and Transport chapter of this EIAR (Chapter 12) addresses the likely effects of the proposed development in terms of vehicular, pedestrian and cycle access during the construction and operational phases of the proposed development. Several other reports also address various aspects of the transportation impacts of the proposal, including Section 5 of the Engineering Assessment Report, the DMURS Report and Statement of Design Consistency and the Car Parking Strategy report, each prepared by Waterman Moylan with inputs from other members of the multi-disciplinary design team.

14.3.3 Electricity, Gas and Telecommunications

There are currently electricity, gas, and telecommunications utilities available to the site.

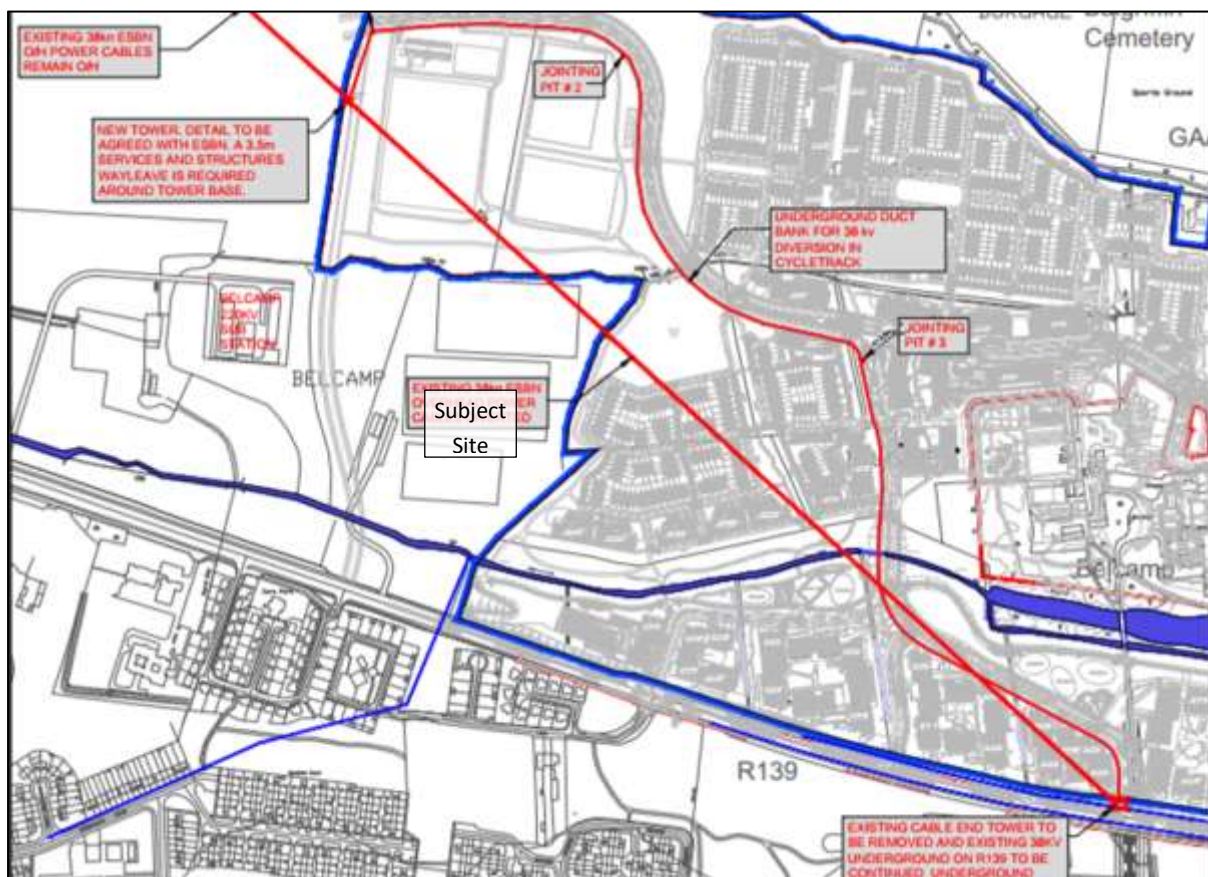


Figure 14-1 | Existing ESB Network Layout showing proposed ducted diversion

Based on the information received from ESB Networks (ESBN), there are below ground ESB cables that service adjacent properties. There are no supply issues envisaged.

It is also noted that there is a 38kV overhead cable that traverses the site. Waterman Moylan have engaged with the ESB on behalf of the Applicant regarding placing this existing above-ground cable below the ground and the erection of a new ESN tower on the western boundary of the site along the line of the existing overheads. ESB have confirmed in writing that it is viable for the existing overhead 38kV line to be re-routed safely underground through the proposed development. Refer to the letter from the ESB, dated 29 April 2022, included in Appendix 14-1 of this EIAR.

There is an existing Gas network in the vicinity of the site. The gas main in Malahide Road currently terminates at the junction with the R139, as shown in the Figure below:

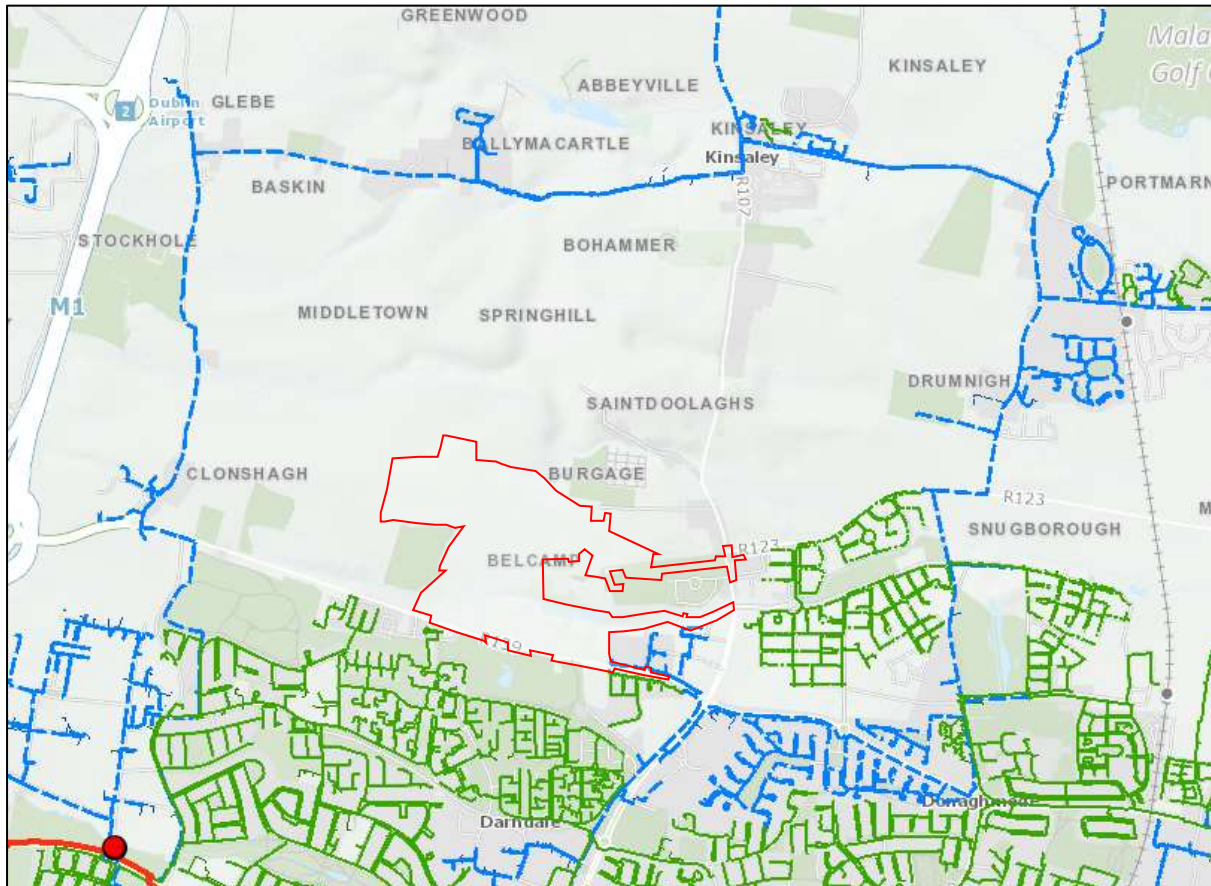


Figure 14-2 | Existing GNI Network Layout

Eir currently serves properties adjacent to the site via network infrastructure in Malahide Road and the R139.



Figure 14-3 | Existing Eir Telecommunications Network Layout

14.3.4 Waste Management

The main sources of construction waste arising from this project will be:

- Demolition waste from the existing prefabricated/modular buildings;
- Topsoil and subsoil;
- Packaging and general waste from construction activities; and
- General site clearance waste including tree stumps, etc.

The principles and objectives to deliver sustainable waste management for this project are based on the following strategic objectives:

- National Policy: The Waste Management Acts 1996 to 2005
- Waste Management Plan for the Dublin Region 2005 – 2010, November 2005
- Eastern Midlands Region Waste Management Plan 2015 – 2021
- Fingal County Development Plan 2017-2023
- Dublin City Development Plan 2016-2022

The hierarchy of waste management sets out the guiding principles in order of importance as follows:

1. Reduction of the amount of waste generated by the construction process.
2. Segregation of waste is a key concept that will be implemented during the course of the construction phase of the development to enable ease in re-use and recycling, wherever appropriate.
3. Recycle waste material where feasible, including the use of excess excavations as fill material, recycling of various waste fractions such as metals and packaging etc.

Skips will be provided for the disposal of wood from the site. It is envisaged that the majority of the wood for disposal will come from pallets used for the transport of construction materials. Other non-hazardous waste generated by the site (packaging and running of site offices) will be collected in separate roll-on skips. Any hazardous material encountered will be disposed of to a suitably licence tip.

All waste materials (where necessary, after in-situ reuse and recycling options have been fully considered) shall be disposed of off-site, under the appropriate Duty of Care and subject to approvals/consents from the relevant statutory bodies. It is the responsibility of the Main Contractor to ensure that any company to whom waste is transferred is legally permitted to do so and that the facility they bring the waste to is licensed to handle that type of waste as outlined in the Waste Management Acts 1996-2005. The Waste Collection Permit Register, in accordance with the Waste Management (Collection Permit) Regulations 2001 will be consulted to ensure that waste carriers hold the appropriate permit.

Waste management in Ireland is regulated by the Waste Management Acts, 1996 to 2011, which require Local Authorities to prepare detailed plans for the management of waste. Operational waste management for the site will therefore be in accordance with the relevant development plans, namely the Fingal County Development Plan 2017-2023 for the portions of the site north of the Mayne River and the Dublin City Development Plan 2016-2022 for the portions of the site south of the Mayne River. Waste operators already service the area, as there are existing residential properties at the subject lands.

14.4 Characteristics of the Proposed Development

The proposed development comprises a total of 473 houses, 274 duplexes and 1,780 apartment units in 18 no. blocks, all on a c.67 Ha site. All of the proposed houses/duplexes are in the northern portion of the site, within Fingal County Council, and there are 550 apartment units proposed in this portion of the site, with 1,230 apartment units proposed in the southern portion of the site, within Dublin City Council. The schedule of accommodation is set out in the Table below:

Description		1-Bed	2-Bed	3-Bed	4-Bed	Total Residential	Commercial Space
Dublin City Council	Block 1	94	139	40	-	273	-
	Block 2	71	73	16	-	160	-
	Block 3	96	176	25	-	297	925.8m ² (Retail/Café & Childcare)
	Block 4	70	178	37	-	285	-
	Block 5	37	51	8	-	96	-
	Block 6	19	80	20	-	119	-
	DCC Subtotal	387	697	146	0	1,230	925.8m²
Fingal County	Houses	-	16	385	72	473	-
	Duplexes	24	40	210	-	274	-
	Block A	8	15	-	-	23	-
	Block B	8	15	-	-	23	-
	Block C	7	20	-	-	27	-

Description	1-Bed	2-Bed	3-Bed	4-Bed	Total Residential	Commercial Space
Block D	22	15	5	-	42	1,020.5m ² Pub/Restaurant & Retail
Block F	44	56	3	-	103	1,162.0m ² Café/Bar/Restaurant & Retail
Block G	29	36	-	-	65	140.0m ² Retail
Block H	20	26	-	-	46	-
Block J	16	24	-	-	40	472.0m ² Retail
Block L	20	26	-	-	46	-
Block M	24	32	-	-	56	-
Block N	26	25	5	-	56	-
Block P	5	18	-	-	23	-
Crèche	-	-	-	-	-	606.7m ² Childcare
Clubhouse	-	-	-	-	-	97.0m ² Changing Rooms
FCC Subtotal	253	364	608	72	1,297	3,498.2m²
TOTAL	640	1,061	754	72	2,527	4,424m²

Table 7-1 | Schedule of Accommodation

The eastern portion of the site, between the Mayne River to the north and existing development to the south, is proposed to be used as a greenway. It will serve as a connection for pedestrians and cyclists between the subject site and the Malahide Road (R107).

There is a large open space proposed at the north-west of the site, in addition to several smaller open spaces throughout the development.

14.5 Potential Impact of the Proposed Development

This section provides a description of the potential impacts of the proposed Project may have during the Construction and Operational phases. The impact assessment addresses the direct, indirect, cumulative, short, medium, and long term, permanent, temporary, positive, and negative effects.

14.5.1 Construction Stage

Site Location and Context

The Construction phase will likely have a temporary impact on the existing settlement in the vicinity of the subject lands. There may also be some slight and temporary impacts to the existing population which may arise during the construction phase. Refer to Chapter 4 (Population and Human Health), Chapter 8 (Air Quality), Chapter 9 (Noise and Vibration) and Chapter 10 (Climate) for further information.

Ownership and Access

During the construction phase, access will be affected by hoarding and security fencing required onto the public road network. A detailed traffic management plan will be prepared and implemented by

the Main Contractor and agreed with the Local Authorities prior to commencing works. As a result, there will be a temporary disturbance to traffic in the surrounding area during construction.

The number of construction vehicle movements anticipated is low compared to the number of trips expected to be generated by the proposed development during the operational phase. It should be noted that the majority of such vehicle movements would be undertaken outside of the traditional peak hours, and it is not considered that this level of traffic would result in any operational problems.

It is estimated that 75% of construction traffic will come from M50 / R139 and 25% from city centre / Malahide Road. Delivery trucks will be instructed to access the site via the Malahide Road for the site north of the River Mayne, and via the R139 for the portion of the site south of the river. Flag men shall operate to ensure safe access and egress of HGV's. It is likely that construction will have a negligible impact on pedestrian and cycle infrastructure. It is proposed that a Construction Management Plan (CMP) would be prepared by the appointed Main Contractor in order to minimise the potential impact of the construction phase of the proposed development on the safety and amenity of other users of the public road.

The proposal also involves road and junction upgrade works along the R139 and Malahide Road. These road improvement works will require temporary traffic restrictions. The impact of this would be temporary during the construction period, with an overall improvement to the road network when the development is operational.

Electricity, Gas and Telecommunications

Electricity will be required during the construction phase. In conjunction with the ESB, the provision of a temporary builders' power supply will be provided. There is potential for temporary impacts to the local electricity supply network, by way of disruption in supply to the local area during electricity connection works for the proposed Project. However, this is a potential impact which is likely to be neutral, slight, and temporary.

The supply of gas will not be operational during the construction phase of the proposed Project. There is potential for temporary impacts to the local gas supply network, by way of disruption in gas supply to the local area. However, this is a potential impact which is likely to be neutral.

Telecommunications will not be operational during the construction phase of the proposed Project. There is potential for temporary impacts to local supply, by way of disruption during connections works. However, this is a potential impact which is likely to be neutral, slight, and temporary.

Waste Management

The proposed Project will generate a range of waste materials during the excavation and construction phase as outlined in Waterman Moylan's Preliminary Construction, Demolition and Waste Management Plan that has been prepared under separate cover as part of the planning application. Typical municipal waste, such as food waste, will also be generated by construction works on site. Waste materials will be stored temporarily on site until such time as collection takes place by a licenced waste contractor. Dedicated, easily accessible locations for collection will be clearly identified across the construction site.

If waste is not managed or stored appropriately, it is likely to give rise to litter and/or pollution issues on the construction site and surrounding area. In addition, if unauthorised waste contractors were used, waste materials could be incorrectly managed and disposed of illegally and result in negative environmental impacts or pollution. Thus, all waste generated must be managed in accordance with regional and national waste legislation and taken to suitably registered and licenced waste facilities for processing, segregation, reuse, recycling, recovery, or disposal, as deemed appropriate.

There are numerous licensed waste facilities in the region which can accept waste generated. The potential effect of construction waste generated from the proposed Project is considered to be short-term, not significant, and neutral. For further information, please refer to the Preliminary Construction, Demolition and Waste Management Plan prepared by Waterman Moylan Consulting Engineers.

14.5.2 Operational Stage

Site Location and Context

The proposed development comprises a total of 2,527 no. new dwellings (473 houses, 274 duplexes and 1,780 apartment units), with 4,424.0m² (Gross Floor Area) of commercial space.

The development also includes car parking, bicycle parking, landscaping including playgrounds, and public open space parks. The proposed Project will deliver this mixed-use development on appropriately zoned lands in accordance with the pertaining land-use zoning designations.

Ownership and Access

The operational phase of the proposed Project will result in increased traffic volumes to the local road network, primarily the Malahide Road and the R139. A Traffic and Transport Assessment has been prepared by Waterman Moylan Consulting Engineers and is submitted as part of the planning application for the proposed Project. Please refer to Chapter 12 (Material Assets – Traffic and Transport) for further information in this regard.

Electricity, Gas and Telecommunications

Electricity will be required during the operational phase. In conjunction with the ESB, the provision of supply will be facilitated. The proposed Project has been designed in accordance with capacity calculations and loadings to meet the requirements of the development. This will result in increased demand for electricity in the area. The potential impact from the operational phase is likely to be slight and long term.

The supply of gas will be required during the operational phase. In conjunction with Gas Networks Ireland, the provision of supply will be facilitated. The proposed Project will result in increased demand for gas in the area. The potential impact from the operational phase is likely to be moderate and long term.

Telecommunications will be required during the operational phase of the proposed Project. The proposed Project will result in increased demand for telecommunications in the area. The potential impact from the operational phase is likely to be neutral, imperceptible, and long term.

Waste Management

Given the nature of the proposed Project, i.e. a residential development comprising 2,527 no. new dwellings with 4,424.0m² of commercial space, waste materials during the operational phase will be generated. As the development is located in an established suburb of Dublin City, an existing network of waste collection, treatment and disposal contractors and facilities already serve the area.

If waste is not managed or stored appropriately, it is likely to give rise to litter and/or pollution issues. The implications of such are that vermin may be attracted to the immediate area as a result. In addition, if unauthorised waste contractors were used, waste materials could be incorrectly managed and disposed of illegally and result in negative environmental impacts or pollution. Thus, all waste generated must be managed in accordance with regional and national waste legislation and taken to suitably registered and licenced waste facilities for processing, segregation, reuse, recycling, recovery, or disposal, as deemed appropriate. There are numerous licensed waste facilities in the region which can accept waste generated.

It is noted that appropriate waste storage areas have been incorporated into the design of the development with shared waste stores serving the apartments and duplex units, while the houses will be provided with their own bin stores. The proposed development will also be managed by a Management Company ensuring that waste will be managed correctly.

Waste materials generated will be segregated on site, where it is practical. Where the on-site segregation of certain waste types is not practical, off-site segregation will be carried out. There will be bins and receptacles provided to facilitate segregation at source. The appointed waste contractor will collect and transfer the wastes to the licensed waste facility. Waste contractors will be required to service the development on a regular basis each week.

The potential effect of operational waste generated from the proposed Project is considered to be long-term, not significant, and negative.

14.6 Avoidance, Remedial & Mitigation Measures

14.6.1 Construction Stage

All possible precautions shall be taken to avoid unplanned disruptions to any services or utilities during the construction phase of the proposed Project. It should be noted that a number of mitigation measures proposed in other EIAR chapters are also of relevance to Material Assets and should be referred to when reading this EIAR.

The construction phase mitigation measures include avoidance, reduction and remedy measures as set out within the Development Management Guidelines document. The design and construction of the necessary service infrastructure will be in accordance with relevant codes of practice and guidelines. This is likely to mitigate any potential impacts during the operational phase of the proposed Project. However, routine maintenance of the site services will be required from time to time. As such, any mitigation measures will be advised by the relevant service provider.

A site-specific Preliminary Construction, Demolition and Waste Management Plan has been prepared to deal with waste generation during the construction phase of the proposed Project and is included

as part of the application pack. This document was prepared in accordance with best practice guidelines. A detailed Construction, Demolition and Waste Management Plan will be developed by the Main Contractor, based on the Preliminary Plan developed at planning stage.

14.6.2 Operational Stage

Operational waste will be managed by a designated management company on site and the appointed licenced waste contractor which will ensure the sustainable management of domestic and commercial waste arising from the development in accordance with legislative requirements and best practice standards.

14.7 Residual Impacts

14.7.1 Construction Stage

If unregulated, predicted impacts associated with the construction phase of the proposed Project would be expected to include potential disruption to local natural and human material assets resulting in both short-term and long-term impacts. The implementation of the mitigation measures set out in this chapter and other chapters of this EIAR would ensure that there is unlikely to be significant residual impacts during the construction phase. Therefore, impacts are likely to be temporary and neutral.

14.7.2 Operational Stage

During the operational phase, the impact to services and utilities is considered to be positive and permanent positive to all end users.

14.8 Monitoring

Prior to the operational phase of the proposed Project, all services/utility connections will be tested by a suitably qualified professional under the supervision of the service provider.

Any monitoring of the built services required during the operational phase of the proposed Project will be as advised by the relevant service provider.

The management of waste during the construction and operational phases of the proposed Project should be monitored to ensure compliance with best practice and relevant legislative requirements.

14.9 Reinstatement

Any existing roads, footpaths and park spaces that are opened to facilitate electricity, gas and telecommunications connections will be reinstated. No further reinstatement will be required regarding Material Assets. Residual impacts on services and utilities are considered to be imperceptible.

14.10 Interactions

The interactions between Chapter 14 Material Assets (Utilities & Waste) and the other chapters of the EIAR are set out below:

14.10.1 Population & Human Health (Chapter 4)

There is a risk of pollution if waste is disposed of inappropriately, which could impact human health. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

14.10.2 Biodiversity (Chapter 5)

There is a risk of pollution if waste is disposed of inappropriately, which could affect local flora and fauna. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

14.10.3 Land and Soil (Chapter 6)

There is a risk of pollution if waste is disposed of inappropriately, and this could leach into the soil. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

14.10.4 Water (Chapter 7)

There is a risk of pollution if waste is disposed of inappropriately, and this could affect local water bodies. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

14.10.5 Noise & Vibration (Chapter 9)

Heavy machinery used for excavations to facilitate Electricity, Gas and Telecommunications connections may impact on noise and vibration. Both will be controlled and monitored as set out in Chapter 9 of this EIAR.

14.11 Difficulties Encountered When Compiling

There were no difficulties encountered when undertaking this assessment.

14.12 References

The following documents and sources were consulted during the preparation of Chapter 14:

- Waterman Moylan Consulting Engineers drawings and documentation submitted as part of the planning applications.
- Environmental Protection Agency (EPA), Guidelines on the information to be contained in Environmental Impact Statements (March 2002).
- EPA, Advice Notes on Current Practice (in the preparation of Environmental Impact Statements) (September 2003).
- EPA, Advice notes for preparing Environmental Impact Statements (September 2015).
- EPA, Guidelines on the Information to be contained in Environmental Impact Assessment Reports (August 2017).
- Circular Letter PI 1/2017: Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive).
- The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).
- Waste Management Acts 1996 -2001 and associated Regulations.
- Protection of the Environment Act 2003 (as amended).

- Litter Pollution Act 1997.
- Eastern-Midlands Region (EMR) Waste Management Plan.
- Fingal County Council Bye-Laws.
- Waste Management: Changing Our Ways (1998).
- Preventing and Recycling Waste: Delivering Change (2002).
- Taking Stock & Moving Forward (2004).
- National Strategy on Biodegradable Waste Management (2006).
- A Resource Opportunity Waste Management Policy in Ireland (2012).

In addition to the sources listed above, design information from the other members of the project team was incorporated in Chapter 14 (Material Assets – Utilities and Waste).

15.0 INTERACTIONS AND CUMULATIVE EFFECTS

15.1 Introduction

The matrix incorporated in Table 15.1 below, inter-relates Chapters 4.0 to 14.0 of the Environmental Impact Assessment Report to the various impacts referred to in the relevant Environmental Impact Assessment Regulations.

The EIA has identified potential for interactions between a range of factors identified in Table 15.1. These interactions require the implementation of suitable mitigation measures to ameliorate the impact of the development on the environment. This EIA has found that subject to the full implementation of the various mitigation measures specified by the EIA team and summarised in Chapter 16, the development will have no significant long-term negative impact on the environment.

15.2 Summary of Interactions

The following sub-sections seek provide an overview of the interactions identified within the EIA chapters. Such interactions include the following:

Table 15-1. Interactions Identified in the EIA

No.	Heading	Population and Human Health	Biodiversity	Land and Soils	Water	Air Quality	Noise & Vibration	Climate	Landscape & Visual Impact	Material Assets – Traffic & Transport	Cultural Heritage	Material Assets – Utilities & Waste
4	Population and Human Health				x	x	x		x	x		
5	Biodiversity				x				x			
6	Land and Soils	x	x		x	x	x			x		
7	Water	x	x	x			x					
8	Air Quality	x								x		
9	Noise & Vibration	x								x		
10	Climate	x								x		
11	Landscape	x	x							x		
12	Traffic and Transport					x	x	x	x			
13	Cultural Heritage											
14	Utilities & Waste	x	x	x	x		x					

15.3 Cumulative Effects

The potential for cumulative effects exists in combination with the earlier phases of delivery of the Belcamp lands which are zoned RA (new residential communities subject to the provision of the necessary social and physical infrastructure) under the Fingal County Development Plan 2017-2023, and those applications within the surrounding context as detailed below.

As it stands, the proposed development forms the final phase of the zoned Belcamp lands, located in a context with ongoing developments in the adjoining areas. There have been several planning applications on the Belcamp north lands as follows:

Table 15-2. Schedule of Planning Permissions

Reg. Ref.	Location	Description	Decision
Reg. Ref. F05A/1388	Belcamp College, Malahide Road, Balgriffin, Dublin 13.	Planning permission was granted for alterations to and change of use of Belcamp Hall complex to residential use.	Permission
F15A/0093	The former Campions Public House, Malahide Road, Balgriffin, Co. Dublin.	Mixed use residential and retail development comprising 52 no. residential units consisting of 43 no. 2.5 storey dwellings (28 no. 3 bed terraced units; 5 no. 4 bed end of terrace units and 10 no. 3 bed detached units); A 4 storey mixed use block containing 9 no. 2 bedroom apartments and 1 no. retail unit (357 sq.m. GFA); 122 no surface level car parking spaces and 11 no. bicycle parking spaces, bin storage, 1 no. ESB substation and all associated site development, engineering, roads and footpaths, landscaping and boundary treatment works including revised vehicular entrance to the Malahide Road. The proposed development will also consist of the demolition of the existing former 'Campions Public House' and all ancillary store and sheds in order to facilitate this proposed development at the Former Campions Public House, its car park and lands to its rear.	Refuse
Reg. Ref. F15/0609 (ABP Ref. PL06F. 248052)	Belcamp, Malahide Road, Dublin 17.	Planning permission was granted by An Bord Pleanála and Fingal County Council for a residential development at Belcamp. Permission was granted for 175 residential dwellings and apartment units.	Permission
F18A/0167	Campions Public House, its carpark and lands to its rear, Malahide Road, Balgriffin, Co. Dublin.	Modifications to previously granted planning application Reg. Ref. F15A/0093 (An Bord Pleanala Ref. No. PL06F.245710) includes the omission of 6 no. 4 bed detached houses (Type B), to be replaced with 6 no. 3 bed terraced houses (Type A). In addition, permission is sought for the construction of 12 No. 3 bed terraced houses (Type A). Permission for change of use from residential to licenced betting shop including a new rear and side extension totalling 44 sq.m. with external	Permission

Reg. Ref.	Location	Description	Decision
		lighting, signage, shopfront alterations, satellite dishes to rear along with all associated plant to rear. Change of use from licensed bar at first floor level over existing ground floor public house, to 1 No. 5 bed apartment, with new entrance door and access stairs from the rear of the public house, together with associated balcony to rear and internal modifications. All with associated site layout modifications, car parking and site works.	
F18A/0554	Adjacent to Campions Public House, Malahide Road, Balgriffin, County Dublin	Demolition of existing single storey commercial building and construction of new two storey building, consisting of commercial unit at ground floor and proposed 4 no. bed residential unit at first floor. All with associates site works.	Permission
Reg. Ref. F18A/0058	Belcamp, Malahide Road, Dublin 17.	Planning permission was granted by Fingal County Council for amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052, at Belcamp, a protected structure (RPS No. 463), to replace 9 no. three storey three-bedroom houses with 8 no. two storey three-bedroom houses, on a 0.19ha portion of the lands, with access from Malahide Road.	Permission
Reg. Ref. F19A/0220	Belcamp, Malahide Road, Dublin 17.	Planning permission was granted by Fingal County Council for amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052 at Amendments to permitted developments Reg. Ref. F15A/0609, PL06F.248052 and F18A/0058 (a protected structure, RPS No. 463) to replace 83 no. two storey houses comprising 1 no. 2-bedroom house, 44 no. 3-bedroom houses and 38 no. 4-bedroom houses, with 89 no. two storey houses comprising 58 no. 3-bedroom houses and 31 no. 4-bedroom houses, on a 2.27ha portion of the lands, with access from Malahide Road. The development includes 178 no. on-curtilage car parking spaces and all associated and ancillary site works.	Permission
Reg. Ref. F19A/0221	Belcamp, Malahide Road, Dublin 17.	Planning permission was granted by Fingal County Council for amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052 at Belcamp, a Protected Structure (RPS No. 463), comprising revisions to layout and house types of 49 no. two storey houses comprising 37 no. 3-bedroom houses and 12 no. 4-bedroom houses on a 1.21ha portion of the lands, with access from the Malahide Road. The development includes 98 no. on-curtilage car parking spaces and all associated and ancillary site works.	Permission
F20A/0379	Belcamp Hall, Malahide Road, Dublin 17.	Development of 85 dwellings on lands bounded to the south by permitted development Reg. Ref. F15A/0609 PL06F.248052, F19A/0220 & F19A/0221, under	Refuse

Reg. Ref.	Location	Description	Decision
		<p>construction, to the west by undeveloped lands and 182m west by Belcamp Hall (protected structure RPS No. 463), to the north by undeveloped lands, by the Balgriffin Inn Public House (formerly 'Campions') and by 'Belcamp Manor' under construction, and to the east by Malahide Road.</p> <p>The proposed development comprises 51 no. 3-bedroom and 13 no. 4-bedroom two storey houses and 2 no. three storey multi-dwelling blocks: Block 1 comprising 6 no. 1-bedroom and 6 no. 2-bedroom apartments, and 1 no. 2-bedroom own-door duplex unit; and Block 2 comprising 4 no. 1-bedroom apartments and 4 no. 3-bedroom own-door duplex units. No works are proposed to Belcamp Hall, a protected structure RPS No. 463, or any other protected structures associated with it. The proposed development includes c.339m of new road infrastructure: the East West Link Road (EWLR) and the upgrading of the R107 Malahide Road junction with R123 to include the EWLR. Junction upgrade works include the closing of the existing Belcamp Manor access off the Malahide Road and the provision of a new access off the EWLR. The development includes 24 no. on-street and 128 no. on-curtilage car parking spaces, all associated on-site infrastructure and ancillary site works. Access is from Malahide Road via a new internal road permitted under F15A/0609 and the East West Link Road (EWLR) from Malahide Road.</p>	
<p>Reg. Ref F21A/0401</p>	<p>Lands at Belcamp Hall, Malahide Road, Dublin 17</p>	<p>Planning permission was granted by Fingal County Council for a development on lands at Belcamp, Malahide Road, Dublin 17, comprising of the construction of 78 no. residential units comprising 58 no. houses (41 no. two storey 3-beds, 12 no. two storey 4-beds and 5 no. three storey 4-beds, all with associated car parking, and one no. three storey multi-dwelling block consisting of 10 no. own-door duplex units (6 no. 2-beds and 4 no. 3-beds), 2 no. 2-beds own-door triplex units, and 8 no. apartments (6 no. 1-beds and 2 no. 2-beds), all provided with private balconies/terraces and associated car parking and bicycle parking; landscaping; boundary treatments; public lighting; and all associated site infrastructure and engineering works necessary to facilitate the development. An appeal was subsequently lodged on 26th November 2021 and is now under consideration by An Bord Pleanála.</p>	<p>Permission</p>
<p>F21A/0390</p>	<p>The former Campions Public</p>	<p>Modifications to a previously granted planning application Reg. Ref. F18A/0167. The proposed</p>	<p>Permission</p>

Reg. Ref.	Location	Description	Decision
	House, Malahide Road, Balgriffin, Co. Dublin.	<p>modifications pertain to the first floor of the existing public house and include the subdivision and re-configuration of the existing 2 no. five-bedroom units to provide for 3 no. three-bedroom units.</p> <p>External modifications at first floor level to the north elevation of the existing windows on the northern elevation to facilitate the internal modifications. All associated site works.</p>	
Reg. Ref F21A/0488	Belcamp Hall, Malahide Road, Dublin 17.	<p>Planning permission was granted by Fingal County Council for a development on lands at Belcamp, Malahide Road, Dublin 17, consisting of the construction of 77 no. residential units across 2 no. apartment blocks as follows; Block 1, a part 3 and part 4 storey apartment block comprising 51 no. units (16 no. 1 bedrooms; 33 no. 2 bedrooms and 2 no. 3 bedroom units) with balconies/terraces to all units. Block 2, a part 3 and part 4 storey apartment block comprising 26 no. units (4 no. 1 bedrooms and 22 no. 2 bedroom units) with balconies/terraces to all units. The development also to include 65 no. surface level parking spaces, 184 no. bicycle parking spaces, bin stores, landscaping and boundary treatments. An appeal has subsequently been lodged on 23rd February 2022 and is now under consideration by An Bord Pleanála. It is important to note that Blocks 1 & 2 also form part of the site that was previously omitted by way of Condition No. 2 that was attached to the parent planning permission granted under Reg. Ref. F15A/0609; ABP Ref. PL06F.248052.</p>	Permission

There is also an active planning application planning Reg. Ref. F22A/0139 for a total of 40 units, a childcare facility, conservation works to the Walled Garden and café; which formed part of the site that was previously omitted by way of Condition No. 2 that was attached to the parent planning permission granted under Reg. Ref. F15A/0609; ABP Ref. PL06F.248052.

Additional planning applications in the wider vicinity of the lands include the earlier phases of the lands (as detailed above), most of which are now under construction. Other planning applications in the wider area include the following:

- Campions site, Balgriffin.** The adjoining site at Campions has planning permission for a total of 54 no. residential units. This was granted by Fingal County Council under Reg. Ref. F18A/0167, which amends the parent permission (43 no. units granted under Reg. Ref. F15A/0093; ABP Ref. PL06F.245710). This amendment application represents a 25% increase in the number of units and density being granted in the area as a result of an amendment application that utilises a more efficient site layout and house type design.

- **Parkside (Shannon Homes).** The residential development on the eastern side of the Malahide Road, known as 'Parkside' provides for approximately 185 no. residential units on a site extending to c.3.1 hectares, which provides a density of 59 units per hectare.
- **Belmayne Main Street & Belmayne Avenue, Dublin 13.** A critical piece of road infrastructure which was approved by Dublin City Council under the Part 8 planning process (Reg. Ref. 4214/18). The provision of this road (along with cycle lanes, a number of junction upgrades and a bus gate at the Malahide Road) will open up Belmayne for Town Centre and residential development. The approved scheme has been designed to incorporate the BusConnects – Core Bus Corridor No. 1 from the City Centre to Clongriffin Railway Station.
- **Malahide Road, Churchwell Avenue and Belmayne Road, Ayrfield, Dublin 13.** This development comprises 150 apartment units approved under Part VIII procedures, on lands at Belmayne under Reg. Ref. 3238/17. This development is currently under construction.
- **Schools provision.** Permission has been granted for 2 no. schools – a temporary post primary and primary school at Belmayne Avenue, under Reg. Ref. 3009/19. Also, 1 no. additional permanent 1,000 pupil post-primary school has been granted by Dublin City Council at Belmayne Avenue (Reg. Ref. 2600/20). Thus, a total of 3 no. schools have been granted planning permission recently.
- **Northern Cross SHD.** An Bord Pleanála granted a Strategic Housing Development under ABP-307887-20 for 191 no. apartments and associated site works, on lands at Site 2, Mayne River Avenue, Northern Cross, Malahide Road, Dublin 17.
- **Grid Stabilisation Facility.** A 10 year planning permission is sought for the development of a Synchronous Compensator Development (Grid Stabilisation Facility) on the site of c. 1.65 ha at lands south of Belcamp 220kV Substation, Belcamp, Dublin 17. A request for additional information was requested by Fingal County Council on the 17th February 2022.

The aforementioned applications and developments have all been taken into consideration as part of this EIAR. As per this EIAR, it is submitted that such applications are expected to have no material consideration to the proposed development.

15.4 Population and Human Health (Chapter 4.0)

Interactions

The main interactions relating to population and human health are water, air quality, noise, and traffic during the construction phase. Construction activities will have a temporary impact on the landscape of the area by way of visual disturbance. These impacts are not considered to be significant. During the operational phase, the main interactions relating to population and human health are water, air quality, noise, and traffic. These impacts are not considered to be significant. Please refer to the associated chapters for further information on these interactions.

Cumulative effects

The assessment has considered cumulative impacts of construction and operational phases of the proposed project, in conjunction with surrounding developments. Multiple sites under construction at the one time may result in cumulative impacts in terms of noise and vibration during the

construction period for human beings. However, such impacts are short-term, and the implementation of appropriate mitigation measures will ensure that noise and vibration impact is kept to a minimum. Please refer to Chapter 9.0 for further details in this regard. During the operational phase of the development, there will be residential, recreational, and commercial developments in proximity to the proposed project which will generate a synergy of uses. This will increase population, increase employment opportunities, and increase community facilities such as childcare facilities, and as such the long-term effect will be a positive and permanent impact for the overall town.

15.5 Biodiversity (Chapter 5.0)

Interactions

The key environmental interactions with Biodiversity are water and landscaping. A series of mitigation measures are proposed in the Water Chapter of this EIAR document to ensure the quality (pollution and sedimentation) and quantity (surface run-off and flooding) is of an appropriate standard.

Cumulative effects

A number of the identified impacts can also act cumulatively with other impacts from similar developments in this area of Dublin.

The catchment of the Mayne River has been substantially transformed in the past 15-20 years from farmland to built development. The area downstream of the Belcamp site is currently a combination of open park spaces, with significant built development including residential and retail uses which stretches as far as the coastal zone.

Upstream there are still areas of open grassland before the Mayne's headwaters at Dublin airport, where the river is affected by extensive areas of paving for runways, car parks etc.

The cumulative effects of this type of urban growth can arise from replacing permeable ground with hard surfaces. This can result in increased risk of flooding and deterioration of water quality, primarily from the run-off of particulate matter and hydrocarbon residues (Mason, 1996). To combat this effect the Greater Dublin Strategic Drainage Study was published in 2005. This aims to ensure that new developments integrate sustainable drainage systems (SUDS) to maintain natural, or 'green field' rates of surface water run-off while also improving water quality in rivers. This development is fully compliant with these SUDS principles.

The first River Basin Management Plan (RBMP) was published under the EU's Water Framework Directive in 2010. This set out to attain 'good ecological status' of all water bodies by 2027 at the latest. It included a 'programme of measures' that was to address point or diffuse pressures on water quality. The Mayne River is currently assessed as 'poor' while Baldoyle Bay is 'eutrophic'. Under the second RBMP 2018-2021 the Mayne River is identified as one of 190 'priority areas for action'. A third RBMP is in preparation.

This project can be seen in combination with continued suburban style development in Clongriffin (and indeed across the Dublin region). This is planned for under relevant development plans, particularly the Dublin City Development Plan 2016-2022 and the Fingal County Development Plan

2017-2023. The relevant planning authority has carried out an AA for these plans and concluded that their implementation would not result in adverse effects to the integrity of Natura 2000 sites.

The current development proposal is part of a wider development of the lands associated with Belcamp House.

In the event that this project is under construction at the same time as other projects there is a possibility that construction pollutants entering the River Mayne and other waterways leading to Baldoyle Bay SAC and SPA could act cumulatively to result in negative effects to the SAC and SPA as well as biodiversity within the freshwater portions of this river system.

The growth of population in the Dublin area is placing pressure on wastewater treatment infrastructure and plans are underway to increase capacity at Ringsend. Current compliance issues are not resulting in significant effects to Natura 2000 sites in Dublin Bay.

In the absence of SUDS measures, and despite the fact that SUDS are standard for all development projects, pollution from surface run-off could act cumulatively with other similar sources from throughout the Mayne catchment to contribute to poor water status. Poor status can be assumed to negatively impact upon species and habitats in Natura 2000 sites in Baldoyle Bay.

15.6 Land and Soils (Chapter 6.0)

Interactions

The interactions between Chapter 6 (Land and Soils) and the other chapters of the EIAR are set out below:

15.6.1 Population & Human Health (Chapter 4)

Dust from the site and from soil spillages on the existing road network around the site may impact human health, especially during dry conditions. Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works.

15.6.2 Biodiversity (Chapter 5)

Accidental oil or diesel spillages from construction plant and equipment may impact local flora and fauna. Such spills will be mitigated in accordance with Chapter 6 of this EIAR.

15.6.3 Water (Chapter 7)

Accidental oil or diesel spillages from construction plant and equipment, in particular at refuelling areas, may result in oil contamination of the soils and underlying geological structures, including surface water and groundwater. Measures will be implemented throughout the construction stage to prevent contamination of the soil and adjacent watercourses from oil and petrol leakages.

15.6.4 Air Quality (Chapter 8)

Dust from the site and from soil spillages on the existing road network around the site may impact air quality, especially during dry conditions. Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works.

Air Quality will be controlled and monitored as set out in Chapter 8 of this EIAR.

15.6.5 Noise & Vibration (Chapter 9)

Heavy machinery used for excavations may impact on noise and vibration. Both will be controlled and monitored as set out in Chapter 9 of this EIAR.

15.6.6 Material Assets - Traffic and Transport (Chapter 12)

Excess soil excavated during construction works for the development will be transported by road for disposal in approved locations as provided for in this EIAR. Movements of construction traffic will be managed in accordance with the Construction Traffic Management Plan, to be developed by the Main Contractor.

Residual Impacts

15.6.7 Construction Phase

With the protective measures noted above in place during excavation works, any potential impacts on soils and geology in the area will not have significant adverse impacts, and no significant adverse impacts on the soils and geology of the subject lands are envisaged. The proposed development will result in a surplus of excavated material, which may contain contaminants. Any contaminated material will be exported to an approved licensed waste facility.

15.6.8 Operational Phase

On completion of the construction phase and following replacement of topsoil and implementation of a planting programme, no further impacts on the soil are envisaged. SuDS measures, including permeable paving, bioretention tree pits and open areas with low level planting, will assist with treating surface water runoff while replenishing the natural ground water table. No significant adverse impacts are predicted on soils or geology.

15.6.9 "Worst-Case" Scenario

The worst-case scenario would be for contaminated soils to be encountered during the works. As noted above, any contaminated soils encountered will be excavated and disposed of off-site in accordance with the Waste Management Acts, 1996-2021, and associated regulations and guidance provided in Guidelines for the Management of Waste from National Road Construction Projects published by the National Roads Authority in 2008. In the worst-case scenario, subsoil may be exposed to inclement weather during construction and may result in the erosion of soils. However, with the proposed mitigation measures the quantity of soils exposed and the duration of that exposure will be minimised.

15.7 Water (Chapter 7.0)

Interactive effects

The interactions between Chapter 7 (Water) and the other chapters of the EIAR are set out below:

15.7.1 Population & Human Health (Chapter 4)

There is a risk of pollution of groundwater and water courses by accidental spillage of foul effluent during connections being made to live sewers, which could impact human health. This risk will be mitigated in accordance with Chapter 7 of this EIAR.

15.7.2 Biodiversity (Chapter 5)

There is a risk of pollution of groundwater and water courses by accidental spillage of foul effluent during connections being made to live sewers, which could affect local flora and fauna. Such spills will be mitigated in accordance with Chapter 7 of this EIAR.

15.7.3 Land and Soil (Chapter 6)

There is a risk of pollution of groundwater by accidental spillage of foul effluent during connections being made to live sewers. This risk will be mitigated in accordance with Chapter 7 of this EIAR.

15.7.4 Noise & Vibration (Chapter 9)

Heavy machinery used for excavations to facilitate watermains, drainage and attenuation may impact on noise and vibration. Both will be controlled and monitored as set out in Chapter 9 of this EIAR.

Cumulative effects

15.7.5 Water Supply

Construction Stage

The site is currently primarily greenfield. Site offices and construction activities will create a demand for water supply to the site. Commencement of construction will therefore result in a net increase in the water demand for the site. The required water supply will need to be agreed with Irish Water by way of a temporary connection application. However, it is noted that construction is currently under way at Phase 1 of the Belcamp Lands, with site offices, toilets and construction activities already creating a water demand for the Belcamp lands.

The connectivity between the subject development and the Phase 1 site will create a cumulative impact in regard to water demand. Water will be required for construction purposes for the subject site, and there will be a demand for the Phase 1 site for both the completion of construction, and also of that of occupied units. The Irish Water Confirmation of Feasibility letter, included as an appendix, advises that the water supply to facilitate the fully occupied subject development is feasible without any upgrade required to the public network, and will have taken into account the occupancy of the Phase 1 development currently under construction. Thus, the cumulative impact of the combined water demand will not create a negative impact scenario.

There is a risk of contamination to the existing water supply during connection to the public water supply. This would lead to sections of the public watermain infrastructure to require flushing to expel contaminated volumes. Although the likelihood of this scenario is considered low, this would have a slight and temporary impact on users connected to the watermain infrastructure while volumes and pressures lost by flushing are replenished.

Operational Stage

A connection application will be made to Irish Water at the appropriate time (after Final Grant of Planning Permission), and a connection agreement will be in place prior to any construction of the watermain network. During the operational stage of the development, there will be an average demand for water from the public water supply of 13.837l/s, with a peak demand of 86.479l/s, whereas in the do-nothing scenario there is no water demand for the site. As mentioned above, the Confirmation of Feasibility Letter confirms there are no constraints in the water network that would impede the required supply to the subject development. A Statement of Design Acceptance has been received from Irish Water for the proposed watermain network and is included as an appendix to this report.

There is the potential for a leak to occur on the live watermain infrastructure when operational. The impact of a leak is difficult to determine but in a worst-case scenario would likely be moderate in impact to users of the network in the immediate locality with regard to their water supply. In the case of an occurrence of a worst-case scenario leak there will be a subsequent impact to the groundwater table, which will experience a rise in level due to the additional water from the leak. As noted in the Flood Risk Assessment Report, the site is located in an area of low to moderate groundwater vulnerability, meaning the groundwater table is likely to be able to absorb additional water volumes without these appearing at surface level. Groundwater vulnerability and mitigation measures are discussed in full in the Flood Risk Assessment Report, however, should the groundwater levels rise to the surface, the layout and levels designed for the development provide an overland flood route by which surface water can be directed away from units to open space and natural watercourses. Units finished floor levels are typical designed to be 300mm higher than the adjacent channel lines through which surface water will flow along the road surface. In the unlikely occurrence that a watermain leak penetrates to the surface the likely impact of this is slight, temporary, and localised.

15.7.6 Foul Water Drainage

Construction Stage

There will be the requirement for a temporary foul water network to be constructed to serve the site compound during the course of the construction phase. A temporary connection application will need to be submitted and an agreement made with Irish Water prior to connection of the temporary network to the public infrastructure. This temporary connection will connect to the existing foul water network which flows to the pumping station at Sutton and is then pumped to the wastewater treatment plant at Ringsend for treatment. There is no negative impact predicted for this outflow volume as it will be very minor in comparison to that of when the subject development is fully occupied. The Confirmation of Feasibility Letter indicates there are no capacity constraints in the existing foul water network to which outfall connections are proposed.

Operational Stage

A connection application will be made to Irish Water at the appropriate time (after final Grant of Planning Permission), and a connection agreement will be in place prior to any construction of the foul

water network. This foul water network will flow via public infrastructure to the pumping station at Sutton, from where it is pumped for treatment at Ringsend Wastewater treatment plant.

During the construction of the foul sewers there is the potential for surface water to be discharged to the existing public foul sewer system due to pipes and manholes being left open. This would result in a minor dilution by the surface water volumes to the foul water volumes in the foul network. It would also create an unnecessary additional loading to the Sutton pumping station and Ringsend wastewater treatment plant. The overall impact of this should it occur would be slight and temporary.

During the operation stage of the development when fully occupied, the total dry weather flow from the development is 13.837 l/s, with a peak flow of 34.592 l/s, whereas in the do-nothing scenario there is no foul water flow from the site.

As mentioned previously, the Confirmation of Feasibility Letter indicates there are no capacity constraints in the existing foul water network to which outfall connections are proposed. This letter has considered the requirements of foul water disposal for the Phase 1 development, and there is no negative cumulative impact from the combined foul water volumes in the existing infrastructure, including Sutton and Ringsend.

There has been liaison with Irish Water as part of the subject development and also for earlier Belcamp phases. The trunk sewer in the EWLRL could serve the subject development and those under construction with a 375mm dia. pipe however, it was agreed to construct the trunk network using a 525mm dia. pipe in order to “futureproof” the network to facilitate further potential for development of lands adjacent to the subject application.

A Statement of Design Acceptance has been received from Irish Water for the proposed foul network and is included as an appendix to this report.

There is a risk of pollution of groundwater and water courses by accidental spillage of foul effluent during connection being made to live sewers. Should this occur the impact is likely to be slight and temporary.

There is a possibility of some surface water ingress into the foul water drainage system due to poor workmanship. There is also a possibility of leakage from sewers and drains within the site and along the route to the outfall sewer. Any foul water leakage would result in local contamination of soil and ground waters in the area. Mitigation measures discussed later will make the impact of any such occurrence slight.

15.7.7 Surface Water Drainage

Construction Stage

Surface water currently infiltrates the ground, with any excess surface water discharging to the existing ditch network and ultimately to the River Mayne or to the public drainage network in Malahide Road. There is a possibility of temporary contamination to the surface water network during construction activities. Sedimentation and silt arising from construction activities could contaminate the surface water network. Refuelling of vehicles may result in spillages, which could impact local surface water bodies. The impact of any such event will be dependent on the level of contaminants

entering the system however, in a worst-case cumulative scenario, with no mitigation measures, the impact could be temporary and moderate.

Operational Stage

The proposed flow control devices at the lakes and the dry detention basin are to be limited to the greenfield equivalent runoff rate, and SuDS measures proposed to maximise the infiltration as set out above. The net runoff volume from the site will therefore remain unchanged. There is a possibility of some foul water ingress into the surface water drainage system due to poor workmanship. Any such cross connections could result in pollution of the surface water network. The impact of this would be moderate and long-term (until the issue is resolved by reinstatement methods). The runoff from the roads and hardstanding areas will discharge contaminants, including oils and silts, to the surface water system which might result in pollution to the surface water network. The SuDS treatment train which has been designed into the surface water drainage network, acts as a mitigation measure, and treats the surface water, thus making the likelihood of this occurring extremely low.

15.8 Air Quality (Chapter 8.0)

Interactive effects

The main interactions relating to air quality are human health and transportation. The construction phase has the potential to cause health issues due to potential dust impacts. The mitigation measures that will be put in place at the proposed development will ensure that the impact of the proposed development complies with all ambient air quality legislative limits and therefore the predicted impact is long term and neutral with respect to human health. Interactions between air quality and transportation can be considerable with increased vehicle movements and congestion due to traffic. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between traffic and air quality are considered to be imperceptible.

Cumulative effects

For the cumulative effect we have taken in account planning permissions in neighbouring areas totalling 1136 no. units. These arise out of details gathered from Fingal County Council, Dublin City Council and An Bord Pleanála as listed in the table below.

Table 15-3. Synopsis of planning permissions in neighboring areas

Reg. Ref.	Location	Description	Decision
Reg. Ref. F05A/1388	Belcamp College, Malahide Road, Balgriffin, Dublin 13.	Planning permission was granted for alterations to Belcamp Hall for residential use. <i>Equivalent no units: 25</i>	Permission
Reg. ABP Ref. PL06F. 248052)	Belcamp, Malahide Road, Dublin 17.	Residential development at Belcamp. Permission was granted for 175 residential dwellings and apartment units. <i>Equivalent no units: 175</i>	Permission
F18A/0167	Campions Public House, its carpark and lands to its rear, Malahide Road, Balgriffin, Co. Dublin.	Modifications to previously granted planning application Reg. Ref. F15A/0093 (An Bord Pleanála Ref. No. PL06F.245710) <i>Equivalent no units: 13</i>	Permission

Reg. Ref.	Location	Description	Decision
F18A/0554	Adjacent to Campions Public House, Malahide Road, Balgriffin, County Dublin	Demolition of existing single storey commercial building and construction of new two storey building, Equivalent no units: 4	Permission
Reg. Ref. F18A/0058	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052, at Belcamp, a protected structure (RPS No. 463), Equivalent no units: 0	Permission
Reg. Ref. F19A/0220	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted developments Reg. Ref. F15A/0609, PL06F.248052 and F18A/0058 Equivalent no units: 89	Permission
Reg. Ref. F19A/0221	Belcamp, Malahide Road, Dublin 17.	Revisions to layout and house types of 49 no. two storey houses Equivalent no units: 49	Permission
Reg. Ref. F21A/0401	Lands at Belcamp Hall, Malahide Road, Dublin 17	Planning permission was granted by Fingal County Council for Equivalent no units: 78	Permission
F21A/0390	The former Campions Public House, Malahide Road, Balgriffin, Co. Dublin.	Modifications to a previously granted planning application Reg. Ref. F18A/0167. . Equivalent no units: 1	Permission
Reg. Ref. F21A/0488	Belcamp Hall, Malahide Road, Dublin 17.	Development on lands at Belcamp consisting of the construction of 77 no. residential units Equivalent no units: 77	Permission
ABP Ref. PL06F.24805 2.	Belcamp North	Total of 40 units, a childcare facility, conservation works to the Walled Garden and café; Equivalent no units: 45	Permission
Reg. Ref. F18A/0167,	Belcamp	Campions has planning permission for a total of 54 no. residential units. Equivalent no units: 54	Permission
	eastern side of the Malahide Road, known as 'Parkside'	approximately 185 no. residential units on a site extending to c.3.1 hectares Equivalent no units: 185	Permission
Reg. Ref. 3238/17	Malahide Road, Churchwell Avenue and Belmayne Road, Ayrfield, Dublin 13	This development comprises 150 apartment units approved under Part VIII. Equivalent no units: 150	Permission
Reg. Ref. 2600/20	Belmayne Avenue	Permission has been granted for 2 no. schools – a temporary post primary and primary school. Equivalent no units: 0	Permission
ABP-307887-20	Northern Cross SHD Mayne River Avenue	Strategic Housing Development under for 191 no. apartments and associated site works Equivalent no units: 191	Permission
		Overall equivalent no units: 1136	

Construction phase: There is the potential for cumulative dust emissions to impact the nearby sensitive receptors. The dust produced from construction activities tends to be deposited within 200m of a construction site and the majority of the deposition occurs close to the source, typically within the first 50m. If construction activities are to occur at the same time as other neighbouring projects, the dust mitigation measures outlined in section 8.5 along with the Dust management plan will need to be applied throughout the construction phase of the proposed development. This will avoid significant cumulative impacts on air quality. With mitigation measures in place and adhered to, the predicted cumulative impacts on air quality associated with the construction phase of the proposed development are deemed short-term and not significant.

Operational phase: The cumulative effects during the operational phase were assessed from changes in traffic flows during the operational phase due to the additional residents. As described in section 8.4.1.3 these modelled results show that concentrations of ambient air pollutants will remain well below the limit values for air quality. The cumulative effects on air quality and associated additional vehicular traffic was assessed for the potential neighbouring projects totalling 1136 units (see table 8.9 for project details). Levels of traffic-derived air pollutants associated with the additional 1136 units for receptor 3 (see image 8.2 for receptor location) show an expected increase in annual NO₂, PM₁₀, benzene and CO, table 8.10 shows these cumulative air quality modelled results.

Table 15-4. Modelled results for receptor 3 + cumulative units from neighboring projects

R 3	Annual Average NO ₂ (µg/m ³)	Annual Average PM ₁₀ (µg/m ³)	Annual Average (µg/m ³) Benzene	Annual Average CO (µg/m ³)
Background (2021)	24.0	13.53	0.46	0.27
Limits	40	40	5	10
Belcamp + cumulative units from neighbouring projects	25.79	14.54	0.52	0.32
Increase	+1.79	+2.01	+0.06	+0.05
Magnitude	small	medium	imperceptible	imperceptible
Description	negligible	negligible	negligible	negligible

The results found each parameter will remain well below the limit values for EU regulations and will not exceed the ambient air quality standards. Using the assessment criteria outlined previously, the impact of the development in terms of PM₁₀, CO, NO₂ and benzene is negligible. Therefore, the predicted cumulative impacts on air quality are negligible and would not result in a perceptible change in the existing local air quality environment.

15.9 Noise and Vibration (Chapter 9.0)

Interactive effects

The main interactions relating to noise and vibration are population and human health and transportation.

Cumulative effects

For the cumulative effect we have taken in account planning permissions in neighbouring areas totalling 1136 no. units. These arise out of details gathered from Fingal County Council, Dublin City Council and An Bord Pleanála as listed in the table below.

Table 15-5. Synopsis of planning permissions in neighboring areas

Reg. Ref.	Location	Description	Decision
Reg. Ref. F05A/1388	Belcamp College, Malahide Road, Balgriffin, Dublin 13.	Planning permission was granted for alterations to Belcamp Hall for residential use. Equivalent no units: 25	Permission
Reg. ABP Ref. PL06F. 248052)	Belcamp, Malahide Road, Dublin 17.	Residential development at Belcamp. Permission was granted for 175 residential dwellings and apartment units. Equivalent no units: 175	Permission
F18A/0167	Campions Public House, its carpark and lands to its rear, Malahide Road, Balgriffin, Co. Dublin.	Modifications to previously granted planning application Reg. Ref. F15A/0093 (An Bord Pleanála Ref. No. PL06F.245710) Equivalent no units: 13	Permission
F18A/0554	Adjacent to Campions Public House, Malahide Road, Balgriffin, County Dublin	Demolition of existing single storey commercial building and construction of new two storey building, Equivalent no units: 4	Permission
Reg. Ref. F18A/0058	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052, at Belcamp, a protected structure (RPS No. 463), Equivalent no units : 0	Permission
Reg. Ref. F19A/0220	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted developments Reg. Ref. F15A/0609, PL06F.248052 and F18A/0058 Equivalent no units: 89	Permission
Reg. Ref. F19A/0221	Belcamp, Malahide Road, Dublin 17.	Revisions to layout and house types of 49 no. two storey houses Equivalent no units: 49	Permission
Reg. Ref F21A/0401	Lands at Belcamp Hall, Malahide Road, Dublin 17	Planning permission was granted by Fingal County Council for Equivalent no units: 78	Permission
F21A/0390	The former Campions Public House, Malahide Road, Balgriffin, Co. Dublin.	Modifications to a previously granted planning application Reg. Ref. F18A/0167. Equivalent no units: 1	Permission
Reg. Ref F21A/0488	Belcamp Hall, Malahide Road, Dublin 17.	Development on lands at Belcamp consisting of the construction of 77 no. residential units Equivalent no units: 77	Permission
ABP Ref. PL06F.248052.	Belcamp North	Total of 40 units, a childcare facility, conservation works to the Walled Garden and café; Equivalent no units: 45	Permission
Reg. Ref. F18A/0167,	Belcamp	Campions has planning permission for a total of 54 no. residential units. Equivalent no units : 54	Permission
	eastern side of the Malahide Road, known as 'Parkside'	approximately 185 no. residential units on a site extending to c.3.1 hectares Equivalent no units: 185	Permission
Reg. Ref. 3238/17	Malahide Road, Churchwell Avenue and Belmayne Road, Ayrfield, Dublin 13	This development comprises 150 apartment units approved under Part VIII. Equivalent no units: 150	Permission
Reg. Ref. 2600/20	Belmayne Avenue	Permission has been granted for 2 no. schools – a temporary post primary and primary school. Equivalent no units: 0	Permission
ABP-307887-20	Northern Cross SHD Mayne River Avenue	Strategic Housing Development under for 191 no. apartments and associated site works Equivalent no units: 191	Permission
Overall equivalent no units: 1136			

Construction phase

The construction noise/vibration assessment in the previous sections represents the worst-case scenarios and it is very unlikely that the same noise/vibration event would happen to coincide at the same time of other potential developments giving rise to a theoretical increase in predicted noise levels. However, the impact of any predicted cumulative noise or vibration levels on nearby sensitive receptors is assumed not to exceed the worst-case scenario and is temporary and deemed not significant.

Operational phase

The anticipated noise impacts from the development during the operational phase will mainly be as a result of increased vehicle traffic flows along the incoming and outgoing routes into the proposed development site. It is anticipated that additional road traffic noise attributable to the overall masterplan will result in an increase in the baseline noise environment. The change in noise levels and the significance of such changes can be categorised by the Guidelines for Noise Impact Assessment, Institute of Environmental Management and Assessment.

Whereas not all 1136 no. units will add to noise level changes through the 2 no. survey point we non-the-less calculated the predicted increase in noise levels by adding the full 1136 to both station data resulting in an increase of 34.7% to the new proposed development noise level increase noted in tables 9.9. and 9.10. This means a cumulative increase varying from 0.29dB to 0.96dB for station 2 (R139) and from 0.33dB to 1.12dB for station 1 (extended R123).

Based on these guidelines the anticipated increase in noise levels is categorised as ‘Slight’ at the worst case. The increase in traffic associated with the proposed development scheme together with other potential developments is therefore not expected to give rise to any significant noise nuisance in the area. We note that as part of the Government Climate Change action plan that petrol and diesel passenger vehicles are being phased out and potentially replaced by quieter electric vehicles eventually leading to less operational noise.

Traffic/transportation has been identified as the only likely source of vibration during the operational phase of the scheme. In the case of nominally continuous sources of vibration, such as traffic, vibration is perceptible at around 0.5 mm/s PPV and may become disturbing or annoying at higher magnitudes. There may, in theory, be a small increase (+/-10%) in vibration levels as a result of increased traffic from the other potential developments, however, it would still be appropriate to assume that negligible vibration impacts will occur during the operation and no further assessment is deemed to be required. The cumulative noise / vibration impact is determined to be not significant.

15.10 Climate (Chapter 10)

Interactive effects

The main interactions relating to climate are population and human health and transportation.

Cumulative effects

For the cumulative effect we have taken in account planning permissions in neighbouring areas totalling 1136 no. units. These arise out of details gathered from Fingal County Council, Dublin City Council and An Bord Pleanála as listed in the table below.

Table 15-6. Synopsis of planning permissions in neighboring areas

Reg. Ref.	Location	Description	Decision
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Reg. ABP Ref. PL06F. 248052)	Belcamp, Malahide Road, Dublin 17.	Residential development at Belcamp. Permission was granted for 175 residential	Permission

Reg. Ref.	Location	Description	Decision
		dwellings and apartment units. Equivalent no units: 175	
F18A/0167	Campions Public House, its carpark and lands to its rear, Malahide Road, Balgriffin, Co. Dublin.	Modifications to previously granted planning application Reg. Ref. F15A/0093 (An Bord Pleanála Ref. No. PL06F.245710) Equivalent no units: 13	Permission
F18A/0554	Adjacent to Campions Public House, Malahide Road, Balgriffin, County Dublin	Demolition of existing single storey commercial building and construction of new two storey building, Equivalent no units: 4	Permission
Reg. Ref. F18A/0058	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted development Reg. Ref. F15A/0609, PL06F.248052, at Belcamp, a protected structure (RPS No. 463), Equivalent no units: 0	Permission
Reg. Ref. F19A/0220	Belcamp, Malahide Road, Dublin 17.	Amendments to permitted developments Reg. Ref. F15A/0609, PL06F.248052 and F18A/0058 Equivalent no units: 89	Permission
Reg. Ref. F19A/0221	Belcamp, Malahide Road, Dublin 17.	Revisions to layout and house types of 49 no. two storey houses Equivalent no units: 49	Permission
Reg. Ref F21A/0401	Lands at Belcamp Hall, Malahide Road, Dublin 17	Planning permission was granted by Fingal County Council for Equivalent no units: 78	Permission
F21A/0390	The former Campions Public House, Malahide Road, Balgriffin, Co. Dublin.	Modifications to a previously granted planning application Reg. Ref. F18A/0167. Equivalent no units: 1	Permission
Reg. Ref F21A/0488	Belcamp Hall, Malahide Road, Dublin 17.	Development on lands at Belcamp consisting of the construction of 77 no. residential units Equivalent no units: 77	Permission
ABP Ref. PL06F.248052.	Belcamp North	Total of 40 units, a childcare facility, conservation works to the Walled Garden and café; Equivalent no units: 45	Permission
Reg. Ref. F18A/0167,	Belcamp	Campions has planning permission for a total of 54 no. residential units. Equivalent no units: 54	Permission
	eastern side of the Malahide Road, known as 'Parkside'	approximately 185 no. residential units on a site extending to c.3.1 hectares. Equivalent no units: 185	Permission
Reg. Ref. 3238/17	Malahide Road, Churchwell Avenue and Belmayne Road, Ayrfield, Dublin 13	This development comprises 150 apartment units approved under Part VIII. Equivalent no units: 150	Permission
Reg. Ref. 2600/20	Belmayne Avenue	Permission has been granted for 2 no. schools – a temporary post primary and primary school. Equivalent no units: 0	Permission
ABP-307887-20	Northern Cross SHD Mayne River Avenue	Strategic Housing Development under for 191 no. apartments and associated site works Equivalent no units: 191	Permission
		Overall equivalent no units: 1136	

It could be assumed that any dwellings constructed at this point would be included in the national greenhouse gas emission data of 2022 which leaves us to add the units in neighbouring projects to be added. For ease of calculation for the national impact we have assessed the commercial element as

residential units also as the CO₂ emissions would be similar for this report purpose. The total cumulative unit come to 2527 + 1136 = 3663 units.

Project CO ₂ emission impact on National emissions	National	3663 units	fraction
	emissions	emissions	
	Mt-CO ₂ /year	Mt-CO ₂ /yr	%
2022	60.0	0.08889	0.14815
2030	58.0	0.00671	0.01158
2030 + additional measures	47.5	0.00671	0.01414

The impact of this 3663 unit development/phase of 0.08889 Mt-CO₂ on Ireland's current emissions (2022) of 60 Mt-CO₂/year represents an increase of 0.14815%. The impact of this 3663 unit development/phase of 0.00671 Mt-CO₂ on Ireland's projected 2030 emissions of 58 Mt-CO₂/year represents an increase of 0.01158%. The impact of this 3663 unit development/phase of 0.00671 Mt-CO₂ on Ireland's projected 2030 plus additional measures emissions of 47.5 Mt-CO₂/year represents an increase of 0.01414%. Based on the above findings we note the cumulative impacts on the national CO₂ emission at worst to be very fractional. CO₂ emissions from the construction and operational phase have been reduced to a minimum. The impact on National emissions for the construction phase are therefore deemed to be short term and imperceptible. For the operational phase it is deemed long term and imperceptible both in 2022 and 2030. Any new development in essence will increase CO₂ emissions to the national and global environment however by introducing the reduction measures at design stage the increase has been kept to a reasonable minimum.

15.11 Landscape and Visual Impact (Chapter 11)

Cumulative effects

There are existing residential developments located to the south of the R139 and the City Junction Business Park north of the R139 (south-west of the subject site). There is also Phase 1 of the Belcamp residential development (Planning References: F15A/0609; F19A/0220; F20A/0379 and F21A/0401) to the east of the subject site, where certain parts are complete and others are still under construction. Cumulatively these developments together with the proposed development, in the absence of any mitigation measures have the potential to have a **slight-moderate and negative** impact on the character and views of the landscape, particularly from the east and south due to the intensification of land use, as it changes from agricultural to suburban development with its associated structures and infrastructural works. However, if the proposed mitigation measures proposed as part of this development, are fully implemented:

- The proposed planting will provide an attractive visual backdrop and assist in screening this development
- The Preliminary Woodland Management Plan (detailed within the Arboricultural Report), if fully implemented will address the possible decline of the existing woodland and hedgerows, through the necessary tree works, replacement and infill tree planting, which will secure the extensive tree cover in this area into the future.

- Reinststate historical field boundaries through replanting and strengthen existing hedgerows that are in poor condition

Due to the existing zoning objectives for these lands, infrastructural and residential development will take place within the subject site and therefore there will be some degree of negative impact on the views towards these lands and on the landscape, as it changes from agricultural to suburban in character. It is anticipated that once the mitigation measures that are proposed within this development are implemented, the cumulative impact on the landscape and views from the surrounding areas will be reduced to **slight and negative**, and their visual impact will continue to lessen as the planting proposals establish and mature in the long-term.

15.12 Traffic and Transport (Chapter 12)

Interactions

Construction Stage

Temporary negative impacts to human health may be likely during the Construction Phase due to noise, dust, air quality and visual impacts which are discussed in the relevant chapters of this EIAR. Temporary traffic management will be required to facilitate connections to existing utilities in the existing roads. The traffic impacts, which would be temporary in duration are not considered to be significant due to the implementation of the mitigation measures identified in Section 12.10 and a more detailed analysis will be carried out by the Main Contractor.

Operational Stage

Noise generated by increased traffic flows have been assessed in the Air and Noise Chapters of the EIAR.

Residual Impacts

Construction Stage

Due to the proposed mitigation measures outlined above, the impact of the proposed development will be temporary and minimised during the construction stage.

Operational Stage

- There will be increase in the use of the road network by private vehicles. But as shown in section 12.7.4 the overall road network will not but above capacity levels with the inclusions of the proposed development. A mobility management plan will promote more sustainable forms of transport.

There will be an increase in the number of pedestrians and cyclists in the surroundings of the development. However, footpaths and cycling paths are provided as part of the proposed development, thus, impact should be minimal.

15.13 Cultural Heritage (Chapter 13)

No interactions or cumulative impacts are predicted.

15.14 Utilities and Waste (Chapter 14)

Interactions

The interactions between Chapter 14 Material Assets (Utilities & Waste) and the other chapters of the EIAR are set out below:

15.14.1 Population & Human Health (Chapter 4)

There is a risk of pollution if waste is disposed of inappropriately, which could impact human health. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

15.14.2 Biodiversity (Chapter 5)

There is a risk of pollution if waste is disposed of inappropriately, which could affect local flora and fauna. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

15.14.3 Land and Soil (Chapter 6)

There is a risk of pollution if waste is disposed of inappropriately, and this could leach into the soil. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

15.14.4 Water (Chapter 7)

There is a risk of pollution if waste is disposed of inappropriately, and this could affect local water bodies. This risk will be mitigated in accordance with Chapter 14 of this EIAR.

15.14.5 Noise & Vibration (Chapter 9)

Heavy machinery used for excavations to facilitate Electricity, Gas and Telecommunications connections may impact on noise and vibration. Both will be controlled and monitored as set out in Chapter 9 of this EIAR.

Cumulative effects

This section provides a description of the potential impacts of the proposed Project may have during the Construction and Operational phases. The impact assessment addresses the direct, indirect, cumulative, short, medium, and long term, permanent, temporary, positive, and negative effects.

15.14.6 Construction Stage

Site Location and Context

The Construction phase will likely have a temporary impact on the existing settlement in the vicinity of the subject lands. There may also be some slight and temporary impacts to the existing population which may arise during the construction phase. Refer to Chapter 4 (Population and Human Health), Chapter 8 (Air Quality), Chapter 9 (Noise and Vibration) and Chapter 10 (Climate) for further information.

Ownership and Access

During the construction phase, access will be affected by hoarding and security fencing required onto the public road network. A detailed traffic management plan will be prepared and implemented by the Main Contractor and agreed with the Local Authorities prior to commencing works. As a result, there will be a temporary disturbance to traffic in the surrounding area during construction. The number of construction vehicle movements anticipated is low compared to the number of trips expected to be generated by the proposed development during the operational phase. It should be noted that the majority of such vehicle movements would be undertaken outside of the traditional peak hours, and it is not considered that this level of traffic would result in any operational problems.

It is estimated that 75% of construction traffic will come from M50 / R139 and 25% from city centre / Malahide Road. Delivery trucks will be instructed to access the site via the Malahide Road for the site north of the River Mayne, and via the R139 for the portion of the site south of the river. Flag men shall operate to ensure safe access and egress of HGV's. It is likely that construction will have a negligible impact on pedestrian and cycle infrastructure. It is proposed that a Construction Management Plan (CMP) would be prepared by the appointed Main Contractor in order to minimise the potential impact of the construction phase of the proposed development on the safety and amenity of other users of the public road. The proposal also involves road and junction upgrade works along the R139 and Malahide Road. These road improvement works will require temporary traffic restrictions. The impact of this would be temporary during the construction period, with an overall improvement to the road network when the development is operational.

Electricity, Gas and Telecommunications

Electricity will be required during the construction phase. In conjunction with the ESB, the provision of a temporary builders' power supply will be provided. There is potential for temporary impacts to the local electricity supply network, by way of disruption in supply to the local area during electricity connection works for the proposed Project. However, this is a potential impact which is likely to be neutral, slight, and temporary. The supply of gas will not be operational during the construction phase of the proposed Project. There is potential for temporary impacts to the local gas supply network, by way of disruption in gas supply to the local area. However, this is a potential impact which is likely to be neutral. Telecommunications will not be operational during the construction phase of the proposed Project. There is potential for temporary impacts to local supply, by way of disruption during connections works. However, this is a potential impact which is likely to be neutral, slight, and temporary.

Waste Management

The proposed Project will generate a range of waste materials during the excavation and construction phase as outlined in Waterman Moylan's Preliminary Construction, Demolition and Waste Management Plan that has been prepared under separate cover as part of the planning application. Typical municipal waste, such as food waste, will also be generated by construction works on site. Waste materials will be stored temporarily on site until such time as collection takes place by a licenced waste contractor. Dedicated, easily accessible locations for collection will be clearly identified across the construction site.

If waste is not managed or stored appropriately, it is likely to give rise to litter and/or pollution issues on the construction site and surrounding area. In addition, if unauthorised waste contractors were used, waste materials could be incorrectly managed and disposed of illegally and result in negative environmental impacts or pollution. Thus, all waste generated must be managed in accordance with regional and national waste legislation and taken to suitably registered and licenced waste facilities for processing, segregation, reuse, recycling, recovery, or disposal, as deemed appropriate.

There are numerous licensed waste facilities in the region which can accept waste generated. The potential effect of construction waste generated from the proposed Project is considered to be short-term, not significant, and neutral. For further information, please refer to the Preliminary Construction, Demolition and Waste Management Plan prepared by Waterman Moylan Consulting Engineers.

15.14.7 Operational Stage

Site Location and Context

The proposed development comprises a total of 2,527 no. new dwellings (473 houses, 274 duplexes and 1,780 apartment units), with 4,424.0m² (Gross Floor Area) of commercial space. The development also includes car parking, bicycle parking, landscaping including playgrounds, and public open space parks. The proposed Project will deliver this mixed-use development on appropriately zoned lands in accordance with the pertaining land-use zoning designations.

Ownership and Access

The operational phase of the proposed Project will result in increased traffic volumes to the local road network, primarily the Malahide Road and the R139. A Traffic and Transport Assessment has been prepared by Waterman Moylan Consulting Engineers and is submitted as part of the planning application for the proposed Project. Please refer to Chapter 12 (Material Assets – Traffic and Transport) for further information in this regard.

Electricity, Gas and Telecommunications

Electricity will be required during the operational phase. In conjunction with the ESB, the provision of supply will be facilitated. The proposed Project has been designed in accordance with capacity calculations and loadings to meet the requirements of the development. This will result in increased demand for electricity in the area. The potential impact from the operational phase is likely to be slight and long term. The supply of gas will be required during the operational phase. In conjunction with Gas Networks Ireland, the provision of supply will be facilitated. The proposed Project will result in increased demand for gas in the area. The potential impact from the operational phase is likely to be moderate and long term. Telecommunications will be required during the operational phase of the proposed Project. The proposed Project will result in increased demand for telecommunications in the area. The potential impact from the operational phase is likely to be neutral, imperceptible, and long term.

16.0 SUMMARY OF MITIGATION & MONITORING MEASURES

16.1 Mitigation and Monitoring Measures

The sections provided below contain the mitigation and monitoring measures proposed to ensure no significant residual, significant effects arise from the proposed development, which have been set out in Chapters 5.0 to 14.0 of the Environmental Impact Assessment Report to the various impacts referred to in the relevant Environmental Impact Assessment Regulations.

Listed below are the mitigation and monitoring measures proposed for the proposed development:

16.2 Biodiversity

16.2.1 Mitigation Measures

The following mitigation measures are proposed for the development:

Construction Phase

Mitigation 1: Loss of habitat – mitigation by compensation

Landscaping of the development has been designed to compensate for the loss of habitat arising from the removal of higher and lower significance hedgerows. In total, 185m of 'lower significance' hedgerow and 1,155m of 'higher significance' hedgerow are to be removed. If it is assumed (conservatively) that the average width of linear habitat is 5m, then the total area of habitat to be lost is c.6,700m².

The landscape design includes nearly c.24,000m² of new native woodland (one block to the north-west and another to the south-west). Existing hedgerows along key biodiversity corridors are also to be widened so that they will be native woodland strips. In effect, nearly 2km of existing hedgerows will go from c. 5m in width to c.10m, adding c. 10,000m² of additional native woodland.

Elsewhere, meadow areas will be managed by cutting twice a year, once early in the season and again after flowers have seeded in the autumn. No herbicide sprays are to be used.

Conservatively, a total of 34,000m² of new habitat, or approximately five times the area of higher and lower significance habitat to be removed, is to be created. Habitat compensation is not a precise science and new planting cannot fully compensate for the loss of old, biodiverse hedgerows. New planting will take time to achieve its biodiversity potential and will rely upon appropriate management during the operational phase. Nevertheless, the extent of compensation areas will reduce the magnitude of the negative effect arising from **habitat loss so that in the medium to long-term the impact will not be significant.**

Mitigation 2: Disturbance of birds' nests – mitigation by avoidance

All birds' nests, eggs and young are protected by law. Trees and other vegetation should ideally be felled outside the nesting season (September to February). Where this is not possible, trees should be first inspected for nests. If no nest is present felling can proceed. If a nest is present then works can only proceed under licence from the National Parks and Wildlife Service.

Following mitigation this impact is not significant.

Mitigation 3: Disturbance to bats – mitigation by avoidance

The following is taken from the bat and badger survey report:

All mature trees undergoing any operations must be examined for the presence of bats by means of either a bat detector survey or by examination from a hoist or rope access by a bat specialist. Felling should preferably be undertaken prior to late November to ensure that bats are not in hibernation. If trees are felled in winter, additional care in examining for bats must be taken to ensure that no bats are placed at risk. Should bats be noted in any tree, this is a protected structure and may only be felled under licence from NPWS under the instruction of a licensed bat specialist.

Bat boxes and bat tubes:

The following bat boxes are proposed for the site: 21 x 2FN Schwegler Bat Boxes Height 33 cm x diameter 16 cm. Weight: 4.1 kg. These boxes shall be installed on 7 mature trees within the site. Boxes shall be no lower than 3 metres and shall face in several directions with a majority facing south (e.g., 14 facing either south, southeast, or southwest). 21 x Timber bat boxes of various designs As for the above, these boxes shall be installed on 7 mature trees within the site. Boxes shall be no lower than 3 metres and shall face in several directions with a majority facing south (e.g., 14 facing either south, southeast, or southwest). Boxes should preferably be painted black for greater heat absorption.

6 x Vivara Pro Build-in Woodstone Bat Tubes or 6 x 2FR Schwegler Bat Tubes if available.

Following mitigation this impact is not significant.

Mitigation 4: Prevention of pollution – mitigation by avoidance

Construction will follow guidance from Inland Fisheries Ireland on the prevention of pollution during construction projects (2016). This will include the storage of dangerous substances in bunded areas and ensuring the silt-laden water does not run-off the site. Water will only be permitted to leave the site after passing thorough suitably-sized silt-traps. Pollution prevention measures will be maintained for the full duration of the construction project. The site manager will be responsible for the prevention of pollution. The following specific measures are included in the Construction Environmental Management Plan prepared for this planning application by Waterman Moylan. This includes the following specific pollution prevention measures:

No.	Risk	Possible Impact	Mitigation	Result of Mitigation
1	Hydrocarbons from carparking area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Designated parking at least 50m from any watercourse.	Ensures no soil disturbance or hydrocarbons leak near aquatic zone
2	Pollutants from site compound areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	The site compound will be located at least 50m from any watercourse.	Prevents pollution of the aquatic zone from toxic pollutants
3	Pollutants from material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Fuels, oils, greases, and other potentially polluting chemicals will be stored in bunded compounds at the Contractor's compound or a location at least 50m from any body of water. Bunds are to be provided with 110% capacity of the storage container. Spill kits will be kept on-site at all times and all staff trained in their appropriate use. Method statements for dealing with accidental spillages will be provided by the Contractor for review by the Employer's Representative.	Prevents contamination of aquatic zone by toxic pollutants
4	Concrete/cementitious materials entering the watercourse from washdown.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	A designated wash down area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off-site
4	Concrete/cementitious materials entering the watercourse from concrete pours.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Pouring of cementitious materials will be carried out in the dry.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off-site

5	Leaching of contaminated soil into groundwater.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Spill kits will contain 10 hr terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent leaching to groundwater	Prevents contamination of aquatic zone by petrochemicals
6	Pollutants from equipment storage/refuelling area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Any refuelling and maintenance of equipment will be done at designated bunded areas with full attendance of plant operative(s) within contained areas at least 50m from any watercourse	Prevents contamination of aquatic zone by petrochemicals
7	Runoff from exposed work areas and excavated material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Contractor to prepare a site plan showing the location of all surface water drainage lines and proposed discharge points to the sewer. The plan will include the location of all surface water protection measures, including monitoring points and treatment facilities.	Prevents contamination of aquatic zone by suspended solids or pollutants.

Table 4 | Schedule of Surface Water Mitigation Measures

Following mitigation this impact is not significant.

Mitigation 5: SUDS

According to the engineering report prepared for this development by Waterman Moylan:

South of the Mayne River, it is proposed to utilise the existing ditches that run south to north along the existing hedge-lines as open surface water features, but these are not needed or desirable for attenuation as there are trees lining both sides of the ditch. Each proposed block will drain to a ditch via underground surface water drains. The ditches will, in turn, each flow into a headwall before culverting under the road and ultimately discharging to the Mayne River. Steps will be provided into/out of each of the ditches as a health and safety feature. The main regional attenuation will be provided in the open space adjacent to the Mayne River, east of the main road in a dry detention format. A Downstream Defender unit is proposed upstream of the basin to remove pollutants and debris and protect the hydrobrake outfall chamber from siltation.

North of the River Mayne:

It is proposed to redirect a significant portion of the catchment from this culvert to maintain its capacity for the C1 catchment (Belcamp Phase 1B). This diverted catchment will flow to the lower lake south of Belcamp Hall adjacent to the Mayne River.

Additional SUDS measures include permeable paving, green roofs, planted areas, roadside bioretention tree pits, downstream defender and, as part of regional water control measures, attenuation lakes.

Additional SUDS measures include:

Permeable Paving:

It is proposed to introduce permeable paving in private courtyard areas throughout the development. Downpipes from the roofs of the blocks will drain to filter drains beneath the permeable paving to facilitate maximum infiltration of surface water from paved and roof areas. The goal of permeable paving is to control stormwater at the source to reduce runoff. In addition to reducing surface runoff, permeable paving has the dual benefit of improving water quality by trapping suspended solids and filtering pollutants in the substrata layers.

Green Roof:

It is proposed to introduce green roofing as a source control device. Each block will have green roofing introduced on at least 60% of the roof area.

The substrate and the plant layers in a green roof absorb large amounts of rainwater and release it back into the atmosphere by transpiration and evaporation. They also filter water as it passes through the layers, so the run-off, when it is produced, has fewer pollutants. Rainfall not retained by green roofs is detained, effectively increasing the time to peak and slowing peak flows.

A green roof can reduce annual percentage runoff by between 40% and 80% through this retention and evapotranspiration, with the impact dependent on a range of factors including the depth of substrate, the saturation of substrate at the onset of a rain event, the angle of the roof, the range of vegetation growing, intensity of rainfall and the time of year.

Planted Areas:

It is proposed to provide open grassed areas with low level planting at the ground floor around each apartment block. This will act as soft scape and will significantly slow down and reduce the amount of surface water runoff from the open spaces. Planter boxes and planted areas will also take surface water runoff from the downpipes from buildings before draining to filter drains beneath the permeable paving.

Roadside Bioretention Tree Pits:

It is proposed to provide roadside trees along the main access road. Trees can help control and treat storm water runoff from the surrounding road / footpath because their leaves, stems, and roots slow rain from reaching the ground and capture and store rainfall to be released later. Tree pits help to attenuate flows, trap silts and pollutants, promote infiltration and prevent erosion. Incorporating tree planting offers multiple benefits, including attractive planting features, improved air quality and increased biodiversity whilst helping to ensure adaptation to climate change.

Downstream Defender:

A downstream defender (trade name for a large chamber that retains solids and hydrocarbons) is intended for the DCC lands that will treat the flows that are to be stored in the basin.

As part of regional water control measures:

Attenuation Lakes:

The two existing lakes, parallel to the Mayne River, will be used to attenuate the development north of the Mayne. These lakes have natural reeds and lake vegetation assisting with pollution and hydrocarbon removal. Excess surface water runoff, over and above the greenfield runoff, will be attenuated within the lakes above the permanent water level.

[...]

For Catchment A1, a new hydrobrake or similar approved flow control device will be provided on the lower lake weir to the river to regulate the discharge rate, limiting flows to the greenfield equivalent runoff rate. This flow control has been designed and provided for under phase 1.

Flows to the upper lake, from Catchment A2, will be through the existing ditch immediately east of the distributor road over the Mayne. This ditch flows into the upper lake which in turn flows into the lower lake and over the weir into the Mayne. The flows in the upper lake will be attenuated by means of a hydrobrake in a manhole installed in the causeway that splits the lakes. It may not be possible to utilise the existing culvert between the two lakes that is under the causeway, but it is intended to keep this in place for historical and conservation reasons.

The DCC catchment is split by the main distributor road, but it is intended to amalgamate the attenuation into one offline dry detention basin east of the distributor road where levels are most suitable. A hydrobrake at the outfall will limit flows to the greenfield equivalent rate, with excess surface water attenuated at the dry detention basin.

Following mitigation this impact is not significant.

Mitigation 6: Alien invasive species

On-going monitoring for Giant Hogweed will be a part of the landscaping maintenance programme. This will include annual surveys of the riparian zone of the River Mayne for signs of the plant (not currently growing on the development site). Should the plant be recorded it will be treated with standard herbicide during the optimal growing season but before flower heads set seed.

Following mitigation this impact is not significant.

Mitigation 7: Artificial lighting – mitigation by minimisation

The bat survey recommends that:

As lighting may deter wildlife or alternatively render them visible and more exposed to disturbance, it is recommended that bollard lighting is employed where essential unless there is an equivalent means by which light overspill can be controlled. No lighting shall illuminate the River Mayne or the vegetation immediately around it.

The source of light shall be Light Emitting Diodes (LEDs) as this is a narrow beam highly directional highly energy efficient light source. A warm white spectrum (<2700 Kelvin) shall be adopted to reduce blue light component.

The lighting should allow for a light level of 3 lux at ground level. This low lighting is thus easier to control both the direction but also the actual light level because it is so close to the target area (if using bollard lighting). Lighting should preferably respond to a trigger (motion sensor on approach of vehicles or pedestrians) and be capable of dimming.

In relation to security, it is recommended that infra-red lighting and infra-red cameras are employed to record anti-social activity to assist in crime solving and prevention. This would not raise the visible light levels that would affect mammals and birds to a much greater extent. It is still entirely adequate for monitoring and identification.

In summary, the following would address the main lighting concerns:

(1) No floodlighting should be used – this causes a large amount of light spillage into the sky. The spread of light should be kept below the horizontal.

(2) Hoods, louvres, shields or cowls should be fitted on the lights to reduce light spillage.

(3) Lights should be of low intensity. It is better to use several low intensity lights than one strong light spilling light across the entire area.

(4) Lights should be on a timer system to switch off relatively quickly in the absence of sustained movement.

(5) Narrow spectrum lighting should be used with a low UV component. Glass also helps reduce the UV component emitted by lights. A warm white spectrum (<2700 Kelvin) shall be adopted to reduce blue light component.

Following mitigation this impact is not significant.

16.2.2 Monitoring Measures

Monitoring is required where the potential impact of mitigation is uncertain or where significant residual impacts may arise despite mitigation. In this case no residual significant negative effects to biodiversity are predicted. Nevertheless, monitoring of pollution prevention measures will be required throughout the construction phase and this is described in the CEMP. Monitoring for Giant Hogweed, an alien invasive species, will also be required at least annually.

16.3 Land and Soils

16.3.1 Mitigation Measures

Construction Phase

To reduce the quantity of soil to be removed from or imported into the site, the finished floor levels of the proposed buildings and the road levels are designed to match existing levels and minimise the cut and fill balance. The number of vehicle movements offsite will be minimised by this optimisation. Surplus subsoil and rock that may be required to be removed from site will be deposited in approved fill areas or to an approved waste disposal facility. This is outlined in Waterman Moylan's Preliminary Construction, Demolition & Waste Management Plan, which accompanies this submission, and which

will need to be updated and implemented by the development's main contractor during the construction phase.

In the case of topsoil careful planning and on-site storage can ensure that this resource is reused on-site as much as possible. Any surplus of soil not reused on site can be sold. However, topsoil is quite sensitive and can be rendered useless if not stored and cared for properly. It is therefore important that topsoil is kept completely separate from all other construction waste, as any cross-contamination of the topsoil can render it useless for reuse.

It is important to ensure that topsoil is protected from all kinds of vehicle damage and kept away from site-track, delivery vehicle turning areas and site plant and vehicle storage areas.

If topsoil is stored in piles of greater than two metres in height the soil matrix (internal structure) can be damaged beyond repair. It should also be kept as dry as possible and used as soon as possible to reduce any deterioration through lengthy storage and excess moving around the site.

Records of topsoil storage, movements and transfer from site will be kept by the C&D Waste Manager.

Silt traps, silt fences and tailing ponds will also need to be provided by the contractor where necessary to prevent silts and soils being washed away by heavy rains during the course of the construction phase.

Surplus subsoil will be stockpiled on site, in such a manner as to avoid contamination with builders' waste materials, etc., and so as to preserve the materials for future use as clean fill.

The provision of wheel wash areas at the exit to the development as necessary will minimise the amount of soils deposited on the surrounding road network. The adjoining road network will be cleaned on a regular basis. All trucks on the public roads will carry up to a maximum of ten cubic metres of material to prevent spillage and damage to the surrounding road network.

Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works.

Appropriate storage and bunding measures will be implemented throughout the construction stage to prevent contamination of the soil and groundwater from oil and petrol leakage from site plant. Refuelling will be restricted to allocated re-fuelling areas. This area is to be an impermeable bunded area designed to contain 110% of the volume of fuel stored.

Soil samples taken from the site during the site investigations showed no evidence of contamination. However, any contaminated soil that may be uncovered on the site will be identified and disposed of to an appropriate waste disposal facility.

If groundwater is encountered during excavations, mechanical pumps will be required to remove the groundwater from sumps. Sumps should be carefully located and constructed to ensure that groundwater is efficiently removed from excavations and trenches.

On foot of Waterman Moylan's accompanying Preliminary Construction Demolition and Waste Management Plan, a Construction Management Plan, Traffic Management Plan and Waste

Management Plan will be implemented by the contractor during the construction phase to control the above remedial measures.

Operational Phase

On completion of the construction phase and following replacement of topsoil, a planting programme will commence to prevent soil erosion. SuDS and filtration devices are proposed to be provided as part of the development. These will help to remove pollutants from rainwater runoff. The SuDS proposals will also encourage infiltration of surface water to the ground. Part of the SuDS proposal for this site is also to encourage infiltration of surface water to the ground. This infiltration will assist with natural ground water replenishment which is currently occurring on the lands.

16.3.2 Monitoring Measures

Construction Phase

Monitoring during the construction phase will be carried out, in particular in relation to the following:

- Adequate protection of topsoil stockpiled for reuse.
- Adequate protection from contamination of soils for removal.
- Monitoring of surface water discharging to any existing watercourses, particularly the River Mayne and the existing lakes, to ditches and to the public network.
- Monitoring cleanliness of the adjoining road network.
- Monitoring measures for prevention of oil and petrol spillages.
- Dust control by dampening down measures close to the boundaries of the site, when required due to unusually dry weather conditions.

Operational Phase

During the operational phase, the surface water network (drains, gullies, manholes, AJs, SuDS devices) will be regularly maintained and where required cleaned out. A suitable maintenance regime of inspecting and cleaning will be incorporated into the safety file/maintenance manual for the development.

16.4 Water

16.4.1 Mitigation Measures

Water Supply

Construction Stage

A method statement setting out in detail the procedures to be used when working in the vicinity of existing watermains will be produced by the contractor for any construction works within the vicinity of watermains and for roads or services crossing watermains.

All watermains will be cleaned and tested in accordance with Irish Water guidelines prior to connection to the public watermain. Irish Water will require in advance of the connection to the live infrastructure, a confirmation letter from the Main Contractor and the Design Engineers confirming that the watermain network has been constructed to the methods and material specification as per the Irish Water standards, and that the layout of the constructed network and location of its associated fittings are in accordance with the permitted design which was submitted for agreement via the connection application process. All connections to the public watermain will be carried out by, or under the supervision of, Irish Water. Irish Water will vest the network upon connection to the Irish Water network.

Potential negative impacts during construction stage will be short term only.

Operational Stage

Water meters will be installed at the connection points, with the locations to be agreed and approved by Irish Water, and these meters will be linked to Irish Water's monitoring system by telemetry. The meters will facilitate the early detection, via the Irish Water monitoring programme, of unusual water usage in the network and identify potential leaks in the system.

All plumbing fixtures and fittings and sanitary wear to be installed within the development should be to the current best practice for water consumption to minimise future water usage.

No further mitigation measures will be necessary on completion.

Foul Water Drainage

Construction Stage

In order to reduce the risk of defective or leaking foul sewers, the following mitigation measures will be implemented: -

- All new foul sewers will be tested by means of an approved air test during the construction stage in accordance with Irish Water's Code of Practice and Standard Details.
- All private drainage will be inspected and signed off by the design Engineer in accordance with the Building Regulations Part H and BCAR requirements.
- Foul sewers will be surveyed by CCTV to identify possible physical defects.
- The connection of the new foul sewers to the public sewer will be carried out under the supervision of Irish Water and will be checked prior to commissioning.

Prior to commencement of excavations in public areas, all utilities and public services will be identified and checked, to ensure that adequate protection measures are implemented during the construction stage.

Irish water will vest the network upon connection to the public infrastructure.

Operational Stage

All foul drains will be tested and surveyed prior to connection to the public sewers to minimise the risk of uncontrolled ground water penetration or leakage of the foul water to groundwater on the site.

Otherwise, no mitigation measures are deemed to be necessary after completion of the proposed development, other than normal maintenance of the foul sewer system.

Surface Water Drainage**Construction Stage**

The Main Contractor will utilise the Construction Environmental Management Plan and the Preliminary Construction Demolition and Waste Management Plans submitted as part of the subject application, to prepare and implement their Construction Management Plan. These reports contain details of mitigation measures which must be incorporated into the Main Contractors own reports. The mitigation measures contained within these reports outline the requirements for the storage and handling of fuel, including the refuelling of vehicles in designated refuelling zones to minimise the risk of spillages, and the impact of spillages should they occur.

The Construction Management Plan will also inform on the utilisation of sedimentation controls, including silt traps, tailings ponds and silt fences during the construction period.

Private drainage will be inspected and signed off by the design Engineer which confirms that the drainage network constructed is in accordance with the Building Regulations Part H and Building Control (Amendment) Regulations (BCAR) requirements.

Operational Stage

The proposed flow control devices are to be limited to the greenfield equivalent runoff rate. The net runoff volume from the site will therefore remain unchanged. This ensures that there will be no increase in the amount of water leaving the site and will be the same as to the situation prior to construction of the development. This mitigates against the possibility of increasing the potential for flooding downstream. Full details on the sources, potential for flooding of the site and also downstream on the River Mayne, and the mitigation measures that have been incorporated against these risks are discussed in full in the Flood Risk Assessment Report, submitted under a separate cover. We politely advise the reader to review this report for full details on this topic. However, included below as Table 7-4, is a table extracted from the conclusion and recommendations section of the Flood Risk Assessment Report. This table confirms that following the implementation of the mitigation measures specified that the residual risk associated with flooding is low to extremely low.

Source	Pathway	Receptor	Likelihood	Consequence	Risk	Mitigation Measure	Residual Risk
Tidal	Irish Sea & Mayne River	Proposed development	Extremely low	None	Extremely low	None	Extremely low

Fluvial	Mayne River	Proposed development	Low	Low	Extremely Low	Setting of floor levels & freeboard, overland flood routing	Extremely Low
Pluvial	Private & Public Drainage Network	Proposed development, downstream properties and roads	Ranges from high to low	Moderate	Ranges from high to low	Appropriate drainage, SuDS and attenuation design, setting of floor levels, overland flood routing	Low
Ground Water	Ground	Underground services, ground level of buildings, roads	Moderate	Moderate	Moderate	Appropriate setting of floor levels, flood routing, damp proof membranes	Low
Human/Mechanical Error	Drainage network	Proposed development	High	Moderate	High	Setting of floor levels, overland flood routing, regular inspection of SW network	Low

Table 7-1 | Summary of the Flood Risks from the Various Components

It is important to note that some of the mitigation measures, as part of the table above, includes mechanical components. These components will require periodic inspection and maintenance in accordance with that as specified by the manufacturer of the component. A safety file/maintenance file/handover file will be prepared by the Main Contractor and will be used to create a programme for the required inspection and maintenance of these components. The developer will be required to maintain these components until such a time as they are Taken in Charge by the Local Authority, where they will then assume responsibility for this task.

As noted above, the mechanical components will require inspection and maintenance. So too will the drainage network itself which comprises non-mechanical components such as Gullies etc. A regime for inspection and maintenance of these components will also be incorporated into the maintenance file for the development.

There is a possibility of some foul water ingress into the surface water drainage system due to poor workmanship. Any such cross connections could result in pollution of the surface water network. The mitigation measures against this are discussed previously in the construction stage mitigation measures for the foul water network section.

The SuDS devices outlined in Section 7.4.4 will reduce and slow down the rate of surface water runoff from the site. This will minimise peak flows in the downstream system during major storm events.

The SuDS treatment train will also treat the surface water discharging to the public network, removing pollutants from the surface water runoff. Maintenance of these SuDS devices will be required to ensure that they continue to treat the surface water as designed.

16.4.2 Monitoring Measures

Water Supply

Water usage and potential leakage will be monitored by Irish Water using the water meters which will be installed on the supply pipes so that the development can be monitored in sections. The location of these meters will be agreed with Irish Water and the meters will be linked to Irish Water's monitoring system via telemetry.

Foul Water Drainage

Following completion of construction of the development there are no monitoring requirements envisaged other than normal monitoring and maintenance of the wastewater system by Irish Water.

Surface Water Drainage

The surface water network (drains, gullies, manholes, AJs, SuDS devices, attenuation system etc.) will need to be regularly maintained and where required cleaned out. A suitable maintenance regime of inspecting and cleaning shall be incorporated into the safety file/maintenance manual for the development. This maintenance manual will be implemented by the developer until such a time that the subject site is Taken in Charge by the Local Authority, who will then assume responsibility for its implementation.

16.5 Air Quality

16.5.1 Remedial and Reductive Measures

Construction phase

There is the potential for a number of impacts to air quality during the construction phase of the proposed development. Full details of the dust management plan can be found in Appendix 8.1. At all times, the procedures within the plan will be monitored and assessed. Summary of mitigation measures include:

- Avoid unnecessary vehicle movements and limit speeds on site so as to minimise the generation of airborne dust.
- Use of rubble chutes and receptor skips during construction activities.
- Site roads shall be regularly cleaned and maintained as appropriate, especially during dry and/or windy conditions. Any unsurfaced roads shall be restricted to essential site traffic only.
- A mobile wheel wash unit shall be installed at the site exit to wash down the wheels of all trucks exiting the site.
- The overloading of tipper trucks exiting the site shall not be permitted and aggregates will be transported to and from the site in covered trucks.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind, stockpiles holding fine or dusty elements including top soils shall be covered with tarpaulins. Water misting or sprays will be used as needed if particularly dusty activities are necessary during dry or windy periods.

- Where drilling or pavement cutting operations are taking place, measures to control dust emissions will be used to prevent unnecessary dust emissions by the erection of wind breaks or barriers.
- All vehicles which present a risk of spillage of materials, while either delivering or removing materials, will be loaded in such a way as to prevent spillage.
- A complaints log shall be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated.

Operational phase

The impact of the operational traffic associated with proposed development on air quality is predicted to be imperceptible and will not generate air emissions that would have an adverse impact on local ambient air quality. Therefore, no additional site-specific mitigation measures are required. Also, the government aims to promote sustainability by enhancing public transport with regular and ongoing increases in the public transport capacity, both road and rail and to reduce dependency on the use of the private car. The mitigation by design measures to minimise the impact of the development on air quality during the operational phase include the Inclusion of electric car charging points to encourage electric vehicle ownership and the sites proximity to public transport will reduce private vehicle use.

16.5.2 Monitoring

Construction phase: If the construction contractor adheres to good working practices and the mitigation measures are in place, the levels of emission generated are assessed to be minimal and are unlikely to cause an impact on air quality during the construction phase, there is no monitoring recommended.

Operational phase: There is no monitoring recommended for the operational phase of the development as impacts to air quality are predicted to be negligible.

16.6 Noise and Vibration

16.6.1 Mitigation Measures

DKPEV do not anticipate the requirement of any remedial measures but list the following recommendations mainly for the construction sites;

- Ensure that the local authority guidelines or planning directives to noise levels and operational times are adhered too.
- Prepare a construction phase operational plan with regards to limiting noise nuisance.
- Ensure all construction vehicles and plant are regularly maintained including any noise control measures such as attenuators, filters etc.
- Limit any construction noise spreading to neighbouring site by erecting temporary noise barriers (site boundary hoarding).
- Schedule particular high-level noise activities for times when increased noise levels are less sensitive or notify neighbouring residents or any sensitive sites.

16.6.2 Monitoring Measures

No noise monitoring is deemed necessary for the operational phase however noise monitoring will most likely be a requirement as directed by the local authority for the construction phase based on the local authorities imposed limits on the hours of operation and noise limits. No vibration monitoring is deemed necessary for both the operational and construction phase.

16.7 Climate

16.7.1 Mitigation Measures

There are no particular mitigation measures noted. All the recommended reduction measures at design stage and as applied in the CO₂ reduction tables are for the greater part mandatory to comply to the relevant regulations and standards. As each development/building can only be certified for compliance under the Building Control Amendment Regulations (BCaR) if the minimum criteria set at design stage is met in full it is very unlikely that noncompliance i.e., mitigation occurs.

16.7.2 Monitoring Measures

Construction phase: No CO₂ monitoring is deemed necessary for the construction phase as the CO₂ output / emission is relatively small and the duration of the construction phase is short-term.

Operational phase: No CO₂ monitoring is deemed necessary for the operational phase as the current and future mandatory CO₂ reduction requirement (BER) are a secure process to ensure compliance.

16.8 Landscape and Visual Assessment

16.8.1 Mitigation Measures

Consideration was given to the avoidance of impacts wherever possible during the design of the proposed scheme. However, as with any development some degree of impact is inevitable and wherever possible measures have been proposed to mitigate the adverse nature of these impacts.

Construction Phase

It is proposed that careful attention will be paid to avoiding any potentially adverse construction-related effects on the adjacent residences and agricultural lands. Operating a well-managed, organised and planned construction site, with adequate control of construction traffic and working activity, is key to avoiding/minimising such impacts. In addition, any lighting required during the construction phase should be located sensitively to avoid unnecessary light spill into the surrounding residential areas and into the woodlands. The construction works and the habitat protection measures will be carried out in accordance with measures outlined by the project ecologist, FCC and DCC.

Operational Phase

The careful and considered approach to the layout of the proposed development is to minimise negative visual impact both locally and from the wider surrounding area. The landscape strategy below details the landscape proposals that will assist in mitigating the landscape and visual impacts of the proposed development: refer to landscape drawings 1520_300-304 (FCC lands) and 1561_1-11 (DCC lands), Public Realm Strategy and Landscape Rationale Reports.

The key objectives included:

- Retention and protection of the vegetation along existing field boundaries where possible.
 - This helps to retain a mature, established character to the site and provide a unifying, cohesive landscape framework that relates it to the surrounding landscape and its historical context, as well as being of ecological benefit.
 - Generally this will involve retention of mature good quality trees within the woodlands, tree belts and hedgerows, pruning and tidying of the retained hedgerow and replanting where the hedgerow is of poorer quality (as outlined in the Arboricultural Report).
 - The design of the development has, where possible, followed the pattern of exiting field boundaries to ensure the retention of the vegetation where possible and to retain the historical patterns of the landscape.
- Integration of the development into the surrounding landscape, minimising landscape and visual impact in particular upon nearby residential dwellings, from amenity areas and from public roads
 - This is largely to be achieved by an extensive planting programme within the site and along the site boundaries and working with the existing topography of the site as much as possible.
- Roadway lighting and lighting of cycle/ pedestrian walkways will be by means of high quality, modern standing fixtures. They will include full cut-off (FCO) and energy efficient lighting where practicable to reduce the impacts of light pollution on the surrounding area and sky.

Introduction of usable amenity spaces, as indicated on drawings 1520_300-304 (FCC lands) and 1561_1-11 (DCC lands), and which will be planted with appropriate species as described in the Public Realm Strategy and the Landscape Rationale Report.

The planting proposals within the scheme will be employed to:

- assist in the successful integration of the proposed scheme into its landscape setting
- structured tree planting is proposed within the open spaces and along the proposed roads.
- provide a sense of enclosure at the transitions between public areas to communal areas and the proposed buildings, while also permitting passive surveillance of the open space areas
- act as a buffer and assist in partially screening and filtering views of the proposed development from the surrounding area e.g. adjacent residential areas, public roads.
- assist in defining areas and reinforcing the character of the various spaces
- provide visually attractive spaces for future residents and the local community to relax, move and/ or socialise within
- open lawn and grassland meadows are proposed throughout the public spaces which provide space for informal play and passive recreation.
- create visual interest and a sense of place
- compensate for any loss/ enhance biodiversity benefits with an emphasis on pollinator friendly plant species.

16.8.2 Monitoring Measures

Monitoring, particularly during construction phase will be on an ongoing basis and will be crucial at certain stages such as:

- During site establishment stage– prior to any works taking place, clearly identify trees and hedgerows that are to be retained and protected – ensuring tree protection measures are then place. Clearly identify trees and hedgerows that are to be removed.
- During site excavation stage – ensure existing vegetation is being adequately protected and that topsoil is being correctly stripped and stored for landscape reinstatement
- During construction stage: ensure that landscape proposals are being implemented correctly
- Post-construction stage: periodic visits will be required to ensure that any defects that may occur are rectified, that the landscape proposals are successfully establishing and being correctly maintained.

16.9 Traffic and Transport

16.9.1 Mitigation Measures

In order to eliminate or reduce the potential impacts described above, remedial and mitigation measures will be implemented as set out below and in the Preliminary Construction Management Plan included under a separate cover with this application.

Construction Stage

- Adequate signposting will be located on site to ensure safety of all road users and construction workers.
- Care will be taken to ensure existing pedestrian and cycling routes are suitably maintained or appropriately diverted as necessary during the construction period, and temporary car parking is provided within the site for contractor’s vehicles. It is likely that construction will have a negligible impact on pedestrian and cycle infrastructure.
- The main contractor as part of their site set up arrangements, shall appoint a Coordinator responsible for the implementation of a Construction Stage Mobility Management Plan and shall carry out the following tasks as part of their role:
 - Provide an extensive information service for public transport options and routes at public location(s) within the development for construction workers;
 - Update the public transport information adjacent to the development on on-going basis; and
 - Advise company staff of tax incentives for public transport and bicycles.
- For those wishing to cycle to and from the development, dedicated cycle parking will be provided for the duration of the works within the site. Shower facilities and lockers will also be provided.

- A dedicated “construction site” access/egress system will be implemented during the construction phases. It is intended that deliveries to the construction site will typically be made to one of 2 main access points. The site south of the Mayne River will be served by an access point from the R139, and the lands north of the Mayne River will be served via the east-west link road (through Belcamp Phase 1B), just off the R107 (Malahide Road).
- Hoarding will be set up around the perimeter to prevent pedestrian access.
- Dedicated construction haul routes will be identified and agreed with the local authority prior to the commencement of constructions activities onsite.
- A material storage zone will also be provided in the Construction Compound area. This storage zone will include material recycling areas and facilities.
- A detailed Construction and Traffic Management Plan will be prepared by the contractor and agreed with the Local Authority prior to commencing works on site.

Operational Stage

- To reduce traffic impact and to promote more sustainable modes of transport a Mobility Management Plan will be prepared for the development
- A management company will be appointed by the developer to manage the development. A senior member of staff from the management company who supports the philosophy of the Plan will be appointed as the Co-ordinator. The Co-ordinator will be responsible for:
 - Implementation and maintenance of the Plan;
 - Monitoring progress of the Plan
 - Liaison with public transport operators and officers of the Planning and Highway Authorities;
 - Production of information reports for the Developer, the occupier(s) and the Planning and Highway Authorities; and
 - Ongoing assessment of the objectives of the Plan.
- Up to date local bus timetables will be maintained within the tenant amenity area and other fixed points within the buildings on the site. Residents will be advised of their location. In addition, internet access to travel information will be provided. The developer will provide all new residents with a travel pack showing alternative modes of travel to the development. Where possible, the developer will advise visitors to the site of alternative modes of travel to that of the car.
- Secure parking facilities will be provided for residents, visitors and Creche users. Local cycle route information will be provided in the tenant amenity area and at other fixed points within the development and residents will be advised of their location. Details of cycle parking provided is included in the Traffic and Transport Assessment provided with the planning submission.

- 5 no. Go Car spaces will be initially provided and details of how to join the scheme will be provided to all residents. Information will also be displayed within the resident amenity area and updated when required.
- The Co-ordinator will be responsible for the management of inappropriate parking within the development. This parking management will ensure that spaces are reserved for those who have rented the space and will be accessible only to those users.

16.9.2 Monitoring Measures

Construction Stage

Traffic management and deliveries will be carefully monitored during the construction stage as part of the Construction Management Plan. The appointed contractor will monitor their mobility management plan to ensure that is operating effectively. Local residents will be kept fully informed of construction activities through mail leaflets, email and site notices.

Operational Stage

During the operational stage the Travel Plan/Mobility Management Plan will be monitored by the Co-ordinator. The travel survey will establish the initial modal split of travel by residents.

The Co-ordinator, in consultation with the Developer, the Occupiers, and the Local Authority or its agents, will agree annual targets, following completion and analysis of the travel survey, for increasing the percentage of non-car modes.

The Co-ordinator will:

- Meet with officers of the Local Authorities or its agents within a period of 6 months following occupation of the building(s) and thereafter every 12 months to assess and review progress of the Plan and agree objectives for the next 12 months, and
- Prepare and submit to senior management of the Developer, the Occupier(s) and the Local Authorities or its agents, an annual Monitoring Report.

16.10 Cultural Heritage

16.10.1 Remedial and Reductive Measures

Archaeological Heritage

The possible fulacht fia identified by archaeological testing within the proposed SHD site (Figure 13.21 within Chapter 13) will be preserved by record. This will entail full excavation of the archaeological features under licence to the National Monuments Service (DHLGH) and will be carried out prior to construction.

Monitoring of topsoil-stripping within the entire development site will be undertaken as an archaeological exercise, to determine whether there are any further archaeological features or deposits present. Should any subsurface archaeological stratigraphy be encountered, an appropriate

ameliorative strategy will be implemented. This will entail licensed archaeological excavation, in full or in part, of any identified archaeological remains (preservation by record) or preservation in situ.

Archaeological monitoring will be carried out under licence to the DHLGH and the NMI, and will ensure the full recognition of, and the proper excavation and recording of, all archaeological soils, features, finds and deposits which may be disturbed below the ground surface. All archaeological issues will have to be resolved to the satisfaction of the DHLGH and the NMI. The archaeologist will have provision to inspect all excavation to natural soil level and to temporarily halt the excavation work, if and as necessary. They will be given provision to ensure the temporary protection of any features of archaeological importance identified. The archaeologist will be afforded sufficient time and resources to record and remove any such features identified.

The developer will make provision to allow for, and to fund, the necessary archaeological monitoring, inspection and any excavation works that will be needed on the site during and prior to construction, either directly or indirectly via the contractor.

Architectural and Cultural Heritage

The following text is extracted from the architectural heritage report by Sheehan & Barry Architects (2021), submitted with this EIAR.

The Historic Buildings - Restoration and Revival Strategy

Permission for the development already granted was contingent upon the successful use and repurposing of the historic structures. The loss of much of the historic fabric to vandalism and arson attacks was a significant set-back.

The design team have been working with the local authority and the client to establish an on-going strategy to restore and consolidate the buildings back to viable re-use and to act as the historic heart of the development and, where appropriate, as community assets or resources. To that end, a series of formal planning applications have been submitted to establish sound conservation methodologies and designs for the phased restoration. These have included strategies for the recovery of historic fabric, its careful categorisation and safe storage off site, and the establishment of interim support measures.

Regular meetings have been established with the FCC Conservation Officer and wider planning team to discuss and monitor progress and to review conservation strategy and methodology.

In pursuit of building a framework of permitted restoration and conservation works, designed to stabilise the historic structures, the following Section 5 Declarations have been submitted and approved:

- **F85/023/21**- Description: a. recovery and analysis of building debris b. Removal of building fabric remains c. Reinstatement of Belcamp House south elevation d. Reinstatement of chapel roof.
- **F85/032/21** - Description: a. Reinstatement of structural floor elements b. Reinstatement of structural roof elements.

A detailed draft timeline / programme for conservation of the House and Chapel was developed and submitted. This acts as a guideline and framework for the works, and will be developed and responded to as investigative and recovery works proceed.

A Feasibility study for re-use and adaptation of the structures following on from the fire damage is in progress.

Regular site visits to progress the conservation strategy are being undertaken. Works to reinstate the roof of the Chapel have commenced on foot of Section 5 permission F85/023/21.

Please also refer to the report as prepared by CORA Consulting Engineers (2022, submitted with this EIAR) which examines the structural condition of the historic landscape structures and make recommendations for their stabilisation, repair and conservation as appropriate.

It is the client's intention to maintain and enhance the significance of the core historic buildings and structures and the designed landscapes. Its importance is recognised within the context of the new development at Belcamp, of which the proposed development forming the SHD application will be a significant part.

It is submitted that the strategy to restore and revitalise the historic built environment at the centre of the contemporary residential development and its community is clear and established.

The proposed re-use of the historic walled garden and its redesign into a public garden alongside the restoration of the house and chapel is viewed as a consistently positive development and complimentary and supportive of the SHD development. The proposed development will strengthen the historic triangle of Belcamp Hall and Chapel, the Walled Garden, and surrounding Woodlands, as the centre of the overall development. It will function as a starting point for explorative and restorative walks, communal and social interaction and the restored buildings will form an important centre piece and historic anchor for the development.

The client is committed to deliver this project under the current on-going development at Belcamp Hall. With the continued engagement between the client and Fingal County Council the on-going restoration process and strategy will continue. In summary, the proposed SHD development accords with established strategy for restoring and consolidating the historic buildings and landscape as the core asset within the overall development.

16.10.2 Monitoring Measures

There will be no requirement for monitoring post-construction.

16.11 Utilities and Waste

16.11.1 Avoidance, Remedial & Mitigation Measures

Construction Stage

All possible precautions shall be taken to avoid unplanned disruptions to any services or utilities during the construction phase of the proposed Project. It should be noted that a number of mitigation

measures proposed in other EIAR chapters are also of relevance to Material Assets and should be referred to when reading this EIAR.

The construction phase mitigation measures include avoidance, reduction and remedy measures as set out within the Development Management Guidelines document. The design and construction of the necessary service infrastructure will be in accordance with relevant codes of practice and guidelines. This is likely to mitigate any potential impacts during the operational phase of the proposed Project. However, routine maintenance of the site services will be required from time to time. As such, any mitigation measures will be advised by the relevant service provider.

A site-specific Preliminary Construction, Demolition and Waste Management Plan has been prepared to deal with waste generation during the construction phase of the proposed Project and is included as part of the application pack. This document was prepared in accordance with best practice guidelines. A detailed Construction, Demolition and Waste Management Plan will be developed by the Main Contractor, based on the Preliminary Plan developed at planning stage.

Operational Stage

Operational waste will be managed by a designated management company on site and the appointed licenced waste contractor which will ensure the sustainable management of domestic and commercial waste arising from the development in accordance with legislative requirements and best practice standards.

16.11.2 Monitoring Measures

Prior to the operational phase of the proposed Project, all services/utility connections will be tested by a suitably qualified professional under the supervision of the service provider.

Any monitoring of the built services required during the operational phase of the proposed Project will be as advised by the relevant service provider.

The management of waste during the construction and operational phases of the proposed Project should be monitored to ensure compliance with best practice and relevant legislative requirements.