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ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) Non-Technical Summary

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

PREFACE

In this instance, given the application site extends to c. 13.28 hectares 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, in accordance with Class 10(b)(iv):

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".

This Environmental Impact Assessment Report (EIAR) has been prepared by the study outlined in the table below.

Name	Role
Downey Planning (John Downey, Planning Consultant, BA (Hons), MRUP, MBA, MIPI, MRTPI & Donal Duffy, Planning Consultant, Dip. Environmental Resources Management, BSc. Spatial Planning, MSc Energy Management, MIPI)	EIAR Project Managers, Planning Consultants Preparation of following EIAR chapter: • Introduction • Description of Development & Alternatives Considered • Planning and Development Context • Population & Human Health • Material Assets (Built Environment) • Interactions • Compilation of EIAR
CCK Architects (Michael Crowe MRIAI)	Architects and Masterplanners Preparation of following EIAR chapters: • Description of Development & Alternatives Considered
Waterman Moylan Consulting Engineers (Mark Duignan, Associate Engineer, MA BAI CEng MIEI)	Preparation of following EIAR chapters: • Transportation • Water • Land, Soil & Geology • Waste
The Big Space Landscape Architects (Dan Egan MILI)	Preparation of following EIAR chapter: • Landscape and Visual Impact Assessment
Courtney Deery Heritage	Preparation of following EIAR chapter:

Name	Role
Consultancy Ltd. (Dr Clare Crowley Cultural Heritage Consultant)	• Material Assets, Cultural & Archaeological Heritage
Openfield Ecological Services (Padraic Fogarty, Ecologist, MSc in EcIA)	Preparation of following EIAR chapter: • Biodiversity
Gerard Van Deventer DKP International Ltd C.ENG., BE.(Mech)., H.Dip. CIOB., MCIBSE.	Preparation of following EIAR chapter's: • Air Quality • Noise & Vibration • Climate

1.0 DESCRIPTION OF PROJECT

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.

The proposed development is described in full in Chapter 2.0 of this Environmental Impact Assessment Report but in summary consists of the following:

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.

2.0 ALTERNATIVES CONSIDERED

The Fingal County Development Plan 2017-2023 sets out the determining factors for this planning application. With constraints such as density, height, protected structures, historic features, impact on trees and woodlands, and treatment of existing development boundaries there was little scope to explore designs which were significantly different to what is being proposed in this planning application area.

However, a number of alternatives to the proposed design of the various residential blocks were considered during the course of the preparation of this EIAR, as well as the internal road layout, access arrangement/design and proposed green infrastructure. The design of the proposed project has evolved throughout the consultation process as well as having regard to the decision of An Bord Pleanála under the previous application at the lands, which is set out in full in Chapter 2.0 of this EIAR. The design of the various blocks and overall layout of the proposed scheme were amended as a result of extensive consultation and feedback with the relevant departments of Fingal County Council and with An Bord Pleanála. The final application design for the Auburn site proposes a legible and permeable scheme which ensures connectivity within Streamstown masterplan lands and the surrounding area. This layout allows for the development of the lands at an appropriate density and scale and in line with National, Regional and Local Planning policy.

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 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.

3.0 BASELINE SCENARIO

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

The application site is located on the southwestern side of Malahide, 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. The subject site can be described as a greenfield site, comprised of three consolidated plots; Little Auburn house and gardens, Auburn House with adjoining woodland and fields and former pastureland accessed off Carey's Lane. 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.

The lands are zoned Objective 'RA' – Residential Area under the Fingal County Development Plan 2017-2022. This objective seeks to *"provide for new residential communities subject to the provision of the necessary social and physical infrastructure"*. The uses proposed as part of this development are permitted under the pertaining zoning objectives. The proposed development is in accordance with relevant national, regional and local planning policy documents. The proposed development also has regard to the Local Objectives, as they pertain to the subject lands and where there may be contravention from them, this is set out in the Material Contravention Statement, which is submitted as part of the planning application.

4.0 POPULATION AND HUMAN HEALTH

This section of the EIAR has been prepared by Downey. The subject site and proposed development were examined in terms of its impact on the human environment in the general area. The proposed development will have a positive impact on population, in that they will cater for predicted future increase in population for Malahide.

4.1 Methodology

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

4.2 Receiving Environment

The baseline assessment has found that the population of the area has increased over the census period 2011-2016 by approximately 7.2% (up to 30,202 persons). This is in line with general population growth in the wider area and County.

The Land use and settlement pattern consists generally of a suburban area. 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.

4.3 Potential Impact of Proposal

4.3.1 Construction Phase

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

4.3.2 Operation Phase

The proposed development will see an increase in population from the operation phase of the development. This will support an increase in economic activity in the area and employment. This will take place close to people's homes and public transportation. This is seen as a positive impact.

The development will generate an increase in traffic and noise, which will have a slight and permanent impact on human health.

4.4 Remedial/Mitigation Measures

4.4.1 Construction Phase

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

4.4.2 Operation Phase

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

4.5 Predicated Impact of Proposal

4.5.1 Construction Phase

The development will have a positive and temporary impact on employment during the construction phase, providing significant construction sector and related employment over the construction period of the development with a potential figure of 150-240 persons employed in the construction phase directly.

4.5.2 Operation Phase

The development will have a positive and long-term impact on community and recreational facilities in that it will provide areas of green amenity space and will contribute to the critical mass needed to support community and recreational facilities in the wider Fingal area.

4.6 Monitoring

In terms of population and human health, measures to avoid negative impacts have been a key consideration in the design evolution of the buildings and overall layout of the proposed 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.

5.0 BIODIVERSITY

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).

5.1 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.

5.2 Receiving Environment

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.

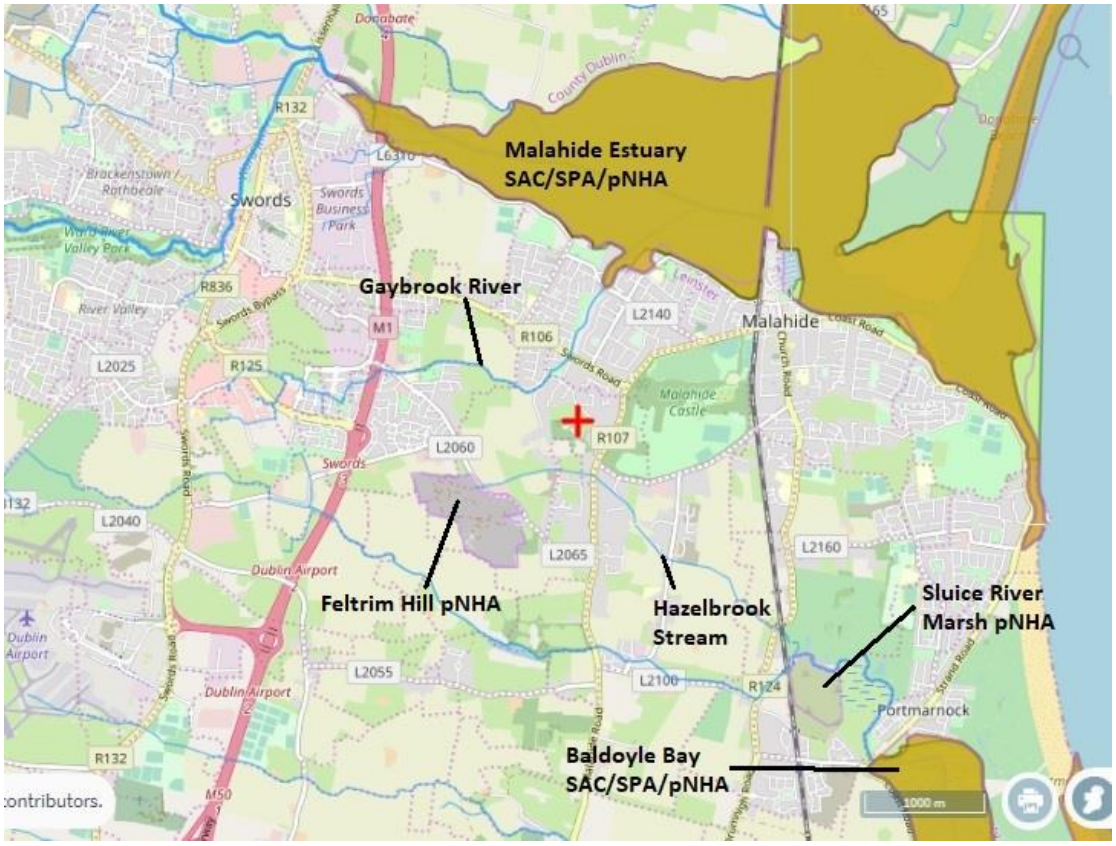

Figure 5.1 – Approximate 2km radius of proposed site showing boundaries of areas designated for biodiversity conservation

5.3 Potential Impact of Proposal

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 • Bats • Badgers and other species	negative, significant, likely and permanent negative, slight, likely and permanent
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

5.4 Remedial/Mitigation Measures

5.4.1 Construction Phase

Mitigation 1: Habitat loss

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.

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):

$$RPA(m2) = \pi(\text{stem diameter mm } 12)/1{,}000) \text{ x}2$$

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.

5.4.2 Operation Phase

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

5.5 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.

6.0 LAND, SOIL, AND GEOLOGY

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.

6.1 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.

6.2 Receiving Environment

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 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 SO3. The BRE Special Digest 1:2005 – '*Concrete in Aggressive Ground*' guidelines require SO4 values. After conversion (SO4 = SO3 x1.2), the maximum value of 151mg/l shows Class 1 conditions and no special precautions are required.

The desktop study 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. 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, the site lies within an area with high to extreme groundwater vulnerability.

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.

6.3 Potential Impact of Proposal

6.3.1 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.

6.3.2 Operation 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.

6.4 Remedial/Mitigation Measures

6.4.1 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.

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.

6.4.2 Operation 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.

6.5 Predicated Impact of Proposal

6.5.1 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.

6.5.2 Operation 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.

6.6 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.

7.0 WATER

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 Methodology

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

7.2 Receiving Environment

Water Supply

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.

Foul Water

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.

Surface Water

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 Potential Impact of Proposal

7.3.1 Construction Phase

Water Supply

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.

Foul Water

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.

Surface Water

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.

7.3.2 Operation Phase

Water Supply

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.

Foul Water

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.

Surface Water

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.

7.4 Remedial/Mitigation Measures

7.4.1 Construction Phase

Water Supply

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.

Foul Water

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.

Surface Water

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.

7.4.2 Operation Phase

Water Supply

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.

Foul 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 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.

Surface Water

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.

7.5 Predicated Impact of Proposal

7.5.1 Construction Phase

Water Supply

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.

Foul Water

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.

Surface Water

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.

7.5.2 Operation Phase

Water Supply

There will be a water demand for the proposed development of approximately 169.34m^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.

Foul Water

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.

Surface Water

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.

7.6 Monitoring

Water Supply

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.

Foul Water

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

Surface Water

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

8.0 AIR QUALITY

The assessment focused firstly on identifying the existing baseline levels in the area of the proposed development by an evaluation of EPA monitoring data. The EPA data of current and previous years establish air quality parameters are all well below national and EU ambient air quality standards. The existing baseline air quality at the site locality can be characterised as being good with no exceedances of the National Air Quality Standards Regulations limit values. The air quality impact was considered for each distinct stage, construction phase and operational phase.

The impact during the construction phase on air quality at potential neighbouring receptors was determined by an assessment of dust soiling. Standard mitigation measures outlined in Section 8.5 along with the dust management plan outlined in Appendix 8.1 would be implemented to control emissions during construction. With mitigation measures in place impacts of the proposed development on air quality for the construction phase is likely to be short-term and negligible.

The impact of the development during the operational phase on air quality was determined by an assessment using the DMRB screening model predicting pollutant concentrations over a period of time and is in line with what would be expected from a modern residential development. Results showed an expected small increase in annual NO2, PM10, benzene and CO but each parameter would still remain well below the limit values for EU regulations. In the context of significance outlined in relevant guidelines, the impacts have been defined as negligible, which is determined as not significant.

9.0 NOISE AND VIBRATION

The impact or increase in noise levels, mainly by increased traffic noise at the Malahide Road and Back Road junction and at the Malahide Road and Streamstown Lane junction are at worse case deemed a 'slight' impact based on the predicted calculation methodology of BS 5228-1:2009+A1: 2014 and are in line with general noise impacts of new developments.

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

10.0 CLIMATE

The section of the EIAR was prepared by DKPev.

10.1 Methodology

The methodology for the report has concentrated 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 Potential Impact of Proposal

10.2.1 Construction Phase

The construction phase of the scheme only emits CO_2 and other possible greenhouse gasses in the relative short term. Emissions are from construction activities and from embodied carbon in construction materials. The principal sources are listed below:

- Quarried material, stone, aggregate, sand, etc.
- Concrete, mortars, cement
- Metals, including steel sub structure, reinforcement, cladding, piping, facades and finishes.
- Machinery, both mobile and fixed site construction equipment.
- Transport, materials inwards and wastes outwards and construction staff.

10.2.2 Operation Phase

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 a traffic study for the 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.

Energy reduction measures from buildings also form a significant part of the overall operational development contribution with the impact being curtailed by the new NZEB building regulations enforcing energy reductions of 70% and CO_2 reduction of 60% within the statutory instrument.

10.3 Remedial/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. These include:

10.3.1 Construction Phase

- 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.
- 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.
- 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.

10.3.2 Operation Phase

- Reduce demand for transport-based trips.
- Encourage the use of electric vehicles and cycling/walking.
- Encourage public transport as a preferred mode of transport.

10.4 Predicated Impact of Proposal

The impact or increase in CO_2 levels mainly contributed to an increase in operational (heating/hot-water) use and road traffic use are deemed a moderate increase based on current construction standards and vehicle emissions and in line with a general increase in housing accommodation.

However by applying a heat pump solution as demonstrated above in accordance to Part L 2019 and with the new government’s 2030 policy for climate change phasing out petrol & diesel cars in the next 10 years and promoting the use of public transport and non-motorised transport the actual CO2 impact as a result of the proposed development in Auburn House will only be a marginal increase to the existing environment.

10.5 Monitoring

No monitoring is required.

11.0 LANDSCAPE AND VISUAL IMPACT

The Landscape and Visual Impact Assessment Chapter pertaining to this proposed development was prepared by The Big Space Landscape Architects with verified views prepared by 3D Design Bureau.

11.1 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 Receiving Environment

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.

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.

It is enclosed on the Malahide Road side by a mature tree belt. There are no protected views into or from the site. Auburn House itself is a protected structure, which would include its curtilage.

11.3 Potential Impact of Proposal

The removal of trees, some of which are for management purposes (i.e. the trees are at the end of life and due for removal regardless of the development), will have a negative but moderate impact on trees. However, the additional planting and woodland management plan proposed as part of the development will minimise this impact.

The proposed development will give rise to an intensification of use of the land and change the landscape character. This will be a slight and negative impact when viewed from outside the site.

11.3.1 Construction Phase

During the construction phase, the following elements of the proposed development have potential to cause visual impacts (short-medium term in duration):

- Road entrances to the development
- Temporary site works (hoarding, lighting, cranes etc)
- Construction traffic
- Trees and vegetation clearance
- Groundworks and foundation/services.

11.3.2 Operation Phase

During the operational phase, the following elements are likely to give rise to landscape and visual impact in the long term:

- Removal of some existing trees and hedgerows
- The new strucutres, roads, lights and paths
- Intensification of use to residential development.

11.4 Remedial/Mitigation Measures

11.4.1 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.

11.4.2 Operation Phase

- 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.

11.5 Predicated Impact of Proposal

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.

11.6 Monitoring

P 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.

12.0 MATERIAL ASSETS - UTILITIES AND WASTE

This section of the EIAR has been prepared by Downey Planning in conjunction with Waterman Moylan Consulting Engineers. and the subject site and proposed development was examined in terms of its impact on the human environment in the general area. The proposed development will have a positive impact on population, in that they will cater for predicted future increase in population for the Malahide area.

12.1 Methodology

The assessment was carried out by way of site visits and desktop research of the utility providers and waste management in the area.

12.2 Receiving Environment

The subject lands are currently served by utilities, including gas, esb and telecommunications through mains providers.

Waste collection services also operate in the area and as such these services are available at the site.

12.3 Potential Impact of Proposal

12.3.1 Construction Phase

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 will arise as a result of the construction of the development, and this is outlined in the Construction and Demolition Waste Management Plan submitted with the planning application.

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.

12.3.2 Operation Phase

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.

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.

12.4 Remedial/Mitigation Measures

12.4.1 Construction Phase

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.

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

12.4.2 Operation Phase

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.

12.5 Predicated Impact of Proposal

12.5.1 Construction Phase

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.

12.5.2 Operation Phase

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

12.6 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.

13.0 TRANSPORTATION

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.

14.0 MATERIAL ASSETS - CULTURAL HERITAGE

14.1 Introduction

The assessment involved a desk-based review of published and unpublished documents, and historical mapping, supported by a field inspection, geophysical survey, and targeted archaeological test excavation. The assessment was carried out according to best practice and guidelines relating to archaeological, architectural and cultural heritage.

14.2 Archaeology & Cultural Heritage

An assessment of the archaeological and cultural heritage potential of the proposed development site was undertaken by Courtney Deery Heritage Consultancy Ltd. The assessment was based on a desk-study, with a detailed documentary and cartographical review, supported by geophysical survey and archaeological testing.

There are no recorded archaeological sites (RMP/SMR sites), or stray finds recorded within the proposed development site. The nearest archaeological site is 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.

Monitoring of topsoil-stripping within the proposed development site under licence to the Department of Housing, Local Government and Housing and the National Museum of Ireland will be undertaken to determine whether there are any archaeological features or deposits present.

Building Regulations will also be adhered to during the construction phase to ensure a fully compliant development is constructed.

15.0 INTERACTION OF IMPACTS

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

No.	Heading	Population and Human Health	Biodiversity	Land, 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	✔										

16.0 OVERALL IMPACT ON THE ENVIRONMENT

The Environmental Impact Assessment Report has assessed the characteristics of the proposal for significant environmental impacts. Each topic was examined and the resultant environmental impact, if any, noted and mitigation or reductive measures have been put in place. Accordingly, the proposed

development will result in no significant negative long-term impacts on the environment as a result of the mitigation measures proposed as part of the design and at operation stage.