DOWNEY

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# ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR)

## Proposed Strategic Housing Development

## on Lands at Auburn House and Little Auburn, Off Malahide Road and Carey's Lane, Streamstown, Malahide, Co. Dublin

**March 2022**

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# 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 on lands at Auburn House and Little Auburn, off Malahide Road and Carey's Lane, Streamstown, Malahide, Co. Dublin.

The subject lands extend to approximately 13.28 hectares and are located on the western side of the Malahide Road to the south of Malahide. The lands are bounded by the existing Abington Estate to the north and west, the Malahide Road and rear gardens to the east and undeveloped lands to the south. Access to the site is currently from the existing driveway to Auburn House, which is accessed off the Malahide Road.

The proposed development will consist of the preservation and protection of the existing Protected Structure of Auburn House and its stables as 1 no. residential dwelling; the conversion of the existing stables of Auburn House to provide for storage space for the main Auburn House and the construction of 368 no. new residential dwelling units (comprising 87 no. houses, 239 no. apartments & 42 no. duplex units) for an overall total of 369 no. residential units, including Auburn House. The development shall consist of 135 no. 1-bedroom apartments and duplex apartments, 138 no. 2-bedroom apartments and duplex apartments, 8 no. 3-bedroom apartments and duplex apartments, 47 no. 3-bedroom houses, 34 no. 4-bedroom houses, 6 no. 5-bedroom houses and the existing 11-bedroom Auburn House along with 1 no. childcare facility and 1 no. ancillary resident facility. The proposed development shall also provide landscaped public open space, car parking and all associated ancillary site development infrastructure including foul and surface water drainage, internal roads, cycle paths and footpaths, and boundary walls and fences. Vehicular access to the proposed development is to be via a new entrance at the R107 Malahide Road/Dublin Road entrance, with the existing entrance to Auburn House acting as a pedestrian/cyclist entrance and access to existing properties outside the application site, there will be a secondary entrance comprising modifications of the existing vehicular entrance off Carey's Lane to the south west of the development, the closure of the existing vehicular entrance to Little Auburn, the provision of 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development. The building heights range from 2 storey to 5 storey buildings with balconies or terraces being provided to the apartments and duplex units.

## 1.2 Nature and Extent of Proposed Development

Kinwest Limited. is applying to An Bord Pleanála for planning permission for the following development:

*"We, Kinwest Limited, intend to apply to An Bord Pleanála for permission for a strategic housing development on lands at Auburn House (Protected Structure), Little Auburn and Streamstown off the R107 Malahide Road/Dublin Road and Carey's Lane (accessed via Streamstown Lane), Malahide, Co. Dublin. The lands are generally bound by the R107 road to the east, 'Beech Lodge' to the south, Clairville Lodge to the south (off Carey's Lane), by dwellings known as 'The Coop', 'Halstead' and 'Rockport House' to the south west (off Carey's Lane) and Abington to the west, north and north east.*

*The proposed development will consist of the preservation and protection of the existing Protected Structure of Auburn House and its stables as 1 no. residential dwelling; the conversion of the existing stables of Auburn House to provide for storage space for the main Auburn House and the construction of 368 no. new residential dwelling units (comprising 87 no. houses, 239 no. apartments & 42 no. duplex units) for an overall total of 369 no. residential units, including Auburn House. The development shall consist of 135 no. 1-bedroom apartments and duplex apartments, 138 no. 2-bedroom apartments and duplex apartments, 8 no. 3-bedroom apartments and duplex apartments, 47 no. 3-bedroom houses, 34 no. 4-bedroom houses, 6 no. 5-bedroom houses and the existing 11-bedroom Auburn House along with 1 no. childcare facility and 1 no. ancillary resident facility. The proposed development shall also provide landscaped public open space, car parking and all associated ancillary site development infrastructure including foul and surface water drainage, internal roads, cycle paths and footpaths, and boundary walls and fences. Vehicular access to the proposed development is to be via a new entrance at the R107 Malahide Road/Dublin Road entrance, with the existing entrance to Auburn House acting as a pedestrian/cyclist entrance and access to existing properties outside the application site, there will be a secondary entrance comprising modifications of the existing vehicular entrance off Carey's Lane to the south west of the development, the closure of the existing vehicular entrance to Little Auburn, the provision of 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development. The building heights range from 2 storey to 5 storey buildings with balconies or terraces being provided to the apartments and duplex units.*

*The proposed development will comprise of:*

*1) The preservation of the existing three storey 11-bedroom residential dwelling of Auburn House (Protected Structure). The main house is to remain in single residential use (i.e. 1 no. 11 bedroom, three storey over basement detached dwelling).*
*2) The conversion of the existing stables to the rear of Auburn House for storage use associated with Auburn House.*
*3) Internal and external alterations to the stables of the Protected Structure including minor demolition works are proposed to accommodate same.*
*4) The preservation and protection of the existing woodland of Auburn House.*
*5) The preservation of existing follys and walls associated with the 'walled garden' with amendments to the garden proposed to accommodate the proposed development.*
*6) The demolition of the modern bungalow dwelling known as 'Little Auburn' and associated outbuildings.*
*7) The demolition of detached stable/shed building off Streamstown Lane.*
*8) The construction of 87 no. residential houses (47 no. three bed units, 34 no. four bed units and 6 no. 5 bed units) in detached, semi-detached and terraced dwellings ranging from 2, 2.5 and 3 storey in height.*
*9) The construction of 239 no. apartments/duplex apartments (135 no. 1-bedroom units, 138 no. 2-bedroom units, 8 no. 3-bedroom units) all provided with balconies/terraces as follows:*
*(a) Apartment Block 1 consisting of a total of 46 no. units in a 4-storey block (26 no. 1 bedroom units and 20 no. 2 bedroom units).*
*(b) Apartment Block 2 consisting of a total of 49 no. units in a 5-storey block (26 no. 1 bedroom units; 21 no. 2 bedroom units; 2 no. 3 bedroom units).*
*(c) Apartment Block 3 consisting of a total of 42 no. units in a 4-storey block (22 no. 1 bedroom units and 20 no. 2 bedroom units).*

*(d) Apartment Block 4 consisting of a total of 28 no. units in a 4-storey block (10 no. 1 bedroom units; 17 no. 2 bedroom units; 1 no. 3 bedroom units) along with childcare facility, ancillary resident amenity facilities, plant, waste storage, ESB substation, car parking and bicycle parking at ground floor/undercroft level.*

*(e) Apartment Block 5 consisting of a total of 28 no. units in a 5-storey block (6 no. 1 bedroom units and 22 no. 2 bedroom units) along with plant, waste storage, car parking and bicycle parking at ground floor/undercroft level.*

*(f) Apartment Block 6 consisting of a total of 21 no. units in a 4-storey block (5 no. 1 bedroom units; 14 no. 2 bedroom units; 2 no. 3 bedroom units) along with plant, bin store, bicycle parking and maintenance/cleaner's stores at ground floor level.*

*(g) Apartment Block 7 consisting of a total of 25 no. units in a 5-storey block (14 no. 1 bedroom units; 10 no. 2 bedroom units; 1 no. 3 bedroom unit) along with bin store, plant, cleaning store and bicycle parking at ground floor level.*

*(h) Duplex Apartment Block 1 consisting of a total of 6 no. units in a 3-storey block (1 no. 1 bedroom units; 3 no. 2 bedroom units; 2 no. 3 bedroom units) along with bin store at ground floor level.*

*(i) Duplex Apartment Block 2A consisting of a total of 8 no. units in a 3-storey block (6 no. 1 bedroom units; 2 no. 2 bedroom units) along with bin store and car and bicycle parking at ground floor/undercroft level.*

*(j) Duplex Apartment Block 2B consisting of a total of 11 no. units in a 3-storey block (8 no. 1 bedroom units; 3 no. 2 bedroom units) along with bin store and bicycle and car parking at ground floor/undercroft level.*

*(k) Duplex Apartment Block 2C consisting of a total of 9 no. units in a 3-storey block (7 no. 1 bedroom units; 2 no. 2 bedroom units) along with bin store and bicycle and car parking at ground floor/undercroft level.*

*(l) Duplex Apartment Block 2D consisting of a total of 8 no. units in a 3-storey block (4 no. 1 bedroom units; 4 no. 2 bedroom units) along with bin store and bicycle parking at ground floor/undercroft level.*

*10) The provision of 1 no. childcare facility located within the ground floor level of Duplex Apartment Block 2D and 1 no. residential amenity facility located within the ground floor of apartment Block 4;*

*11) Single level basement below Apartment Blocks 1, 2 & 3 comprising car parking (153 no. spaces), bicycle parking (270 no. spaces), refuse storage, plant rooms, comms room, maintenance room, water storage tanks and services; and 97 no. car parking spaces and 182 no. bicycle parking spaces at undercroft level to Apartment Blocks 4 &5 and Duplex Blocks 2A, 2B, 2C & 2D. A total of 500 no. residential car parking spaces shall be provided across surface, undercroft/podium and basement level, and 5 no. drop-off and visitor car parking spaces, providing an overall total of 505 no. car parking spaces and a total of 692 no. bicycle parking spaces across surface, undercroft/podium and basement level.*

*12) The construction of 1 no. new vehicular entrance off the R107 Malahide Road (providing for a new signalised junction with Back Road and Malahide Road) and a new access from Carey's Lane is to be created from the adaption of an existing vehicular entrance off Carey's Lane.*

*13) Utilisation of existing Auburn House vehicular entrance access and road for pedestrian and cycle route only with vehicular access retained solely for existing residential use.*

*14) Closing of the existing vehicular entrance at the R107 Malahide Road serving Little Auburn.*

*15) Landscaping including provision of public, communal and private open spaces, playspaces and boundary treatments.*

*16) 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development."*

**Fig. 1.1 – Outline of Site Boundary and aerial view, excluding underground rising main along Back Road and Kinsealy Lane (source: Google Maps)**

## 1.3 EIA Process

The EIA requirements are governed by Directive 2014/52/EU, which amends the previous EIA Directive (Directive 2011/92/EU). Ensuring that projects that are likely to have significant effects on the environment are subjected to an assessment of their likely impacts is the primary purpose of EIA. The EIA process itself helps to form part of the planning consent 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 project proposal that is seeking planning consent/permission. Therefore, the EIAR becomes a central element that informs the Competent Authority's EIA.

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 in accordance with 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 2001-2020 ("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. With respect to 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 368 no. new residential dwelling units. Therefore, the Project falls below the stated threshold, and an EIA is not 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 being provided within the project (basement, undercroft and surface level) is incidental to the primary purpose of the residential development. 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. 13.28 hectares in area (incl. the road works to R725, and foul treatment works to R742 and R772) within what can be considered a built-up area, an EIA is required, and an Environmental Impact Assessment Report has been prepared to accompany the planning application.

This EIAR has been prepared in accordance with the requirements of the following statutory documents:

- *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) and the Planning and Development Regulations 2000-2015;*
- *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 Pl 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.*

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 new EIAR Regulations and has also had regard to the recently published *'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;*
- *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 County Council Development Plan 2017-2023;*
- *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 adjoining lands;*
- *The likely and significant impacts of the proposed development on the environment; and,*
- *Available mitigation measures for reducing or eliminating any potential undesirable impacts.*

Other assessments made pursuant to EU legislation have been considered for this EIAR, however these have been ruled out as irrelevant for this chapter, 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 the consideration of 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 Regulations. In accordance with the statutory regulations, a Non-Technical Summary has been prepared and is included as part of this EIAR. The structure use in this report is a grouped format structure in the form of chapters which examine the broadened scope of environmental considered 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 at; 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 a team of consultants led by Downey. The **Error! Reference source not found.** below provides information on the members of the EIAR study team and their respective inputs within the report.

*Table 1-1. The EIAR Study Team*

| Name | Role |
|---|---|
| Downey Planning<br>(John Downey, Planning Consultant, BA (Hons), MRUP, MBA, MIPI, MRTPI<br>&<br>Donal Duffy, Planning Consultant, Dip. Environmental Resources Management, BSc. Spatial Planning, MSc Energy Management, MIPI) | EIAR Project Managers,<br>Planning Consultants<br><br>Preparation of following EIAR chapter:<br>• Introduction<br>• Description of Development & Alternatives Considered<br>• Planning and Development Context<br>• Population & Human Health<br>• Material Assets (Built Environment)<br>• Interactions<br>• Compilation of EIAR |
| CCK Architects<br>(Michael Crowe MRIAI) | Architects and Masterplanners |

| Name | Role |
|---|---|
| | Preparation of following EIAR chapters:<br>• Description of Development & Alternatives Considered |
| Waterman Moylan Consulting Engineers<br>(Mark Duignan, Associate Engineer, MA BAI CEng MIEI) | Preparation of following EIAR chapters:<br>• Transportation<br>• Water<br>• Land, Soil & Geology<br>• Waste |
| The Big Space Landscape Architects<br>(Dan Egan MILI) | Preparation of following EIAR chapter:<br>• Landscape and Visual Impact Assessment |
| Courtney Deery Heritage Consultancy Ltd.<br>(Dr Clare Crowley<br>Cultural Heritage Consultant) | Preparation of following EIAR chapter:<br>• Material Assets, Cultural & Archaeological Heritage |
| Openfield Ecological Services<br>(Padraic Fogarty, Ecologist, MSc in EcIA) | Preparation of following EIAR chapter:<br>• Biodiversity |
| Gerard Van Deventer<br>DKP International Ltd<br>C.ENG., BE.(Mech)., H.Dip. CIOB., MCIBSE. | Preparation of following EIAR chapter's:<br>• Air Quality<br>• Noise & Vibration<br>• Climate |

The development is being proposed by Kinwest Limited, C/O Cooney Carey Consulting Limited, The Courtyard, Carmanhall Road, Sandyford, Dublin 18.

## 1.8 Impartiality

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

## 1.9 Statement of Difficulties Encountered

No exceptional difficulties were experienced in compiling this EIAR. However, where difficulties may have been encountered by the study team, this shall be stated within the relevant section of the EIAR.

## 1.10 Errors

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

## 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 SITE LOCATION AND DESCRIPTION OF DEVELOPMENT

## 2.1 Site Location & Context

The subject site is located on the southwestern side of Malahide. The lands are bounded by the existing Abington Estate to the north and west, the Malahide Road and rear gardens to the east and undeveloped lands to the south. Access to the site is currently from the existing driveway to Auburn House, which is accessed off the Malahide Road. The lands at Auburn House extend to approximately 13.28 hectares and are located on the western side of the Malahide Road to the south of Malahide.

The surrounding land uses are generally residential, with Abington being on its northern and western boundary and Clairville to its south. Malahide Castle and Demesne is located on the opposite side of the Malahide Road and can be accessed via Back Road. Malahide village centre is located to the north east of these lands. There is a Dublin Bus service that connects the city centre with Malahide that runs along the Malahide Road (R107) and it is noted that there is a bus stop adjacent to the entrance to Auburn House.

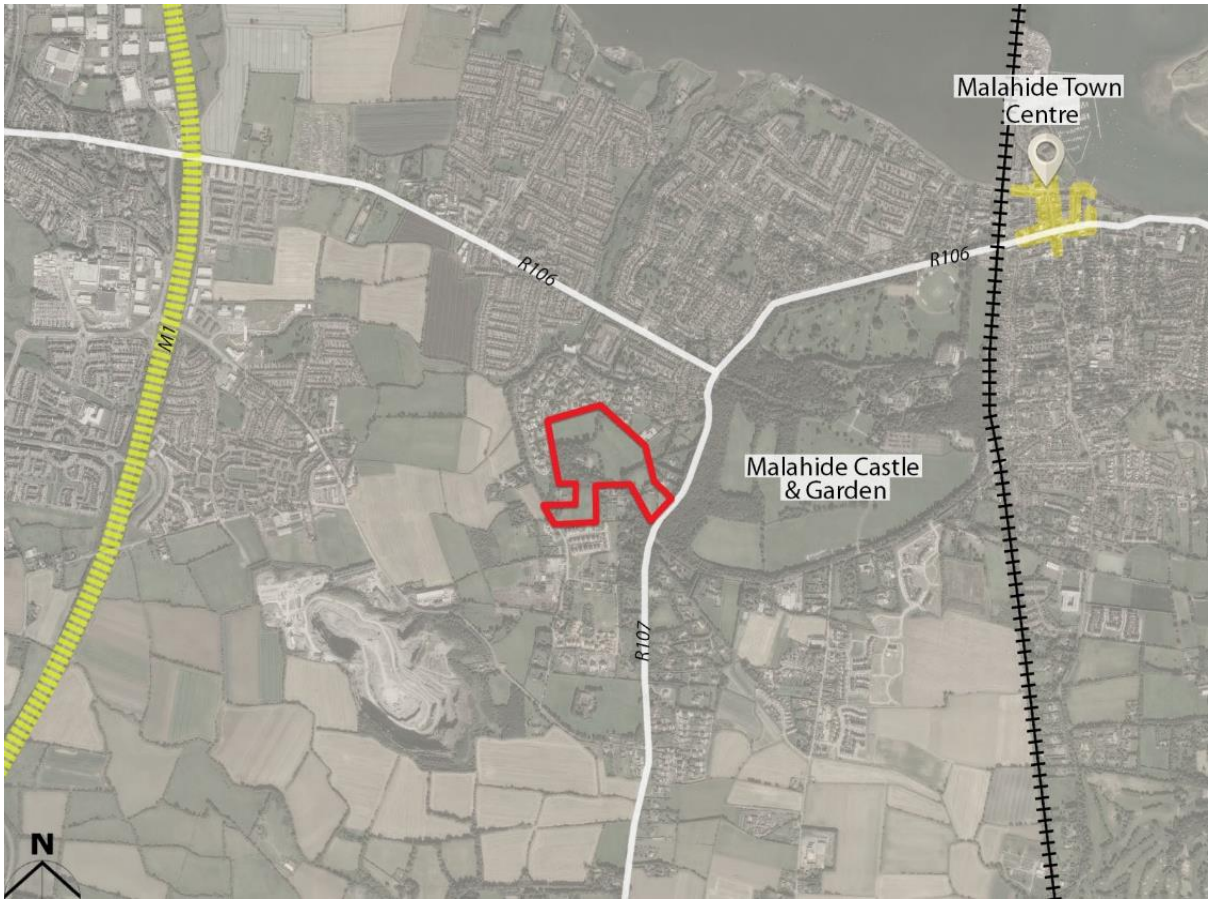


**Figure 2.1: Site Location Map (subject site outlined in red)**

## 2.2 Site Description

The site is made up of 13.28 hectares of land, located 2km southwest of Malahide Village and adjacent to the south-western entrance to Malahide Castle and Demesne, on the Malahide Road.

The site is made up of three consolidated plots; Little Auburn house and gardens, Auburn House with adjoining woodland and fields and former pastureland accessed off Carey's Lane.

The topography of the lands is broadly level, broken up by several drainage ditches. There is significant tree coverage on parts of the site, in particular the entrance lane and woodland backdrop to Auburn House. However, much of the woodland has not been managed and the quality of existing trees is mixed.

Auburn House is raised and overlooks the 'front field', a low-lying pasture. To the north is the 'back field'. Little Auburn has its own entrance from Malahide Road and is a modern house and gardens, of limited architectural interest.

There are currently three access points to the lands: Little Auburn gates on Malahide Road, Auburn House gates on Malahide Road and Streamstown gate on Carey's Lane.

The 5 development areas within the site are the fields to the north and east of Auburn House (Back Field and Front Field), 'Little Auburn' to the east of the driveway and fronting Malahide Road (The Avenue character area in proposed development), an area to the south of Auburn and west of the stables (proposed Streamstown character area), and sensitive additions to the stables of Auburn House.

The southern boundary of the site is characterised by quite dense mature woodland which borders both sides of the Malahide Road in this area. The existing entrance gates are located at the southern end of the site marking the entrance avenue to Auburn House. An entrance to Malahide demesne is located at the corner of the Back Road just offset to the south of the existing Auburn entrance gates.

A modern bungalow is located within Little Auburn to the south east of the site. It is proposed to demolish this as part of the new development. The northern and eastern boundaries are characterised by existing hedgerows. The built context to the north and east are private two-storey residences with gardens. An access road within the neighbouring development of Abington to the northeast, built in 2000 aligns with the boundary to the Auburn site.

The western boundary is characterised by dense woodland within the site behind Auburn House while the north west section of this boundary has hedgerow with existing housing facing a private access lane adjacent to the boundary. The south west corner of the woodland has a gate allowing access to this laneway.

To the south west of the site, the proposed "Streamstown" character area is defined by existing two-storey houses with private gardens between it and the Auburn woodland, a recently completed housing development to the southern boundary and the Auburn converted stables protected structures and curtilage to the east of the walled garden.

Auburn House is a three-storey residence and has been described as one of the finest residences built in the eighteenth century by Deaton Lysaght Architects who have been engaged in the house's restoration over many years. The house is located quite centrally within the development lands with

a vista over the proposed “Front Field”. Views back to the house are curtailed somewhat by the line of the trees to the east of the lawn but the direct view of the house on axis is quite magnificent. The southern boundary of the “Front Field” is formed by a stream with hedgerow. The avenue winds up from the south to the side of Auburn House and the front of the house is orientated east.

The mature woodland to the rear of the house forms a significant amenity backdrop to the house. The makeup of this woodland varies from a diminishing number of large mature trees including Beech, horse chestnut, oak, sycamore and lime; to natural regeneration typically dominated by Sycamore, Ash and Wych Elm to a conifer plantation adjacent to the woodland path south of Auburn House.

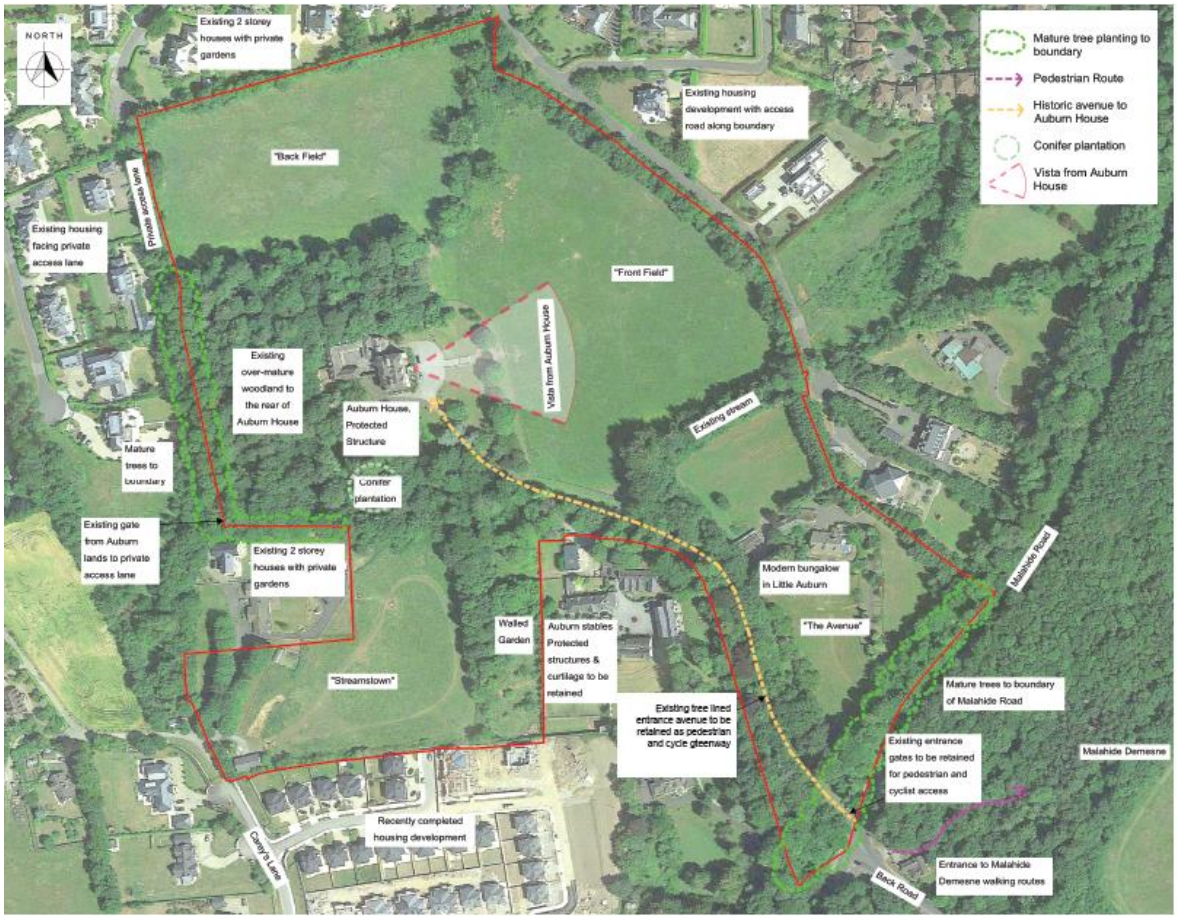


**Figure 2.2: Existing Site Context Map (subject site outlined in red, Source: CCK Architects & Urban Designers)**

## 2.3 Description of Proposed Development

The proposed development will consist of the preservation and protection of the existing Protected Structure of Auburn House and its stables as 1 no. residential dwelling; the conversion of the existing stables of Auburn House to provide for storage space for the main Auburn House and the construction of 368 no. new residential dwelling units (comprising 87 no. houses, 239 no. apartments & 42 no. duplex units) for an overall total of 369 no. residential units, including Auburn House. The development shall consist of 135 no. 1-bedroom apartments and duplex apartments, 138 no. 2-bedroom apartments and duplex apartments, 8 no. 3-bedroom apartments and duplex apartments, 47 no. 3-bedroom houses, 34 no. 4-bedroom houses, 6 no. 5-bedroom houses and the existing 11-bedroom Auburn House along with 1 no. childcare facility and 1 no. ancillary resident facility. The proposed development shall also provide landscaped public open space, car parking and all associated ancillary site development infrastructure

including foul and surface water drainage, internal roads, cycle paths and footpaths, and boundary walls and fences. Vehicular access to the proposed development is to be via a new entrance at the R107 Malahide Road/Dublin Road entrance, with the existing entrance to Auburn House acting as a pedestrian/cyclist entrance and access to existing properties outside the application site, there will be a secondary entrance comprising modifications of the existing vehicular entrance off Carey's Lane to the south west of the development, the closure of the existing vehicular entrance to Little Auburn, the provision of 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development. The building heights range from 2 storey to 5 storey buildings with balconies or terraces being provided to the apartments and duplex units.

The form of the residential buildings will be two to six storeys. The design and materials will be of a high quality and there will be a mixture of unit configurations across the site to avoid a homogenous block appearance and to facilitate the various type of family units that will ultimately occupy the units.

## 2.4 Characteristics of Proposed Development

### 2.4.1 Site Location

The proposed development is located on lands at Auburn House (Protected Structure), Little Auburn and Streamstown off the R107 Malahide Road/Dublin Road and Carey's Lane (accessed via Streamstown Lane), Malahide, Co. Dublin. The lands are generally bound by the R107 road to the east, 'Beech Lodge' to the south, Clairville Lodge to the south (off Carey's Lane), by dwellings known as 'The Coop', 'Halstead' and 'Rockport House' to the south west (off Carey's Lane) and Abington to the west, north and north east. It is important to note that the development also provides for proposed foul sewer works along Back Road and Kinsealy Lane, which are outside of the main development site and will take place below roads that are under the charge of Fingal County Council.

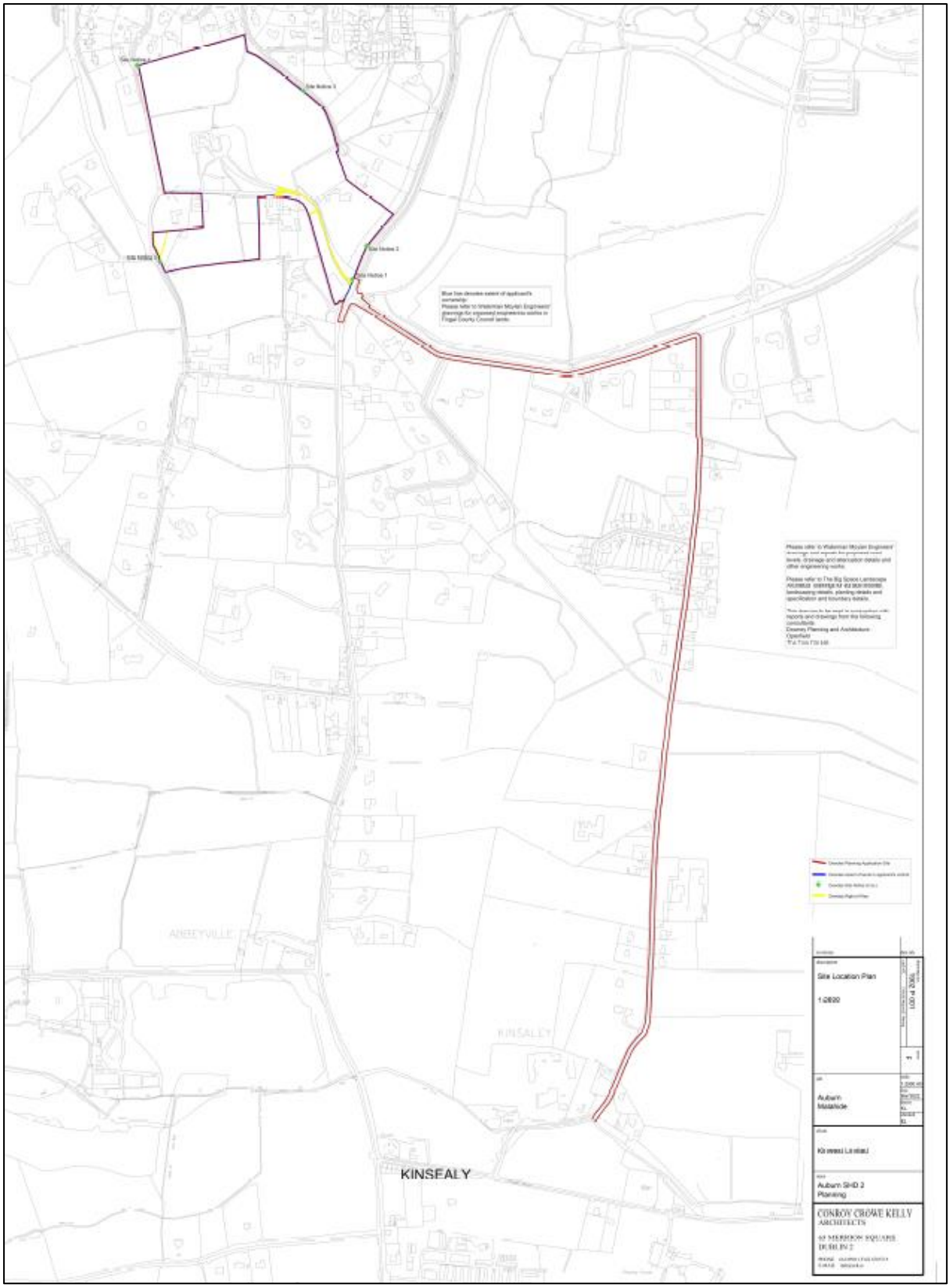


**Figure 2.3: Site Location Map (Source: CCK Architects)**

### 2.4.2 Site Area

The subject site extends to an area of approximately 13.28 hectares (which excludes the works to the foul sewer along the Kinsealy Lane). The development site includes existing mature trees and woodlands, which are to be maintained in so far as possible (please refer to the Arborists Report and Woodland Management Plan for full details).

### 2.4.3 Density of Development

As outlined above, the overall site area is 13.28 hectares. The development site includes existing mature trees and woodlands, which are to be maintained and thus a net development area of 9.879 hectares has been identified. This provides for a net density of approximately 38 units per hectare, which is considered appropriate for this location and the overall sensitivities associated with the site itself, including protected structures, woodlands and objectives. In light of the objectives and constraints associated with the development site that the density proposed represents an optimum design solution and an efficient use of the site.

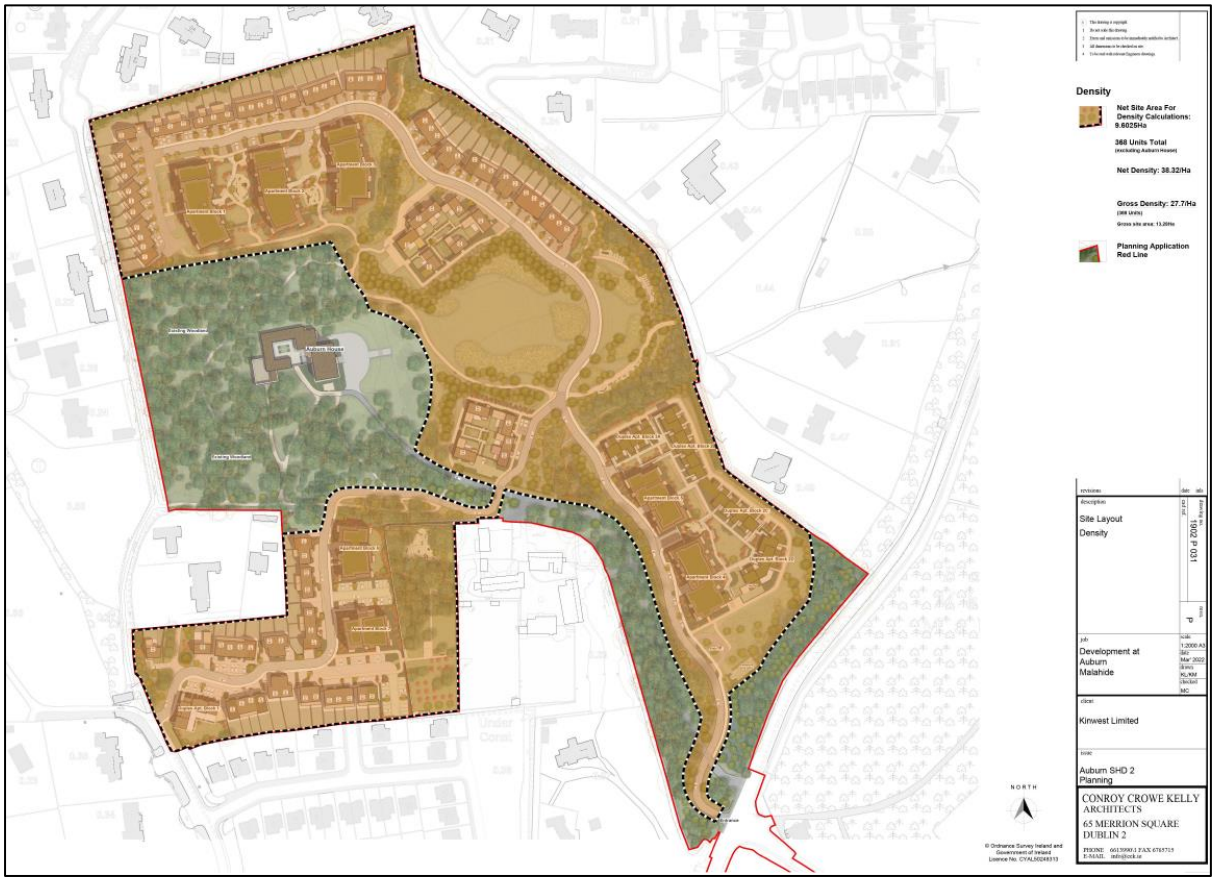


**Figure 2.4: Net Density Map (Source: CCK Architects)**

### 2.4.4 Detailed Description of Development

The proposed development, as described in the statutory notices, will comprise of:

1) The preservation of the existing three storey 11-bedroom residential dwelling of Auburn House (Protected Structure). The main house is to remain in single residential use (i.e. 1 no. 11 bedroom, three storey over basement detached dwelling).
2) The conversion of the existing stables to the rear of Auburn House for storage use associated with Auburn House.
3) Internal and external alterations to the stables of the Protected Structure including minor demolition works are proposed to accommodate same.
4) The preservation and protection of the existing woodland of Auburn House.
5) The preservation of existing follys and walls associated with the 'walled garden' with amendments to the garden proposed to accommodate the proposed development.
6) The demolition of the modern bungalow dwelling known as 'Little Auburn' and associated outbuildings.
7) The demolition of detached stable/shed building off Streamstown Lane.
8) The construction of 87 no. residential houses (47 no. three bed units, 34 no. four bed units and 6 no. 5 bed units) in detached, semi-detached and terraced dwellings ranging from 2, 2.5 and 3 storey in height.
9) The construction of 239 no. apartments/duplex apartments (135 no. 1-bedroom units, 138 no. 2-bedroom units, 8 no. 3-bedroom units) all provided with balconies/terraces as follows:
(a) Apartment Block 1 consisting of a total of 46 no. units in a 4-storey block (26 no. 1 bedroom units and 20 no. 2 bedroom units).
(b) Apartment Block 2 consisting of a total of 49 no. units in a 5-storey block (26 no. 1 bedroom units; 21 no. 2 bedroom units; 2 no. 3 bedroom units).
(c) Apartment Block 3 consisting of a total of 42 no. units in a 4-storey block (22 no. 1 bedroom units and 20 no. 2 bedroom units).
(d) Apartment Block 4 consisting of a total of 28 no. units in a 4-storey block (10 no. 1 bedroom units; 17 no. 2 bedroom units; 1 no. 3 bedroom units) along with childcare facility, ancillary resident amenity facilities, plant, waste storage, ESB substation, car parking and bicycle parking at ground floor/undercroft level.
(e) Apartment Block 5 consisting of a total of 28 no. units in a 5-storey block (6 no. 1 bedroom units and 22 no. 2 bedroom units) along with plant, waste storage, car parking and bicycle parking at ground floor/undercroft level.
(f) Apartment Block 6 consisting of a total of 21 no. units in a 4-storey block (5 no. 1 bedroom units; 14 no. 2 bedroom units; 2 no. 3 bedroom units) along with plant, bin store, bicycle parking and maintenance/cleaner's stores at ground floor level.
(g) Apartment Block 7 consisting of a total of 25 no. units in a 5-storey block (14 no. 1 bedroom units; 10 no. 2 bedroom units; 1 no. 3 bedroom unit) along with bin store, plant, cleaning store and bicycle parking at ground floor level.
(h) Duplex Apartment Block 1 consisting of a total of 6 no. units in a 3-storey block (1 no. 1 bedroom units; 3 no. 2 bedroom units; 2 no. 3 bedroom units) along with bin store at ground floor level.
(i) Duplex Apartment Block 2A consisting of a total of 8 no. units in a 3-storey block (6 no. 1 bedroom units; 2 no. 2 bedroom units) along with bin store and car and bicycle parking at ground floor/undercroft level.
(j) Duplex Apartment Block 2B consisting of a total of 11 no. units in a 3-storey block (8 no. 1 bedroom units; 3 no. 2 bedroom units) along with bin store and bicycle and car parking at ground floor/undercroft level.
(k) Duplex Apartment Block 2C consisting of a total of 9 no. units in a 3-storey block (7 no. 1 bedroom units; 2 no. 2 bedroom units) along with bin store and bicycle and car parking at ground floor/undercroft level.

(l) Duplex Apartment Block 2D consisting of a total of 8 no. units in a 3-storey block (4 no. 1 bedroom units; 4 no. 2 bedroom units) along with bin store and bicycle parking at ground floor/undercroft level.

10) The provision of 1 no. childcare facility located within the ground floor level of Duplex Apartment Block 2D and 1 no. residential amenity facility located within the ground floor of apartment Block 4;

11) Single level basement below Apartment Blocks 1, 2 & 3 comprising car parking (153 no. spaces), bicycle parking (270 no. spaces), refuse storage, plant rooms, comms room, maintenance room, water storage tanks and services; and 97 no. car parking spaces and 182 no. bicycle parking spaces at undercroft level to Apartment Blocks 4 &5 and Duplex Blocks 2A, 2B, 2C & 2D. A total of 500 no. residential car parking spaces shall be provided across surface, undercroft/podium and basement level, and 5 no. drop-off and visitor car parking spaces, providing an overall total of 505 no. car parking spaces and a total of 692 no. bicycle parking spaces across surface, undercroft/podium and basement level.

12) The construction of 1 no. new vehicular entrance off the R107 Malahide Road (providing for a new signalised junction with Back Road and Malahide Road) and a new access from Carey's Lane is to be created from the adaption of an existing vehicular entrance off Carey's Lane.

13) Utilisation of existing Auburn House vehicular entrance access and road for pedestrian and cycle route only with vehicular access retained solely for existing residential use.

14) Closing of the existing vehicular entrance at the R107 Malahide Road serving Little Auburn.

15) Landscaping including provision of public, communal and private open spaces, playspaces and boundary treatments.

16) 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development.

### 2.4.5 Demolition Works

The proposed development will involve a certain amount of demolition works in order to facilitate the new residential development. This is outlined in more detail in the Preliminary Construction and Demolition Waste Management Plan, prepared by Waterman-Moylan Consulting Engineers and is summarised below:

1. demolition of the modern bungalow dwelling known as 'Little Auburn' and associated outbuildings.
2. The demolition of detached stable/shed building off Streamstown Lane.

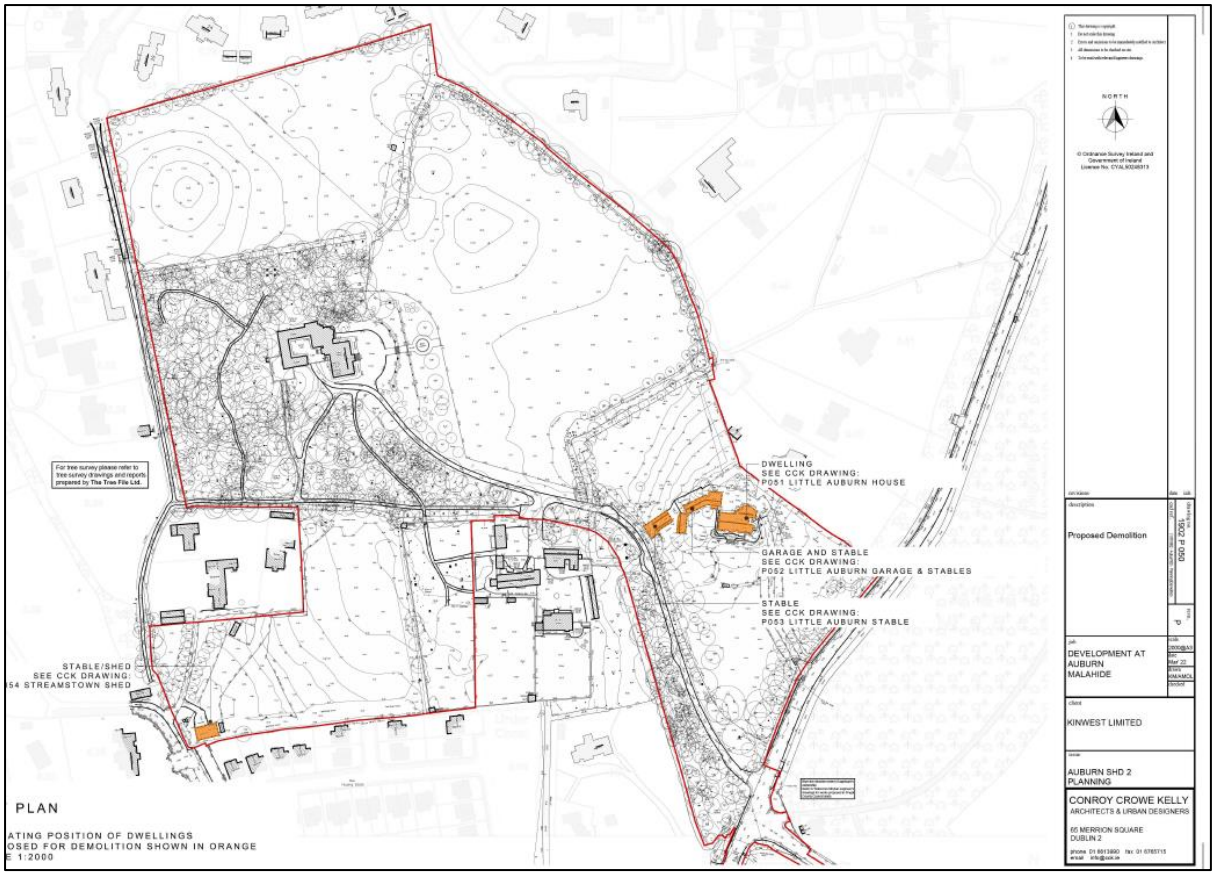


**Fig. 2.5: Proposed Demolition Plan (Source: CCK Architects)**

### 2.4.6 General Layout

The urban design response for the lands at Auburn aims to create a unique residential quarter which responds to the distinct character of its context within Auburn House and its mature woodland backdrop. Legibility and wayfinding have been carefully considered. A route hierarchy was established to distinguish each unique character area of the site. Strong edges have been emphasised along the primary routes and onto key open spaces. New pedestrian links are provided for residents within the site which wind their way through existing woodland, across streams and adjacent to old walls and orchard planting in the case of the walled garden. This will create a distinctive character to the site when it can be explored in different ways on foot by its residents. Desire lines through the trees can be followed rather than having to take the footpath adjacent to the road. There are also a number of pedestrian and cyclist friendly “home zone areas” within the site to reduce the dominance of motor vehicles. The design also aims to promote pedestrian links from outside the development by allowing access via the existing gates from the private laneway at the south west corner of the woodland which would provide a more direct cycle and pedestrian route to Malahide Demesne to the south east.

Vistas and views have been carefully considered, particularly within the immediate context of Auburn House. The large central public open space has been located to the east of the house aligned with its front vista as was set out in the now expired Local Area Plan and is a material improvement from that of the previous application on these lands. Higher density apartment and duplex blocks are located along primary entrance routes while the open space to the east of Auburn House is surrounded by lower density courtyard houses which maximise privacy for residents. The creche is located along the main new entrance route to allow for convenient access for parents (at Block 4).

All new public open spaces within the development are overlooked by surrounding homes so that safety of residents is paramount. Within the mature woodland, a pedestrian and running route for residents will be created in tandem with the woodland management plan which will provide a significant new local amenity.

The proposed mix of dwelling types with houses, duplexes and apartments facilitates a variety of future residents ranging from families to young professionals to older people who would like to downsize to an apartment close to the village of Malahide.

Heights within the development and the context of Auburn House and woodland have also been carefully considered. The apartment blocks in the Back Field at 3-4 storeys plus penthouse will be largely hidden from view by the existing mature woodland behind Auburn. Predominantly two storey housing has been located to the western, northern and eastern edges of the development and heights step towards the centre. Two single storey houses are proposed at sensitive points along the northern boundary. Five distinct Character Areas have been defined by the natural context of the site: The Avenue, Auburn House and Woodland, Front Field, Back Field and Streamstown.

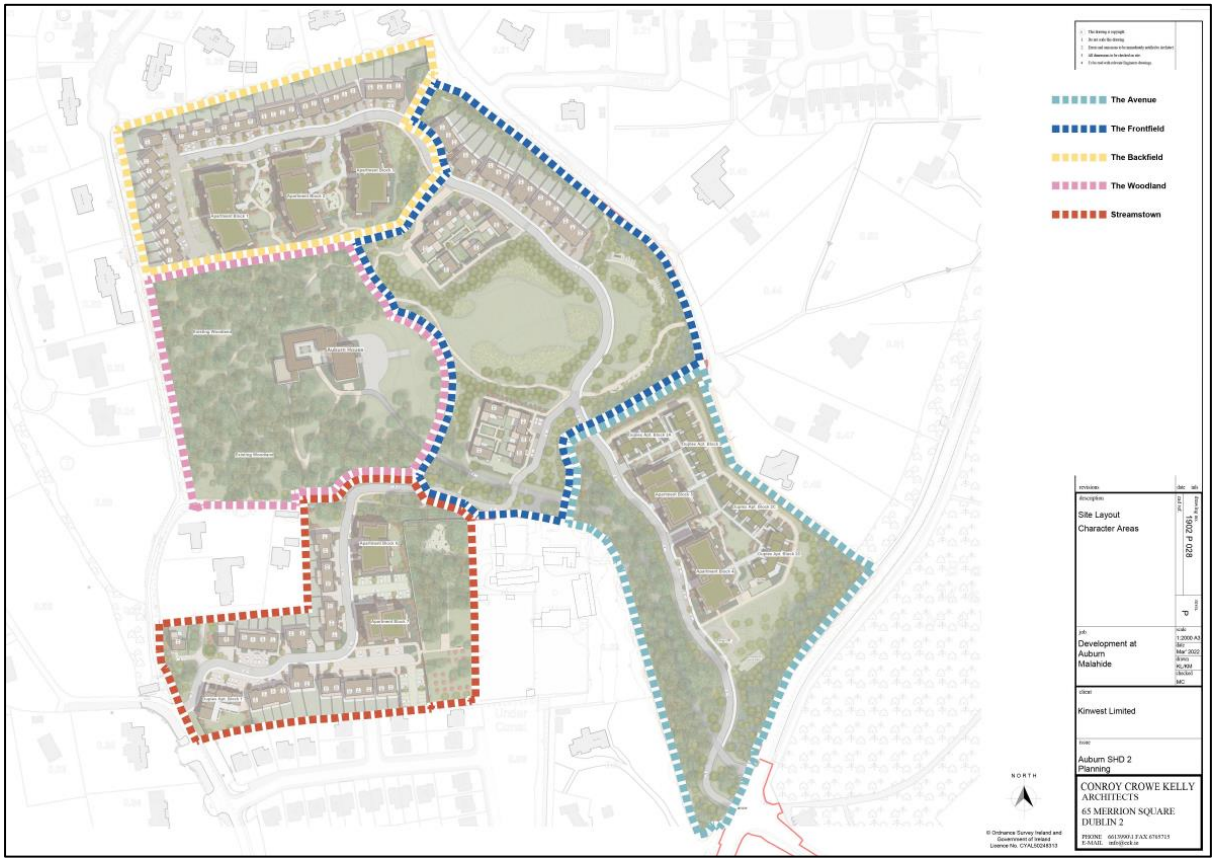


**Fig. 2.6: Proposed Character Areas (Source: CCK Architects)**

### 2.4.7 Building Height and Form

The height of the proposed development will range from 2 storeys to 5 storeys, with the variation in height being supported by the variation in housing types and the different character areas. The designers have also utilised the existing characteristics of the site to determine the appropriate buildings heights and form. The heights being proposed are consistent with local and national planning guidelines, and the Landscape and Visual Impact Assessment, prepared by TBS Landscape Architects

confirms that the proposed development will not result in a significant negative visual impact on the existing environment.


**Fig. 2.7: Building Heights (Source: CCK Architects)**

## 2.4.8 Communal & Public Open Space

There is a range of communal open space areas provided throughout the application site, which shall provide for a total of 6,167 sq.m. of communal open space (1,709 sq.m. required under the Development Plan standards). These are coloured red in Fig. 2.8 below.

A total of 2.846 hectares of public open space (discounting attenuation areas) is also being provided, which exceeds the 1.87 hectares required under Objective DMS 28 of the Development Plan. These are coloured dark green in Fig. 2.8 below.

There is a total of 5 no. communal open space courtyards provided throughout the scheme with a total area of 6,167 sq.m. of communal open space, which exceeds the minimum required set out in the Development Plan (the minimum required is 1,709 sq.m for the proposed scheme). The proposed amenity spaces also benefit from passive surveillance from the proposed residential units and are carefully screened to permit visual transparency between the buildings while maintaining security for residents. Landscape design will play an important role in marrying the external amenity spaces together, and creating visual continuity between sites A and B, and between the accommodation blocks which form the development on both sites.

In addition to the above, each residential unit benefits from the provision of adequately sized private open space in the form of gardens, balconies or patios/terraces (designed in accordance with quantitative and qualitative standards), with the units at ground floor level provided with appropriate boundary treatments to ensure privacy and security whilst also providing visual interest and distinction between spaces. Appropriate separation distances have been provided between buildings to ensure privacy without compromising internal residential amenity of the apartments.

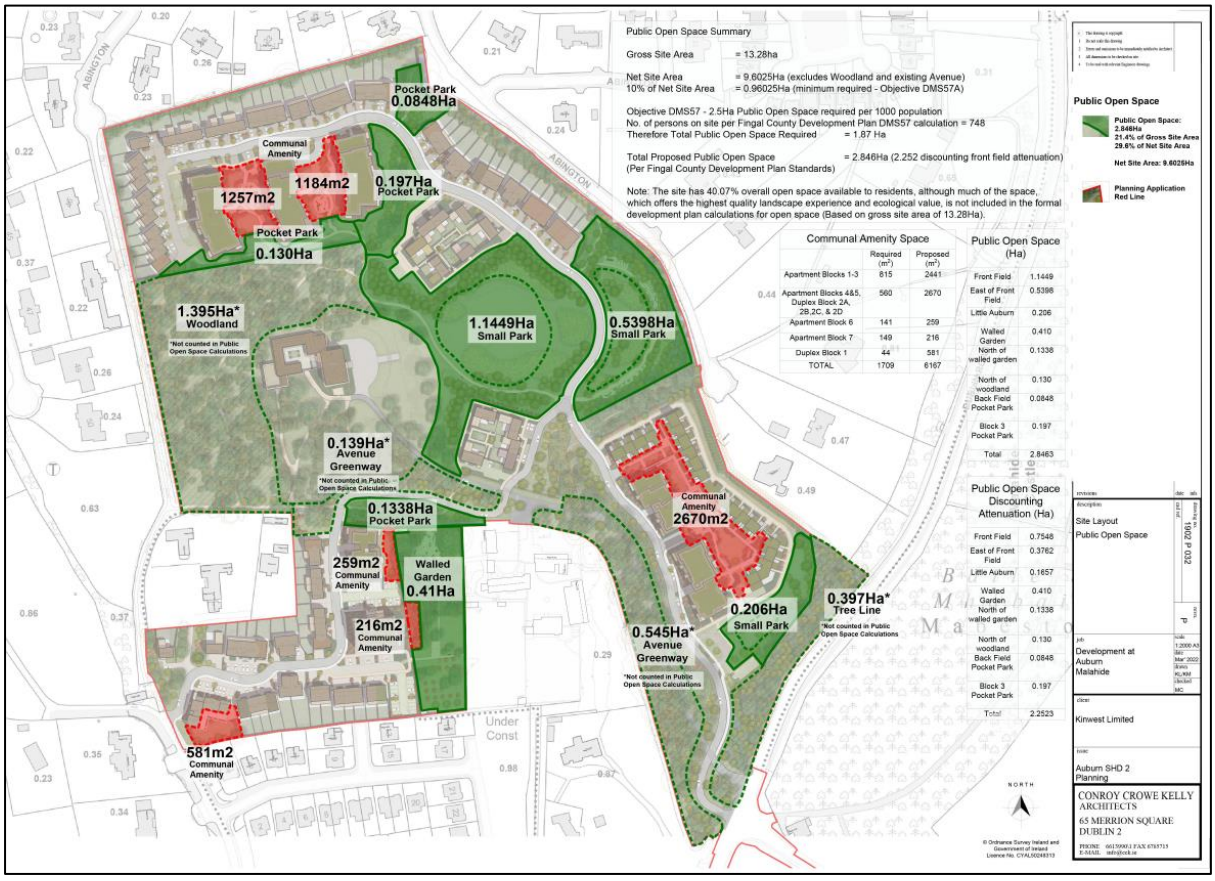


**Fig. 2.8: Open Space Layout (Source: CCK Architects)**

## 2.4.9 Car Parking

It is proposed to provide for a total of 505 no. car parking spaces, across basement, undercroft and surface level, to serve the overall development (i.e. residents, visitors and drop-off). This is below the Development Plan requirement of 593 no. spaces but in line with the requirements of the Design Standards for New Apartments (2020).

Further details of parking travel plan can be found in the TTA and Travel Plan prepared by Waterman-Moylan Consulting Engineers as well as within the Transport chapter of this EIAR.

**Table 2.1 Car Parking Provision (Source: Table 13.11 of Transportation Chapter of EIAR)**

## 2.4.10 Drainage Infrastructure

**Proposed Foul Water**

It is proposed to drain wastewater in a south-easterly direction through a series of 150mm and 225mm sewers to a proposed new pumping station near the site entrance, as shown on Waterman Moylan drawings 19-020-P200 to P203. The wastewater pumping station will have a 24-hour storage tank (169m$^3$ of storage for 369 units) and will be designed in accordance with Irish Water requirements. In order to minimise the risk of odour, noise and vibration nuisance, a buffer zone of 35m is proposed between the pumping station and the nearest property, in accordance with Fingal County Council's Development Plan, Objective WT12. There are no existing buildings proposed within this 35m buffer zone.

Wastewater will be pumped from the development site via Back Road and Kinsealy Lane to outfall via a stand-off manhole to the existing sewer, where it will drain by gravity to the new Chapel Road pumping station (as described in Section 2.2 above) and ultimately to the North Fringe Interceptor Sewer, as per drawing number 19-020-P205. Discussions with Irish Water on this issue have been ongoing: numerous options were investigated, and this is the most favourable strategy to Irish Water. It is a developer led solution to alleviate issues, improve and expand the network and its capacity in the locality. A letter from Irish Water supporting this strategy, dated November 13th, 2020, is included in Appendix B.

A Confirmation of Feasibility and Statement of Design Acceptance have been received from Irish Water for this development and are included in the appendices of Waterman-Moylan's Engineering Assessment Report.

**Proposed Surface Water**

As outlined in Section 3.2 of Waterman Moylan's Engineering Assessment Report, for storm water management purposes, it is proposed to divide the site into six separate sub-catchments It is proposed to incorporate a Storm Water Management Plan through the use of various SuDS techniques to treat and minimise surface water runoff from the site. The project's SuDS checklist has been included in Appendix E. 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 (GDSDS) and in the SuDS Manual. 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 each of the following:

- Source Control
- Site Control
- Regional Control

**Potable Water**

It is proposed to connect to the 12" (c.300mm) watermain in the Malahide Road. The proposed network consists of a 200mm watermain running along the Main Access Road, with a series of 150mm and 100mm branches. As previously stated, A Confirmation of Feasibility and Statement of Design Acceptance have been received from Irish Water for this development and are included in the appendices of Waterman-Moylan's Engineering Assessment Report.

### 2.4.11 Construction & Phasing

Post demolition and site preparation, it is proposed to develop the site across 4 no. phases as outlined in Fig. 2.9 below with the necessary infrastructure being included within Phase 1. It is estimated that it may take up to 48 months to complete the development with up to approximately 125 units being completed per year.

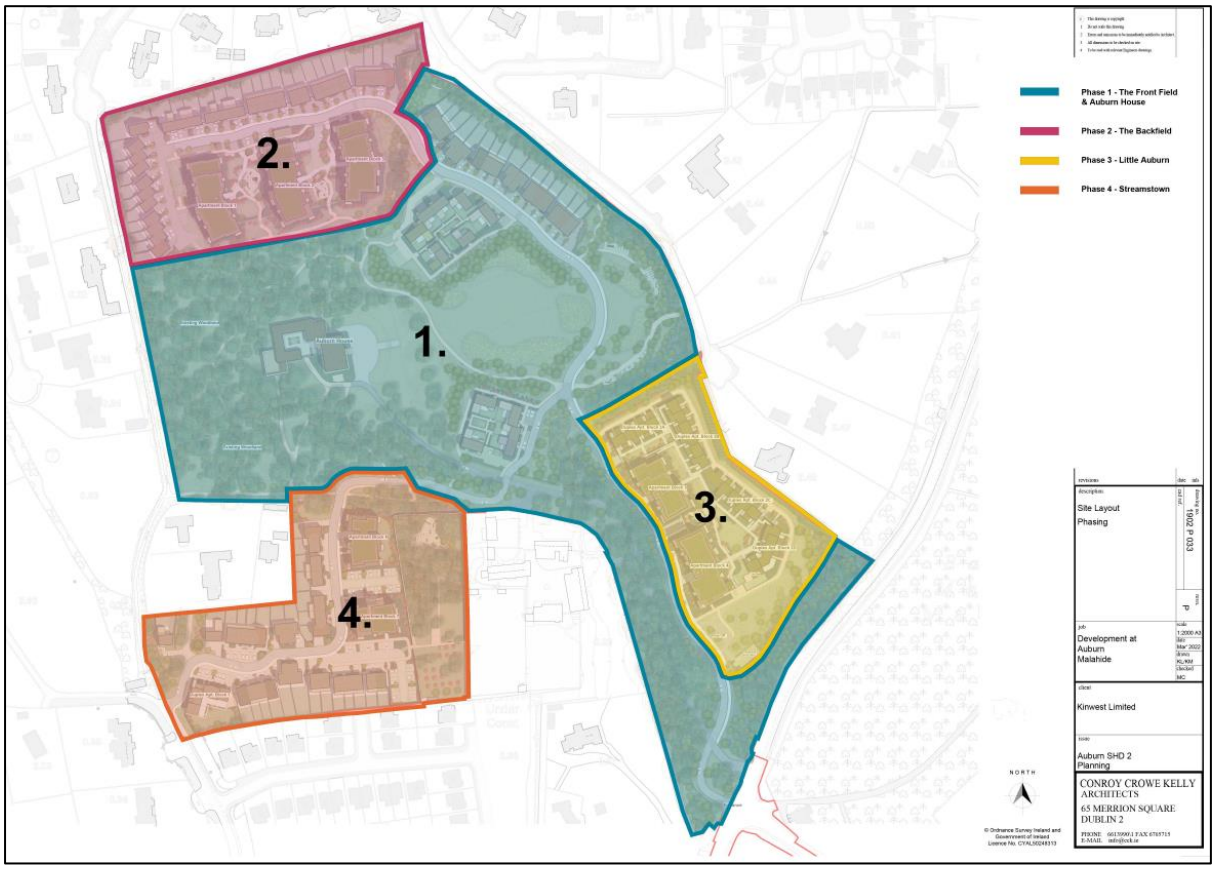


**Fig. 2.9: Phasing of Development (Source: CCK Architects)**

## 2.4.12 Emissions & Waste

Please refer to Chapters 6.0 and 7.0 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. As per the findings included within Chapters 6.0 and 7.0, the area currently has good air and water quality, which shall not be affected by the proposed development.

Demolition figures from the proposed development are not quantified at this point but it is important to note that the demolition works relate to a small number of buildings, comprising 1 no. dwelling (Little Auburn) and some sheds/outbuildings. All waste arising shall be recorded and disposed of under

the supervision of a C&D Waste Manager and in accordance with relevant licenses (details contained within Waterman-Moylan's Preliminary Construction, Demolition & Waste Management Plan).

Waterman-Moylan Consulting Engineers have set out in the table below the anticipated cut & fill volumes associated with the proposed development. The level of topsoil to be created by clearance works is anticipated to be 7,462.4m$^3$ and the overall amount of fill to be imported will be 330 m$^3$.

**19-020** | Auburn, Malahide Road, Co. Dublin
*Cut and Fill Volume Calculations*

General Cut/Fill
*Volume of cut/fill to get to proposed finished level*

| Location | Area | Cut/Fill Volume |
|---|---|---|
| Area 1 | 3,215m² | -385.8m³ |
| Area 2 | 9,970m² | 10,269.1m³ |
| Area 3 | 7,856m² | 7,306.1m³ |
| Area 4 | 3,510m² | 2,878.2m³ |
| Area 5 | 5,508m² | 6,113.9m³ |
| Area 6 | 3,403m² | 3,675.2m³ |
| Area 7 | 4,030m² | 3,546.4m³ |
| Area 8 | 2,042m² | 1,837.8m³ |
| Area 9 | 8,355m² | -668.4m³ |
| Area 10 | 1,904m² | -152.3m³ |
| Area 11 | 831m² | -282.5m³ |
| Area 12 | 2,004m² | 1,362.7m³ |
| Area 13 | 4,414m² | 1,853.9m³ |
| Area 14 | 2,226m² | 400.7m³ |
| Area 15 | 1,665m² | 16.7m³ |
| Area 16 | 2,659m² | -106.4m³ |
| Area 17 | 3,886m² | -1,515.5m³ |
| Area 18 | 1,031m² | -237.1m³ |
| ***Cut Total*** | | ***-3,348.1m³*** |
| ***Fill Total*** | | ***39,260.6m³*** |
| TOTAL | | 35,912.5m³ |

Excavations
*Soil volume cut for foundations, basements, roads and attenuation to be used as fill elsewhere*

| Description | Area | Average Depth | Cut/Fill Volume |
|---|---|---|---|
| Foundations | 13,456m² | -1.00m | -13,456.0m³ |
| Basements | 5,284m² | -3.00m | -15,852.0m³ |
| Attenuation | - | - | -2,997.0m³ |
| | **Cross-sectional area** | **Road length** | **Cut/Fill Volume** |
| Roads & Services | -8.19m² | 1,392m | -11,400.5m³ |
| **Total** | - | - | **-43,705.5m³** |

Topsoil Cuttings
*Depth of topsoil cutting that can't be reused as fill (50% of total site area)*

| Description | Area | Average Depth | Cut/Fill Volume |
|---|---|---|---|
| Topsoil Cutting | 37,312m² | 0.20m | 7,462.4m³ |
| **Total** | - | - | **7,462.4m³** |

Total Cut/Fill
*Sum of the general cut/fill, excavation cuttings and topsoil cuttings*

| Description | Cut/Fill Volume |
|---|---|
| General Fill | 39,260.6m³ |
| General Cut | -3,348.1m³ |
| Excatations | -43,705.5m³ |
| Top Soil | 7,462.4m³ |
| ***Cut Total*** | ***-39,591.2m³*** |
| ***Fill Total*** | ***39,260.6m³*** |
| Total | -330.5m³ |

**Table 2.2 Cut & Fill Volumes (Source: Table 4 of Waterman-Moylan Preliminary Construction and Demolition Waste Management Plan)**

## 2.4.13 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 in accordance with the Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment (2018). In this regard, the Guidelines state the following:

*"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

**Alternative Locations**

Having regard to locations, it is established that the considerations of alternatives in a significant number of cases have already been addressed and decided at strategic planning level during the preparation and adoption of the relevant developments plan pertaining to a specific area (i.e., Fingal County Development Plan 2017-2023). Furthermore, these plans will have been subject to Strategic Environmental Assessment which take 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 Planning note that the lands subject to this application and EIAR are located within the Fingal County Council administrative area and the subject site is zoned 'Objective 'RA' – Residential Area, which seeks "*"Provide for new residential communities subject to the provision of the necessary social and physical infrastructure."*

As this site is zoned for residential development within an established urban area, it was not considered necessary to consider other sites. Furthermore, this is the only site within the control of the applicant and as such no alternative site was available to them for this development.

**Do-Nothing Scenario**

A 'Do Nothing' scenario would not be consistent with the RA land use zoning pertaining to the lands and the objectives of the County Development Plan to facilitate a new residential development on the subject lands as part of a wider development of the Streamstown area. Given the subject site's location within Malahide as well as access to public transport and mobility, failure to these lands would significantly impair the quality of the urban landscape and viability for a mix of sustainable uses and amenities for existing and future residents. As such, it is considered that the 'Do Nothing' scenario is not a suitable alternative option for the subject lands.

Furthermore, to not development these zoned and serviced lands would not be consistent with national planning policy as set out in the National Planning Framework, Regional Spatial Economic Strategy and Urban Development and Building Height Guidelines.

**Alternative Uses**

As previously stated, the subject site is located within the functional area of Fingal County Council. As such, the development of the site is informed by the policies and objectives of the Fingal County Council Development Plan 2017-2023. Under the current County Development Plan, the subject site

is zoned 'Objective 'RA' – Residential Area, which seeks '"*Provide for new residential communities subject to the provision of the necessary social and physical infrastructure.*"

The location of the subject lands within this zoning objective is such that the proposed development is considered permitted in principle uses under the pertaining zoning objective.

An alternative use, such retail or commercial development was not considered in accordance with the land use zoning pertaining to the lands and as such was not considered to be a suitable or reasonable alternative.

**Alternative Process**

An alternative process to that currently proposed was considered relevant to this EIAR as the proposed development is for a residential project in excess of 100 units and therefore the planning application must be lodged to An Bord Pleanála as a Strategic Housing Development under the Planning and Development (Housing) and Residential Tenancies Act 2016.

**Alternative Designs & Layouts**

It must be noted that given the extensive ownership of the applicant of the entire landholding, subject to this project, the existing and planned infrastructure in place, and the zoning of the lands, there were no major alternative uses or processes that were considered reasonable. The alternatives to the proposed development considered during the course of the preparation of this EIAR were related to the overall layout, access arrangement and internal roads pertaining to the proposed scheme.

The design of the proposed project has evolved throughout the pre-application consultation process, and assessment of the decision on the previous application on the site, resulting in alterations to the proposal. The main environmental issues that have most informed the chosen design relate to impact on trees and woodlands, the setting of the protected structure and architectural heritage as well as visual impact. This shall be set out below:

**Alternative 1: Layout from Previous Planning Application (309907-21)**

The previous application on the subject site (ABP Ref. 309907-21), was refused permission by An Bord Pleanála on 15th July 2022, for 2 no. reasons. Prior to lodging that application, the applicant and design team prepared numerous design options for the site before deciding upon that, which was submitted to An Bord Pleanála for consideration. Those options were set out within the previous EIAR submitted within that application and can be considered as alternatives, which were not brought forward for this application, noting the decision from An Bord Pleanála under ABP Ref. 309907-21.


**Fig. 2.10: Previously Proposed Site Plan ABP Ref. 309907-21**

**Alternative 2: Layout for Section 247 Pre-Planning Meeting with Fingal County Council**

The proposal that was submitted for the Section 247 Pre-Planning Meeting had sought to address the reasons for refusal from the previous application (309907-21) and to improve the overall quality of the development. It sought reduced impact on trees and hedgerows as well as removed the previously proposed community use building from the Walled Garden. Furthermore, an apartment block was omitted from the woodland and there were less houses in the front field to the front of Auburn House.

However, this layout, while a significant improvement on the previous proposal, still needed further consideration and design input and so was amended, particularly to assess the access options to the site.


**Fig. 2.11: Site Layout Plan presented to the Planning Authority as part of the 247 Pre-Application Consultation meeting (24th September 2021)**

**Alternative 3: Proposed Layout for Tripartite Pre-Application Consultation An Bord Pleanala**

This alternative had the benefit of further technical consultation with the design team and the Planning Authority to reduce environmental impacts, such as on conservation/built heritage and ecologically sensitive areas. While it was similar to the layout proposed at the Section 247 meeting, it was subject to subtle improvements, such as detailed design of materials and finishes and distances to features and trees. Furthermore, a detailed analysis of the various access options was carried out and submitted to the Board in a stand-alone report and formed part of the alternatives being considered. This proposal was not considered to represent the optimum design solution for the site with the following issues of particular concern:

- Proximity of duplex block to the walled garden.
- Layout of the drop-off for the childcare facility.
- Quantum of trees being retained.
- Finish to Proposed Block 4 at main entrance.


**Fig. 2.12: Site Layout Plan presented to An Bord Pleanala for Tripartite Pre-Application Consultation**

**Justification for Selecting Chosen Layout and Design**

This EIAR has set out the evolution of the design of the scheme and alternatives, which has informed the chosen planning application.

- The chosen application layout represents an efficient use of appropriately zoned and serviced land that is easily accessible in the centre of Malahide and within the metropolitan area of Dublin.
- A high-quality residential development that meets the necessary provision of open spaces and residential amenity has been achieved.
- The layout provides for a variety of housing types and demographic needs that will create a sustainable community.
- It helps to protect the existing tree lined approach to Malahide along the Malahide Road.
- Appropriate building heights have been chosen to protect existing amenities with heights stepping down close to existing residential areas, with apartment blocks 1-3 being reduced from the previous application, ensuring no visual impact on Auburn House.
- The viewshed from the expired LAP has been retained with no buildings being proposed within it.

- The provision of a mix of uses and residential amenity facilities will help to provide for a sustainable community.
- The layout provides for good permeability and legibility.
- The access route chosen has the least impact on the character and setting of the site and is the safest from a traffic and pedestrian perspective – a detailed access report has been prepared under separate cover as part of this application.
- It does not give rise to any significant environmental impacts.
- The chosen layout will provide for a high-quality development that will help to add housing supply in the Malahide and Fingal area.

## 2.5 Consideration of Cumulative Effects with Other Projects

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

As it stands, there are no significant planning permissions in the immediate adjoining areas to the subject site. There are some larger developments permitted further afield, such as on Back Road and Kinsealy Lane to the east of the site. The aforementioned applications have been taken into consideration as part of this EIAR.

Additional planning applications in the wider vicinity of the lands include revisions and alterations to existing buildings or proposals or have since expired. Such applications have no material consideration to the proposed development noting the minor nature of same.

## 2.6 Risk of Major Accidents and/or Disasters

The surrounding environments of the proposed project consists of a mix of residential, recreational and commercial development. There are no SEVESO II Directive sites (96/82/EC & 2003/105/EC) within 1km of the proposed project and 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 have been considered based on a low vulnerability of same. The overall risk is considered to be low.

# 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 proposed project on lands at Auburn House and Little Auburn, off Malahide Road and Carey's Lane, Streamstown, Malahide, Co. Dublin. 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 Census of Population reports and databank, the Regional Spatial and Economic Strategy 2019-2031 and the Fingal County Council Development Plan 2017-2023. Given the nature and scale of the proposed development, it was reasonably considered that in terms of assessing the study area for the population and ED's, that the area within approximately 2km and which would have a reasonable connection with the proposed development. This approach was also taken with the Community and Social Infrastructure Audit and as such provides for greater consistency between that report and the EIAR.

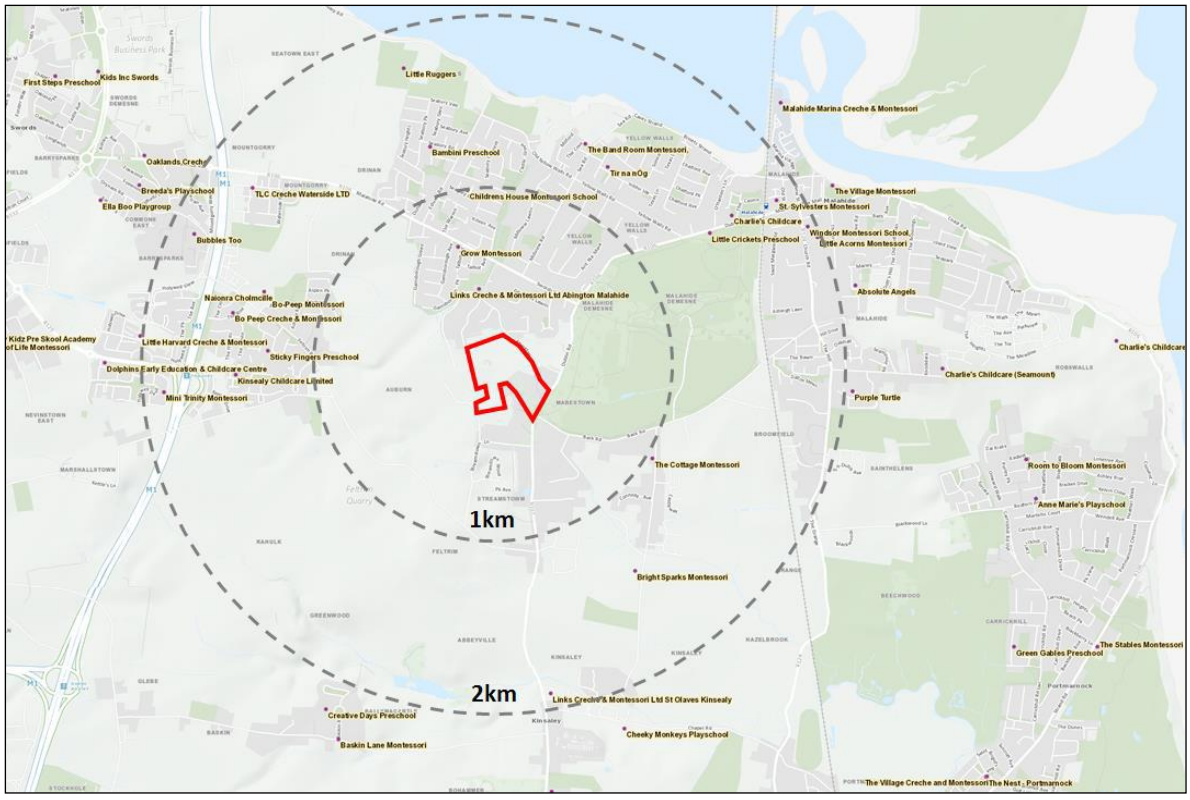


**Fig. 4.1 Proposed Study Catchment Area**

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.

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 from the Fingal County Council Development Plan 2017-2023.

The assessment was also carried out in accordance with the following guidance documents and aligned accordingly based on Downey Planning's professional experience and judgement.

- EPA (2017), *Guidelines on the Information to be Contained in Environmental Impact Statements*.
- EPA (2015), *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements*.

## 4.3 Baseline Environment

The subject site is located on the south western side of Malahide. The lands are bounded by the existing Abington Estate to the north and west, the Malahide Road and rear gardens to the east and undeveloped lands to the south. Access to the site is currently from the existing driveway to Auburn House, which is accessed off the Malahide Road. The lands at Auburn House extend to approximately 13.28 hectares, and are located on the western side of the Malahide Road to the south of Malahide.

The surrounding land uses are generally residential, with Abington being on its northern and western boundary. The lands to the south of Auburn House are subject to a future development proposal that was granted permission under Reg. Ref. F14A/0483; ABP Ref. PL06F.245240. Malahide Castle and Demesne is located on the opposite side of the Malahide Road and can be accessed via Back Road. Malahide village centre is located to the north east of these lands. There is a Dublin Bus service that connects the city centre with Malahide that runs along the Malahide Road, and it is noted that there is a bus stop adjacent to the entrance to Auburn House. The site is located approximately 2km from the Malahide train station, which is in the centre of Malahide. The surrounding built environment is characterised predominantly by residential and recreational land uses with retail, commercial, educational and health land uses located within the centre of Malahide.

## 4.4 Characteristics of the Proposed Development

The proposed development will consist of the preservation and protection of the existing Protected Structure of Auburn House and its stables as 1 no. residential dwelling; the conversion of the existing stables of Auburn House to provide for storage space for the main Auburn House and the construction of 368 no. new residential dwelling units (comprising 87 no. houses, 239 no. apartments & 42 no. duplex units) for an overall total of 369 no. residential units, including Auburn House. The development shall

consist of 135 no. 1-bedroom apartments and duplex apartments, 138 no. 2-bedroom apartments and duplex apartments, 8 no. 3-bedroom apartments and duplex apartments, 47 no. 3-bedroom houses, 34 no. 4-bedroom houses, 6 no. 5-bedroom houses and the existing 11-bedroom Auburn House along with 1 no. childcare facility and 1 no. ancillary resident facility. The proposed development shall also provide landscaped public open space, car parking and all associated ancillary site development infrastructure including foul and surface water drainage, internal roads, cycle paths and footpaths, and boundary walls and fences. Vehicular access to the proposed development is to be via a new entrance at the R107 Malahide Road/Dublin Road entrance, with the existing entrance to Auburn House acting as a pedestrian/cyclist entrance and access to existing properties outside the application site, there will be a secondary entrance comprising modifications of the existing vehicular entrance off Carey's Lane to the south west of the development, the closure of the existing vehicular entrance to Little Auburn, the provision of 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development. The building heights range from 2 storey to 5 storey buildings with balconies or terraces being provided to the apartments and duplex units.

## 4.5 Population

The latest Census results (i.e., 2016) 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 Leinster region, which has experienced a population increase of 5.3% in the 2011-2016 period. In particular, the population growth of Fingal has been strong with a population increase of 8.4% on 2011 levels, which is the highest of all of the Counties in the Greater Dublin Area.

| Area | 2011 | 2016 | % Change 2011-2016 |
|---|---|---|---|
| **Fingal County** | 273,051 | 296,020 | +8.4 |
| **Dublin City** | 525,383 | 554,554 | +5.6 |
| **Dun Laoghaire-Rathdown** | 206,995 | 218,018 | +5.3 |
| **South Dublin** | 265,174 | 278,767 | +5.1 |
| **Dublin** | 1,270,603 | 1,347,359 | +6.04 |
| **Co. Kildare** | 209,995 | 222,504 | +6.0 |
| **Co. Wicklow** | 136,448 | 142,425 | +4.4 |
| **Co. Meath** | 184,034 | 195,044 | +6.0 |
| **Leinster** | 2,501,208 | 2,633,311 | +5.3 |
| **State** | 4,581,269 | 4,761,865 | +3.9 |

**Table 4.1 Population Trends 2011-2016**

The constituency of Howth-Malahide (LEA-7), within which the subject site is located, covering the areas of Howth, Baldoyle, Sutton, Portmarnock and Malahide, showed a population of 56,139 persons in the 2016 Census. It is noted that LEA-7 was established in 2019 and is a change from the previous LEA-8, which also included land between the M1 motorway and Dublin Airport (including part of Swords) and had a population of 59,794 persons.

The proposed development is located within the Kinsaley ED. Table 5.2 below shows the population change within the District Electoral Divisions (DEDs) within the catchment area. In this regard, the 'catchment area' refers to the area surrounding the subject lands which bound the lands and may be affected by the proposed development. Coincidentally, the catchment area also refers to the population which will be served by the proposed scheme – it is worth noting that the proposed The DEDs chosen for the EIAR form the boundary of which the subject lands are located.

| **Area** | **Population** | | **Percentage Change** |
|---|---|---|---|
| | **2011** | **2016** | **2011-2016** |
| Swords-Seatown | 6,539 | 7,003 | +7.1 |
| Malahide West | 6,273 | 6,149 | -1.8 |
| Malahide East | 6,879 | 7,429 | +8.0 |
| Kinsaley | 8,475 | 9,621 | +13.5 |
| *Catchment Area Total* | *28,166* | *30,202* | *+7.2* |

**Table 4.2 Population within the Electoral Divisions (EDs) of the catchment study (Source: CSO)**

| **Area** | **Average Age (years)** | | **Average Change** |
|---|---|---|---|
| | **2011** | **2016** | **2011-2016** |
| Swords-Seatown | 32 | 34.1 | +2.1 |
| Malahide West | 38.5 | 40.5 | +2.0 |
| Malahide East | 38.5 | 39 | +0.5 |
| Kinsaley | 31.3 | 32.2 | +0.9 |
| *Catchment Area Total* | *35.08* | *36.45* | *+1.37* |

**Table 4.3 Average age within the Study area (Source: CSO)**

CSO 2016 statistics indicate that the average age for the study area has increased slightly since the last census period (2011). However, while the average age has increased, it is still lower than the national average of 37.4.

The factors outlined above have a knock-on implication on the provision of housing and its associated required facilities to cater for this increase in population within the local area. The factors above would

indicate that with a relatively small household size and an average age in the house-buying age, that there would be a need for the proposed development within this area.

### 4.5.1 Potential Impact of the Proposed Development

#### 4.5.1.1 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.

#### 4.5.1.2 Operational Phase

The operational phase of the proposed development will result in the provision of 368 no. new residential units. The average household size in Dublin is currently 2.48 persons, which is based on the 2016 census of population and for the development's catchment area it is 2.9 persons. Based on this figure, it is anticipated that the proposed development could accommodate between 913- – 1,067 persons.

### 4.5.2 Remedial and Reductive Measures

No remedial or reductive measures are proposed with reference to population.

### 4.5.3 Predicted Impact of the Proposed Development

#### *4.5.3.1 Construction Phase*

The construction phase of the development will have a negligible or neutral impact on population.

#### 4.5.3.2 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.

### 4.5.4 Monitoring

There is no requirement for population monitoring.

## 4.6 Employment

CSO 2016 Statistics noted the State employment level of 2,006,641 and an unemployment level of 297,396. The employment level is up 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. Fingal, Dublin and Leinster as a whole

experienced an increase in employment between the period of 2011-2016, although the immediate catchment area of this development saw a decrease in employment as per Census 2016 data seen below (Table 4.4).

| Change in Employment Between 2011-2016 | | |
|---|---|---|
| **Area** | **2011** | **2016** |
| Catchment area | 15,531 (70%) | 14,420 (62%) |
| Fingal | 106,534 | 133,971 |
| Dublin | 540,729 | 614,776 |
| Leinster | 1,009,942 | 1,138,817 |
| State | 1,807,360 | 2,006,641 |

**Table 4.4 – Total Number of Persons 15+ at work in Fingal, Dublin, Leinster and the State 2011—2016 (Source: Census 2016)**

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 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 aged 15-64.

| | 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 | - |

**Table 4.5 – Summary of Labour Force Survey Q3, 2021 (Source: CSO StatBank)**

There were 149,100 unemployed persons aged 15-74 years 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 Authority. According to the preliminary Construction and Demolition Waste Management Plan, prepared by Waterman-Moylan Consulting Engineers submitted with the application, it is anticipated that between 150-240 people would be employed on the construction of the proposed development. 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 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

The subject lands are located in Malahide which is within the functional area of Fingal County Council. Under the current Fingal County Council Development Plan, the subject 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."*

Under the RA zoning, residential and childcare uses are permitted in principle. Therefore, the proposed development of 368 no. new residential units and 1 no. childcare facility are permitted in principle under the zoning objectives pertaining to the subject lands.

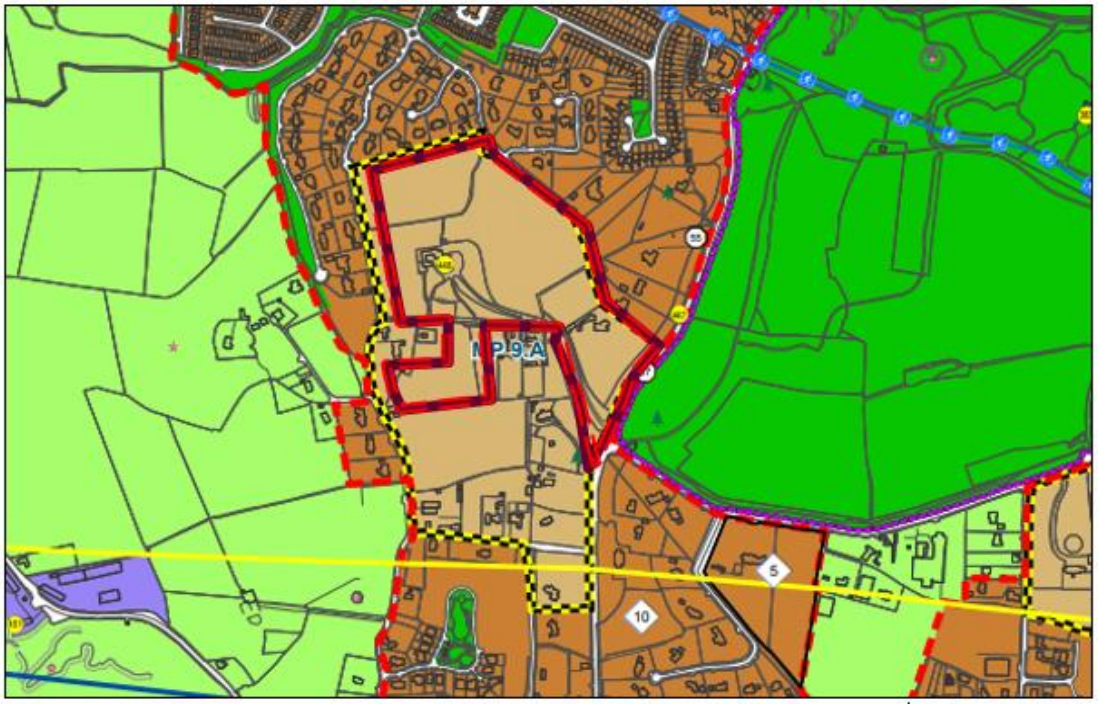


**Fig. 4.2: Fingal County Council Development Plan 2017-2023 zoning map, with the associated zoning objectives (site highlighted in red).**

The surrounding built environment is characterised by mixed-use commercial and residential developments, and the wider area comprises of residential development with a mix of house types all of which have resulted in varying building heights and forms within the area.

According to the CSO census, the size of households within the catchment area averages at 2.9 persons, which is in line with Fingal as a whole. This has been stable between the inter-censal periods of 2011-2016. This is slightly higher than the national average, which was 2.7 persons in the 2016 census.

| Area | Average Household Size | | Change |
|---|---|---|---|
| | 2011 | 2016 | 2011-2016 |
| Swords-Seatown | 3.1 | 3.1 | 0 |
| Malahide West | 2.9 | 2.9 | 0 |
| Malahide East | 2.7 | 2.7 | 0 |
| Kinsaley | 2.6 | 2.9 | +0.3 |
| *Catchment Area Average* | *2.8* | *2.9* | *+0.1* |

**Table 4.6 – Average Household Size (Source: CSO)**

The proposed new buildings will provide new services for Malahide, most notably the provision of residential and childcare space. The subject lands are serviced by sufficient public transport and road capacity to accommodate the new community, which is in keeping with the land use zoning objective.

Therefore, it is submitted that the proposed Project would be appropriate for its context, ensuring there is sufficient population to sustain community and social infrastructure in the area.

### 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 (with the exception of the existing dwelling of 'Little Auburn', which is to be demolished), to use as a temporary active construction site. The site is considered suitable for construction activities to provide a development that will cater for a portion of Malahide's planned population growth through the 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 majority of the site from a current greenfield site, which has no current activity (with the exception of the existing dwelling of 'Little Auburn', which is to be demolished to residential development. The total proposed net development area comprises c.9.879 hectares. 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 predominantly undeveloped land to residential land-use, this change is consistent with the zoning objectives for the lands as per the 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 is 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 infrastructure and facilities including community centres and halls, libraries and cultural facilities, religious buildings and burial grounds, sporting facilities, health facilities, childcare and educational facilities, and open space and recreational facilities. 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 Planning, which forms part of the planning application documentation.

***Community***

There is a full range of community infrastructure in Malahide and the wider surrounding environs including schools, churches, library services and health services. The application site is located within 2km of the centre of Malahide, which represents the urban core of its surrounding area and is a central settlement in terms of density of population and density/mix of uses. The surrounding urban environment to the north and south of the lands is characterised by low density housing developments. A more commercial, retail, civic, and mixed-use district is located in the centre of Malahide itself. There is also a larger offering of facilities in the nearby County town of Swords.

***Education***

A large number of schools, including several national schools are situated within the catchment area of the application lands. There are seven primary schools and 2 secondary schools situated in within 2km of the subject lands.

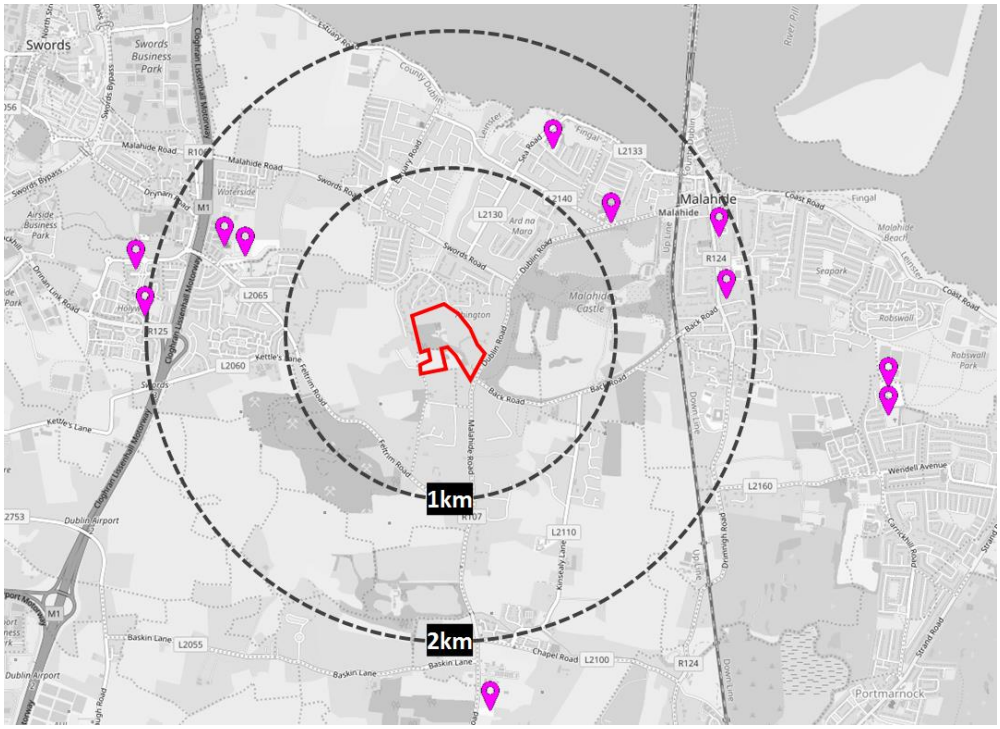


**Fig. 4.3 Location of Primary Schools in the Vicinity of the Subject Site (boundary outlined in red)**


**Fig. 4.4 Location of Secondary Schools in the Vicinity of the Subject Site (boundary outlined in red)**

***Recreation***

There is a great range of indoor recreational facilities within the area surrounding the site, including gyms, a library, leisure and community centres with a variety of classes and sports courts. The closest park to the subject site is Malahide Castle, which is just east of the site and is easily accessible by foot, bicycle and car. The proposed development will also include areas of public open space that will serve

not only the future residential population of said proposed development but also the wider community as it will be accessible via new pedestrian and cycle connections.

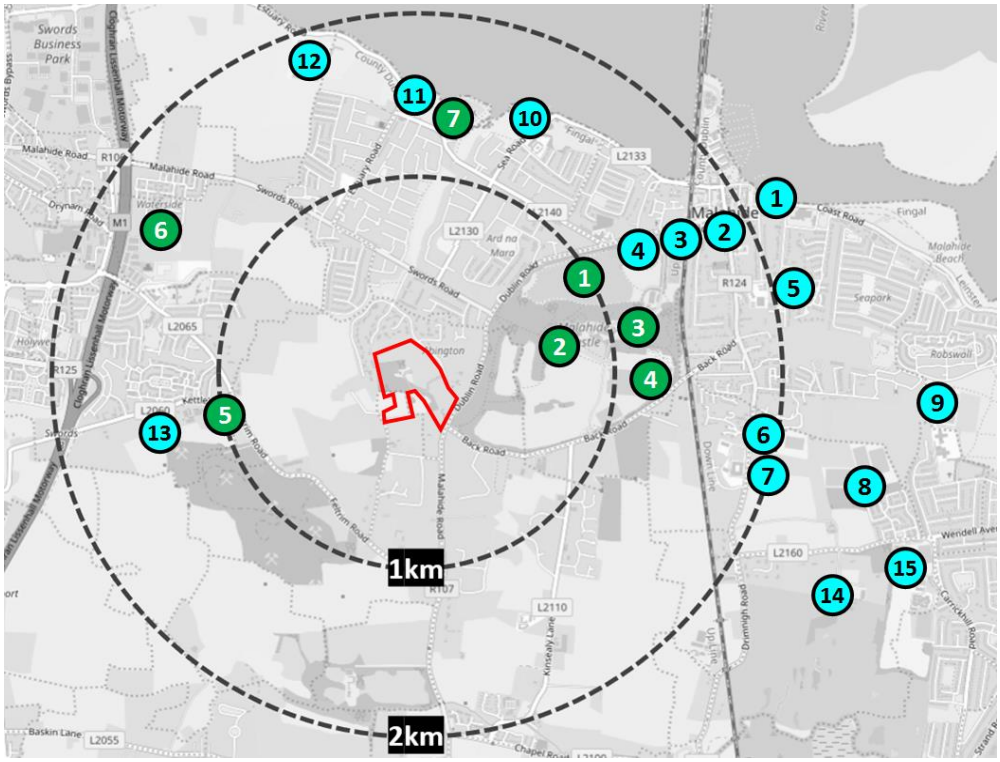


**Fig 4.5 Location of Recreational Facilities in the Vicinity of the Subject Site (boundary outlined in red)**

## 4.8.1 Potential Impact of the Proposed Development

### *4.8.1.1 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. 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 9 which will reduce these impacts to an insignificant level. 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 recreational 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.

### 4.8.1.2 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 Malahide 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 13.0 Transportation.

The resident community will benefit from the additional passive amenity areas, to be provided as part of the proposed development. There are several areas of open space 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.

### 4.8.2 Remedial and Reductive Measures

#### 4.8.2.1 Construction Phase

Measures to mitigate potential impacts arising from the construction phase of the proposed development such as noise are set out in relevant chapters of this EIAR.

#### 4.8.2.2 Operational Phase

The proposed development will have a positive impact on the local community and will positively contribute to the vitality and viability of the local area, as well as passive amenity and open space provision.

### 4.8.3 Predicted Impact of the Proposed Development

#### *4.8.3.1 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.

#### 4.8.3.2 Operational Phase

The predicted impact is the same as that set out under the potential impacts of the operation phase of the development.

### 4.8.4 Monitoring

There is no requirement for community monitoring.

## 4.9 Human Health

The subject lands are located at Auburn House, Little Auburn and adjoining lands, Malahide, Co. Dublin. The surrounding built environment is predominantly characterised by residential development with a mix of house types which have resulted in varying building heights and forms within the area. Malahide Castle is also located on the opposite side of Malahide Road to the subject site and offers significant recreational facilities. Given the sites proximity to Malahide's town centre, there is also commercial activity in the area. As a result, there is both a resident and working population in the

immediate vicinity of the proposed Project. Human health is therefore a key consideration for assessment.

The proposed development will provide for the development of the subject lands and provide a residential development that will be integrated with the surrounding area. The proposed development will make a positive contribution to the existing community by creating new places and 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 development Auburn 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.

### 4.9.1 Potential Impact of the Proposed Development

#### *4.9.1.1 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 Chapter 8.0 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.

#### 4.9.1.2 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 Malahide area generated by the predicted population increase are set out in detail in 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.

### 4.9.2 Remedial and Reductive Measures

#### *4.9.2.1 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.

#### 4.9.2.2 Operational Phase

No mitigation measures are required in respect of human health during the operational phase of the development.

### 4.9.3 Predicted Impact of the Proposed Development

#### *4.9.3.1 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.

#### 4.9.3.2 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 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 Auburn 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 development.

## 4.10 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 project. Conditions will be attached to any grant of planning permission to ensure 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.

## 4.11 Reinstatement

No reinstatement will be required specifically for population and human health.

## 4.12 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 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.

## 4.13 Difficulties Encountered in Compiling

Overall, no difficulties were encountered in compiling this chapter.

## 4.14 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 Malahide and surrounding environment.

## 4.15 'Do-Nothing' Impact

A 'do-nothing' scenario is not considered appropriate as the lands are currently zoned for residential development under the Fingal County Development Plan 2017-2023. However, if a do-nothing scenario were to occur, the lands would not be developed and therefore would be no 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.

## 4.16 References


- Central Statistics Office [CSO] (Census data results and analysis from 2011 and 2016)
- Economic and Social Research Institute [ESRI] (data results and analysis)
- Eastern & Regional Assembly (2019), *Regional Spatial and Economic Strategy 2019-2031*
- Fingal County Council, *Fingal County Council Development Plan 2017-2023*
- CSO (2021). *Quarterly Labour Force Survey Q3 2021.*

# 5.0 BIODIVERSITY

## 5.1 Introduction

Pádraic Fogarty of OPENFIELD Ecological Services 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 (EcIA) in Ireland. OPENFIELD is a full member of the Institute of Environmental Management and Assessment (IEMA).

Under Article 6(3) of the Habitats Directive an 'appropriate assessment' (AA) of projects must be carried out to determine if significant effects are likely to arise to Natura 2000 sites. This assessment is carried out by the competent authority, in this case An Bord Pleanála. It must first carry out a screening exercise to determine whether significant effects are likely to occur to these protected areas in light of their conservation objectives. An AA screening report is provided as a separate document in order to provide the Planning Authority with the necessary information to conduct this screening exercise. This concluded that significant effects to Natura 2000 sites could not be ruled out. Therefore, a separate Natura Impact Statement is provided to allow the planning authority to carry out the Appropriate Assessment, and which contains mitigation measures to ensure that negative impacts to the integrity of Natura 2000 sites do not arise.

## 5.2 Research Methodology

The assessment was carried out in accordance with the following best practice methodology: 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' by the Chartered Institute of Ecology and Environmental Management (IEEM, 2018).

Site visits were carried out on the 15th of May and the 25th of June 2019 and the 11th of February, 27th of August 2020 and January 26th 2022. 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 purpose of the site surveys was to identify and map habitats as well as identify the presence, or potential presence, or rare, threatened or protected species. Additional site surveys were carried out in 2021 specifically for Badgers and bats.

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).

May, June and August lie within the optimal survey period for general habitat surveys (Smith et al., 2010). It is within the optimal period for assessing breeding birds. February lies within the optimal season for surveying mammals and amphibians. It was possible to classify all habitats on the site to Fossitt level 3. Separate studies were carried out for bats and Badgers during the optimal periods by Brian Keeley of Wildlife Surveys Ireland. This is presented as a separate report.

## 5.3 Existing Receiving Environment

### 5.3.1 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. A slightly larger area than this is shown in figure 5.1 while the development site red line boundary is shown in figure 5.2.

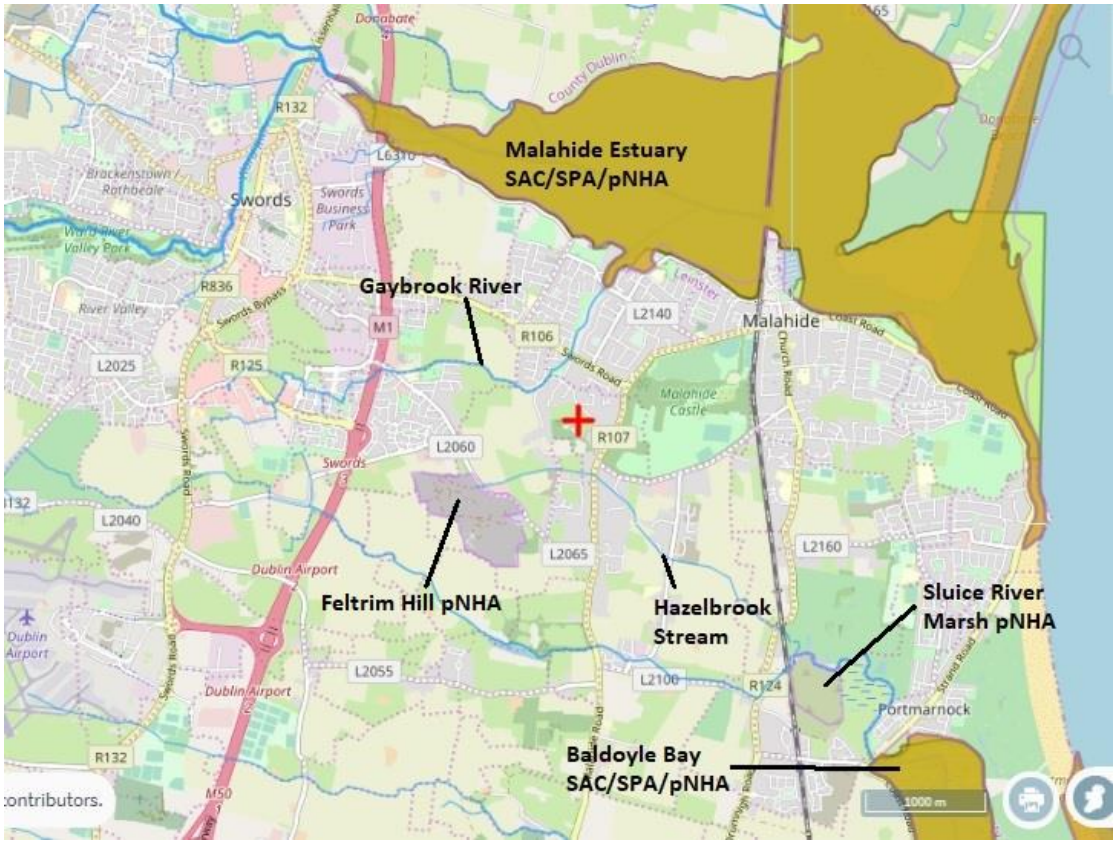


Figure 5.1 – Approximate 2km radius of proposed site showing boundaries of areas designated for biodiversity conservation

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) and Baldoyle Estuaries (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 is 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).

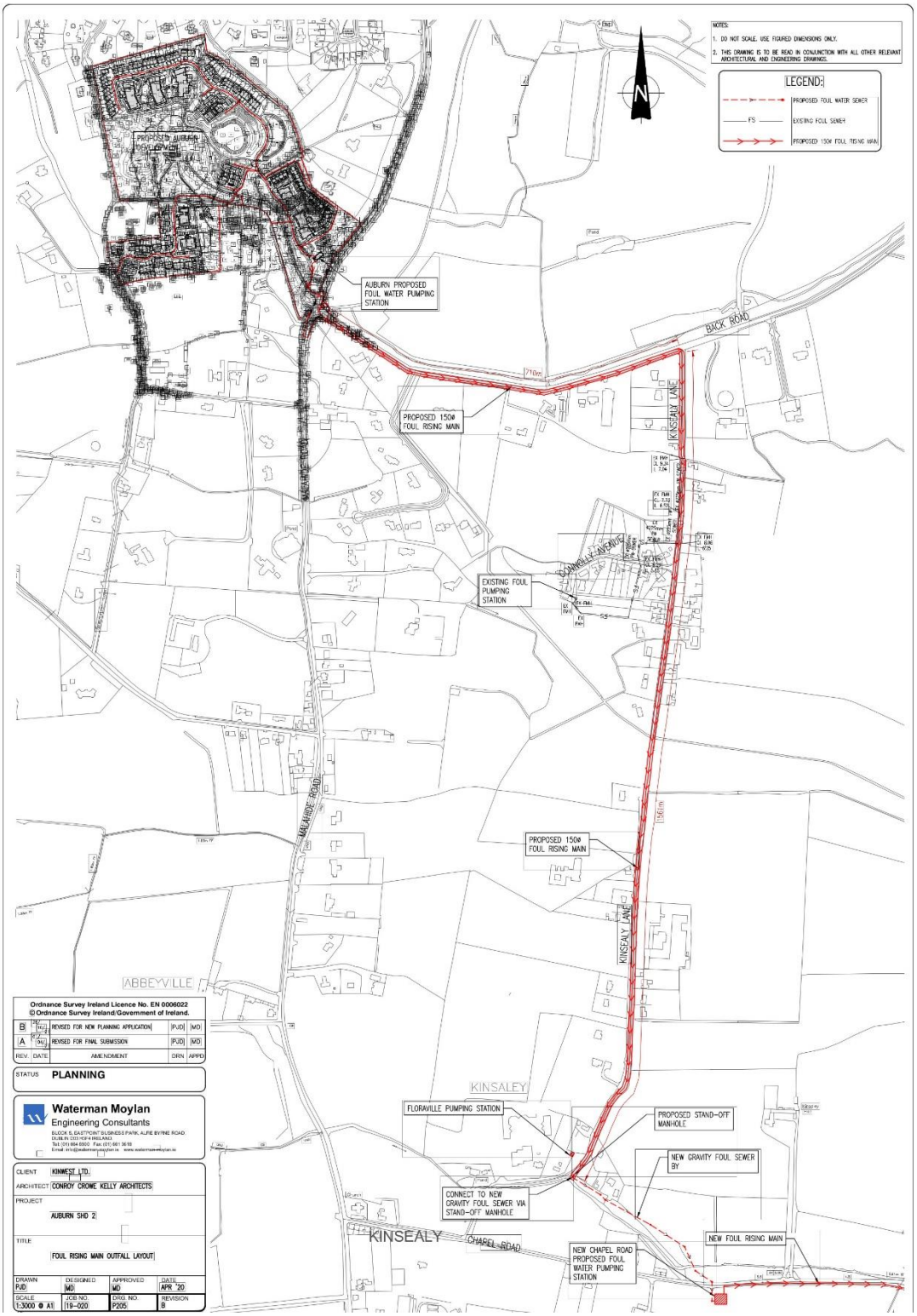


Figure 5.2 – Full extent of the development site red line boundary including new sewer line along Back Road and Kinsealy Lane

**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).

As such they are covered under Article 6 of the Habitats Directive which ensures that developments to not result in adverse effects when measured against their 'conservation objectives'. These issues are fully assessed in the screening report for Appropriate Assessment and Natura Impact Statement which are presented separately.

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 Ammophila arenaria ('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 |

- 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] |
|---|---|
| *Anas acuta* Pintail | Amber (Wintering) |
| *Branta bernicula hrota*<br>Light-bellied brent goose | Amber (Wintering) |
| *Bucephala clangula* Goldeneye | Red (Wintering) |
| *Calidris alpina* Dunlin | Red (Breeding & Wintering) |
| *Calidris canutus* Knot | Red (Wintering) |
| *Haematopus ostralegus* Oystercatcher | Red (Breeding & Wintering) |
| *Limosa lapponica* Bar-tailed godwit | Red (Wintering) |
| *Limosa limosa* Black-tailed godwit | Red (Wintering) |
| *Mergus serrator* Red-breasted Merganser | Amber (Breeding & Wintering) |
| *Pluvialis apricaria* Golden Plover | Red (Breeding & Wintering) |
| *Pluvialis squatarola* Grey Plover | Red (Wintering) |

[1] Birds of Conservation Concern in Ireland. Gilbert et al., 2021

| | |
|---|---|
| *Podiceps cristatus* Great-crested Grebe | Amber (Breeding & Wintering) |
| *Tadorna tadorna* Shelduck | Amber (Breeding & Wintering) |
| *Tringa totanus* 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 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 4 details these.

**Table 5.4 – Features of Interest for the Baldoyle Bay SPA (from NPWS)**

| Species | | Status2 |
|---|---|---|
| *Branta bernicula* | Light-bellied brent goose | Amber (Wintering) |
| *Charadrius hiaticula* | Ringed plover | Amber (Breeding & Wintering) |
| *Limosa lapponica* | Bar-tailed godwit | Red (Wintering) |
| *Pluvialis apricaria* | Golden plover | Red (Breeding & Wintering) |
| *Pluvialis squatarola* | Grey plover | Red (Wintering) |
| *Tadorna tadorna* | 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 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.

[2] Birds of Conservation Concern in Ireland. Gilbert et al., 2021

- 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.

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 Auburn 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 lists these and their known current status.

**Table 5.5 – Known records of protected species from the O24 square (from www.npws.ie)**

| Species | Habitat[3] [4] | Current status[5] |
|---|---|---|
| *Centaurium pulchellum*<br>Lesser Centaury | Sandhills, dune-slacks and margins of brackish lakes | Current |
| *Clinopodium acinos*<br>Basil Thyme | Field margins and sandy or gravelly places | Non-native;<br>Record pre-1970 |
| *Galeopsis angustifolia*<br>Red Hemp-nettle | Calcareous gravels | Records pre-1986 |
| *Hordeum secalinum*<br>Meadow Barley | Upper parts of brackish marshes, chiefly near the sea | Record pre-1970 (O14)<br>Current (O24) |
| *Hypericum hirsutum*<br>Hairy St. John's-wort | Woods and shady places | Current, record from Santry Court |
| *Mertensia maritima*<br>Oysterplant | Shingle shores | Record pre-1970 |
| *Papaver hybridum*<br>Rough Poppy | Sandy fields | Non-native;<br>Record pre-1986 |
| *Puccinellia fasciculata*<br>Borrer's Salt-marsh grass | Muddy inlets on the coast | Current |
| *Saxifraga granulata*<br>Meadow saxifrage | Sandhills and pastures near the east coast | Record pre-1970 |
| *Scleranthus annus*<br>Annual Knawel | Waste places and roadsides on dry, sandy soils | Record pre-1970 |

[3] Parnell et al., 2012
[4] Hayden & Harrington, 2001
[5] Preston et al., 2002

| | | |
|---|---|---|
| *Viola hirta*<br><br>Hairy Violet | Sand dunes, grasslands, limestone rocks | Current, records from Santry Demesne and Feltrim Hill |

As can be seen there are four current records of protected plants in this 10km square.

Water quality in rivers is monitored on an on-going basis by the Environmental Protection Agency (EPA). The Auburn lands are not located within the catchment of any significant water course. Surface drainage pathways lead to Baldoyle Bay to the south via the Hazelbrook Stream. The status of Baldoyle Bay is not assigned under the Water Framework Directive period 2013-2018.

The inner Broadmeadow (Malahide) Estuary is assessed as 'poor' under the 2013-2018. Water Framework Directive reporting period while the outer estuary (Malahide Bay) is assessed as 'moderate'. This is unsatisfactory status and indicates pollution from point or diffuse sources. The Broadmeadow River is the principal source of freshwater entering this estuary.

Small streams in the vicinity of the development site (e.g. the Gaybrook Stream and Hazelbrook Stream) are not assessed under the WFD. Baldoyle Bay is not assessed. These data are taken from www.epa.ie.

### 5.3.2 Site Survey

The development site is located west of the R107 Dublin Road, just south of Malahide in north County Dublin. Habitats are shown as a habitat map in figure 5.2.


**Figure 5.3 – Habitat map of the Auburn site**

### 5.3.2.1 Flora

The site is centred on Auburn House with surrounding lands which are a combination of improved agricultural grassland – GA1 and broadleaved woodland – WD1. Grasslands are grazed by farm animals and are made up of grasses such as Timothy *Phleum pratense*, False Oat *Arrhenatherum elatius*, Sweet Vernal-grass *Anthoxanthum odoratum* and Annual Meadow-grass *Poa annua*. Broad-leaved species include Creeping Thistle *Cirsium arvense*, Mouse-ear *Cerastium fontanum*, Meadow Buttercup *Ranunculus acris* and Docks *Rumex sp*.

Field boundaries are a combination of hedgerows – WL1 and treelines – WL2. Hedgerows are native in origin with Hawthorn *Crataegus monogyna*, Elder *Sambusus nigra*, Holly *Ilex aquilinum*, and Ash *Fraxinus excelsior* along with Honeysuckle *Lonicera periclymenum*, Dog Violet *Viola riviniana*, Vetches *Vicia sp*. and Dog Rose *Rosa canina*. Due to their age, structure and species diversity those hedgerows in the northern part of the site are assessed as of 'higher significance'. Those bordering the field in the south-west are of 'lower significance' due to poor structure and low species diversity. Treelines are highly variable with some dominated by very low biodiversity value conifers, particularly Leyland Cypress *Cuprocyparis leylandii*, while other are mixed but predominantly non-native in composition, with Sitka Spruce *Picea stichensis*, Aspen *Populus tremula*, Beech *Fagus sylvatica*, Horse Chestnut *Aesculus hippocastanum* and Maple *Acer sp*. Patches of the non-native Spanish Bluebell *Hyacinthoides hispanica* and Three-cornered Garlic *Allium triquetrum* are found in these areas and both of these plants are listed as alien invasive on Schedule 3 of SI No. 477 of 2011. Drainage ditches –

FW4 accompany these field boundaries in two locations. These are very small water courses which are not accompanied by wetland flora.

A large area of woodland surrounds Auburn House (buildings and artificial surfaces – BL3). This extends in parallel with the entrance driveway and the roadside treeline boundary. The large trees are mostly non-native, with Beech and Horse Chestnut, and while Oak *Quercus sp*., Elm *Ulmus glabra*, Holly and Yew *Taxus baccata* are also present, however these species form a relatively low component of the woodland overall. Cherry Laurel *Prunus lauroceracus* is also found while this is not listed as alien invasive in legislation, it is considered to be an invasive plant in a native woodland context. Other flora includes abundant Ivy *Hedera helix*, Herb-robert *Geranium robertianum*, Wood Avens *Geum urbanum*, Lords-and-ladies *Arum maculatum* and Wood Dock *Rumex sanguineus*. The woodland is not a semi-natural, native woodland type as described in Fossitt or Annex I of the Habitats Directive. It is predominantly composed of non-native species however broadleaved woodland is rare in Ireland and provides habitat for a range of species which may be important at a local or county level. This habitat is considered to be of high local value.

As well as the above habitats there are a number of scattered trees, particularly near buildings, which are composed of a range of non-native or ornamental species. While some of these have high aesthetic/landscape value, they are of relatively low value for native biodiversity.

The route of the new sewer line along Back Road and Kinsealy Lane is entirely composed of artificial surfaces and follows existing road routes.

#### 5.3.2.2 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 6 details those mammals that are protected under national or international legislation in Ireland. Cells are greyed out where suitable habitat is not present, or species are outside the range of the study area.

Rabbits *Oryctolagus cuniculus* and Grey Squirrel *Sciurus carolinensis* were noted during the survey. Neither is a protected species while the Grey Squirrel is listed as alien invasive under Schedule 3 of SI No. 477 of 2011. There are no suitable habitats for Otter. No evidence of Irish Hare was found although they are recorded from the area and avail of a variety of habitats (Reid et al., 2007). There was no evidence of Badger activity on the lands however a burrow which may have been a sett was noted in the woodland to west of Auburn House There are no records of Badger from this location from the database of the National Biodiversity Data Centre.

Badger surveying was undertaken by Wildlife Surveys Ireland on the following dates: 31st July to 8th August, 8th October and 11th November 2019, October 13$^{th}$ 2021. Surveying involved a number of visits and different levels of assessment. The initial assessment involved a visual examination of a potential sett close to the main avenue of Auburn House accompanied by a motion-activated camera assessment of the sett. This was followed up by a more complete evaluation of the site in October 2019 where the grounds were more thoroughly checked for Badger signs and setts. The final evaluation in November was undertaken to confirm that features noted during other ecological surveys were or were not badger setts and signs. Repeat surveys were undertaken in October 2021 and February 2022. No change in the status of Badgers was observed between the 2019 and 2021 and 2022 surveys.

The Badger report concluded that:

A number of minor badger setts were noted close to Auburn House including close to the main driveway and within the woodland behind the house. Two possible setts were present close to the house. A possible sett monitored with a motion activated camera for any evidence of badger entry or emergence for one week in summer 2019 was deemed to be unused at this time. The sett (or burrow, if not established by badgers) was not active in 2021 based on an examination of the entrances for fresh digging, paw prints etc. There was no evidence of usage in February 2022.

There were two very minor badger setts within the woodland showing limited historical usage based on how overgrown the setts were and how undeveloped the entrances were. A larger sett was noted within the wood close to the northwestern corner. This sett is very close to a meeting place for night-time human activity and is likely to have been rendered inactive by this disturbance. All setts showed higher levels of abandonment in 2021 than in 2019 and it is probable that no setts were used in the intervening two years.

No setts were active within the grounds of Auburn House or Little Auburn in 2019 or 2021 up to the end of February 2022. No badger latrines or dung pits were noted within the grounds. There were some possible foraging signs, but these were not indisputable and could also be made by foxes or other mammals or birds.

There are a number of trails in the land surrounding the stream south of Auburn House that may be evidence of badgers but again, there were no fresh indications of badgers in either 2019 or 2021 and it is therefore possible that these could be made by other mammals (foxes or dogs).

The badger sett in the northwestern corner of the woods was clearly inactive in 2021 and early 2022 with a deep layer of leaves blocking the entrance and almost obscuring the sett entirely (see sett 1 below).

Badgers are present within the grounds of Malahide Castle, and it is probable that there would be movement between these two areas. However, badgers are not in residence within the grounds of Auburn House.

While limited national data are available on the distribution of Hedgehog, Pygmy Shrew and Irish Stoat, they are considered ubiquitous in the Irish countryside and suitable habitat is available for them (Hayden & Harrington, 2001). All three are protected under the Wildlife Act. Other, non-protected, mammals that are likely to be present include Fox *Vulpes vulpes*, Brown Rat *Rattus norvegicus*, House Mouse *Mus domesticus* and Wood Mouse *Apodemus sylvatica*.

Table 5.6 shows that there are records of, and/or suitable habitat for a variety of bat species within this region. Features on the site are considered to be suitable for roosting bats, particularly in buildings and large trees with obvious cracks etc. (Hundt, 2013). A detector-based bat survey was carried out on 29th May, 27th June, 8th October and 11th November 2019. Repeat surveys were carried out on August 10$^{th}$ and on the night of the 25$^{thT}$/26$^{th}$ 2021. The following species of bat were notedand this text is from the bat report (presented in full separately):

Roosts within Auburn House and Little Auburn

There was one whiskered bat noted within the timbers of the stable building at roof level on 25th to 26th August 2021. A brown long-eared bat was noted returning to the stable buildings prior to sunrise on 11th and

26th August 2021. Common pipistrelle activity around the buildings suggest that this species is also roosting within the buildings, but none were seen to emerge or return during this assessment.

Two soprano pipistrelles were seen within the attic of Auburn House on August 10th, 2021, and a small number of soprano pipistrelles (no greater than three) were seen to return to the house on August 26th, 2021. There were therefore three species confirmed to roost in Auburn House or the stables and a potential for a fourth species (common pipistrelle).

There was a male Leisler's bat calling from a tree (beech tree 712) to the southeast of Auburn House on August 10th, 2021, in addition to calling in flight. This tree is close to the moat. A Leisler's bat was noted to call from trees to the rear of Auburn House along the western to northwestern edge on August 25th, 2021. The exact tree was difficult to pinpoint.

Examination of the outbuildings in the late autumn and winter months provided no obvious signs of resident bats. Hibernating individuals may enter deep into cavities and crevices in buildings and trees and are not easily discovered.

There are numerous roost options within the outbuildings including door frames, window frames, timber joists, wall crevices in addition to the identified roost sites within the attic of the house and in the stable roof where trusses and rafters meet and form tight spaces.

Species of bat noted in 2019 and 2021

Common pipistrelle

This species was present through the site and was noted on all survey occasions. There is the potential for use of the stables by an individual common pipistrelle or of very small numbers of bats based on activity prior to sunrise in 2021. In May 2019, a procession of bats was noted returning to a house neighbouring Little Auburn. This was most probably a maternity roost in 2019.

Soprano pipistrelle

This species was noted through the study but was overall less widespread than Common pipistrelle.

Soprano pipistrelle activity was noted close to Auburn House prior to sunrise on 28th June 2019 (04.58 hours). Soprano pipistrelles were seen in the attic in August 2021 and entering the activity prior to sunrise.

Leisler's bat

This species was noted throughout the site in all surveys. There was high activity southeast of

Auburn House in May (concentrated feeding by a maximum of two individuals within one field) while Leisler's bats were noted to call from two areas of woodland in 2021. One bat called from a dead beech tree (712) on August 10th while another bat (or the same bat) was noted on August 25th to call from trees to the rear of Auburn House (northern edge). This species was noted over pasture as well as from trees within the site. Leisler's bats were noted to fly south or southeast approaching sunrise but did not appear to roost within the site.

Whiskered bat / Myotis

Myotis bat activity was noted on several occasions within the grounds of Auburn House in 2019. Much of this activity was noted south of Auburn House close to the moat and in the orchard. One bat was seen to feed repeatedly at a mature broadleaf tree (a plane tree).

This species was also noted feeding at other trees in the orchard. Sound analysis indicated the presence of Natterer's bat in 2019. On August 25th, 2021, a whiskered bat was visible within the stable buildings and a second whiskered bat was visible flying along the moat during the same night.

This may indicate the presence of both of these species within the site or the sounds analysed in 2019 may have been whiskered bat.

Bat Conservation Ireland notes of whiskered bats: "typically forages along forest tracks or near water. It has a rapid fluttering flight and flies along a regular 'beat' over and over again. It is sometimes found roosting in attics of old buildings but there are very few confirmed roosts in Ireland. It is also sometimes found roosting in crevices under stone bridges and in trees".

Brown long-eared bat

Brown long-eared bats were noted during the two active surveys in August 2021, while a small number of signals were noted by the static monitors within the site in May 2019. During the visual inspection, evidence of brown long-eared bat feeding activity was noted in the attic / loft of the stable buildings in 2021 and 2019. As noted earlier, this species is roosting in very small numbers within the stables.

No bats were noted within the stable buildings in October 2021. Bat droppings were present under the same timbers as noted in August 2021. Most bat droppings were recent but not fresh.

No bats were noted within any areas of stonework examined in October 2021. No evidence of tree occupancy was visible in October 2021 (this was a ground level inspection and would not reveal bat presence if the numbers were very low).

Table 5.6 – Protected mammals in Ireland and their known status within the zone of influence (Harris & Yalden, 2008)6 Those that are greyed out indicate either that suitable habitat is not present or that there are no records of the species from the National Biodiversity Date Centre.

| Species | Level of Protection | Habitat7 |
|---|---|---|
| Otter *Lutra lutra* | Annex II & IV Habitats Directive; Wildlife (Amendment) Act, 2000 | Rivers and wetlands |
| Lesser horseshoe bat *Rhinolophus hipposideros* | | Disused, undisturbed old buildings, caves and mines |

[6] Excludes marine mammals
[7] Harris & Yalden, 2008

| | | |
|---|---|---|
| Grey seal<br>*Halichoerus grypus* | Annex II & V Habitats Directive;<br>Wildlife (Amendment) Act, 2000 | Coastal habitats |
| Common seal<br>*Phocaena phocaena* | | |
| Whiskered bat<br>*Myotis mystacinus* | Annex IV Habitats Directive;<br>Wildlife (Amendment) Act, 2000 | Gardens, parks and riparian habitats |
| Natterer's bat<br>*Myotis nattereri* | | Woodland |
| Leisler's bat<br>*Nyctalus leisleri* | | Open areas roosting in attics |
| Brown long-eared bat *Plecotus auritus* | | Woodland |
| Common pipistrelle<br>*Pipistrellus pipistrellus* | | Farmland, woodland and urban areas |
| Soprano pipistrelle<br>*Pipistrellus pygmaeus* | | Rivers, lakes & riparian woodland |
| Daubenton's bat<br>*Myotis daubentonii* | | Woodlands and bridges associated with open water |
| Nathusius' pipistrelle<br>*Pipistrellus nathusii* | | Parkland, mixed and pine forests, riparian habitats |
| Irish hare<br>*Lepus timidus hibernicus* | Annex V Habitats Directive;<br>Wildlife (Amendment) Act, 2000 | Wide range of habitats |
| Pine Marten<br>*Martes martes* | | Broad-leaved and coniferous forest |
| Hedgehog<br>*Erinaceus europaeus* | Wildlife (Amendment) Act, 2000 | Woodlands and hedgerows |
| Pygmy shrew<br>*Sorex minutus* | | Woodlands, heathland, and wetlands |
| Red squirrel<br>*Sciurus vulgaris* | | Woodlands |

| | | |
|---|---|---|
| Irish stoat<br>*Mustela erminea hibernica* | | Wide range of habitats |
| Badger<br>*Meles meles* | | Farmland, woodland and urban areas |
| Red deer<br>*Cervus elaphus* | | Woodland and open moorland |
| Fallow deer<br>*Dama dama* | | Mixed woodland but feeding in open habitat |
| Sika deer<br>*Cervus nippon* | | Coniferous woodland and adjacent heaths |

Breeding bird surveys were carried out and these attempted to identify all birds nesting on the development site either through direct observation or proxy behaviour, i.e. singing/holding territory or carrying nesting or feeding material. Winter surveys similarly identified all species using the site.

Both May and June lie within the optimal bird breeding season and surveys were complete before midday. The following species were recorded across both surveys: Blackbird *Turdus merula*, Jackdaw *Corvus monedula*, Wood Pigeon *Columba palumbus*, Blue Tit *Parus caeruleus*, Great Tit *P. major*, Robin *Erithacus rubecula*, Treecreeper *Certhia familiaris*, Mistle Thrush *T. viscivorus*, Blackcap *Sylvia atricapilla*, Sparrowhawk *Accipiter nisus*, Buzzard *Buteo buteo* and Wren *Troglodytes troglodytes*. These species are all listed by BirdWatch Ireland as of 'low conservation concern'.

Of those species of high concern (red list) Meadow Pipit *Anthus pratensis*, Grey Wagtail *Motacilla cinerea* and Yellowhammer *Emberiza citrinella* were recorded as breeding in the Dublin area during the 2007-11 Bird Atlas project (Balmer et al., 2013). Grey Wagtail is a bird of riparian habitats and so will not be present on this site. Yellowhammer is strongly associated with arable fields where there is a supply of seeds and so, again, is unlikely to be present in this locality (the neighbouring filed is improved agricultural grassland). Suitable habitat for Meadow Pipit is confined to hedgerow habitats. Submissions for a previous application on this land suggested that Barn Owl *Tyto alba* was nesting in this area (not on the lands themselves). No evidence of Barn Owls was recorded during any of the ecology surveys (including nocturnal bat surveys). Records from the National Biodiversity Data Centre indicated confirmed breeding from this 10km square between 2007-2011. This likely refers to a breeding record from the O24E 2km square containing Portmarnock train station and the Malahide Golf Club and which is south-east of the development lands at Auburn.

During the winter surveys (February 2020 and January 2022) a number of garden and woodland birds were noted. However**,** no wetland or wintering, wading birds were present. The habitats on the development site lands are not suitable for regularly occurring birds which may be associated with the Malahide Estuary or Baldoyle Bay Special Protection Areas. These birds are associated with intertidal habitats while some species

(most notably the Light-bellied Brent Goose) are also associated with inland amenity grassland sites where they feed.

Common Frog *Rana temporaria* and Common Lizard *Lacerta vivipara* are protected under the Wildlife Act 1976. Drainage ditches may be suitable for spawning frogs while the Common Lizard is considered more or less widespread. Smooth Newts *Lissotriton vulgaris* are to be found in Dublin but there are no permanent ponds on this site in which they are likely to be breeding.

The development site does not drain to any river of significant fisheries value, i.e. salmonid status. Drainage ditches have been shown to lead to the Hazelbrook Stream which discharges to Baldoyle Bay. The ditches on the development site are of low fisheries significance and are culverted in a number of locations within the development site as well as under the main R107 Malahide Road. Where the ditches are open, they were found to be slow flowing, with minimal aquatic or semi-aquatic vegetation and with substrates characterised by fine sediment. These habitats are highly modified and are of low value for aquatic biodiversity. They are not suitable for migratory or salmonid fish such as Atlantic Salmon *Salmo salar*, Trout *S. trutta*, Lamprey *Lampetra s*p. or European Eel *Anguilla an*guilla.

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 on intensive farmland or scrub habitats in this part of Dublin. Other protected invertebrates are confined to freshwater and wetland habitats and so will not be present on this site. Other protected invertebrates are not recorded from this 10km square (NPWS, 2013).

### 5.3.5 Overall Evaluation of the Context, Character, Significance and Sensitivity of the Proposed Development Site

In summary it has been seen that the application site is not within any area that has been designated for nature conservation at a national or international level. There are no examples of habitats listed on Annex I of the Habitats Directive or records of rare or protected plants. It is within the hydrological catchment of the Baldoyle Bay, an area of international significance for nature conservation. Spanish Bluebell and Three-cornered Garlic are present and both plants are listed as alien invasive species.

Significance criteria are available from guidance published by the National Roads Authority (NRA, 2009). These are reproduced in table 5.7. From this an evaluation of the various habitats and ecological features on the site has been made and this is shown in table 5.8.

**Table 5.7 Site evaluation scheme taken from NRA guidance 2009**

| Site Rating | Qualifying criteria |
|---|---|
| A - International importance | SAC, SPA or site qualifying as such.<br><br>Sites containing 'best examples' of Annex I priority habitats (Habitats Directive).<br><br>Resident or regularly occurring populations of species listed under Annex II (Habitats Directive); Annex I (Birds Directive); the Bonn or Berne Conventions.<br><br>RAMSAR site; UNESCO biosphere reserve;<br><br>Designated Salmonid water |
| B - National importance | NHA. Statutory Nature Reserves. Refuge for Flora and Fauna. National Park.<br><br>Resident or regularly occurring populations of species listed in the Wildlife Act or Red Data List<br><br>'Viable' examples of habitats listed in Annex I of the Habitats Directive |
| C - County importance | Area of Special Amenity, Tree Protection Orders, high amenity (designated under a County Development Plan)<br><br>Resident or regularly occurring populations (important at a county level, defined as >1% of the county population) of European, Wildlife Act or Red Data Book species<br><br>Sites containing semi-natural habitat types with high biodiversity in a county context, and a high degree of naturalness, or populations of species that are uncommon in the county |
| D - Local importance, higher value | Sites containing semi-natural habitat types with high biodiversity in a county context, and a high degree of naturalness, or populations of species that are uncommon in the locality<br><br>Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value. |
| E - Local importance, lower value | Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;<br><br>Sites or features containing non-native species that are of some importance in maintaining habitat links. |

Table 5.8 Evaluation of the importance of habitats and species on the Auburn site

| | |
|---|---|
| Broadleaved woodland – WD1<br><br>Higher significance hedgerow – WL1 | Local Importance (higher value) |
| Treelines – WL2<br><br>Lower significance hedgerow – WL1<br><br>Drainage ditches – FW4 | Local Importance (lower value) |
| Buildings and artificial surfaces – BL3<br><br>Conifer treeline – WL2<br><br>Improved agricultural grassland – GA1 | Negligible ecological value |

## 5.4 Likely Characteristics of the Proposed Development

The proposed development will consist of the preservation and protection of the existing Protected Structure of Auburn House and its stables as 1 no. residential dwelling; the conversion of the existing stables of Auburn House to provide for storage space for the main Auburn House and the construction of 368 no. new residential dwelling units (comprising 87 no. houses, 239 no. apartments & 42 no. duplex units) for an overall total of 369 no. residential units, including Auburn House. The development shall consist of 135 no. 1-bedroom apartments and duplex apartments, 138 no. 2-bedroom apartments and duplex apartments, 8 no. 3-bedroom apartments and duplex apartments, 47 no. 3-bedroom houses, 34 no. 4-bedroom houses, 6 no. 5-bedroom houses and the existing 11-bedroom Auburn House along with 1 no. childcare facility and 1 no. ancillary resident facility. The proposed development shall also provide landscaped public open space, car parking and all associated ancillary site development infrastructure including foul and surface water drainage, internal roads, cycle paths and footpaths, and boundary walls and fences. Vehicular access to the proposed development is to be via a new entrance at the R107 Malahide Road/Dublin Road entrance, with the existing entrance to Auburn House acting as a pedestrian/cyclist entrance and access to existing properties outside the application site, there will be a secondary entrance comprising modifications of the existing vehicular entrance off Carey's Lane to the south west of the development, the closure of the existing vehicular entrance to Little Auburn, the provision of 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development. The building heights range from 2 storey to 5 storey buildings with balconies or terraces being provided to the apartments and duplex units.

Foul wastewater is to be connected to a mains sewer while surface water will pass to an existing surface sewer. Post-construction the site will be landscaped with a variety of native and non-native trees.


**Figure 5.4 – Proposed site layout and landscaping**

## 5.5 Potential Impact of the Proposed Development

This section describes the likely impacts that can be expected during both the construction and operation phases.

### 5.5.1 Construction Phase

The following potential impacts are likely to occur during the construction phase in the absence of mitigation:

1. Direct habitat loss

The construction phase will involve the removal of improved agricultural grassland habitats. The broadleaved woodland to the west and south of Auburn House is to be retained and enhanced as part of this programme. Treeline boundaries to the south-east as well as the treelines along either side of the entrance avenue, and woodland areas to the west of this, are also to be retained. In total 150m of hedgerow is to be removed and its drainage ditch culverted. 200m of low value (conifer) treeline is also to be removed. Approximately 1km of existing hedgerow and approximately 500m of existing treeline are to be retained and reinforced.

Objective NH27 of the Final County Development Plan 2017-2023 is to:

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

Although no evidence of active Badger activity was recorded, it is important that movement corridors remain open for this species as it is known from the locality. In particularly Badgers may move between agricultural land to the west and the Malahide Demesne to the east (although this area is separated from the development site by a busy road). Corridors for movement of Badgers are being retained in the development layout.

According to the arboricultural report prepared by The Tree File, there are 1,347 individual trees, among which: 1 is Category 'A' (high quality), 472 are Category 'B' (fair quality), 698 are Category 'C' (poor quality) and 176 are Category 'U' (unsuitable for retention). The Category 'A' tree is to be retained as part of the development. Trees to be removed due to condition or conflict with the scheme design include 52 Category 'B' trees, 56 Category 'C' trees and 122 Category 'U' tree. Note that not all Category 'U' trees are being removed, as is normally the case in developments of this nature. In woodland areas where these trees pose no health and safety risk, and where they provide an important ecological component for invertebrates and fungi, they are to be retained.

These are predominantly non-native species, particularly Sycamore, Cypress *Cuprocyparis sp*. and other non-native conifers, Beech *Fagus sylvatica* and Horse Chestnut *Aesculus hippocastanum*. Relatively few are native species, among which Ash (many of which are affected by Ash Dieback) and Wych Elm (which are all affected by Dutch Elm Disease) form by far the greatest element.

The short-term loss of habitat will affect species which are common and widespread. Apart from bats, which are assessed separately, this will not affect any species which is rare or threatened or otherwise of high conservation concern.

This impact is negative, moderate, likely and medium-term.

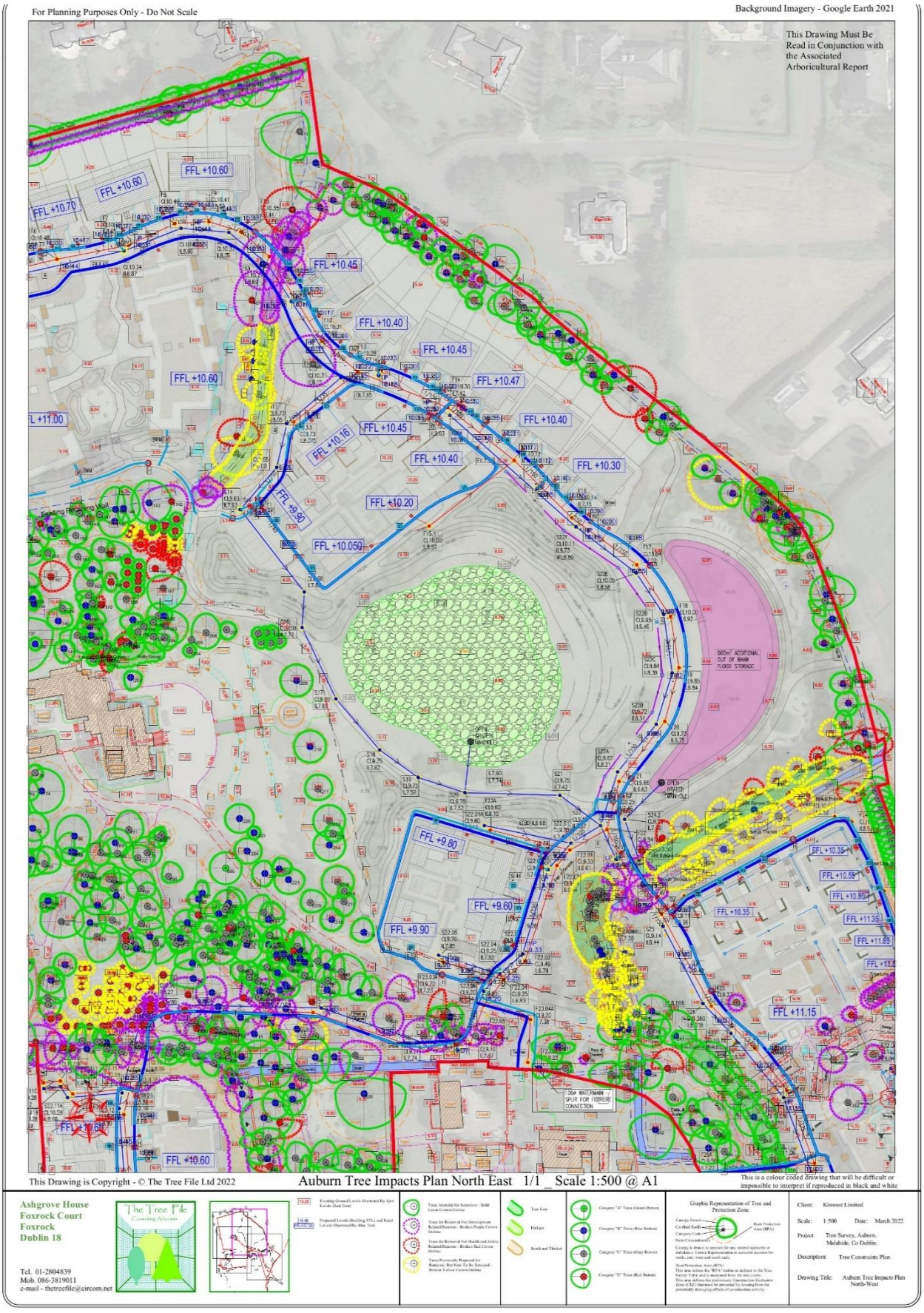


**Figure 5.4 – Trees to be retained and trees to be removed: North East**

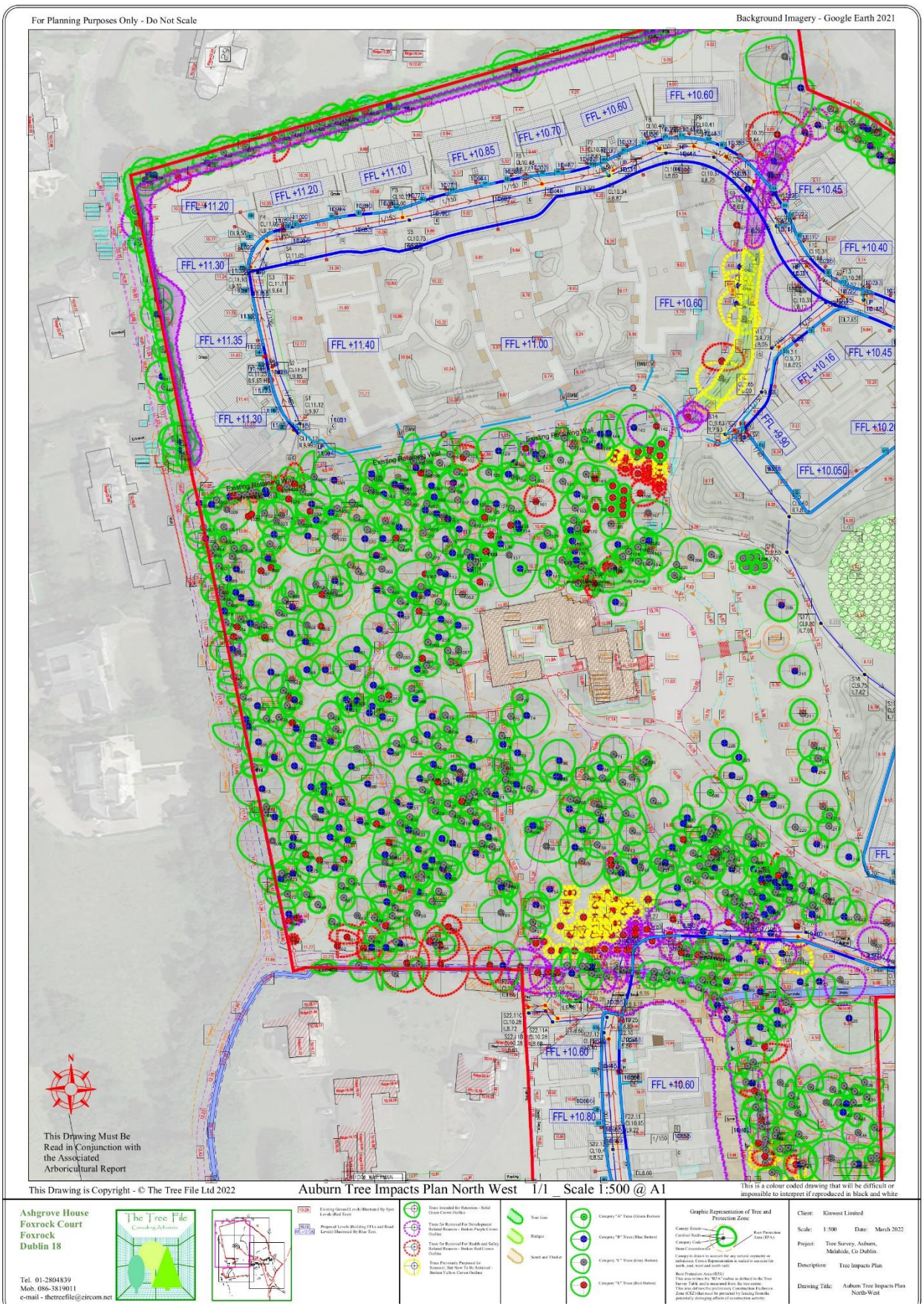


**Figure 5.5 – Trees to be retained and trees to be removed: North West**

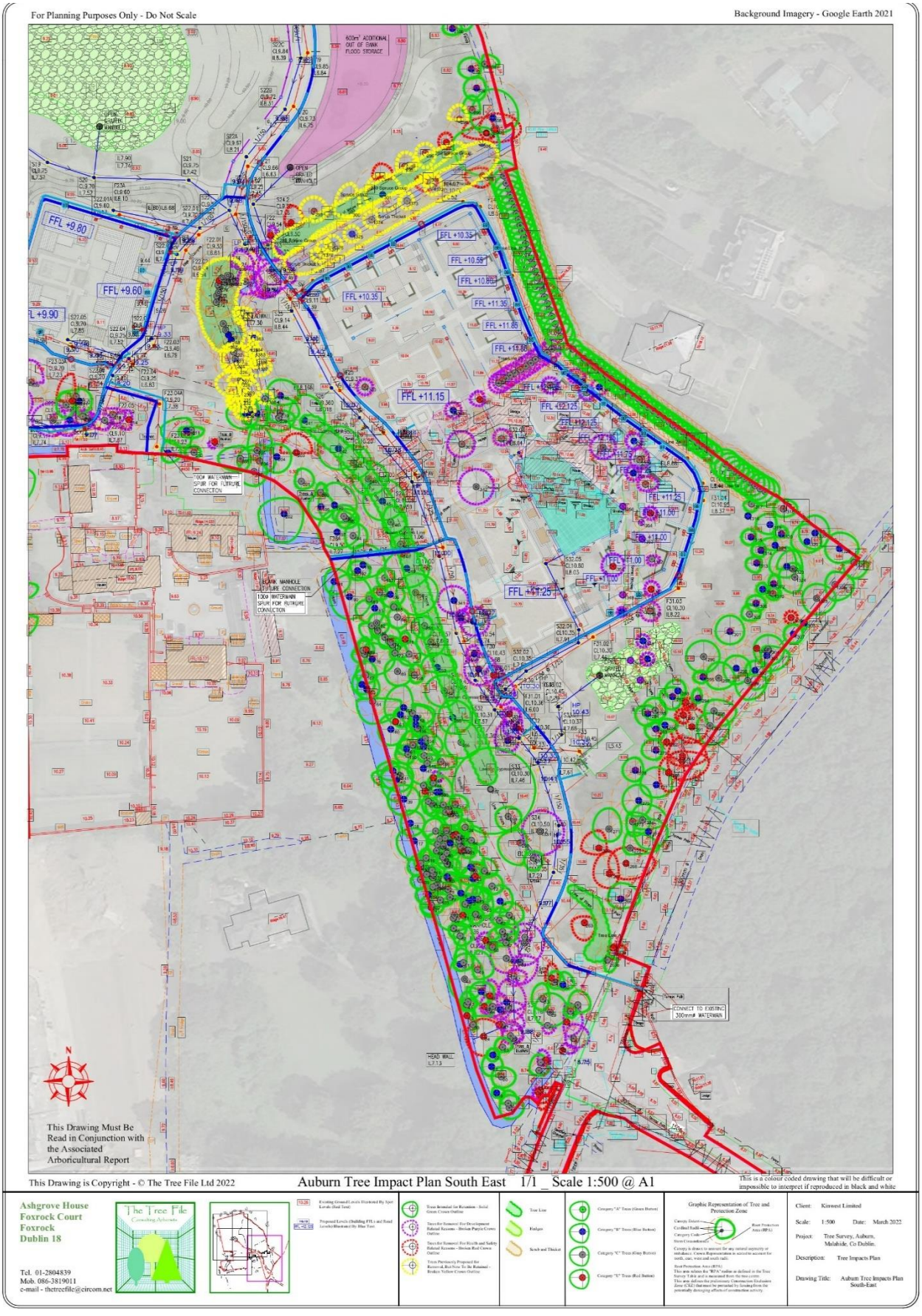


**Figure 5.6 – Trees to be retained and trees to be removed: South East**

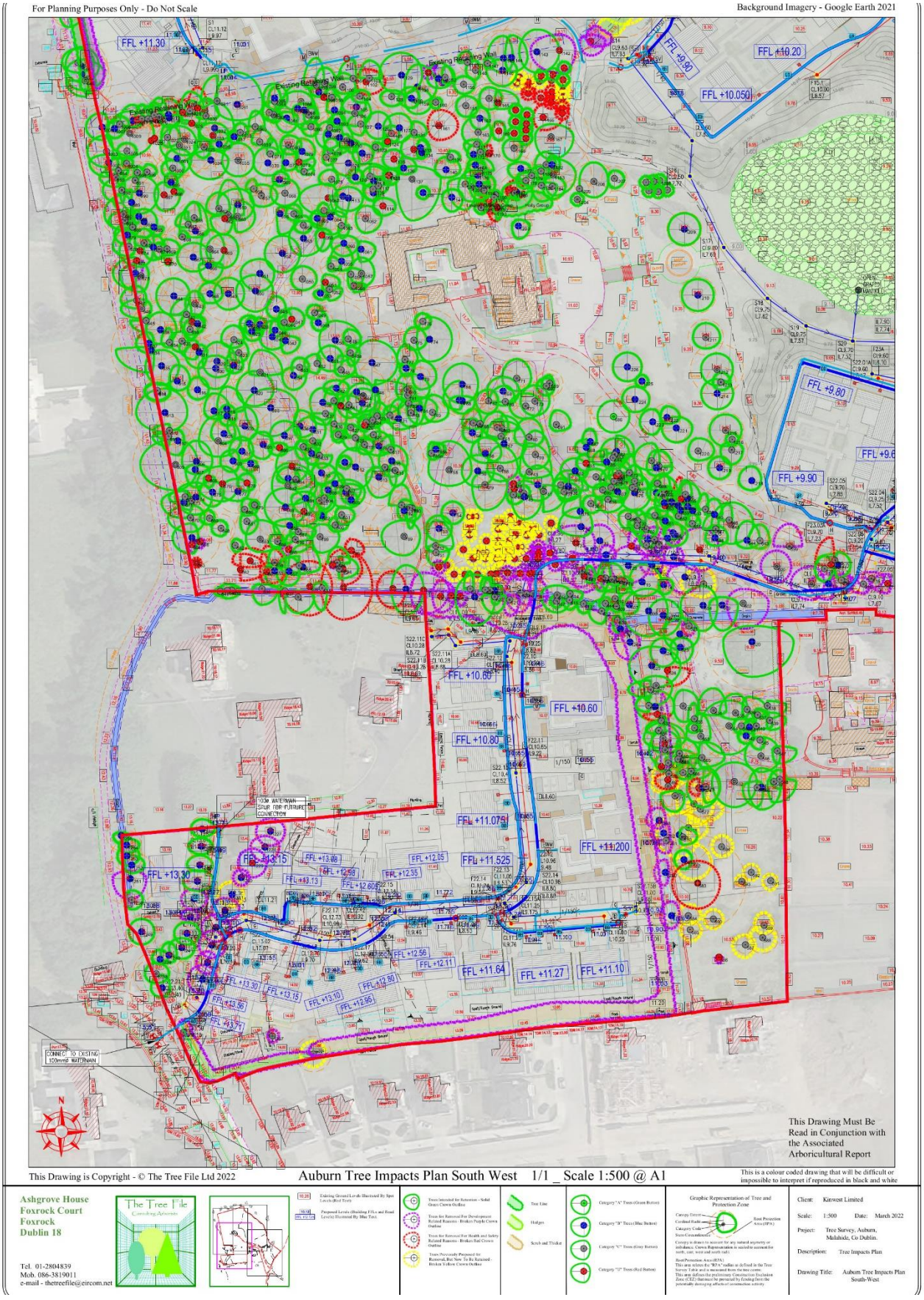


**Figure 5.7 – Trees to be retained and trees to be removed: South West**

As part of this proposal a Woodland Management Plan has been prepared by The Tree File. The purpose of this plan is to develop the woodland into an amenity and biodiversity feature. This will necessarily require a long-term programme of monitoring and review, with staggered replanting to ensure a varied age profile. The result however will be a more sustainable woodland with greater biodiversity value.

The overall impact of habitat loss on biodiversity is considered to be minor negative in the short-term, and neutral in the longer-term.

2. The direct mortality of species during land clearance.

This impact is most acute during the bird breeding season which lasts from March to August inclusive. This will affect any areas trees or shrub vegetation to be removed.

Construction works may also affect roosting bats as there are a number of potential roost structures including trees and buildings to be demolished. All bat species and their roost sites are protected under national and EU legislation. The following is taken from the bat survey report:

- Removal of trees may remove roosts and place roosting bats at risk

Bats roost in trees, in addition to buildings, walls and other structures. Tree removal creates the potential for roost loss. This is more critical if bats are present at the time of felling. Felling may place a bat at risk if it has not sufficient opportunity to become active and vacate a tree. This is more likely to occur when temperatures are low (6oC, for example). Bats may be killed or injured by the felling process, by a chainsaw or by crushing when a limb or bark is moved as the tree moves prior to or during felling or when striking the ground.

A male Leisler's bat was calling from a mature beech (probably dead) tree close to the moat (number 712). There is high potential that a mating perch would be removed (in removing the tree for safety considerations). This roost would potentially be lost through vegetation changes and lighting alterations within the site. This is a long-term moderate negative impact.

Trees are of high importance to bats for several reasons. They serve as roost sites. They provide shelter from wind and rain. They provide a substrate for the insect prey. They also provide protection from predation by allowing bats to fly close to branches.

Category U trees (either dead, dying, or dangerous, or those with a useful remaining amenity contribution of <10 years) provide ideal conditions for roosting bats but may be deemed a safety risk where there is an increased level of human activity or access within a site. Such trees are very typically rich in insect numbers and species diversity and are beneficial as a food store for bats in addition to the roost opportunities and shelter provided.

Removal of the trees has the potential to have a long-term to permanent moderate negative impact upon the local bat fauna. This would include any major tree surgery to old or sick trees and especially for the removal of such trees completely from the site.

- Alterations to stable buildings would remove roosting opportunities and place bats at risk There are at least two bat species roosting within the stables; whiskered bat and brown long-eared bat. There is a likelihood of pipistrelle use of the buildings also. Renovation and partitioning of these buildings would remove

the existing roosts. If bats were present at the time of construction, this would pose a risk to their safety. This is a long-term moderate negative impact to bats as there would be a loss of a roost site to an uncommon species nationally and a very uncommon species for Dublin (whiskered bat).

- House demolition may remove roost sites for individual bats

While there were no bats evident in 2019 or 2021 in Auburn Little, there is potential for bats within the buildings proposed for removal as bats move in and out of buildings. Signs of bats are most obvious when there are large numbers of bats and individual bats may be overlooked without considerable effort (including tile / slate removal, examination of wall cavities etc.). This is a long-term slight negative impact.

This impact overall from potential mortality to species is negative, significant, likely and permanent.

3. Pollution of water courses through the ingress of silt, oils and other toxic substances.

Extensive ground works are anticipated as part of this project including the laying of a new sewer line along Back Road and Kinsealy Lane. The site is not within the catchment of any water body of fisheries significance. Nevertheless, there are sensitive habitats downstream of the land (Baldoyle Bay SAC/SPA) and so this effect is potentially significant. Construction pollution has the potential to impact directly upon aquatic life, e.g. though toxicity, or indirectly through the degradation of habitats.

This impact is negative, significant, likely and short-term.

4. Damage to hedgerows and trees to be retained.

The movement of machinery and the storage of materials and equipment close to the base of trees and hedgerows can lead to soil compaction, which in turn can lead to permanent tree damage.

This impact is negative, significant, likely and permanent.

**Operational 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.

Foul effluent from the proposed development will be sent to the wastewater treatment plant at Ringsend in Dublin. The Ringsend plant is licenced to discharge treated effluent by the EPA (licence number D0034-01) and is managed by Irish Water. It treats effluent for a population equivalent (P.E.) on average of 1.65 million however weekly averages can spike at around 2.36 million. This variation is due to storm water inflows during periods of wet weather as this is not separated from the foul network for much of the older quarters of the city, including at the subject site. The Annual Environmental Report for 2020, the most recent available, indicated that there were a number of exceedences of the emission limit values set under the Urban Wastewater Treatment Directive and these can be traced to pulse inflows arising from wet weather. In April 2019 Irish Water was granted planning permission to upgrade the Ringsend plant. This will see improved treatment standards and will increase network capacity by 50%.

While the issues at Ringsend wastewater treatment plant are being dealt with in the medium term evidence suggests that some nutrient enrichment is benefiting wintering birds for which SPAs have been designated in Dublin Bay (Nairn & O'Hallaran eds, 2012). No negative impacts to Natura 2000 sites can arise from the additional loading arising from this development as there is no evidence that negative effects are occurring to high value conservation features from water quality.

This effect is neutral, imperceptible, unlikely and permanent.

6. Pollution of water from surface water run-off.

Surface water will pass to an existing surface water sewer. This is shown in figure 5.8. The drainage strategy will be fully compliant with the Greater Dublin Strategic Drainage Study and will include attenuation storage as well as SUDS measures to ensure that the quality and quantity of run-off remains at a 'greenfield' rate. These include permeable paving, filter drains, bio-retention, an open attention pond and sedum/green roofs on apartment buildings. Following attenuation, storm water will discharge at a controlled rate to existing drainage ditches leading to the Hazelbrook Stream. No negative effects will arise to water bodies as a result of these measures.

This effect is neutral, imperceptible, unlikely and permanent.

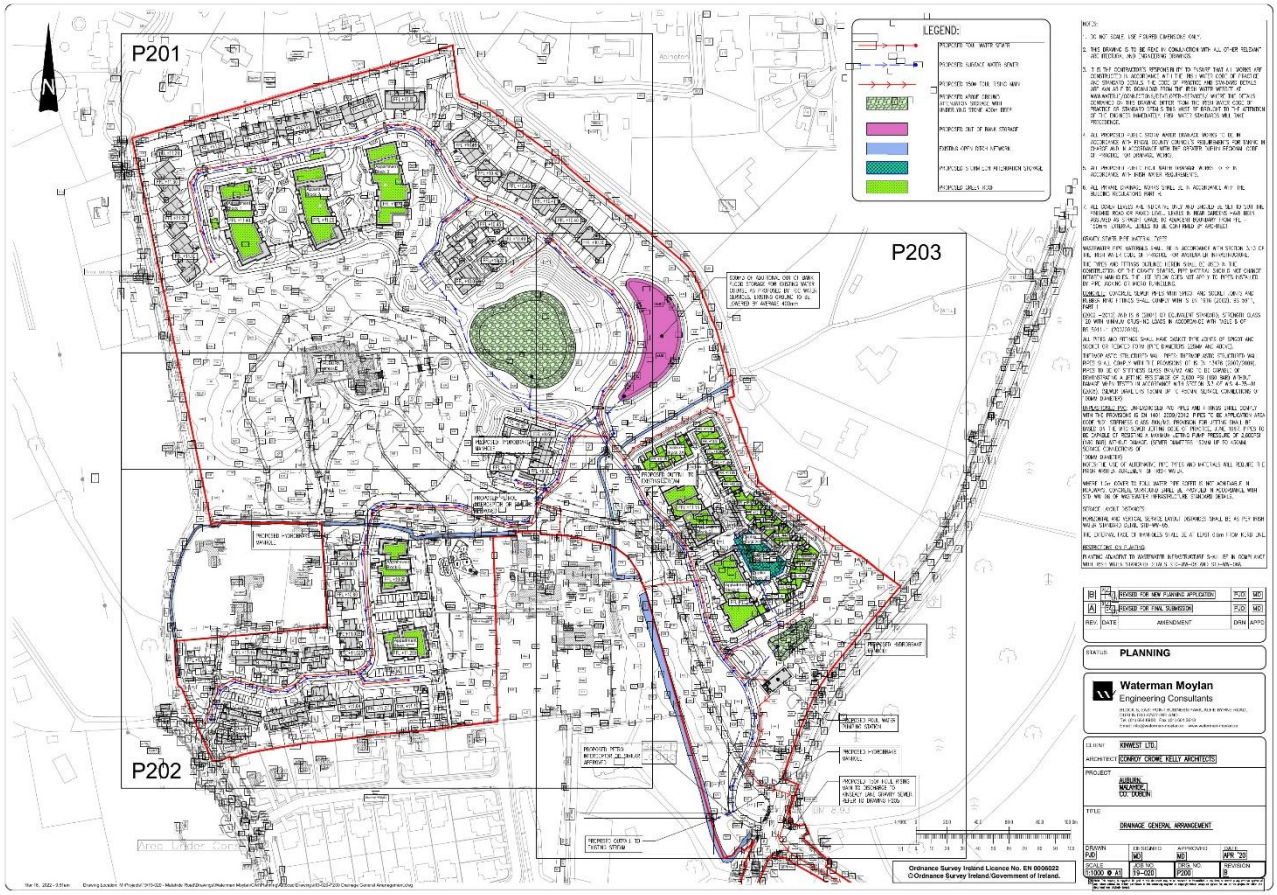


**Figure 5.8. Drainage configuration**

7. Lighting, noise and other disturbance impacts

This effect must be considered in the context of the existing environment, which is already close to residential areas and transport infrastructure. This brings with it noise and light pollution which will both increase with this development. Artificial lighting is known to have impacts on animal activity through both attractive and repellent forces. The effects are species and location specific, for instance some Bats are attracted to lights as prey items become concentrated around light sources (Rich & Longcore, 2006 eds). However other species may be deterred. The following is taken from the bat survey report:

*Lighting may reduce value of area to light-sensitive bat species*

*Lighting is disruptive to all bat species if near or in a roost and will also affect feeding and commuting of light sensitive bat species. Whiskered bats, Natterer's bats and brown long-eared bats are the more light-sensitive species of the assemblage noted in this assessment while even pipistrelles and Leisler's bats avoid direct light.*

There has been little study meanwhile on the effects of noise on terrestrial animals however it is believed that many species can adapt to elevated ambient noise levels.

The introduction of household pets, particularly cats, has been a cause of concern given the degree to which they prey on wild mammals and birds. There is no known research on this issue from Ireland. However the UK's Royal Society for the Protection of Birds states on its website that "despite the large numbers of birds killed [estimated at up to 55 million per annum in the UK], there is no scientific evidence that predation by cats in gardens is having any impact on bird populations UK-wide."8

The Badger report states that:

*There will be a greater level of human activity within the site and more traffic movement through the site. Given the very low level of badger activity at present, this will not have an immediate impact upon badgers. The presence of activity, lighting and dogs may affect movement of badgers through the site, but this is at most a slight long-term / permanent negative impact.*

This potential effect on bats is negative, significant, likely and permanent.

The impact on species other than bats, including badgers, is negative, slight, likely and permanent.

8. Spanish Bluebells and Three-cornered Garlic

Spanish Bluebells and Three-cornered Garlic are listed in legislation as an alien invasive species. There is consequently an onus on the developer to ensure that they do not spread. Mitigation will be required to eradicate these plants prior to the commencement of works.

This effect is negative, significant, likely and long-term.

9. Impacts to protected areas

There is no pathway from the development to the Sluice Marsh pNHA. There are consequently no effects which can occur to this area.

[8] http://www.rspb.org.uk/advice/gardening/unwantedvisitors/cats/birddeclines.aspx

Surface water pathways ultimately lead to the Broadmeadow Estuary and Baldoyle Bay which are subject to a number of designations, including those within the Natura 2000 network. Wastewater pathways lead to Dublin Bay where there are also a number of Natura 2000 sites. A screening report for Appropriate Assessment is presented separately as part of this planning application in accordance with the Planning and Development Act. This has concluded that significant effects to Baldoyle Bay SAC could not be ruled out due to the potential for construction pollution to be transported via the Hazelbrook Stream. Based on this assessment, a separate Natura Impact Statement has been prepared and which outlines mitigation measures to be employed during the construction phase. These mitigation measures are mirrored in this report.

Impacts to protected areas in Dublin Bay are not likely to occur. There are no pathways to any other area protected for nature conservation.

The NRA provides methodology for determining the significance of impacts for biodiversity. In this way it is possible to assign an impact significance in a transparent and objective way. Overall**,** it can be seen that two potential moderate negative impacts may occur as a result of this project in the absence of mitigation.

**Table 5: Significance level of likely impacts in the absence of mitigation**

| Impact | | Significance |
|---|---|---|
| Construction phase | | |
| 1 | Habitat loss | negative, moderate, likely and medium-term |
| 2 | Mortality to animals during construction | negative, significant, likely and permanent |
| 3 | Pollution of water during construction phase | negative, significant, likely and short-term |
| 4 | Damage of trees to be retained | negative, significant, likely and permanent |
| Operation phase | | |
| 5 | Wastewater pollution | neutral, imperceptible, unlikely and permanent |
| 6 | Surface water pollution | neutral, imperceptible, unlikely and permanent. |
| 7 | Lighting/disturbance<br>• Bats | negative, significant, likely and permanent<br>negative, slight, likely and permanent |

| | | |
|---|---|---|
| | • Badgers and other species | |
| 8 | Spanish Bluebells and Three-cornered Garlic | negative, significant, likely and long-term |
| 9 | Impact to protected areas in the Broadmeadow estuary | negative, significant, likely and short-term |

## 5.6 Avoidance, Remedial and Mitigation Measures

These measures include avoidance, reduction and constructive mitigation measures in accordance with best practice.

This report has identified a number of impacts that were assessed as potentially significant and therefore mitigation is needed to reduce the severity of these potential effects, which are summarised below.

Construction Phase

1. Habitat loss

2. Mortality to animals during construction

3. Pollution to water courses (including impacts to protected areas)

4. Damage of hedgerow to be retained

Operation Phase

5. Lighting/disturbance to bats

6. Spanish Bluebells and Three-cornered Garlic

### 5.6.1 Mitigation Measures Proposed

The following recommendation are proposed for the development

**Construction Phase**

Mitigation 1: Habitat loss

The following is taken from the Badger and Bat survey report:

Retention where possible of Category U trees away from public access and activity

Where there is no clear risk posed to public safety, Category U trees shall be retained or rendered safer by reducing the unsafe limbs in favour of felling. The removal of these trees has the greatest impact upon biodiversity, and this should be seen as the option of last resort.

Vegetation cover along the perimeter of the site to allow mammal movement.

Planting along the perimeter of the development shall ensure that there is potential for movement of bats and badgers and other fauna through the site. This shall include shrubbery as well as trees. Trees of a variety of ages and species creates the best habitat compared to planting of trees of the same age and species. […]

Bat boxes

21 Schwegler bat boxes (or equivalent) of varying design shall be erected within the remaining woodland to provide a variety of suitable roost sites. These boxes must be away from lighting and shall be no lower than 3

metres from ground level. All other measures to provide roosting opportunities within the stable buildings must also be implemented to make this effective. Locations for bat boxes shall be identified by a bat specialist.

All bat boxes shall be in place prior to any work within the stable yard.

Provision of access to all attics within the stable yard for bat following construction

Access shall be provided by means of suitable access slates, vents, or other means to allow bats to return to roofs following all construction work.

Provision of roosting features within attics

Timber rafters shall be provided that create suitable crevices for bats. This shall include similar features to those used within the existing stable buildings in addition to the provision of parallel timbers ("2 x 4" timbers (38 x 89 mm) spaced 15 to 18 mm apart i.e., at a slight angle creating a range of gaps from 15 mm to 18 mm).

New planting elsewhere will be consistent with the Woodland Management Plan so will enhance the overall biodiversity value of the site. The landscaping plan is showing in figure 5.4

Mitigation 2: Any clearance of vegetation (e.g. hedgerows or felling of individual trees) should only occur outside the prescribed nesting season, i.e. August to February inclusive. Where this is not possible the vegetation to be cleared must first be inspected for bird nesting activity. Where no nesting activity is recorded vegetation can be removed within 48 hours. Where nesting activity is recorded then vegetation clearance can only proceed under licence from the National Parks and Wildlife Service.

The following is taken from the bat survey report:

*Acquisition of a Derogation to allow the removal of bat roosts within stable buildings*

*A derogation shall be required for disturbance to roost sites of bat species. This requires that a system of protection of bats is in place and that alternative roost sites or access to roosts is provided for bats.*

*The following measures are proposed to provide appropriate protection for bats:*

*Supervision of all roof level work within the stable yard by a bat specialist*

*Protection of any roosting bats during construction operations by a bat specialist.*

*This may require that bats are captured and cared for by the bat specialist until the work affecting the roost site is complete. Bats should be released into a bat box within another area within the grounds of Auburn and the original roost site re-examined prior to any further work that may affect bats.*

*Checking of Trees for Bats Prior To / During Felling or Surgery where this is essential*

*Where there is no alternative to felling or removal of limbs of mature trees, an assessment for the presence of bats must be undertaken. Tree felling and surgery must avoid the summer months to protect nesting birds. At all other times, it should be possible to assess for bats provided that full access to any tree is available to the bat specialist.*

*If any buildings (walls etc.) are to be removed or modified, including re-pointing, a bat specialist shall ensure that bats are protected.*

Mitigation 3: Pollution during construction

Construction will follow guidance from Inland Fisheries Ireland (IFI, 2016) for the protection of fish habitat. This will include the erection of a robust silt curtain (or similar barrier) along open drainage ditches to prevent the ingress of silt to the Hazelbrook Stream. Water leaving the site will pass through an appropriately-sized silt trap or settlement pond so that only silt-free run-off will leave the site.

Dangerous substances, such as oils, fuels etc., will be stored in a bunded zone. Emergency contact numbers for the Local Authority Environment Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident.

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

- All new foul sewers will be tested by means of an approved air test during the construction phase in accordance with Irish Waters 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 phase.

Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same.

A silt curtain or similar barrier will be erected along the drainage ditch to the east of the site and will remain in place for the duration of works.

The drainage ditch to the north is to be culverted as part of work and this will be done ‘in the dry’. In other words, it will be dammed at either end so that works will be done with no scouring of silt or sediment. Water will be pumped around the works area where necessary.

The site manager will be responsible for the implementation of these measures. They will be inspected on at least a daily basis for the duration of works, and a record of these inspections will be maintained.

These measures have been incorporated into a preliminary Construction Management Plan prepared by Waterman Moylan

Mitigation 4: Damage of trees to be retained

In particular this heading refers to the potential damage to the root structures of trees during the construction phase from the movement of machinery, the storage of heavy materials, the stripping of soil and the infilling of other areas with this soil.

Guidance from the National Roads Authority give the following equation for calculating the root protection area (RPA) (NRA, unknown year):

$$RPA(m2) = \pi(\text{stem diameter mm } 12)/1{,}000) \text{ x2}$$

The RPA gives the area around which there should be no disturbance or compaction of soil. It is recommended that this be calculated for the largest tree within each treeline. Prior to construction this area should be clearly labelled 'sensitive ecological zone', fenced off with durable materials and instruction given to construction personnel not to disturb this buffer zone.

As a rule of thumb this buffer zone should extend at least to the canopy of the trees concerned.

Mitigation 5: Lighting

The following is taken from the bat survey report:

*No lighting of the roof area of the stable yard or of Auburn House*

*No lighting shall be directed at the roof or eaves of either Auburn House or the stable yard buildings.*

*No ornamental lighting shall be attached to the buildings.*

*Dark corridor of movement for bats from the stable yard and Auburn House to the surrounding lands*

*No lighting shall illuminate the surrounding area of the stable yard or Auburn House to allow movement of bats through the site and to and from roost sites.*

*Lighting must be managed to ensure that mature trees are unlit, and that lighting does not overspill into green areas where it is unnecessary. Lighting should not exceed 3 lux away from areas where street and house lighting are essential. No lighting of tree canopies shall occur.*

*Lighting shall be used as a function and not as an ornament and shall be of a design that allows a high level of control and directability. LED allows for controls on timing, directionality and wavelength and should be the source of light.*

- *Lighting shall be directed downwards away from the treetops and known bat roosts.*
- *Tree crowns shall remain unilluminated*
- *All luminaires shall lack UV elements when manufactured and shall be LED*
- *A warm white spectrum (ideally <2700 Kelvin but as low as Fingal County Council limitations allow) shall be adopted to reduce blue light component*

- *Luminaires shall feature peak wavelengths higher than 550 nm* •
- *Light levels shall be controlled by the use of sensor lighting for security.*
- *Lights must not be left on throughout the night.*

Mitigation 6: Spanish Bluebells and Three-cornered Garlic

Spanish Bluebells and Three-cornered Garlic will be treated with standard herbicide by a suitably qualified professional during the growing season. This is normally sufficient to kill these species.

## 5.7 Cumulative effects

This development can be considered within the context of the broader urbanisation of lands that is accommodating the expansion of Dublin city and its hinterland. This is planned for under the Fingal County Development Plan 2017-2023. This type of urban expansion has been associated with a loss of habitat however the aforementioned plans envisage the preservation of 'green infrastructure' to preserve or augment local ecological features. A growing population is placing pressure on wastewater treatment facilities however a recent upgrade to the Swords wastewater treatment plant will provide for future development. A Strategic Environmental Assessment of the Fingal CDP 2017-2023 includes measures to monitor significant environmental effects of the adopted plan.

The cumulative effects of this 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 finalised 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 includes SUDS techniques that will maintain current levels of water quantity and quality.

The Water Framework Directive sets out to attain 'good ecological status' of all water bodies. A second River Basin Management Plan was published in 2018 which identifies 190 'priority areas for action' where resources are to be focussed over the 2018-2021 period. A third plan is in preparation with the aim of achieving 'good status' for all water bodies by 2027.

Specific projects which are under consideration by An Board Pleanála in this vicinity, or which may be coming before the Board, include:

- an SHD application (ref.: TC06F.310125) for 102 no. residential units (56 no. houses, 46 no. apartments), creche and associated site works at Lamorlaye, Back Road, Malahide, Co. Dublin.

- An SHD application (ref.: TC06F.308804) for 458 no. residential units (242 no. houses, 60 no. duplex units, 156 no. apartments), creche and all associated site works on lands at Back Road, Broomfield, Malahide, Co. Dublin

Both of these developments are within the catchment of the Hazelbrook Stream that leads to Baldoyle Bay.

In the event that this project is under construction at the same time as other projects there is a possibility that construction pollutants entering waterways leading to Baldoyle Bay SAC and SPA could act in combination to result in negative effects to invertebrate communities in the SAC and, by extension, birds which are qualifying interests of the SPA.

Other than during the construction phase, there are no projects or plans which could act in a cumulative manner with the current proposal to result in significant negative effects to biodiversity.

## 5.8 Conclusion, Residual Impacts and Monitoring

Habitats on this site have been found to range from negligible to high local biodiversity value while there is a hydrological link to both the Broadmeadow (Malahide) Estuary SAC/SPA/pNHA and Baldoyle Bay SAC/SPA/pNHA, areas designed as internationally important for nature conservation.

The following monitoring measure is taken from the bat report:

*Evaluation of lighting following construction*

*A bat specialist shall examine the lighting and planting upon completion to ensure that lighting provides for access for bats to the woodland. Where there are no suitable access areas, measures to create easier movement of bats through the site shall be introduced through modifications to the lighting that may include cowls, planting, or other options.*

The site should be surveyed post-construction for the presence of any invasive species, such as Spanish Bluebell or Three-cornered Garlic.

With the full implementation of all mitigation measures significant negative effects will not occur to biodiversity.

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# CHAPTER 6 – LAND, SOILS AND GEOLOGY

## 6.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) has been prepared by Waterman Moylan and provides an assessment of the impact that the proposed residential development in lands around Auburn House in Malahide, Co. Dublin will have on the surrounding soil and geology within the vicinity of the site. It also sets out mitigation and remedial measures and methods of monitoring after the development is operational.

## 6.2 Research Methodology

A desktop study to classify the geological features related to the site was undertaken. The Geological Survey of Ireland (GSI) was reviewed, and the following maps reviewed:

- Bedrock Geology Map
- Bedrock Aquifer Map
- Ground Water Vulnerability Map

This information was supplemented by geotechnical site investigations carried out by Site Investigations Ltd. in February 2020 within the Auburn site.

## 6.3 Receiving Environment

### 6.3.1 Site Location and Topography

The subject site is located between the existing Abington residential development and the Malahide Road. The site entrance is from the Malahide Road, adjacent to the Malahide Road/Back Road junction.

The subject lands form the western, northern, and eastern boundaries of Auburn House, an eighteenth century three-storey mansion located within a wooded demesne. Malahide Castle is approximately 900m north-east of the site.

A topographic survey of the area indicates that the site is very flat, with only local high points. The site lies generally at a level of between 9m and 11m OD Malin, with a local high point near the north-east of the site of 12.45m OD Malin.

There is an existing surface water drain along the northern and eastern boundary of the site (within the Abington development) which discharges to an existing culvert under the Malahide Road, close to the entrance to the site, at the junction with Back Road. This drain is very flat at an estimated average gradient of 1/1,000 over its 700 metre length along the north-eastern boundary and through the lands to the entrance of the site.

The location of the subject site is indicated on Figure 6.1, below:

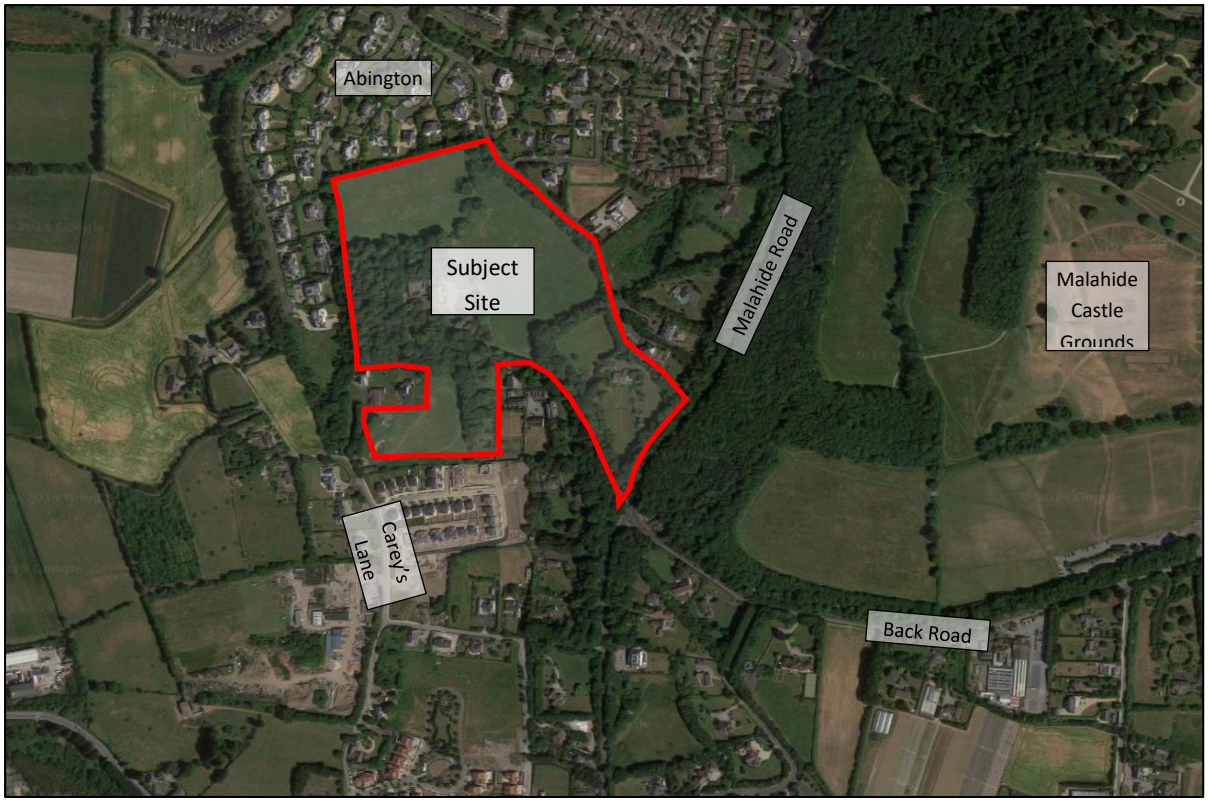



**Figure 6.1 | Site Location (Source: Google Maps)**

### 6.3.2 Desktop Study

Geological Survey Ireland (GSI) produces a wide range of datasets, including bedrock geology mapping, extracted below in Figure 6.2.

The map indicates that the subject site lies at the boundary between three formations: the northern portion of the site lies within the Malahide Formation, the southern portion of the site lies within the Tober Colleen Formation, and a portion of the site at the east lies above Waulsortian Limestones.

Malahide Formation:

The Malahide Formation is described as argillaceous bioclastic limestone and shale. The lower part of the 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, with a thickness of 300m to more than 1,200m.

Tober Colleen Formation:

The Tober Colleen Formation is described as calcareous shale and limestone conglomerate. The formation is comprised of dark-grey, calcareous, commonly bioturbated mudstones and subordinate thin micritic limestones, with a thickness of 50m to 250m.

Waulsortian Limestones:

Waulsortian Limestones are described as massive, unbedded lime-mudstone (the name “Waulsortian Limestones” comes from rocks of similar lithology and age found in Belgium). The formation is dominantly pale-grey, crudely bedded or massive limestone. The Waulsortian Limestones are typically 300 - 500 m thick.

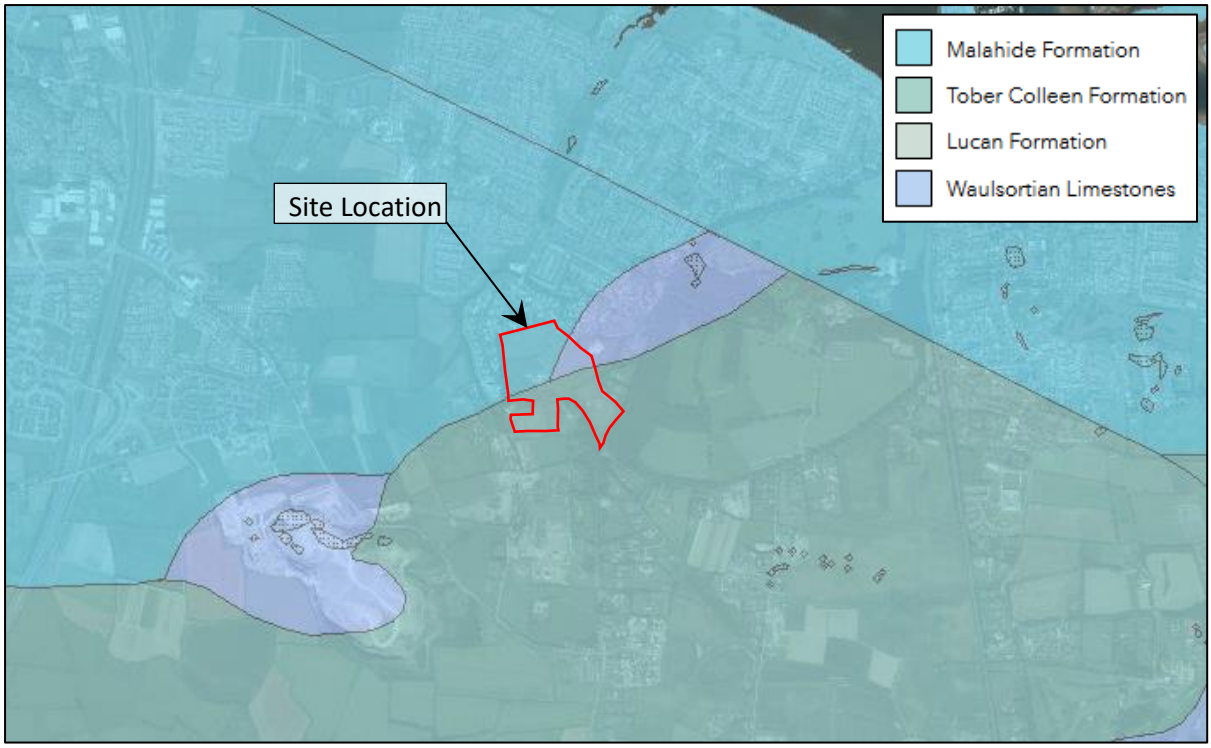



**Figure 6.2 | Extract from GSI Bedrock Geology Map**

The National Aquifer Bedrock Map prepared by the Geological Survey of Ireland was consulted and is extracted below:


**Figure 6.3 | Extract from GSI Bedrock Geology Map**

From this map, the portions of the site within the Malahide Formation and above Waulsortian Limestones are within the designation LI, which represents locally important moderately productive

aquifer, while the portion of the site within the Tober Colleen Formation is within the designation PI, which represents bedrock which is generally unproductive except for local zones.

The groundwater vulnerability in the vicinity of the proposed site was also examined by referencing the Geological Survey of Ireland. From the GSI groundwater vulnerability map, extracted below, the site lies within an area with high to extreme groundwater vulnerability:

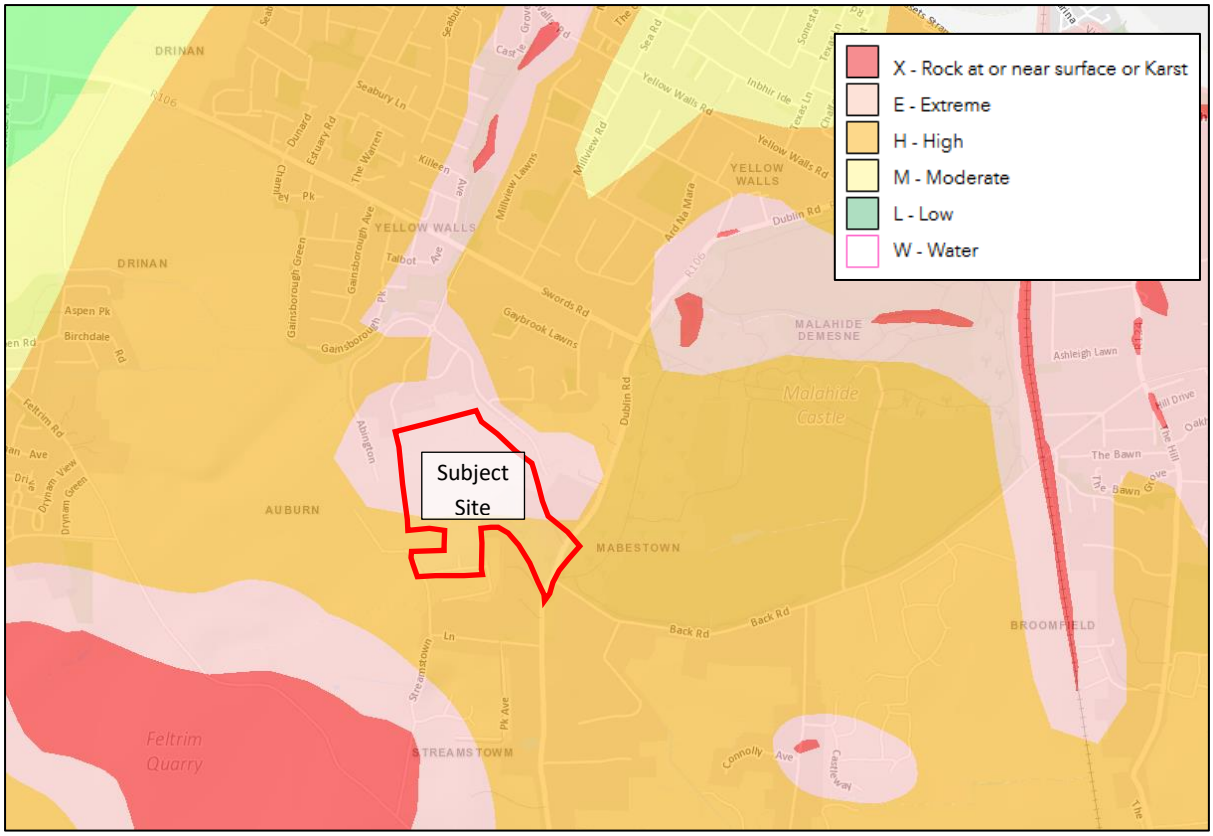



**Figure 6.4 | Extract from GSI Groundwater Vulnerability Map**

### 6.3.3 Site Investigations

Site Investigations were carried out by Site Investigations Ltd. in February 2020. The fieldworks comprised a programme of 5 no. trial pits with dynamic probes and soakaway tests. The locations of the trial pits are indicated on the Figure below.

Trial pits were excavated using a wheeled excavator, and representative disturbed bulk samples were returned to the laboratory for geotechnical testing. Geotechnical laboratory testing was completed in accordance with BS 1377 (1990). The suite of testing included moisture contents, Atterberg limits particle size gradings, pH, sulphate and chloride content, Rilta Suite analysis and loss on ignition tests.

Dynamic probes were completed adjacent to the trial pits using a track mounted Competitor 130 machine. The configuration utilised a standard DPH (Heavy) probing method comprising a 50kg weight, 500mm drop height and a 50mm diameter (90°) cone.

Soakaway tests were scheduled at all five trial pit locations, but groundwater was encountered in three of the five trial pits. Therefore, these soils were determined to already be saturated and unsuitable as soakaway locations. Two soakaways were completed in accordance with BRE Special Digest 365.


**Figure 6.5 | Trial Pit Locations**

The results of the site investigations are summarised as follows:

The natural ground conditions vary slightly. At Trial Pits 1, 4 ad 5, cohesive brown grey clay soils were encountered until termination of the pits. Trial Pits 2 and 3 also recorded the cohesive clay soils, but this was underlain by a dark grey silty sandy gravel, with the boundary between the clay and gravel at 1.20m below ground level and 1.10m below ground level, respectively.

The laboratory tests of the cohesive soils confirm that clay soils dominate the site with low plasticity indexes of 10 to 14% recorded. The particle size distribution curves were poorly sorted straight-line curves with 21% to 47% fines content.

Groundwater ingresses were recorded in Trial Pits 1, 2 and 3 at 2.60m below ground level, 1.20m below ground level and 1.10m below ground level respectively. The ingresses in Trial Pits 2 and 3 correspond with the boundary with the gravel, with rapid ingress rates. The two soakaway tests completed failed the specification as the water level did not fall sufficiently enough to complete the tests. The unsuitability of the soils for soakaways is further suggested by the soil descriptions of the materials in this area of the site where the soakaway was completed, i.e., well compacted clay soils.

The CBR test results indicate CBR values ranging from 6.1% to 8.3%.

Leachate results were compared with the published waste acceptance limits from BS EN 12457-2, to determine whether the material on the site could be accepted as 'inert material' by an Irish landfill. The Waste Classification report shows that the material tested can be classified as non-hazardous material.

The chemical test results indicate a general pH value between 7.11 and 7.30, which is close to neutral and below the level of 9. Therefore, no special precautions are required.

The maximum value obtained for water soluble sulphate was 126mg/l as $SO_3$. The BRE Special Digest 1:2005 – '*Concrete in Aggressive Ground*' guidelines require $SO_4$ values. After conversion ($SO_4 = SO_3$ x1.2), the maximum value of 151mg/l shows Class 1 conditions, and no special precautions are required.

## 6.4 Characteristics of the Proposal

The proposed development will consist of the preservation and protection of the existing Protected Structure of Auburn House and its stables as 1 no. residential dwelling; the conversion of the existing stables of Auburn House to provide for storage space for the main Auburn House and the construction of 368 no. new residential dwelling units (comprising 87 no. houses, 239 no. apartments & 42 no. duplex units) for an overall total of 369 no. residential units, including Auburn House.

The development shall consist of 135 no. 1-bedroom apartments and duplex apartments, 138 no. 2-bedroom apartments and duplex apartments, 8 no. 3-bedroom apartments and duplex apartments, 47 no. 3-bedroom houses, 34 no. 4-bedroom houses, 6 no. 5-bedroom houses and the existing 11-bedroom Auburn House along with 1 no. childcare facility and 1 no. ancillary resident facility. The breakdown of the proposed development is set out in the Schedule of Accommodation below:

| Description | | 1-Bed | 2-Bed | 3-Bed | 4-Bed | 5-Bed or more | Total | |
|---|---|---|---|---|---|---|---|---|
| Houses *(including Auburn House)* | | - | - | 47 | 34 | 7 | 88 Houses | |
| Apartments | Block 1 | 26 | 20 | - | - | - | 46 | 239 Apartments |
| | Block 2 | 26 | 21 | 2 | - | - | 49 | |
| | Block 3 | 22 | 20 | - | - | - | 42 | |
| | Block 4 | 10 | 17 | 1 | - | - | 28 | |
| | Block 5 | 6 | 22 | - | - | - | 28 | |
| | Block 6 | 5 | 14 | 2 | - | - | 21 | |
| | Block 7 | 14 | 10 | 1 | - | - | 25 | |
| Duplexes | Block 1 | 1 | 3 | 2 | - | - | 6 | 42 Duplexes |
| | Block 2A | 6 | 2 | - | - | - | 8 | |
| | Block 2B | 8 | 3 | - | - | - | 11 | |
| | Block 2C | 7 | 2 | - | - | - | 9 | |
| | Block 2D | 4 | 4 | - | - | - | 8 | |
| **Total** | | **135** | **138** | **55** | **34** | **7** | **369 Units** | |

**Table 1 | Schedule of Accommodation**

The proposed development shall also provide landscaped public open space, car parking and all associated ancillary site development infrastructure including foul and surface water drainage, internal roads, cycle paths and footpaths, and boundary walls and fences. Vehicular access to the proposed development is to be via a new entrance at the R107 Malahide Road/Dublin Road entrance, with the existing entrance to Auburn House acting as a pedestrian/cyclist entrance and access to existing properties outside the application site, there will be a secondary entrance comprising modifications of the existing vehicular entrance off Carey's Lane to the south west of the development, the closure of the existing vehicular entrance to Little Auburn, the provision of 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development. The building heights range from 2 storey to 5 storey buildings with balconies or terraces being provided to the apartments and duplex units.

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

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

## 6.5 Potential Impact of the Proposal

### 6.5.1 Construction Phase

The removal of topsoil during earthworks and the construction of roads, services and buildings, in particular basements and foundations, will expose subsoil to weathering and may result in the erosion of soils during adverse weather conditions.

Surface water runoff from the surface of the excavated areas may result in silt discharges to the Hazelbrook Stream, which is a tributary of the Sluice River. Excavations for foundations, roadworks and services will result in a surplus of subsoil. Surplus subsoil will be used in fill areas where applicable.

Additional imported fill will be required to achieve the proposed levels. This will require an Article 27 application and the soil to be imported must meet chemical and biological standards pre-transfer.

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 phase of the development, it is not envisaged that there will be any ongoing impacts on the underlying soil as a result of the proposed development. Any hydro-geological impacts are temporary and associated with the construction of the proposed development.

## 6.6 Remedial or Reductive 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.

An estimate of the total general cut & fill volumes, specific excavation volumes & topsoil generation for use in landscaping are presented in the Table below. As can be seen, the total cut and fill volumes are optimised to minimise the balance, with an estimated total balance required for the entire site of approximately 350m$^3$.

| Description | Cut/Fill Volume |
|---|---|
| General Fill | 39,250m$^3$ |
| General Cut | -3,350m$^3$ |
| Excavations | -43,700m$^3$ |
| Un-useable Top Soil | 7,450m$^3$ |
| ***Cut Total*** | ***-39,600m$^3$*** |
| ***Fill Total*** | ***39,250m$^3$*** |
| **Total** | **-350m$^3$** |

**Table 6.2 | Preliminary Cut & Fill Volume Estimates**

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.

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 Predicted Impact of the Proposal

### 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.

### 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 and infiltration drains, will assist with cleaning surface water runoff while replenishing the natural ground water table.

## 6.8 Monitoring

Monitoring during the construction phase is recommended, 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 existing watercourses, ditches and the existing surface water drainage system.
- 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.

During the operational phase, 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 should be incorporated into the safety file/maintenance manual for the development.

# CHAPTER 7 – WATER

## 7.1 Water Supply

### 7.1.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) has been prepared by Waterman Moylan and provides an assessment of the impact that the proposed residential development in lands around Auburn House in Malahide, Co. Dublin will have on the water supply network in the vicinity of the site. It also sets out mitigation and remedial measures and methods of monitoring while the development is operational.

### 7.1.2 Research Methodology

Research for this section included a review of the existing watermain network maps from Irish Water / Fingal County Council records for the area.

### 7.1.3 Receiving Environment

There are a number of existing interconnected water supply mains in the vicinity of the subject site, including:

- A 12" (c. 300mm) diameter water supply main in the R107 Malahide Road.
- A 100mm water supply main in Carey's Lane to the southwest of the site serving the dwellings along the laneway and Auburn Grove.

### 7.1.4 Characteristics of the Proposed Development

It is proposed to supply water to the development via two connections to the existing watermain network, one to the 300mm watermain in the Malahide Road and the other to the 100mm watermain in Carey's Lane. The proposed network comprises of a 150mm trunk watermain running along the proposed new Main Access Road, with a series of 100mm diameter branches. The proposed new connections and watermain network are shown on the watermain layout drawings, 19-020-P300 to P303.

An estimate of the water demand from the public water supply system for the subject development is shown in the Table below. 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 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. The water demand for the crèche is based on a per capita daily consumption rate of 90 litres.

| Description | Total Population | Water Demand | Average Demand | Average Peak Demand | Peak Demand |
|---|---|---|---|---|---|
| | *No. People* | *l/day* | *l/s* | *l/s* | *l/s* |
| 88 Houses | 237.6 | 39,204 | 0.454 | 0.567 | 2.836 |
| 42 Duplexes | 113.4 | 18,711 | 0.217 | 0.271 | 1.354 |
| 239 Apartments | 645.3 | 106,475 | 1.232 | 1.540 | 7.702 |
| Crèche | 50 | 4,950 | 0.057 | 0.072 | 0.358 |
| **Total** | **1,046.3** | **169,340** | **1.960** | **2.450** | **12.250** |

**Table 7.1 | Calculation of Total Water Demand for the Development**

Based on these figures, the water demand that will be generated by the development is approximately 1.96l/s, or 169.34$m^3$ per day.

A Confirmation of Feasibility Letter was issued by Irish Water on 13 September 2021 for the proposal, confirming that connection to the existing water supply network is feasible without upgrades to the network. In addition, a Statement of Design Acceptance was issued by Irish Water on 28 March 2022, confirming that Irish Water has no objection to the subject proposal. Both the Confirmation of Feasibility Letter and the Statement of Design Acceptance are included as Appendices to the Engineering Assessment Report, which accompanies this submission under separate cover.

### 7.1.5 Potential Impact of the Proposed Development

Construction Phase:

No significant impact to the existing watermains is anticipated during the construction phase of the development, though there will be some minor water demand for site offices. There is a risk of contamination to the existing water supply during connection of the development's watermains to the public water supply.

Operational Phase:

During the operational phase of the development, there will be an increase in demand for water from the public water supply.

### 7.1.6 Remedial or Reductive Measures

Construction Phase:

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 and / 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 and tested by or under the supervision of Irish Water and / or the Design Engineer.

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

Operational Phase:

Water meters will be installed at connection points, with locations to be agreed and approved by Irish Water, and these meters will be linked to Irish Water's monitoring system by telemetry. These 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 throughout 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 upon completion.

### 7.1.7 Predicted Impact of the Proposed Development

Construction Phase:

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

Operational Phase:

There will be a water demand for the proposed development of approximately 169.34$m^3$ per day. Irish Water have confirmed in their Confirmation of Feasibility Letter that the existing network has sufficient capacity to cater for the development without the need for upgrades.

### 7.1.8 Monitoring

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.

## 7.2 Foul Water Drainage

### 7.2.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) has been prepared by Waterman Moylan and provides an assessment of the impact that the proposed residential development in lands around Auburn House in Malahide, Co. Dublin will have on the wastewater network in the vicinity of the site. It also sets out mitigation and remedial measures and methods of monitoring while the development is operational.

### 7.2.2 Research Methodology

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

### 7.2.3 Receiving Environment

There are currently no gravity sewers in the Malahide Road adjacent to the subject site. The closest gravity sewer is located in the Swords Road, approximately 670m north of the proposed access onto the Malahide Road. This gravity sewer drains to the Malahide Wastewater Treatment Plant.

There are three existing pumping stations in the vicinity of the site:

1. Connolly Avenue Pumping Station (Irish Water)

   This pumping station drains:

   a) Kinsealy Village (via a pumping station known as Floraville)
   b) Broomfield LAP and Kinsealy Lane developments
   c) Housing in Streamstown

2. Abington / Gaybrook Stream Pumping Station

   a) Abington is drained via a private pumping station
   b) Gaybrook pumping station drains developments along the Swords Road

3. Carey's Lane Pumping Station

   Draining the Carey's Lane development up the Malahide Road to the junction with the Swords Road known as McAlister's Garage.

Both the Abington and Carey's Lane pumping stations are private and have not been designed for any significant additional development flows. Carey's Lane pumping station discharges to the existing sewers on Swords Road, where some spare capacity has previously been identified. However, there is no longer capacity is the Swords Road foul sewer as advised by Irish Water.

The Connolly Avenue pumping station has capacity constraints and is not suitable for significant additional development.

Irish Water have recently completed a Local Network Reinforcement Project, which comprises of a new pumping station on Chapel Road discharging via a new rising main to the existing North Fringe Interceptor Sewer, south of the site in Marrsfield Avenue, Clongriffin. The Floraville pumping station

at Kinsealy was decommissioned and diverted by a new gravity sewer to the new Chapel Road pumping station. These works were completed and commissioned in the last quarter of 2021.

In November 2021 Irish Water advised of a future new pumping station on Kinsealy Lane, which would pump wastewater south to the new Chapel Road Pumping Station. This is intended to relieve capacity constraints at Connolly Avenue Pumping Station and is referred to as the Castleway Pumping Station.

### 7.2.4 Characteristics of the Proposed Development

It is proposed to drain wastewater in a south-easterly direction through a series of 150mm and 225mm sewers to a proposed new pumping station near the site entrance, as shown on Waterman Moylan drawing numbers 19-020-P200 to P203.

The wastewater pumping station will have a 24-hour storage tank (c.169m$^3$ of storage for 369 units) and will be designed in accordance with Irish Water requirements. In order to minimise the risk of odour, noise and vibration nuisance, a buffer zone of 35m is proposed between the pumping station and the nearest property, in accordance with Fingal County Council's Development Plan, Objective WT12. There are no existing or proposed buildings within this 35m buffer zone.

Wastewater will be pumped from the development site via Back Road and Kinsealy Lane to outfall via a stand-off manhole to the new gravity sewer, where it will drain by gravity to the new Chapel Road pumping station and ultimately to the North Fringe Interceptor Sewer, as shown on Waterman Moylan drawing number 19-020-P205.

It was agreed with Irish Water that the proposed rising main along Kinsealy Lane would be designed and constructed to allow the future Castleway Pumping Station to utilise the rising main and therefore avoid multiple rising mains along Kinsealy Lane. This proposed rising main is designed to accommodate flows from the Kinsealy Lane Pumping Station and to ensure that there are no septicity issues arising. The detailed rising main design will form part of the Connection Agreement with Irish Water for the Auburn Pumping Station prior to any construction on site.

A Confirmation of Feasibility Letter was issued by Irish Water on 13 September 2021 for the proposal, confirming that connection to the existing wastewater network is feasible, subject to upgrade works as outlined above. In addition, a Statement of Design Acceptance was issued by Irish Water on 28 March 2022, confirming that Irish Water has no objection to the subject proposal. Both the Confirmation of Feasibility Letter and the Statement of Design Acceptance are included as Appendices to the Engineering Assessment Report, which accompanies this submission under separate cover.

An estimate of the foul water discharge rate from the subject development to the public drainage network is shown in the Table below. Domestic wastewater loads have been calculated based on 2.7 persons per unit with a daily per capita wastewater flow of 150 litres with a 10% unit consumption allowance, in line with Section 3.6 of the Irish Water Code of Practice for Wastewater Infrastructure. A peak flow multiplier of 3 has been used, as per Section 2.2.5 of Appendix B of the Code of Practice.

It is estimated that the crèche will generate flow for 50 people (8 staff and 42 children), with a wastewater volume of 90 litres per head per day, based on the figure for the most similar type of usage: a non-residential school with canteen facilities, also as per Appendix C 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* |
| 88 Houses | 237.6 | 150 | 39,204.0 | 0.454 | 1.361 |
| 42 Duplexes | 113.4 | 150 | 18,711.0 | 0.217 | 0.650 |
| 239 Apartments | 645.3 | 150 | 106,474.5 | 1.232 | 3.697 |
| Crèche | 50 | 90 | 4,950.0 | 0.057 | 0.172 |
| **Total** | **1,046.3** | **-** | **169,339.5** | **1.960** | **5.880** |

**Table 7.2 | Calculation of Total Foul Water Flow from the Development**

The total dry weather flow from the development is 1.96l/s, with a peak flow of 5.88l/s.

### 7.2.5 Potential Impact of the Proposed Development

Construction Phase:

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 connections being made to live sewers.

Operational Phase:

As shown in the Table above, there will be a net peak foul water flow of 5.88l/s discharging to the foul water system serving the subject site and ultimately to the North Fringe Interceptor Sewer.

There is a possibility of surface water ingress into the foul water drainage system due to poor workmanship, which would increase the load on the existing sewers. There is also a possibility of leakage from sewers and drains within the development and along the route to the outfall sewer. Any foul water leakage would result in local contamination of soil and ground water in the area.

### 7.2.6 Remedial or Reductive Measures

Construction Phase:

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

- All new foul sewers will be tested by means of an approved air test during the construction phase in accordance with Irish Waters 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 phase.

Operational Phase:

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 ground water on the site.

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

### 7.2.7 Predicted Impact of the Proposed Development

Construction Phase:

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

Operational Phase:

The proposed development will result in an increase in the foul water flows in the existing drainage system. These increased flows will result in an additional peak flow of 5.88l/s discharging to the new Chapel Road Pumping Station. The Chapel Road Pumping Station will have capacity to cater for the subject development's flows.

### 7.2.8 Interactions and Cumulative Impacts

The predicted impacts on the foul water are minor and do not inter-relate significantly with any other environmental topic in this EIAR. However, if the above mitigation measures are not implemented then there may be a possible impact on surface water, soil and flora and fauna.

### 7.2.9 Monitoring

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.

## 7.3 Surface Water Drainage

### 7.3.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) has been prepared by Waterman Moylan and provides an assessment of the impact that the proposed residential development in lands around Auburn House in Malahide, Co. Dublin will have on the surface water network in the vicinity of the site. It also sets out mitigation and remedial measures and methods of monitoring while the development is operational.

### 7.3.2 Research Methodology

Research for this section included a review of Ordinance 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 records for the area.

### 7.3.3 Receiving Environment

The subject site is generally flat with gentle slope from west to east. The existing drain along the northern and eastern boundary of the site (within the Abington development) discharges to an existing culvert under the Malahide Road close to the entrance to the site at the junction with Back Road. This drain is very flat at an estimated average gradient of 1/1000 over its 700-metre length along the north-eastern boundary and through the lands to the entrance of the site.

Surface water from the site discharges into a series of ditches on-site. The ditches drain eastwards and merge with the Hazelbrook Stream, east of the Malahide Road, which is a tributary of the Sluice River that ultimately outfalls to Baldoyle Bay at Portmarnock.

### 7.3.4 Characteristics of the Proposed Development

It is proposed to drain surface water from the development via a series of drains ranging from 150mm to 450mm diameter to two separate outfalls to the existing Hazelbrook Stream: one near the centre of the site to the west of Duplex Block 2A and one at the south of the site near the entrance. A new headwall is to be constructed at each of the outfalls.

The proposed development incorporates a Storm Water Management Plan through the use of various SuDS techniques. 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. The SuDS devices proposed around the site include permeable paving, filter drains, green/sedum roofing, bio-retention systems/raingardens, roadside trees, dry detention basins, flow control devices and petrol interceptors.

Attenuation storage is provided to limit the discharge rate from the site into the public network. As per the GDSDS, the required attenuation volume is calculated assuming 100% runoff from paved areas, and has been calculated for the 1-year, 30-year and 100-year return periods, identifying the critical storm for each. To achieve the required attenuation volume, the site has been divided into three separate sub-catchments. The main portion of the site forms the largest catchment and will be attenuated in a proposed dry detention basin in the open space at the centre of the site. Another

smaller dry detention basin will be utilised to attenuate surface water runoff from the entrance road. The third catchment, located east of the entrance road, will utilise a private on-site attenuation tank, which will be privately managed and maintained.

Surface water runoff will be restricted via a hydro-brake or similar approved flow control device, limited to the greenfield equivalent runoff rate for each catchment.

The proposed new surface water drainage network is shown on the drainage layout drawings, 19-020-P200 to P203.

### 7.3.5 Potential Impact of the Proposed Development

Construction Phase:

Pollution of groundwater / water courses including the Hazelbrook Stream, and ultimately the Sluice River, is possible by accidental spillage of oils / diesel from temporary storage areas or where maintaining construction equipment. During the construction works, rain could wash away silts to the stream.

The initial runoff from newly laid bitumen surfaces will contain some soluble extracts from the bitumen binder. These extracts will mostly consist of phenolic and hydrocarbon substances in low concentrations (circa 10 to 50 mg/l).

There is a risk of rainfall washing silts and sediments into the surface water system and ultimately the Sluice River during construction works.

Operational Phase:

The development will result in the increase of hard standing areas, and therefore an increase in the runoff of surface water to the Hazelbrook Stream and the Sluice River, which may result in downstream flooding.

The runoff from the roads and hardstanding areas will discharge contaminants, including oils and silts to the surface water system which might result in polluting of the Hazelbrook Stream and the Sluice River.

### 7.3.6 Remedial or Reductive Measures

Construction Phase:

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 in accordance with the Building Regulations Part H and BCAR requirements. This will reduce the possibility of any cross connections being constructed going forward in the proposed subject Blocks.

Operational Phase:

The increased runoff from the site will be attenuated, as described above, with the discharge rate to the Hazelbrook Stream limited to the greenfield equivalent runoff rate.

In addition, the significant SuDS devices proposed will significantly reduce and slow down the rate of surface water runoff from each catchment. This will therefore reduce the peak flows in the downstream system during major storm events. Gullies and Hydrobrakes will be regularly maintained to avoid blockages.

The SuDS treatment train will also treat the surface water discharging to the Hazelbrook Stream, removing pollutants and hydrocarbons 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.

### 7.3.7 Predicted Impact of the Proposed Development

Construction Phase:

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

Operational Phase:

With the implementation of the SuDS treatment train and attenuation, as outlined above, the surface water quality and quantity discharging to the Hazelbrook Stream, and ultimately the Sluice River, will be treated and attenuated to the greenfield runoff rate, in accordance with the requirements set out in the GDSDS. No significant adverse impacts are envisaged.

### 7.3.8 Interactions and Cumulative Impacts

If the above mitigation measures are not implemented then there may be a possible impact on the soil, flora and fauna. However, with the above mitigation measures in place the predicted impacts on the surface water are minor and do not inter-relate significantly with any other environmental topic in this EIAR.

### 7.3.9 Monitoring

The surface water network (drains, gullies, manholes, Access Junctions (AJs), SuDS devices, attenuation systems) 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.

# CHAPTER 8 – 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 Auburn House, Malahide, Co. Dublin. The proposed residential development consists of residential apartment blocks, dwelling houses and social spaces.

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 Research 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 the transport Assessment undertaken for Auburn. 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 8.2.1. Air quality significance criteria are assessed on the basis of compliance with the standards.

| Pollutant | Limit value objective | Averaging period | Value limit |
|---|---|---|---|

| | | | (µg/m³) |
|---|---|---|---|
| Nitrogen Dioxide ($NO_2$) | Protection of human health | calendar year | 40 |
| | | 1 hour | 200 |
| Benzene | Protection of human health | calendar year | 5 |
| Carbon Monoxide (CO) | 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 |
| | | 24 hours | 125 |
| Particulate Matter ($PM_{10}$) | Protection of human health | 24 hours | 50 |
| | | calendar year | 40 |
| Particulate Matter ($PM_{2.5}$) | Protection of human health | calendar year | 25 |

**Table 8.2.1: Air quality standards regulations (S.I.180)**

### 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 Swords Council Depot, Co. Dublin. These local monitoring stations give people a rapid and up-to-date indication only, of air quality in their locality.

### 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 ($PM_{2.5}$) and the EU ambient air quality standards outlined in Table 9.1 have set ambient air quality limit values for $PM_{10}$ and $PM_{2.5}$. 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 mg/m$^2$/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.

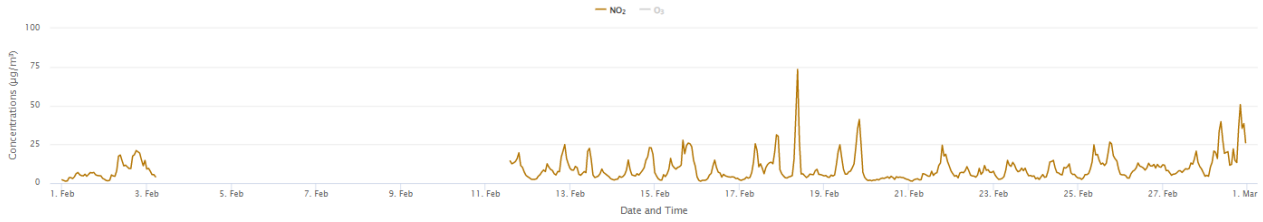
## 8.3 Receiving Environment at Auburn, Malahide

Malahide is a coastal area in Fingal, County Dublin, situated approximately 18 km north-east of Dublin city. The Auburn House project is a new development in the grounds of the existing Auburn House with the main entrance just of the Malahide Road and Back Road junction. The site is approximately 2km from the Malahide town centre. The development site has residential housing (Abington) to the north and North East. To the south it has residential housing (Streamtown) and to the South-East it has residential housing (Clairville). To the east and South-East across the Malahide Road it has agricultural lands. Overall, the proposed development area is located within an area which includes sources of transportation related air emissions from roads, local residential estates and sources of domestic heating. The site is not in any immediate location of facilities that generate emissions that would create a risk to unsafe air quality limit values.

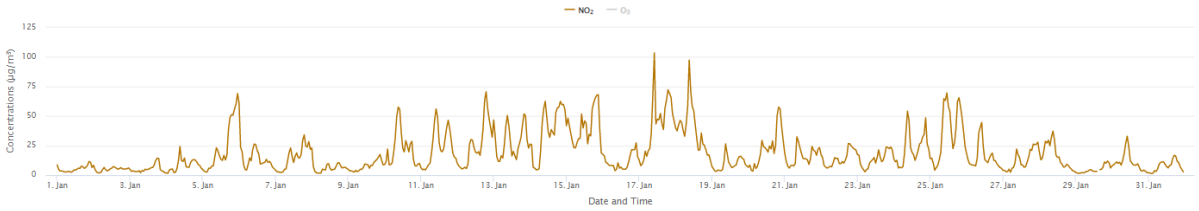
### 8.3.1 EPA Air Quality Monitoring Results

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 ($NO_2$ 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 Auburn residential development site is located within Zone A, the Dublin conurbation.

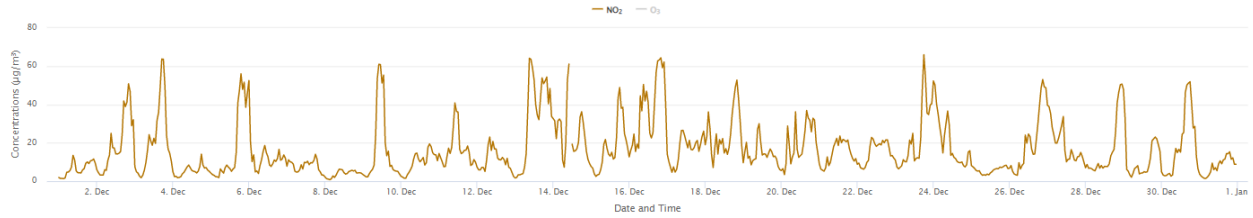
The EPA publish official data only from the national monitoring station on a yearly basis. The nearest national and local EPA air quality monitoring station from the development site is Swords, Council Depot, Co. Dublin approximately 3.5km away. These local monitoring stations give people a rapid and up-to-date indication only, of air quality in their locality. Local monitoring data for $NO_2$ can be obtained only up to a couple of months previous. The previous 4 months graphs for Swords $NO_2$ emissions are illustrated below.



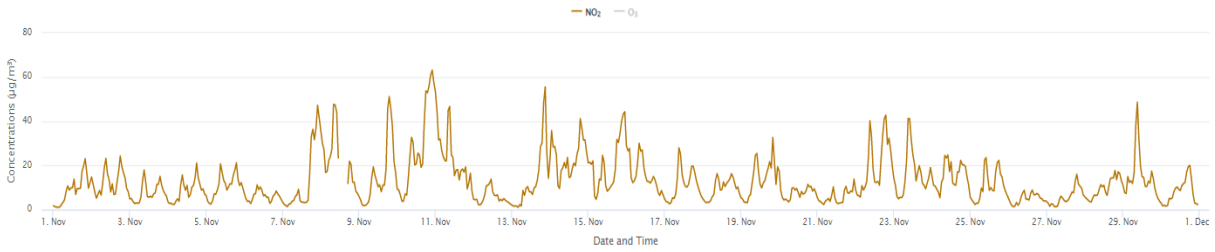

**February 2022 monitoring data. Copyright EPA.**




**January 2022 monitoring data. Copyright EPA.**




**December 2021 monitoring data. Copyright EPA.**




**November 2021 monitoring data. Copyright EPA.**

The EPA publish official data only from the national monitoring station on a yearly basis. Table 8.3.1 shows the annual mean value concentrations measured at Swords for 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 ($\mu g/m^3$)** |
|---|---|---|---|---|---|---|
| Sulphur Dioxide ($SO_2$) | 2.98 * | 1.50 * | 2.10 * | 1.66 * | 2.06 | 20 |
| Particulate Matter ($PM_{10}$) (With a diameter <10 microns) | 13.10 * | 14.5 * | 14.10 * | 12.40 * | 13.53 | 40 |
| Particulate Matter ($PM_{2.5}$) (With a diameter <2.5 microns) | 7.60 * | 9.20 * | 8.55 * | 7.50 * | 8.21 | 20 |
| Nitrogen Dioxide ($NO_2$) | 11.0 | 15.0 | 16.0 | 14.2 | 14.05 | 40 |
| Carbon Monoxide (CO) ($mg/m^3$) | 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) | 53.0 | 53.0 | 54.0 | 51.7 | 52.3 | 120 |

**Table 8.3.1: Summary of data from the EPA ambient air monitoring report 2019, 2018 and 2017.**

* Swords, Council Depot 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 from 2019.

### 8.3.2 Significance of EPA Results and Receptors

The national recorded levels of pollutants show the air quality parameters are all below the air quality limit values. It can be seen that the existing baseline air quality at the site locality can be characterised as being good with no extended exceedances of the National Air Quality Standards Regulations limit values. The principal local receptors that may be impacted by the proposed development are existing residential dwellings to the north and north east (Abington). To the south it has residential housing (Streamtown) and to the South-East it has residential housing (Clairville).

## 8.4 Potential Impact of the Proposed Development

When considering a new development, the impact on air quality must be considered for each distinct stage; construction phase and operational phase It is important that there are no unacceptable decreases in ambient air quality levels predicted during the phases.

### 8.4.1 Construction Phase

The construction phase of the development has the potential to generate short term dust emissions and may have the potential to impact air quality. Dust emissions can lead to elevated $PM_{10}$ 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 carried out in conjunction with ambient conditions, including rainfall, wind speed and the distance to potentially sensitive locations. The majority of any dust produced during the construction phase may be deposited close to source. The movements of construction vehicles on the site could also generate dust emissions. Construction traffic to and from the site may have the potential to result in a short-term increase in the volume of diesel fuelled HGV's along the local road network which may generate additional levels of exhaust emission compounds such as NOx, CO and hydrocarbons such as benzene.

### 8.4.2 Operational Phase

The operational phase of the proposed development 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. At the local scale the principal pollutants potentially are $NO_2$ and $PM_{10}$.

## 8.5 Predicted Impact of the Proposed Development

### 8.5.1 Construction Phase

There is a risk that dust is likely to cause an impact at previously chosen sensitive receptors that are in close proximity to the source of the generated dust. Dust emissions can lead to elevated $PM_{10}$ and $PM_{2.5}$ concentrations and is likely to also cause dust soiling. 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 to determine the likelihood of a significant impact. The construction assessment criteria reproduced from the NRA are set out in Table 8.5.1.

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. Some of the residential dwellings in the Abington estate neighbourhood are located ~30-50m of the site. Construction related dust at these properties is likely to result in a 'Temporary Slight Adverse' impact. Where dust impacts are deemed likely, 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, detailed mitigation measures examined in section 8.6.

| Source | Potential Distance for Significant Effects (Distance from source) |
|---|---|

| Scale | Description | Soiling | $PM_{10}$ | 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 |

**Table 8.5.1: Assessment criteria for the impact of dust from construction activities with standard mitigation in place (NRA 2011)**

Institute of air quality management (IAQM) guidelines outline an assessment method for predicting the impact of dust emissions from construction based on the scale and nature of the works and the sensitivity of the area to dust impacts. In terms of receptor sensitivity to dust soiling, there are between 10-20 high sensitivity (residential) receptors likely to be located less than 50m from the proposed construction works which is considered a medium sensitivity environment for dust soiling according to the criteria outlined in table 8.5.2.

| Receptor sensitivity | No. of receptors | Distance from source (m) | | | |
|---|---|---|---|---|---|
| | | <20 | <50 | <100 | <350 |
| High | >100 | High | High | Medium | Low |
| | 10-100 | High | Medium | Low | Low |
| | 1-10 | Medium | Low | Low | Low |
| Medium | >1 | Medium | Low | Low | Low |
| Low | >1 | Low | Low | Low | Low |

**Table 8.5.2: Sensitivity of the area to dust soiling effects on people and property.**

Vehicles such as HGV's travelling to and from the site during the construction phase have the potential to cause an increase to pollutant concentrations at nearby receptors. Small increases in levels to PM and pollutants related to increased 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 above the limit of regulation values. The IAQM guidelines indicate that it is necessary to classify the significance of the existing environment along with magnitude of change to derive significance. Using these guidelines, the magnitude of change is 'negligible' and the significance of this is 'not significant'.

### 8.5.2 Operational Phase

The design and construction of buildings in accordance with National Building Regulations, The Irish Building Regulations Technical Guidance Document L, Conservation of Fuel & Energy, 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 development has considered a number of sustainable 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. Continued encouragement of public transport usage will significantly reduce the number of private vehicles exiting and entering the development. However, the DMRB screening air dispersion model from the U.K Highway Agency Design Manual for Roads and Bridges Air Quality Assessment, was used to assess the impact of traffic associated with the development.

Projected transport figures from a recent traffic assessment were used to predict the concentrations of traffic-derived pollutants in future years. The model then combined background concentrations of pollutants, sourced from the EPA reports (4-year average values were used). Results were generated using an average speed of 30 km/h assuming congested traffic conditions. Using the DMRB screening air dispersion model, pollutant concentrations in 2030 were predicted at the development site. In order to quantify the magnitude of change in pollutant concentrations, the descriptors in table 8.5.3 were used. To describe the significance of the impact, table 8.5.4 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.

| Magnitude of Change | Annual Mean $NO_2$ ($\mu g/m^3$) | No. of Days with $PM_{10}$ concentration greater than 50 $\mu g/m^3$ | Annual Mean PM ($\mu g/m^3$) |
|---|---|---|---|
| **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 8.5.3: Definition of impact magnitude for changes in ambient air pollutant concentrations.**

| Absolute Concentration in Relation to Objective /Limit Value | Changes in Concentration | | |
|---|---|---|---|
| | Small | Medium | Large |
| **Increase with Scheme** | | | |
| Above Limit Value with Scheme (≥40$\mu g/m^3$ of $NO_2$ or $PM_{10}$) (≥25$\mu g/m^3$ of $PM_{2.5}$) | Slight Adverse | Moderate Adverse | Substantial Adverse |
| Just Below Limit Value with Scheme (36-<40$\mu g/m^3$ of $NO_2$ or $PM_{10}$) (22.5-<25$\mu g/m^3$ of $PM_{2.5}$) | Slight Adverse | Moderate Adverse | Moderate Adverse |
| Below Limit Value with Scheme (30-<36$\mu g/m^3$ of $NO_2$ or $PM_{10}$) (18.75-<22.5$\mu g/m^3$ of $PM_{2.5}$) | Negligible | Slight Adverse | Slight Adverse |

| | | | |
|---|---|---|---|
| Well Below Limit Value with Scheme ($<30\mu g/m^3$ of $NO_2$ or $PM_{10}$) ($<18.75\mu g/m^3$ of $PM_{2.5}$) | Negligible | Negligible | Slight Adverse |

**Table 8.5.4: Air quality impact descriptors for changes in annual mean $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations.**

The results of the impact assessment at Abington neighbourhood arising from increased transport are presented in Table 8.5.5. The results predict the 2030 air quality relative to the existing baseline. The impact equates to a 'medium' increase (based on the NRA criteria) in annual average $NO_2$. Using the NRA significance criteria, it results in a 'negligible' impact in terms of local impact as a result of cumulative traffic. The predicted $PM_{10}$ impact equates to a 'small' increase in annual average $PM_{10}$. A small increase in annual average $PM_{10}$ results in a 'negligible' impact in terms of local impact as a result of cumulative traffic. The modelled results do show an increase in annual $NO_2$ and $PM_{10}$ but each remain well below the limit values for EU regulations. Levels of benzene and CO are also predicted to be well below the statutory limits.

| **Receptor A** | **Annual Average $NO_2$ ($\mu g/m^3$)** | **Annual Average $PM_{10}$ ($\mu g/m^3$)** | **Annual Average ($\mu g/m^3$)Benzene** | **Annual Average CO ($\mu g/m^3$)** |
|---|---|---|---|---|
| Background | 14.05 | 13.53 | 0.46 | 0.27 |
| Limits | 40 | 40 | 5 | 10 |
| **Do Nothing** (2030) | 14.95 | 13.90 | 0.48 | 0.28 |
| Increase | + 0.90 | + 0.37 | + 0.02 | + 0.01 |
| Magnitude | small | small | imperceptible | imperceptible |
| Description | negligible | negligible | negligible | negligible |
| **Do Something** (2030) | 16.8 | 14.49 | 0.49 | 0.29 |
| Increase | + 2.75 | + 0.96 | + 0.03 | + 0.02 |
| Magnitude | medium | small | imperceptible | imperceptible |
| Description | negligible | negligible | negligible | negligible |

**Table 8.5.5: Modelled results**

Modelled Results show an expected small increase in annual $NO_2$, $PM_{10}$, benzene and CO but each parameter remain well below the limit values for EU regulations. This predicted increase above the existing situation results in a negligible impact and would not result in a perceptible change in the existing local air quality environment.

## 8.6 Mitigation Measures

### 8.6.1 Remedial and Reductive Measures

**Construction Phase**

In order to mitigate dust emissions and minimise air quality impacts during the construction phase, placing activities which are a potential source of dust away from boundaries would minimise the possibility of exposure. If this measure is implemented, then impacts on dust concentrations at local receptors are capable of being reduced to at worst a minor adverse level. Standard mitigation

measures would be implemented onsite to control emissions during construction, Full details of the dust management plan can be found in Appendix 8.1. Summary of mitigation measures include:

- Any required demolition works to be undertaken in a phased and controlled manner.
- The dampening down of potential dust generating demolition activities.
- Avoid unnecessary vehicle movements and limit speeds on site so as to minimise the generation of airborne dust.
- Site roads shall be regularly cleaned and maintained as appropriate. Hard surface roads shall be swept to remove mud/aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- Any site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions.
- location of temporary storage of dusty materials and material transfer operations as far from the nearest sensitive receptors as practicable.
- Aggregates will be transported to and from the site in covered trucks.
- Exhaust emissions from vehicles operating within the construction site or other plant equipment, will be controlled by ensuring that emissions from vehicles are minimised by routine servicing of vehicles along with the avoidance of engines running unnecessarily.
- 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.
- Where drilling or pavement cutting, grinding or similar types of operations are taking place, measures to control dust emissions will be used by the erection of wind breaks or barriers.
- 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**

As outlined in the DMRB assessment, it is likely the operational phase will not generate air emissions that would have an adverse impact on local ambient air quality and as such there are no mitigation measures specified. Also, the Travel Plan (chapter 13) aims to promote sustainability by enhancing public transport with regular and ongoing increases in the public transport capacity and to reduce dependency on the use of the private car.

### 8.6.2 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.

### 8.6.3 Difficulties encountered in compiling the chapter

There were no difficulties met when conducting this assessment.

### 8.6.4 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'.

# APPENDIX 8.1

## Dust Management Plan

**Site management**

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design and effective control strategies. At the construction planning stage, the siting of activities and storage piles will take note of the location of sensitive receptors and prevailing wind directions. As the prevailing wind is predominantly south-westerly, locating construction compounds and storage piles downwind of sensitive receptors will minimise the potential for dust nuisance to occur at sensitive receptors. The Principal Contractor or equivalent must ensure that the proposed mitigation measures are implemented, and that dust impacts and nuisance are minimised.

- It is recommended that community engagement be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses.
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary. A complaints register will be kept on site detailing all sources of complaints received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out.
- Regular inspections of the site and boundary should be carried out to monitor dust, records and notes on these inspections should be logged.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.
- In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and satisfactory procedures implemented to rectify the problem.

**Preparing and maintaining the site**

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site if necessary.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover or fence stockpiles to prevent wind whipping.

**Site roads and operating vehicles / machinery**

- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles using unpaved site roads.
- Access gates to the site shall be located at least 10m from sensitive receptors where possible.

- Bowsers or suitable watering equipment will be available during periods of dry weather. Watering shall be conducted during sustained dry periods to ensure that unpaved areas are kept moist.
- Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- Ensure all vehicles switch off engines when stationary.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.

**Site traffic on public roads**

- Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered with tarpaulin at all times.
- At the main construction traffic exit, a wheel wash facility shall be installed. All trucks leaving the site must pass through the wheel wash. The wheel wash will be located sufficiently far from the exit to allow trucks to 'drip off' prior to exit. In addition, public roads outside the site shall be regularly inspected for cleanliness and cleaned as necessary.
- Vehicles onsite shall turn off engines when not in use to prevent idling emissions.

**Onsite operations**

- Only use cutting, grinding, or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays.
- Ensure an adequate water supply on the site for effective dust / particulate matter suppression.
- Use enclosed chutes and conveyors and covered skips.
- Avoid dry sweeping of large areas.
- Minimise drop heights from conveyors and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event.

**Waste management**

- Avoid bonfires and burning of waste materials.

**Demolition activities**

- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- Ensure effective water suppression is used during demolition operations.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.

**Earthwork's activities**

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Only remove the cover in small areas during work and not all at once.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser or similar will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

**Construction activities**

- Ensure aggregates are stored in bunded areas and are not allowed to dry out unless this is required for a particular process.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately.
- During periods of very high winds (gales), construction activities likely to generate significant dust emissions should be postponed until the gale has subsided.

# CHAPTER 9 – NOISE AND VIBRATION

## 9.1 Introduction

This chapter of this Environmental Impact Assessment has been prepared by DKP Environmental ($DKP_{EV}$) and assesses noise and vibration impacts associated with the proposed development at Auburn House, Malahide. The proposed residential development consists of residential apartment blocks, dwelling houses and social spaces.

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 in Chapter 13 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 6472-1 (2008) Guide to evaluation of Human Exposure to Vibration in Buildings - Vibration sources other than Blasting.

- 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.

### 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 18hour 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.

| Change in Noise Level | Subjective Reaction | Impact Guidelines for Noise Impact assessment significance | Impact Guidelines on the Information to be |
|---|---|---|---|
| 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 or halving of loudness | Substantial | Significant |
| 10 dB or more | More than a doubling or halving of loudness | Major | Profound |

The following tasks were carried out in order to assess the noise impacts of the subject site on identified NSRs, 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 closest 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 locations chosen.

| Measurement Location | Location | Measurement Type | Justification |
|---|---|---|---|
| Station 1 | R107 – Junction Back Road | Manual | To determine back ground noise levels |
| Station 2 | R107 – Junction Streamtown Lane | Manual | To determine back ground noise levels |

### 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 LA10 18hour parameter as outlined in the CRTN document issued by Transport Infrastructure Ireland (formerly the National Roads Authority (NRA)). Using the Chapter 13 traffic report for the increased volume of traffic has been based on Malahide Road (Dublin Road) being the current main artery road in the general vicinity taking traffic in and out of the new proposed development.

### 9.3.2 Receiving Environment

The Auburn House project is a new development in the grounds of the existing Auburn House with the main entrance just of the Malahide Road and Back Road junction. The site is approximately 2km from the Malahide town centre. The development site has residential housing (Abington) to the north and North East. To the south it has residential housing (Streamstown) and to the South-East it has residential housing (Clairville). To the east and South-East across the Malahide Road it has agricultural lands.

### 9.3.3 Background Noise Survey

To assess the surrounding background noise levels, a daytime background noise survey was carried out on December 17th and 18th 2020 outside the covid lockdown period. During the survey the 2 attended stations were monitored and at each station three consecutive 15-minute measurements were recorded during the period from 08:00 to 13:00. The measurements taken are deemed to be representative of typical noise levels on the Malahide Road area. 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.

**LAmax** is the maximum A-weighted sound level measured during the measurement period.

**LAmin** 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:

| Sound levels in decibels 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 Background Noise Survey Data

The following 2 no. tables are the measured and calculated (average) background noise levels from the 2 no monitoring locations.

| | |
|---|---|
| Station 1 | |

| Time | LAeq | LAmax | LAmin | LA10 | LA90 | Comments |
|---|---|---|---|---|---|---|
| 8.00 | 58 | 87 | 47 | 63 | 47 | Mainly general traffic noise with occasional lorry for construction site main artery road |
| 9.00 | 58 | 89 | 46 | 65 | 49 | |
| 11.00 | 56 | 79 | 47 | 59 | 48 | |
| 13.00 | 61 | 84 | 47 | 60 | 48 | |
| Avg | 59 | | | 61 | 48 | |

| Station 2 | | | | | | |
|---|---|---|---|---|---|---|
| **Time** | LAeq | LAmax | **LAmin** | **LA10** | **LA90** | **Comments** |
| 8.00 | 56 | *88* | *46* | 61 | 46 | Mainly general traffic noise with occasional lorry for construction site main artery road |
| 9.00 | 57 | *92* | *48* | 64 | 47 | |
| 11.00 | 57 | *74* | *47* | 58 | 47 | |
| 13.00 | 57 | *82* | *44* | 59 | 48 | |
| Avg | 57 | | | 60 | 47 | |

### 9.3.6 Basic Noise Measurement Overview

During daytime periods average ambient noise levels were in the range 58 to 61dB LAeq Average background noise levels were in the range 47 to 48dB LA90 and average LA10 values, typically used to describe traffic noise were in the range 60 to 61dB, 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 will consist of the preservation and protection of the existing Protected Structure of Auburn House and its stables as 1 no. residential dwelling; the conversion of the existing stables of Auburn House to provide for storage space for the main Auburn House and the construction of 368 no. new residential dwelling units (comprising 87 no. houses, 239 no. apartments & 42 no. duplex units) for an overall total of 369 no. residential units, including Auburn House. The development shall consist of 135 no. 1-bedroom apartments and duplex apartments, 138 no. 2-bedroom apartments and duplex apartments, 8 no. 3-bedroom apartments and duplex apartments, 47 no. 3-bedroom houses, 34 no. 4-bedroom houses, 6 no. 5-bedroom houses and the existing 11-bedroom Auburn House along with 1 no. childcare facility and 1 no. ancillary resident facility. The proposed development shall also provide landscaped public open space, car parking and all associated ancillary site development infrastructure

including foul and surface water drainage, internal roads, cycle paths and footpaths, and boundary walls and fences. Vehicular access to the proposed development is to be via a new entrance at the R107 Malahide Road/Dublin Road entrance, with the existing entrance to Auburn House acting as a pedestrian/cyclist entrance and access to existing properties outside the application site, there will be a secondary entrance comprising modifications of the existing vehicular entrance off Carey's Lane to the south west of the development, the closure of the existing vehicular entrance to Little Auburn, the provision of 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development. The building heights range from 2 storey to 5 storey buildings with balconies or terraces being provided to the apartments and duplex units.

## 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(s). 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 Auburn 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.

| Noise Source | Sound Power LWA dB |
|---|---|
| Heavy delivery truck | 102 |
| Ground works excavator | 100 |
| Noisy construction plant (mixers, vibrators) | 106 |

| Distance of Potential NSR from construction site | Predicted Noise levels at NSR LAeq dB | BS5228-1 (2009) | |
|---|---|---|---|
| | | 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 also will be short-term in duration. 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 Auburn site. It is anticipated that the additional road traffic noise attributable to the development (cumulatively with existing Malahide Road traffic) will result in an increase in the baseline noise environment by 1.0 to 1.5 dB(A) at the Auburn House development entrance (Junction of Malahide Road and Back Road) and by 0.5 to 1.0 dB(A) at the Malahide Road and Streamstown Lane junction.

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. The table below details the impact/category.

| Change in Noise Level | Subjective Reaction | Impact Guidelines For Noise Impact assessment significance | 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 or halving of loudness | Substantial | Significant |
| 10 dB or more | More than a doubling or halving of loudness | Major | Profound |

Based on the table above and the anticipated increase in noise levels we deem the operational noise impact to be categorised as '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

$DKP_{EV}$ 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.

## 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.

# CHAPTER 10 – CLIMATE

## 10.1 Introduction

Chapter 10 of this Environmental Impact Assessment has been prepared by DKP Environmental ($DKP_{EV}$) and assesses the effects of the proposed development on carbon dioxide ($CO_2$) emissions effecting the current climatic conditions. The proposed development at Auburn House, Malahide, Co. Dublin consists of residential apartment blocks, dwelling houses and social spaces. This section will identify and assess the impact of the proposed development in terms of Carbon dioxide ($CO_2$) emissions during the construction phase and when in full operational use.

We note that although the construction phase contributes to $CO_2$ 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

$CO_2$ is the largest and most important contributor to climate change. Methane, nitrous oxide, other gases and ozone are also important greenhouse gases. $CO_2$ 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. As a consequence, $CO_2$ is accumulating in the atmosphere, where it is the key driver of global climate change. It is difficult to accurately apportion any increase in $CO_2$ emissions as a result of the proposed development at Auburn House 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 $CO_2$ 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 on 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 $CO_2$ 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 $CO_2$ 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 Auburn House project is a new development in the grounds of the existing Auburn House with the main entrance just of the Malahide Road and Back Road junction. The site is approximately 2km from the Malahide town centre. The development site has residential housing (Abington) to the north and North East. To the south it has residential housing (Streamstown) and to the South-East it has residential housing (Clairville). To the east and South-East across the MalahideRoad it has agricultural lands. The development consists of a total of 369 residential units. For this chapter we have taken the average size of the residential units at 82.8m2 with average glazed area, façade/floor/roof exposure and orientation.

## 10.4 Potential $CO_2$ Emission Effect

The $CO_2$ 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 $CO_2$ emissions to a minimum.

### 10.4.1 Construction Phase

The construction phase of buildings has 2 no typical CO2 emission sources: Transport and embodied carbon dioxide of building materials. The most obvious emissions are from transport i.e., vehicles, equipment etc during the construction phase but carbon dioxide is also accounted for as a result of the type of materials used. Each material carries an element of $CO_2$ known as embodied carbon dioxide which represents the total amount of $CO_2$ attributed to a material over the lifetime (60 years) of a building. Embodied $CO_2$ represents the $CO_2$ attributed to the material including the exploration, manufacturing, transportation to site, the use during the life cycle of the dwelling and finally the removal or recycling. Local materials like wood or stone have relative low $CO_2$ factors, manufactured materials like Portland cement, steel, aluminium have very high $CO_2$ factors and their use should be minimised where possible. The university of Bath have an elaborate list of building material with their embodied carbon dioxide factor listed for each material. The embodied $CO_2$ quantity is normally generated using the bill of quantities for a building however in this chapter we have applied the data from a typical 90m$^2$ residential unit. The construction phase of the scheme only emits $CO_2$ and other possible greenhouse gasses in the relative short term.

#### 10.4.1.1 The Construction Phase Base Line

The base line construction transport $CO_2$ data is based on an average 4,500km of vehicular movement of HGV's (50%) , LGV's (35%) and private cars (15%) with a combined average carbon output of 255 gr/km/$CO_2$ taken from the Irish Construction Federation statistics resulting in emission totalling +/- 1100 kg $CO_2$ for the construction period.

The base line embodied $CO_2$ data is taken from the data base available from the university of Bath $CO_2$ embodied carbon dioxide tables with a typical average residential unit (90m$^2$) to embody +/- 23,000 kg $CO_2$ using typical traditional building materials.

| **Construction phase base line $CO_2$ emissions** | Life cycle impact emission rate kg$CO_2$/m2 | Single unit emission ton-$CO_2$ |
|---|---|---|
| | baseline | baseline |
| Construction transport | 0.23 | 1.1 |
| Construction embodied $CO_2$ | 4.8 | 23.0 |
| Total impact | 5.0 | 24.1 |

**Table 10.1: Construction phase base line CO2 emissions**

### 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 $CO_2$ 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 $CO_2$ 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.

$CO_2$ emissions from energy supplies to buildings is the more significant part of the overall operational development operational contribution. The main energy supply $CO_2$ 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 by the use of 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 $CO_2$ emissions over the life cycle period of the building.

#### 10.4.2.1 Operational Phase Base Line

The base line construction transport $CO_2$ data for residential vehicular movement $CO_2$ 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 resulting in a yearly emission of 1750 kg/$CO_2$/year or 1.75 ton-CO2/year.

The base line $CO_2$ emissions from energy supplies to buildings is the more significant part of the overall development's operational phase contribution. Using the national software for $CO_2$ emissions attributed to energy supplies for a typical 90m2 residential unit the emissions of a standard reference unit 5150 kg/$CO_2$/year or 5.15 ton-$CO_2$/year.

| **Operational phase base line $CO_2$ emissions.** | Life cycle impact emission rate kg$CO_2$/m2 | Single unit 1 year ton-$CO_2$ |
|---|---|---|
| | | baseline |
| Transport | 21.9 | 1.75 |
| Energy (heat & hot water) | 64.4 | 5.15 |
| Total impact | 86.3 | 6.90 |

**Table 10.2: Operational phase base line CO2 emissions.**

Transport emissions personal and delivery vehicles are being reduced through EU and national initiatives and regulation on a continuous basis. $CO_2$ 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 $CO_2$ per km in 2022 compared to the current average vehicular emission rate of 175 gr/km.

## 10.5 Minimising $CO_2$ Emissions

The following sections are reduction measures implemented in the project's $CO_2$ emission calculations to illustrate the effects of such reductions on the environment.

### 10.5.1 Construction Phase Transport

$CO_2$ 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 $CO_2$

Embodied $CO_2$ 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 $CO_2$ is attributed to all materials to be used on site and by minimising or avoiding certain materials the impact on $CO_2$ emissions can be reduced by:

- Increasing the use of locally available recycled materials.
- Reducing the use of materials with a high embodied $CO_2$ element.
- Increasing the use of "green" concrete (Granulated Blast Furnace Slag to replace Portland cements as the latter has significant embodied $CO_2$.)
- Reducing the use of metals. Metals generally contain the highest embodied $CO_2$ 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. $CO_2$ 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 $CO_2$ per km in 2022. The following is applied to lower $CO_2$ emissions as a result of transport:

- Encourage the use of electric cars.
- Encourage the use of new low $CO_2$ 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 $CO_2$ 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% $CO_2$ 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 <= 0.110 W/m2K
- External walls: U <= 0.150 W/m2K
- Party walls: U= 0.0 W/m2K (solid party wall)
- Roofs: U <= 0.125 W/m2K
- Window & frame: U <=1.20 W/m2/K, Solar transmittance <= 0.64
- External (unglazed) door & frame: U <= 1.2 W/m2K
- Cold bridging: U <=0.08 W/m2K special construction joints applied.
- Thermal mass: TP250
- Ventilation: Humidity controlled natural ventilation / intermittent extracts or full MVHR.
- Air tightness: Design assumption <= 2.75 m3/m2*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 suggested reduction measures listed in sections 10.5.1,-2,-3 and -4 effects the construction phase emissions for a single unit and for the total combined number residential units as follows:

| **Construction phase base line CO2 emissions and effects of reductions** | Life cycle impact emission rate $kgCO_2/m2$ | | Single unit emissions $ton\text{-}CO_2$ | | 369 units emissions $ton\text{-}CO_2$ | |
|---|---|---|---|---|---|---|
| | baseline | reduced | baseline | reduced | baseline | reduced |
| Construction transport | 0.23 | 0.20 | 1.1 | 1.0 | 405.9 | 355 |
| Construction embodied CO2 | 4.8 | 4.0 | 23.0 | 19.0 | 8487 | 7002 |
| Total impact | 5.0 | 4.2 | 24.1 | 19.9 | 8892.9 | 7357 |

**Table 10.3: Construction phase base line CO2 emissions and effects of reductions**

We note the reduction of 12.5% on transport and 17.5% on embodied CO2 reductions to result in a reduction of 4.2 tonCO2 for a single unit and a reduction of 1,536 tonCO2 for the 369 units.

The emission rate for the construction phase was reduced from 5.0 kgCO2/m2 to 4.2 kgCO2/m2 or an overall reduction of 17.3%.

| **Operational phase base line CO2 emissions and effects of reductions.** | Life cycle impact rate / m2 $kgCO_2/m2$ | | Single unit 1 year $ton\text{-}CO_2$ | | 369 units 1 year $ton\text{-}CO_2$ | |
|---|---|---|---|---|---|---|
| | baseline | reduced | baseline | reduced | baseline | reduced |
| Transport | 21.9 | 19.0 | 1.75 | 1.52 | 645.75 | 562 |
| Energy (heat & hotwater) | 64.4 | 18.0 | 5.15 | 1.44 | 1900.35 | 532 |
| Total impact | 86.3 | 37.1 | 6.90 | 2.96 | 2546.1 | 1094 |

**Table 10.4: Operational phase base line CO2 emissions and effects of reductions.**

We note the reduction of 13.0% on transport and 72.0% on energy CO2 reductions to result in a reduction of 3.9 tonCO2 per year for the average single unit totalling 1,452 tonCO2 / year for 369 units. Over the 60-year life cycle of the building this represents a reduction of 236.1 tonCO2 for a single unit and a total of 87,132 tonCO2 for the 369 units. The emission rate for the construction phase was reduced from 86.3 kgCO2/m2 to 37.1 kgCO2/m2 or an overall reduction of 57.0%.

## 10.7 National 2022 and 2030 $CO_2$ 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.

| **EPA $CO_2$ emission data** | National emissions<br><br>Mt-$CO_2$/year |
|---|---|
| 2022 emissions | 60 |
| 2030 emissions | 58 |
| 2030 emission with additional measures | 47.5 |

**Table 10.5: National overall CO2 emissions in 2022 and 2030.**

### 10.7.1 Proposed Development $CO_2$ Emissions.

Using the data from tables 10.3 and 10.4 we have calculated to CO2 emissions using the same unit (Mt-$CO_2$/year) as the National $CO_2$ emission table (10.5) to get a better idea of the actual impacts. For this chapter for now we assumed the emissions of the construction phase to be executed in one year (2022).

| **Total project CO2 emissions** | 369 units construction Mt-$CO_2$ /year | 369 units operational Mt-$CO_2$ /year | 369 units combined Mt-$CO_2$ /year |
|---|---|---|---|
| 2022 | 0.00736 | 0.00109 | 0.00845 |
| 2030 | 0.00000 | 0.00109 | 0.00109 |

**Table 10.6: Proposed project CO2 emissions in 2022 and 2030**.

### 10.7.2 Effects of the Proposed Project $CO_2$ Emissions on the National Emissions

Using the data from tables 10.5 and 10.6 we have calculated to $CO_2$ emissions from the proposed project and compare these with the National (EPA) listed emissions for 2022 and 2030.

| **Project CO2 emission impact on National emissions** | National emissions Mt-$CO_2$ /year | 369 units emissions Mt-$CO_2$ /year | fraction<br><br>% |
|---|---|---|---|
| 2022 | 60 | 0.00845 | 0.01408 |
| 2030 | 58 | 0.00109 | 0.00189 |
| 2030 with additional measures | 48 | 0.00109 | 0.00230 |

**Table 10.7: Effect of proposed project CO2 emissions on national emissions in 2022 and 2030.**

The national impact:

The impact of this 369-unit development/phase of 0.00845 Mt-CO2 on Ireland's current emissions (2022) @ 60 Mt-CO2/year represents an increase of 0.01408%.
The impact of this 369-unit development/phase of 0.00109 Mt-CO2 on Ireland's projected 2030 emissions @ 58 Mt-CO2/year represents an increase of 0.00189%.

Based on the above findings we note the impacts on the national $CO_2$ emission at worse to be very fractional. $CO_2$ emission 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 $CO_2$ 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 $CO_2$ 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 non-compliance i.e., mitigation occurs.

# 11.0 LANDSCAPE AND VISUAL IMPACT 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 111.1: 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. |

| **Significance of Effects** | **Criteria** |
|---|---|
| Significant Effects | An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment. |
| 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 3D Design Bureau 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 Figures 11.14 and 11.15. 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 is located approximately 2 km south-west of Malahide Village, within the townland known as Streamstown and covers an area of. approximately 13.28 hectares. The lands are located 12km north of Dublin City Centre and 6km north of Dublin Airport. The M1/ R125 motorway interchange is located approximately 3km to the west of the subject site and Malahide train station is located 2km from the site and is served by the Northern Commuter and DART systems. The subject site is accessed off Malahide Road and a tree lined driveway provides access to Auburn House.


**Figure 111.1: Location of subject site**

While there seems to have been some type of settlement on this site since the 1700's, as indicated on Rocque's 1760 survey of Co. Dublin, the current configuration of Auburn House was constructed in c.1779. The driveway, Auburn House and the woodland to the north, west and south of the house are represented on Taylor's 1816 map of Dublin. On the 1843 map, Auburn House and its stable yard are shown in more detail, along with the walled garden and orchards, the large open field to the east of the house, a well-established woodland to the rear of the dwelling with pathways and tree lined field boundaries.


**Figure 111.2: Rocque's 1760 survey (left) & Taylor's map - Environs of Dublin – 1816 (right)**

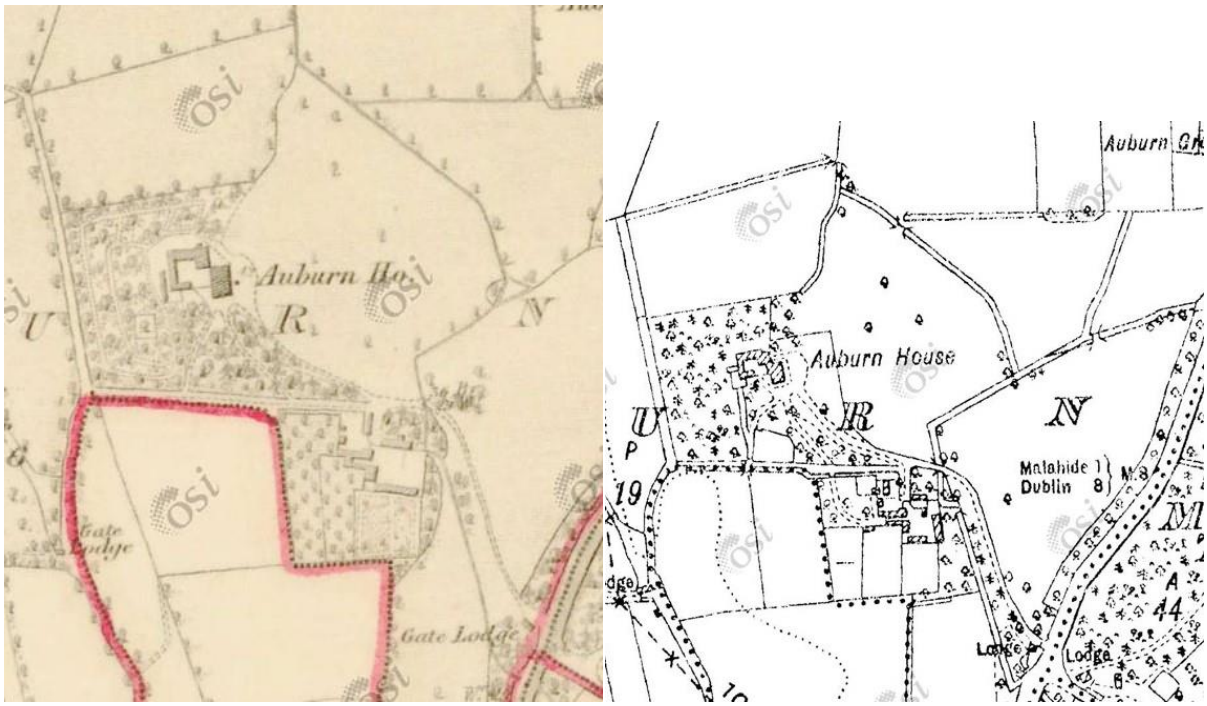



**Figure 111.3: Extract from 1829-42 Survey of Dublin (left) & Six-inch OS map - 1935-38 (right)**

The ground level rises from +9m OD along the eastern and south-eastern boundaries of the site, up to +10.45m OD at the north-west corner of the subject site and to +14.00m OD at western boundary at Carey's Lane. In the field to the north of the house there is a hillock that reaches +12.28m OD and another in the wooded area to the west of the house that reaches +14.49m OD.

A mature tree belt that runs along Malahide Road, forms the south eastern boundary of the subject site and there are established wooded areas located to the west, south-west and north-west of the house. To the east of the house is a large open field that provides views to the boundary tree belts and to the wooded areas within Malahide Demesne beyond. A tree lined stream divides the main part of the subject site from Little Auburn to the south. Mature trees and hedgerows with ditches, forms the boundaries with the adjoining lands and separates the northern part of the site, from the field to

the front of the house. The existing woodlands, trees and hedgerows that surround the Auburn House estate, in particular the wooded area to the east of Auburn House which is evident on Taylor's 1816 map of Dublin, the tree lined driveway, walled gardens and the mature tree belt along Malahide Road, greatly contributes to the historical character and landscape setting of the subject site. The Abington residential development is located to west, north and north east of the subject site. To the east of the subject site are large, detached dwellings which are accessed off Malahide Road and the Clairville Lodge residential development, accessed off Carey's Lane, is located to the south of the subject lands.


**Figure 111.4:– Boundary analysis of the subject site (Source: Landscape Development Report, 2022)**

(1) Hedgerow with mature trees and railing between Abington and Auburn
(2) Tree lines ditch with fence
(3) Tree row between fence line and railing, between Abington and Auburn
(4) Belt of evergreen trees
(5) Tree lined stream, diving the field (historical field boundary)
(6) Mature trees along Malahide Road
(7) Tree lined drive up to Auburn House
(8) Walled gardens – folly, tree and shrub planting
(9) Wall and fence between Clairville Lodge and Auburn
(10) Electric fence with low planting
(11) Mature trees, stone wall and ditch
(12) Tree and hedge planting along gravel track with ditch and fence

### 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
- Streamstown Local Area Plan 2009 *(now expired)*

Within the Fingal Development Plan (FDP) 2017-2023 the subject site is located within lands zoned as "RA" Residential Area, which is defined as:

"Zoning Objective "RA" Residential Area: Provide for new residential communities subject to the provision of the necessary social and physical infrastructure."

The FDP 2017-2023 also states that the subject site is located within lands referred to as "Masterplan Area 9A" which corresponds with the FDP:

"Objective Malahide 11: Prepare and/or implement the following Masterplans during the lifetime of this Plan: Streamstown Masterplan (see Map Sheet 9, MP 9.A)".

The FDP further outlines the main points that need to be addressed within this masterplan:

- "Facilitate low density residential development reflective of the character of the area.
- Protect and preserve trees, woodlands and hedgerows within the Masterplan area.
- Preserve the tree lined approach to Malahide along the Dublin Road.
- Facilitate high quality sustainable development that protects and enhances the sensitive historic and natural setting of Auburn House and integrates new development with the conservation and preservation of the Protected Structure, its curtilage and protected trees.
- Retain visual corridors to/from Auburn House through the establishment of a visual buffer to the east of Auburn House.
- The area for development north of Auburn House is considered a sensitive development zone, whereby a maximum ridge height of 6m should be applied.
- Provide for a pedestrian / cycle route along the Auburn House Avenue to Malahide Road.
- Ensure pedestrian connectivity between Auburn House Avenue and Abington/Gaybrook/Castleheath.
- The lands will be the subject of a detailed flood risk assessment."

The following Local Objectives make reference to the mature trees along the eastern boundary of the subject site with the Malahide Road:

"Local Objective 55: Preserve the tree lined approach to Malahide.

Local Objective 57: New or widened entrances onto the Dublin Road between Streamstown Lane and the Swords Junction will be restricted, to ensure the protection of the mature tree-lined approach along the Dublin Road to Malahide."

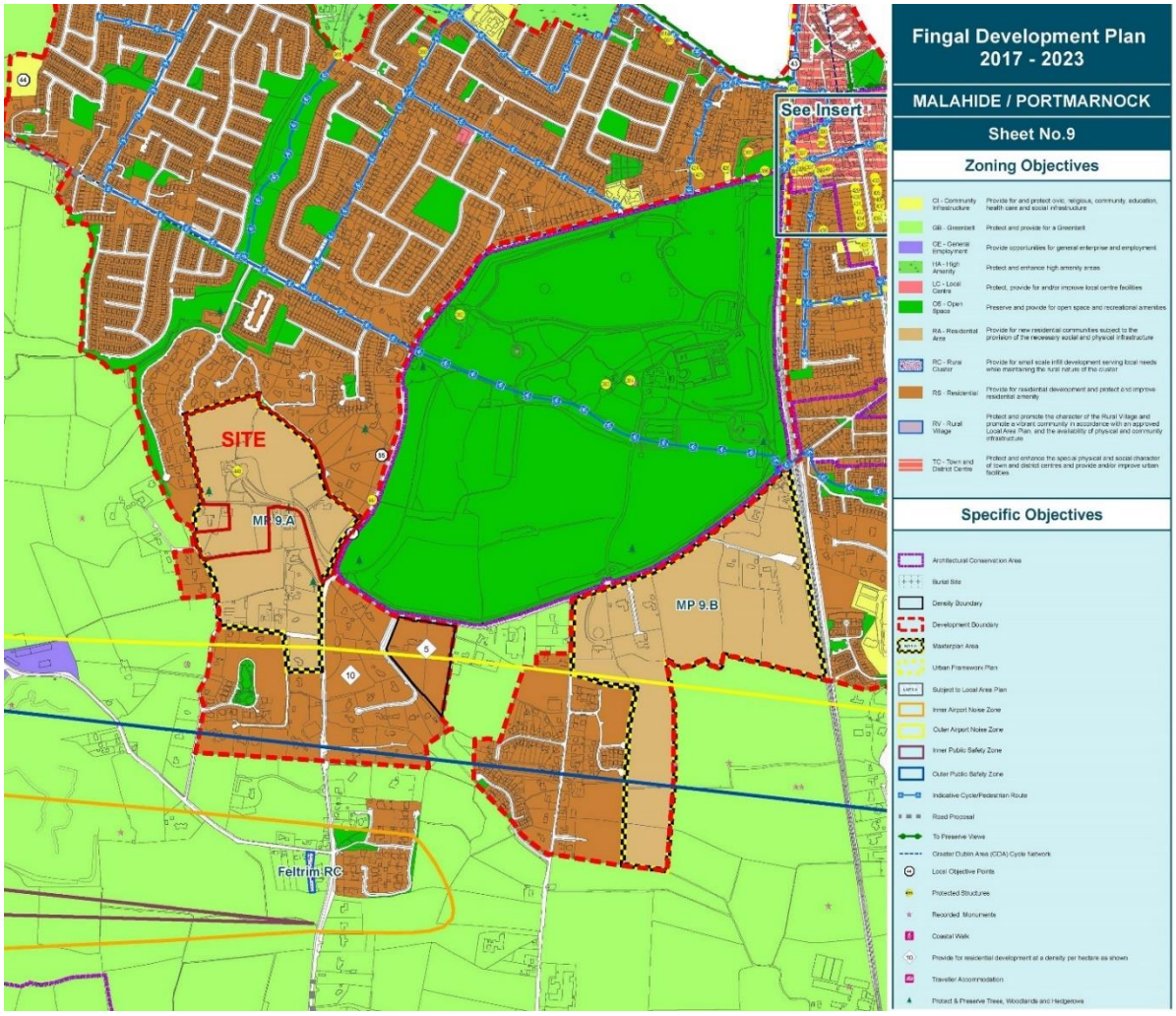



**Figure 111.5: Extract from FCC Zoning Objectives (FDP 2017-2023) with Subject Site Location (TBS, 2022)**

### 11.3.3 Views & Prospects

#### 11.3.3.1 Protected Views

The FDP 2017-2023 does not refer to any protected views to or from the subject site, however the Streamstown LAP 2009 did identify the vista from Auburn House looking east towards Malahide Demesne (refer to Figure 11.6).

In relation to views the Streamstown LAP 2009 also stated that:

*"There are no notable views from the site given the existing planting, the low lying nature of the land and existing properties, both within and adjacent to the site. As a result, the area is considered to have an enclosed character."* (Source: Streamstown LAP 2009)

### 11.3.3.2 Visibility into the site

Due to the extensive areas of woodlands, tree belts and hedgerows that surround the subject site and its low-lying character, views into the subject site are limited and only up once you arrive at Auburn House itself.

There are limited filtered views into the subject site through the mature tree belts along Malahide Rod, from the local roads within the Abington Development and Carey's Lane.

Feltrim Road that runs along the elevated land to south west of the subject site, facilitates views into the south-western part of the subject site, but is partially screened by the existing residential development (Clairville Lodge).

**Figure 111.6: Extract for Streamstown LAP (2009) indicating the vista/ visual corridor from Auburn House**

### 11.3.3.3 Views from the site

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

Auburn house was constructed on slightly elevated land to capture the vista with views orientated north-eastwards towards Malahide Castle and framed with mature trees and field hedgerows.

This visual connection is identified within the Streamstown LAP as being of historical significance and of sufficient cultural importance to require its long-term retention.

The woodland block to the rear of the dwelling was planted on the highest part of the subject site providing shelter for Auburn House and also preventing views in and out of the site to the west.

### 11.3.4 Protected Structures or Recorded Monuments

Recorded Monuments are structures that are protected under the National Monuments (Amendment) Act, 1994 and Protected Structures are structures that are considered to be of special architectural, historic, archaeological, artistic, cultural, scientific, social or technical interest.

Auburn House (including the out-offices and the pigeon loft) is listed as a protected structure listed as RPS No. 448 – 'Late 18th or early 19th century house, outbuildings and walled garden'.

The Protected Structures or Recorded Monuments referred to in Tables 11.2 and 11.3 are in close proximity to the subject site are:

**Table 111.2: Recorded Monuments (Source: FDP 2017-2023)**

| Reference | Townland | Description | Direction from site |
|---|---|---|---|
| DU012-030 | Malahide Demesne | Castle - tower house | east |
| DU012-031001 - 031006 | Malahide Demesne | Church. Graveyard. Sheela-na-gigs. Architectural fragments. | east |

(Source: FDP 2017-2023)

**Table 111.3: Record of Protected Structures**

| RPS Ref. | Address | Description | Direction from site |
|---|---|---|---|
| 0383 | Malahide Castle Back Road, Malahide Demesne, Malahide, Co. Dublin | Medieval castle and later additions (including within the demesne four gate lodges, stone outbuilding complex, entrance gates & piers) | east |
| 0384 | Within grounds of Malahide Castle, Malahide Demesne, Malahide, Co. Dublin | Malahide Abbey (in ruins) | east |

(Source: FDP 2017-2023)

Architectural Conservation Area (ACA): a place, area, group of structures or townscape that is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or value, or contributes to the appreciation of protected structures.

There are four ACA's within Malahide:

**Table 111.4: Architectural Conservation Area within the vicinity of the subject site**

| Name & Location | Direction from site |
|---|---|
| Malahide Castle Demesne | east |
| Malahide Historic Core | North-east |
| The Bawn, Parnell Cottages & St. Sylvesters Villas, Malahide | north |
| The Rise, Malahide | north |

### 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.

### 11.3.6 Landscape Character Assessment & Historic Landscape Characterisation

#### 11.3.6.1 Landscape Character

The area in which the subject site is located has a semi-rural landscape character, with low lying agricultural fields bounded by hedgerows, extensive amenity lands and woodlands associated with Malahide Demesne, mature tree lined roads with largely low-density detached dwellings. The estate in addition to Auburn House and stable block, comprises several fields laid out for agricultural use (grazing), woodland, walled garden and ancillary structures previously converted to residential use.

Auburn House was constructed in c. 1779 and the location and setting of the house historically appears to have been a pastoral parkland landscape context, typical of the English landscape garden principles at that time. The estate lands while relatively small in size by the standards of that period, still contain similar features to that of larger estates. These features include woodland, a walled garden and orchard and ancillary structures relating to the walled garden previously converted to residential use. It is likely that the front field contained a number of loose tree groupings to provide a pleasant vista from the front of the house, framing the vista towards Malahide Castle. This view is deliberately observed from the house only. In addition, the lands to the immediate west of the house are indicated in the 1837 layout as having pathways and were likely laid out as woodland walkways to allow the owners and visitors to take pleasant walks close to the house. The combination of pastoral open lands and structured woodland assisted in reinforcing the parkland character. 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.

The woodland setting was both a functional and aesthetic feature in the landscape. The trees served the aesthetic function of framing views from the house and creating a scenic backdrop to the house. The existing woodland around Auburn House varies in age and condition. The original woodland is the most imposing element of the English landscape garden within the Auburn estate. The original woodland would have comprised Oak, Beech Horse Chestnut, Sweet Chestnut and Lime which are now over mature and in decline, with increasing losses over the last 20 years from winter storms. This has resulted in the natural re-generation of primarily Ash and Sycamore replacing the planted woodland and creating an increased proportion of the woodland today. A small coniferous plantation of sitka spruce and lawson cypress is present north and south of the house. These trees are c. 20 yrs old and appear to have been planted to replace a gap in the existing woodland.

### 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 11.7).

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."

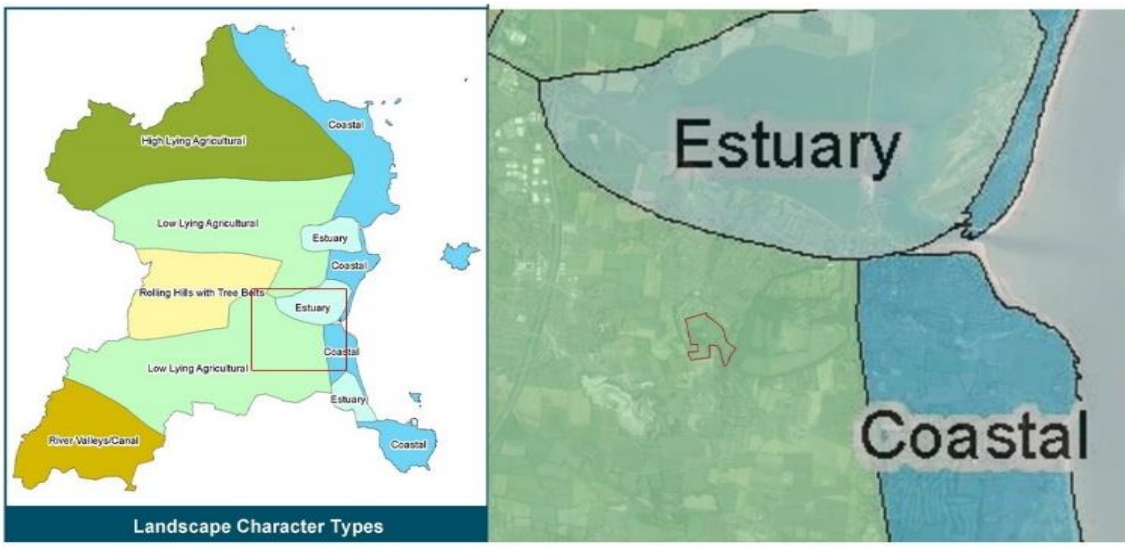



**Figure 111.7: : Landscape Character Types (extracted from FDP 2107-2023 with subject site**

In relation to landscape character the Streamstown LAP 2009 notes that:

*"Streamstown is characterised by low-lying, medium-sized fields in agricultural use with low-density detached dwellings. Field boundaries comprise largely self-seeded hedgerows. The local road network is rural in character, with Carey's Lane and Streamstown Lane being bounded by a grass verge, low stone walls and hedgerows.*

*The site has a semi-rural character, being bounded to the west by Green Belt zoned lands and to the east by a significant area of Open Space in the form of Malahide Castle demesne."* (Source: Streamstown LAP 2009)

### 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)

### 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."*

Fingal County Council has not carried out a HLC study for this area.

Refer to Historical Landscape Report carried out by The Big Space as part of this application.

## 11.3.7 Existing Trees and Hedgerows

### 11.3.7.1 Development and Local Area Plans

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."*

"Objective Malahide 11: Prepare and/or implement the following Masterplans during the lifetime of this Plan: Streamstown Masterplan (see Map Sheet 9, MP 9.A)":

- Protect and preserve trees, woodlands and hedgerows within the Masterplan area.
- Preserve the tree lined approach to Malahide along the Dublin

### 11.3.7.2 Site Tree & Hedgerow Survey

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

*"The site in question comprises lands originally associated with the Auburn estate; however some have become separated over time, with the current cumulate site area now comprising most of the remaining Auburn estate, the adjoining site of Little Auburn and additional lands accessed off Streamstown and Cary's Lane.*

*The two ancillary sites are assumed to have comprised typically open, agricultural elements of the original estate. In this respect, the areas are broadly levels, sometimes defined by agricultural type hedging and supporting vegetation and trees that are typically young and likely contemporary with the current domiciles on the site. The biggest exception to this relates to the Malahide road boundary of Little Auburn that supports the same boundary belt of woodland associated with the Auburn estate.*

*The main Auburn site comprises a wooded corridor associated with the driveway access to the Malahide Road, a substantial wooded area to the north-west, west and south-west of the main house and open pasture to the north and east of the house.*

*The various elements of the site are subdivided by various hedges, some historical and associated with the original site drainage layout, while others are associated with the earlier division of the original Auburn site."*

*".. the review area supports a total of 1347No. individual items, including either individual trees or tree groups (entities comprising multiple trees), including-*

- *1 category "A" tree,*
- *472No, category "B" trees/groups*
- *698No. category "C" trees/groups*
- *176No. category "U" trees/groups"*

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

**Figure 111.8: Auburn House - Woodlands, tree belts & hedgerows**

Historical Context of Woodland, Trees and Hedgerows:

The driveway at Auburn House begins with the entrance walls and piers (Malahide Road) and gently curves along its length enclosed by woodland, which restricts views out over the surrounding landscape. This design element enhances the impression of distance for the visitor and assists in creating drama and the sense of anticipation for the visitor. The drive crosses a stone bridge over a stream that identifies a deliberate change in landscape character as the lands open up towards the parkland landscape, providing glimpse views of the house in the distance. It is likely that the front field contained a number of loose tree groupings to provide a pleasant vista from the front of the house, framing the vista towards Malahide Castle. This view is deliberately observed from the house only.

The woodland setting was both a functional and aesthetic feature in the landscape. The trees served the aesthetic function of framing views from the house and creating a scenic backdrop to the house. The existing woodland around Auburn House varies in age and condition. The original woodland is the most imposing element of the English landscape garden within the Auburn estate. The original woodland would have comprised Oak, Beech Horse Chestnut, Sweet Chestnut and Lime which are now over mature and in decline, with increasing losses over the last 20 years from winter storms. This has resulted in the natural re-generation of primarily Ash and Sycamore replacing the planted woodland and creating an increased proportion of the woodland today.

A small coniferous plantation of Sitka spruce and Lawson cypress is present north and south of the house. These trees are c. 20 years old and appear to have been planted to replace a gap in the existing woodland. A number of ditches are located with the estate lands, which form field boundaries. These ditches remain predominantly dry and are used as part of the estate drainage system during periods of high rainfall. Today significant vegetation is located either side of the ditches.

## 11.4 Characteristics of the Proposed Development

*"The proposed development will consist of the preservation and protection of the existing Protected Structure of Auburn House and its stables as 1 no. residential dwelling; the conversion of the existing stables of Auburn House to provide for storage space for the main Auburn House and the construction of 368 no. new residential dwelling units (comprising 87 no. houses, 239 no. apartments & 42 no. duplex units) for an overall total of 369 no. residential units, including Auburn House. The development shall consist of 135 no. 1-bedroom apartments and duplex apartments, 138 no. 2-bedroom apartments and duplex apartments, 8 no. 3-bedroom apartments and duplex apartments, 47 no. 3-bedroom houses, 34 no. 4-bedroom houses, 6 no. 5-bedroom houses and the existing 11-bedroom Auburn House along with 1 no. childcare facility and 1 no. ancillary resident facility. The proposed development shall also provide landscaped public open space, car parking and all associated ancillary site development infrastructure including foul and surface water drainage, internal roads, cycle paths and footpaths, and boundary walls and fences. Vehicular access to the proposed development is to be via a new entrance at the R107 Malahide Road/Dublin Road entrance, with the existing entrance to Auburn House acting as a pedestrian/cyclist entrance and access to existing properties outside the application site, there will be a secondary entrance comprising modifications of the existing vehicular entrance off Carey's Lane to the south west of the development, the closure of the existing vehicular entrance to Little Auburn, the provision of 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development. The building heights range from 2 storey to 5 storey buildings with balconies or terraces being provided to the apartments and duplex units."*

(Source: Downey Planning Consultants, 2022)

### 11.4.1 Landscape Proposals:

Refer to the Landscape Development Report and the landscape drawings 1489_300-308 for full details of the landscape proposals and Table 11.5 for the indicate planting schedule. The design approach to the external spaces within the proposed development is to produce a scheme with a strong identity and distinctive sense of place, while not detracting or competing with existing character and setting of Auburn House. It is intended that this can be achieved through careful design considerations including:

- Retention of existing woodlands and trees as a priority
- Protection of the unique character and setting of Auburn House
- Sensitive approach to the design and planting of the open spaces, boundaries and management of the woodland areas, tree belts and hedgerows.
- Well defined and overlooked public/ communal spaces
- Usable spaces with varying character, dynamics and emphasis, without detracting from the setting and character of Auburn House.
- Provision of passive and active recreational opportunities for a variety of age groups and abilities
- Connectivity & Permeability: Provision of cycle/pedestrian access and routes within and through the scheme and linking to Malahide Road and Carey's Lane.

To create a legible environment for people to live within and move through, a hierarchy of materials such as paving and planting, will be employed to create different zones and provide visual cues to how people may move through or use these spaces. While different paving materials and textures will be used to demarcate changes in levels, verges, pedestrian priority zones and to guide the visually impaired, it is proposed that materials (e.g. paving), lighting and tree planting will be chosen from a limited palette to encourage visual cohesion within the scheme. Ground plane materials within the public spaces will be restrained and consist of bound gravel for the pedestrian walkways within the public spaces and brushed concrete for walkways adjacent to roads. Permeable paving will be used for driveways and car parking areas. Focal points, such as sculptural elements, specimen tree planting will also be incorporated at appropriate locations within the project to enhance this sense of place and to assist with way-finding through this scheme. The perimeter boundaries are limited to existing boundaries, which will be augmented where required. In order to create a highly legible and therefore self-regulating environment, signage and barriers will be kept to a minimum, thereby reducing physically intrusive measures, enhancing pedestrian and cyclist movement and creating a more attractive public realm. An objective of the landscape strategy is to provide opportunities for passive and active recreation, by way of natural play/ fitness trails, play facilities and pathways through the open spaces. These proposed pathways in addition to providing recreational opportunities will also promote connectivity within the overall scheme and adjoining areas, including Malahide Demesne to the east.

<u>Road Hierarchy and Pedestrian & Cycling Approach:</u>

A road/street hierarchy has been developed throughout the subject lands to reinforce the character areas and to encourage appropriate traffic speeds for cycling and pedestrians, as required (refer to

engineer's drawings). The site layout identifies a meandering north-south road designed to encourage cycle/pedestrian accessibility to the proposed buildings and spaces within the estate lands.

Pedestrian & Cycling Priority Approach:

A number of traffic calming measures have been used throughout the scheme to encourage more pedestrian and cyclist traffic and create safer movement for all throughout the scheme. Some of these measures include:

- Horizontal deflections in the form of pinch points and on-street parking
- Change of surface materials to indicate pedestrian/ cyclist priority areas e.g. granite setts at transition areas
- Reduced corner radii to assist in reducing vehicular speed.

These measures are intended to create more pedestrian friendly areas that promotes more liveable roads and encourages greater pedestrian movement between the proposed residential areas and the adjacent opens spaces.


**Figure 111.9: Overall Landscape Plan**

Communal apartment spaces

The apartment blocks overlook significant communal amenity spaces (including over podium slab) for use by the residents that includes native tree planting, ground modelling and shrub and lawn area for passive recreation. Natural play facilities/elements will also be provided within these spaces.

Play and recreation opportunities:

Pathways have been proposed throughout the scheme to provide recreational opportunities for future residents and which will also promote connectivity within the overall scheme and the adjoining areas including Malahide Demesne. Within the subject site it also proposed to include natural play elements and exercise stations, which are inclusive and suitable for a variety of ages and abilities in locations that are suitable for the setting. The layout of the scheme has been designed so that there will be the appropriate level of passive surveillance from the proposed dwellings overlooking the various open spaces. 'No-dig' (minimal impact on tree rootzones) pathways have been proposed through the existing woodlands to the rear of Auburn House, based off the existing historical walkways, which will provide passive recreational opportunities appropriate to the woodland setting. Open lawn and grassland meadows are also provided within the public spaces to provide space for informal play and passive recreation. Further details in relation to the play and recreation proposals within the proposed development are indicated on drawing 1489_303.

Lighting:

The proposed lighting throughout the scheme will be to the required LUX levels that permits the safe use of pathways, cycleways and public open spaces, with more ambient, way finding lighting to the communal open spaces.

It is intended that there will not be any lighting within the woodland area to the west of Auburn House – to minimise disturbance to the existing trees rootzone to insure their successful retention within the scheme and due to wildlife in the area.

SuDS:

It is intended to utilise SuDS within the proposed scheme, stormwater attenuation areas are provided primarily above ground within public spaces and below ground in privately managed areas.

A SuDS detention basin is proposed within the central open space to the east of Auburn House (refer to engineer's drawings for further detail).

Permeable paving is also proposed as much as possible within the scheme, along with green roofs to the apartment buildings to assist in water attenuation.

## 11.4.2 Character Areas:

Character Area 1: The Avenue


**Figure 111.10: : Landscape Plan - Character Area 1**

*Tree lined approach to Malahide:*

The mature tree lined road to Malahide, formed by the woodland within Malahide Demesne and in part by tree belt along the subject land's south-eastern boundary, is a distinguishing feature of the approach to Malahide and contributes to the local character and landscape setting.

The FDP (2017-2023) contains Local Objective's 55 and 57 which highlights the importance of protecting the tree lined approach to Malahide.

It is intended that the trees located along the south-eastern boundary will be retained, apart from the trees highlighted in the arboricultural report and survey which are in such poor health/state of decline that it necessitates their removal.

This tree belt will be further reinforced with additional mature tree planting where appropriate and with the recommended species as outlined in the Woodland Management Plan, as prepared by the arborist.
The retention of these trees is crucial to protecting the landscape setting of the subject site and to assist in screening the proposed development from Malahide Road.

*Existing Entrance:*
It is proposed that the existing entrance is to be retained, limiting it use for pedestrians and cyclists, with vehicular access retained solely for existing residential use. A new vehicular entrance is proposed immediately south of the existing entrance.
The important aspects for consideration at this location, is to achieve balance in protecting the historical relationship and context of Auburn House's entrance, while ensuring the necessary safety requirements (including required sightlines), to allow for the safe access/egress to Malahide Road.

*Existing Driveway approach to Auburn House - 'Conceal and Reveal':*
The existing driveway that provides access to Auburn House off Malahide Road was designed to conceal views towards the house until visitors arrived at the front of the dwelling. This was achieved by the careful curving of the driveway and strategic tree planting that prevented views towards the house but provided glimpsed views of the surrounding landscape.
It is proposed to maintain the existing driveway in it's current form to ensure that the existing character of the drive is retained and enhanced through the provision of replacement woodland tree planting. The drive will form part of the perimeter walk around the estate lands including the woodland, walled garden, stream and central park.

*New access road:*
The new access road has been designed to minimise the negative impact on the existing trees that bound the existing drive to Auburn House, while facilitating the safe movement of vehicles through the development.
Additional tree planting and strategic ground modelling is proposed to screen views of the proposed road from the existing drive and from Auburn House.
It is proposed that the majority of the trees that form the boundary between the subject site and Malahide Road will be retained, unless they are in very poor health or need to be removed to facilitate the construction of the new entrance road (works to be carried out in accordance with arboriculturist's report and drawings).

*Proposed Southern Residential Development & Opens Spaces:*

The landscape strategy within this part of the proposed development is to:

- Maintain sufficient distance from Malahide Road to prevent any encroachment into the existing mature tree belt

- Re-planting the existing tree belt to assist in screening the proposed development and to maintain the tree lined approach to Malahide
- Maintain existing trees along the eastern boundary to protect the off-site residential amenity of dwellings adjoining the subject lands
- Retain the woodland setting of the existing drive
- Provide pedestrian and cycle route through the scheme to link with Malahide Road
- Provide attractive communal open spaces for future residents to relax, move and/ or socialise within.
- Extensive lawn areas for passive recreation
- Play/recreation area that will provide active recreational opportunities for future residents
- SuDS - green roofs to the apartment buildings to assist in water attenuation.

*Existing Stream/ historical field boundary:*

The small stream that flows east to west across the southern part of the site and the associated tree belt is to be retained within the proposed development as it forms an important boundary as identified on historical maps and plays a considered role in the integration of the proposed development into the existing landscape.

Character Area 2 - The Frontfield and Character Area 4 - Auburn House & The Woodland


**Figure 111.11: Landscape Plan - Character Area 2**

*Auburn House and curtilage:*

It is proposed that Auburn House will be retained as a single dwelling as part of the development and that additional planting and a seating area are to be provided to the south of the house, to enhance the private amenity space of the dwelling.

*Woodland to rear of Auburn House:*

The existing woodland around Auburn House varies in age and condition. The original woodland is the most imposing element of the English landscape garden within the Auburn estate and is evident on Taylor's 1816 map of Dublin. The original woodland would have comprised Oak, Beech Horse Chestnut, Sweet Chestnut and Lime which are now over mature and in decline, with increasing losses over the last 20 years from winter storms. This has resulted in the natural re-generation of primarily Ash and Sycamore replacing the planted woodland and creating an increased proportion of the woodland today.

The existing pathways through the woodland will be maintained and re-dressed for pedestrian use, providing an attractive pedestrian route around the estate, while minimising any negative impact on the existing trees.

The Woodland Management Plan prepared by the arborist, will provide guidance and a strategy by which the site's existing and future tree population and woodland areas can be managed, maintained, restored and improved in a sustainable manner to accommodate the requirements of the planning authority and all stakeholders.

In accordance with the project ecologist recommendations bat boxes are proposed within the woodlands to provide a variety of suitable roost sites (refer to ecology report for further details).

*Front field:*

The front field, located to the east of Auburn House, was likely designed to create an open, pastoral vista towards Malahide Demesne.

A key objective of the landscape strategy is to retain this important vista and to frame views from Auburn House, by way of a well-considered tree planting scheme.

The proposed central space will provide a quality recreational area and will also form part of an attractive pedestrian route around the estate lands which will be overlooked from the north and south by housing units.

This space also contains a SuDS detention basin within a gently undulating landscape containing a mix of native and ornamental parkland trees, that are appropriate to the setting ,within ground modelling, open lawn and wildflower meadow. The planting approach within this space, is to reinforce and maintain the existing vista, create visual interest and to create a sense of place, resulting in restful and inviting spaces to encourage use by future residents.

It is also proposed to remove the more recently added circular pool to the front of the house.

*Central Residential areas – courtyard development:*

Clustered courtyard dwellings are proposed within this part of the development, north and south of the central open space:

- Permit a controlled and cohesive approach to the interface between dwellings and parkland space
- Hedge type planting to 'soften' the edges of the proposed dwellings and boundary walls
- Ornamental planting within the courtyard cluster of dwellings to provide an attractive space for future residents
- Reinforced grass as a surface treatment to permit occasional vehicular access
- Subtle ground modelling with mature tree planting will assist in mitigating the visual impact from Auburn House but
- Pedestrian pathway to provide passive recreational opportunities and permeability through the subject site.

Character Area 3: The Backfield

A key objective in this part of the site is to protect the existing field boundaries as far as possible to:

- Maintain the setting and landscape character of Auburn House
- Retain the historical field boundary and mature trees as much as possible between Apartment Block 3 and the northern courtyard buildings and reinforce the field boundary with additional tree planting where necessary.
- Retain the residential amenity of the surrounding dwellings that adjoin the subject site and provide an attractive setting for future residents.

- Assist in screening the proposed development from the adjoining lands


**Figure 111.12: Landscape Plan - Character Area 3**

The proposed treatment to the rear of the dwellings within the north-east part of the site includes a set-back boundary to extend the distance of proposed the development to the existing trees and hedgerows.

Communal open spaces are provided between the proposed apartment blocks to provide:

- Amenity grass areas for people to relax, socialise and play within.
- Specimen tree planting and ground modelling with shrub/wildflower meadow and multi-stem tree planting to define and create interest within the spaces and to provide pleasant human scale spaces.
- Provide play and recreational opportunities
- To ensure permeability within the spaces and to provide linkages to the surrounding areas including the woodlands
- SuDS - Green roofs proposed to the apartment buildings to assist in rainwater attenuation.

Character Area 5: Streamstown:

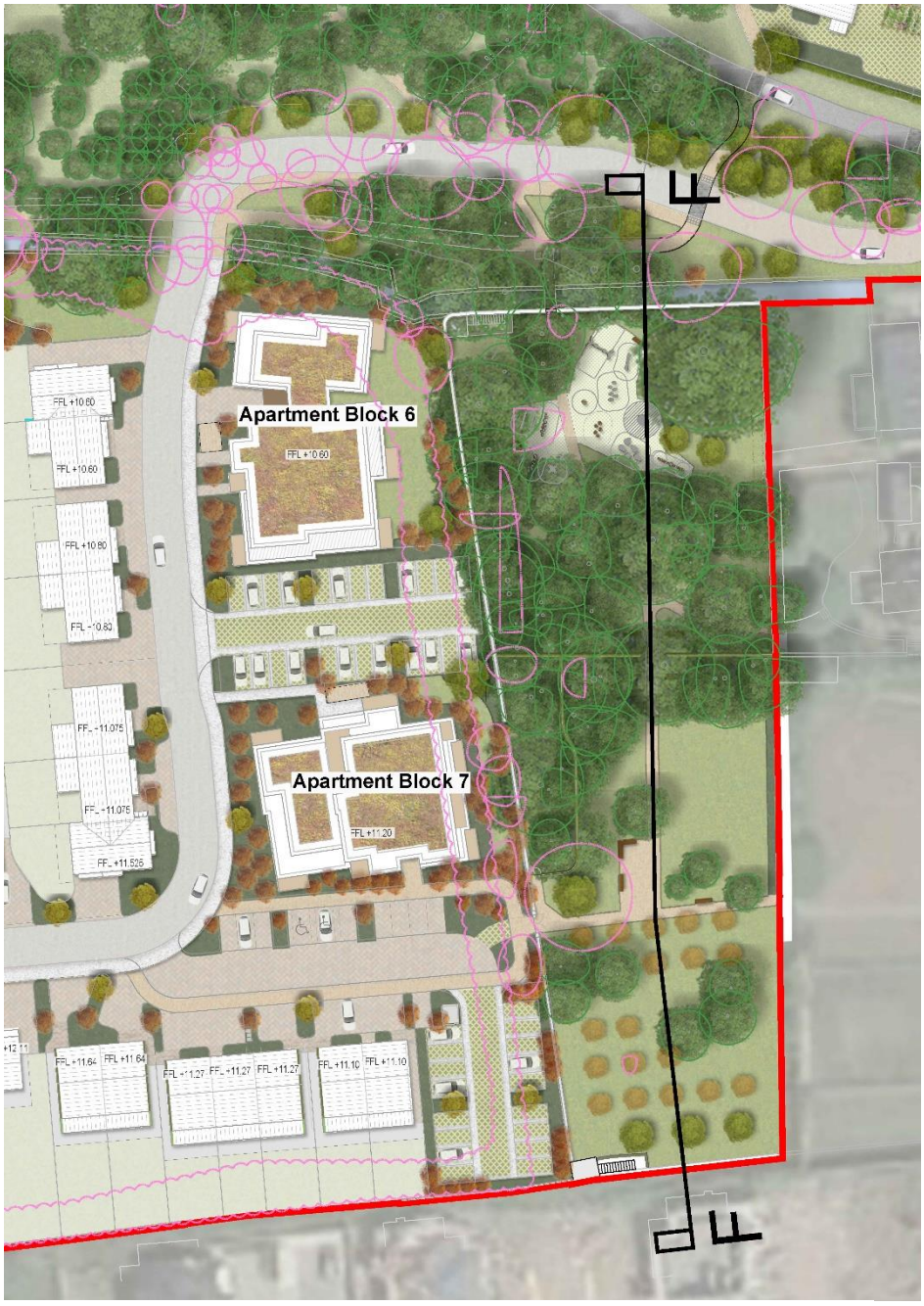



**Figure 111.13: Landscape Plan - Character Area 5 – The Walled Gardens**

*Walled Gardens:*

Walled gardens were a common feature of historic houses of the past and were once known as the 'kitchen garden' as vegetable and fruit trees were grown to keep the family kitchen well stocked. Auburn was no exception and historical mapping identified an orchard within the walled garden.

The walled garden remains largely intact, although the majority of the original space is not included within the subject application. The area contained within the application area is enclosed with limestone coursed walls and has become overgrown with a number of re-generated trees/scrub (hazel, holly, sycamore and ash). The intention is to retain the large specimen London Plane located

in the north-eastern corner of the walled garden. The re-generated scrub material will be removed to allow for the re-planting of new orchard trees to re-create the original design intent.

The existing openings through to the adjacent garden will be respected and marked with pathways although they will not extend fully to the existing accesses. The small pet cemetery with the two headstones within the garden will be relocated and retained. Seating and a natural play area are proposed within the northern part of the walled garden, which will benefit from maturity of the existing trees and the safety provided by the enclosed nature of the space. A communal open space enclosed by hedge planting, is proposed within the central part of the walled garden, for the future residents of Apartment Block 7.

*Carey's Lane: Access and residential development*

- Retaining existing trees where it is feasible and in accordance with the arboriculturist's recommendations
- Proposed tree planting to assist in screening the proposed dwellings and infrastructure
- Use of limited palette of high-quality materials that is respectful of the historical setting

## 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 exiting 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

*"In considering the proposed development works, it is appreciated that necessary development densities must be achieved in conjunction with modern standards of engineering and infrastructure to adequately service such residential development. This means that a large proportion of the available site space must be converted or disturbed to an extent that is contrary to sustainable tree retention. This issue must be considered relative to the protection zones associated with trees existing currently within the "red line" are, comprises circa 39% of all site space. Appreciating this illustrates a huge constraint on available space, with any possible "no loss" tree scenario requiring that all requirements of the site's available space by achieved within circa 61% of that available space. Such aspirations would also prevent connectivity between various elements of the site.*

*As 100% tree retention would prove impossible, the tree retention strategy has been achieved in two principal ways. These include a development design that maximises the use of already open spaces, in conjunction with a tree protection plan for use during the construction phase, that allows for the retention "as is" of large areas of tree supporting ground. Fortunately, the site's inclusion of many broadly open spaces, in the form of fields and lawns has greatly facilitated this design and has allowed*

*for the development of a scheme that is broadly sympathetic to the existing landscape and that limits tree loss.*

*Issue have nonetheless been encountered, particularly were development fringes with trees or woodlands or where connectivity or access is required near trees. Additionally, some elements of the site require extensive fill and ground level modifications to achieve serviceable floor and road levels. This has created issues whereby some house levels are substantially higher than native ground levels, thereby requiring that at construction stage, a strategy must be adopted to account for a rapid return to native levels and the affective conservation and protection of ground areas associated with tree protection zones.*

*Notwithstanding some tree losses, many individual trees, tree lines and tree groups will be retained. These will include the major woodland and tree features associated with the Auburn demesne, including the main woodland to the rear of Auburn House, the belt associated with the entrance drive and much of the belt associated with the Dublin Road boundary of the site, will be retained. These will be subject to a "Woodland Management Plan".*

*"The tree loss breakdown for the proposed development will be-*

- *52 Category "B" items*
- *56 category "C" items*
- *122 category "U" trees*
- *circa 55 metres of hedge."*

(Source: 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.

### 11.5.2 Impact on Landscape Character

These lands are within the land use zoning objective 'RA' that states: *"Provide for new residential communities subject to the provision of the necessary social and physical infrastructure"* within the Fingal Development Plan 2017-2023. The conversion of the recreational/agricultural land into a residential development will mean that this area will experience an intensification of use.

This may be perceived during the construction phase, due to the presence of construction cranes, lighting and other visual disturbances caused by construction, as a **significant and negative** impact on the character of this landscape when viewed from within the subject site and overall **slight and negative** when appreciated from outside of the subject site, such as from public roads and adjoining residential areas.

However, the land is zoned for a development of this scale and its impact will lessen once the scheme is operational, the woodland management plan has been implemented 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 **moderate and negative** impact on the landscape character when assessed from within the subject site and **slight and negative** when considered externally of the subject site (public roads and adjoining residential areas), in the long term.

### 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 does not refer to any protected views to or from the subject site, however the Streamstown LAP 2009 does identify the vista from Auburn House looking east towards Malahide

Demesne (refer to Figure 11.6). At various times during the construction phase of the development the presence of construction cranes, site hoarding, site lighting and construction traffic would be anticipated, it may result in a **moderate/ significant and negative** impact on this vista. In the operational phase it is anticipated that the impact on this view will be reduced to **slight/ moderate and negative** due to:

- It is intended that the upper canopies of the tree belt and woodland will still visible due to limiting the heights of the proposed residential buildings to the east of Auburn House.
- The mitigation measures, including ground modelling and large specimen tree planting become established
- Consideration that the subject site is zoned for residential development

### 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 within Malahide Demesne. Photomontages were

compiled from the viewpoints shown in Figures 11.14 and 11.15 (the visual analysis section below should be read in conjunction with the baseline and proposed visuals produced by 3DDB).


**Figure 111.14: Viewpoint Location Map – Long Range Views**


**Figure 111.15: Viewpoint Location Map – Short Range Views**

**Visual 1: From Feltrim Road, looking north-east**

Existing View:

From this viewpoint a low boundary wall to a agricultural field with tree and hedgerow perimeter planting is visible in the foreground. The Streamstown Wood residential development is visible to the east and the Clairville Lodge residential development is visible in the central, middle-ground. The woodland and tree belts associated with Auburn House, Malahide Road and Malahide Demesne form a backdrop to these residential areas.

Proposed Changes and Visual Impact:

It is anticipated that the existing developments and woodlands will generally prevent views of the proposed development from this location, however the roofs of the some of the proposed two storey dwellings and apartment buildings that are proposed within the Streamstown part of the subject site will be visible behind the Clairville Lodge development.

*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:*

During the operational phase the impact on views from this location may be **slight and negative** and as the existing trees continue to mature and the proposed tree planting becomes more established it is anticipated that the visual impact will lessen in the long term. The development does not break the treeline/ skyline from this viewpoint and is consistent with existing and emerging development of land in this area, such as the Clairville Lodge residential development, that is also visible from this viewpoint.

**Visual 2: From Feltrim Road, looking north-east**

Existing View:

From this location along Feltrim Road , the view is composed of a small agricultural field with a variable field boundary, including hedge and tree planting. In the middleground the buildings and commercial premises and their associated structures, work yard and parking, that are accessed off Streamstown Lane and Carey's Lane. The southern and western elevations of the dwellings within the Clairville Lodge development and the woodland and tree belts within and along the subject site's boundaries are visible in the background.

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, woodlands and tree belts, it is anticipated that the roof and upper floor of the proposed two-storey dwellings and apartment buildings in the Streamstown 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:*

During the operational phase the impact on views from this location may be **slight and negative** and as the existing trees continue to mature and the proposed tree planting becomes more established it is anticipated that the visual impact will lessen in the long term.

The development is consistent with existing and emerging development of land in this area, such as the Clairville Lodge residential development, that is visible from this viewpoint.

The development does not break the treeline/ skyline from this viewpoint and is consistent with existing and emerging development of land in this area, such as the Clairville Lodge residential development, that is also visible from this viewpoint.

**Visual 3: From Feltrim Road, looking east**

Existing View:

From this location along Feltrim Road the view is composed of the variable field boundary with some hedge planting in places. Arable fields dominate the view between this road and the properties that are accessed off Carey's Lane and within Auburn Grove. The trees within the field boundaries such as those that border the Abington development, the woodland and trees within the subject site are visible in the background.

Proposed Changes and Visual Impact:

It is anticipated that while the majority of the proposed development will be screened from this location, the upper floors of the apartment buildings on the northern and southern parts of the development may be visible.

*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 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 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 4: From Kettles Lane, near junction with Feltrim Road, looking east**

Existing View:

At this junction of Kettles Lane with Feltrim Road, an agricultural shed and timber post and rail fence that forms the boundary between the arable fields and Feltrim Road at this location, are visible. From this location there are also partial views of the dwellings accessed off Carey's Lane and within Auburn Grove. Trees that are located within the field boundary that runs along the access road within the western part of the Abington development and the woodland and trees along the boundaries of the subject site, are also visible from this location.

Proposed Changes and Visual Impact:

Due to the topography (land slopes upwards within this field, before it slopes back down towards the subject site from this location) and the existing woodlands and trees that are located within and adjacent to the subject, it is likely that the proposed development will not be visible 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/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**.

**View 5: From Castle Downs Road, looking south-west**

Existing View:

From this location on Castle Down Road, the view is dominated by the tree and hedge planting associated with this road and the residential developments of Castle Heath and Talbot Avenue.

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 developments in the foreground. 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.**

**View 6: From the junction of Swords Road & Gaybrook Lawns, looking south-west**

Existing View:

This location permits views of the two-storey dwellings in this area and the tree planting, road lighting, bollards and signage associated with the junction of Gaybrook Lawns and Swords Road.

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 developments in the foreground.

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 7: From pedestrian entrance to Malahide Demesne, at junction between Malahide Road and Swords Road, looking south-west**

Existing View:

The Castle Oaks apartment complex and its associated boundary railing, tree and hedge planting dominate the view from this location, at a pedestrian entrance to Malahide Demesne. Two dwellings that are accessed off the Malahide Road are also visible in the background 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 developments in the foreground. 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**.

**View 8: From amenity pathway with Malahide Castle Demesne, looking west**

Existing View:

From this location to the front of Malahide Castle, the view is dominated by the open parkland and the extensive woodland planting along Malahide Road.

Proposed Changes and Visual Impact:

Due to the local topography and the existing woodlands on both sides of the Malahide Road, it is anticipated that the proposed development will not be visible from this location.

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 9: From amenity pathway with Malahide Demesne, looking west**

**Visual 10: From amenity pathway with Malahide Demesne, looking west**

Existing View:

Visual 15 – from this location along the amenity pathway within Malahide Demesne, the exercise station, the woodland that forms the boundary with Malahide Road, effectively screens much of the views towards the subject site.

Visual 16 – the open parkland dominates the view from this position along the amenity pathway within Malahide Demesne. The extensive woodland planting along the Malahide Road prevents views towards the subject site.

Proposed Changes and Visual Impact:

Visual 15 and 16 – due to the local topography and the existing woodlands on both sides of the Malahide Road, it is anticipated that the proposed development will not be visible from these locations.

*Construction Phase:*

During the construction phase, it is likely that the construction machinery, cranes and lighting will be screened by the existing woodlands from this location, resulting in the visual impact being **imperceptible and neutral.**

*Operational Phase:*

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: From Malahide Road (R107), looking south-west**

Existing View:

At this gap in the tree belt along Malahide Road, looking across a small paddock, dwellings accessed off Malahide Road and with Gaybrook Lawns are visible. The mature tree planting along the boundaries of these properties with the Abington development prevents views of the interior of the subject site.

Proposed Changes and Visual Impact:

Due to the position of the existing dwellings and the tree belts along the Malahide Road and along the properties boundaries, it is likely that the proposed development will not be visible from this location.

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 **imperceptible/ not significant and neutral**, with much of the impacts screened by the existing vegetation and buildings.

*Operational Phase:*

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 12: From Malahide Road, looking south-west**

Existing View:

From this viewpoint, the main feature is the tree lined road approaching Malahide, which largely prevents views into Malahide Demesne to the east and into the subject site to the west.

Proposed Changes and Visual Impact:

Due to the existing topography and the mature tree belt, it is anticipated that the proposed development will not be visible 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 **imperceptible/ not significant and neutral**, with much of the impacts screened by the existing vegetation.

*Operational Phase:*

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 13: From cul-de-sac within the Abington development, looking south-east**

Existing View:

From this viewpoint, on the local road within the Abington development, near the north-west corner of subject site, the low boundary wall and railing with hedge planting that forms the boundary of the dwelling dominates the foreground. Also visible from this location are the narrow roads, light posts and the tree and hedge planting that forms the boundary of the subject site.

Proposed Changes and Visual Impact:

It is anticipated that there will be limited partial views through the existing boundary trees and hedgerow of the upper floors of the proposed apartment block and the dwellings that are to be located within the north-eastern corner of the development. The existing trees and hedgerows screen much of the views into the subject site from this location.

*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:*

During the operational phase the impact on views from this location may be **not significant and negative** and as the existing trees continue to mature and the proposed tree planting becomes more established it is anticipated that the visual impact will lessen in the long term

**Visual 14: From local road within the Abington development, looking south**

**Visual 15: From local road within the Abington development, looking south-east**

Existing View:

The view from this location is of the local road, street lights, low wall and railing and hedge planting boundary of the dwellings within the Abington development. The boundary to the subject site, composed of low hedge, railing, tree and hedge planting, is also visible from this viewpoint. The occasional gap in the hedgerow permits glimpsed views to the interior of the subject site.

Proposed Changes and Visual Impact:

While the existing trees and hedgerow screen much of the views into the subject site, partial views of the roof and upper floor of a number of the proposed dwellings along the eastern boundary may be possible. It is intended that infill planting will take place where there are gaps in the hedgerow or where it is in poor condition, and this will also assist in screening views of the proposed development from this road.

*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/moderate and negative visual** impact.

*Operational Phase:*

During the operational phase the impact on views from this location may be **slight/ moderate and negative** in the short term, however as the existing trees continues 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 16: From local road within the Abington development, looking south-west**

Existing View:

The view from this position on the local road within the Abington development consists of the low evergreen hedge, railing and tree and hedgerow that forms the boundary with the subject site. The occasional gaps in the hedgerow permit limited views to the interior of the site.

Proposed Changes and Visual Impact:

Due to the retention of the existing tree and hedgerow along the boundary, it is anticipated that may be only glimpsed views of the roof and upper floor the proposed dwellings within the eastern part of the subject site. It is intended that infill planting will take place where there are gaps in the hedgerow or where it is in poor condition, and this will also assist in screening views of the proposed development from this road.

*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/moderate** and negative visual impact.

*Operational Phase:*

During the operational phase the impact on views from this location may be **slight/ moderate and negative** in the short term, however as the existing trees continues 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 17: From local road within the Abington development, looking south-east**

Existing View:

The timber post and rails fences, street lights and the railing with tree and hedge planting that forms the boundary with the subject site, frame the view along this road within the Abington development.

The mature trees within the dwellings access off this road and the Malahide Road are visible in the background.

Proposed Changes and Visual Impact:

It is anticipated that due to the existing trees and hedgerows along this boundary and the dwellings within Abington, the proposed development will not be visible 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 **imperceptible/ not significant and neutral,** with much of the impacts screened by the existing vegetation.

*Operational Phase:*

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 18: From local road within the Abington development, looking west**

Existing View:

This viewpoint permits of the low wall and railing and hedge planting boundary of the dwelling within this part of the Abington development and the railing with mature tree planting and hedge that forms the subject site's boundary in this location. Limited views into the interior of the subject site are possible in the small gaps between the boundary trees.

Proposed Changes and Visual Impact:

It is anticipated that there will be limited, filtered views through the existing trees and hedgerow of the eastern elevations of proposed Duplex Block 5B and the dwellings to the north of the stream.

The proposed tree planting and infill hedge planting is intended to assist in further screening of the proposed dwellings from this location.

*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/moderate and negative** visual impact.

*Operational Phase:*

During the operational phase the impact on views from this location may be **slight/ moderate and negative** in the short term, however as the existing trees continues 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 19: From Back Road, looking north-west**

Existing View:

This location permits views of the following:

- the boundary hedgerow and woodland associated with Malahide Demesne to the north
- road signage at the junction of the Back Road with the Malahide Road
- the existing mature tree planting to the south of the entrance and along the driveway up to Auburn House

Proposed Changes and Visual Impact:

From this location the main changes that will be visible are:

- the removal of the existing directional signage,
- the installation of traffic lights and road markings
- the new access road off Malahide Road, which will serve the proposed development
- the removal of the existing trees to facilitate the construction of the proposed entrance and access road,
- the installation the proposed entrance signage/ sculptural element,
- the proposed entrance and access road boundary treatment, comprising an estate railing with hedge planting.

It is anticipated that the woodland within Malahide Demesne and the existing trees within the subject site will prevent views of the proposed dwellings within the subject site from this location.

*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, but there will be visual impacts caused by the installation of the new entrance, from this location, resulting in a **slight/moderate and negative** visual impact.

*Operational Phase:*

During the operational phase the impact on views from this location may be **not significant/ slight and negative** and 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/ neutral** in the long term.

**Visual 20: From Malahide Road, looking north-east**

Existing View:

The tree lined Malahide Road dominates and frames the views from this location, including the boundary hedge planting of the dwelling to the west and the timber post and rail boundary fence of the property to the east. In the background the wing wall of the entrance into Auburn House is also visible.

Proposed Changes and Visual Impact:

It is anticipated that apart from the new entrance road into the subject site and the removal of the trees to facilitate its construction, the proposed development will effectively be screened from views from this location, due to the existing tree planting along the boundary with Malahide Road and along the driveway up to Auburn House.

*Construction Phase:*

During the construction phase, it is likely that the construction machinery, cranes and lighting will be screened by the existing woodlands from this location, but due to the additional construction traffic that will be utilising this entrance, the resulting visual impact may be **slight and negative**.

*Operational Phase:*

It is anticipated that the proposed development apart from the new entrance, will not be visible from this location and therefore the visual impact will be **imperceptible/ slight and neutral**.

**Visual 21: From Malahide Road, looking north-east**

**Visual 22: From Back Road at junction with Malahide Road, looking north-west**

**Visual 23: From Back Road at junction with Malahide Road, looking north-west**

Existing View:

The location of these visual affords views towards the subject site, comprising of:

- the pedestrian entrance, boundary walls and woodland associated with Malahide Demesne to the north-east;
- road signage at the junction of the Back Road with the Malahide Road
- the entrance walls and gates into Auburn House
- the existing mature tree planting either side of the entrance and along the driveway up to Auburn House

Proposed Changes and Visual Impact:

The main changes that will be visible from this location are:

- the removal of the existing directional signage,
- the installation of traffic lights, traffic island and road markings
- the installation the proposed entrance signage/ sculptural element,
- the proposed entrance and access road boundary treatment, comprising an estate railing with hedge planting,
- the new access road off Malahide Road, which will serve the proposed development and
- the necessary trees that will need to be removed to facilitate the construction of the proposed entrance and access road

While the existing tree belt along Malahide Road, the trees along the existing driveway and the proposed tree planting will screen much of the views into the subject site, it is possible that there will be limited partial views of the proposed structures in the southern part of the development.

*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 **moderate and negative** visual impact.

*Operational Phase:*

During the operational phase the impact on views from this location may be **slight/ 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 24: From Back Road at junction with Malahide Road, looking north-west**

**Visual 25: From Malahide Road at entrance to Auburn House, looking north-west**

**Visual 26: From Malahide Road, looking north-west**

Existing View:

This series of viewpoints permits views towards the subject site centred on the existing entrance to Auburn House. The tree belt that forms the boundary between the subject site and Malahide Road are a dominant feature in these views. The entrance to Auburn House composed of walls, piers, two pedestrian and one vehicular gate are particularly evident in Visuals 21 and 22. In Visual 22, the entrance planting, stone boundary wall and woodland associated with Malahide Demesne are visible in the foreground.

Proposed Changes and Visual Impact:

While it is anticipated that the existing tree belt along the subject land's boundary with the Malahide Road will prevent the majority of views of the proposed development from these locations, it is likely that there will be partial views of the upper floors of buildings located in the southern part of the site.

This is due to the small gaps in the tree belt and the necessary removal of trees along the southern boundary due to decay or concerns regarding their stability along a public road and footpath. In the long term as the proposed infill tree planting – continues to mature it will further screen the proposed development from this location.

*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/moderate and negative** visual impact.

*Operational Phase:*

During the operational phase the impact on views from this location may be **slight 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 **not significant and negative** in the long term.

**View 27: From Malahide Road, looking north-east**

Existing View:

The mature tree belt that forms the boundary between the subject site and Malahide Road and the woodland associated with Malahide Demesne are the dominant features in this view. The existing entrance walls associated with Auburn House are also visible from this location.

Proposed Changes and Visual Impact:

It is anticipated that the existing tree belt along Malahide Road and the proposed tree planting and woodland planting will screen the majority of views of the development from this location.

*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:*

During the operational phase the impact on views from this location may be **not significant and negative** in the short term, however as the existing trees continue to mature and the proposed tree and woodland planting becomes more established it is anticipated that this impact will lessen to **not significant and neutral** in the long term.

**Visual 28: From Malahide Road, looking south-west**

**Visual 29: From Malahide Road, looking south-west**

Existing View:

A series of views, moving south towards the entrance of the proposed scheme. Main feature is the tree lined road approaching Malahide, which largely prevents views into Malahide Demesne to the east and into the subject site to the west. The low wall entrance into Little Auburn is also visible from these viewpoints.

Proposed Changes and Visual Impact:

Due to the existing topography and the mature tree belt, it is anticipated that there will be very limited views of the proposed development from these viewpoints A notable change from these viewpoints is the removal of the entrance walls into Little Auburn and the proposals to reinstate the ditch and hedge and supplementary tree planting, to replicate the land either side of the existing entrance.

As shown in Visual 28, it is likely that this location will permit views of the amenity area, tree planting wildflower meadow that is proposed between the existing tree belt and the new access road.

*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 **imperceptible/ not significant and neutral**, with much of the impacts screened by the existing vegetation.

*Operational Phase:*

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 30: From Streamstown Lane, near junction with Carey's Lane, looking north-east**

Existing View:

From this location along Streamstown Lane looking north-west towards the subject site, the boundary wall and railing and the amenity open space within the Clairville Lodge dominate the fore- and middle-ground. There are also partial views of the mature trees in the background from this location.

Proposed Changes and Visual Impact:

Due to the local topography and the existing vegetation along the boundaries and within the subject site, it is anticipated that the proposed development will not be visible from this location.

*Construction Phase:*

Throughout the construction phase of this development construction cranes, lighting and additional construction traffic will possibly have **slight, negative** impact on views from this location.

*Operational Phase:*

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 31: From access road within Clairville Lodge development (east), looking north-west**

Existing View:

The dwellings, road, boundary wall and amenity/ water detention basin within Clairville Lodge dominate the view from this location. There are partial views of the dwellings to the north and east of the walled gardens that adjoin the subject site. The mature trees within the subject site and within the adjoining lands screen much of the views into the site.

Proposed Changes and Visual Impact:

While the existing trees and dwellings screen much of the views into the subject site.

*Construction Phase:*

During the construction phase it is likely that construction cranes, lighting and additional construction traffic will possibly have a **slight, negative** impact on views from this location.

*Operational Phase:*

During the operational phase it is anticipated that due the retention of the existing vegetation and the proposed planting measures there will be limited views of the proposed development from this location and the impact will be **not significant and neutral**, as it is consistent with the existing development of land in this area.

**Visual 32: From within Clairville Lodge development (north), looking north**

Existing View:

From this location with the Clairville Lodge development the cul-de-sac, dwellings and boundary wall dominate the fore-ground and the mature woodland and trees within the subject site are visible in the background.

Proposed Changes and Visual Impact:

The proposed two-storey dwellings located along the south-west boundary of the subject site and the upper floors of the proposed apartment buildings will be visible from this location. The proposed street tree planting can be seen through the gaps in the proposed dwellings.

*Construction Phase:*

Due to the anticipated presence of construction machinery, site hoarding, construction cranes and lighting during the construction phase of the development, the impact on views from this location will likely be **significant and negative**.

*Operational Phase:*

In the short term it is anticipated that the visual impact from this viewpoint will continue to be **significant and negative**. However, the development is consistent with existing development of land in this area and it is likely that the visual impact will decrease in time as the proposed planting continues to mature, to **moderate and negative** in the long term.

**Visual 33: From Carey's Lane, near entrance to Clairville Lodge, looking north-west**

Existing View:

The dwellings and boundary walls, along both sides of Carey's Lane and the storage shed within the subject site, are visible from this location. The boundary trees and woodland within the subject site are also visible from this viewpoint.

Proposed Changes and Visual Impact:

It is intended that the existing tree (Tree Nr 1256) and lower vegetation will need to be removed to facilitate the vehicular and pedestrian entrance into the scheme off Carey's Lane.

The upper floors and roof of the proposed duplex structure will be visible behind the boundary wall of the Clairville Lodge development but will be partially screened by the proposed tree planting, from this location.

*Construction Phase:*

Due to the anticipated presence of construction machinery, site hoarding, construction cranes and lighting during the construction phase of the development, the impact on views from this location will likely be **moderate/ significant and negative.**

*Operational Phase:*

In the short term it is anticipated that the visual impact from this viewpoint will be **moderate and negative**. However, the development is consistent with existing and emerging development of land in this area and it is likely that the visual impact will decrease in time as the existing and proposed tree planting continues to mature, to **slight and negative** in the long term.

**Visual 34: From Auburn Grove, looking east**

Existing View:

From this location along Auburn Grove, views of the entrance and boundary walls of the dwellings adjoining the subject site are permitted. The existing vegetation along this road and along the boundaries of the subject site are also visible from this viewpoint.

Proposed Changes and Visual Impact:

Partial views of the entrance and the western elevation of the duplex structure with the proposed scheme will be visible from this location.

The existing trees and hedgerows along the adjoining properties boundaries will likely screen views into much of the site.

*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 the visual impact will decrease in time as the proposed and existing vegetation continues to mature, to **slight and negative** in the long term.

**View 35: From intersection of the existing avenue and the proposed access road, looking north-east**

Existing View:

From this location along the avenue leading to Auburn House, the mature tree lined avenue and with lighting dominates the view, preventing further views into the subject site and into Little Auburn.

Proposed Changes and Visual Impact:

It is anticipated that the main changes that will be visible from this location will be:

- The proposed access road and pathway at the intersection with the existing avenue.
- The proposed estate railing, tree, woodland and hedge planting
- The proposed wayfinding signage and lighting
- Filtered views of the southern elevations of the Apartment Block 4 and Duplex Block 2D, through the existing and proposed tree 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 **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** in the short term, however as the existing trees continues 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.

**View 36: From the field to the south of Little Auburn, looking north-east**

Existing View:

The location of this viewpoint to the east of the existing avenue leading to Auburn House, permits views of Little Auburn and the mature tree belts along the avenue, the eastern boundary and the field boundary between Little Auburn and the front field of Auburn House.

Proposed Changes and Visual Impact:

The proposed development will require the demolition of the Little Auburn dwelling and the ornamental planting in the immediate vicinity of the building. It is anticipated that the main changes that will be visible from this location will be:

- The proposed access road, pathway, lighting and set-down area for the proposed creche
- The proposed tree and woodland planting
- The proposed hedge planting to the pumping station
- Filtered views of the southern and western elevations of the Apartment Block 4 and the southern elevation of Duplex Block 2D, through the proposed tree 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 **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** in the short term, however as the existing trees continues 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.

**View 37: From the field to the south of Little Auburn, looking north**

Existing View:

The location of this viewpoint to the east of the existing avenue leading to Auburn House, permits views of the Little Auburn dwelling and the mature trees along the avenue, the eastern boundary and the field boundary between Little Auburn and the front field of Auburn House.

Proposed Changes and Visual Impact:

The existing trees that line the avenue will be retained within the proposed development. It is anticipated that the main changes that will be noticeable from this location will be:

- The demolition of the Little Auburn dwelling and the ornamental planting in the immediate vicinity of the building, to facilitate the proposed development.
- The western elevations of the proposed Apartment Blocks 4 and 5 and the ornamental planting around the perimeter of the buildings
- The proposed parking bays and street tree planting along the access road.

*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** in the short term, however as the proposed planting becomes more established it is anticipated that this impact will lessen to **slight-moderate and negative** in the long term.

**View 38: From the field to the rear of Little Auburn, looking south-east**

Existing View:

The location of this viewpoint to the south of the tree lined stream, affords views of the rear of the Little Auburn dwelling and the mature trees along the avenue.

Proposed Changes and Visual Impact:

The existing trees that line the avenue will be retained within the proposed development and it is anticipated that the main changes that will be noticeable from this location will be:

- The demolition of the Little Auburn dwelling and the ornamental planting in the immediate vicinity of the building, to facilitate the construction of the proposed development.
- The western elevations of the proposed Apartment Blocks 4 and 5 and the ornamental planting around the perimeter of the buildings
- The proposed access road, pathway, lighting and street tree 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 **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** in the short term, however as the existing trees continues to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight-moderate and negative** in the long term.

**View 39: From within the subject site – near the entrance gates along the existing avenue, looking north-west**

Existing View:

From this location just inside the existing entrance to Auburn House the mature tree lined avenue and with lighting dominates the view, preventing further views into the subject site and into Little Auburn.

Proposed Changes and Visual Impact:

It is anticipated that the main changes from this location will be:

- The new granite setts surface to the existing entrance and avenue (until just past the crossing the proposed access road)
- Removal of a several trees to facilitate the contraction of the proposed access road and services routes
- New access road, pathway and way finding signage.
- Glimpsed views of the proposed development in the background.
- Proposed tree and hedge 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 **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** in the short term, however as the existing trees continues 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.

**Views 40 & 41: From within the subject site – along the existing avenue looking north**

Existing View:

From this location within the subject site the mature tree lined avenue and lighting dominates the view preventing views into the adjoining fields and Little Auburn.

Proposed Changes and Visual Impact:

It is anticipated that the main visible changes from this location will be the resurfacing of the avenue and the entrance into the Belmont property. It is likely that there will be limited filtered views through the existing trees of the proposed apartment building in the southern part of the subject site.

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction machinery, scaffolding and cranes within the subject site, from this location, resulting in a **slight/moderate and negative** visual impact.

*Operational Phase:*

While it is likely that the majority of proposed development will not be visible from this location, due to the screening provided by the existing mature trees along the avenue and the proposed tree planting, it is likely that there will be glimpsed views of the proposed residential structures within the southern part of the subject site. During the operational phase the impact on views from this location may be **slight and negative** in the short term, however as the existing trees continues to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **not significant/ slight and negative** in the long term.

**View 42: From within the subject site – at the bridge along the existing avenue, looking north-west**

Existing View:

The view from this location along the existing avenue provides a view of bridge over the stream, the mature tree planting along the avenue and the stream and the boundary fence to the open field in the background.

Proposed Changes and Visual Impact:

In order to facilitate the construction of the access road to the southern courtyard buildings and the additional flood attenuation area, it is anticipated that a number of trees and scrub vegetation will need to be removed in this area. It is likely that there will be views of the proposed courtyard buildings and access road from this location, through the existing trees that are to be retained and the specimen

tree planting proposed for this area. The proposed railing and hedge planting to the south of these proposed dwellings will also be visible from this location.

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction machinery, scaffolding and cranes within the subject site, from this location, resulting in a **moderate and negative** visual impact.

*Operational Phase:*

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 continues 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.

**View 43: From existing avenue, near entrance to the Belmont property, looking north-west**

Existing View:

From this location on the avenue, the entrance and buildings within the Belmont property, the tree lined approach to Auburn House and the fenced boundary to the front field are visible.

There are also glimpsed views of Auburn House through the trees in the background and the rooftops of a number of dwellings within the Abington residential development, to the north of the subject site, are also visible in the distant background.

Proposed Changes and Visual Impact:

It is anticipated that the changes that will be most noticeable from this location will be:

- The removal of the existing trees and understory planting to facilitate the construction of the proposed link road to the Streamstown part of the development.
- Glimpsed views of Auburn House will be screened by the proposed buildings.
- Proposed hedge and tree planting along northern side of the avenue.
- Proposed tree and low planting along the southern side of the avenue.
- Filtered views through the proposed tree and hedge planting of the southern courtyard buildings.

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction machinery, scaffolding and cranes within the subject site, from this location, resulting in a **significant and negative** visual impact.

*Operational Phase:*

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 continues to mature and the proposed tree and hedge planting becomes more established it is anticipated that this impact will lessen to **slight-moderate and negative** in the long term.

**View 44: From the existing avenue, looking north-west**

Existing View:

The view from this location along the existing avenue provides a view of the specimen tree planting along the avenue and to the front of Auburn House, which is also visible in the background. The field boundary fence, the front field and the eastern tree belt beyond are also visible from this location.

Proposed Changes and Visual Impact:

It is anticipated that the proposed estate railing that will divide the private lands associated with Auburn House from the rest of the development lands, will be visible from this location. It is likely that this viewpoint will also afford glimpsed views through the existing and proposed tree planting of the boundary wall and the planting to the perimeter of the courtyard buildings proposed to the south of the front field.

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction machinery, and scaffolding, from this location, resulting in a **moderate and negative** visual impact.

*Operational Phase:*

During the operational phase the impact on views from this location may be **slight/moderate and negative** in the short term, however as the existing trees continues 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.

**View 45: From the existing avenue, looking north**

Existing View:

The location of this viewpoint along the existing avenue, affords views of Auburn House, the mature trees along the avenue and to the front of Auburn House and the field boundary fence.

Proposed Changes and Visual Impact:

It is anticipated that while the existing and proposed tree planting and ground modelling will screen the majority of views of the development from this location, there will likely be filtered views of courtyard buildings proposed to the north of the front field and glimpsed views of the south-eastern elevation of Block 3 and of certain dwellings along the access road.

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction machinery, cranes and scaffolding, resulting in a **slight/ moderate and negative** visual impact from this location.

*Operational Phase:*

During the operational phase the impact on views from this location may be **slight/moderate and negative** in the short term, however as the existing trees continues 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.

**View 46: From south of Auburn House, looking north**

Existing View:

The location of this viewpoint to the south of Auburn House, affords views of the house, the ornamental planting around the perimeter of the house, the access drive, the stable block located to the rear of the house and the mature trees within the woodland.

Proposed Changes and Visual Impact:

It is anticipated that due to the local topography, the existing structures and the trees located to the west and south of Auburn House, the proposed development will be screened from this viewpoint.

The proposed additional planting and seating area, to enhance the private external amenity space of the dwelling will be visible 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 **imperceptible/ not significant and neutral,** with much of the impacts screened by the existing vegetation.

*Operational Phase:*

It is anticipated that the visual impact will be **imperceptible and neutral** from this location.

**View 47: From the front steps of Auburn House, looking north**

Existing View:

The location of this viewpoint on the steps to the front of Auburn House, affords views of the eastern elevation of the house, the gravel area and ornamental planting to the front of the house and the woodland to the north of the house. The boundary fence that divides the main house from the pastoral fields is also visible in the background from this location.

Proposed Changes and Visual Impact:

It is anticipated that there will be filtered views through the existing and proposed trees, of the courtyard buildings proposed to the north of the front field. The proposed estate railing and amenity pathway linking the front field to the back field, where Apartment Blocks 1-3 are proposed, will also be visible from this location. Due to the local topography and the existing mature woodland planting to the north of Auburn House, it is expected that the proposed Apartment Blocks 1-3 will not be visible from this location.

*Construction Phase:*

During the construction phase the impact on views from this area will be **moderate and negative**, due to the anticipated increase in construction vehicles, the presence of site hoarding, construction cranes, lighting and works.

*Operational Phase:*

During the operational phase the impact on views from this location may be **slight/moderate and negative** in the short term, however as the existing trees continues 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.

**View 48: From the front steps of Auburn House, looking north-west**

Existing View:

From this viewpoint on the steps to the front of Auburn House, the ornamental structures, gravel apron, lawn, planting and water feature are visible in the foreground.

The specimen tree planting, boundary fence that separates the lawn from the pastoral front field is visible in the middle-ground and the mature tree belt that forms the eastern boundary of the subject site is a visible in the background.

Proposed Changes and Visual Impact:

The existing water feature has been removed to open up the view and restore to its original arrangement and the existing trees within the front lawn have been retained to frame the view from main entrance to Auburn House.

The estate railing and the amenity pathway that are proposed within the central open space will be visible from this location.

It is anticipated that there will be glimpsed views of the proposed courtyard dwellings to the north of the front field, however it intended that the proposed ground modelling and tree planting will assist in screening the majority of the views of the proposed access road and structures.

The tree planting and wildflower meadow areas that are proposed within the central open space and along the eastern boundary will also be visible from this location.

*Construction Phase:*

During the construction phase the impact on views from this area will be **significant and negative**, due to the anticipated increase in construction vehicles, the presence of site hoarding, construction cranes, lighting and works, including the installation of the detention basin in the central open space, which will be taking place onsite.

*Operational Phase:*

In the short term it is anticipated that the visual impact from this viewpoint will be **moderate and negative,** due to the intensification of land use, as it changes from pastoral and parkland to residential development and amenity areas and the filtered views of the proposed northern courtyard dwellings from this location.

However, the proposed grouping of large specimen trees and gently undulating landscape with wildflower meadow will assist in retaining the parkland character and framing the vista towards Malahide Demesne. 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 long term.

**View 49: From the front of Auburn House, looking north-west**

Existing View:

The location of this viewpoint to the front of Auburn House, affords views of the eastern elevation of the billiard room/ ballroom attached to the northern part of the main house, the gravel apron and the ornamental planting to the front of the house and the woodland to the north and west of the house. The boundary fence that divides the main house from the pastoral fields is also visible from this location.

Proposed Changes and Visual Impact:

Due to the local topography and the existing mature woodland planting to the north of Auburn House, it is expected that the proposed Apartment Blocks 1-3 will not be visible from this location.

The proposed estate railing, wildflower meadow areas and the amenity pathways linking the front field to the proposed northern courtyard dwellings and the Apartment Blocks 1-3, will be visible from this location.

*Construction Phase:*

During the construction phase the impact on views from this area will be **slight and negative**, due to the possible filtered views of construction vehicles, construction cranes, lighting and works.

*Operational Phase:*

During the operational phase the impact on views from this location may be **slight and negative** in the short term, however as the existing trees continues to mature and the proposed tree planting

becomes more established it is anticipated that this impact will lessen to **not significant and negative** in the long term.

**View 50: From within the subject site – to the front of Auburn House, looking north-east**

Existing View:

From this location at the front entrance of Auburn House looking north-west, the view is dominated by the existing gravelled entrance, lighting and the decorative elements to the steps and the water feature in the foreground. This location also permits views of the mature specimen trees and fencing to the front field, the woodland planting to the north of Auburn House and tree planting along the boundary of the subject site, in the background.

Proposed Changes and Visual Impact:

It is anticipated that there will be filtered views through the existing mature trees and the proposed planting of the new northern courtyard buildings and the two-storey dwellings to the east of the new access road. From this location it is likely that the new estate railing, ground modelling, wildflower meadow and the specimen tree planting proposed for the front field will be visible.

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction machinery, scaffolding, lighting and cranes within the subject site, from this location, resulting in a **significant and negative** visual impact.

*Operational Phase:*

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 51: From front of Auburn House, looking east**

*(Vista as identified within Streamstown LAP)*

Existing View:

This location at the front entrance to Auburn House permits views of the front lawn, pathway, steps, ornamental features and water feature in the foreground.

The fence that separates the lawn from the grazing fields, the clusters of trees and specimen tree planting, are visible in the middle-ground.

The mature trees along the subject site's boundary and the woodland within Malahide Demesne, form the backdrop to this viewpoint.

Proposed Changes and Visual Impact:

It is anticipated that there will be views of the proposed courtyard dwellings, north and south of the central open space and the dwellings to the east of the access road from this location. It is intended that the proposed ground modelling and tree planting will assist in screening some of the views of the proposed access road and structures. The existing water feature has been removed to open up the view and restore to its original arrangement and the existing trees within the front lawn have been retained to frame the view from main entrance to Auburn House. It is also intended that there will be views of the tops of the boundary tree belt and woodland within Malahide Demesne, through the proposed public open space along the eastern boundary and behind the proposed structures from this viewpoint.

*Construction Phase:*

During the construction phase the impact on views from this area will be **significant and negative**, due to the anticipated increase in construction vehicles, the presence of site hoarding, construction cranes, lighting and works, including the installation of the detention basin in the central open space, which will be taking place onsite.

*Operational Phase:*

In the short term it is anticipated that the visual impact from this viewpoint will be **moderate and negative**, due to the following:

- Intensification of land use, as it changes from pastoral and parkland to residential development and amenity areas, the land is however zoned for residential development, so this will be an impact of any residential development within these lands.
- Filtered views of the proposed courtyard dwellings to the north and south of the front field and the two-storey dwellings along the access road, are anticipated from this location.
- The existing trees are visible in the foreground and the boundary trees and woodland to the east are still visible in the background.
- The proposed grouping of large specimen trees and gently undulating landscape with wildflower meadow will assist in retaining the parkland character and framing the vista towards the Malahide Demesne.

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 long term.

**Visual 52: From front of Auburn House, looking south-east**

Existing View:

Similar to Visual 6, but this viewpoint also permits views of the tree lined driveway up to Auburn House.

Proposed Changes and Visual Impact:

It is anticipated that there will be filtered views of the proposed courtyard dwellings to the south of the central open space from this location. It is intended that the proposed ground modelling with wildflower meadow and tree planting will assist in screening some of the views of the proposed access road and structures. The existing water feature has been removed to open up the view and restore to its original arrangement and the existing trees within the front lawn have been retained to frame the view from main entrance to Auburn House. It is also intended that there will be views of the boundary tree belt and woodland within Malahide Demesne, behind the proposed structures and through the public open space along the eastern boundary, from this viewpoint. The trees along the driveway will also be retained as part of the proposed development.

*Construction Phase:*

During the construction phase the impact on views from this area will be **significant and negative**, due to the anticipated increase in construction vehicles, the presence of site hoarding, construction cranes, lighting and works, including the installation of the detention basin in the central open space, which will be taking place onsite.

*Operational Phase:*

In the short term it is anticipated that the visual impact from this viewpoint will be **moderate and negative,** due to the following:

- Intensification of land use, as it changes from pastoral and parkland to suburban development with amenity areas, clearly evident at this location, the land is however zoned for residential development, so this will be an impact of any residential development within these lands.
- Filtered views of the proposed courtyard dwellings from this location.
- The existing trees are visible in the foreground and the boundary trees and woodland to the east are still visible in the background.
- The proposed grouping of specimen trees and gently undulating landscape with wildflower meadow will assist in retaining the parkland character and framing the vista towards the Malahide Demesne.
- Retention of the narrow tree lined driveway up to Auburn House – retain character and provides screening.

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 long term.

**View 53: From the field-gate between the back-field and the front-field, looking south-east**

Existing View:

This location at the gate in the field boundary, which is composed of mature trees and hedgerow, affords views of the front field and mature trees that form the boundary between the subject site and

the Abington residential development. Filtered views of a number of dwellings within Abington are possible from this viewpoint.

Proposed Changes and Visual Impact:

It is anticipated that the changes that will be most noticeable from this location will be:

- The northern and western elevations of the northern courtyard buildings (units 48-54).
- Glimpsed views of the proposed dwellings along the access road (units 37 and 38) and the upper floor of the southern courtyard buildings in the background.
- Proposed ornamental planting around the perimeter of the courtyard buildings.
- Proposed amenity pathway linking the back-field part of the development to the access road and the central open space.
- Proposed ground modelling and tree planting along to open spaces

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction machinery, scaffolding and cranes within the subject site, from this location, resulting in a **significant and negative** visual impact.

*Operational Phase:*

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-moderate and negative** in the long term.

**View 54: From within the subject site – near the proposed access road within the front field, looking west towards Auburn House**

Existing View:

From this location within the field to the front of Auburn House, the existing house and associated entrance steps, decorative elements are visible, with the large specimen trees and the mature trees along the avenue to the foreground and the woodland to the rear of the house, in the background.

Proposed Changes and Visual Impact:

It is anticipated that Auburn House will remain the focal point of views from this location and the proposed estate railing, ground modelling, wildflower meadow and specimen tree planting will be visible in the fore-middle ground. It is likely that there will be filtered views of the courtyard buildings proposed to the north and south of the front field, where it is intended that ground modelling and large specimen tree planting will assist in screening these structures. It is anticipated that the existing woodland to the north of Auburn House will screen views of the Apartment Blocks 1-3 from this location.

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction machinery, scaffolding and cranes within the subject site, from this location, resulting in a **significant and negative** visual impact.

*Operational Phase:*

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 continues 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.

**View 55: From within front field of Auburn House, looking west**

Existing View:

The view from this location within the field to the front of Auburn House provides a view of the existing house, the large specimen trees to the front of the house, the mature trees along the avenue and within the field boundaries and the woodland to the rear of the house, is visible in the background.

Proposed Changes and Visual Impact:

It is anticipated that Auburn House will remain the focal point of views from this location and the proposed ground modelling, wildflower meadow and specimen tree planting will be visible in the fore-middle ground. It is likely that there will be filtered views of the courtyard buildings proposed to the north and south of the front field and the dwellings along the access road, where it is intended that the ground modelling and specimen tree planting will assist in screening these structures. It is intended that the existing woodland to the north of Auburn House, the mature trees in the existing field boundary in combination with the proposed planting will screen views of Apartment Block 1-3 from this location.

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction machinery, scaffolding and cranes within the subject site, from this location, resulting in a **significant and negative** visual impact.

*Operational Phase:*

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 continues 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.

**View 56: From within the front field of Auburn House, looking west**

Existing View:

The view from this location within the field to the front of Auburn House provides a view of the existing house, the large specimen trees to the front of the house, the mature trees along the avenue and within the field boundaries and the woodland to the rear of the house, is also visible in the background.

Proposed Changes and Visual Impact:

It is anticipated that Auburn House will remain the focal point of views from this location and the proposed ground modelling, wildflower meadow and specimen tree planting will also be visible.

It is anticipated that there will be views of the eastern elevation of the southern courtyard buildings (units 55-59).

It is also likely that there will be filtered views through the proposed tree planting of the northern elevation of southern courtyard buildings and the southern elevation of the northern courtyard buildings (units 48-54). . It is also anticipated that there will be partial views of the upper floors of Apartment Block 3 in the background, with the existing woodland to the north of Auburn House and the proposed specimen tree planting on the ground modelling assisting in screening views of these proposed structures.

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction machinery, scaffolding and cranes within the subject site, from this location, resulting in a **significant and negative** visual impact.

*Operational Phase:*

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 continues to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight-moderate and negative** in the long term.

**View 57: From within the front field of Auburn House, looking south-west**

Existing View:

The location of this viewpoint within the front field, permits views of the tree belt that borders the stream, Auburn House and the woodland that surrounds the house.

Proposed Changes and Visual Impact:

It is intended that the existing mature trees that are located along the field boundary will be retained, except for those that are to be removed to allow for the construction of the access road. It is anticipated that the changes that will be most noticeable from this location will be:

- The proposed access road and amenity pathways.
- Views of the southern elevation and partial views of the proposed southern courtyard buildings.
- The proposed ground modelling and tree 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 significant and negative visual impact.

*Operational Phase:*

During the operational phase the impact on views from this location may be **moderate/ significant and negative** in the short term, however as the existing trees continues to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **moderate and negative** in the medium-long term.

**View 58: From the front field within the subject site – along the proposed amenity pathway, looking west**

Existing View:

From this location within the field to the front of Auburn House, the existing house and the associated entrance steps and fencing, enclosed by the large specimen trees, the mature trees along the avenue and the woodland that surrounds the house are visible in the background.

Proposed Changes and Visual Impact:

From this location along the proposed amenity pathway within the front field it is anticipated that Auburn House will remain a focal point. It is anticipated that the proposed pathway, seating, ground modelling, wildflower meadow and specimen tree planting will dominate the fore-middle ground. It is likely that there will be filtered views of the courtyard buildings proposed to the north of the front field and the dwellings along the access road, where it is intended that ground modelling, shrub and large specimen tree planting will assist in screening these structures. It is also anticipated that there will be partial views of the upper floors of Apartment Blocks 2 and 3 in the background, with the existing woodland to the north of Auburn House and the proposed specimen tree planting on ground modelling assisting in screening views of these proposed structures.

*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:*

During the operational phase the impact on views from this location may be **moderate/ significant and negative** in the short term, however as the existing trees continues to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **slight/ moderate and negative** in the medium-long term.

**View 59: From the northern entrance to the walled garden, looking south**

Existing View:

This location at the existing gate into walled garden permits views of the mature trees within the northern section of the walled garden.

Proposed Changes and Visual Impact:

It is anticipated that the main changes that will be noticeable from this location will be:

- The formalised pathway, that follows the existing informal pedestrian route through the walled garden.
- The play equipment and safety surface that are proposed within the northern section of the walled garden.
- Filtered views of the northern and eastern elevations of the Apartment Block 7.

*Construction Phase:*

During the construction phase it is likely that there will be views of the construction activities required to deliver the playground and the amenity pathway within the walled garden and glimpsed views of the construction machinery, cranes and scaffolding associated with proposed Apartment Block 7, resulting in a **slight-moderate and negative** visual impact from this location.

*Operational Phase:*

During the operational phase the impact on views from this location may be **slight-moderate and negative** in the short term, however as the existing trees continues to mature and the proposed tree planting becomes more established it is anticipated that this impact will lessen to **not significant - slight and negative** in the long term.

**View 60: From the field to the south-east of Little Auburn, looking south-west**

Existing View:

The matures trees that line the Malahide Road and the avenue up to Auburn House and the boundary fence and planting associated with the Little Auburn dwelling, are visible from this location.

Proposed Changes and Visual Impact:

It is anticipated that the main changes that will be noticeable from this location will be:

- The removal of the ornamental planting and boundary fence associated with the Little Auburn dwelling.
- The proposed Duplex Apartment Block 2D southern elevation
- The proposed planting to the front of the proposed buildings
- The proposed amenity pathway and fire tender route
- The additional tree and woodland planting proposed between the Malahide Road tree belt and the proposed buildings.

*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** in the short term, however as the existing trees continues to mature and the proposed planting becomes more established it is anticipated that this impact will lessen to **slight-moderate and negative** in the long term.

### 11.5.4 Cumulative Impacts

There is an existing residential development (Clairville Lodge) located to the south west of the subject site and the low density Abington development to the north and west of the subject site. 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 south west (including Carey's Lane and Streamstown Lane) due to the intensification of land use, as it changes from agricultural/ recreational 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 Woodland Management Plan, if fully implemented will address the possible decline of the existing woodland and tree belts, through the necessary tree works, replacement and infill tree planting, which will secure the extensive tree cover in this area into the future.
- Reinstate 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/ recreational 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 private dwelling within recreational/ 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 the wildlife associated with the estuary's wetlands. 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 and FCC.

### 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 1489_300-308 and Landscape Development Report. 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 tiding 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 Malahide Road and from Malahide Demesne.
  - 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 described within the Landscape Development Report and indicated on landscape drawings 1489_300-306 and which will be planted with appropriate species as listed in the planting specification in Table 11.5.

The planting proposals within the scheme will be employed to:

- assist in the successful integration of the proposed scheme into its landscape setting
- structured native tree planting is proposed within the spaces and along the new main central spine road which links into the amenity spaces.
- create visual interest and a sense of place
- act as a buffer and assist in partially screening and filtering views of the proposed development from the surrounding area e.g. adjoining residential areas, Malahide Road
- 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.
- 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
- compensate for any loss/ enhance biodiversity benefits with an emphasis on pollinator friendly plant species.

**Table 111.5: Planting within the public and communal open spaces will be selected from the following species:**

| **Indicative Planting Schedule**<br>*(to be carried out in accordance with arboriculturist's woodland management plan and the project ecologist's recommendations)* | | |
|---|---|---|
| | | |
| **Species Name** | **Specification** | **Size** (girth/ height) |

| | | |
|---|---|---|
| **Proposed Semi-mature Tree Planting -** *125Nr Large Specimen Trees (30-35cm girth) & 404Nr Parkland/ Medium Trees (20-25cm) to be selected from the following:* | | |
| Aesculus hippocastanum | min.1.8m clear stem, RB | 30-35cm; 20-25cm girth |
| Betula pendula/ B. pubescens | min.1.8m clear stem, RB | 30-35cm; 20-25cm girth |
| Fagus sylvatica | min.1.8m clear stem, RB | 30-35cm; 20-25cm girth |
| Pinus nigra/ P. sylvestris | Feathered, RB | 3 -3.5m; 2-2.5m high |
| Prunus avium | min.1.8m clear stem, RB | 30-35cm; 20-25cm girth |
| Quercus ilex | min.1.8m clear stem, CG | 20-25cm girth |
| Q. petraea/ Q. robur | min.1.8m clear stem, RB | 30-35cm; 20-25cm girth |
| Tilia cordata | min.1.8m clear stem, RB | 30-35cm; 20-25cm girth |
| Salix alba | min.1.8m clear stem, RB | 30-35cm; 20-25cm girth |
| Sorbus aucuparia | min.1.8m clear stem, RB | 30-35cm; 20-25cm girth |
| | | |
| **Proposed Street Tree Planting -** *73Nr Street trees to be selected from the following:* | | |
| Acer campestre | min.1.8m clear stem, RB | 16-18cm girth |
| Quercus petraea | min.1.8m clear stem, RB | 16-18cm girth |
| | | |
| **Proposed Ornamental/ Small Tree Planting -** *530Nr ornamental/ small trees to be selected from the following:* | | |
| Acer ginnala | Multi-stemmed, RB | 2.0-2.5m high |
| Acer palmatum | Multi-stemmed, RB | 2.0-2.5m high |
| Amelanchier lamarckii | Multi-stemmed, RB | 2.0-2.5m high |
| Magnolia grandiflora | Multi-stemmed, RB | 2.0-2.5m high |
| | | |
| **Orchard Tree Planting -** *18Nr Irish heritage orchard trees to be selected from a mix of apple, pear & plum trees* | | |
| | | |
| **Woodland Planting (5,840 sq.m.)** *(to be carried out in accordance with the arboriculturist recommendations within the woodland management plan)* | | |
| **Species Name** | **Specification** | **Size** (girth/ height) |
| *Standard Tree Planting* | | |
| Acer campestre | 2xtr.,RB,fthd | 8-10 cm girth; 2.5m high |
| Aesculus hippocastanum | 2xtr.,RB,fthd | 8-10 cm girth; 2.5m high |
| Betula pendula/ B. pubescens | 2xtr.,RB,fthd | 8-10 cm girth; 2.5m high |
| Fagus sylvatica | 2xtr.,RB,fthd | 8-10 cm girth; 2.5m high |
| Prunus avium | 2xtr.,RB,fthd | 8-10 cm girth; 2.5m high |
| Quercus petraea | 2xtr.,RB,fthd | 8-10 cm girth; 2.5m high |
| Quercus robur | 2xtr.,RB,fthd | 8-10 cm girth; 2.5m high |
| Sorbus aucuparia | 2xtr.,RB,fthd | 8-10 cm girth; 2.5m high |
| *Transplants Planting* | | |
| Acer campestre | 2xtr.,BR,fthd | 120-150cm |
| Aesculus hippocastanum | 2xtr.,BR,fthd | 120-150cm |
| Betula pendula/ B. pubescens | 2xtr.,BR,fthd | 120-150cm |
| Corylus avellana | 2xtr.,BR,fthd | 120-150cm |
| Crataegus monogyna | 2xtr.,BR,fthd | 120-150cm |

| | | |
|---|---|---|
| Ilex aquifolium | 2xtr.,RB | 120-150cm ht,fthd |
| Pinus sylvestris | 2xtr.,RB | 120-150cm ht,fthd |
| Prunus avium | 2xtr.,BR,fthd | 120-150cm |
| Quercus petraea | 2xtr.,BR,fthd | 120-150cm |
| | | |
| **Native Hedging** | | |
| Acer campestre | 1+2,BR,fthd | 120-150cm |
| Crataegus monogyna | 1+2,BR,fthd | 120-150cm |
| Ilex aquifolium | 1+2,RB,fthd | 120-150cm |
| Prunus spinosa | 1+2,BR,fthd | 120-150cm |
| | | |
| **Ornamental Hedge Planting** | | |
| Fagus sylvatica | 1+2,RB,fthd | 120-150cm |
| Prunus lusitanica | 1+2,RB,fthd | 120-150cm |
| | | |
| **Shrub and Herbaceous Planting** | | |
| Alchemilla alpina | 2 litre | |
| Anemone 'Honorine Jobert' | 2 litre | |
| Asplenium scol. 'Angustifolia' | 2 litre | |
| Buxus sempervirens | 3 litre | |
| Calamagrostis 'Karl Foerster' | 3 litre | |
| Cornus alba 'Wintersun' | 60-80cm; Bareroot | |
| Crocosmia ' Lucifer ' | 3 litre | |
| Digitalis grandiflora 'Carillon' | 3 litre | |
| Echinacea purpurea 'White Swan' | 3 litre | |
| Helleborus or. 'Montsegur' | 3 litre | |
| Helleborus orientalis (white) | 2 litre | |
| Libertia grandiflora | 3 litre | |
| Liriope muscari 'Monroe White' | 2 litre | |
| Luzula nivea | 3 litre | |
| Miscanthus sinensis 'Gracillimus' | 3 litre | |
| Panicum virgatum 'Heavy Metal' | 3 litre | |
| Pennisetum alop. 'Hameln' | 3 litre | |
| Perovskia atriplicifolia 'Blue Spire' | 3 litre | |
| Persicaria amp. 'Fat Domino' | 2 litre | |
| Polystichum set. 'Herrenhausen' | 3 litre | |
| Rosa 'Flower Carpet' (whilte) | 3 litre | |
| Rudbeckia f. v. sul. 'Goldsturm' | 3 litre | |
| Salvia nem. 'Caradonna' | 3 litre | |
| Salvia nem. 'Schneehugel' | 3 litre | |
| Stipa tenuissima ‘Ponytails’ | 3 litre | |
| Tiarella cordifolia | 3 litre | |
| Verbena bonariensis 'Lollipop' | 3 litre | |
| Vinca minor 'Gertrude Jekyll' | 1 litre | |
| | | |
| **Bulb Planting:** | | |
| Allium hollandicum c. vars | | |

| | | |
|---|---|---|
| Allium 'Purple Sensation' | | |
| Anemone blanda | | |
| Crocus cvs | | |
| Galanthus nivalis | (of Irish provenance only) | |
| Hyacinthoides non-scripta | (of Irish provenance only) | |
| Narcissus c.vars (3 approx.) | | |
| Tulipa 'White Triumphator' | | |
| | | |
| **Turfgrass** | | |
| 10% Agrostis castellana (Highland Browntop Bent) | | |
| 10% Agrostis capillaris (Browntop Bent) | | |
| 40% Festuca pratensis (Meadow Fescue) | | |
| 40% Festuca rubra (Red Fescue) | | |
| | | |
| **Wildflower/ Native Grass Areas** | | |
| Planting to wildflower meadow areas – biodiversity/ pollinator friendly species seed mix. Species to be selected in accordance with Project Ecologist recommendations. | | |
| | | |
| **Abbreviations:** | | |
| *RB – root-balled* | | |
| *BR - Bareroot* | | |
| *CG – container grown* | | |
| *xtr. – number of transplants in nursery* | | |
| *cm g. – girth of tree in centimetres measured 1m above ground* | | |
| *ltr cg. – plants supplied in e.g. 2 litre volume containers* | | |
| | | |

## 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 recreational/ agricultural land into a residential development, the proposals will be of benefit both locally and to the wider surrounding area by:

- Future proofing the woodlands and tree belts thought the implementation of the 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.

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
- Streamstown Local Area Plan 2009
- Aerial photography
- Photomontages prepared by 3D Design Bureau
- Arboricultural Survey & Report carried out by The Tree File Ltd, 2022
- Historical Landscape Report prepared by The Big Space
- Conservation Report prepared by Sheehan & Barry
- 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 – BUILT ENVIRONMENT UTILITIES & WASTE

## 12.1 Introduction

This Chapter has been prepared by Downey Planning in conjunction with Waterman Moylan Consulting Engineers and describes the material assets – Utilities & Waste, that are potentially impacted by the proposed Project at Auburn. 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. It is also noted that an Architectural Impact Assessment has also been prepared by Sheehan and Barry Conservation Architects under a separate report submitted as part of this application. For further information in this regard, please refer to Chapter 14. In addition, water and road infrastructure have been assessed in Chapter 7 and Chapter 11 respectively by Waterman Moylan Consulting Engineers, whilst land/soils/geology have been assessed in Chapter 6 by Waterman Moylan Consulting Engineers.

A site-specific preliminary Construction and Demolition Waste Management Plan (C&DWMP) has been prepared by Waterman Moylan Consulting Engineers to deal with waste generation during the construction phase of the proposed Project and is included as part of the application packs. This document 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.

## 12.2 Study Methodology

### 12.2.1 Desk 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 Pl 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 over the course of 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.

### 12.2.2 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.

## 12.3 Baseline Environment

### 12.3.1 Site Location and Context

The subject site is located on the south western side of Malahide. The lands are bounded by the existing Abington Estate to the north and west, the Malahide Road and rear gardens to the east and undeveloped lands to the south. Access to the site is currently from the existing driveway to Auburn House, which is accessed off the Malahide Road. The lands at Auburn House extend to approximately 13.28 hectares and are located on the western side of the Malahide Road to the south of Malahide.

The surrounding land uses are generally residential, with Abington being on its northern and western boundary. The lands to the south of Auburn House are subject to a future development proposal that was granted permission under Reg. Ref. F14A/0483; ABP Ref. PL06F.245240. Malahide Castle and Demesne is located on the opposite side of the Malahide Road and can be accessed via Back Road. Malahide village centre is located to the north east of these lands. There is a Dublin Bus service that connects the city centre with Malahide that runs along the Malahide Road and it is noted that there is a bus stop adjacent to the entrance to Auburn House.

### 12.3.2 Ownership and Access

The lands subject to the applications is within the ownership of the applicant, Kinwest Limited with the exception of the public roads, which are under the control of Fingal County Council and who have provided the necessary letter of consent.

Access to the subject development is currently from The Dublin Road to the east. This road connects Malahide with Dublin City. Carey's Lane at the south west of the site also connects to the site.

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 while the Transportation chapter of this EIAR also deals with this area.

### 12.3.3 Electricity, Gas and Telecommunications

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

Based on the information received from ESB Networks (ESBN), the subject lands are serviced by existing ESB cables with overhead lines connecting into the existing properties via underground lines that are outside of the subject site. There are no supply issues envisaged.

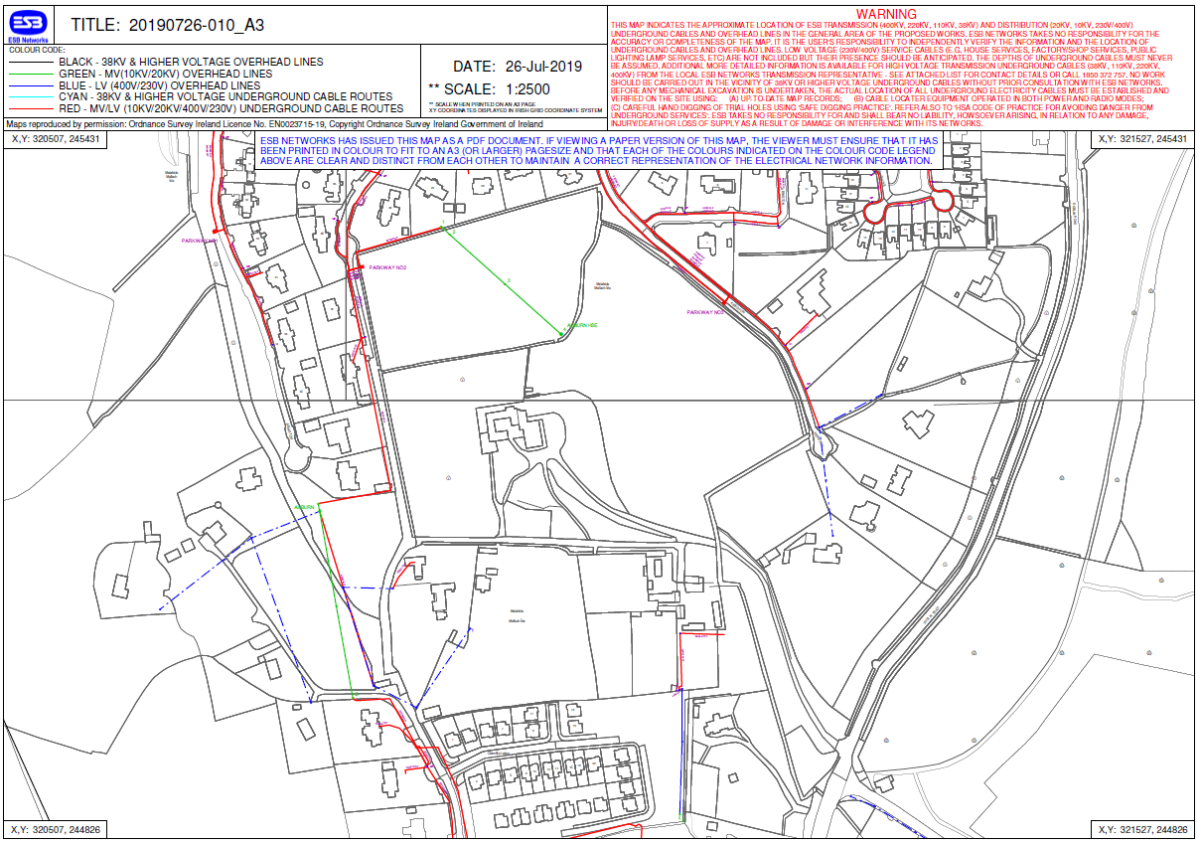



**Fig. 12.1 – Existing ESB Network Layout**

There is an existing Gas network in the Malahide Road to the east of the site as well as in Abington to the north.

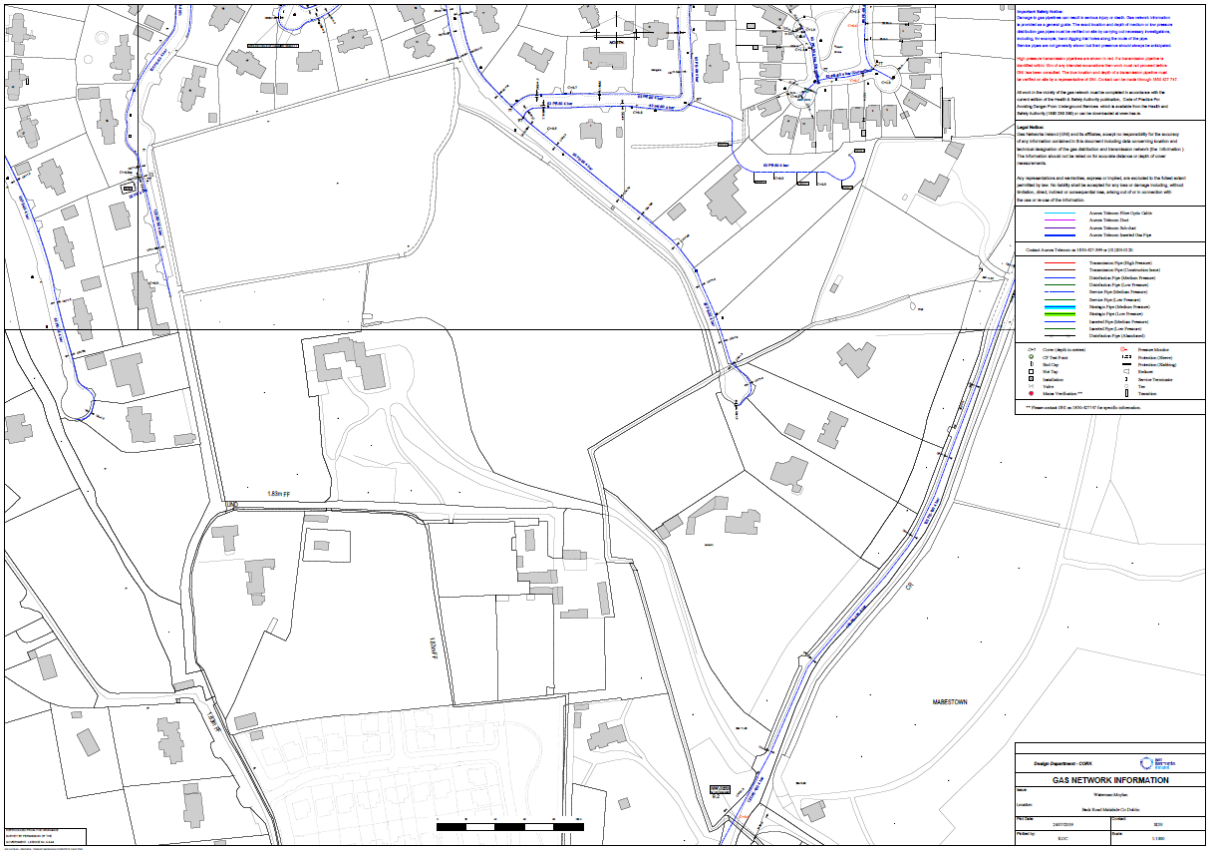



**Fig. 12.2 – Existing Gas Network Layout**

In terms of telecommunications, it is known that Eir currently serves the site via the Malahide Road at the east and there is also a network in Abington to the north and also at Clairville to the south.

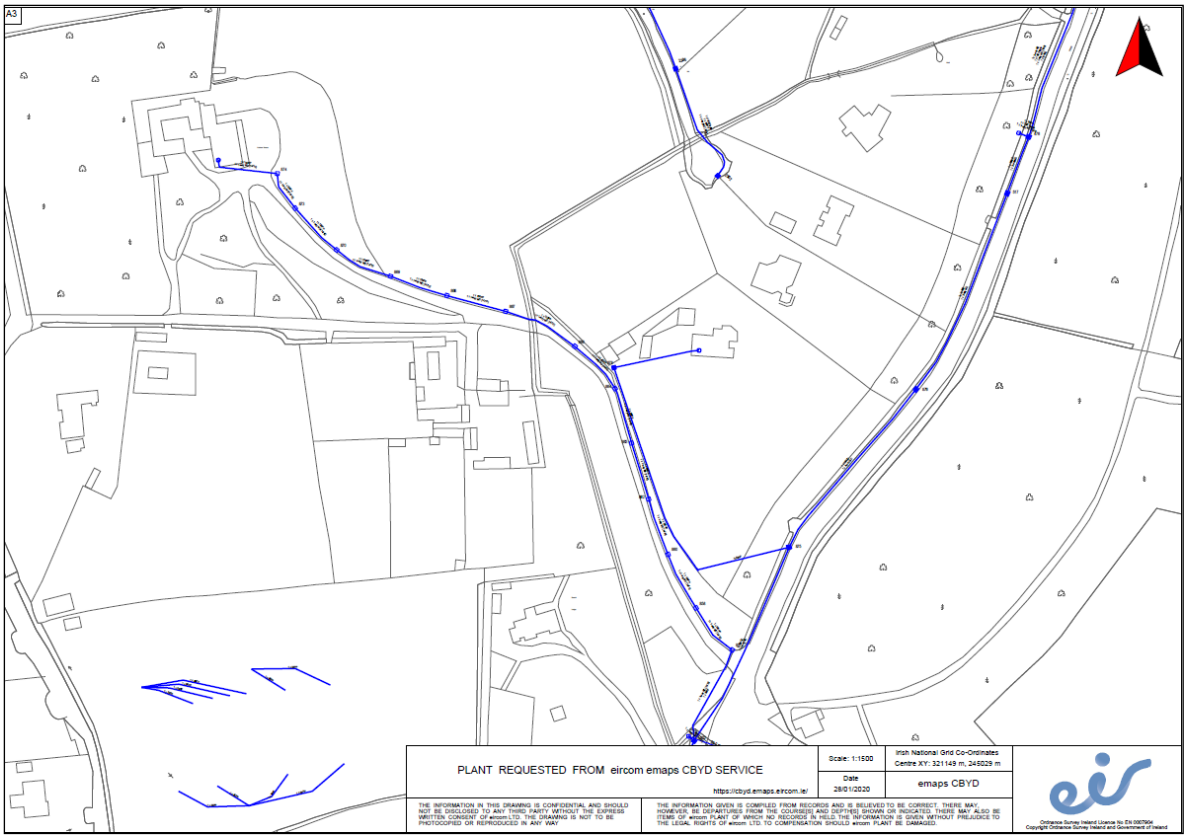



**Fig. 12.3 – Existing Eir Telecommunications Network Layout**

### 12.3.5 Waste Management

In terms of waste management, the receiving environment is defined by Fingal County Council as the Local Authority with responsibility for setting standards and targets and for monitoring/regulating waste management activities in the area, as set out by the management plan for the region i.e., the EMRWMP 2015-2021. The Fingal County Development Plan 2017-2023 sets out these policies and objectives regarding waste management. In addition, waste operators already service the area as there are existing residential properties at the subject lands.

## 12.4 Potential Impact of the Proposed Project

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.*

### 12.4.1 Construction Phase

**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 Authority 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 / Swords and 25% from city centre / Baldoyle direction. Delivery trucks will be instructed to access the site via the Malahide Road. 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 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 will also involve the provision of a new foul water line along Back Road and Kinsealy Lane, under the road, which is in the charge of Fingal County Council. This will involve a temporary dig of the road and result in some traffic restrictions on a temporary basis. The impact of this would be temporary and slight.

**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 Construction and Demolition Waste Management Plan that

is prepared under separate cover as part of the planning application. Typical municipal waste will also be generated by construction works on sites such as food waste. 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 sites.

If waste is not managed or stored appropriately, it is likely to give rise to litter and/or pollution issues on the construction sites 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 Construction and Demolition Waste Management Plan (C&DWMP) prepared by Waterman Moylan Consulting Engineers.

### 12.4.2 Operational Phase

**Site Location and Context**

The proposed development will provide a total of 368 no. new dwellings (369 when including the existing Auburn House) along with ancillary residential facilities and 1 no. childcare facility. 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. 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 13 (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.

A utilities layout drawing has been prepared by Waterman Moylan Consulting Engineers as part of the planning application with the appropriate services being designed as part of the proposed development.

**Waste Management**

Given the nature of the proposed Project i.e. a residential development comprising 368 no. new residential units and 1 no. childcare facility, waste materials during the operational phase will be generated. As Malahide is an established suburb of Dublin City, an existing network of waste collection, treatment and disposal contractors and facilities 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.

## 12.5 Avoidance, Remedial & Mitigation Measures

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. As a result, 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 Construction and Demolition Waste Management Plan (C&DWMP) has been prepared to deal with waste generation during the construction phase of the proposed Project and is included as part of the application packs. This document was prepared in accordance with best practice guidelines. Operational waste management 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.

## 12.6 Predicted Impacts

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

## 12.7 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.

## 12.8 Reinstatement

No reinstatement will be required regarding Material Assets. Residual impacts on services and utilities are considered to be imperceptible.

## 12.9 Interactions

The main interactions relating to Material Assets are water, air quality, and population and human health.

During the operational phase, the water supply and wastewater services will have a potential interaction with the available water supply and the potential emissions to the water cycle.

## 12.10 Difficulties Encountered in Compiling

The exact location of existing service infrastructure is reliant upon the records obtained, where relevant. Overall, no difficulties were encountered in compiling this chapter.

## 12.11 Cumulative Impacts

The assessment has considered cumulative impacts of construction and operational phases of the proposed Project, in conjunction with surrounding developments.

Considering the minimal use of material assets during the construction phase, there is no likely impact.

Multiple sites under construction at the one time may result in cumulative impacts in terms of noise and vibration during the construction period. However, such impacts are short term and neutral.

During the operational phase of the development there will be similar existing and residential developments in proximity to the proposed Project, such as at Abington, which will generate similar waste types. Authorised waste collectors will be required to collect segregated waste materials from multiple development which is likely to result in an improvement of efficiencies of waste collection and indeed is likely to result in an improvement in waste targets in line with national and local legislation. As such the long-term effect will be imperceptible and neutral.

## 12.12 'Do-Nothing' Impact

A 'do-nothing' scenario is not considered valid as the lands are currently zoned for development under the Fingal County Development Plan. However, if a do-nothing scenario were to occur, the lands would not be developed and therefore would be no adverse impacts to material assets. 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.

## 12.13 References


- 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 Pl 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).

# CHAPTER 13 – TRAFFIC AND TRANSPORT

## 13.1 Introduction

This chapter of the EIAR assesses the likely traffic and transportation impacts on the receiving environment during the construction and operational phases of the proposed development. The existing and proposed transport infrastructure in the area is described, and an assessment of the current and the future traffic environment is made. The impact of the development in terms of public transportation, pedestrian and cycle is also assessed.

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; the remedial or reductive measures required to prevent, reduce or offset any significant adverse effects; and the monitoring.

## 13.2 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.

## 13.3 Receiving Environment

This section reviews the baseline conditions, providing backing information for the site in order to determine the significance of any traffic implications. It also considers the existing accessibility of the site by sustainable modes of transport.

### 13.3.1 Site Location

The site is located south-west of Malahide Town, Co Dublin and just west of the Malahide Castle grounds. It is between the existing Abington residential development and the Malahide Road. The

existing entrance to the site is from the Malahide Road, adjacent to the Malahide Road/Back Road junction.

The subject lands form the western, northern, and eastern boundaries of Auburn House, an eighteenth century three-storey mansion located within a wooded demesne. Malahide Castle is approximately 900m north-east of the site.

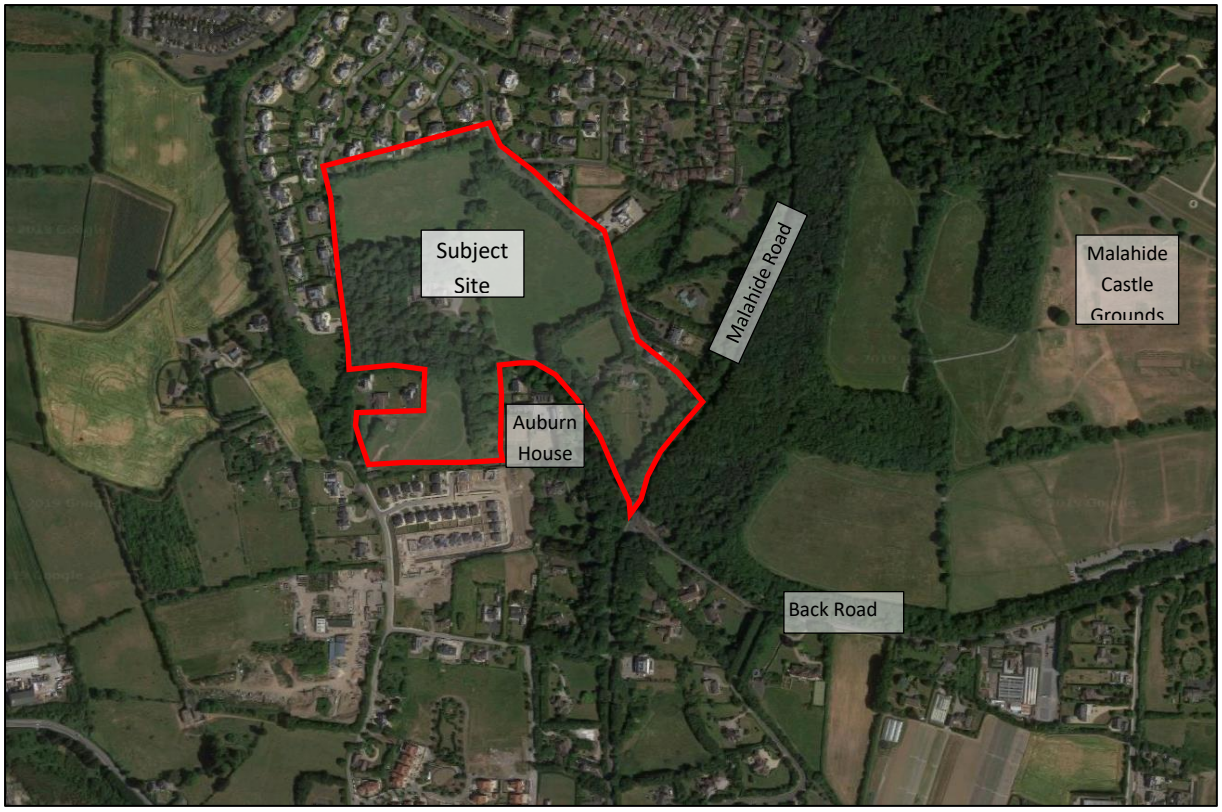



**Figure 13.1 | Proposed Development Location**

### 13.3.2 Local Road Network

The site is located 2.6km south-west of Malahide Town centre and is in close proximity regional including the R107 Malahide Road, Back Road, Streamstown Lane, Careys Lane and Feltirim Road which serve the area with residential, commercial and agricultural lands.

**R107 (Malahide Road)**

R107 Malahide Road is a regional road in north Dublin which runs for approximately 10.5km from Fairview to Malahide. The speed limit along the R107 adjacent to the site is 60kph. This road is approximately 700m in length from the priority-controlled junction with Back Road through to a signalised junction with R106 Swords Road. Along this section, R107 Malahide Road comprises a carriageway of c. 7.5m wide with a narrow footpath provided on the western side. No cycle lanes are provided.

**Back Road**

Back Road is a single carriageway road running west-east for approximately 1.8km from the priority junction with R107 Malahide Road through to a priority junction with R124 The Hill. This road, which

crosses the railway line via an existing bridge, currently comprises a carriageway of approximately 7.30m with narrow footpaths running along both sides of the road for the majority of its length.

**Streamstown Lane**

Streamstown Lane is a single carriageway road located to the south of the subject site. This road is approximately 780m in length from the priority junction with R107 through to a priority junction with Feltrim Road. Along Streamstown Lane, an unconnected network of footpaths is provided with no pedestrian crossing points available. No cycle lanes are provided.

**Carey's Lane**

Carey's Lane is a local road running north-south for approximately 230m from the south-western boundary of the site through to a priority junction with Streamstown Lane. This road, which will provide vehicular access to the site, currently comprises a carriageway of approximately 5.50m with footpaths running along the eastern side.

**Feltrim Road**

Feltrim Road is a single carriageway road located to the south of the subject site. This road is approximately 2.59km in length from the priority junction with R107 through to a three-way Roundabout connecting to Mountgory Way. The speed limit along Feltrim Road is 60kph. The road is c. 7.5m wide single carriageway with a narrow footpath on the north side of the road for much of its length and a narrow path on both sides of the road at some sections.

### 13.3.3 Baseline Traffic data

In order to identify the volumes of traffic movements at key points on the road network surrounding the subject site, three sets of classified turning movement traffic counts were commissioned.

A manual classified traffic survey was carried out by 'IDASO' on Wednesday 18th September 2021 at one priority-controlled T-junction over a period of 24 hours. The junction surveyed was:

- **Junction 1 (Priority T-junction):** R107 Malahide Road / Back Road.

A second manual classified traffic survey was also carried out by 'Traffinomics' on Tuesday 21st January 2020 at one priority-controlled T-junction over a period of 24 hours. The junction surveyed was:

- **Junction 2 (Priority T-junction):** Carrey's Lane / Streamstown Lane.

An additional manual classified traffic survey was carried out by 'IDASO' on Tuesday 24th November 2020 at two priority-controlled T-junctions over a period of 24 hours (as requested by Fingal County Council Transportation Department during the Tripartite meeting). The junctions surveyed were:

- **Junction 3 (Priority T-junction):** R107 Malahide Road / Streamstown Lane.

- **Junction 4 (Priority T-junction):** Feltrim Road / Streamstown Lane

As described above, the survey carried out by 'IDASO' for Junction 3 and Junction 4 was undertaken in November 2020. At that time, the country was at Lockdown Level 5 to restrict the spread of COVID-19 and as a result, the traffic flows surveyed for these junctions were considered not representative of a normal traffic day.

In order to account for the traffic reduction due to Lockdown Level 5 and identify typical traffic flows of a normal day, the surveyed flows for Junctions 3 and 4 have been factored up. To assist with the factoring up exercise, a one-page document named *'COVID-19 – Junction Turning Count Comparison'* has been provided by 'IDASO'. This document provides data of total vehicle flows surveyed at a random junction in the GDA (North Side) during each level of COVID-19 restriction (from April 2020 to November 2020) and compares them against the Pre COVID-19 scenario in February 2020. The random surveyed junction is the intersection between Oscar Traynor Road (R104), Malahide Road (R107) and Tonlegee Road (R107) in Coolock.

The results of the comparison exercise carried out by 'IDASO' identified that in November 2020 (during Level 5 restrictions), the volume of traffic getting through the surveyed junction was 14% lower when compared to the Pre COVID-19 scenario in February 2020. Based on that, the vehicle flows surveyed on Junctions 3 and 4 have been increased by a 14% factor.

It is acknowledged that the random junction is located in a distinct area in terms of traffic level and the identified traffic patterns may not be precisely representative of Junctions 3 and 4 patterns. However, given the lack of specific information for the subject junctions in this regard, the use of the patterns identified for the random junction was considered reasonable to extrapolated typical day volumes on Junctions 3 and 4.

The surveys identified different peak hours for all four junctions. For the purpose of this assessment the assumed peak hours are 08h00 - 09h00 in the AM and 18h00 – 19h00 in the PM, being the most common among them.

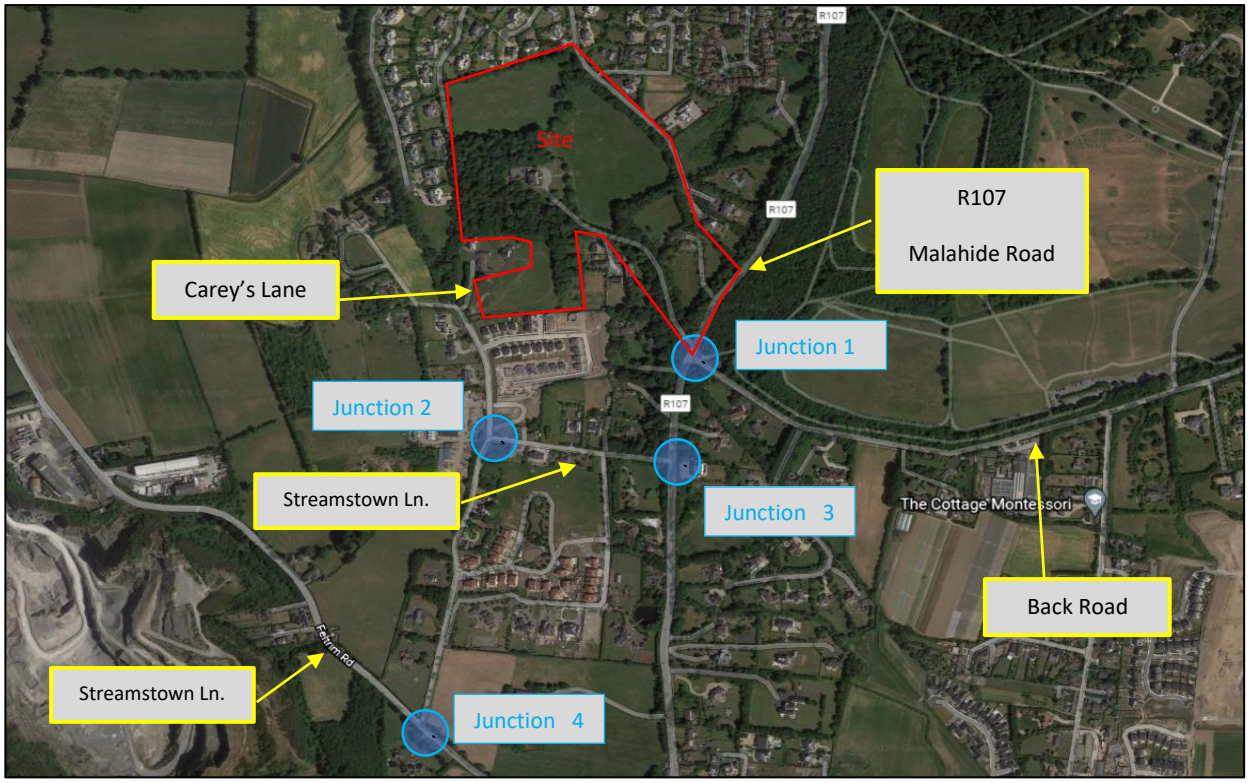



**Figure 13.2 | Junctions Assessed**

A summary of the baseline two-way flows and the two-way flow expected to be generated by the proposed + committed and potential future developments in the local area are presented below in Table 13.1 for Junction 1, Table 13.2 for Junction 2, Table 13.3 for Junction 3 and Table 13.4 for Junction 4.

| Description | Total Junction Two Way Flow (Veh) | Proposed + Committed + Future Developments Two Way Flow (Veh) | % Traffic increase |
|---|---|---|---|
| **AM Peak Hour (08:00 - 09:00)** | 1,098 | 134 | 12% |
| ***PM Peak Hour (18:00 - 19:00)*** | *1,066* | *158* | *15%* |

**Table 13.1 | Summary Results for Junction 1**

| Description | Total Junction Two Way Flow (Veh) | Proposed + Committed + Future Developments Two Way Flow (Veh) | % Traffic increase |
|---|---|---|---|
| **AM Peak Hour (08:00 - 09:00)** | 191 | 42 | 22% |
| **PM Peak Hour (18:00 - 19:00)** | 96 | 50 | 52% |

**Table 13.2 | Summary Results for Junction 2**

| Description | Total Junction Two Way Flow (Veh) | Proposed + Committed + Future Developments Two Way Flow (Veh) | % Traffic increase |
|---|---|---|---|
| **AM Peak Hour (08:00 - 09:00)** | 1,122 | 69 | 6% |
| **PM Peak Hour (18:00 - 19:00)** | 1,009 | 99 | 10% |

**Table 13.3 | Summary Results for Junction 3**

| Description | Total Junction Two Way Flow (Veh) | Proposed + Committed + Future Developments Two Way Flow (Veh) | % Traffic increase |
|---|---|---|---|
| **AM Peak Hour (08:00 - 09:00)** | 1,052 | 50 | 5% |
| **PM Peak Hour (18:00 - 19:00)** | 861 | 57 | 7% |

**Table 13.4 | Summary Results for Junction 4**

Trip generation calculation for the proposed, committed, and potential future developments are presented later in this Chapter.

As recommended in the TII Publication, 'Project Appraisal Guidelines Unit 16.1: Expansion Factors for Short Period Traffic Counts (October 2016)', the traffic count data has been converted to Annual Average Daily Traffic (AADT) data in order to provide a dataset representative of the annual traffic flow profile for the road network surrounding the proposed development.

The General Expansion Factor Method, as outlined in the TII Publication, was used to convert the surveyed flows for the 4 No. junctions into the Annual Average Daily Traffic (ADDT). The corresponding Factors for the Greater Dublin Region were used.

Note that: for Junctions 3 and 4 a 14% increase has been applied to the surveyed flows to account for the COVID-19 restrictions that were in place when the traffic survey was carried out.

The traffic growth rate of 1.016 used to factor up the 2020 surveyed flows into 2021 is in accordance with the *'Table 6.1: Link-Based Growth Rates: Metropolitan Area Annual Growth Rates'* within the TII Publications – Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (May 2019). The ADDT flows are shown below in Tables 13.5, 13.6, 13.7 and 13.8.

| Hour Ending | Proportion of Daily Traffic | Existing Two-way Flows through Junction 1 (Vehicles) |
|---|---|---|
| **08:00** | 0.077 | 780 |
| **09:00** | 0.081 | 1,139 |
| **10:00** | 0.066 | 1,075 |
| **17:00** | 0.083 | 1,049 |
| **18:00** | 0.088 | 1,025 |
| **19:00** | 0.075 | 1,053 |
| **Total** | 0.382 | 6,121 |

**Table 13.5 | Junction 1 - R107 Malahide Rd/Back Rd**

24 Hour Estimate = 6,121/0.382 = 16,024 vehicles
Weekly Average Daily Traffic (WADT) = 16,024 x 0.99 = 15,864 vehicles
Annual Average Daily Traffic (AADT) = 15,864 x 0.97 = **15,388 vehicles**

| Hour Ending | Proportion of Daily Traffic | Existing Two-way Flows through Junction 2 (Vehicles) |
|---|---|---|
| **08:00** | 0.077 | 21 |
| **09:00** | 0.081 | 83 |
| **10:00** | 0.066 | 191 |
| **17:00** | 0.083 | 90 |
| **18:00** | 0.088 | 116 |
| **19:00** | 0.075 | 96 |
| **Total** | 0.382 | 597 |

**Table 13.6 | Junction 2 - Streamstown Lane/ Carrie's Lane**

24 Hour Estimate = 597/0.382 = 1,563 vehicles
Weekly Average Daily Traffic (WADT) = 1,563 x 0.99 = 1,547 vehicles
Annual Average Daily Traffic (AADT) = 1,547 x 0.97 = **1,501 vehicles**

| Hour Ending | Proportion of Daily Traffic | Existing Two-way Flows through Junction 3 (Vehicles) |
|---|---|---|
| **08:00** | 0.077 | 659 |
| **09:00** | 0.081 | 1,105 |
| **10:00** | 0.066 | 888 |
| **17:00** | 0.083 | 943 |
| **18:00** | 0.088 | 792 |
| **19:00** | 0.075 | 671 |
| **Total** | 0.382 | 5,058 |

**Table 13.7 | Junction 3 - R107 Malahide Rd/Streamstown Lane**

24 Hour Estimate = 5,058/0.382 = 13,241 vehicles

Weekly Average Daily Traffic (WADT) = 13,241 x 0.99 = 13,109 vehicles

Annual Average Daily Traffic (AADT) = 13,109 x 0.97 = **12,716 vehicles**

| Hour Ending | Proportion of Daily Traffic | Two-way Flows through Junction 4 (Vehicles) |
|---|---|---|
| **08:00** | 0.077 | 679 |
| **09:00** | 0.081 | 1,052 |
| **10:00** | 0.066 | 676 |
| **17:00** | 0.083 | 861 |
| **18:00** | 0.088 | 742 |
| **19:00** | 0.075 | 553 |
| **Total** | 0.382 | 4,563 |

**Table 13.8 | Junction 4 – Feltrim Rd/Streamstown Lane**

24 Hour Estimate = 4,563/0.382 = 11,945 vehicles

Weekly Average Daily Traffic (WADT) = 11,945 x 0.99 = 11,826 vehicles

Annual Average Daily Traffic (AADT) = 11,826 x 0.97 = **11,471 vehicles**

### 13.3.4 Pedestrian and Cycling Facilities

The site is well located to provide non-car access for residents and visitors of the proposed development with good local walk-in access from the local catchment.

Additional pedestrian facilities, such as renovated footpaths and new dedicated pedestrian crossings will be provided on R107 Malahide Road / Back Road junction prior to the construction of the proposed development.

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).

### 13.3.5 Public Transport Facilities

**Train Services Accessibly**

The closest train station (Malahide) is located approximately 2.0km (24-minute walk/6-minute cycling) northeast of the site access off R106 Dublin Road. Walking access from the subject site to the Malahide Station would be via R107 Malahide Road and R106 Dublin Road. Along the route to the station, a narrow footpath, directly adjacent to the carriageway, is provided on the western side of R107 Malahide Road. On the R106 Dublin Road, a wider footpath is provided along the western side of the

carriageway and on both sides of the road from Yellow Walls Road up until the Malahide Station. No cycle lanes are provided along the route.

The Malahide Station is served by Commuter Rail and DART services.

The Commuter Rail service through Malahide 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 Malahide 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.

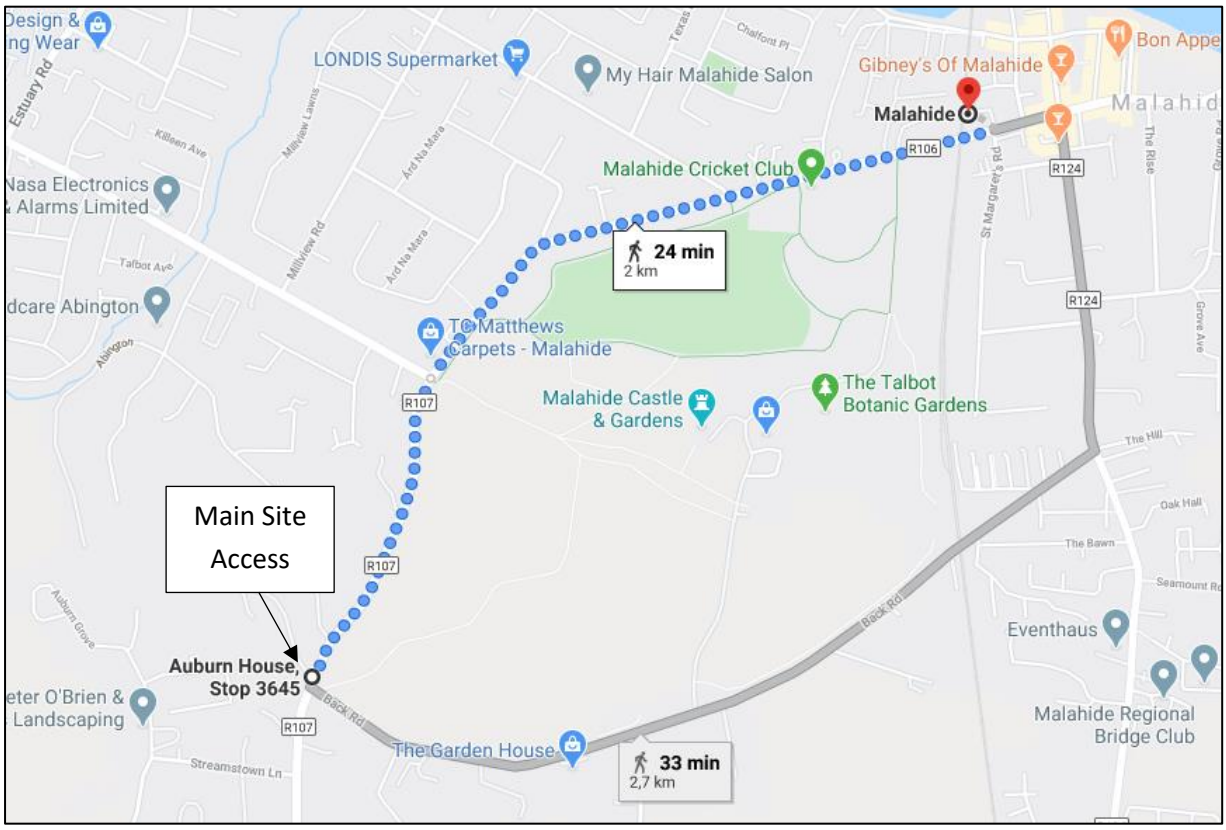



**Figure 13.3 | Walking Distance to Malahide Train Station**

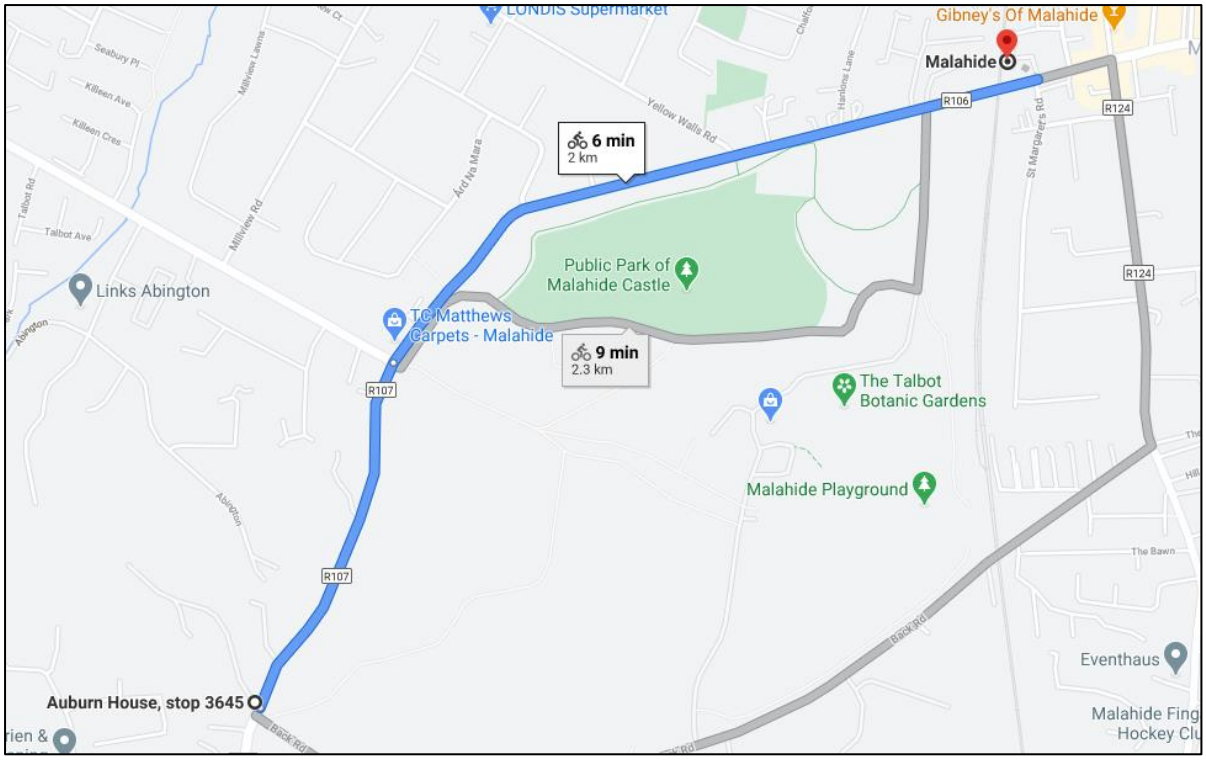



**Figure 13.4 | Cycle Distance to Malahide Train Station**

### Bus Services Accessibility

The subject site is directly served by public bus services. The closest bus stops are located on R107 Malahide Road just north of the junction with Back Road, being the Bus Stops No. 3579 (northbound) and No. 3645 (southbound). The subject bus stops are served by the Bus Route 42. This route is operated by Dublin Bus and connects Talbot Street in Dublin City Centre through Malahide to Sand's Hotel in Portmarnock. A summary of Dublin Bus Route 42 frequency and the location of the subject bus stops in relation to the proposed development site are shown below.

The proposed internal layout will include pathways and pedestrian crossings throughout the site leading to the bus stops just outside the site. From the centre point of the site, it is approximately 400m (5-minute walk) to these bus stops.

| Route No. | From | To | AM Weekday Frequency (07:00 to 09:00) | PM Weekday Frequency (17:00 to 19:00) |
|---|---|---|---|---|
| **42** | Talbot Street | Sand's Hotel (Portmarnock) | Every 15 to 30 minutes | Every 20 to 25 minutes |
| **42** | Sand's Hotel (Portmarnock) | Talbot Street | Every 20 minutes | Every 20 to 25 minutes |

**Table 13.9 | Frequency of Dublin Bus Route 42**

Travel time from the subject bus stop on R107 Malahide Road (southbound) to Talbot Street in Dublin City Centre is approximately 32 minutes. On the opposite direction, the travel time from the subject

bus stop on R107 Malahide Road (Northbound) to Malahide Centre is approximately 11 minutes, and to Sand's Hotel in Portmarnock is approximately 22 minutes.


**Figure 13.5 | Walking Distance to Nearest Bus Stops**

## 13.4 Characteristics of the Proposal

### 13.4.1 Introduction

The proposed development consists of:

- The preservation and protection of the existing Protected Structure of Auburn House as 1 no. residential dwelling;
- 87 no. Houses;
- 239 no. Apartments;
- 42 no. Duplexes;
- A 196 sqm childcare facility at ground floor of Apartment Duplex 2D.

The breakdown of the proposed residential development is set out in the schedule of accommodation below:

| Description | **1-Bed** | **2-Bed** | **3-Bed** | **4-Bed** | **5-Bed or more** | Total |
|---|---|---|---|---|---|---|
| Houses | 0 | 0 | 47 | 34 | 7* | 88 |
| Duplexes | 26 | 14 | 2 | 0 | 0 | 42 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Apartments | 109 | 124 | 6 | 0 | 0 | 239 |
| Total | 135 | 138 | 55 | 34 | 7 | 369** |

**** = Including the Existing 11 Bed Auburn House***

***** = Total figure also accounts for Auburn House (to be preserved).***

**Table 13.10 | Schedule of Accommodation**

### 13.4.2 Physical Infrastructure

**Internal Road Layout**

The proposed road layout incorporates a road hierarchy including link roads, side streets and homezones. Generally, the internal link and side streets are 6.0 m wide, and footpaths are 2.0 m wide. Various traffic calming measures such as the avoidance of long straight sections, raised tables, pedestrian friendly crossings and homezone areas, have been introduced to ensure a design speed of 30 km/h. Pedestrian crossing points are located at various points within the development such that unimpeded pedestrian movement is facilitated.

Additional pedestrian facilities, such as renovated footpaths and new dedicated pedestrian crossings will be provided on R107 Malahide Road / Back Road junction prior to the construction of the proposed development.

**Site Access Points**

The proposed development will benefit from two vehicular access points. To the southeast of the site, R107 Malahide Road / Back Road priority-controlled T-junction is proposed to be upgraded to a four-armed signalised junction with the western arm forming the primary access to the site. A secondary access is proposed from west of the site via Carey's Lane leading to Streamstown Lane and Feltrim Road.

In addition to the two-site access described above – which will be used by all modes of transport, pedestrians and cyclists will also benefit from a green route across the site leading to R107 Malahide Road just north of the proposed vehicular access point to the site. There will be toucan crossing incorporated to the proposed R107 Malahide Road / Back Road junction, connecting the proposed development to existing footpaths on both Malahide Road and Back Road.

**Internal Pedestrian and Cyclist Facilities**

Footpaths within the proposed development will be provided in accordance with Section 4.3.1 of the Design Manual for Urban Roads and Streets (DMURS) which suggests that a minimum 1.8m footpath should be provided. Crossing points are located at various points within the development such that unimpeded pedestrian movement is facilitated. Accordingly, the proposed development is consistent with the principles outlined in DMURS. A statement in respect of DMURS compliance has been prepared within the Engineering Assessment Report which accompanies this application under separate cover. Cycle paths on the proposed upgraded junction between R107 Malahide Road and Back Road have been designed in accordance with the National Cycle Manual.

According to the Fingal County Council Development Plan 2017-2023, the proposed development is required to provide, 435 bicycle parking spaces for residents, 56 bicycle parking spaces for visitors and 6 bicycle parking spaces for the Creche.

When considering the Design Standard for New Apartments standard, the bicycle parking requirement for the proposed development is also 435 spaces for residents but increases to 141 for visitors (1 cycle parking space per bedroom plus 1 cycle space per every two residential units).

The proposed development will provide 692 spaces on site. This is provision exceeds both the Fingal Development Plan 2017 – 2023 and the Design Standards for New Apartments requirements and is considered ideal to serve the proposed development. Cycle parking for the dwellings will be provided privately within each house.

**Pedestrian Linkages to Surrounding Lands**

The proposed development includes upgrading the junction with R107 Malahide Road and Back Road. The upgrades include a signalised Toucan crossing which will connect the pedestrian and cycling paths around and through Malahide Castle and gardens. Public transport services are available adjacent to the site, or within reasonable walking distance for commuter related trips. These are bus services for the 42 Dublin Bus route.

Using the proposed development access point to R107 Malahide Road, it is a 2km walk (24-minute walk) to the Malahide Town Centre. Along the route to Malahide, a narrow footpath, directly adjacent to the carriageway, is provided on the western side of R107 Malahide Road. On the R106 Dublin Road, a wider footpath is provided along the western side of the carriageway and on both sides of the road from Yellow Walls Road up until the Malahide. No cycle lanes are provided along the route.

**Car Parking Provision**

The number of car parking spaces projected to serve the proposed development at auburn is presented in Table 13.11 below

As can be seen from the below, it is proposed to provide a total of 505 car parking spaces, 497 spaces for residential use, 3 staff car parking spaces for the Creche and 5 drop-off spaces for the Creche. Note that the four street level drop-off spaces provided for the Crèche can also be used by visitors of the proposed development outside of Crèche drop-off and pickup hours.

The reduced provision of 1 car parking space per apartment / duplex unit reflects the location of the development in relation to public transport services. This is in line with the Design Standards for New Apartments as outlined above and is considered adequate to serve the proposed development.

| Land Use/Blocks | | No. of Units | Under Croft/ Under Podium | Podium/ Street | Total | Notes |
|---|---|---|---|---|---|---|
| **Houses** *(excluding Auburn House)* | | 87 | - | 177 | 177 | *Each House provided 2 spaces. (In Curtilage) plus 3 x visitor spaces in Back Field* |
| Auburn House and Stables | | 1 | - | 2 | 2 | *2 car spaces for Auburn House in existing gravel parking court to the front of the house.* |
| **The Backfield** *(Blocks 1, 2 & 3)* | Block 1 | 46 | 153 | 8 | 161 | *1 car parking space per unit plus 24 x visitor spaces* |
| | Block 2 | 49 | | | | |
| | Block 3 | 42 | | | | |
| **Streamstown** *(Blocks 6 & 7 and Duplex Block 1)* | Block 6 | 21 | - | 24 | 24 | *1 car parking space per unit plus 3 x visitor spaces* |

| Land Use/Blocks | | No. of Units | Under Croft/ Under Podium | Podium/ Street | Total | Notes |
|---|---|---|---|---|---|---|
| | Block 7 | 25 | - | 28 | 28 | *1 car parking space per unit plus 3 x visitor spaces* |
| | Duplex 1 | 6 | - | 9 | 9 | *1 car parking space per unit plus 3 x visitor spaces* |
| **The Avenue** *(Blocks 4 and 5, Duplexes 2A, 2B, 2C, 2D)* | Block 4 | 28 | 94 | 2 | 96 | *1 car parking space per unit plus 4 x visitor spaces.* |
| | Block 5 | 28 | | | | |
| | Duplex 2A | 8 | | | | |
| | Duplex 2B | 11 | | | | |
| | Duplex 2C | 9 | | | | |
| | Duplex 2D | 8 | | | | |
| Creche | | - | 3 Staff Spaces | 5 Drop-Off Spaces | 8 | *5 x additional creche drop off spaces can be used for residential drop off/visitors outside of creche hours.* |
| **Total** | | **369** | **250** | **255** | **505** | **-** |

**Table 13.11 | Proposed Car Parking**

### 13.4.3 Trip Generation

In order to assess the likely impact of the traffic generation arising from the proposed development, TRICS software has been consulted. TRICS is the national standard of trip generation and analysis in Ireland. It is a database system which allows users to identify representative trip rates and to establish potential levels of trip generation for a wide variety of developments. Full car trip rates, which were sourced from the TRICS Database version 7.7.3, are provided in Appendix C of the Traffic and Transport Assessment accompanying the subject application and are summarised below.

| Land Use Category | AM (08:00 – 09:00) | | PM (18:00 – 19:00) | |
|---|---|---|---|---|
| | Trip Rates IN | Trip Rates OUT | Trip Rates IN | Trip Rates OUT |
| **Houses / Duplexes** | **0.103** | **0.477** | **0.483** | **0.255** |
| **Flats (Apartments)** | **0.021** | **0.357** | **0.314** | **0.107** |

**Table 13.12 | TRICS Car Trip Rates.**

The calculated car trips for the proposed development are presented below. They have been based on the proposed mixed residential development comprising of 369 residential units and the TRICS trip rates presented above. The childcare facility proposed as part of the overall development is envisaged to primarily serve the proposed development's residents and is expected to attract mostly internal non-primary trips. Therefore, no car trip generation has been assumed for this facility.

| Proposed Development | Units | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|
| | | Car Trips In | Car Trips Out | Car Trips In | Car Trips Out |
| Houses/Duplexes | 130 | 12 | 38 | 35 | 16 |
| Apartments | 239 | 22 | 69 | 65 | 30 |
| ***Total*** | ***369*** | ***34*** | ***107*** | ***100*** | ***46*** |

***Table 13.13 | AM&PM Car Trip Generation – Proposed Development***

From above, it can be seen that, in the Opening Year of 2026, the proposed development at Streamstown Masterplan is expected to generate a total of 141 car trips during the AM peak hour (34 inbound and 107 outbound) and a total of 146 car trips during the PM hour (100 inbound and 46 outbound).

### 13.4.4 Trip Distribution

In order to determine the amount of new car trips expected to travel through each surveyed junction in the vicinity of the proposed development site, the calculated car trips for the proposed development presented in Table 13.13, have been distributed.

The estimated traffic to/from the proposed development has been divided between the following two proposed vehicle access points:

- **Access Point 1:** Proposed western arm of the proposed signalised junction between R107 Malahide Road and Back Road.
- **Access Point 2:** Proposed vehicular access via Carey's Lane.

Given its location providing more direct access to R107 Malahide Road, Access Point 1 is assumed to serve the majority of the proposed development trips (80%), whilst the Access Point 2 is assumed to serve the remaining 20%.

Generally, based on the location of the subject vehicular access points and the proposed development in relation to regional roads, to M1 motorway and to major employment and commercial centres, the estimated development car trips are assumed to have the following origin/destination distribution characteristics:

- 45% to/from south along R107 Malahide Road;
- 20% to/from north along R107 Malahide Road;
- 20% to/from east along Back Road;
- 10% to/from west along Feltrim Road via Streamstown Lane;
- 5% to/from east along Feltrim Road via Streamstown Lane;

- 15% to/from along Feltrim Road via Malahide Road.

The distribution percentage of the car trips for the AM and PM peak hour is detailed in Figure 13.6 overleaf and the corresponding AM & PM peak hour traffic flows, based on the assumed distribution, are presented in Figure 13.7.

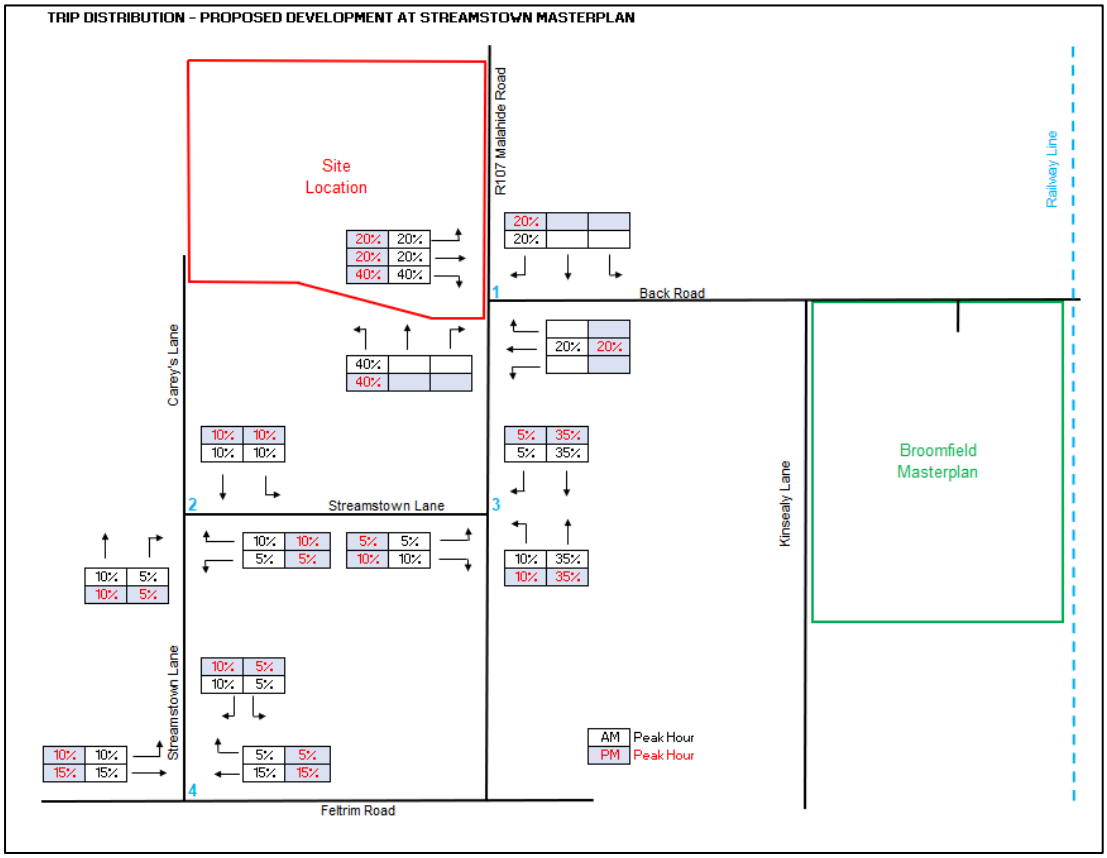



**Figure 13.6 | Proposed Development - Trip Distribution**

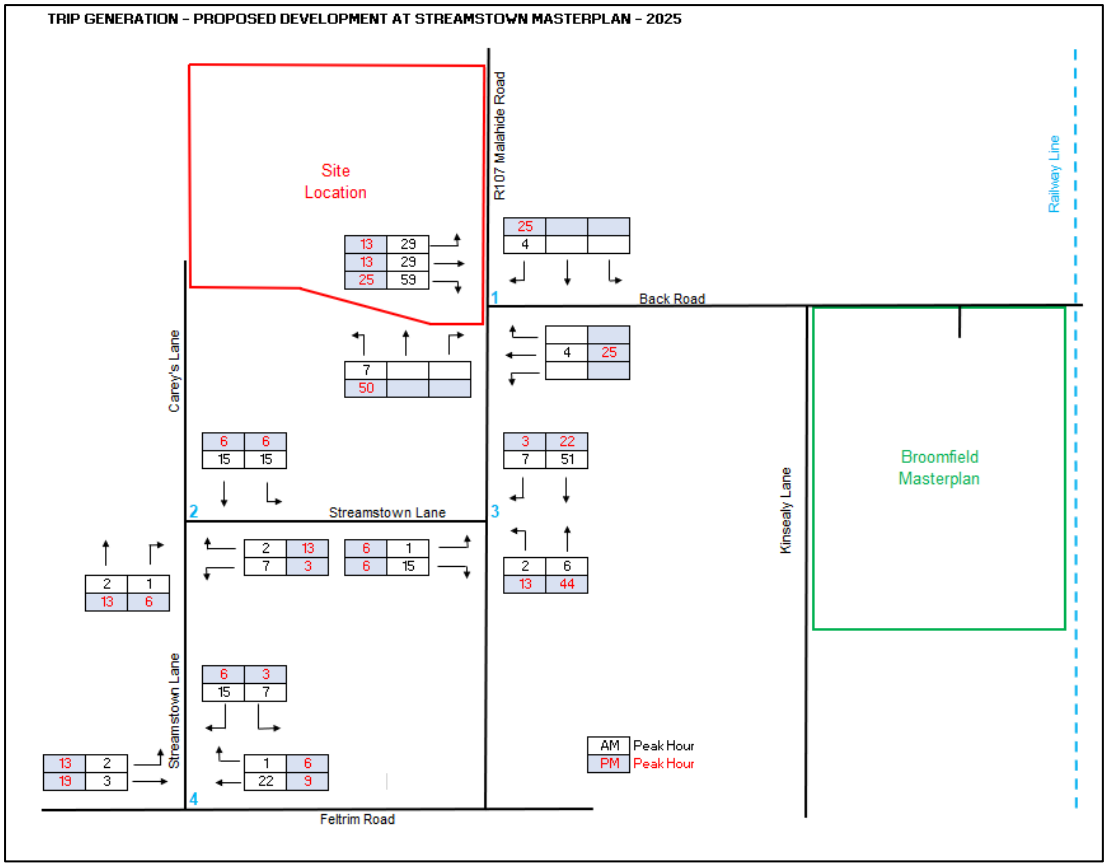



**Figure 13.7 | Proposed Development - Trip Assignment**

## 13.5 Potential Impact of the Proposal

### 13.5.1 Introduction

The potential impacts of the proposed development from a traffic and transport perspective at both construction and operational stage are outlined in the following sections.

### 13.5.2 Traffic Impact

**Construction Traffic**

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).

**Operation Traffic**

The proposed development will generate a number of trips by various modes of travel including vehicular, pedestrian, cycle and public transport. These trips may have an impact on the surrounding road network and could contribute to increased congestion.

Traffic count data was obtained for the purposes of the planning application. The data surveyed is expected to reflect the peak traffic conditions on the local road network. An estimation of the traffic generation and distribution of the proposed development has been set out in the previous section. This will be compared to the background traffic counts in order to ascertain the impact the proposed development will have on the local road network.

### 13.5.3 Walking and Cycling Infrastructure

There is potential of conflict between construction traffic and pedestrian/cyclists using the existing facilities on R107 Malahide Road and Back Road. There is also potential for conflicts and disruption to vehicular access, pedestrian and cyclists during the construction works of the proposed site access junction.

### 13.5.4 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.

## 13.6 Mitigating measures

### 13.6.1 Introduction

This section of the report discusses mitigation measures to reduce the impact the proposed development on the surrounding area during the construction and operational phases.

### 13.6.2 Construction Phase

It is considered that a Construction Management Plan (CMP) will be prepared by the appointed 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 CMP will consider the following aspects:

- Dust and dirt control measures.
- Noise assessment and control measures
- Routes to be used by vehicles
- Working hours of the site

- Details of construction traffic forecasts
- Time when vehicle movements and deliveries will be made to the site
- Facilities for loading and unloading
- Facilities for parking cars and other vehicles

Further to the above, a detailed Traffic Management Plan (TMP) will be prepared by the main contractor. This document will outline proposals in relation to construction traffic and associated construction activities that impact the surrounding roads network. The document will be prepared in coordination and agreed with the local authority.

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 an imperceptible impact on pedestrian and cycle infrastructure.

Through the implementation of the CMP and TMP, it is anticipated that the effect of traffic during the construction phase will have a slight effect on the surrounding road network for short-term period.

### 13.6.3 Operational Phase

The proposed development is situated adjacent to suitable infrastructure and transport services for travel by sustainable modes. A key barrier to modal shift towards sustainable modes of travel is often a lack of information about potential alternatives to the car. As such, it is proposed that residents will be made aware of potential alternatives including information on walking, cycle routes and public transport.

Residents will be encouraged to avail of these facilities for travel to and from work. Provision of this information would be made during the sales process and will be included in the new homeowner's pack upon the sale of each unit, as this represents the best opportunity to make residents aware and to secure travel behaviour change. It is anticipated that this measure may help to reduce the level of traffic at the proposed development, thus providing mitigation against any traffic and transport effects of the development.

A Travel Plan has been included in this application under separate cover. This Plan sets out method to reduce the dependence on private car journeys and encourage residents within the development to avail of sustainable forms of transport such as walking, cycling and public transport.

In addition, the proposed development proposes connectivity to existing facilities and public transport options. The proposed upgrades to the R107 Malahide Road / Back Road junction will improve pedestrian and cyclist connectivity between the proposed development and the surrounding public network. New internal footpaths connecting the access road to R107 Malahide Road provide safe access to public transport in the area.

## 13.7 Predicted Impact of the Proposal

### 13.7.1 Traffic

The predicted impacts of the proposed development from a traffic and transport perspective at both construction and operational phases are outlined in the following sections.

### 13.7.2 Construction Phase

Provided the above mitigation measures and management procedures outlined in the Construction Management Plan are incorporated during the Construction Phase, the residual impact upon the local receiving environment is predicted to be temporary in the nature and slight in terms of effect.

### 13.7.3 Operational Phase

In order to assess the potential impact arising from the proposed development during the operational phase, a Traffic and Transport Assessment has been prepared and is included in the SHD application under a separate cover. The traffic modelling carried out as part of the Traffic and Transport Assessment includes the analysis of 4 no. Junctions of the surrounding network as set out below.

- Junction 1: R107 Malahide Road / Back Road (Existing Priority, Proposed Signalised)
- Junction 2: Streamstown Lane / Careys Lane (Existing Priority)
- Junction 3: R107 Malahide Road / Streamstown Lane (Existing Priority)
- Junction 4: Feltrim Road / Streamstown Lane (Existing Priority)

**Traffic Growth Factors**

These junctions were assessed for the estimated opening year of 2026 and future design years of 2028 (Opening Year +5 Years) and 2038 (Opening Year +15 Years). The background traffic growth factors used to factor up the baseline traffic movements are in accordance with the '*Table 6.1: Link-Based Growth Rates: Metropolitan Area Annual Growth Rates'* within the TII Publications – Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (May 2019). These are:

- 1.049 (Central Growth) growth factor from 2020 to 2022.
- 1.0162 (Central Growth) growth factor from 2021 to 2022
- 1.066 (Central Growth) growth factor from 2022 to 2026.
- 1.143 (Central Growth) growth factor from 2022 to 2031.
- 1.196 (Central Growth) growth factor from 2022 to 2041.

**Committed and Potential Future Developments**

The traffic modelling carried out as part of the Traffic and Transport Assessment also accounts for a committed (Under-construction Phase 1) and a potential future development at Broomfield Masterplan, to determine the cumulative impact of the subject development in conjunction with other developments in the vicinity of the site.

The permission for the under-construction Phase 1 provided for the construction of a total of 149 no. houses (61 no. houses under Planning Reference F13A/0459 and 88 no. houses under Planning Reference F13A/0460). Phase 1 is expected to be in place before 2026 (Opening of proposed development).

With regards to the potential future development at Broomfield Masterplan, it was assumed that some 500 new residential units will be in place by 2031. Trip generation and distribution for these under-construction and potential future developments are shown below.

| Development | No. units | Year | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| | | | Car Trips In | Car Trips Out | Car Trips In | Car Trips Out |
| Phase 1 of Broomfield Masterplan (Under-construction) | 149 | 2026 | 20 | 41 | 42 | 22 |
| Subsequent Phases of Broomfield Masterplan (Potential Future) | 500 | 2031 | 47 | 145 | 133 | 62 |

**Table 13.14 | Summary of Broomfield Peak Hour Car Trip Generation – 2023 and 2028.**

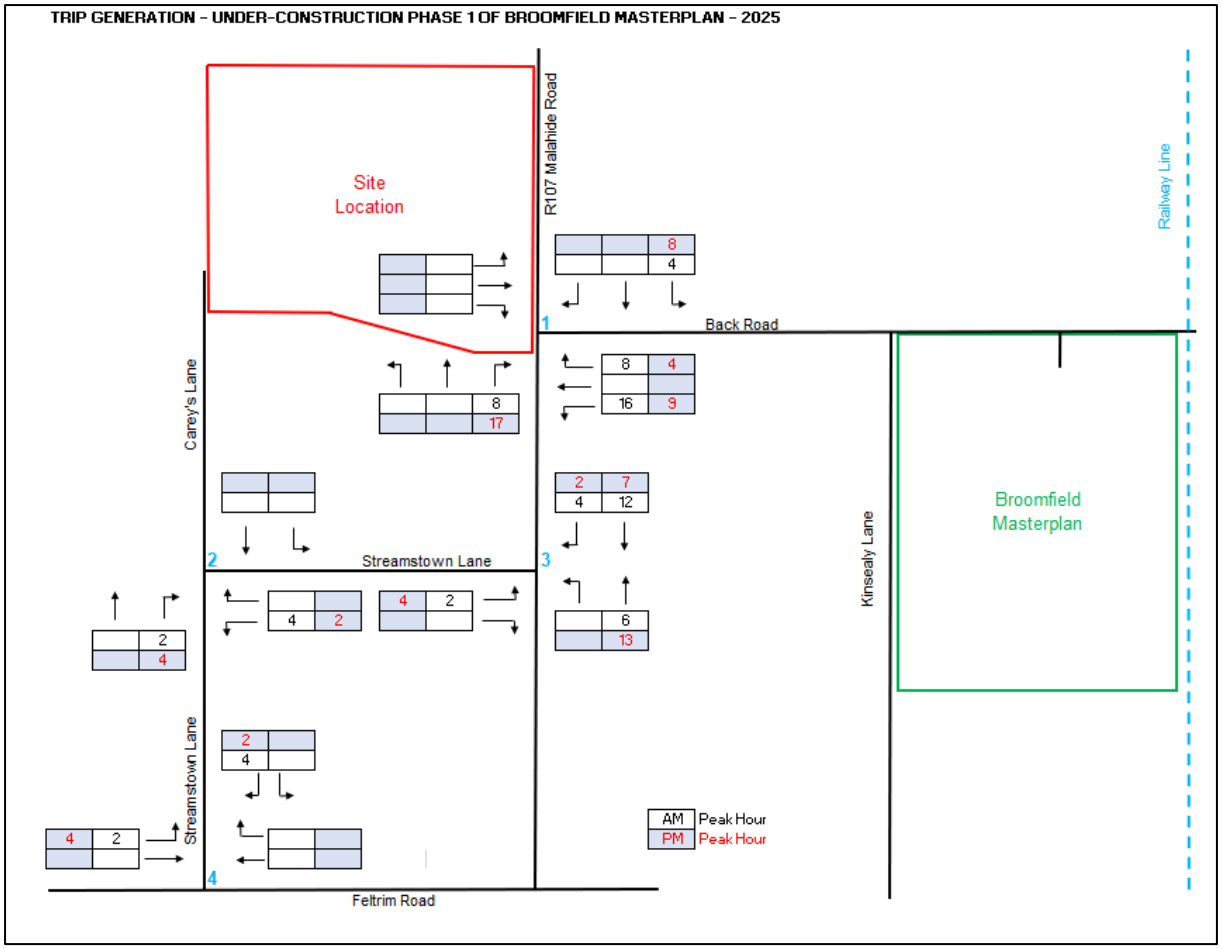



**Figure 13.8 | Traffic to/from the Under-construction Phase 1 of Broomfield Masterplan – 2026.**

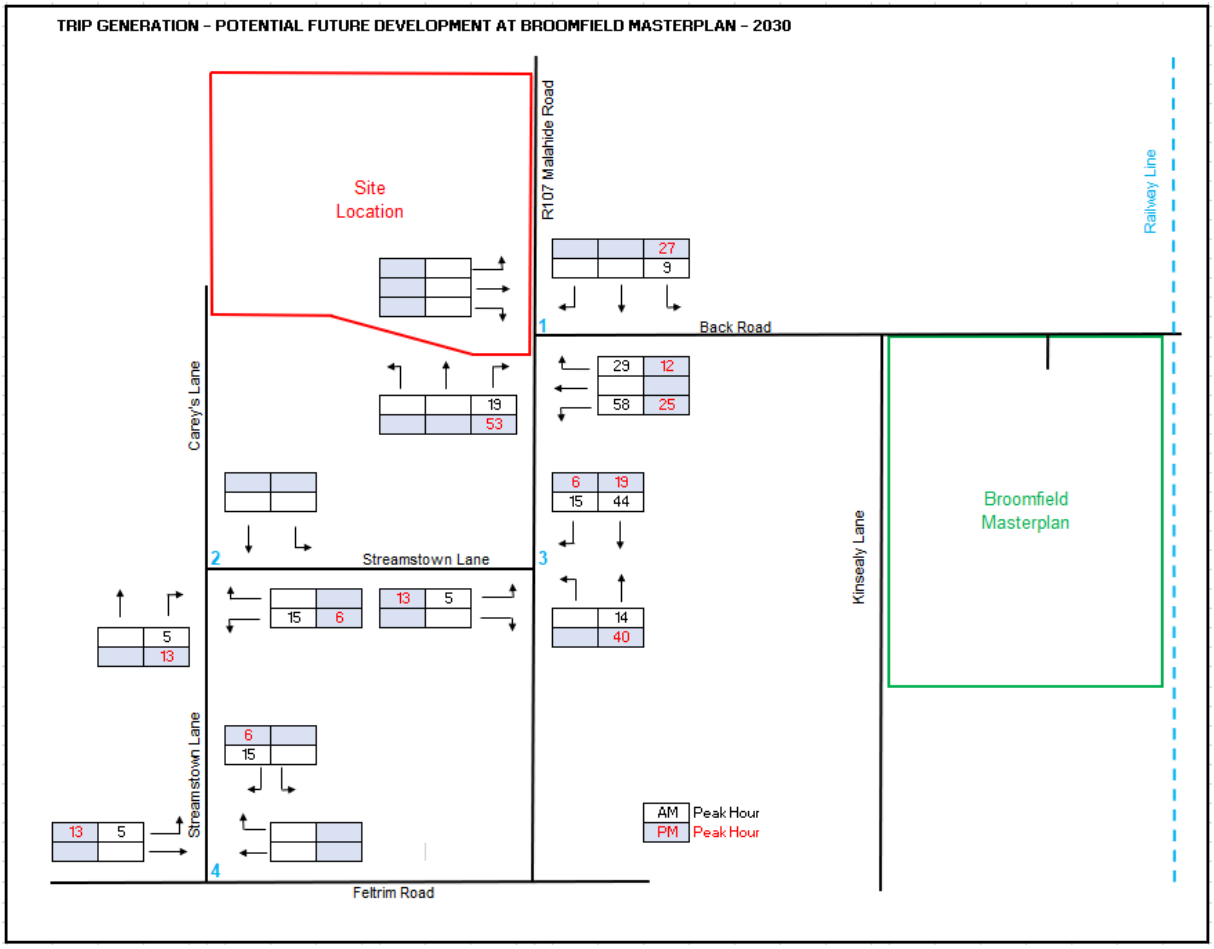



**Figure 13.9 | Traffic to/from the Potential Future Development at Broomfield Masterplan – 2031**

### Forecast Traffic 2041

The forecast traffic on the surrounding road network in 2041 is presented in Figure 13.10 below. This was obtained by factoring up the baseline traffic shown earlier in this section and adding the traffic movements from the proposed development and the traffic movements from the under-construction and potential future developments at Broomfield masterplan.

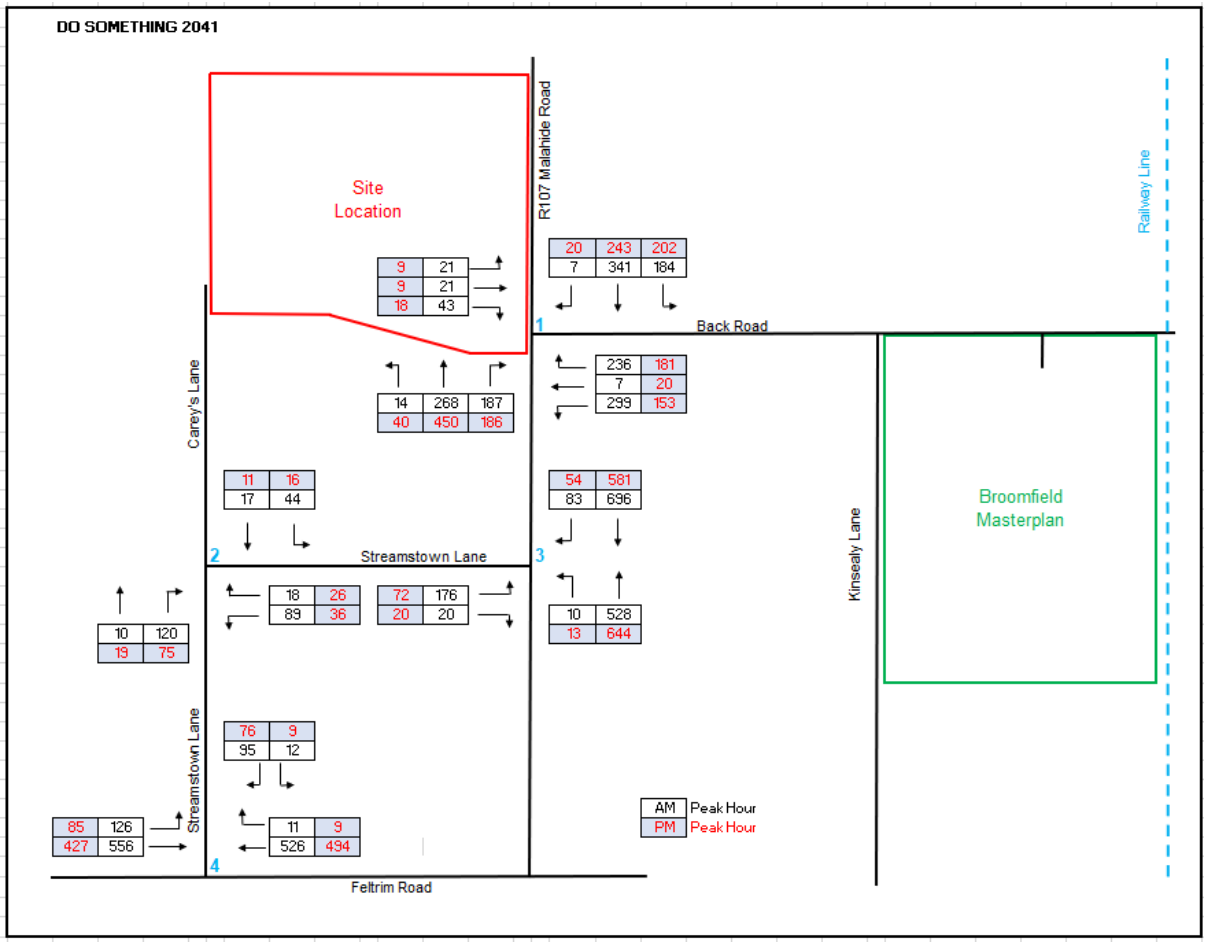



**Figure 13.10 | Forecast Traffic 2041.**

### Modelling Results

A summary of the results of the modelling carried out as part of the Traffic and Transport Assessment is provided below.

### Junction 1 – R107 Malahide Road/Back Road (Existing Priority, Proposed Signalised)

Junction 1 is currently a priority T-junction between primary road R107 Malahide Road and secondary road Back Road. The proposed development includes upgrading Junction 1 to include the access road to the proposed site and upgrading the junction to a four-way signalised junction.

Analysis for the DO NOTHING scenario was modelled using PICADY for a priority T-Junction and for the DO SOMETHING scenario TRANSYT was used to modelled for a four-way signalised junction.

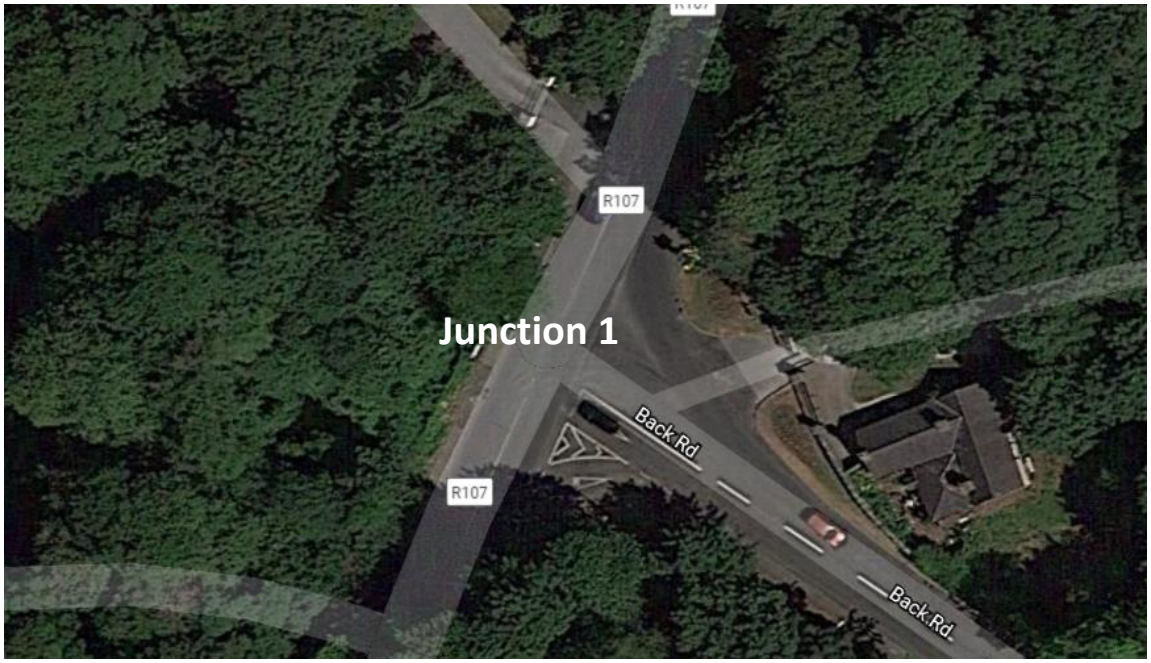



**Figure 13.11 | Junction 1 - Malahide Road / Back Road**

The results for the DO NOTHING scenario are shown below. The arms of the junction were labelled as follows within PICADY model:

- Arm A: R107 Malahide Road (N);
- Arm B: Back Road (E);
- Arm C: R107 Malahide Road (S).

| Stream | AM (08:00 to 09:00) | | PM (18:00 to 19:00) | |
|---|---|---|---|---|
| | Queue (veh.) | RFC | Queue (veh.) | RFC |
| **2021 (BASE YEAR) – DO NOTHING** | | | | |
| **Stream B-C** | 0.5 | 0.35 | 0.5 | 0.21 |
| **Stream B-A** | 0.9 | 0.48 | 0.6 | 0.40 |
| **Stream C-AB** | 0.8 | 0.38 | 0.9 | 0.37 |
| **2026 – DO NOTHING** | | | | |
| **Stream B-C** | 0.6 | 0.40 | 0.6 | 0.24 |
| **Stream B-A** | 1.1 | 0.53 | 0.8 | 0.44 |
| **Stream C-AB** | 1.0 | 0.41 | 1.0 | 0.40 |
| **2031 – DO NOTHING** | | | | |
| **Stream B-C** | 0.8 | 0.46 | 0.8 | 0.27 |
| **Stream B-A** | 1.4 | 0.60 | 0.9 | 0.49 |
| **Stream C-AB** | 1.2 | 0.46 | 1.2 | 0.44 |
| **2041 – DO NOTHING** | | | | |
| **Stream B-C** | 1.0 | 0.51 | 0.4 | 0.29 |
| **Stream B-A** | 1.8 | 0.66 | 1.1 | 0.53 |
| **Stream C-AB** | 1.3 | 0.49 | 1.4 | 0.48 |

**Table 13.15 | Junction 1 – DO NOTHING PICADY Results**

The results for the DO SOMETHING scenario are shown below. The arms of the junction were labelled as follows within the TRANSYT model:

- Arm A: Back Road (E);
- Arm B: R107 Malahide Road (S);
- Arm C: Site Access Road (W);
- Arm D: R107 Malahide Road (N).

| Arm | Mov. | AM | | PM | |
|---|---|---|---|---|---|
| | | Mean Max Queue (Veh.) | DOS% | Mean Max Queue (Veh.) | DOS% |
| **2026 - DO SOMETHING** | | | | | |
| **A** | S/L | 2.90 | 39 | 2.34 | 30 |
| | R | 2.12 | 38 | 2.09 | 35 |
| **B** | S/L | 10.11 | 84 | 12.77 | 69 |
| | R | 4.38 | 57 | 4.08 | 33 |
| **C** | S/L/R | 3.10 | 46 | 1.77 | 48 |
| **D** | S/L/R | 14.19 | 71 | 18.12 | 73 |
| **2031 - DO SOMETHING** | | | | | |
| **A** | S/L | 3.96 | 50 | 2.61 | 37 |
| | R | 2.20 | 47 | 2.13 | 40 |
| **B** | S/L | 1.12 | 89 | 10.09 | 71 |
| | R | 4.68 | 67 | 4.18 | 45 |
| **C** | S/L/R | 3.10 | 46 | 1.77 | 48 |
| **D** | S/L/R | 16.17 | 77 | 22.31 | 84 |
| **2041 - DO SOMETHING** | | | | | |
| **A** | S/L | 4.74 | 55 | 2.62 | 39 |
| | R | 2.23 | 49 | 2.15 | 42 |
| **B** | S/L | 12.19 | 89 | 12.28 | 76 |
| | R | 4.65 | 66 | 4.21 | 47 |
| **C** | S/L/R | 17.95 | 46 | 1.77 | 48 |
| **D** | S/L/R | 27.21 | 83 | 23.80 | 86 |

**Table 13.16 | Junction 1 - DO SOMETHING TRANSYT Results**

The analysis results as shown above, indicate that Junction 1, when operating with its proposed configuration of a signalised crossroads, would operate within capacity for the future assessment year of 2026 – DO SOMETHING (Opening of Proposed Development) during both peak hours, with the highest DOS at 84% and a corresponding queue of 10.11 vehicles recorded in the AM and the highest DOS at 74% and a corresponding queue of 18.12 vehicles recorded in the PM.

For the future assessed year of 2041 – DO SOMETHING, the analysis results indicate that Junction 1 would operate with satisfactory (with restrained movements) capacity during both peak hours, with the highest DOS at 89% and a corresponding queue of 12.19 vehicles during the AM and a maximum DOS at 86% with a corresponding queue of 23.80 vehicles recorded in the PM.

Full assessment of Junction 1 can be found on Appendix D of the TTA accompanying the documentation package.

**Junction 2 – Streamstown Lane/Careys Lane (Existing Priority)**

Junction 2 is a priority-controlled T-junction between the primary road Streamstown Lane and secondary Road Carey's Lane. This junction was analysed using PICDAY for both DO NOTHING and DO SOMETHING scenarios.


**Figure 13.12 | Junction 2 - Streamstown Lane / Carey's Lane**

The results of the PICDAY modelling are shown below. The arms of the junction were labelled as follows within the model:

- Arm A: Streamstown Lane (S);
- Arm B: Carrey's Lane (N);
- Arm C: Streamstown Lane (E);

The analysis results indicate that, for the future assessed year of 2041 – DO SOMETHING, Junction 2 would continue to operate well within capacity during both peak hours, with the highest RFC at 0.13 and a corresponding queue of 0.1 vehicle during the AM and a maximum RFC at 0.06 with a corresponding queue of 0.1 vehicle recorded for the PM.

Full assessment of Junction 2 can be found on Appendix D of the TTA accompanying this planning submission.

| Stream | AM (08:00 to 09:00) | | PM (18:00 to 19:00) | |
|---|---|---|---|---|
| | Queue (veh.) | RFC | Queue (veh.) | RFC |
| **2021 (BASE YEAR) – DO NOTHING** | | | | |
| **Stream B-AC** | 0.1 | 0.07 | 0.0 | 0.03 |
| **Stream C-AB** | 0.0 | 0.02 | 0.0 | 0.03 |
| **2026 – DO NOTHING** | | | | |
| **Stream B-AC** | 0.1 | 0.07 | 0.0 | 0.03 |
| **Stream C-AB** | 0.0 | 0.03 | 0.0 | 0.03 |
| **2031 – DO NOTHING** | | | | |
| **Stream B-AC** | 0.1 | 0.08 | 0.1 | 0.08 |
| **Stream C-AB** | 0.0 | 0.03 | 0.0 | 0.03 |
| **2041 – DO NOTHING** | | | | |
| **Stream B-AC** | 0.1 | 0.08 | 0.0 | 0.03 |
| **Stream C-AB** | 0.0 | 0.03 | 0.0 | 0.03 |
| **2026 – DO SOMETHING** | | | | |
| **Stream B-AC** | 0.1 | 0.12 | 0.1 | 0.05 |
| **Stream C-AB** | 0.0 | 0.03 | 0.1 | 0.05 |
| **2031 – DO SOMETHING** | | | | |
| **Stream B-AC** | 0.1 | 0.12 | 0.1 | 0.05 |
| **Stream C-AB** | 0.0 | 0.04 | 0.1 | 0.05 |
| **2041 – DO SOMETHING** | | | | |
| **Stream B-AC** | 0.1 | 0.13 | 0.1 | 0.06 |
| **Stream C-AB** | 0.1 | 0.04 | 0.1 | 0.05 |

**Table 13.17 | Junction 2 - DO NOTHING / DO SOMETHING PICADY Results**

**Junction 3 – R107 Malahide Road/Streamstown Lane (Existing Priority)**

Junction 3 is priority-controlled T-junction with the primary road R107 Malahide Road and secondary road of Streamstown lane. The junction was modelled using PICDAY for both the DO NOTHING and DO SOMETHING scenarios. The results of the PICDAY modelling are shown below. The arms of the junction were labelled as follows within the model:

- Arm A: R107 Malahide Road (N);
- Arm B: Streamstown Lane (E);
- Arm C: R107 Malahide Road (S);


**Figure 13.13 | Junction 3 - Malahide Road / Streamstown Lane**

| Stream | AM (08:00 to 09:00) | | PM (18:00 to 19:00) | |
|---|---|---|---|---|
| | Queue (veh.) | RFC | Queue (veh.) | RFC |
| **2021 (BASE YEAR) – DO NOTHING** | | | | |
| **Stream B-AC** | 0.4 | 0.27 | 0.1 | 0.11 |
| **Stream C-AB** | 0.3 | 0.13 | 0.2 | 0.09 |
| **2026 – DO NOTHING** | | | | |
| **Stream B-AC** | 0.4 | 0.29 | 0.1 | 0.12 |
| **Stream C-AB** | 0.4 | 0.14 | 0.2 | 0.10 |
| **2031 – DO NOTHING** | | | | |
| **Stream B-AC** | 0.5 | 0.32 | 0.2 | 0.14 |
| **Stream C-AB** | 0.5 | 0.17 | 0.3 | 0.12 |
| **2041 – DO NOTHING** | | | | |
| **Stream B-AC** | 0.5 | 0.34 | 0.2 | 0.15 |
| **Stream C-AB** | 0.5 | 0.18 | 0.3 | 0.13 |
| **2026 – DO SOMETHING** | | | | |
| **Stream B-AC** | 0.5 | 0.34 | 0.2 | 0.16 |
| **Stream C-AB** | 0.5 | 0.18 | 0.3 | 0.12 |

| | | | | |
|---|---|---|---|---|
| **2031 – DO SOMETHING** | | | | |
| **Stream B-AC** | 0.6 | 0.39 | 0.3 | 0.21 |
| **Stream C-AB** | 0.8 | 0.26 | 0.4 | 0.16 |
| **2041 – DO SOMETHING** | | | | |
| **Stream B-AC** | 0.7 | 0.41 | 0.2 | 0.20 |
| **Stream C-AB** | 0.9 | 0.28 | 0.6 | 0.20 |

**Table 13.18 | Junction 3 - DO NOTHING / DO SOMETHING PICADY Results**

The analysis results as shown above indicate that, for the future assessed year of 2041 – DO SOMETHING, Junction 3 would continue to operate well within capacity during both peak hours, with the highest RFC at 0.41 and corresponding queue of 0.7 for the AM peak hour period and a maximum RFC 0.20 with a corresponding queue of 0.6 vehicle for the PM peak hour period.

Full assessment of Junction 3 can be found on Appendix D of the accompanying TTA report.

**Junction 4 – Feltrim Road/Streamstown Lane (Existing Priority)**

Junction 4 is a priority-controlled T-junction with the primary road Feltrim Road and secondary Road Streamstown Lane. The junction was modelled using PICDAY for both the DO NOTHING and DO SOMETHING scenarios.


**Figure 13.14 | Junction 4 - Feltrim Road / Streamstown Lane**

The results of the PICDAY modelling are shown below. The arms of the junction were labelled as follows with the model:

- Arm A: Feltrim Road (W);
- Arm B: Streamstown Lane (S);
- Arm C: Feltrim Road (E);

| Stream | AM (08:00 to 09:00) | | PM (18:00 to 19:00) | |
|---|---|---|---|---|
| | Queue (veh.) | RFC | Queue (veh.) | RFC |
| **2021 (BASE YEAR) – DO NOTHING** | | | | |
| **Stream B-C** | 0.0 | 0.02 | 0.0 | 0.01 |
| **Stream B-A** | 0.2 | 0.17 | 0.2 | 0.15 |
| **Stream C-AB** | 0.0 | 0.02 | 0.0 | 0.01 |
| **2026 – DO NOTHING** | | | | |
| **Stream B-C** | 0.0 | 0.02 | 0.0 | 0.02 |
| **Stream B-A** | 0.3 | 0.20 | 0.2 | 0.16 |
| **Stream C-AB** | 0.0 | 0.03 | 0.0 | 0.01 |
| **2031 – DO NOTHING** | | | | |
| **Stream B-C** | 0.0 | 0.02 | 0.0 | 0.02 |
| **Stream B-A** | 0.3 | 0.22 | 0.2 | 0.18 |
| **Stream C-AB** | 0.0 | 0.03 | 0.0 | 0.01 |
| **2041 – DO NOTHING** | | | | |
| **Stream B-C** | 0.0 | 0.02 | 0.0 | 0.02 |
| **Stream B-A** | 0.4 | 0.24 | 0.3 | 0.20 |
| **Stream C-AB** | 0.0 | 0.03 | 0.0 | 0.01 |
| **2026 – DO SOMETHING** | | | | |
| **Stream B-C** | 0.0 | 0.03 | 0.0 | 0.02 |
| **Stream B-A** | 0.5 | 0.30 | 0.3 | 0.21 |
| **Stream C-AB** | 0.1 | 0.03 | 0.0 | 0.02 |
| **2031 – DO SOMETHING** | | | | |
| **Stream B-C** | 0.0 | 0.03 | 0.0 | 0.02 |
| **Stream B-A** | 0.5 | 0.34 | 0.3 | 0.23 |
| **Stream C-AB** | 0.1 | 0.04 | 0.0 | 0.03 |
| **2041 – DO SOMETHING** | | | | |
| **Stream B-C** | 0.0 | 0.04 | 0.0 | 0.02 |
| **Stream B-A** | 0.6 | 0.36 | 0.3 | 0.24 |
| **Stream C-AB** | 0.1 | 0.04 | 0.0 | 0.03 |

**13.19 | Junction 4 - DO NOTHING / DO SOMETHING PICADY Results**

The analysis results indicate that, for the future assessed year of 2041 – DO SOMETHING, Junction 4 would continue to operate well within capacity during both peak hours, with the highest RFC at 0.36 and corresponding queue of 0.6 for the AM peak hour period and a maximum RFC 0.24 with a corresponding queue of 0.3 vehicle for the PM peak hour period.

Full assessment of Junction 4 can be found on Appendix D of the accompanying TTA report.

**Summary**

The analysis of road network surrounding the proposed development has shown that the existing and proposed junctions will operate within satisfactory capacities for the future assessed 2041 + development + surrounding developments with acceptable DOS%/RFC and queue lengths. Whilst the surrounding road network can cater for the proposed development, the increase in traffic over the baseline condition will result in a moderate impact on the surrounding roads network.

The provision of linkages to public transport and adequate pedestrian and cyclist facilities as part of the proposed development, will result in a positive effect on sustainable transport modes.

## 13.8 Monitoring and Reinstatement

### 13.8.1 Construction Phase

During the Construction Phase the following monitoring is advised. The specific compliance exercises to be undertaken in relation to the range of measures detailed in the final construction management plan will be agreed with the planning authority.

- Construction vehicles routes and parking
- Internal and external road conditions
- Construction activities hours of work

### 13.8.2 Operational Phase

The Travel Plan for the proposed development will be monitored and updated at regular intervals. This will enable tracking in terms of a reduction in the dependence on private car journeys and a shift towards sustainable transport options such as walking, cycling and the use of public transport such as buses and trains.

## 13.9 Interactions

There may be temporary negative impacts to human health during the Construction Phase caused by noise, dust, air quality and visual impacts which are covered in other chapters of this EIAR. There may also be interaction with the surrounding water bodies through surface water runoff during topsoil stripping and earthworks which will be required to construct the roads.

The effects of these will be mitigated through the implementation of the measures outlined in this Chapter and within the Construction Management Plan.

## 13.10 Difficulties in compiling Information

There were no difficulties encountered in compiling this Chapter.

## 13.11 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

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

Sustainable Urban Housing: Design Standards for New Apartments, (2020), Department of Housing, Planning and Local Government

Transport for Ireland (TFI): www.transportforireland.ie

# 14.0 ARCHAEOLOGY AND CULTURAL HERITAGE

## 14.1 INTRODUCTION

This chapter of the Environmental Impact Assessment Report has been prepared by Courtney Deery Heritage Consultancy Ltd[1] on behalf of Kinwest Ltd. This chapter provides an assessment of the archaeological and cultural heritage background for a proposed residential development at Auburn House, Malahide, Co. Dublin.

The application relates to a development comprising of 368 no. new residential units and therefore therefore constitutes a Strategic Housing Development under Section 3(d) of the Planning and Development (Housing) and Residential Tenancies Act 2016 (as amended).

This chapter of the EIAR has considered and has regard to the previous applications, and information contained therein, and includes a cumulative assessment of the proposed SHD application at Auburn House, Malahide, Co. Dublin.

The main purpose of the archaeology and cultural heritage section of the EIAR is to assess the potential significance and sensitivity of the existing archaeological and cultural heritage environment, and in turn to evaluate the likely and significant impacts of the proposed development on this environment. Ameliorative measures are proposed where necessary to safeguard any monuments, features or finds of antiquity or features of local cultural heritage interest that are identified during the course of the present study.

Auburn House, a protected structure, is located within the proposed development site. This is assessed in the Architectural Impact Assessment prepared by Sheehan & Barry Conservation Architects.

## 14.2 STUDY METHODOLOGY

The assessment was based on a desk study of published and unpublished documentary and cartographic sources, supported by geophysical survey and archaeological testing.

### 14.2.1 Desk Study

The desk study availed of the following sources:

*National Monuments Service*

The National Monuments, Preservation Orders, Register of Historic Monuments lists for County Dublin were sourced directly from the Department of Housing, Local Governmental and Heritage (DHLGH).

[1] This EIAR chapter has been prepared by Dr Clare Crowley of Courtney Deery Heritage Consultancy Ltd. Dr Crowley holds a PhD in Archaeology and Ancient History from Trinity College Dublin and certificates in the Repair and Conservation of Historic Buildings from Dublin Civic Trust and in Condition Surveys of Historic Buildings from University of Oxford. She has twenty years of experience in the fields of archaeology, built heritage and cultural heritage, working in both the private and public sector and has managed cultural heritage EIAs for numerous infrastructural and development projects.

*Record of Monuments and Places (RMP) and Sites and Monuments Record (SMR)*

The primary source of information for the desk study is the Record of Monuments and Places (RMP) of the DHLGH. The Sites and Monuments Record (SMR), as revised in the light of fieldwork, formed the basis for the establishment of the statutory 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. It is based on a comprehensive range of published and publicly available documentary and cartographic sources. The information held in the RMP files is read in conjunction with constraint maps (published at reduced six-inch scale). The non-statutory SMR database of the Archaeological Survey of Ireland which is available online at www.archaeology.ie was also examined and mapping for the project includes SMR and RMP sites.

*Topographical Files of the National Museum of Ireland*

The topographical files of the National Museum of Ireland (NMI) identify recorded stray finds held in the museum's archive. The files, which are donated to the state in accordance with national monuments legislation, are provenanced to townland and sometimes include reports on excavations undertaken by NMI archaeologists earlier in the 20$^{th}$ century.

*Excavations Bulletins and Excavations Database*

'Excavations' is an annual bulletin that contains summary accounts of all excavations carried out annually in Ireland since the 1970s. The online database contains summary accounts of all excavations carried out from 1985 to 2020. The bulletins and database were consulted to establish the results of excavations that previously have been undertaken at sites or as a consequence of development in the environs of the proposed development.

*Documentary and Cartographic Sources*

Documentary and literary sources were consulted, including the Fingal Development Plan 2017-2023 and a number of other published and unpublished documentary sources, as outlined in the bibliography at the end of the report. A review of historical maps was also undertaken to identify any features of cultural heritage significance within the proposed development site, including Down Survey barony and parish maps (c. 1656), Rocque's map of County Dublin (1760), Taylor's map of the environs of Dublin (1816), and Ordnance Survey mapping (1843, 1906-09, 1939-40).

### 14.2.3 Field Survey

A geophysical survey (Licence Reference 20R0002) was carried out in accessible areas across the proposed development area. This was followed by the targeted archaeological testing of geophysical anomalies identified (Licence No. 20E0057).

### 14.2.4 Legislation, Standards and Guidelines

The following legislation, standards and guidelines were considered and consulted for the purpose of this report:

- National Monuments Acts, 1930 as amended;
- Planning and Development Act 2000, as amended;
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999;
- Heritage Act, 1995;
- The UNESCO World Heritage Convention, 1972;
- ICOMOS Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas, 2005;
- European Convention Concerning the Protection of the Archaeological Heritage of Europe, 'Valetta Convention' (ratified by Ireland in 1992);
- Council of Europe Convention of the Protection of the Archaeological Heritage of Europe, 'Granada Convention' (ratified by Ireland in 1997);
- The European Landscape Convention 2000;
- Environmental Protection Agency (EPA) (2017). Revised Guidelines on the information to be contained in Environmental Impact Statements, Draft August 2017.
- EPA (2015). Advice Notes for preparing Environmental Impact Statements, Draft September 2015.
- 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).Frameworks and Principles for the Protection of the Archaeological Heritage, 1999, (formerly) Department of Arts, Heritage, Gaeltacht and Islands.

Excerpts from the relevant legislation are contained in Appendix 14.1 of this chapter.

### 14.2.5 Impact Significance

Archaeological and cultural heritage sites are considered to be a non-renewable resource and cultural heritage material assets are generally considered to be location sensitive. In this context, any change to their environment, such as construction activity and ground disturbance works, could adversely affect these sites. 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. The impact significance is defined as not significant, imperceptible, slight, moderate, significant, very significant and / or profound. A glossary of impacts is provided in Appendix 14.2.

## 14.3 EXISTING RECEIVING ENVIRONMENT

### 14.3.1 Study Area

The proposed development site is located in the townlands of Auburn and Streamstown, in the civil parish of Kinsaley and the barony of Coolock, within the former demesne of Auburn House. The lands

are bounded by an existing housing estate (Abington) to the north and west, the Malahide Road and rear gardens to the east and undeveloped lands to the south. Malahide Demesne is located on the opposite side of the Malahide Road to the east. There are no recorded archaeological sites within the proposed development site or its immediate vicinity, however, there is considerable evidence for activity from the Mesolithic period onwards in the wider landscape.

### 14.3.2 Archaeological and Historical Background

*Prehistoric Activity*

The coastal area of north County Dublin has produced quantities of flint artefacts, including sites such as the raised beaches at Sutton, where Mesolithic and Neolithic flint artefacts have been found (Stout & Stout 1992) and at Paddy's Hill overlooking Malahide Estuary, at which flint scatters of Mesolithic, Neolithic and Bronze Age date have been identified (Keeling et al, 1994).

With the exception of Howth, prehistoric material has historically been relatively rare in this part of Fingal, and Stout and Stout (1992) speculate that centuries of continuous tillage north of the Liffey must have led to the destruction of a large number of archaeological monuments. However, more recent large-scale archaeological work associated with developments such as TII road projects has begun to identify more prehistoric remains in other parts of Fingal.

Overall, there is a significant body of Neolithic (c. 4000–2400 BC) material from north County Dublin. Excavations at nearby Feltrim Hill (DU012-02502), c. 615m to the southwest, revealed settlement evidence from the Neolithic in the form of pottery sherds and worked stones, although there were no apparent remains of houses (Hartnett & Eogan 1964). Stray finds in the area include leaf-shaped arrowheads, scrapers, a tanged arrowhead, a javelin head, two knives, and several polished stone axe heads (NMI Reg. No. 1965:13-16, 22, 55; 1966:63-92, 122-147, 1968:84-119, 172, 173, 1969:22-33).

This whole stretch of coast has a clear view of Lambay Island to the east where there is evidence for the production of Neolithic stone axes and flint tools (Cooney 2000, 196-7). The highest points of Lambay Island also have at least two cairns that may also date to the Neolithic.

A ring-ditch of Bronze Age date was uncovered during archaeological monitoring in Drinan townland, c. 1.3km northwest (SMR DU012-093; Licence No. 04E1066). The ring-ditch was located a short distance northeast of a multi-period site at which the earliest phase comprised of a cremation burial containing over 70 sherds of Western Neolithic pottery, alongside fragments of burnt bone (SMR DU012-094001; DU012-094002 to -094005; Licence No. 04E1604).

*Early Medieval Period*

At the start of the early medieval period (5$^{th}$ to 12$^{th}$ century AD), the plains of north County Dublin, formed part of the over-kingdom of Brega. Though initially the Laigin controlled most of Dublin and north as far as the River Boyne, the extent of their hegemony was pushed south of the River Liffey over the course of the 5th century AD. With the collapse of the Laigin hegemony in the Midlands, the overkingship of Brega came to be dominated by Síl nÁedo Sláine, a dynasty of the southern Uí Néill

(Byrne 1973). North Dublin was controlled by subject peoples, the Gailenga Becca, the Saitne and the Ciannachta (after Bolger 2006).

A holy well site (RMP DU012-016) known as Lady's well, is recorded c. 690m southwest of the subject lands, in Feltrim Quarry, but no known ecclesiastical centre is situated in the vicinity of this well, which was removed during quarrying operations.

The closest known settlement of early medieval date is the site of a recorded cashel on the western summit of Feltrim Hill, c. 900m southwest (DU012-025001). It comprised an oval area (35m E-W; 25m N-S) enclosed by a drystone wall, with an entrance in the east originally protected by an inner and outer timber gate (Eogan & Hartnett 1964, 21). Excavations in the late 1940s in advance of quarrying produced extensive evidence for an impressive domestic assembly on the site (ibid., 147).

Further settlement is evidenced by ringforts and an enclosure in the neighbouring Broomfield and Grange townlands (DU012-033, DU015-003001 & -003002), and the discovery of a ringfort which initially presented as a cropmark on aerial photography in Kinsaley townland, c. 1km southeast (SMR file DU012-071; pers. comm. T. Condit). Further south in Kinsaley townland is another cluster of enclosures and field system (DU015-112 to -114).

The multi-period site from Drinan townland included a series of enclosures dating to the early medieval / medieval periods (DU012-094002 to -094005; Licence No. 04E1604). The most dramatic feature identified on site was a low-lying artificial mound that was surrounded by a large ditch. It was enclosed by a ditch and it overlay another substantial earlier ditch. It may have been a ringfort or ringwork, with settlement during the 11th or 12th centuries and possibly earlier (Halliday 2005).

Viking raids on the Irish coastline also commenced during the early historic period, and in AD 841 to 842 the Vikings wintered for the first time at Dublin. According to Ball (1920), the name Fingal— Fine Gall, the territory of the Gall, or strangers— was used to denote the district into which the Vikings made these predatory excursions. The harbour at Malahide—or possibly Baldoyle (Baile Dubh Gaill, or town/settlement of the dark[-haired] foreigners)— is reputed to have played an important part in early Vikings raids and the Danes were resident in AD 897. Evidence of Viking influence in the surrounding region is recorded in early documentary references to Swords, which first appear in the late 10$^{th}$ and early 11$^{th}$ century when the village became the target of the Ostmen or Vikings of Dublin. The Annals of the Four Masters record that in 1012 and 1016, Swords was burned by the Danes. Before the Battle of Clontarf in 1014, Brian Ború is also said to have burned Fingal and the district of Howth.

The Vikings of Dublin began to expand northwards in the mid-11$^{th}$ century, conquering Dublin's northern hinterland. Hamond McTurkill, the last Danish King of Dublin, retired to Malahide in 1171 (Lewis 1837, 337), and after his death, the Talbots are reputed in folklore to have been involved conquering his remaining kin and followers in the Malahide area: supposedly at the cluster of ringforts in Broomfield and Grange townlands, although the former townland name for Yellow Walls to the northwest of Malahide Demesne was Hamonstown or Hamonswood. Viking rule and settlement influenced the region for over 250 years, from the 9$^{th}$ to the 12$^{th}$ centuries. Bradley suggests Viking Dublin should be looked at as part of what he calls 'the rurally settled area of the Dublin Scandinavians' rather than as a number of successful trading settlements strategically located along the coast (Bradley in Simms & Fagan 1992).

*Anglo-Norman Settlement (12th to 16th Century)*

Malahide village may have been site of pre-Anglo-Norman settlement, perhaps focused on an early church of St Fenweis that may have been located near to St Sylvester's church and adjacent to a holy well (DU012-023). A possible motte and bailey (DU012-034) at Wheatfields in Sainthelens townland to the south of the village, appears likely to have served as the early seat of the Anglo-Norman lord Richard Talbot, who was granted lands at Malahide in the 1170s.

Richard Talbot, and soon after his kinsfolk, presumably began to set up a more permanent base of power rapidly following his land grant, in the 1170s or 1180s. In the absence of other strong evidence for an earlier foundation, the first phase of building at Malahide Castle may therefore probably be located in the 15th century, with a subsequent second major medieval phase— likely to have been accompanied by the initial building at the adjacent church —quickly following the manorial grant of 1475. A medieval church and graveyard is recorded in Kinsaley townland to the south (DU015-002).

Malahide castle (DU012-030) was erected on an elevated situation in the present grounds of the Demesne, c. 755m northeast of the subject lands. Archaeological testing and excavation (Consent no. C451) uncovered a set of steps at the north-west corner of the older part of the castle, an early possible enclosing wall identified below the Butler's House as well as a substantial ditch (1.7m in width), which was sealed by the likely late medieval courtyard and probably originally enclosed the 15th-century tower house (RMP file description).

By the 16th century, Fingal was emerging as a distinct cultural zone and was known as the breadbasket of Dublin due its fertile agricultural land. Vital also to the medieval, and the later post-medieval economy in Malahide was the harvesting of marine resources— both fish and oysters from the famed beds in the estuary. Control over these resources, through the granting of the customs and admiralty of the port to Thomas Talbot, accompanied the grant of manorial status in the late 15th century (Byrne 1997, 25), and echoes of such conditions persisted in leases for a long time thereafter. By 1547, Malahide was described as one of the chief havens of Ireland because of its very safe harbour.

*Post-Medieval Period*

The agricultural land of Fingal was of strategic importance to the city and this was targeted in the 17th century when both royalist Dublin and Confederate forces pursued a scorched earth policy across the north of Dublin County then containing 'the goodliest haggards of corn that ever was seen in those parts', to deprive their enemy from this bounty (Smyth 1992). Fishing resources were similarly targeted. The Earl of Ormonde had instructed the town and the Talbot's at Malahide Castle to take a Dublin garrison of 200 men in March 1641/2 during the Confederate War but suggested that contrary to instructions for him to raze the villages and towns of Fingal, he should not do so to 'the fisher towns upon the coast in regard… ye market at Dublin may be prejudiced thereby' (Byrne 1997, 25).

Prior to the billeting of Dublin troops, Malahide appears to have fared better than many neighbouring areas because of the security provided by an economy spilt between marine resources and agriculture (Ibid.). Even following Cromwell's invasion, the locality was spared the worst ravages, with the apparent number of trees at Malahide Demesne a possible indicator of this. Such conditions, along with the ready defensibility of the castle following an undoubted refurbishment of its defences during

its 1640s Dublin garrisoning, may have contributed to the confiscation of Malahide Castle by the regicide Miles Corbet in 1652, when the Talbots were forcibly removed to Connaught.

Following Corbet's flight from Ireland at the end of 1659, and his subsequent execution in the wake of Charles II's restoration to the throne, John Talbot managed to regain possession of the manor in the 1660s. John Talbot, and subsequent generations of his family, were obviously concerned to ensure that neither the requisitioning of the castle, nor its confiscation, were ever repeated, and there is a suggestion in surviving estate records (cf. Byrne 1997, 16, 69) that the main concern with renovations and upkeep to the castle and demesne involved not just modifications according to new ideas about polite architecture and landscape design, but also a desire to lessen the military appearance and effectiveness of the site.

By the late 18th century, prosperous Dubliners were leaving the city and establishing small country estates in the surrounding countryside, with coastal locations proving more attractive still. Auburn House ('Auburne') is mentioned as the seat of J. Crawford, Esq. In the mid-18th century, the property belonged to the Crawfords, a prosperous merchant family from Fermanagh. The house was built in about 1779, probably to mark the marriage of its owner, James Crawford, to Frances Vernon of Clontarf Castle in 1776; it is presumed that the courtyard, coach-house and walled gardens also date from this time (www.turtlebunbury.com/published/published_interiors/Ireland/pub_int_auburn).

Bunbury describes Auburn House as one of the finest residences built at this time, it being 'a golden-brown three-storey mansion located within a wooded demesne adjacent to Malahide Castle' (Ibid.). A more detailed account of the house and demesne is contained in the separate architectural heritage conservation report prepared for the project.

### 14.3.3 National Monuments and Recorded Archaeological Monuments (RMP / SMR sites)

There are no national monuments within or in the vicinity of the proposed development site.
There are no RMP / SMR sites located within the proposed development site and only two within c. 500m (Figure 14.1). One is a mound (RMP DU012-028) c. 300m to the south that was excavated in 1982 and is thought to be the remains of an ornamental feature attached to the grounds of Auburn House (the mound was formed from medieval and post-medieval 'dump' material). The second is an enclosure (SMR DU012-078), also located in Auburn townland, c. 275m southwest of the subject lands. The site was identified by Dr Steve Davis as a cropmark on an aerial photograph in 2015 (SMR file).

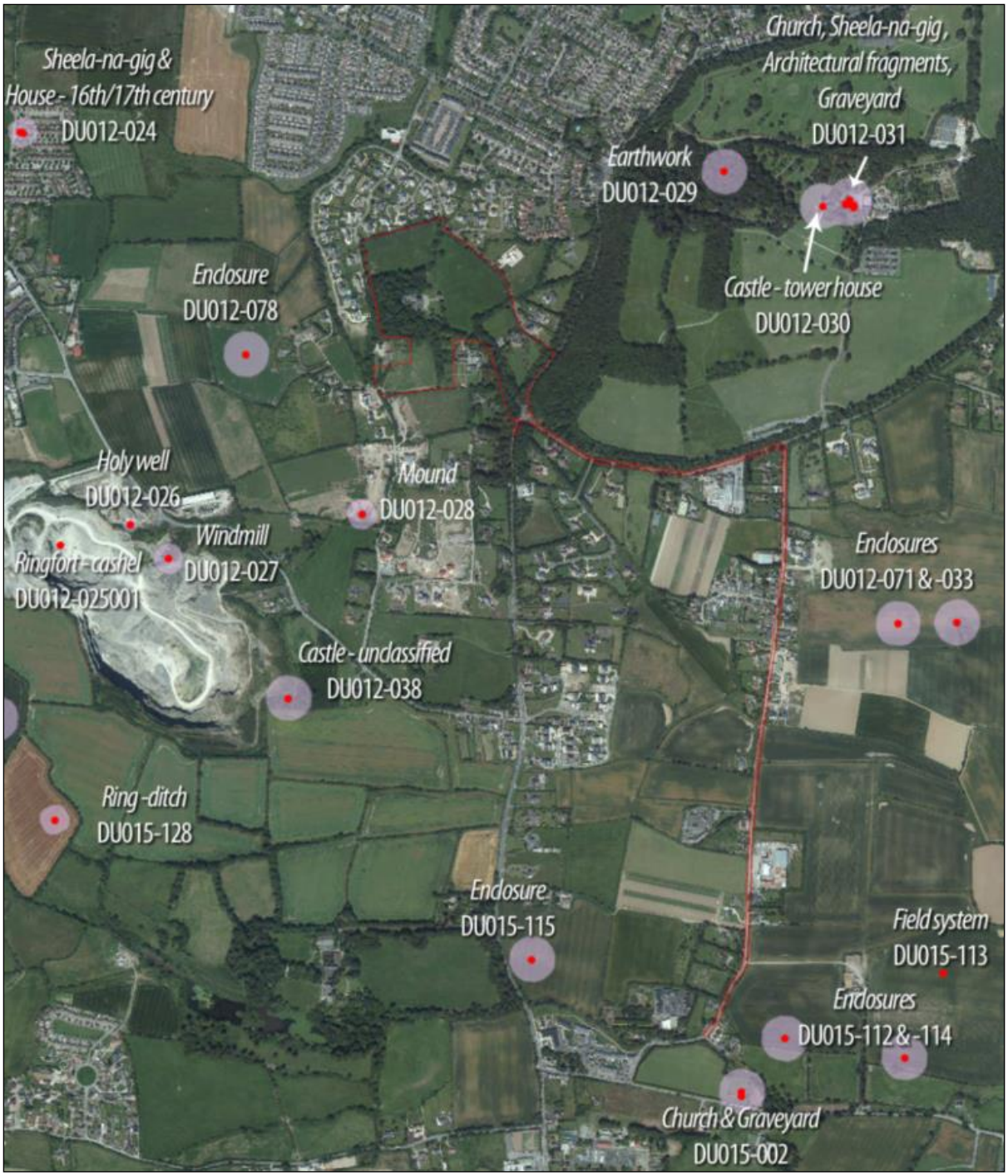



*Figure 14.1: Recorded archaeological sites in the vicinity of the proposed development site*

### 14.3.4 Stray Finds (National Museum of Ireland Topographical files)

Only three finds are recorded to Auburn townland, all of which are pottery sherds of unknown date (NMI Reg. Nos 1946:410-412). The volume of stray finds recorded to the surrounding townlands, particularly Feltrim Hill to the southwest and Paddy's Hill in Broomfield to the east, indicates significant activity and settlement in the wider area during the prehistoric period.

### 14.3.5 Place-Name Evidence

The townland names in this part of north Dublin provide reference to the historical heritage of the area. They are an invaluable source of information not only on the topography, land ownership, and land use within the landscape, but also on its history, the archaeological monuments and the folklore. Where a monument has been forgotten or destroyed, a place name may still refer to it, and may therefore indicate the possibility that remains may survive below the ground surface.

Townland names were recorded by the Ordnance Survey surveyors in the 1830s and 1840s, when the entire country was mapped for the first time. The mapmakers, soldiers and antiquarians who collected the place names and local history varied in their interests and abilities. While most place names were anglicised or translated relatively accurately, some were corrupted virtually beyond recognition. Nonetheless, a variety of place names, whether of Irish, Viking, Anglo-Norman, and English origin, appears throughout Dublin, and the appearance of the different languages is often a good indicator of the cultural heritage, and therefore the archaeological record of the area.

Many of the townland names of this area are English language-derived names, like Auburn, Mabestown, Streamstown and Yellow Walls. There are several that are Irish in origin, largely topographical in nature, such as Drinan (an draighneán) which means 'place of blackthorns' (O'Donovan et al. 1843). The townland name Feltrim refers to 'the ridge of the wolves' (fael druim) (Ibid.), while Kinsaley means 'the head of the brine' (ceann saile) (Joyce 1910). The neighbouring Malahide Demesne takes its name from the village. Although commonly referred to as Mullach Íde in Irish, Joyce notes that it is 'written in all the old documents as Baile-atha-Thíd' meaning town of the ford of Teud, a man's name (the transposition of 'b' to 'm' at the start of the placename is seen elsewhere) (Joyce 1920).

### 14.3.6 Cartographic sources

*Down Survey Map, c. 1656*

At the time of the mid-17$^{th}$ century Down Survey, the subject area lay within 'Mabstowne' (Mabestown), with the townland of Auburn presumably a much later division (Figure 14.2). Several small dwellings are depicted in the townland, described as 'foure or five cabbins' in the parish terrier, with the forfeited land formerly the possession of Chris Fagan of Feltrim. Malahide Castle is depicted as a fortified house surrounded by trees to the northeast, while the windmill on Feltrim Hill is also shown to the southwest.

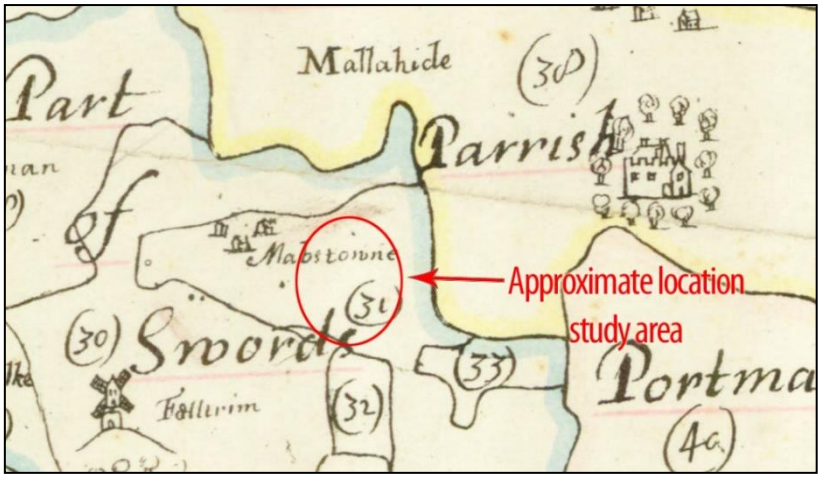



*Figure 14.2: Down survey map of the barony of Coolock c. 1656*

*'An Actual Survey of the County of Dublin', Rocque, 1760*

John Rocque, on his 1760 map of County Dublin (Figure 14.3), shows a property already occupying the lands at Auburn. The property comprised a house and outbuildings arranged around a courtyard, with a kitchen garden on the southwest side. The buildings were situated on the south side of 'Peas Fields Hill'. As now, the property was accessed off the Malahide Road. The present house was built around 1779, presumably replacing the earlier dwelling. Malahide Demesne is depicted, named 'Malahide Court'. There are small settlement clusters at' Streams Town', 'Mabes Town' and Feltrim. Feltrim Hill and the windmill are both depicted and named. The application site boundary includes Back Road and Kinsaley Lane, both of which were in place at the time of Rocque's map.

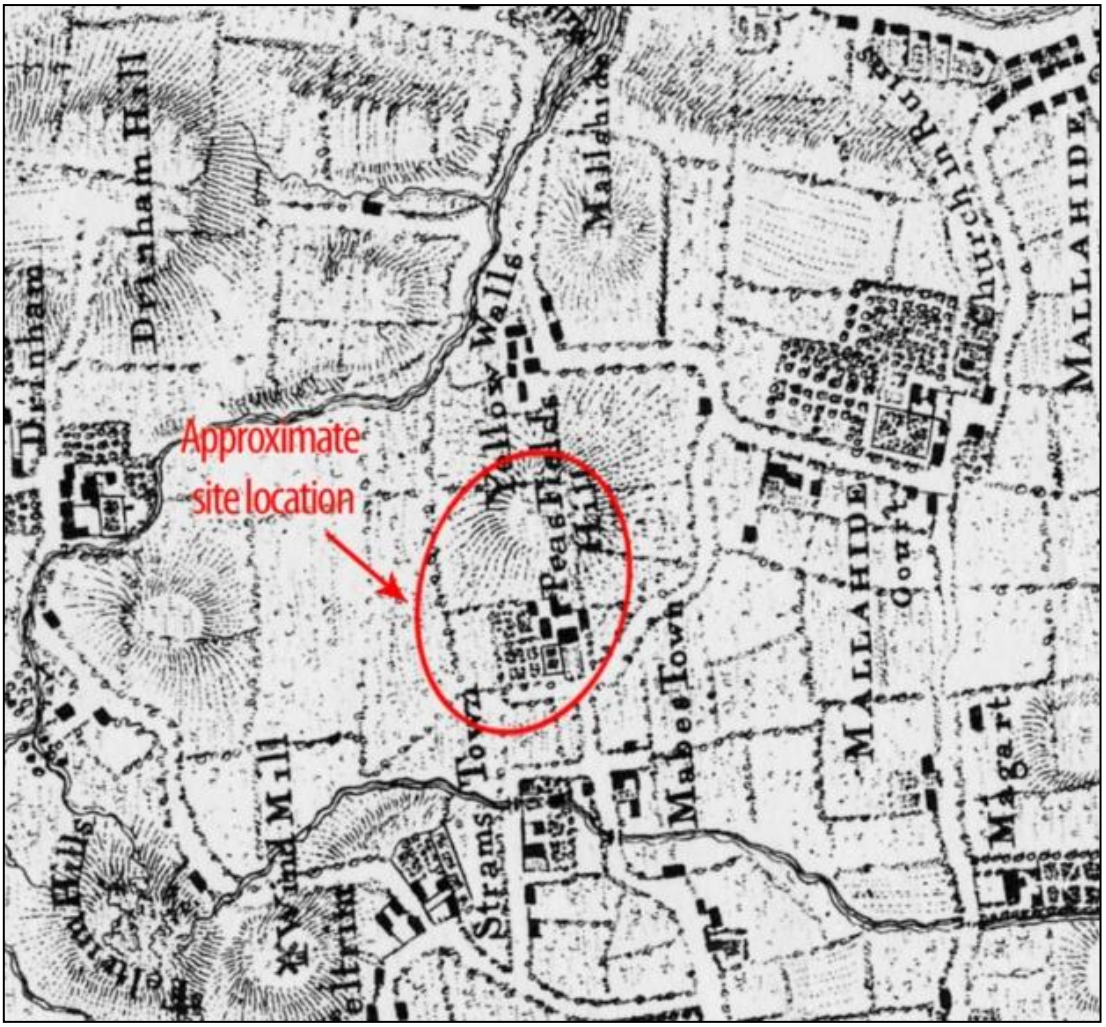



*Figure 14.3: Rocque map of the County of Dublin (1760)*

*John Taylor's Map of the Environs of Dublin*

Taylor's map (Figure 14.4) is less detailed than Rocque's, but it provides some new information. Most notably, the present Auburn House is depicted and named, with woodland shown around it to the north, west and south. The house is shown occupying an elevated site, presumably the hill named on Rocque's map, 'Peas Fields Hill'. Malahide Demesne is named as the 'Court of Malahide', with both castle and church ruins indicated. The application site boundary includes Back Road and Kinsaley Lane, both of which were in place at the time of Taylor's map.

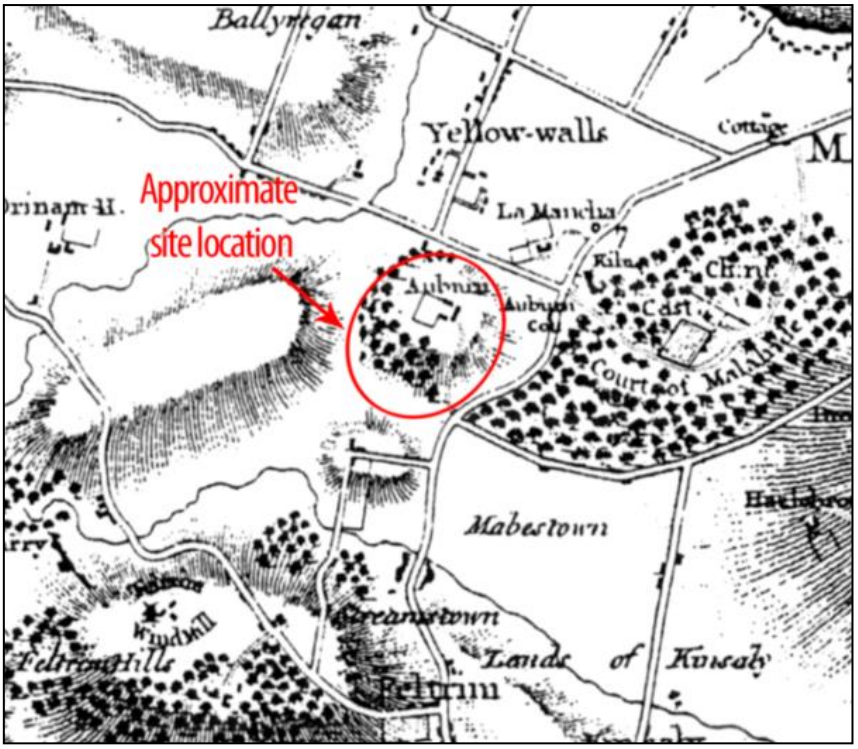



*Figure 14.4: Taylor's map of Dublin (1816)*

*Ordnance Survey (OS) Mapping*

The first edition OS six-inch map of 1843 (Figure 14.5 & 14.6) represents the earliest accurate and detailed cartographic source for the study area. It shows Auburn House, with courtyard buildings arranged on its west side, and woodland to the north, west, and south (as on Taylor's map). The house is approached along a carriageway that leads north and westwards from the entrance on the Malahide Road. To the south and west of the carriageway is a group of outbuildings, a walled garden and orchards. These form part of the Auburn estate and are in roughly the location of those depicted on Rocque's map of 1760. The remainder of the estate is divided into fields, with an area of parkland to the front (east) of the house.

Mabestown townland is by this time only one small section on the east side of the Malahide Road (the remainder having been renamed Auburn), where it forms part of the large estate associated with Malahide Castle. The part of the proposed development site that falls within Streamstown townland comprise fields outside the boundaries of both Auburn estate and the neighbouring Clairville. The application site boundary includes Back Road and Kinsaley Lane, both of which were in place at the time of the first edition map. The land to either side of Kinsaley Lane is agricultural fields, with no structures and only two small quarries indicated, demonstrating the rural nature of the surrounding area at the time.

There are no significant changes on the OS 25-inch map of 1906-09 (not pictured), though the neighbouring Clairville house is indicated as being in ruin by this time. This remains the case on the revised six-inch edition OS map of 1935-38 (Figure 14.7 & 14.8). By this time, the walled gardens and orchards in the Auburn estate are empty plots.


*Figure 14.5: First Edition OS six-inch map (1843), showing application site boundary in blue*

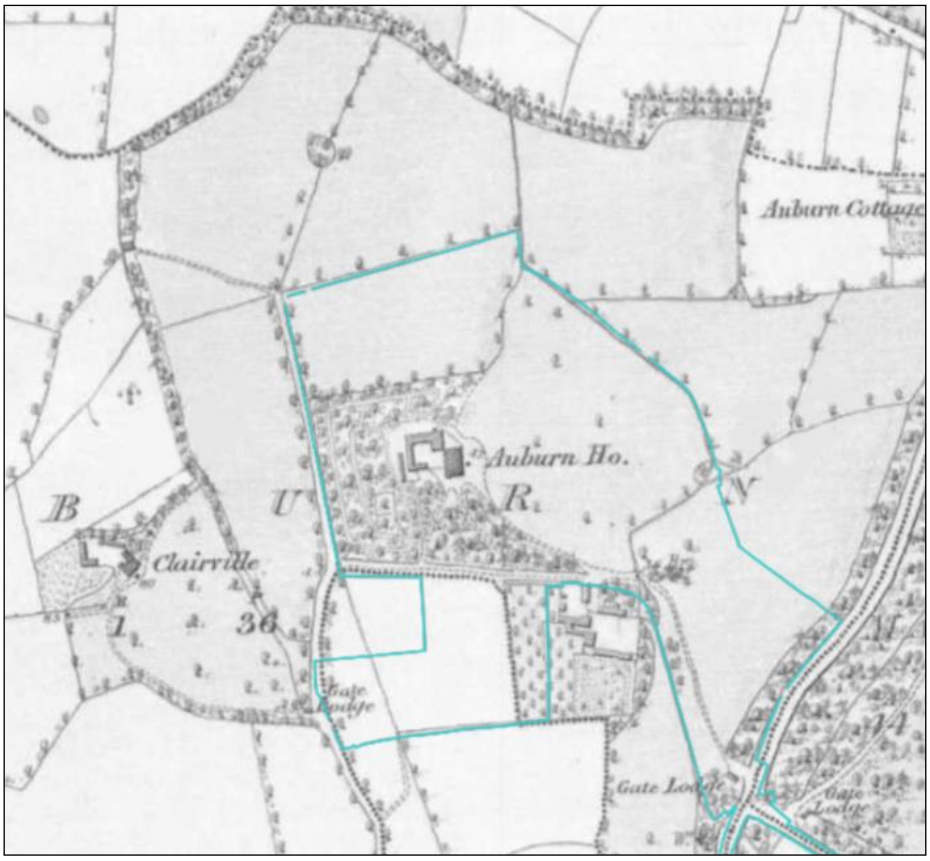



*Figure 14.6: Detail of First Edition OS six-inch map (1843), showing Auburn House, with application site boundary in blue*

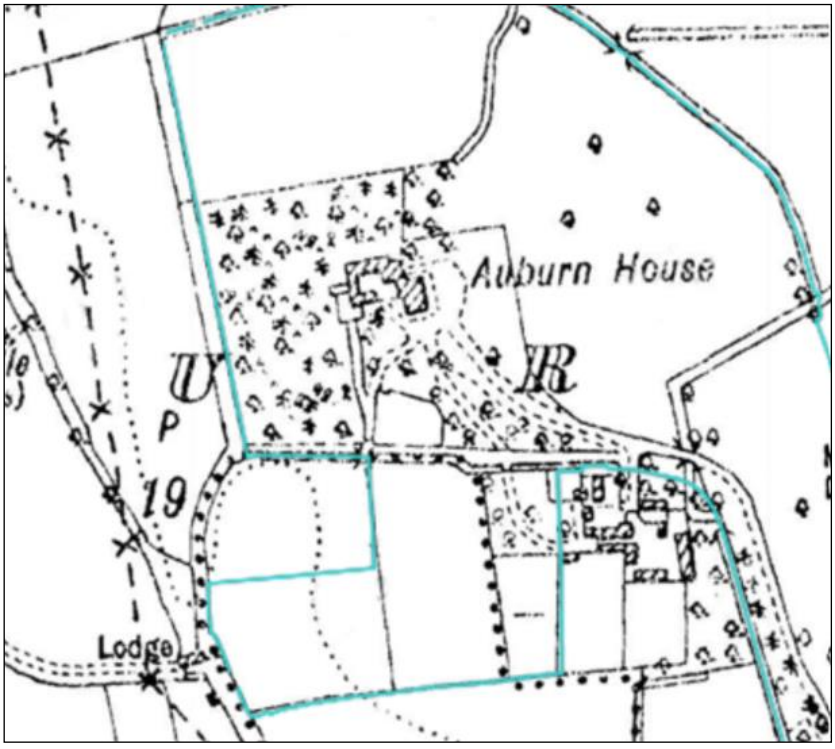



*Figure 14.7: Revised Edition OS six-inch map (1935-38), showing Auburn House, with application site boundary in blue*

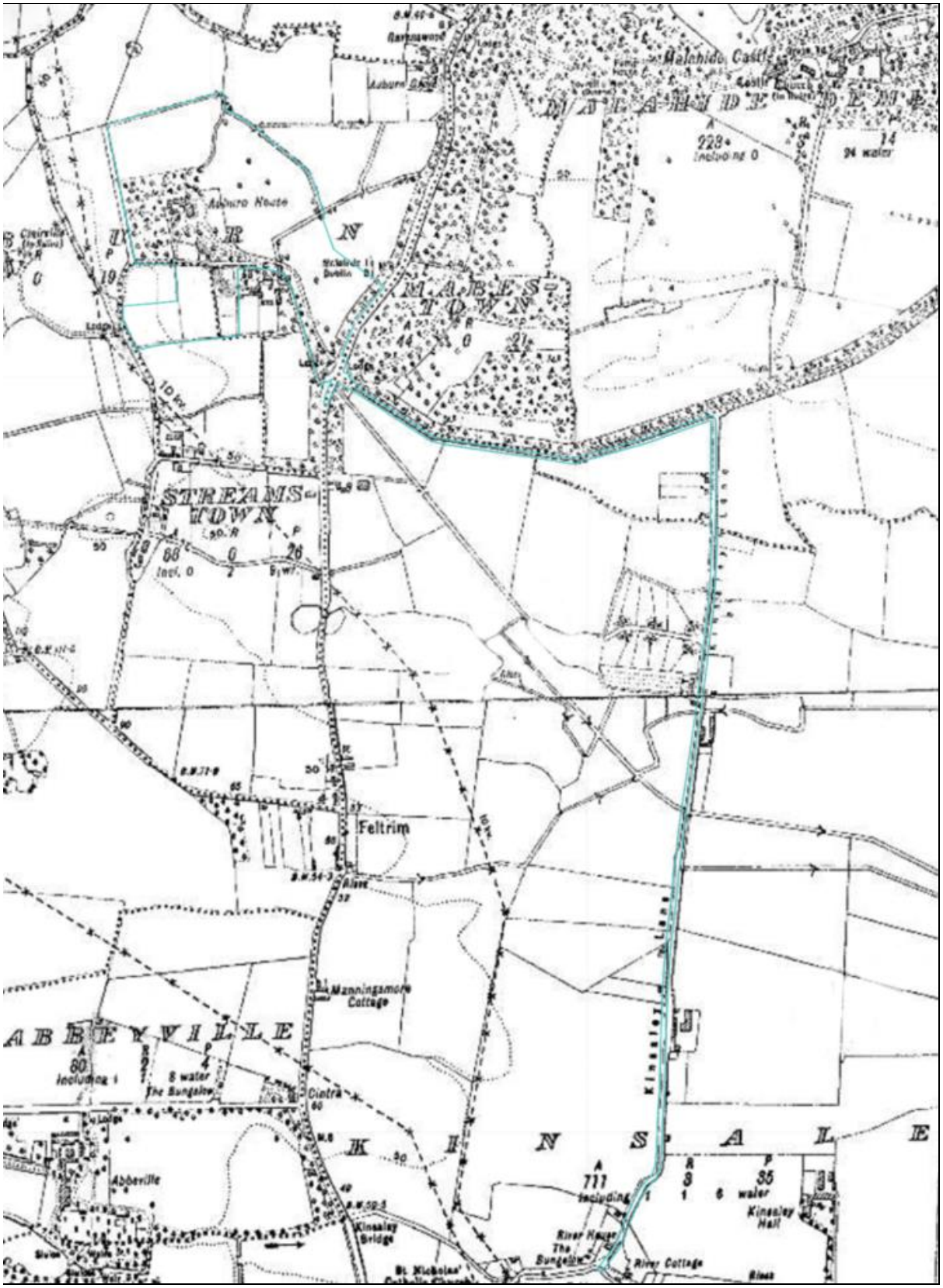



*Figure 14.8: Revised Edition OS six-inch map (1935-38), showing application site boundary in blue*

### 14.4.1 Previous Archaeological Investigations in the Vicinity of the Proposed Development Site

There have been only two archaeological investigations in the vicinity of the proposed development site, one of which is the aforementioned excavation in 1982 of the mound (RMP DU012-028) in Auburn townland. In 2012, archaeological monitoring was undertaken of investigative slit-trenches excavated along the R107 road for a proposed new watermain (St Doolagh's to Streamstown). Nothing of archaeological significance was found (Licence No. 12E0185; Excavations Bulletin Ref. 2012:247). Of those undertaken in the wider area, the discoveries in Kinsaley townland are particularly notable. A large enclosure (SMR site DU012-071) visible as a cropmark on aerial imagery was confirmed by geophysical survey and archaeological testing (Licence Nos 14R00314 & 14E0165). A second possible enclosure, previously unknown, was identified by geophysical survey and archaeological testing further north (Licence Nos 14R0038 & 14E0162). Another enclosure and two ringfort sites nearby are also visible on aerial imagery (RMP sites DU012-033, -003001 & -003002). This demonstrates both the efficacy of geophysical survey in this landscape and the prevalence of destroyed archaeological sites that survive below-ground.

### 14.4.2 Geophysical Survey within the Proposed Development Site

A detailed gradiometer survey was carried out in February 2020 by J.M. Leigh surveys Ltd (Leigh 2020; Appendix 14.3). (Licence No. 20R0002). Areas available for detailed survey within the application area were limited due to dense tree cover, landscaping, buildings and roadways. Detailed survey was contained within six fields (Areas A-F, Figure 14.9). Areas A and B are located immediately to the north and east of Auburn House and comprised short pasture. Areas C, D and E are located in the grounds of Little Auburn and constitute its gardens. There was much magnetic disturbance in these areas and Area C comprised overgrown vegetation as well as modern litter and debris. Area F is located to the south of Auburn House and is surrounded by modern housing and ground conditions were similar to those in Area C.

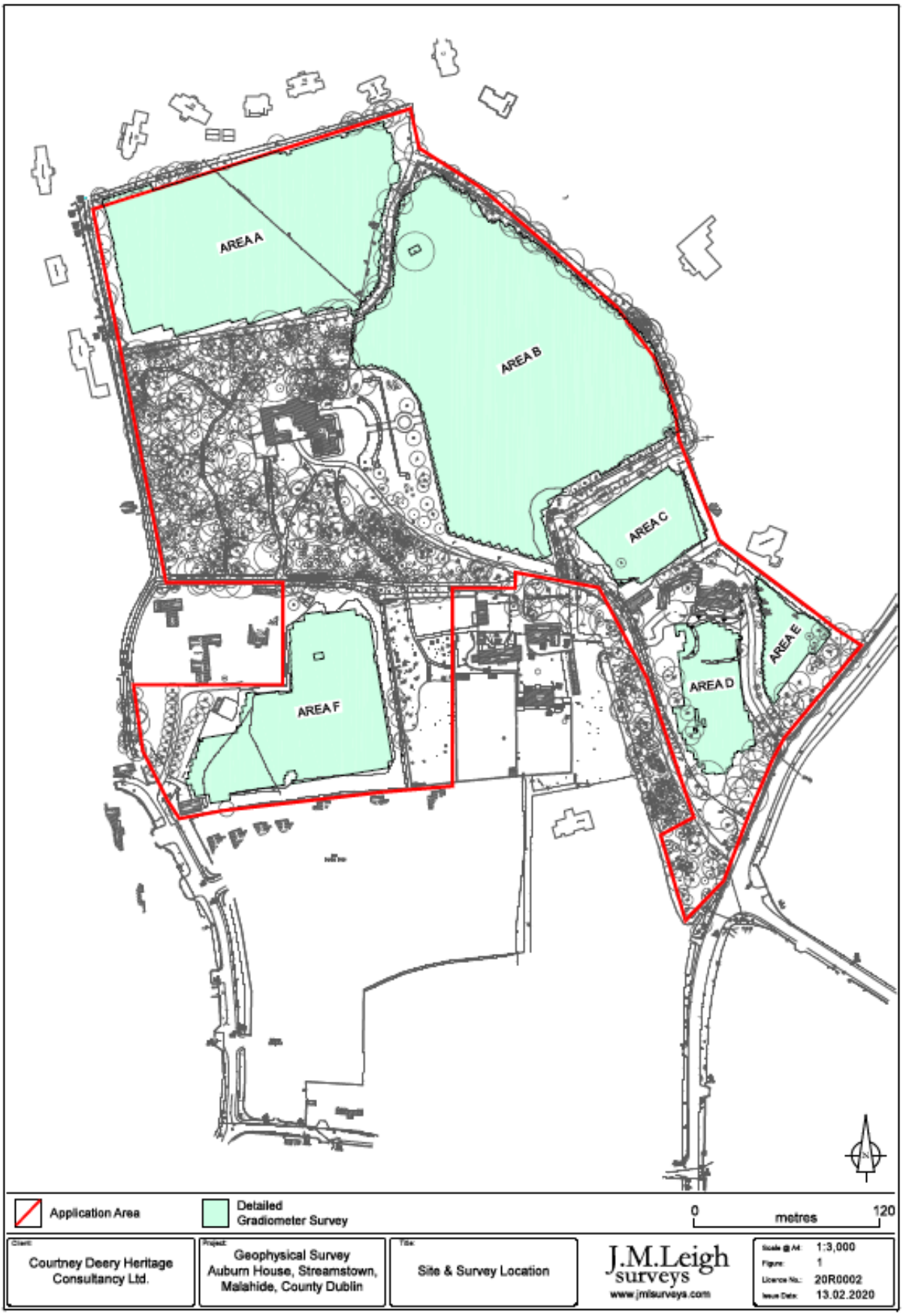



*Figure 14.9: Survey Areas A-F (after Leigh 2020, showing application area at the time of survey).*

*Survey Results Areas A and B (Figures 14.10 & 14.11)*

Several strong magnetic linear responses correspond to modern services in both Areas A and B. Curvilinear trends in the southeast of Area A were deemed of archaeological potential, although interpretation was extremely tentative. Several discreet positive magnetic responses were indicated across both Areas A and B and archaeological interpretation was tentative as there was no clear pattern. Two linear trends in the north of Area B did not form a coherent pattern and were interpreted as possible modern agricultural activity. Several linear trends and broad negative responses were identified in the southern half of Area B, however there was no clear pattern, and they were interpreted as possible natural variations, with the possibility that they could represent plough damaged remains of former landscaped features. The incoherent nature of the responses makes interpretation cautious. Parallel trends in the south eastern corner of Area B are indicative of ploughing activity. A small area of increased magnetic response was identified in the west of Area B in proximity to the linear trends. This comprises several positive magnetic responses in addition to ferrous responses. Although this could possibly represent a spread of burnt material, an archaeological interpretation was highly tentative given the level of modern ferrous disturbance at the site.

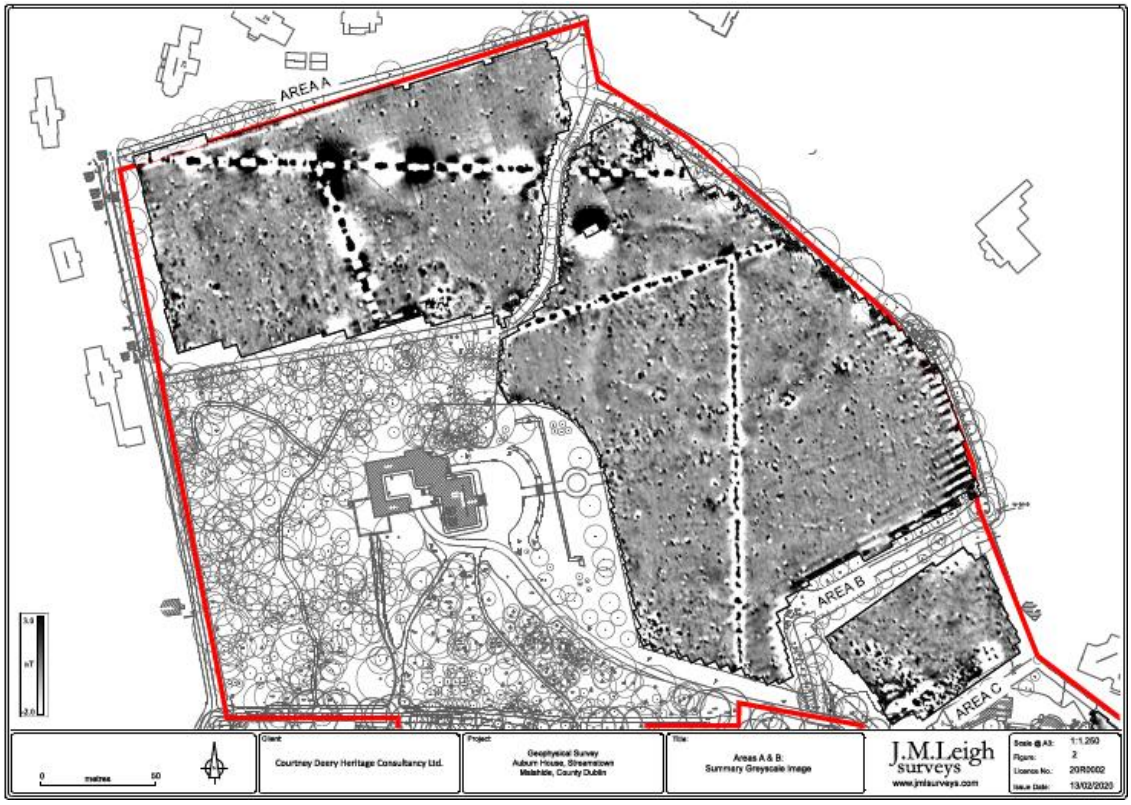



*Figure 14.10: Geophysical Survey, summary greyscale, Areas A and B (after Leigh 2020).*

*Survey Results Areas C, D, E and F (Figures 14.12 & 14.13)*

Areas C and E are largely dominated by modern magnetic disturbance with the exception of a possible single isolated response in the north eastern corner of Area C and similar isolated responses are evident in Area F. In both areas there was no clear archaeological pattern and an archaeological interpretation was extremely cautious. Two linear trends were evident in Area D and represent pathways associated with Little Auburn House. A fragmented magnetic linear trend was identified in

Area F oriented north-south and may represent a field boundary depicted on the Cassini 6-inch OS mapping. Further linear trends in Area F may be associated with nearby housing. A curvilinear positive magnetic trend in Area F may represent the remains of a curvilinear ditched feature, however an archaeological interpretation is cautious.

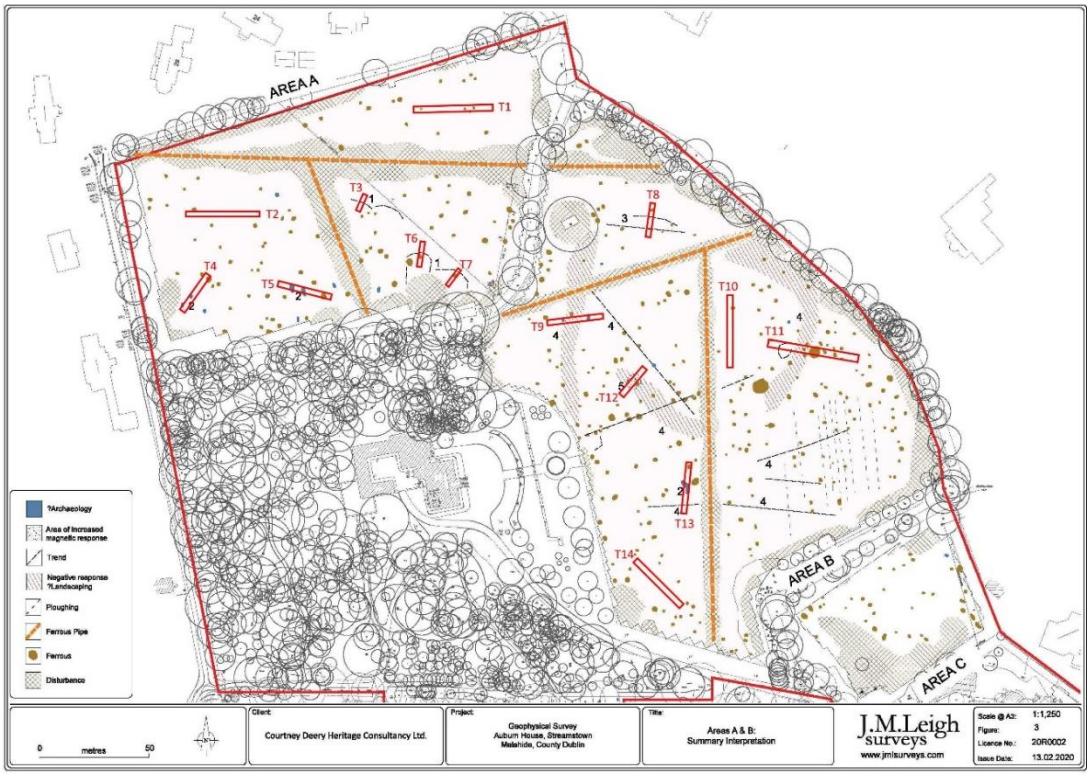



*Figure 14.11: Geophysical Survey, summary interpretation, Areas A and B and test trenches 1 – 14 (after Leigh 2020).*

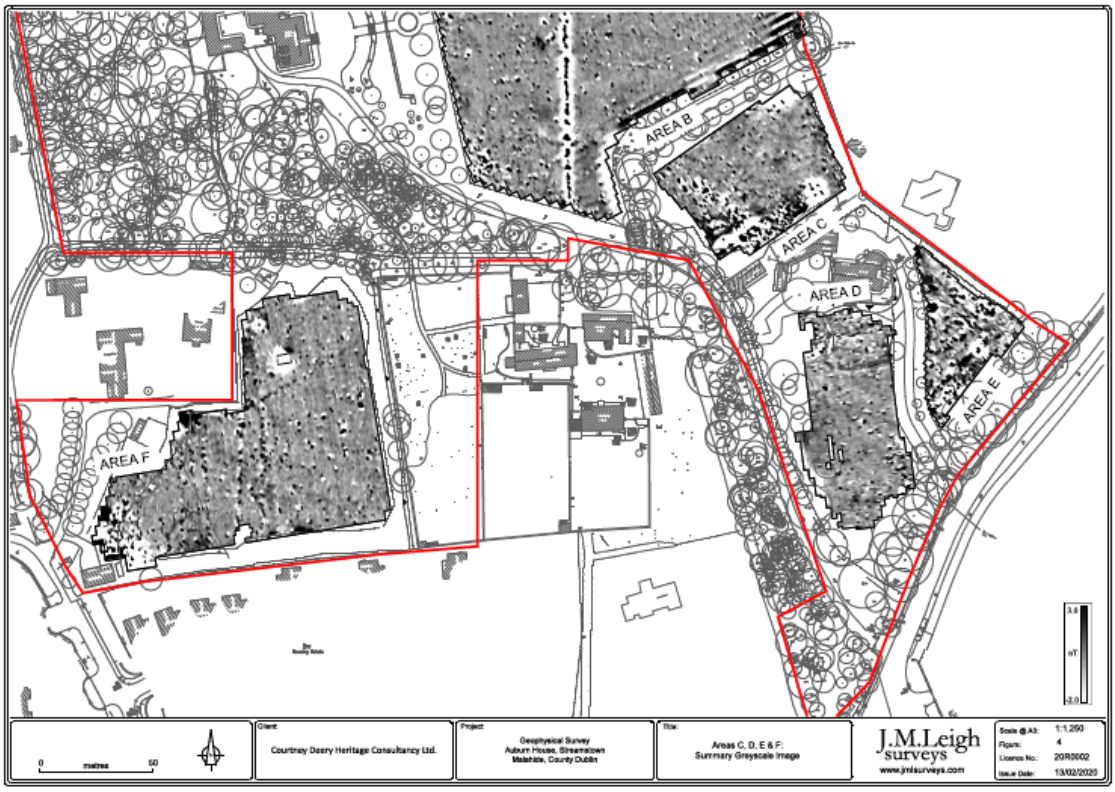



*Figure 14.12: Geophysical Survey, summary greyscale, Areas C, D, E and F (after Leigh 2020, showing application area at the time of survey).*

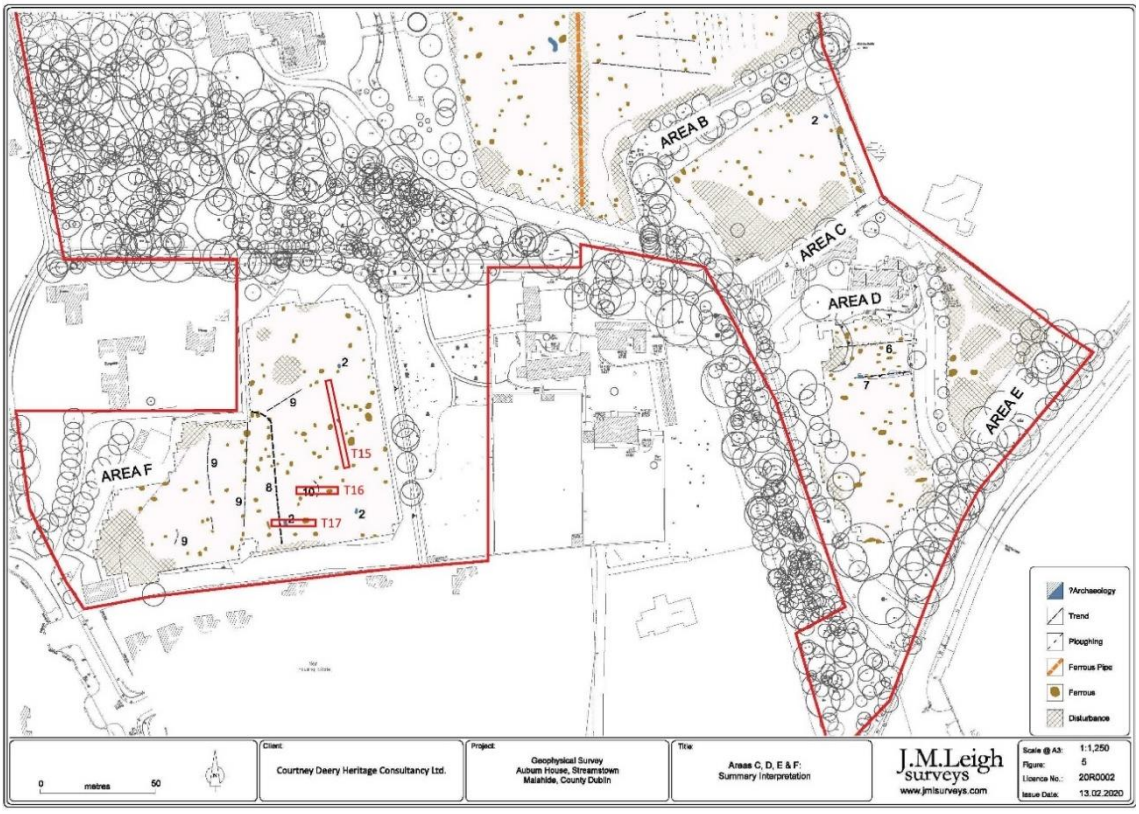



*Figure 14.13: Geophysical Survey, summary interpretation, Areas C, D, E and F and test trenches 15-17 (after Leigh 2020, showing application area at the time of survey).*

### 14.4.3 Archaeological Testing within the Proposed Development site

*General*

Archaeological testing (Licence No. 20E0057) was carried out over three days from 3rd March 2020 (McLoughlin 2020; Appendix 14.4). This was carried out using a mechanical tracked excavator fitted with toothless grading bucket. In total 17 test trenches totalling 430m linear metres were excavated and were placed to target anomalies indicated in the geophysical survey as well as control trenches to test areas where no anomalies were indicated (Figures 14.9 & 14.10).

All trenches were excavated to the surface of archaeological or potential archaeological deposits or to the underlying natural subsoil, whichever was encountered first. Any potential archaeological features were cleaned and sectioned where necessary, to establish their nature, extent and character. Photographs and trench recording sheets were used to record the details of each trench.

*Summary of Results*

The natural subsoil on the site generally comprised, brown-yellow sandy silt, with frequent gravelly and sometimes stony inclusions towards the top of rises and light grey silty clay on lower areas. Trenches ranged in width from 1.2 - 1.8m wide and depths generally ranged between 0.25 – 0.3m.

Trenches 3-9, 11-13 and 16-17 were placed to test a range of anomalies indicated in the geophysical survey and these are detailed below. Trenches 1, 2, 10, 14 and 15 were placed as control trenches to test areas where no anomalies were indicated in the survey results. No features, finds or deposits of archaeological interest were identified in any of the trenches.

| Trench # | Area | Orientation | Length | Width | Depth | Results |
|---|---|---|---|---|---|---|
| **1** | A | E-W | 40m | 1.5m | 0.3m | No archaeology |
| **2** | A | E-W | 40m | 1.5m | 0.35m | No archaeology |
| **3** | A | SSW-NNE | 15m | 1.4m | 0.45m | No archaeology |
| **4** | A | SW-NE | 25m | 1.5m | 0.3m | No archaeology |
| **5** | A | NW-SE | 25m | 1.4m | 0.4m | No archaeology |
| **6** | A | SSW-NNE | 15m | 1.6m | 0.25m | No archaeology |
| **7** | A | SW-NE | 10m | 1.7m | 0.25-0.3m | No archaeology |
| **8** | B | SSW-NNE | 20m | 1.8m | 0.25m | No archaeology |
| **9** | B | WSW-ESE | 20m | 1.7m | 0.25m | No archaeology |
| **10** | B | NNW-SSE | 35m | 1.6m | 0.3m | No archaeology |
| **11** | B | E-W | 40m | 1.7m | 0.25m | No archaeology |
| **12** | B | SW-NE | 20m | 1.8m | 0.2-0.3m | No archaeology |
| **13** | B | NNE-SSW | 25m | 1.8m | 0.3m | No archaeology |
| **14** | B | NW-SE | 30m | 1.2m | 0.3m | No archaeology |
| **15** | F | NNW-SSE | 40m | 1.5m | 0.3m | No archaeology |
| **16** | F | E-W | 15m | 1.5m | 0.3m | No archaeology |
| **17** | F | E-W | 15m | 1.5m | 0.3m | No archaeology |

*Geophysical survey anomalies*

Trenches 3, 6 and 7 were placed to investigate several curvilinear trends and ferrous responses in Area A. In trench 3 a band of gravel mid-way along the trench may correspond with the geophysical anomaly indicated in that location. In trench 6 a pit filled with mortar, slate and brick, up to 1m deep below the present ground level was identified and represents the dumped remains of a demolished modern structure. This deposit extended beyond the limit of the test trench to the east and west. In trench 7 a band of gravelly soil approximately mid-way along the trench appears to correspond with the anomaly on the geophysical survey.

Trenches 4 and 5 were placed to investigate several discreet positive magnetic responses with no clear pattern in Area A. Nothing corresponding with the geophysical anomalies was noted in trench 4 and gravelly patches were identified in trench 5 that could correspond with the survey results.

Trench 8 was placed to investigate two linear trends with no coherent pattern in Area B. No features were noted in the trench that would correspond with the geophysical survey results.

Trenches 9 and 11 were placed to investigate broad negative responses in Area B. There was no clear pattern, and they were thought to possibly represent natural variations or plough damaged remains of former landscape features. In trench 9 changes in the natural subsoil from silty to gravelly natural are likely to correspond with the anomaly on the geophysical survey. In trench 11 the natural subsoil changes from sandy silt to pure silty clay and these variations may correspond with the geophysical survey results.

Trench 12 was placed to investigate another broad negative response, a small area of increased magnetic response and ferrous responses in Area B. This was thought to possibly represent a spread of burnt material, although an archaeological interpretation was highly tentative. Mid-way along the trench and corresponding with the geophysical anomalies a deposit of dark soil with modern inclusions was identified.

Trench 13 was placed to investigate an east-west linear trend and a discreet positive magnetic response in Area B. A shallow linear probable furrow oriented roughly east-west was identified in the trench and variations in the natural subsoil most likely account for the other anomalies in the survey results.

Trench 16 was placed to investigate a curvilinear positive magnetic trend possibly representing a ditched feature in Area F, although an archaeological interpretation was cautious. Nothing corresponding with the geophysical anomalies were identified in the trench.

Trench 17 was placed to investigate an isolated response and a fragmented magnetic linear trend oriented roughly north-south in Area F. Nothing corresponding with the geophysical anomalies were identified in the trench.

## 14.5 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the preservation and protection of the existing Protected Structure of Auburn House and its stables as 1 no. residential dwelling; the conversion of the existing

stables of Auburn House to provide for storage space for the main Auburn House and the construction of 368 no. new residential dwelling units (comprising 87 no. houses, 239 no. apartments & 42 no. duplex units) for an overall total of 369 no. residential units, including Auburn House. The development shall consist of 135 no. 1-bedroom apartments and duplex apartments, 138 no. 2-bedroom apartments and duplex apartments, 8 no. 3-bedroom apartments and duplex apartments, 47 no. 3-bedroom houses, 34 no. 4-bedroom houses, 6 no. 5-bedroom houses and the existing 11-bedroom Auburn House along with 1 no. childcare facility and 1 no. ancillary resident facility. The proposed development shall also provide landscaped public open space, car parking and all associated ancillary site development infrastructure including foul and surface water drainage, internal roads, cycle paths and footpaths, and boundary walls and fences. Vehicular access to the proposed development is to be via a new entrance at the R107 Malahide Road/Dublin Road entrance, with the existing entrance to Auburn House acting as a pedestrian/cyclist entrance and access to existing properties outside the application site, there will be a secondary entrance comprising modifications of the existing vehicular entrance off Carey's Lane to the south west of the development, the closure of the existing vehicular entrance to Little Auburn, the provision of 4 no. ESB substations, 1 no. new foul pumping station, public lighting; proposed foul sewer works along Back Road and Kinsealy Lane and all associated engineering and site works necessary to facilitate the development. The building heights range from 2 storey to 5 storey buildings with balconies or terraces being provided to the apartments and duplex units.

## 4.6 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

### 14.6.1 Construction Phase

There are no recorded archaeological sites (RMP/SMR sites), or stray finds recorded within the proposed development site. The nearest archaeological site is a an enclosure (SMR DU012-078), also located in Auburn townland, c. 275m southwest of the subject lands. A mound (RMP DU012-028), thought to be the remains of an ornamental feature attached to the grounds of Auburn House, occupies the land c. 300m to the south of the proposed development site. Neither site will be affected by the proposed development. No features of cultural heritage interest were identified.

The desk-based archaeological assessment and archaeological test excavation did not reveal any features, finds or deposits of archaeological interest within the proposed development site. The majority of the geophysical anomalies appear to correspond with variations in the natural subsoil. Therefore, the archaeological potential of the area is considered low. There is, nonetheless, the slight potential that associated or previously unknown archaeological deposits or features may be present below ground within the proposed development site. Given the results of the archaeological testing, it is likely that any deposits / features which are present, would be small-scale and discrete in nature. Ground-breaking works will have a slight negative permanent impact on any such archaeological features that may be present.

No archaeological potential was identified along Back Lane or Kinsealy Lane (the route of the proposed foul sewer), both of which formed part of the historic road network in the area.

## 14.7 REMEDIAL AND REDUCTIVE MEASURES

Monitoring of topsoil-stripping within the proposed development site will be undertaken, to determine whether there are any archaeological features or deposits present. Given the way that subsurface features and sites present in this landscape, this strategy will ensure a comprehensive archaeological mitigation measure. This should include the area where testing of geophysical anomalies has already been undertaken.

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.

## 14.8 PREDICTED IMPACT OF THE PROPOSED DEVELOPMENT

The predicted impact is that the proposed development may directly impact upon potential (previously unrecorded) below-ground archaeological remains.

## 14.9 INTERACTIONS AND CUMULATIVE IMPACTS

No interactions have been identified during the course of this assessment.

## 14.10 MONITORING

There will be no requirement for monitoring post-construction.

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# APPENDIX 14.1 SUMMARY OF RELEVANT LEGISLATION

**National Monuments Legislation 1930-2004**

All archaeological sites have the full protection of the national monuments legislation (Principal Act 1930; Amendments 1954, 1987, 1994 and 2004). In the 1987 Amendment of Section 2 of the Principal Act (1930), the definition of a national monument is specified as:

any artificial or partly artificial building, structure or erection or group of such buildings, structures or erections:

- any artificial cave, stone or natural product, whether forming part of the ground, that has been artificially carved, sculptured or worked upon or which (where it does not form part of the place where it is) appears to have been purposely put or arranged in position, any, or any part of any, prehistoric or ancient (i) tomb, grave or burial deposit, or (ii) ritual, industrial or habitation site, and
- any place comprising the remains or traces of any such building, structure or erection, any cave, stone or natural product or any such tomb, grave, burial deposit or ritual, industrial or habitation site...

Under Section 14 of the Principal Act (1930):

It shall be unlawful...
to demolish or remove wholly or in part or to disfigure, deface, alter, or in any manner injure or interfere with any such national monument without or otherwise than in accordance with the consent hereinafter mentioned (a licence issued by the Office of Public Works National Monuments Branch), or
to excavate, dig, plough or otherwise disturb the ground within, around, or in the proximity to any such national monument without or otherwise than in accordance...

Under Amendment to Section 23 of the Principal Act (1930),
A person who finds an archaeological object shall, within four days after the finding, make a report of it to a member of the Garda Síochána...or the Director of the National Museum...

The latter is of relevance to any finds made during a watching brief.
In the 1994 Amendment of Section 12 of the Principal Act (1930), all of the sites and 'places' recorded by the Sites and Monuments Record of the Office of Public Works are provided with a new status in law. This new status provides a level of protection to the listed sites that is equivalent to that accorded to 'registered' sites [Section 8(1), National Monuments Amendment Act 1954] as follows:

- The Commissioners shall establish and maintain a record of monuments and places where they believe there are monuments, and the record shall be comprised of a list of monuments and such places and a map or maps showing each monument and such place in respect of each county in the State.

- The Commissioners shall cause to be exhibited in a prescribed manner in each county the list and map or maps of the county drawn up and publish in a prescribed manner information about when and where the lists and maps may be consulted.

In addition, when the owner or occupier (not being the Commissioners) of a monument or place which has been recorded, or any person proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such monument or place, he shall give notice in writing of his proposal to carry out the work to the Commissioners and shall not, except in the case of urgent necessity and with the consent of the Commissioners, commence the work for a period of two months after having given the notice.

*The National Monuments Amendment Act 2004*
The National Monuments Amendment Act enacted in 2004 provides clarification in relation to the division of responsibilities between the Minister of Environment, Heritage and Local Government, Finance and Arts, Sports and Tourism together with the Commissioners of Public Works. The Minister of Environment, Heritage and Local Government will issue directions relating to archaeological works and will be advised by the National Monuments Section and the National Museum of Ireland.

The Act gives discretion to the Minister of Environment, Heritage and Local Government to grant consent or issue directions in relation to road developments (Section 49 and 51) approved by An Bord Pleanála and/or in relation to the discovery of National Monuments
14A. (1) The consent of the Minister under section 14 of this Act and any further consent or licence under any other provision of the National Monuments Acts 1930 to 2004 shall not be required where the works involved are connected with an approved road development.

(2) Any works of an archaeological nature that are carried out in respect of an approved road development shall be carried out in accordance with the directions of the Minister, which directions shall be issued following consultation by the minister with the Director of the National Museum of Ireland.

Subsection 14A (4) Where a national monument has been discovered to which subsection
(3) of this section relates, then
the road authority carrying out the road development shall report the discovery to the Minister subject to subsection (7) of this section, and pending any directions by the minister under paragraph (d) of this subsection, no works which would interfere with the monument shall be carried out, except works urgently required to secure its preservation carried out in accordance with such measures as may be specified by the Minister

The Minister will consult with the Director of the National Museum of Ireland for a period not longer than 14 days before issuing further directions in relation to the national monument.
The Minister will not be restricted to archaeological considerations alone, but will also consider the wider public interest.

**Planning and Development Act, 2000**

Structures of architectural, cultural, scientific, historical or archaeological interest can also be protected under the Planning and Development Act, 2000.

This act provides for the inclusion of protected structures into the planning authorities' development plans and sets out statutory regulations regarding works affecting such structures. Under the new legislation, no distinction is made between buildings formerly classified under development plans as List 1 and List 2. Such buildings are now all regarded as 'protected structures'.

The act defines a 'protected structure' as follows:

(a) a structure, or
(b) a specified part of a structure, which is included in a record of protected structures, and, where that record so indicates, includes any specified feature which is within the attendant grounds of the structure and which would not otherwise be included in this definition.
'Protection', in relation to a structure or part of a structure, includes conservation, preservation, and improvement compatible with maintaining the character and interest of the structure or part; Part IV of the act deals with architectural heritage, and Section 57 deals specifically with works affecting the character of protected structures or proposed protected structures.

…the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of— (a) the structure, or
(b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

Section 58, subsection 4 states that: Any person who, without lawful authority, causes damage to a protected structure or a proposed protected structure shall be guilty of an offence.

# APPENDIX 14.2 GLOSSARY OF IMPACT ASSESSMENT

**Glossary of Impacts**

*Types of Impacts*

Potential impacts on the receiving archaeological and cultural heritage environment can be described as direct physical impacts, indirect physical impacts, and impacts on setting (i.e., the surroundings in which an archaeological / cultural heritage asset can be experienced; Historic England 2017).

Direct physical impacts are those development activities that directly cause damage to the fabric of an archaeological / cultural heritage asset. Typically, these activities are related to construction works; e.g. they could include excavation of foundations, earthmoving / site preparation creation of access roads, cycle paths, and the excavation of service trenches.

Indirect physical impacts are those processes, triggered by development activity, that lead to the degradation of archaeological / cultural heritage assets.

Impacts on the setting of archaeological / cultural heritage assets describe how the presence of a development changes the surroundings of an asset in such a way that it affects (positively or negatively) the heritage significance of that asset. Visual impacts are most commonly encountered. Such impacts may be encountered at all stages in the life cycle of a development, but they are only likely to be considered significant during the prolonged operational life of the development.

Types of impact, as defined by the Draft EPA Guidelines on Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the EPA Guidelines) (EPA 2017):

> *Cumulative Impact* – The addition of many small impacts to create one larger, more significant, impact.
> *Do Nothing Impact* – The environment as it would be in the future should no development of any kind be carried out.
> *Indeterminable Impact* – When the full consequences of a change in the environment cannot be described.
> *Irreversible Impact* – When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
> *Residual Impact* – The degree of environmental change that will occur after the proposed mitigation measures have taken impact.
> '*Worst case' Impact* – The impacts arising from a development in the case where mitigation measures substantially fail.
> *Indirect or Secondary Impacts* – Impacts that arise off-site or are caused by other parties that are not under the control of the developer. Impacts which are caused by the interaction of impacts, or by associated or off-site projects.

*Quality of Impacts*

Impacts on the archaeological and cultural heritage environment are assessed in terms of their quality, i.e., positive, negative, neutral:

- Negative Impact: A change that will detract from or permanently remove an archaeological monument / cultural heritage asset from the landscape;
- Neutral Impact: A change that does not affect archaeological and cultural heritage heritage; and
- Positive Impact: A change that improves or enhances the setting of an archaeological / cultural heritage asset.

*Duration of Impacts*

The duration of an impact can be as follows:

- Temporary Impact — Impact lasting for one year or less;
- Short-term Impacts — Impact lasting one to seven years;
- Medium-term Impact — Impact lasting seven to fifteen years;
- Long-term Impact — Impact lasting fifteen to sixty years; and
- Permanent Impact — Impact lasting over sixty years.

**Assessment Criteria**

*Introduction*

This assessment methodology has regard to the EPA assessment criteria (EPA 2017) and to the National Roads Authority (NRA) Guidelines for the Assessment of Archaeological Heritage Impact of National Road Schemes (hereafter referred to as the NRA Guidelines) (NRA 2005).

Archaeological and cultural heritage sites are a non-renewable resource and such assets are generally considered to be location sensitive. In this context, any change to their environment, such as construction activity and ground disturbance works, could adversely affect these sites.

*Significance / Sensitivity Criteria*

In accordance with EPA Guidelines (EPA 2017), the context, character, significance and sensitivity of each archaeological / cultural heritage asset requires evaluation and the significance of the impact is then determined by considering the significance / sensitivity of the asset and the predicted magnitude of the impact.

In accordance with the NRA Guidelines (NRA 2005), the significance criteria used to evaluate an archaeological site, monument or complex take into account the character and integrity of the asset and any available data regarding it. This can be ascertained by looking at the following criteria cited in the NRA Guidelines (NRA 2005): the 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 (Table 1). While these criteria contribute to the significance of a feature they should not be treated as definitive. These criteria are indicators which contribute to a wider judgement based on the individual circumstances of these archaeological/cultural heritage assets.

**Table 1: Explanation of Archaeology and Cultural Heritage Asset Assessment Criteria**

| Criteria | Explanation |
|---|---|
| Existing Status | The level of protection associated with an archaeological / cultural heritage asset is an important consideration. |
| Condition / Preservation / Integrity | The survival of an archaeological / cultural heritage asset's archaeological potential both above and below ground is an important consideration and should be assessed in relation to its present condition and surviving features. Well-preserved sites should be highlighted, this assessment can only be based on a field inspection. |
| Documentation / Data | The significance of a an archaeological / cultural heritage asset may be enhanced by the existence of records of previous investigations or contemporary documentation supported by written evidence or historic maps. Sites with a definite historical association or an example of a notable event or person should be highlighted. |
| Group Value / Character | The value of a single an archaeological / cultural heritage asset may be greatly enhanced by its association with related contemporary monuments or with monuments from different periods indicating an extended time presence in any specific area. In some cases, it may be preferable to protect the complete group, including associated and adjacent land, rather than to protect isolated monuments within that group. |
| Rarity / Character | The rarity of some an archaeological / cultural heritage asset types can be a central factor affecting response strategies for development, whatever the condition of the individual feature. It is important to recognise sites that have a limited distribution. |
| Visibility in the landscape/ Character / Integrity | Archaeological / cultural heritage assets that are highly visible in the landscape have a heightened physical presence. The inter-visibility between monuments may also be explored in this category. |
| Fragility / Vulnerability / Integrity | It is important to assess the level of threat to an archaeological / cultural heritage asset from erosion, natural degradation, agricultural activity, land clearance, neglect, careless treatment or development. |
| Amenity Value / Character | Regard should be taken of the existing and potential amenity value of a an archaeological / cultural heritage asset. |

An evaluation of the significance / sensitivity of archaeological / cultural heritage assets is based on their designation and on the extent to which these assets contribute to the archaeological or cultural heritage environment, though their individual or group qualities, either directly or potentially. Table 2 presents the scale of significance / sensitivity together with criteria. It has been compiled by Courtney Deery Heritage Consultancy Ltd, based on standard authorities and guidelines. Undesignated archaeological or cultural heritage sites can be assigned a low, medium or high sensitivity value, taking into consideration the criteria cited in Table 1 (e.g., condition, character, integrity or preservation, data, group value, rarity, visibility in the landscape, fragility or vulnerability, and amenity value).

**Table 2: Significance / Sensitivity Criteria**

| Sensitivity / Significance | Criteria |
|---|---|
| High | Sites of international significance: World Heritage Sites.<br>National Monuments.<br>Protected Structures (assessed by the NIAH to be of international and national importance), where these are also National Monuments.<br>Undesignated archaeological and cultural heritage sites. |
| Medium | Recorded Monuments (RMP sites & SMR sites scheduled for inclusion in the next revision of the RMP)<br>Protected Structures / NIAH sites (assessed by the NIAH to be of regional importance), where these are also Recorded Monuments.<br>Newly identified archaeological sites, confirmed through archaeological investigation, to be added to the SMR.<br>Undesignated archaeological and cultural heritage sites. |
| Low | Industrial Heritage Sites and National Inventory of Architectural Heritage (NIAH) Building sites for which there are no upstanding remains.<br>Undisturbed greenfield areas and riverine environs, which have an inherent archaeological potential.<br>Undesignated archaeological and cultural heritage sites. |
| Negligible | Assets with very little or no surviving archaeological and / or cultural heritage interest. |

National Monument

The National Monuments Act (1930, Section 2) defines a 'National Monument' as '*a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto*'.

The National Monuments legislation legally protects access to and the visual amenity associated with National Monuments and requires consent from the Minister for invasive works in their vicinity.

The defences / town walls of medieval Dublin are a National Monument in accordance with national policy on town defences (Department of Environment, Heritage and Local Government 2008).

Recorded Monuments

The primary source of information for archaeology is the Record of Monuments and Places (RMP) maintained by the Department of Housing, Local Government and Heritage (DHLGH). The RMP documents known upstanding archaeological monuments, their original location (in cases of destroyed monuments) and the position of possible sites in rural areas identified as cropmarks on vertical aerial photographs dating to before 1700 AD (with some later ones also being included). It is based on a comprehensive range of published and publicly available documentary and cartographic sources.

For the purpose of the assessment, the Sites and Monument Record (SMR) data and mapping as updated by the Archaeological Survey of Ireland (www.archaeology.ie) was examined so it could be used within an interactive identification and mapping system developed for Proposed Project.

Zones of Archaeological Potential

Zones of archaeological potential (ZAP) can be defined as areas within the urban and rural landscape that possess the potential to contain archaeological remains due to the settlement history of a place and or to the presence of topographical features such as rivers, lakes and high, defendable ground. An example of this is the RMP designated Historic City of Dublin, which is designated as a zone of archaeological potential covering an extensive area (RMP DU018-020). Other examples include historic settlements recorded at Donnybrook, Bray, Finglas, Kilmainham, Chapelizod and Tallaght. For the purpose of the assessment, ZAPs with statutory protection (i.e., contained in the RMP) were considered.

Non-Designated Sites

Newly identified archaeological sites that have been confirmed through archaeological investigation (monitoring, testing, excavation, geophysical survey) are considered to be of medium importance. Such sites are undesignated as they have yet to be added to the SMR.

Potential or undesignated archaeological sites identified through aerial photography, historic mapping, stray finds are considered to be of low sensitivity, as they have yet to be ground-truthed through archaeological investigation. Similarly, undisturbed greenfield areas and riverine environs, which have an inherent but as yet unproven archaeological potential are considered to be of low sensitivity.

Where there are no upstanding remains of industrial heritage sites, the survival of below-ground sites cannot be confirmed; as such the sensitivity is considered to be low.

*Magnitude of Impact*

When assessing the impact magnitude, the following criteria need to be considered:

- Extent – size, scale and spatial distributions of the impact;
- Duration – period of time over which the impact will occur;
- Frequency – how often the impact will occur; and
- Context – how will the extent, duration and frequency contrast with the accepted baseline conditions (see Table 1).

**Table 3: Magnitude of Impact Criteria**

| **Impact Magnitude** | **Criteria** |
|---|---|
| High | These impacts arise where an archaeological / cultural heritage asset is completely and irreversibly destroyed by a proposed development. A change such that the value of the asset is totally altered or destroyed, leading to a complete loss of character, integrity and data about the site. |
| Medium | An impact which, by its magnitude, duration or intensity alters an important / significant aspect of the environment. An impact like this would be where an archaeological / cultural heritage asset would be impacted upon leading to a significant loss of character, integrity and data about the site.<br><br>Or an impact which by its magnitude results in the partial loss of a historic structure (including fabric loss or alteration) or grounds including the part removal of buildings or features or part |

| Impact Magnitude | Criteria |
|---|---|
| | removal of demesne land (e.g. severance, visual intrusion or degradation of setting and amenity).<br>A permanent positive impact that enhances or restores the character and / or setting of a cultural heritage site or upstanding archaeological heritage site in a clearly noticeable manner. |
| Low | A low impact arises where a change to the site is proposed which though noticeable is not such that the archaeological / cultural heritage character / integrity of the site is significantly compromised, and where there is no significant loss of data about the site.<br>A positive impact that results in partial enhancement of the character and / or setting of a cultural heritage site or upstanding archaeological heritage site in the medium to long-term. |
| Negligible | An impact which causes very minor changes in the character of the environment and does not directly impact an archaeological / cultural heritage asset, or affect the appreciation or significance of the asset. There would be very minor changes to the character and integrity of the asset and no loss of data about the site. |

**Significance of Impact**

The Draft EPA Revised Guidelines on the Information to be Contained in Environmental Impact Statements (EIS) (EPA 2015) added the two additional levels of significance of impact: Very Significant and Not Significant (Table 4 and Image 1).

**Table 4: Significance of Impacts (EPA 2015)**

| Significance of Impact | Description |
|---|---|
| Very Significant | An impact which by its character, magnitude, duration or intensity significantly alters the majority of a sensitive aspect of the environment, for example in this case a monument |
| Not Significant | An impact which causes noticeable changes in the character of the environment but without noticeable consequences. |

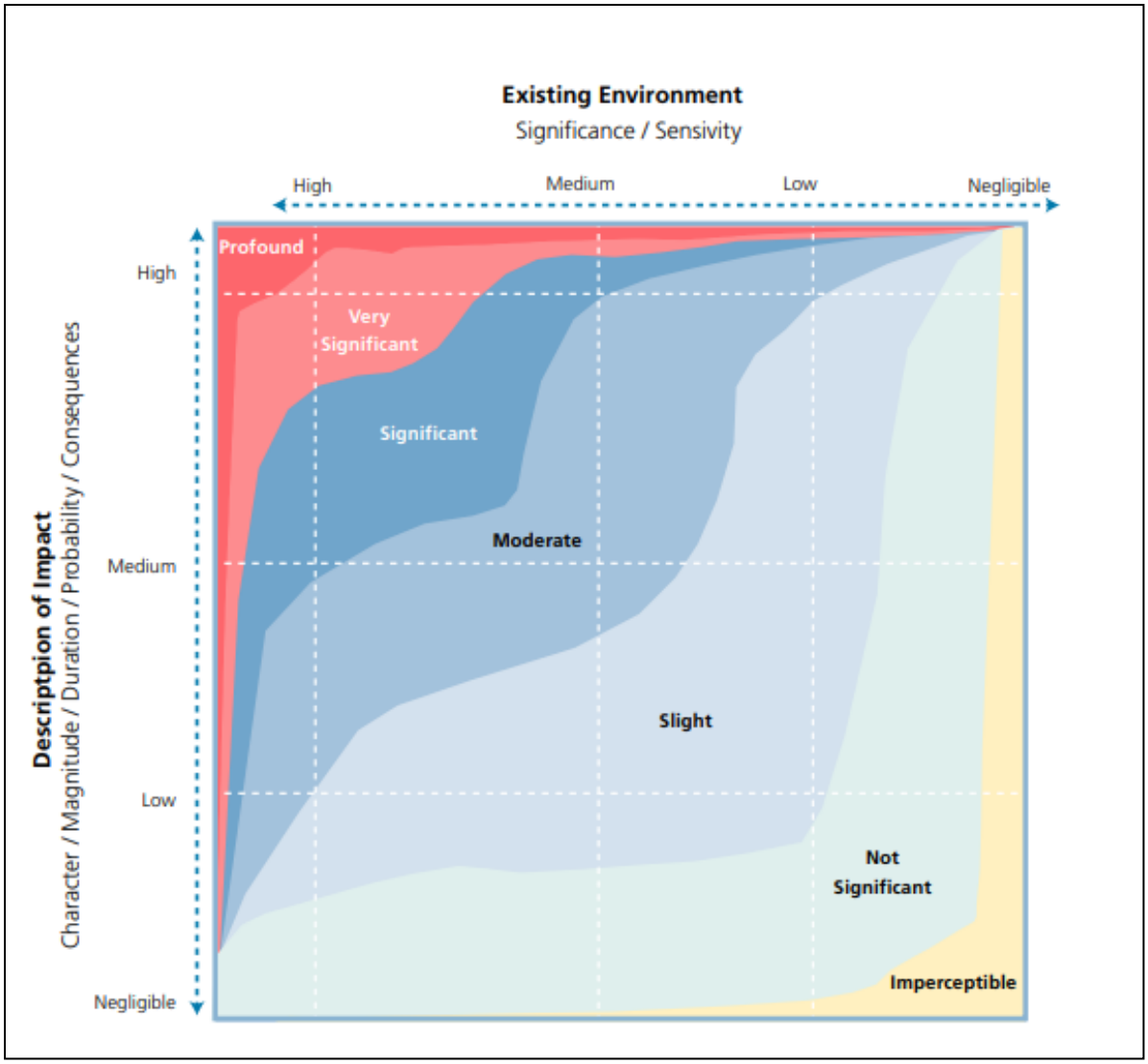



Image 1: Figure 3.5 Description of Impacts from the Draft EPA Revised Guidelines on Information to be Contained in EIS (EPA 2015)

The likely significance of impacts is determined by considering the baseline rating or sensitivity value of the asset upon which the impact has an impact and the magnitude of the impact (Image 1). The impact significance is defined as Imperceptible, Not Significant, Slight, Moderate, Significant, Very Significant, or Profound (Table 5).

**Table 5: Defining Significance of Impacts**

| Impact | Definition |
|---|---|
| Imperceptible | An impact capable of measurement but without noticeable consequences. |
| Not Significant | An impact which causes noticeable changes in the character of the environment but without significant consequences. |
| Slight | An impact which causes minor changes in the character of the environment and does not affect an archaeological / cultural heritage asset in a moderate or significant manner. |

| | |
|---|---|
| **Moderate** | A moderate impact arises where a change to the site is proposed which though noticeable, does not lead to a significant loss of character, integrity and data about the archaeological / cultural heritage asset. |
| **Significant** | An impact which, by its magnitude, duration or intensity, alters an important aspect of the environment. An impact like this would be where part or all of a site would be permanently impacted upon, leading to a significant loss of character, integrity and data about the archaeological / cultural heritage asset. |
| **Very Significant** | An impact which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment. |
| **Profound** | Applies where mitigation would be unlikely to remove adverse impacts. Reserved for adverse, negative impacts only. These impacts arise where an archaeological / cultural heritage asset is completely and irreversibly destroyed by a proposed development. |

# APPENDIX 14.3 GEOPHYSICAL SURVEY REPORT

# GEOPHYSICAL SURVEY

# REPORT

Auburn House,

Auburn, Streamstown,

Malahide,

Co. Dublin

Date:
13/02/2020

Licence: 20R0002

J. M. Leigh Surveys Ltd.
124 Oaklawn West
Leixlip
County Kildare
www.jmlsurveys.com
01 615 4647

J. M. Leigh Surveys Ltd.
124 Oaklawn West,
Leixlip, Co. Kildare
Tel: 01 615 4647
Mobile: 0879062729
www.jmlsurveys.com

# GEOPHYSICAL SURVEY SUMMARY SHEET
## AUBURN HOUSE, STREAMSTOWN, MALAHIDE, CO. DUBLIN

| | | | |
|---|---|---|---|
| **Site Name** | Auburn House | **Ref No.** | 19066 |
| **Townland** | Auburn, Streamstown | **Licence No.** | 20-R-0002 |
| **County** | Co. Dublin | **Licence Holder** | Joanna Leigh |
| **ITM (centre)** | E720985, N745234 | **Purpose** | Pre-planning investigation |
| **Client** | Courtney Deery Heritage Consultancy Ltd. | **Reference No.** | N/A |

| | |
|---|---|
| **Ground Conditions** | Survey was conducted within several fields distributed across the application area. Ground conditions comprised short pasture with the exception of Areas D and F which comprised more overgrown ground cover strewn with modern litter and debris. |
| **Survey Type** | Detailed gradiometer survey totalling c. 6.4 hectares. |

**Summary of Results**

Buried modern services are evident in the northern part of the application area. Former agricultural activity is suggested by the identification of plough trends and possible field divisions. Several curvilinear trends have been identified, some of which may represent the fragmented remains of ditched features; although their archaeological potential is tentative given the level of modern disturbance and litter across the application area. Several isolated responses have been identified; again, interpretation is extremely cautious given the modern disturbance. They may equally represent more deeply buried ferrous debris. Possible pathways have been identified in relation to the upstanding remains at Little Auburn.

| | | | |
|---|---|---|---|
| **Field Staff** | Susan Curran & Joanna Leigh | | |
| **Report Date** | 13/02/2020 | **Report Author** | Susan Curran |

**Contents**

**Geophysical Survey Report**
**Auburn House, Streamstown, Malahide, Co. Dublin**

## 1 Introduction

1.1 A geophysical survey has been conducted by J. M. Leigh Surveys at a site in the townlands of Auburn and Streamstown, Malahide, Co. Dublin. The survey was requested by Courtney Deery Heritage Consultancy Ltd. on behalf of Hatley Homes. The survey forms part of a pre-planning investigation.

1.2 The application area is contained within and around the grounds of Auburn House, comprising six fields on the southern side of Malahide, Co. Dublin. Figure 1 presents the site and survey location at a scale of 1:3,000.

1.3 There are no recorded monuments within the application area but several recorded monuments are located within the environs of the site, particularly within the grounds of Malahide Demesne which lies c. 500m to the north-east. These comprise a castle-tower house (DU012-030), an earthwork (DU012-029), and a church (DU012-031001). A graveyard (DU012-031006), two architectural fragments (DU012-031004 & DU012-031005) and two Sheela-na-gigs (DU012-031002 & DU012-031003) are associated with the church. A 16$^{th}$/17$^{th}$ century house (DU012-024001) and associated Sheela-na-gig (DU012-024002) lie c. 980m to the north-west. A subcircular enclosure (DU012-078) is situated c. 330m to the south-west and a mound (DU012-028) is located c. 470m to the south.

1.4 The main aim of the survey was to identify any responses which may represent previously unknown archaeological remains within the application area. It is the objective of the survey to identify the location, nature and extent of any responses of potential archaeological interest.

1.5 The detailed gradiometer survey was conducted under licence 20R0002 issued by the Department of Culture, Heritage and the Gaeltacht.

## 2 Survey ground conditions and further information

2.1 Areas available for detailed survey within the application area were limited due to dense tree cover, landscaping, buildings and roadways. Detailed survey was contained within six fields (Areas A-F) of varying dimensions which are distributed across the application area. Areas A-F comprised pasture and were suitable for survey.

2.2 Areas A and B are located immediately to the north and east of Auburn House. Both comprised short pasture.

2.3 Areas C, D and E are located in the grounds of Little Auburn and constitute its gardens. As such, there was considerable magnetic disturbance in these areas. Area C comprised somewhat overgrown vegetation as well as modern litter and debris.

2.4 Area F is located to the south of Auburn House and is surrounded by modern housing. As with Area C, ground conditions comprised overgrown vegetation as well as modern litter and debris. The remains of a greenhouse (or polytunnel) and recent bonfire were evident on site.

2.5 Gates and metal fencing around the field perimeters produced magnetic disturbance; however, this has not affected interpretation of the results.

2.6 Numerous manhole covers and electricity poles were present across the application area and magnetic disturbance is prominent. Metal fencing around a tree in Area B also produced strong localised magnetic disturbance. The magnetic disturbance may mask any subtle responses resulting from archaeological features.

## 3 Survey Methodology

3.1 A detailed gradiometer survey detects subtle variations in the local magnetic field and measurements are recorded in nano-Tesla (nT). Some archaeological features such as ditches, large pits and fired features have an enhanced magnetic signal and can be detected through recorded survey.

3.2 Data was collected with a Bartington Grad 601-2 instrument. This is a specifically designed gradiometer for use in archaeological prospection. The gradiometer operates with a dual sensor capacity making survey fast and effective.

3.3 The instrument is calibrated in the field to ensure a constant high quality of data. Extremely sensitive, these instruments can detect variations in soil magnetism to 0.01nT, affording diverse application throughout a variety of archaeological, soil morphological and geological conditions.

3.4 All data was collected in ‘zigzag’ traverses. Grid orientation was positioned to facilitate fieldwork.

3.5 Data was collected with a sample interval of 0.25m and a traverse interval of 1m, providing 6400 readings per 40m x 40m grid. The survey grid was set-out using a GPS VRS unit. Survey tie-in information is available upon request.

3.6 The survey methodology, data presentation and report content adheres to the European Archaeological Council (EAC) (2016) 'Guidelines for the use of Geophysics in Archaeology'.

## 4 Data display

4.1 Summary greyscale images and accompanying interpretation diagrams are presented in Figures 2-5, all at a scale of 1:1,250.

4.2 Numbers in parenthesis in the text refer to specific responses highlighted in the interpretation diagrams (Figures 3 & 5).

4.3 Isolated ferrous responses highlighted in the interpretation diagram most likely represent modern ferrous litter and debris and are not of archaeological interest. These are not discussed in the text unless considered relevant.

4.4 The raw gradiometer data is presented in archive format in Appendix A1.01 (Areas A & B) & A1.02 (Areas C, D, E & F). The raw data is displayed as a greyscale image and xy-trace plot, both at a scale of 1:625. The archive plots are used to aid interpretation of the results and are used for reference only. These are available as PDF images upon request.

4.5 The display formats referred to above and the interpretation categories are discussed in the summary technical information section at the end of this report.

## 5 Survey Results

*Areas A & B (Figures 2 & 3)*

5.1 Several strong magnetic linear responses are evident in both Areas A and B which correspond to buried modern services. These pipes run approximately east-west and north-south across both areas and contribute to much magnetic disturbance along their paths.

5.2 Several curvilinear trends (1) have been identified within the south-eastern portion of Area A. These may be of archaeological potential and may represent the partial remains of ditched features. However, interpretation is extremely tentative here given the level of modern disturbance at the site.

5.3 Several discrete positive magnetic responses (2) are evident across both Areas A and B. Archaeological interpretation is tentative as there is no clear pattern. These responses may equally represent more deeply buried ferrous debris.

5.4 Two linear trends (3) are evident in the north of Area B, just to the east of a large tree which is surrounded by metal fencing. These do not form a coherent pattern and may be the remains of (possibly modern) agricultural activity.

5.5 Several linear trends and broad negative responses (4) have been identified in the southern half of area B. There is no clear pattern, and these may represent natural variations. However, it is possible that these represent plough damaged remains of former landscaped features. The incoherent nature of the responses makes interpretation cautious.

5.6 Parallel trends visible in the south-eastern corner of this area are indicative of ploughing activity.

5.7 A small area of increased magnetic response (5) has been identified in the western half of Area B and in proximity to the linear trends (4). This comprises several positive magnetic responses in addition to ferrous responses. Although it is possible that this represents a spread of burnt material, there are no further responses of potential interest here. An archaeological interpretation is highly tentative given the level of modern ferrous disturbance at the site.

*Areas C, D, E & F (Figures 4 & 5)*

5.8 Areas C and E are largely dominated by modern magnetic disturbance with the exception of a possible single isolated response (2) in the north-eastern corner of Area C. Similar isolated responses are also evident in Area F. However, an archaeological interpretation is extremely cautious given the volume of modern litter

and magnetic disturbance in these areas. There is no clear archaeological pattern and these may equally represent ferrous debris.

5.9 Two linear trends are evident in Area D, both running east-west across the garden in front of the dwelling of Little Auburn. Given its proximity to the house, the more northerly trend (6) may represent the remains of a buried pathway or structure associated with the house. The second trend (7) corresponds with the location of a shallow brick pathway which is marked on the mapping. The two positive magnetic responses found along this feature are likely to be associated with the pathway.

5.10 A fragmented magnetic linear trend (8) is evident running approximately north-south from in the southern half of Area F. This is defined by multiple ferrous and other magnetic responses. A field boundary is depicted in this approximate location on the historic Cassini 6inch mapping and it is possible that (8) is representative of its remains.

5.11 Further linear trends (9) are also evident in this area and may be associated with the nearby housing (to the south and north) and/or the gardening activities for which there is visible evidence.

5.12 A curvilinear positive magnetic trend (10) is evident to the east of (8). This may represent the remains of a curvilinear ditched feature. The response is at the limits of instrument detection and this lies within an area which has undergone much modern disturbance. As a result, an archaeological interpretation is cautious.

## 6 Conclusion

6.1 The dataset is dominated by modern disturbance which may obscure any potential archaeological remains, in particular the buried modern services which crisscross Areas A and B.

6.2 Several possible isolated pit-type responses have been identified in the dataset. However, interpretation is extremely cautious given the level of modern disturbance and debris at the site. The responses are isolated, and no clear archaeological pattern is evident.

6.3 Several curvilinear trends have been identified within the survey areas. Archaeological interpretation is cautious. There are no clear responses and the trends most likely represent more recent agricultural activity or modern ground disturbance.

6.4 Former agricultural activity is indicated by the presence of plough trends in the southern half of Area B.

6.5 Probable former field divisions have been identified, particularly in Areas B and F, one of which may correspond with a field boundary depicted on historic mapping.

6.6 An area of increased magnetic response in Area B may represent a spread of burnt material. However, an archaeological interpretation is highly tentative given the level of modern ferrous disturbance at the site. This may represent modern ground disturbance.

6.7 A linear trend identified in the immediate environs of Little Auburn corresponds to the location of a shallow brick pathway, while a second trend which lies closer to the house may represent an associated structure or feature. The trends recorded here reflect the landscaping features associated with the house.

6.8 Consultation with a licensed archaeologist and with the Department of Culture, Heritage and the Gaeltacht is recommended to establish if any additional archaeological works are required.

## Technical Information Section

## Instrumentation & Methodology

*Detailed Gradiometer Survey*

This is conducted to clearly define any responses detected during scanning, or can be applied as a stand-alone methodology. Detailed survey is often applied with a sample interval of 0.25m and a traverse interval of 1m. This allows detection of potential archaeological responses. Data is collected in grids 40m x 40m, and data is displayed accordingly. A more detailed survey methodology may be applied where archaeological remains are thought likely. A survey with a grid size of 10m x 10m and a traverse interval of 0.5m will provide a data set with high resolution.

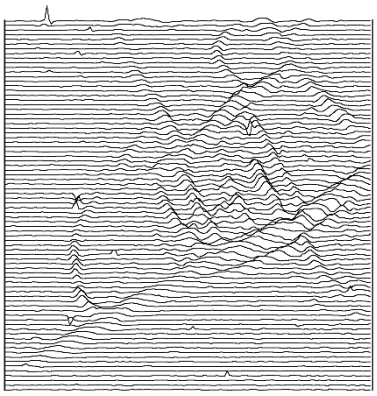
### *Bartington GRAD 601-2*

The Bartington Grad 601-2 instrument is a specifically designed gradiometer for use in archaeological prospection. The gradiometer operates with a dual sensor capacity making survey very fast and effective. The sensors have a separation of 1m allowing greater sensitivity.

Frequent realignment of the instruments and zero drift correction; ensure a constant high quality of data. Extremely sensitive, these instruments can detect variations in soil magnetism to 0.1nT, affording diverse application throughout a variety of archaeological, soil morphological and geological conditions.

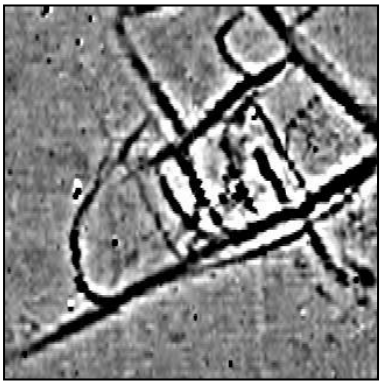
## Gradiometer Data Display & Presentation

### *XY Trace*



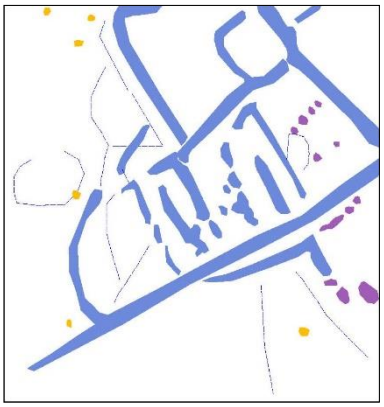
The data are presented as a series of linear traces, enabling a semi-profile display of the respective anomalies along the X and Y-axes. This display option is essential for distinguishing between modern ferrous materials (buried metal debris) and potential archaeological responses. The XY trace plot provides a linear display of the magnitude of the response within a given data set.

### *Greyscale**



As with dot density plots, the greyscale format assigns a cell to each datum according to its location on the grid. The display of each data point is conducted at very fine increments, allowing the full range of values to be displayed within the given data set. This display method also enables the identification of discrete responses that may be at the limits of instrument detection. In the summary diagrams processed, interpolated data is presented. Raw un-interpolated data is presented in the archive drawings along with the xy-trace plots.

### *Interpretation*



An interpretation of the data is made using many of the plots presented in the final report, in addition to examination of the raw and processed data. The project managers' knowledge and experience allows a detailed interpretation of the survey results with respect to archaeological potential.

**XY Trace and raw greyscale plots are presented in archive form for display of the raw survey data. Summary greyscale images of the interpolated data are included for presentation purposes and to assist interpretation.*

## Glossary of Interpretation Terms

***Archaeology***

This category refers to responses which are interpreted as of clear archaeological potential, and are supported by further archaeological evidence such as aerial photography or excavation. The term is generally associated with significant concentrations of former settlement, such as ditched enclosures, storage pits and associated features.

***? Archaeology***

This term corresponds to anomalies that display typical archaeological patterns where no record of comparative archaeological evidence is available. In some cases, it may prove difficult to distinguish between these and evidence of more recent activity also visible in the data.

***? Industrial***

Such anomalies generally possess a strong magnetic response and may equate with archaeological features such as kilns, furnaces, concentrations of fired debris and associated industrial material.

***Area of Increased Magnetic Response***

These responses often lack any distinctive archaeological form, and it is therefore difficult to assign any specific interpretation. The resulting responses are site specific, possibly associated with concentrations of archaeological debris or more recent disturbance to underlying archaeological features.

***Trend***

This category refers to low-level magnetic responses barely visible above the magnetic background of the soil. Interpretation is tentative, as these anomalies are often at the limits of instrument detection.

***Ploughing/Ridge & Furrow***

Visible as a series of linear responses, these anomalies equate with recent or archaeological cultivation activity.

***? Natural***

A broad response resulting from localised natural variations in the magnetic background of the subsoil; presenting as broad amorphous responses most likely resulting from geological features.

***Ferrous Response***

These anomalies exhibit a typically strong magnetic response, often referred to as ‘iron spikes,’ and are the result of modern metal debris located within the topsoil.

***Area of Magnetic Disturbance***

This term refers to large-scale magnetic interference from existing services or structures. The extent of this interference may in some cases obscure anomalies of potential archaeological interest.

## Bibliography

European Archaeological Council (EAC) (2016) '*Guidelines for the use of Geophysics in Archaeology*' by Armin Schmidt, Paul Linford, Neil Linford, Andrew David, Chris Gaffney, Apostolos Sarris and Jörg Fassbinder.

English Heritage (2008) '*Geophysical guidelines: Geophysical Survey in Archaeological Field Evaluation*.' Second Edition.

Gaffney, C. Gater, J. & Ovenden, S. (2006) '*The use of Geophysical Techniques in Archaeological Evaluations.*' IFA Paper No. 6.

Gaffney, C & Gater, J (2003). '*Revealing the buried past: Geophysics for Archaeologists*.' Tempus Publishing Limited.

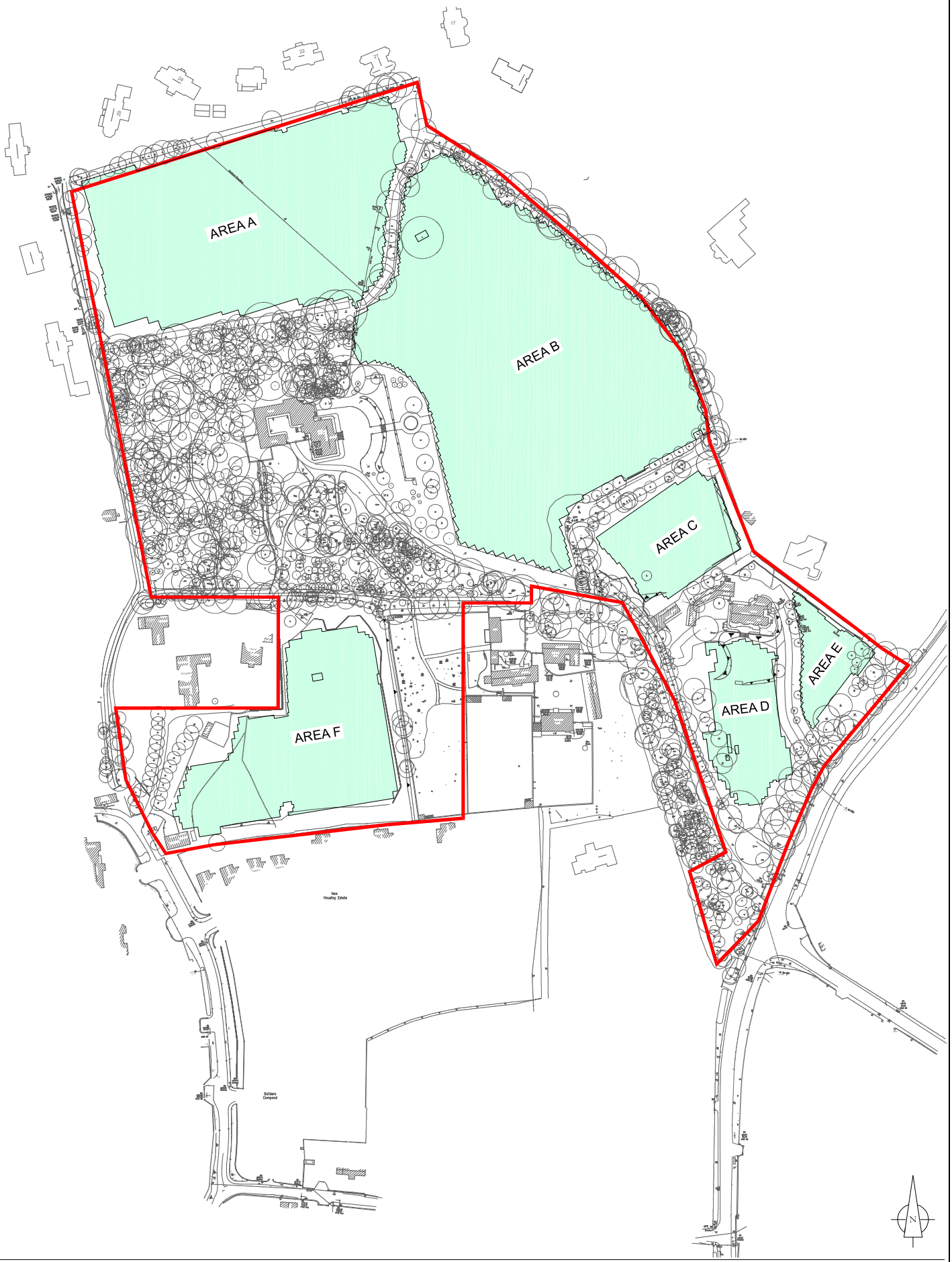
National Soil Survey of Ireland (1980) *General soil map second edition (1:575,000)*. An Foras Taluntais.

**List of Figures**

| Figure | Description | Paper Size | Scale |
|---|---|---|---|
| Figure 1 | Site & survey location diagram | A4 | 1:3,000 |
| Figure 2 | Summary greyscale image (A & B) | A3 | 1:1,250 |
| Figure 3 | Summary interpretation diagram (A & B) | A3 | 1:1,250 |
| Figure 4 | Summary greyscale image (C, D, E & F) | A3 | 1:1,250 |
| Figure 5 | Summary interpretation diagram (C, D, E & F) | A3 | 1:1,250 |

***Archive Data Supplied as a PDF Upon Request***

| | | | |
|---|---|---|---|
| A1.01 | Raw data XY-Trace plot & greyscale image (Areas A & B) | A0 | 1:625 |
| A1.02 | Raw data XY-Trace plot & greyscale image (Areas C, D, E & F) | A0 | 1:625 |




Application Area

Detailed Gradiometer Survey

0 metres 120

| | | | |
|---|---|---|---|
| Client: Courtney Deery Heritage Consultancy Ltd. | Project: Geophysical Survey Auburn House, Streamstown, Malahide, County Dublin | Title: Site & Survey Location | J.M.Leigh surveys www.jmlsurveys.com |

| | |
|---|---|
| Scale @ A4: | 1:3,000 |
| Figure: | 1 |
| Licence No.: | 20R0002 |
| Issue Date: | 13.02.2020 |


0 metres 50

Client:
Courtney Deery Heritage Consultancy Ltd.

Project:
Geophysical Survey
Auburn House, Streamstown
Malahide, County Dublin

Title:
Areas A & B:
Summary Greyscale Image

J.M.Leigh surveys
www.jmlsurveys.com

| | |
|---|---|
| Scale @ A3: | 1:1,250 |
| Figure: | 2 |
| Licence No.: | 20R0002 |
| Issue Date: | 13/02/2020 |

AREA A

AREA B

AREA C

1

2

3

4

5

?Archaeology

Area of Increased magnetic response

Trend

Negative response ?Landscaping

Ploughing

Ferrous Pipe

Ferrous

Disturbance

0 metres 50

N

Client:
Courtney Deery Heritage Consultancy Ltd.

Project:
Geophysical Survey
Auburn House, Streamstown
Malahide, County Dublin

Title:
Areas A & B:
Summary Interpretation

J.M.Leigh surveys
www.jmlsurveys.com

| | |
|---|---|
| Scale @ A3: | 1:1,250 |
| Figure: | 3 |
| Licence No.: | 20R0002 |
| Issue Date: | 13.02.2020 |

AREA B

AREA C

AREA D

AREA E

AREA F

House

Bungalow

New
Housing Estate

3.0
nT
-2.0

0 metres 50

Client:
Courtney Deery Heritage Consultancy Ltd.

Project:
Geophysical Survey
Auburn House, Streamstown
Malahide, County Dublin

Title:
Areas C, D, E & F:
Summary Greyscale Image

J.M.Leigh surveys
www.jmlsurveys.com

| | |
|---|---|
| Scale @ A3: | 1:1,250 |
| Figure: | 4 |
| Licence No.: | 20R0002 |
| Issue Date: | 13/02/2020 |

AREA B

AREA C

AREA D

AREA E

AREA F

2

9

8

10

6

7

House

Bungalow

New
Housing Estate

?Archaeology

Trend

Ploughing

Ferrous Pipe

Ferrous

Disturbance

0 metres 50

N

Client:
Courtney Deery Heritage Consultancy Ltd.

Project:
Geophysical Survey
Auburn House, Streamstown
Malahide, County Dublin

Title:
Areas C, D, E & F:
Summary Interpretation

J.M.Leigh surveys
www.jmlsurveys.com

| | |
|---|---|
| Scale @ A3: | 1:1,250 |
| Figure: | 5 |
| Licence No.: | 20R0002 |
| Issue Date: | 13.02.2020 |

COURTNEY • DEERY

ARCHAEOLOGY & CULTURAL HERITAGE

**Archaeological Impact Assessment Report**

**Auburn and Streamstown**

**Malahide Road, Co. Dublin**

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**Pre-planning**

Excavation Licence No.: 20E0057

Site Director: Gill McLoughlin

ITM: 721000E / 745230N

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On behalf of

Hatley Homes Ltd

20 March 2020





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## EXECUTIVE SUMMARY

This report describes the results of an archaeological impact assessment including geophysical survey and archaeological testing carried out by Gill McLoughlin of Courtney Deery Heritage Consultancy Ltd. (Licence No. 20E0057). The work has been carried out pre-planning on behalf of Hatley Homes Ltd.

The site is located in the townlands of Auburn and Streamstown, in the lands surrounding Auburn House, off the Malahide Road, Co. Dublin (ITM 721000E / 745230N (Figure 1).

The testing took place over three days from the 3rd March 2020 and no features, finds or deposits of archaeological interest were identified in any of the trenches.

## 1. INTRODUCTION

### 1.1. General

This report describes the results of an archaeological impact assessment including geophysical survey and archaeological testing carried out by Gill McLoughlin of Courtney Deery Heritage Consultancy Ltd. (Licence No. 20E0057). The work has been carried out pre-planning on behalf of Hatley Homes Ltd and will be used to inform the design process. The assessment follows an archaeological and cultural heritage desk study (Crowley, 2019).

The site is located in the townlands of Auburn and Streamstown, in the lands surrounding Auburn House, off the Malahide Road, Co. Dublin (ITM 721000E / 745230N (Figures 1&2). The total area of the lands at Auburn and Streamstown is 12.7 hectares and it is zoned as RA – New Residential - under the Fingal County Development Plan.

The testing took place over three days from the 3rd March 2020 and no features, finds or deposits of archaeological interest were identified in any of the trenches. There are no recorded archaeological sites within the subject lands or their immediate vicinity, however Auburn House is a protected structure.


*Figure 1 Site location*

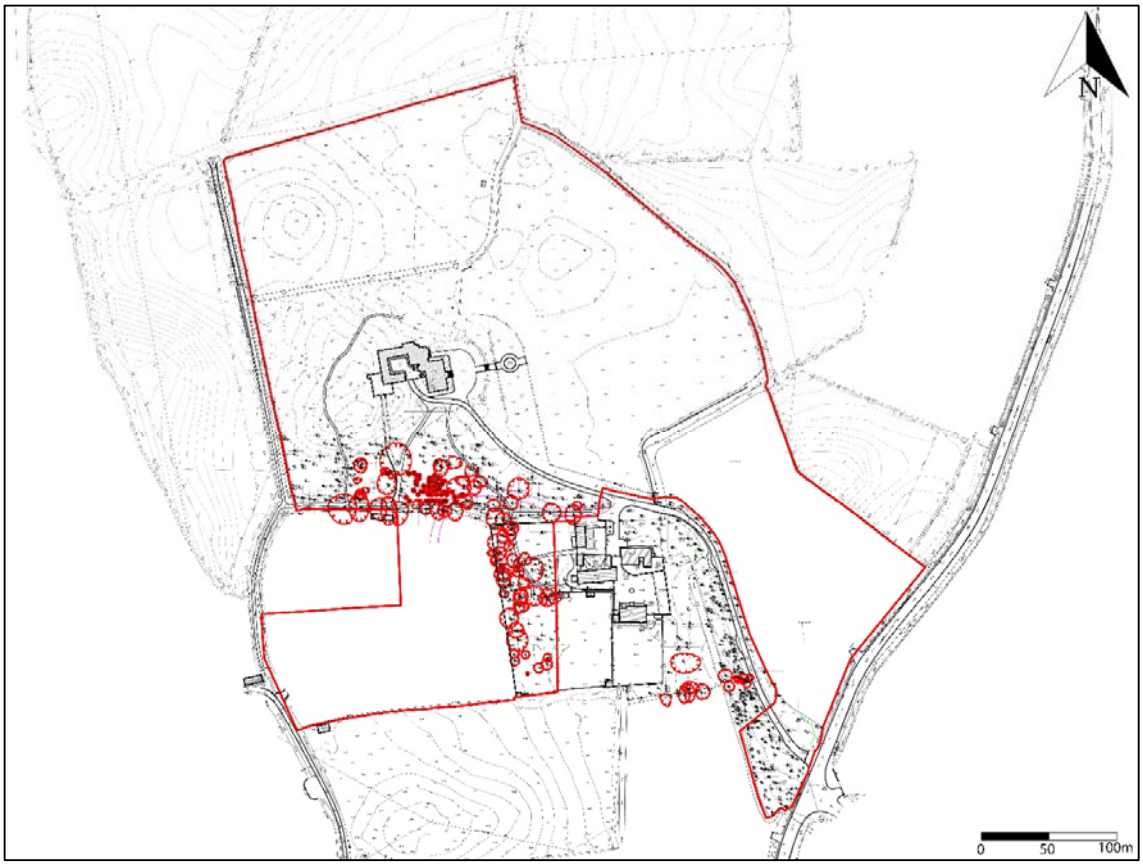


*Figure 2 Location map (detail)*

## 2. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

### 2.1. Prehistoric Activity

The coastal area of north County Dublin has produced quantities of flint artefacts, including sites such as the raised beaches at Sutton, where Mesolithic and Neolithic flint artefacts have been found (Stout & Stout 1992) and at Paddy's Hill overlooking Malahide Estuary, at which flint scatters of Mesolithic, Neolithic and Bronze Age date have been identified (Keeling et al, 1994).

With the exception of Howth, prehistoric material has historically been relatively rare in this part of Fingal, and Stout and Stout (1992) speculate that centuries of continuous tillage north of the Liffey must have led to the destruction of a large number of archaeological monuments. However, more recent large-scale archaeological work associated with developments such as TII road projects has begun to identify more prehistoric remains in other parts of Fingal.

Overall, there is a significant body of Neolithic (c. 4000–2400 BC) material from north County Dublin. Excavations at nearby Feltrim Hill (DU012-02502), c. 615m to the southwest, revealed settlement evidence from the Neolithic in the form of pottery sherds and worked stones, although there were no apparent remains of houses (Hartnett & Eogan 1964). Stray finds in the area include leaf-shaped arrowheads, scrapers, a tanged arrowhead, a javelin head, two knives, and several polished stone axe heads (NMI Reg. No. 1965:13-16, 22, 55; 1966:63-92, 122-147, 1968:84-119, 172, 173, 1969:22-33).

This whole stretch of coast has a clear view of Lambay Island to the east where there is evidence for the production of Neolithic stone axes and flint tools (Cooney 2000, 196-7). The highest points of Lambay Island also have at least two cairns that may also date to the Neolithic.

A ring-ditch of Bronze Age date was uncovered during archaeological monitoring in Drinan townland, c. 1.3km northwest (SMR DU012-093; Licence No. 04E1066). The ring-ditch was located a short distance northeast of a multi-period site at which the earliest phase comprised of a cremation burial containing over 70 sherds of Western Neolithic pottery, alongside fragments of burnt bone (SMR DU012-094001; DU012-094002 to -094005; Licence No. 04E1604).

### 2.2. Early Medieval Activity

At the start of the early medieval period (5th – 12th century AD), the plains of north County Dublin, formed part of the over-kingdom of Brega. Though initially the Laigin controlled most of Dublin and north as far as the River Boyne, the extent of their hegemony was pushed south of the River Liffey over the course of the 5th century AD. With the collapse of the Laigin hegemony in the Midlands, the overkingship of Brega came to be dominated by Síl nÁedo Sláine, a dynasty of the southern Uí Néill (Byrne 1973). North Dublin was controlled by subject peoples—the Gailenga Becca, the Saitne and the Ciannachta (after Bolger 2006).

A holy well site (RMP DU012-016) known as Lady's well, is recorded c. 690m southwest of the subject lands, in Feltrim Quarry, but no known ecclesiastical centre is situated in the vicinity of this well, which was removed during quarrying operations.

The closest known settlement of early medieval date is the site of a recorded cashel on the western summit of Feltrim Hill, c. 900m southwest (DU012-025001). It comprised an oval area (35m E-W; 25m N-S) enclosed by a drystone wall, with an entrance in the east originally protected by an inner and outer timber gate (Eogan & Hartnett 1964, 21). Excavations in the late 1940s in advance of quarrying produced extensive evidence for an impressive domestic assembly on the site (ibid., 147).

Further settlement is evidenced by ringforts and an enclosure in the neighbouring Broomfield and Grange townlands (DU012-033, DU015-003001 & -003002), and the discovery of a ringfort which initially presented

as a cropmark on aerial photography in Kinsaley townland, c. 1km southeast (SMR file DU012-071; pers. comm. T. Condit).

The multi-period site from Drinan townland included a series of enclosures dating to the early medieval / medieval periods (DU012-094002 to -094005; Licence No. 04E1604). The most dramatic feature identified on site was a low-lying artificial mound that was surrounded by a large ditch. It was enclosed by a ditch and it overlay another substantial earlier ditch. It may have been a ringfort or ringwork, with settlement during the 11th or 12th centuries and possibly earlier (Halliday 2005).

Viking raids on the Irish coastline also commenced during the early historic period, and in AD 841–2 the Vikings wintered for the first time at Dublin. According to Ball (1920), the name Fingal— Fine Gall, the territory of the Gall, or strangers— was used to denote the district into which the Vikings made these predatory excursions. The harbour at Malahide—or possibly Baldoyle (Baile Dubh Gaill, or town/settlement of the dark[-haired] foreigners)— is reputed to have played an important part in early Vikings raids and the Danes were resident in AD 897. Evidence of Viking influence in the surrounding region is recorded in early documentary references to Swords, which first appear in the late 10th and early 11th century when the village became the target of the Ostmen or Vikings of Dublin. The Annals of the Four Masters record that in 1012 and 1016, Swords was burned by the Danes. Before the Battle of Clontarf in 1014, Brian Ború is also said to have burned Fingal and the district of Howth.

The Vikings of Dublin began to expand northwards in the mid-11th century, conquering Dublin's northern hinterland. Hamond McTurkill, the last Danish King of Dublin, retired to Malahide in 1171 (Lewis 1837, 337), and after his death, the Talbots are reputed in folklore to have been involved conquering his remaining kin and followers in the Malahide area: supposedly at the cluster of ringforts in Broomfield and Grange townlands, although the former townland name for Yellow Walls to the northwest of Malahide Demesne was Hamonstown or Hamonswood. 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 what he calls 'the rurally settled area of the Dublin Scandinavians' rather than as a number of successful trading settlements strategically located along the coast (Bradley in Simms & Fagan 1992).

### 2.3. Later Medieval Activity

Malahide village may have been site of pre-Anglo-Norman settlement, perhaps focused on an early church of St Fenweis that may have been located near to St Sylvester's church and adjacent to a holy well (DU012-023). A possible motte and bailey (DU012-034) at Wheatfields in Saint helens townland to the south of the village, appears likely to have served as the early seat of the Anglo-Norman lord Richard Talbot, who was granted lands at Malahide in the 1170s.

Richard Talbot, and soon after his kinsfolk, presumably began to set up a more permanent base of power rapidly following his land grant, in the 1170s or 1180s. In the absence of other strong evidence for an earlier foundation, the first phase of building at Malahide Castle may therefore probably be located in the 15th century, with a subsequent second major medieval phase— likely to have been accompanied by the initial building at the adjacent church —quickly following the manorial grant of 1475.

Malahide castle (DU012-030) was erected on an elevated situation in the present grounds of the Demesne, c. 755m northeast of the subject lands. Archaeological testing and excavation (Consent no. C451) uncovered a set of steps at the north-west corner of the older part of the castle, an early possible enclosing wall identified below the Butler's House as well as a substantial ditch (1.7m in width), which was sealed by the likely late medieval courtyard and probably originally enclosed the 15th-century tower house (RMP file description).

By the 16th century, Fingal was emerging as a distinct cultural zone and was known as the breadbasket of Dublin due its fertile agricultural land. Vital also to the medieval, and the later post-medieval economy in Malahide was the harvesting of marine resources— both fish and oysters from the famed beds in the estuary. Control over these resources, through the granting of the customs and admiralty of the port to Thomas Talbot, accompanied the grant of manorial status in the late 15th century (Byrne 1997, 25), and echoes of such conditions persisted in leases for a long time thereafter. By 1547, Malahide was described as one of the chief havens of Ireland because of its very safe harbour.

### 2.4. Post Medieval Activity

The agricultural land of Fingal was of strategic importance to the city and this was targeted in the 17th century when both royalist Dublin and Confederate forces pursued a scorched earth policy across the north of Dublin County then containing 'the goodliest haggards of corn that ever was seen in those parts', to deprive their enemy from this bounty (Smyth 1992). Fishing resources were similarly targeted. The Earl of Ormonde had instructed the town and the Talbot's at Malahide Castle to take a Dublin garrison of 200 men in March 1641/2 during the Confederate War, but suggested that contrary to instructions for him to raze the villages and towns of Fingal, he should not do so to 'the fisher towns upon the coast in regard… ye market at Dublin may be prejudiced thereby' (Byrne 1997, 25).

Prior to the billeting of Dublin troops, Malahide appears to have fared better than many neighbouring areas because of the security provided by an economy spilt between marine resources and agriculture (Ibid.). Even following Cromwell's invasion, the locality was spared the worst ravages, with the apparent number of trees at Malahide Demesne a possible indicator of this. Such conditions, along with the ready defensibility of the castle following an undoubted refurbishment of its defences during its 1640s Dublin garrisoning, may have contributed to the confiscation of Malahide Castle by the regicide Miles Corbet in 1652, when the Talbots were forcibly removed to Connaught.

Following Corbet's flight from Ireland at the end of 1659, and his subsequent execution in the wake of Charles II's restoration to the throne, John Talbot managed to regain possession of the manor in the 1660s. John Talbot, and subsequent generations of his family, were obviously concerned to ensure that neither the requisitioning of the castle, nor its confiscation, were ever repeated, and there is a suggestion in surviving estate records (cf. Byrne 1997, 16, 69) that the main concern with renovations and upkeep to the castle and demesne involved not just modifications according to new ideas about polite architecture and landscape design, but also a desire to lessen the military appearance and effectiveness of the site.

By the late 18th century, prosperous Dubliners were leaving the city and establishing small country estates in the surrounding countryside, with coastal locations proving more attractive still. Auburn House ('Auburne') is mentioned as the seat of J. Crawford, Esq. In the mid-18th century, the property belonged to the Crawfords, a prosperous merchant family from Fermanagh. The house was built in about 1779, probably to mark the marriage of its owner, James Crawford, to Frances Vernon of Clontarf Castle in 1776; it is presumed that the courtyard, coach-house and walled gardens also date from this time (www.turtlebunbury.com/published/ published_interiors/ireland/pub_int_auburn). Bunbury describes Auburn House as one of the finest residences built at this time, it being 'a golden-brown three-storey mansion located within a wooded demesne adjacent to Malahide Castle' (Ibid.).

### 2.5. RMP / SMR Sites

There are no RMP / SMR sites located within the subject lands and only two within c. 500m (Figure 3). One is a mound (RMP DU012-028) c. 300m to the south that was excavated in 1982 and is thought to be the remains of an ornamental feature attached to the grounds of Auburn House (the mound was formed from medieval and post-medieval 'dump' material). The second is an enclosure (SMR DU012-078), also located in Auburn townland, c. 275m southwest of the subject lands. The site was identified by Dr Steve Davis as a cropmark on an aerial photograph in 2015 (SMR file).


*Figure 3 Recorded archaeological sites within 1km of subject lands*

## 2.6. Stray Finds (National Museum of Ireland Topographical files)

Only three finds are recorded to Auburn townland, all of which are pottery sherds of unknown date (NMI Reg. Nos 1946:410-412). The volume of stray finds recorded to the surrounding townlands, particularly Feltrim Hill to the southwest and Paddy's Hill in Broomfield to the east, indicates significant activity and settlement in the wider area during the prehistoric period.

## 2.7. Cartographic sources

*Down Survey*

At the time of the mid-17th century Down Survey, the subject area lay within 'Mabstowne' (Mabestown), with the townland of Auburn presumably a much later division. Several small dwellings are depicted in the townland, described as 'foure or five cabbins' in the parish terrier, with the forfeited land formerly the possession of Chris Fagan of Feltrim. Malahide Castle is depicted as a fortified house surrounded by trees to the northeast, while the windmill on Feltrim Hill is also shown to the southwest.

*'An Actual Survey of the County of Dublin', John Rocque*

John Rocque, on his 1760 map of County Dublin (Figure 4), shows a property already occupying the lands at Auburn. The property comprised a house and outbuildings arranged around a courtyard, with a kitchen garden on the southwest side. The buildings were situated on the south side of 'Peas Fields Hill'. As now, the property was accessed off the Malahide Road. The present house was built around 1779, presumably replacing the earlier dwelling. Malahide Demesne is depicted, named 'Malahide Court'. There are small settlement clusters at' Streams Town', 'Mabes Town' and Feltrim. Feltrim Hill and the windmill are both depicted and named.

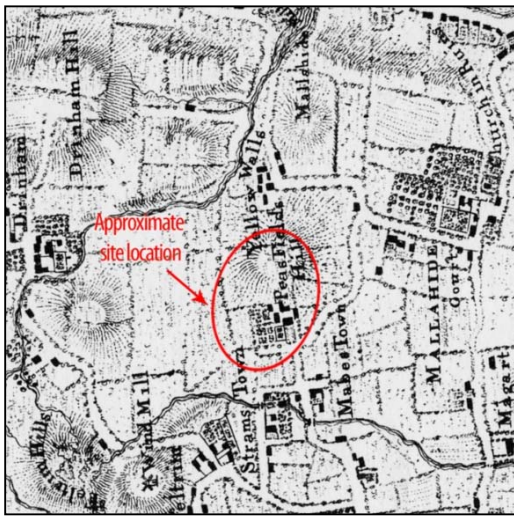


*Figure 4 Rocque map of the County of Dublin (1760)*

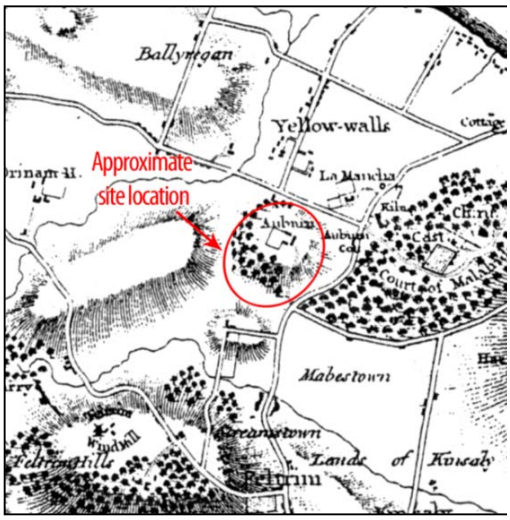


*Figure 5 Taylor's map of Dublin (1816)*

*'Map of the Environs of Dublin', John Taylor*

Taylor's map (Figure 5) is less detailed than Rocque's, but it provides some new information. Most notably, the present Auburn House is depicted and named, with woodland shown around it to the north, west and south. The house is shown occupying an elevated site, presumably the hill named on Rocque's map, 'Peas Fields Hill'. Malahide Demesne is named as the 'Court of Malahide', with both castle and church ruins indicated.

*Ordnance Survey Mapping*

The first edition OS six-inch map (Figure 6) represents the earliest accurate and detailed cartographic source for the study area. It shows Auburn House, with courtyard buildings arranged on its west side, and woodland to the north, west, and south (as on Taylor's map). The house is approached along a carriageway that leads north and westwards from the entrance on the Malahide Road. To the south and west of the carriageway

is a group of outbuildings, a walled garden and orchards. These form part of the Auburn estate and are in roughly the location of those depicted on Rocque's map of 1760. The remainder of the estate is divided into fields, with an area of parkland to the front (east) of the house. Mabestown townland is now only one small section on the east side of the Malahide Road (the remainder having been renamed Auburn), where it forms part of the large estate associated with Malahide Castle. The part of the subject lands that fall within Streamstown townland comprise fields outside the boundaries of both Auburn estate and the neighbouring Clairville.

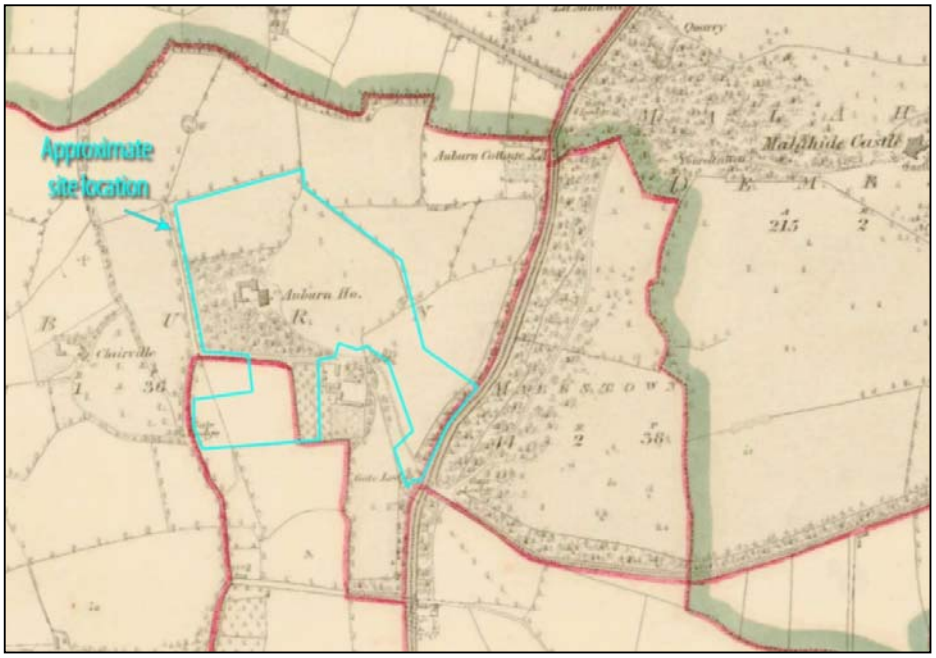


*Figure 6 First Edition OS six-inch map, 1843*

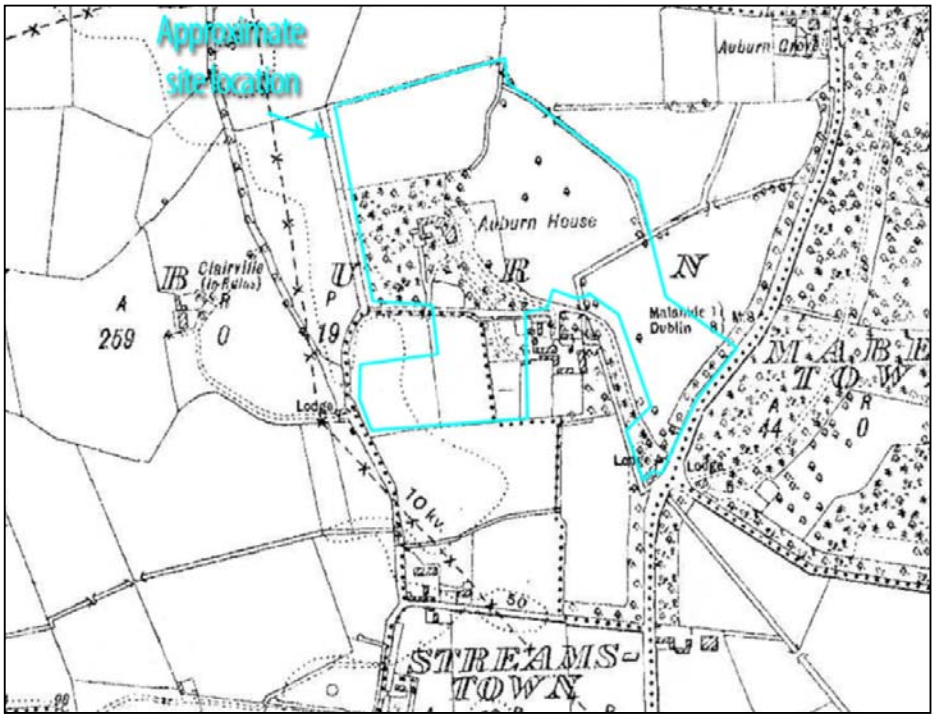


*Figure 7 Revised Edition OS six-inch map, 1935-38*

There are no significant changes on the OS 25-inch map of 1906-09 (not pictured), though the neighbouring Clairville house is indicated as being in ruin by this time. This remains the case on the revised six-inch edition OS map of 1935-38 (Figure 7). By this time, the walled gardens and orchards in the Auburn estate are empty plots.

## 3. SUMMARY OF PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

There have been no previous archaeological investigations within the subject lands and only two in the vicinity, one of which is the aforementioned excavation in 1982 of the mound (RMP DU012-028) in Auburn townland. In 2012, archaeological monitoring was undertaken of investigative slit-trenches excavated along the R107 road for a proposed new watermain (St Doolagh's to Streamstown). Nothing of archaeological significance was found (Licence No. 12E0185; Excavations Bulletin Ref. 2012:247).

Of those undertaken in the wider area, the discoveries in Kinsaley townland are particularly notable. A large enclosure (SMR site DU012-071) visible as a cropmark on aerial imagery was confirmed by geophysical survey and archaeological testing (Licence Nos 14R00314 & 14E0165). A second possible enclosure, previously unknown, was identified by geophysical survey and archaeological testing further north (Licence Nos 14R0038 & 14E0162). Another enclosure and two ringforts sites nearby are also visible on aerial imagery (RMP sites DU012-033, -003001 & -003002). This demonstrates both the efficacy of geophysical survey in this landscape and the prevalence of destroyed archaeological sites that survive below-ground.

### 3.1. Geophysical Survey

A detailed gradiometer survey was carried out in February 2020 by J.M. Leigh surveys Ltd. (Licence Reference 20R0002). Areas available for detailed survey within the application area were limited due to dense tree cover, landscaping, buildings and roadways. Detailed survey was contained within six fields (Areas A-F, Figure 8). Areas A and B are located immediately to the north and east of Auburn House and comprised short pasture. Areas C, D and E are located in the grounds of Little Auburn and constitute its gardens. There was much magnetic disturbance in these areas and Area C comprised overgrown vegetation as well as modern litter and debris. Area F is located to the south of Auburn House and is surrounded by modern housing and ground conditions were similar to those in Area C.

***Survey Results Areas A and B*** *(Figures 9 and 10)*

Several strong magnetic linear responses correspond to modern services in both Areas A and B. Curvilinear trends in the southeast of Area A were deemed of archaeological potential, although interpretation was extremely tentative. Several discreet positive magnetic responses were indicated across both Areas A and B and archaeological interpretation was tentative as there was no clear pattern. Two linear trends in the north of Area B did not form a coherent pattern and were interpreted as possible modern agricultural activity. Several linear trends and broad negative responses were identified in the southern half of Area B, however there was no clear pattern and they were interpreted as possible natural variations, with the possibility that they could represent plough damaged remains of former landscaped features. The incoherent nature of the responses makes interpretation cautious. Parallel trends in the south eastern corner of Area B are indicative of ploughing activity. A small area of increased magnetic response was identified in the west of Area B in proximity to the linear trends. This comprises several positive magnetic responses in addition to ferrous responses. Although this could possibly represent a spread of burnt material, an archaeological interpretation was highly tentative given the level of modern ferrous disturbance at the site.

***Survey Results Areas C, D, E and F*** *(Figures 11 and 12)*

Areas C and E are largely dominated by modern magnetic disturbance with the exception of a possible single isolated response in the north eastern corner of Area C and similar isolated responses are evident in Area F. In both areas there was no clear archaeological pattern and an archaeological interpretation was extremely cautious. Two linear trends were evident in Area D and represent pathways associated with Little Auburn House. A fragmented magnetic linear trend was identified in Area F oriented north-south and may represent a field boundary depicted on the Cassini 6-inch OS mapping. Further linear trends in Area F may be associated with nearby housing. A curvilinear positive magnetic trend in Area F may represent the remains of a curvilinear ditched feature, however an archaeological interpretation is cautious.

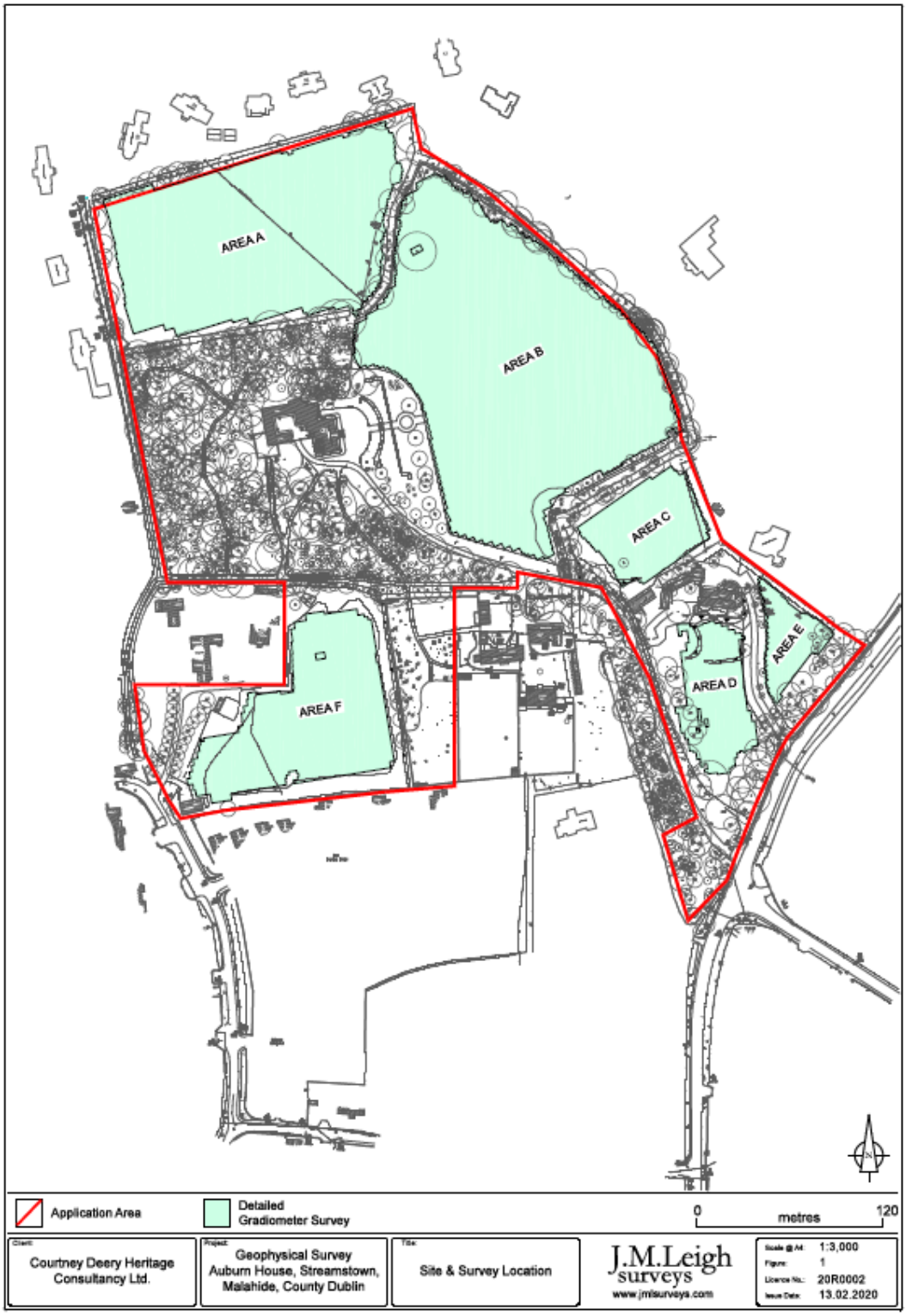


*Figure 8 Survey Areas A-F*

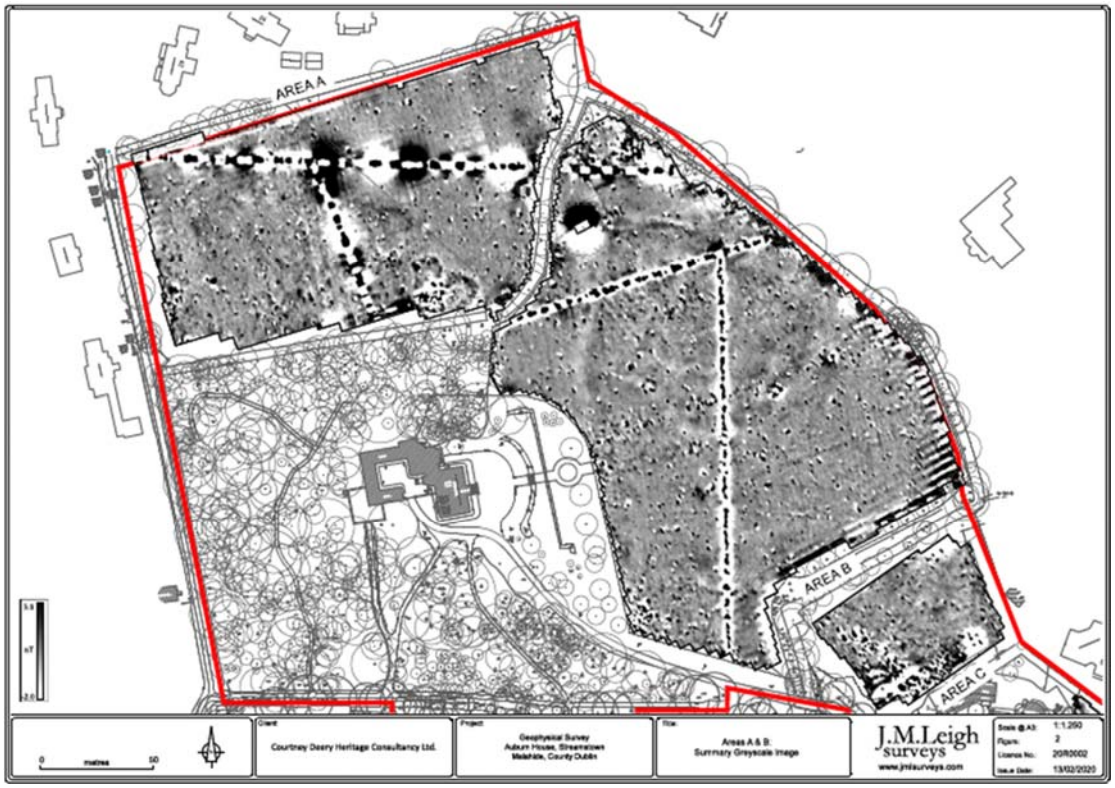


*Figure 9 Geophysical survey, summary greyscale, Areas A and B*

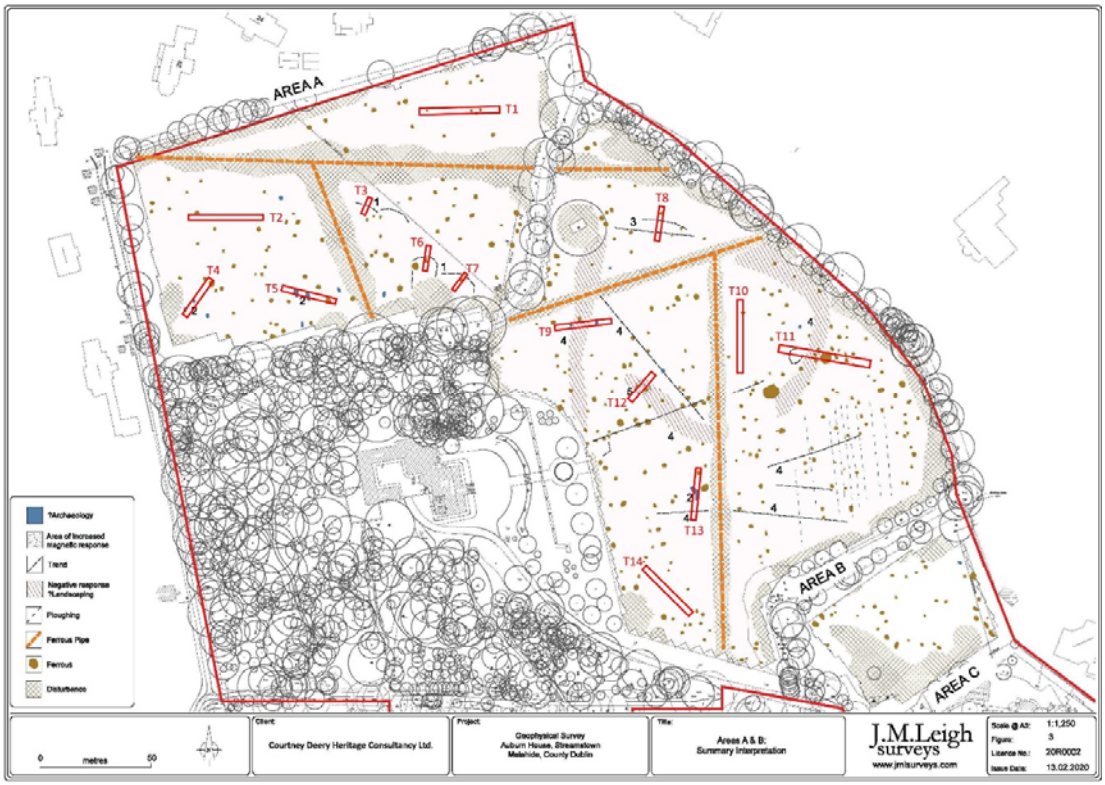


*Figure 10 Geophysical survey, summary interpretation, Areas A and B and test trenches 1-14*

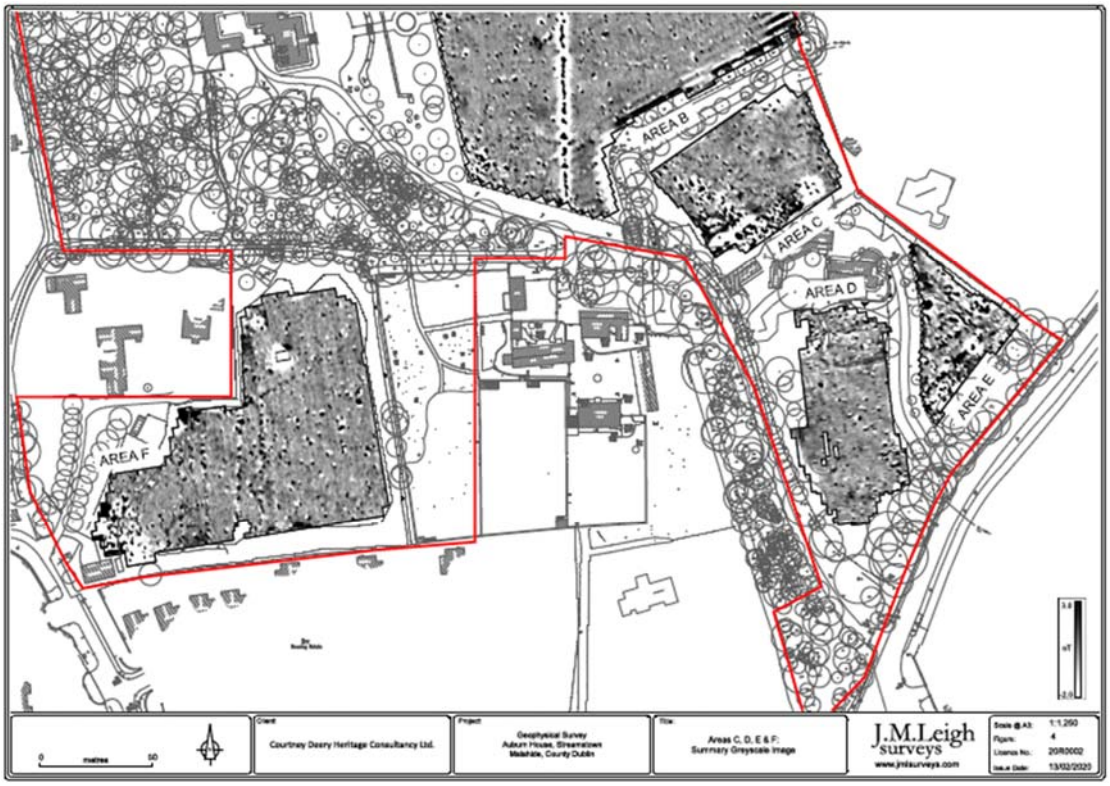


*Figure 11 Geophysical survey, summary greyscale, Areas C, D, E and F*

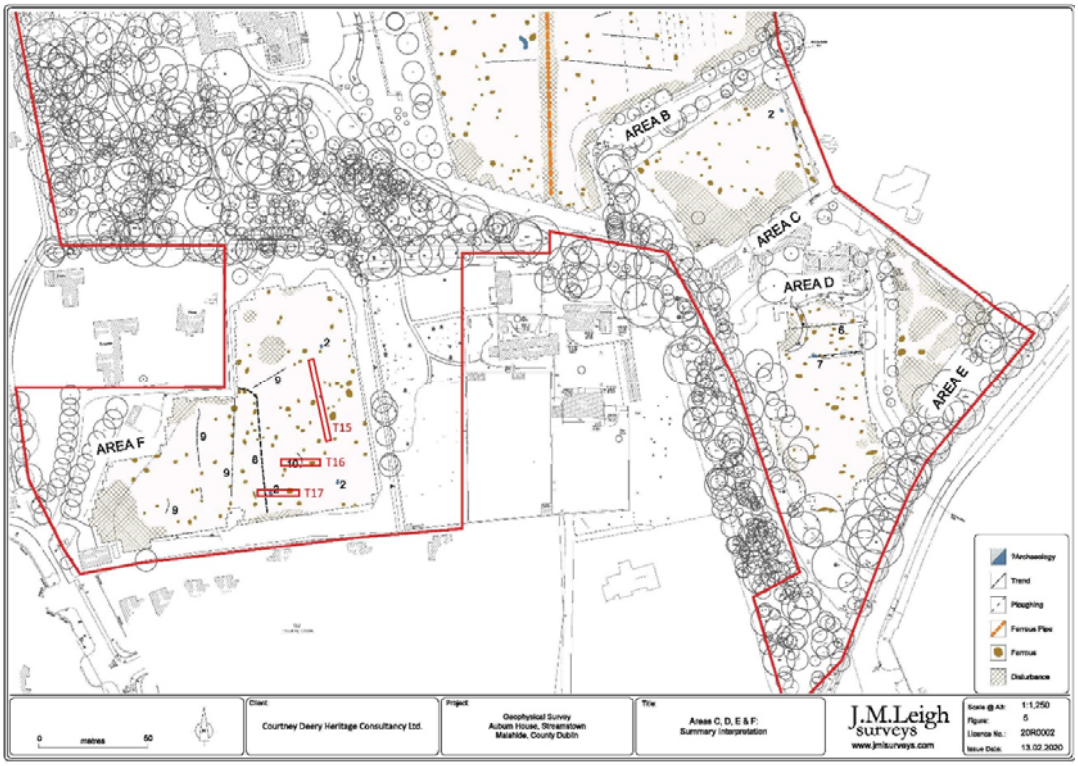


*Figure 12 Geophysical survey, summary interpretation, Areas C, D, E and F and test trenches 15-17*

## 4. ARCHAEOLOGICAL TESTING RESULTS

### 4.1. General

Archaeological testing was carried out over three days from 3rd March 2020. This was carried out using a mechanical tracked excavator fitted with toothless grading bucket. In total 17 test trenches totalling 430m linear metres were excavated and were placed to target anomalies indicated in the geophysical survey as well as control trenches to test areas where no anomalies were indicated (Figures 10 & 12).

### 4.2. Methodology

All trenches were excavated to the surface of archaeological or potential archaeological deposits or to the underlying natural subsoil, whichever was encountered first. Any potential archaeological features were cleaned and sectioned where necessary, to establish their nature, extent and character. Photographs and trench recording sheets were used to record the details of each trench.

### 4.3. Summary of test trenches T1 – T17

The natural subsoil on the site generally comprised, brown-yellow sandy silt, with frequent gravelly and sometimes stony inclusions towards the top of rises and light grey silty clay on lower areas. Trenches ranged in width from 1.2 - 1.8m wide and depths generally ranged between 0.25 – 0.3m.

Trenches 3-9, 11-13 and 16-17 were placed to test a range of anomalies indicated in the geophysical survey and these are detailed below in 4.3.1. Trenches 1, 2, 10, 14 and 15 were placed as control trenches to test areas where no anomalies were indicated in the survey results. No features, finds or deposits of archaeological interest were identified in any of the trenches.

*Table 1 Summary of test trenches*

| Trench # | Area | Orientation | Length | Width | Depth | Results |
|---|---|---|---|---|---|---|
| 1 | A | E-W | 40m | 1.5m | 0.3m | No archaeology |
| 2 | A | E-W | 40m | 1.5m | 0.35m | No archaeology |
| 3 | A | SSW-NNE | 15m | 1.4m | 0.45m | No archaeology |
| 4 | A | SW-NE | 25m | 1.5m | 0.3m | No archaeology |
| 5 | A | NW-SE | 25m | 1.4m | 0.4m | No archaeology |
| 6 | A | SSW-NNE | 15m | 1.6m | 0.25m | No archaeology |
| 7 | A | SW-NE | 10m | 1.7m | 0.25-0.3m | No archaeology |
| 8 | B | SSW-NNE | 20m | 1.8m | 0.25m | No archaeology |
| 9 | B | WSW-ESE | 20m | 1.7m | 0.25m | No archaeology |
| 10 | B | NNW-SSE | 35m | 1.6m | 0.3m | No archaeology |
| 11 | B | E-W | 40m | 1.7m | 0.25m | No archaeology |
| 12 | B | SW-NE | 20m | 1.8m | 0.2-0.3m | No archaeology |
| 13 | B | NNE-SSW | 25m | 1.8m | 0.3m | No archaeology |

| Trench # | Area | Orientation | Length | Width | Depth | Results |
|---|---|---|---|---|---|---|
| 14 | B | NW-SE | 30m | 1.2m | 0.3m | No archaeology |
| 15 | F | NNW-SSE | 40m | 1.5m | 0.3m | No archaeology |
| 16 | F | E-W | 15m | 1.5m | 0.3m | No archaeology |
| 17 | F | E-W | 15m | 1.5m | 0.3m | No archaeology |

### *4.3.1 Geophysical trench results*

Trenches 3, 6 and 7 were placed to investigate several curvilinear trends and ferrous responses in Area A. In trench 3 a band of gravel mid-way along the trench may correspond with the geophysical anomaly indicated in that location. In trench 6 a pit filled with mortar, slate and brick, up to 1m deep below the present ground level was identified and represents the dumped remains of a demolished modern structure. This deposit extended beyond the limit of the test trench to the east and west. In trench 7 a band of gravelly soil approximately mid-way along the trench appears to correspond with the anomaly on the geophysical survey.

Trenches 4 and 5 were placed to investigate several discreet positive magnetic responses with no clear pattern in Area A. Nothing corresponding with the geophysical anomalies was noted in trench 4 and gravelly patches were identified in trench 5 that could correspond with the survey results.

Trench 8 was placed to investigate two linear trends with no coherent pattern in Area B. No features were noted in the trench that would correspond with the geophysical survey results.

Trenches 9 and 11 were placed to investigate broad negative responses in Area B. There was no clear pattern and they were thought to possibly represent natural variations or plough damaged remains of former landscape features. In trench 9 changes in the natural subsoil from silty to gravelly natural are likely to correspond with the anomaly on the geophysical survey. In trench 11 the natural subsoil changes from sandy silt to pure silty clay and these variations may correspond with the geophysical survey results.

Trench 12 was placed to investigate another broad negative response, a small area of increased magnetic response and ferrous responses in Area B. This was thought to possibly represent a spread of burnt material, although an archaeological interpretation was highly tentative. Mid-way along the trench and corresponding with the geophysical anomalies a deposit of dark soil with modern inclusions was identified.

Trench 13 was placed to investigate an east-west linear trend and a discreet positive magnetic response in Area B. A shallow linear probable furrow oriented roughly east-west was identified in the trench and variations in the natural subsoil most likely account for the other anomalies in the survey results.

Trench 16 was placed to investigate a curvilinear positive magnetic trend possibly representing a ditched feature in Area F, although an archaeological interpretation was cautious. Nothing corresponding with the geophysical anomalies were identified in the trench.

Trench 17 was placed to investigate an isolated response and a fragmented magnetic linear trend oriented roughly north-south in Area F. Nothing corresponding with the geophysical anomalies were identified in the trench.

## 5. CONCLUSIONS AND FURTHER RECOMMENDATIONS

Testing at Auburn was carried out over three days from 3rd March 2020. No features, finds or deposits of archaeological interest were found in any of the trenches and the majority of the geophysical anomalies appear to correspond with variations in the natural subsoil. As such the archaeological potential of the area is considered low, however, based on the scale of the development, archaeological monitoring of topsoil removal is recommended.

**Please note that all recommendations are subject to approval by the National Monuments Section of the Heritage and Planning Division, Department of Culture, Heritage and the Gaeltacht.**

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**PLATES**

*Plate 1 Trench 1, Area A, looking west*

*Plate 2 Trench 4, Area A, looking southwest*

*Plate 3 Trench 5, Area A, looking northwest*

*Plate 4 Trench 7, Area A, looking northeast*

*Plate 5 Trench 9, Area B, looking east*

*Plate 6 Trench 11, Area B, looking east*

*Plate 7 Trench 13, Area B, looking north-northeast*

*Plate 8 Trench 15, Area F, looking north-northwest*

*Plate 9 Trench 17, Area F, looking east*

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# 15.0 INTERACTIONS

## 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.

## 15.2 Interactions

Listed below are the interactions between the various significant environmental impacts generated by the proposed development:

| No. | Heading | Population and Human Health | Biodiversity | Land, Soils & Geology | Water | Air Quality | Noise & Vibration | Climate | Material Assets – Utilities & Waste | Landscape & Visual Impact | Traffic & Transport | Cultural Heritage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Population and Human Health | ✔ | ✔ | | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| 5 | Biodiversity | ✔ | | ✔ | ✔ | ✔ | ✔ | | | ✔ | ✔ | |
| 6 | Land, Soils & Geology | ✔ | ✔ | | ✔ | | | ✔ | | ✔ | | |
| 7 | Water | | ✔ | ✔ | | | | | ✔ | | | |
| 8 | Air Quality | ✔ | ✔ | | | | | | | | ✔ | |
| 9 | Noise & Vibration | ✔ | ✔ | | | | | | | | ✔ | |
| 10 | Climate | ✔ | ✔ | ✔ | | | | | | | | |
| 11 | Material Assets – Utilities & Waste | | | | | | | | | | | |
| 12 | LVIA | | ✔ | | | | | | | | | |
| 13 | Traffic & Transport | ✔ | | | | ✔ | ✔ | ✔ | | | | |
| 14.0 | Cultural Heritage | ✔ | | | | | | | | | | |

**Table 15.1 Interactions Identified in the EIAR**

### 15.2.1 Population and Human Health/Population and Human Health

The population and human health content of this application will impact on the existing environment in terms of the provision of new housing and recreational facilities and limited employment with an associated requirement generated directly by the development for services, commercial and recreational facilities and employment.

Chapter 4 of this EIAR found that the impact on human beings as a result of the development will be positive or neutral in the general area of the proposed development. The scheme will provide a high-quality residential development required for the redevelopment of the Malahide area in order to meet demand deriving from predicted population increases, on zoned lands which are serviced and highly accessible to public transport links. The overall interaction will be a positive contribution to the critical mass needed to maintain and further expand typical urban facilities both in Malahide's town centre as well as the proposed childcare facility on the site.

### 15.2.2 Population and Human Health/Biodiversity

While catering for a predicted increase in population, the proposed development will contribute to a population increase, which may place additional pressure on the natural environment in terms of disturbance and loss of habitat during the operational and construction phases of the development.

Chapter 5.0 of the EIAR addresses the potential impact the proposed development would have on the habitats pertaining to the subject lands, however no significant impacts are likely to arise. Furthermore, impacts to protected areas are not predicted to occur, principally due to the separation distance between the site and these areas.

There are a number of mitigation measures required in order to ensure that pollution does not occur during the construction phase, or that negative effects do not occur to bats or birds' nests. With the suggested mitigation in place, the ecological impacts by this proposed development will be largely neutral and given that no significant negative effects are likely to arise additional monitoring is not required.

### 15.2.3 Population and Human Health/Land, Soils & Geology

The EIAR has found that provided appropriate protective measures are taken whilst construction and excavation works are ongoing and during transport of soil and spoil, any potential impacts on soils and geology in the area will be temporary and limited in extent, and as such no significant adverse impacts on the soils and geology of the subject lands are envisaged.

There is potential for dust generation during construction works which under dry conditions could lead to localised dust impacts for the properties proximate to the subject site. However, the implementation of the planned mitigation measures on site management controls will ensure that no significant adverse impacts will accrue for adjoining local residents.

### 15.2.4 Population and Human Health/Air Quality & Climate

Dust emissions may arise during the construction phase. In order to ensure that any dust nuisance is minimised, a series of mitigation measures have been set out in Chapter 7.0. If the construction contractor adheres to good working practices and dust mitigation measures, the levels of dust generated are assessed to be minimal and are unlikely to cause an environmental nuisance.

The main potential air quality impacts from the operational phase of the development relate to the impact from increase in traffic associated with the use of the buildings. The potential impacts on the local air quality are considered to be long-term and slight. The mitigation measures set out within the scheme include promoting the use of the public transport network, provision of extensive cycle facilities and the availability of electric car charging points. The emissions of pollutants from road traffic can be controlled by either controlling the number of road users or by controlling the flow of traffic. In this regard, a mobility management strategy will be implemented to promote a modal shift to more sustainable forms of transport and electric vehicles. Emissions arising as a result of any traffic associated with the proposed development is unlikely to impact on air quality standards.

### 15.2.5 Population and Human Health/Noise and Vibration

There will be some localised temporary adverse impacts in relation to noise during the construction phases of the development. However, these will be localised, intermittent and of limited duration and can be mitigated through the use of appropriate noise control procedures. The implementation of these procedures will reduce noise impacts on the surrounding area.

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 site. Specifically, sources would be likely to include but not be limited to the following: vehicular traffic into and out of the estate by residents, and general residential activities. The EIAR has found that the cumulative impact of noise arising from onsite noise sources and road traffic noise associated with the site will not give rise to a noticeable change on the noise climate at this location.

### 15.2.6 Population and Human Health/Landscape and Visual Amenity

The proposed development has been designed to address the integration of existing buildings, proposed architecture, access, infrastructure and context. The planting plan for the proposed mix-use development utilizes a palette of naturalised native and ornamental species which are chosen for their visual qualities, ease of establishment and their capacity to provide habitats. The principal mitigation measures involve mitigation by avoidance in the design and layout of the scheme. A comprehensive and cohesive landscape treatment has been proposed to ensure an overall quality external scheme shall be delivered.

It is considered that the general disturbance and the initial change associated with the scheme eases as the new development establishes its own presence and characteristic influence on its environs. The provision of significant quantities of public and private open space within the proposed development will be of benefit to future residents of Auburn and existing residents of the wider area. Therefore, the significance of the landscape and visual impact of the proposed development will be positive as the landscape and environs matures over time.

### 15.2.7 Population and Human Health/Material Assets – Utilities & Waste

The proposed development and new population will result in an increase demand on utilities, such as energy and telecommunications as well as generation of waste. The impact to services and utilities

are considered to be positive and permanent positive to all end users in light of the mitigation measures outlined in the EIAR and Construction and Demolition Waste Management Plan.

### 15.2.8 Population and Human Health/Transportation

The proposed development provides for pedestrian and cycle routes as well as the provision of new roads, which will result in a positive interaction between Population and Human Health and Transportation, as the development will facilitate the use of sustainable forms of transportation (i.e. walking & cycling).

A Travel Plan is included as part of the proposal in order to reduce in overall terms both the number of trips generated by a particular development, and to ensure that greater numbers use public transport. A travel plan will be implemented with the objective of developing a sustainable transportation and access policy for residents and users of the proposed development both during and after the construction.

In addition to the above, the proposed development provides for a continuous connection by road and footpath between Carey's Lane in the west and the R107 in the east, through the subject lands. This is provided for as part of the overall design layout.

The optimal approach adopted in developing the transport infrastructure for the proposed SHD is as follows: *Reduce the need to travel*, *Reduce the distance travelled*, *Reduce time spent travelling*, *Promote sustainable walking and cycling*, and *Promote access to Public transport*.

In conjunction with the upgrades to the wider local road network outside the immediate development area proposed in Auburn, the surrounding junctions have been assessed and this concluded that there will be enough capacity to cater for the entire development. The impact of the increased traffic volumes that will be generated in the area following the construction of the development is not expected to lead to significant congestion as the road network will have sufficient capacity to cater for the proposed development.

### 15.2.10 Population and Human Health/Material Assets, Cultural & Archaeological Heritage

No archaeological features were uncovered during the targeted test excavations or geophysical survey on the site. However, archaeological monitoring of groundworks is however recommended during the construction phase of the development to ensure no previously unearthed features are discovered.

### 15.2.11 Biodiversity/Land, Soils & Geology

Movement of soils during the construction phase of the proposed development may result in temporary disruption to fauna. In terms of flora, topsoil removed during the construction phases will be re-spread where possible providing optimal growing conditions for planting, preventing soil erosion. Mitigation measures are set out in Chapter 5.0 of the EIAR to avoid impacts on biodiversity arising from vegetation and soil clearance works.

### 15.2.12 Biodiversity/Water

All foul drains will be tested and surveyed prior to connection to the public sewers to minimise the risk of uncontrolled ground water penetration of foul water leakage to ground water on the site. In addition, the drainage scheme proposed is based on Sustainable Urban Drainage Systems (SUDS) to improve the water quality of the surface water runoff ensuring that there is no impact on aquatic flora and fauna. Good site management practices will also ensure that pollution to existing watercourses does not occur during the construction and operation phases.

### 15.2.13 Biodiversity/Landscape and Visual Amenity

The removal of some trees may have a negative impact on fauna, such as birds and bats, but all tree removal should only be carried out during the appropriate season and under the supervision of an ecologist/bat specialist to ensure that no protected species are affected. Mitigation measures will ensure that significant negative effects on biodiversity do not occur.

### 15.2.14 Biodiversity/Noise and Vibration

The construction phase of the development is anticipated to give rise to temporary, intermittent increases in daytime noise levels which may give rise to temporary disruption to fauna. However, impacts are not predicted to be significant in this regard and will be minimised through appropriate mitigation measures, which are outlined in this EIAR.

### 15.2.15 Land, Soils & Geology/Water

Ground clearance works may give rise to accidental spillage/contamination of local watercourses. The removal of topsoil during earthworks and the construction of roads, services and buildings will expose subsoil to weathering and may result in the erosion of soils, particularly during adverse weather conditions. Storm water runoff from the surface of the excavated areas may result in silt discharges to local streams. 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. However, appropriate mitigation measures are specified in order to minimise and prevent the accidental release of hazardous material to soil and waters. Thus, no significant adverse impacts are envisaged.

### 15.2.16 Land, Soils & Geology/Landscape and Visual Amenity

Topsoil removed during the construction phase will be re-used in landscaping works for proposed open space and other landscaped areas, rather than being transported for disposal off site. Although this will have an impact, it will be mitigated by means of appropriate landscaping features. This is also

outlined in the Construction and Demolition Waste Management Plan submitted by Waterman Moylan Consulting Engineers as part of the planning application.

### 15.2.17 Air Quality & Climate/Biodiversity

The development will have no effect on climatic conditions that would be sufficient to affect animal populations on or in the vicinity of the site.

### 15.2.18 Air Quality & Climate/Transportation

Emissions from motor vehicles accessing the proposed development and using the proposed new roads within the development are not anticipated to have a significant adverse impact on air quality in the area.

Traffic-related air emissions during the operation phase may generate higher quantities of air pollutants when compared to the existing traffic volumes. A Travel Plan has been prepared and will be implemented to promote a modal shift to more sustainable forms of transport. Air emissions arising as a result of any traffic associated with the proposed development is unlikely to impact on air quality standards, however, due to the size and scale of the site, the impacts of the operational phase of the development on climate are considered to be long term and equates to an imperceptible impact in relation to climate and air quality as a result of operational traffic. It is noted that the move towards more sustainable electric vehicles and non-car-based transport modes will over time reduce emissions associated with travel.

### 15.2.19 Noise and Vibration/Transportation

Temporary minor increases in noise may be generated as a result of construction traffic. A Traffic Management Plan will be implemented to minimise disruption arising as a result of traffic generated during the construction phase.

### 15.2.20 Transportation/Biodiversity

While traffic associated with the construction and operation stages may disrupt fauna, impacts are unlikely to be significant.

### 15.2.21 Material Assets – Utilities & Waste/Water

There is potential for some temporary impacts on water from the waste generated by the construction phase of the development. However, this can be mitigated by the implementation of the Construction & Demolition Waste Management Plan, which has been prepared by Waterman Moylan Consulting Engineers.

## 15.3 Summary

The EIAR 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 EIAR has found that subject to the full implementation of the various mitigation measures specified by the EIAR team and summarised in Chapter 16, the development will have no significant negative impact on the environment.

# 16.0 SUMMARY OF MITIGATION MEASURES

## 16.1 Introduction

The list incorporated in Table 16.1 below, contains the mitigation 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.

## 16.2 Mitigation Measures

Listed below are the mitigation measures proposed for the proposed development:

| Chapter | Mitigation Measures Proposed |
|---|---|
| **Biodiversity** | **Construction Phase**<br>Mitigation 1: Habitat loss<br><br>Retention where possible of Category U trees away from public access and activity<br>Where there is no clear risk posed to public safety, Category U trees shall be retained or rendered safer by reducing the unsafe limbs in favour of felling. The removal of these trees has the greatest impact upon biodiversity, and this should be seen as the option of last resort.<br><br>Vegetation cover along the perimeter of the site to allow mammal movement.<br>Planting along the perimeter of the development shall ensure that there is potential for movement of bats and badgers and other fauna through the site. This shall include shrubbery as well as trees. Trees of a variety of ages and species creates the best habitat compared to planting of trees of the same age and species. […]<br><br>Bat boxes<br>21 Schwegler bat boxes (or equivalent) of varying design shall be erected within the remaining woodland to provide a variety of suitable roost sites. These boxes must be away from lighting and shall be no lower than 3 metres from ground level. All other measures to provide roosting opportunities within the stable buildings must also be implemented to make this effective. Locations for bat boxes shall be identified by a bat specialist.<br><br>All bat boxes shall be in place prior to any work within the stable yard.<br>Provision of access to all attics within the stable yard for bat following construction<br>Access shall be provided by means of suitable access slates, vents, or other means to allow bats to return to roofs following all construction work.<br>Provision of roosting features within attics<br><br>Timber rafters shall be provided that create suitable crevices for bats. This shall include similar features to those used within the existing stable buildings in addition to the provision of parallel timbers (“2 x 4” timbers (38 x 89 mm) spaced 15 to 18 mm apart i.e., at a slight angle creating a range of gaps from 15 mm to 18 mm). |

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| | New planting elsewhere will be consistent with the Woodland Management Plan so will enhance the overall biodiversity value of the site.<br><br>Mitigation 2: Any clearance of vegetation (e.g., hedgerows or felling of individual trees) should only occur outside the prescribed nesting season, i.e., August to February inclusive. Where this is not possible the vegetation to be cleared must first be inspected for bird nesting activity. Where no nesting activity is recorded vegetation can be removed within 48 hours. Where nesting activity is recorded then vegetation clearance can only proceed under licence from the National Parks and Wildlife Service.<br><br>The following is taken from the bat survey report:<br><br>*Acquisition of a Derogation to allow the removal of bat roosts within stable buildings*<br><br>*A derogation shall be required for disturbance to roost sites of bat species. This requires that a system of protection of bats is in place and that alternative roost sites or access to roosts is provided for bats.*<br><br>*The following measures are proposed to provide appropriate protection for bats:*<br><br>*Supervision of all roof level work within the stable yard by a bat specialist*<br><br>*Protection of any roosting bats during construction operations by a bat specialist.*<br><br>*This may require that bats are captured and cared for by the bat specialist until the work affecting the roost site is complete. Bats should be released into a bat box within another area within the grounds of Auburn and the original roost site re-examined prior to any further work that may affect bats.*<br><br>*Checking of Trees for Bats Prior To / During Felling or Surgery where this is essential*<br><br>*Where there is no alternative to felling or removal of limbs of mature trees, an assessment for the presence of bats must be undertaken. Tree felling and surgery must avoid the summer months to protect nesting birds. At all other times, it should be possible to assess for bats provided that full access to any tree is available to the bat specialist.*<br><br>*If any buildings (walls etc.) are to be removed or modified, including re-pointing, a bat specialist shall ensure that bats are protected.*<br><br>Mitigation 3: Pollution during construction<br><br>Construction will follow guidance from Inland Fisheries Ireland (IFI, 2016) for the protection of fish habitat. This will include the erection of a robust silt curtain (or similar barrier) along open drainage ditches to prevent the ingress of silt to the Hazelbrook Stream. Water leaving the site will pass through an appropriately-sized silt trap or settlement pond so that only silt-free run-off will leave the site.<br><br>Dangerous substances, such as oils, fuels etc., will be stored in a bunded zone. Emergency contact numbers for the Local Authority Environment Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and |

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| | Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident.<br><br>In order to reduce the risk of defective or leaking foul sewers, the following remedial measures will be implemented:<br><br>• All new foul sewers will be tested by means of an approved air test during the construction phase in accordance with Irish Waters Code of Practice and Standard Details.<br><br>• All private drainage will be inspected and signed off by the design Engineer in accordance with the Building Regulations Part H and BCAR requirements.<br><br>• Foul sewers will be surveyed by CCTV to identify possible physical defects.<br><br>• 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.<br><br>• 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 phase.<br><br>Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same.<br><br>A silt curtain or similar barrier will be erected along the drainage ditch to the east of the site and will remain in place for the duration of works.<br><br>The drainage ditch to the north is to be culverted as part of work and this will be done 'in the dry'. In other words, it will be dammed at either end so that works will be done with no scouring of silt or sediment. Water will be pumped around the works area where necessary.<br><br>The site manager will be responsible for the implementation of these measures. They will be inspected on at least a daily basis for the duration of works, and a record of these inspections will be maintained.<br><br>These measures have been incorporated into a preliminary Construction Management Plan prepared by Waterman Moylan<br><br>Mitigation 4: Damage of trees to be retained<br><br>In particular this heading refers to the potential damage to the root structures of trees during the construction phase from the movement of machinery, the storage of heavy materials, the stripping of soil and the infilling of other areas with this soil.<br><br>Guidance from the National Roads Authority give the following equation for calculating the root protection area (RPA) (NRA, unknown year):<br><br>$RPA(m2) = \pi(\text{stem diameter mm } 12)/1{,}000)\ x2$<br><br>The RPA gives the area around which there should be no disturbance or compaction of soil. It is recommended that this be calculated for the largest tree within each treeline. Prior to construction this area should be clearly labelled 'sensitive |

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| | ecological zone', fenced off with durable materials and instruction given to construction personnel not to disturb this buffer zone.<br><br>As a rule of thumb this buffer zone should extend at least to the canopy of the trees concerned.<br><br>Mitigation 5: Lighting<br><br>The following is taken from the bat survey report:<br><br>*No lighting of the roof area of the stable yard or of Auburn House*<br><br>*No lighting shall be directed at the roof or eaves of either Auburn House or the stable yard buildings.*<br><br>*No ornamental lighting shall be attached to the buildings.*<br><br>*Dark corridor of movement for bats from the stable yard and Auburn House to the surrounding lands*<br><br>*No lighting shall illuminate the surrounding area of the stable yard or Auburn House to allow movement of bats through the site and to and from roost sites.*<br><br>*Lighting must be managed to ensure that mature trees are unlit, and that lighting does not overspill into green areas where it is unnecessary. Lighting should not exceed 3 lux away from areas where street and house lighting are essential. No lighting of tree canopies shall occur.*<br><br>*Lighting shall be used as a function and not as an ornament and shall be of a design that allows a high level of control and directability. LED allows for controls on timing, directionality and wavelength and should be the source of light.*<br><br>• *Lighting shall be directed downwards away from the treetops and known bat roosts.*<br><br>• *Tree crowns shall remain unilluminated*<br><br>• *All luminaires shall lack UV elements when manufactured and shall be LED*<br><br>• *A warm white spectrum (ideally <2700 Kelvin but as low as Fingal County Council limitations allow) shall be adopted to reduce blue light component*<br><br>• *Luminaires shall feature peak wavelengths higher than 550 nm* •<br><br>• *Light levels shall be controlled by the use of sensor lighting for security.*<br><br>• *Lights must not be left on throughout the night.*<br><br>Mitigation 6: Spanish Bluebells and Three-cornered Garlic<br><br>Spanish Bluebells and Three-cornered Garlic will be treated with standard herbicide by a suitably qualified professional during the growing season. This is normally sufficient to kill these species. |

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| **Land, Soils & Geology** | Construction Phase:<br><br>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.<br><br>An estimate of the total general cut & fill volumes, specific excavation volumes & topsoil generation for use in landscaping are presented in the Table below. As can be seen, the total cut and fill volumes are optimised to minimise the balance, with an estimated total balance required for the entire site of approximately 350m$^3$.<br><br>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.<br><br>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.<br><br>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.<br><br>Records of topsoil storage, movements and transfer from site will be kept by the C&D Waste Manager.<br><br>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.<br><br>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.<br><br>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. |

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| | Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works.<br><br>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.<br><br>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.<br><br>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.<br><br>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.<br><br>Operation Phase:<br><br>On completion of the construction phase and following replacement of topsoil, a planting programme will commence to prevent soil erosion.<br><br>SuDS and filtration devices are proposed to be provided as part of the development. These will help to remove pollutants from rainwater runoff.<br><br>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. |
| **Water** | Construction Phase:<br><br>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 and / or services crossing watermains.<br><br>All watermains will be cleaned and tested in accordance with Irish Water guidelines prior to connection to the public watermain.<br><br>All connections to the public watermain will be carried out and tested by or under the supervision of Irish Water and / or the Design Engineer.<br><br>Potential negative impacts during construction phase will be short term only. |

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| | Operational Phase:<br><br>Water meters will be installed at connection points, with locations to be agreed and approved by Irish Water, and these meters will be linked to Irish Water's monitoring system by telemetry. These meters will facilitate the early detection of unusual water usage in the network and identify potential leaks in the system.<br><br>All plumbing fixtures and fittings and sanitary wear to be installed throughout the development should be to the current best practice for water consumption to minimise future water usage.<br><br>It is not envisaged that any further remedial or reductive measures will be necessary upon completion. |
| **Air Quality** | Construction Phase:<br><br>In order to mitigate dust emissions and minimise air quality impacts during the construction phase, placing activities which are a potential source of dust away from boundaries would minimise the possibility of exposure. If this measure is implemented, then impacts on dust concentrations at local receptors are capable of being reduced to at worst a minor adverse level. Standard mitigation measures would be implemented onsite to control emissions during construction, Full details of the dust management plan can be found in Appendix 8.1. Summary of mitigation measures include:<br><br>- Any required demolition works to be undertaken in a phased and controlled manner.<br>- The dampening down of potential dust generating demolition activities.<br>- Avoid unnecessary vehicle movements and limit speeds on site so as to minimise the generation of airborne dust.<br>- Site roads shall be regularly cleaned and maintained as appropriate. Hard surface roads shall be swept to remove mud/aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.<br>- Any site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions.<br>- location of temporary storage of dusty materials and material transfer operations as far from the nearest sensitive receptors as practicable.<br>- Aggregates will be transported to and from the site in covered trucks.<br>- Exhaust emissions from vehicles operating within the construction site or other plant equipment, will be controlled by ensuring that emissions from vehicles are minimised by routine servicing of vehicles along with the avoidance of engines running unnecessarily.<br>- 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.<br>- Where drilling or pavement cutting, grinding or similar types of operations are taking place, measures to control dust emissions will be used by the erection of wind breaks or barriers. |

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| | - 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.<br><br>Operational Phase:<br><br>As outlined in the DMRB assessment, it is likely the operational phase will not generate air emissions that would have an adverse impact on local ambient air quality and as such there are no mitigation measures specified. Also, the Travel Plan (chapter 13) aims to promote sustainability by enhancing public transport with regular and ongoing increases in the public transport capacity and to reduce dependency on the use of the private car. |
| **Noise & Vibration** | $DKP_{EV}$ do not anticipate the requirement of any remedial measures but list the following recommendations mainly for the construction sites:<br><br>• Ensure that the local authority guidelines or planning directives to noise levels and operational times are adhered too.<br>• Prepare a construction phase operational plan with regards to limiting noise nuisance.<br>• Ensure all construction vehicles and plant are regularly maintained including any noise<br>• control measures such as attenuators, filters etc.<br>• Limit any construction noise spreading to neighbouring site by erecting temporary noise barriers (site boundary hoarding).<br>• Schedule particular high-level noise activities for times when increased noise levels are less sensitive or notify neighbouring residents or any sensitive sites. |
| **Climate** | There are no particular mitigation measures noted. All the recommended reduction measures at design stage and as applied in the $CO_2$ 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 non-compliance i.e., mitigation occurs. These can be summarised below:<br><br>Construction Phase:<br><br>• $CO_2$ reduction measures to minimise impacts from transport during the construction phase, such as reducing idle times for vehicles and turning off engines when not in use.<br>• It is also proposed to reduce embodied CO2 in the use of materials and to maximise the reuse of materials or “green” materials in the construction stage.<br>• The construction of the buildings will also be energy efficient and use energy efficient technology such as heat pumps, heating controls and timers. Reduction in thermal bridging shall be maximised.<br><br>Operation Phase:<br><br>• Reduce demand for transport based trips.<br>• Encourage the use of electric vehicles and cycling/walking.<br>• Encourage public transport as a preferred mode of transport. |

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| **Transportation** | Construction Phase:<br><br>Construction Management Plan (CMP) will be prepared by the appointed 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 CMP will consider the following aspects:<br><br>• Dust and dirt control measures.<br>• Noise assessment and control measures<br>• Routes to be used by vehicles<br>• Working hours of the site<br>• Details of construction traffic forecasts<br>• Time when vehicle movements and deliveries will be made to the site<br>• Facilities for loading and unloading<br>• Facilities for parking cars and other vehicles<br><br>Further to the above, a detailed Traffic Management Plan (TMP) will be prepared by the main contractor. This document will outline proposals in relation to construction traffic and associated construction activities that impact the surrounding roads network. The document will be prepared in coordination and agreed with the local authority.<br><br>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.<br><br>Operation Phase:<br><br>Residents will be made aware of potential alternatives including information on walking, cycle routes and public transport. Residents will be encouraged to avail of these facilities for travel to and from work. Provision of this information would be made during the sales process and will be included in the new homeowner's pack upon the sale of each unit, as this represents the best opportunity to make residents aware and to secure travel behaviour change. It is anticipated that this measure may help to reduce the level of traffic at the proposed development, thus providing mitigation against any traffic and transport effects of the development.<br><br>A Mobility Management Plan (Travel Plan) has been included in this application under separate cover. This Plan sets out method to reduce the dependence on private car journeys and encourage residents within the development to avail of sustainable forms of transport such as walking, cycling and public transport.<br><br>In addition, the proposed development proposes connectivity to existing facilities and public transport options. The proposed upgrades to the R107 Malahide Road / Back Road junction will improve pedestrian and cyclist connectivity between the proposed development and the surrounding public network. New internal footpaths |

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| | connecting the access road to R107 Malahide Road provide safe access to public transport in the area. |
| **Material Assets, Cultural & Archaeological Heritage** | Construction Phase:<br><br>Monitoring of topsoil stripping to be undertaken by archaeologist.<br><br>Should any archaeological material be uncovered then this will be subject to further investigation under the appropriate licence.<br><br>Operational Phase:<br><br>No mitigation necessary |
| **Material Assets – Utilities & Waste** | Construction Phase:<br><br>The site-specific Construction and Demolition Waste Management Plan (C&DWMP) shall be implemented.<br><br>Operation Phase<br><br>Operational waste management 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. |
| **Landscape and Visual Impact** | Construction Phase:<br><br>It is proposed that careful attention will be paid to avoiding any potentially adverse construction-related effects on the adjacent residences and the wildlife associated with the estuary's wetlands. 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.<br><br>The construction works and the habitat protection measures will be carried out in accordance with measures outlined by the project ecologist and FCC.<br><br>Operation Phase:<br><br>• Retention and protection of the vegetation along existing field boundaries where possible.<br>  ○ 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.<br>  ○ Generally, this will involve retention of mature good quality trees within the woodlands, tree belts and hedgerows, pruning and tiding of the retained hedgerow and replanting where the |

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| | hedgerow is of poorer quality (as outlined in the Arboricultural Report).<br>○ 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.<br>• Integration of the development into the surrounding landscape, minimising landscape and visual impact in particular upon nearby residential dwellings, from Malahide Road and from Malahide Demesne.<br>○ 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.<br>• 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.<br><br>Introduction of usable amenity spaces, as described within the Landscape Development Report and indicated on landscape drawings 1489_300-306 and which will be planted with appropriate species as listed in the planting specification in Table 11.5.<br><br>The planting proposals within the scheme will be employed to:<br>• assist in the successful integration of the proposed scheme into its landscape setting.<br>• structured native tree planting is proposed within the spaces and along the new main central spine road which links into the amenity spaces.<br>• create visual interest and a sense of place.<br>• act as a buffer and assist in partially screening and filtering views of the proposed development from the surrounding area e.g. adjoining residential areas, Malahide Road.<br>• assist in defining areas and reinforcing the character of the various spaces<br>• provide visually attractive spaces for future residents and the local community to relax, move and/ or socialise within.<br>• open lawn and grassland meadows are proposed throughout the public spaces which provide space for informal play and passive recreation.<br>• 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.<br>• compensate for any loss/ enhance biodiversity benefits with an emphasis on pollinator friendly plant species. |
| **Cultural Heritage** | Construction Phase:<br><br>Monitoring of top-soil stripping to determine if any archaeological features or deposits are present. |

Table 16.1 Summary of Mitigation Measures