March 2021

Environmental Impact Assessment Report
Non-Technical Summary

Proposed Strategic Housing Development
Lands at Auburn House (Protected Structure), Little Auburn and Streamstown off the R107 Malahide Road/Dublin Road and Carey's Lane, Malahide, Co. Dublin

Applicant: Kinwest Limited.

downey PLANNING

Non-Technical Summary

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 Consultancy Ltd. (Dr Clare Crowley Cultural Heritage Consultant)	Preparation of following EIAR chapter: • Material Assets, Cultural & Archaeological Heritage

Name	Role
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

Kinwest Limited. are applying to An Bord Pleanála for planning permission for a proposed strategic housing development on lands at Auburn House (Protected Structure), Little Auburn and Streamstown off Malahide Road and Carey's Lane, Malahide, Co. Dublin. The application site is located on the south western side of Malahide. The site is contiguous to existing residential developments at Abington and Auburn Grove to the north, and Clairville Lodge and Streamstown Wood to the south of the site. The proposed development at Auburn House in located in a highly accessible location within the development boundary of Malahide. The application site is also located within walking distance of a Dublin Bus stop located along Malahide Road (R107) to the south east of the application site and is located within 2km of Malahide train station.

The lands subject to this application, whilst zoned for residential development, are also located in an area marked M.P 9A (Streamstown Masterplan) and therefore are subject to the preparation of a Masterplan. It is important to note that the masterplan area is already largely built out and/or approved at this stage with the exception of Auburn House and a handful of high-end individual houses on big plots. The making of this application effectively constitutes the masterplan lands as the lands comprise the remaining lands available for development under the Streamstown Masterplan. This application sets out the development of the subject lands in the context of the objectives of the Fingal Development Plan 2017-2023. It also takes into consideration the main elements and specific objectives to be included within the future Streamstown Masterplan prepared by Fingal County Council for the wider Streamstown masterplan lands.

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

"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 as 1 no. residential dwelling; the conversion of the existing stables of Auburn House to accommodate 4 no. dwellings and the construction of 406 no. residential dwellings, apartments and duplexes providing for an overall total of

411 no. residential units (102 no. dwellings, 266 no. apartments & 43 no. duplexes) along with 1 no. childcare facility. 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 into 4 no. two storey terraced residential dwellings (1 no. 3 bed unit, 2 no. 2 bed units and 1 no. 1 bed unit). Internal and external alterations to the stables of the Protected Structure including minor demolition works are proposed to accommodate same.*
3) *The preservation and protection of the existing woodland of Auburn House.*
4) *The preservation of existing follys and walls associated with the 'walled garden' with amendments to the garden proposed to accommodate the proposed development.*
5) *The demolition of the modern bungalow dwelling known as 'Little Auburn' and associated outbuildings.*
6) *The demolition of detached stable/shed building off Streamstown Lane.*
7) *The construction of 97 no. residential dwellings (45 no. three bed units, 39 no. four bed units and 13 no. 5 bed units) in detached, semi-detached and terraced dwellings ranging from 2, 2.5 and 3 storey in height.*
8) *The construction of 309 no. apartments/duplex apartments (136 no. 1-bedroom units, 161 no. 2-bedroom units, 12 no. 3-bedroom units) all provided with balconies/terraces as follows:*
   (a) *Apartment Block 1 consisting of a total of 51 no. units in a 5-storey block (27 no. 1 bedroom units; 22 no. 2 bedroom units; 2 no. 3 bedroom units).*
   (b) *Apartment Block 2 consisting of a total of 57 no. units in a 6-storey block (29 no. 1 bedroom units; 27 no. 2 bedroom units; 1 no. 3 bedroom units).*
   (c) *Apartment Block 3 consisting of a total of 51 no. units in a 5-storey block (27 no. 1 bedroom units; 22 no. 2 bedroom units; 2 no. 3 bedroom units).*
   (d) *Apartment Block 4 consisting of a total of 27 no. units in a 5-storey block (9 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; 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 6 no. units in a 4-storey block (6 no. 2 bedroom units) with bin store, bicycle and car parking at ground/undercroft level.*
   (h) *Apartment Block 8 consisting of a total of 25 no. units in a 5-storey block (6 no. 1 bedroom units; 17 no. 2 bedroom units; 2 no. 3 bedroom units) along with bin store, plant, cleaning store and bicycle parking at ground floor level.*

(i) *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.*
(j) *Duplex Apartment Block 2A consisting of a total of 8 no. units in a 2-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.*
(k) *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.*
(l) *Duplex Apartment Block 2C consisting of a total of 9 no. units in a 2-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.*
(m) *Duplex Apartment Block 2D consisting of a total of 9 no. units in a 2-storey block (5 no. 1 bedroom units; 4 no. 2 bedroom units) along with bin store and bicycle parking at ground floor/undercroft level.*

9) *Single level basement below Apartment Blocks 1, 2 & 3 comprising car parking (164 no. spaces), bicycle parking (278 no. spaces), refuse storage, plant rooms, comms room, maintenance room, attenuation tank and services.*
10) *The provision of 1 no. childcare facility (located within the ground floor of apartment Block 4);*
11) *The provision of a 2-storey detached community building within the Walled Garden, for use as part of the overall ancillary residential facilities.*
12) *540 no. residential car parking spaces across surface, undercroft/podium and basement level, and 7 no. car parking spaces serving the childcare facility, providing an overall total of 547 no. car parking spaces and a total of 716 no. bicycle parking spaces across surface, undercroft/podium and basement level.*
13) *The construction of 1 no. new vehicular entrance off Malahide Road (providing for a new signalised junction with Back Road and Malahide Road) and adaption of the existing vehicular entrance off Carey's Lane.*
14) *Utilisation of existing vehicular entrance access and road for pedestrian and cycle route only with vehicular access retained solely for existing residential use.*
15) *Landscaping including provision of public, communal and private open spaces, playground 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 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 and proposed green infrastructure. The design of the proposed project has evolved throughout the consultation process 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 south western 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.

4.0 Land Use Planning Impacts

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.

5.0 Population and Human Health

This section of the EIAR has been prepared by Downey Planning. 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.

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 and employment and commercial facilities in the area.

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.

Potential Impact of Proposal

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.

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.

Remedial/Mitigation Measures

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.

Operation Phase:

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

Predicted Impact of Proposal

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.

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.

There will be a change in the density of the land use pattern of the site although the use itself is currently residential. This is seen to be a neutral impact.

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.

6.0 Biodiversity

Methodology

A review of the biodiversity of the site was carried out by OPENFIELD Ecological Services and this included a study of existing information from the area. Site visits were carried out on the 15th of May and the 25th of June 2019 and the 11th of February and

27th of August 2020. 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). 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 and this informed the current study. It was found that the application site is not within any area that has been designated for nature conservation at a national or international level. Bat activity was found on the site and there was no badger or otter activity on the site.

Potential Impacts

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	negative, significant, 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

Mitigation Measures

The following recommendation are proposed for the development:

Construction Phase

Recommendation 1: Habitat loss

The following is taken from the Badger survey report:
Planting along the perimeter of the development shall ensure that there is potential for movement of badgers through the site by providing cover from human observations. The main areas are the southern entrance area and the area to the western area of the site (the southwestern corner of the woods) to ensure cover and allow badgers to travel through the site.

Bat boxes
12 Schwegler bat boxes 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.

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 5.3.

Recommendation 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:

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.

Recommendation 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.

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.

Recommendation 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):

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

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.

Recommendation 4: Lighting

The following is taken from the bat survey report:

Lighting control.
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.

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 is no suitable access areas, measures to create easier movement of bats through the site shall be introduced through modifications to cowl, planting or other options.

Recommendation 5: Spanish Bluebells and Three-cornered Garlic.
It is recommended that the Spanish Bluebells and Three-cornered Garlic are treated with standard herbicide by a suitably qualified professional during the growing season.

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.

With mitigation it is considered that significant negative effects will not occur to biodiversity. No monitoring is required.

7.0 Land, Soils & Geology

This section of the EIAR has been prepared by Waterman Moylan Consulting Engineers, to assess the existing soils and geology within the subject lands. It considers the potential for impact on land, soils and geology associated with the intended development, through the construction and operational phases and propose the mitigation measures to minimise the impact of the development on soils.

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 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.

Receiving Environment

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.

Potential Impact of Proposal

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.

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.

Remedial/Mitigation Measures

Finished Floor Levels and road levels have been designed to match existing levels to minimise cut and fill. This will minimise vehicular movements during construction phase also.

Surplus subsoil and rock shall be deposited within approved fill areas or to an approved waste disposal facility only (outlined within the Construction Demolition & Waste Management Plan).

Surplus topsoil shall be segregated and either reused on site or sold. Records of the topsoil shall be kept by the Construction and Demolition Waste Manager.

Silt traps, silt fences and tailing ponds shall be provided to prevent silts and soils being washed away during heavy rains during construction phase.

Surplus subsoil shall be stockpiled safely on site in order to avoid contamination with other waste and to enable its future reuse as clean fill.

Predicted Impact of Proposal

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.

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.

Wheel wash areas at exits shall be utilised to minimise soil deposits on the road network. Limits of truck loads shall be used to prevent spillages and the roads shall be kept cleaned.

Dampening down measures during dry weather periods shall be used to reduce dust levels during construction.

Appropriate storage and bunding measures to be implemented during the construction phase to prevent contamination of soil and groundwater from oil and petrol leakage from site plants. Refuelling areas shall be allocated also with impermeable bunding in such areas.

Any material found to be contaminated shall be identified and disposed of to an appropriate waste disposal facility.

On completion of the construction phase and following replacement of topsoil, a planting programme shall commence to prevent soil erosion.

SuDS and filtration devices are proposed to be provided as part of the development to help remove pollutants from rainwater runoff. This shall also encourage infiltration of surface water to the ground. This infiltration will assist with natural ground water replenishment which is currently occurring on the lands.

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.

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.

Monitoring

Monitoring during the construction phase is recommended.

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.

8.0 Water

This section of the EIAR has been prepared by Waterman Moylan Consulting Engineers, to assess the existing water supply, foul water and surface water environment within the proposed development and surrounding environment. The potential impacts of the proposed development are assessed and the mitigation measures to minimise the impact of the development on the water supply, foul water and surface water environment are outlined.

Methodology

Research for this section included a review of the existing watermain network maps from Irish Water / Fingal County Council records for the area. Ordnance Survey and topographical survey information was also utilised as well as site walkovers.

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 south west 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 site access from 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:
Connolly Avenue
Abington/Gaybrook Stream
Carey's Lane

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. 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 and ultimately to the North Fringe Interceptor Sewer. The proposed new wastewater connections and network are shown on the drainage layout drawings, 19-020-P200 to P205.

Surface Water

There is an existing drain along the northern and eastern boundaries of the site (within the Abington development), discharging 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 currently 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, which in turn ultimately outfalls to Baldoyle Bay at Portmarnock.

Potential Impact of proposed Development

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.

Operational Phase:

Water Supply

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

Foul Water

There will be a net peak foul water flow of 6.516 l/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.

Remedial/Mitigation Measures

Construction Phase

Water Supply

A method statement setting out procedures to be used when working in the vicinity of existing infrastructure to be proposed by the contractor.

Watermains to be cleaned and tested prior to connection to the public watermain.
All connections to the public watermain are to be carried out and tested by or under the supervision of Irish Water or Design Engineer.

Foul Water

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.

Operational Phase

Water Supply

Water meters to be installed to enable early detection of unusual water usage and potential leaks in the system.
All plumbing fixtures and fittings in the development to be to current best practice to minimise future water usage.

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.

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.

Predicted Impact of Proposal

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.

Operational Phase:

Water Supply

There will be a water demand for the proposed development of approximately 188m^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 6.516 l/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.
As noted above, Irish Water have assessed the subject proposal. Irish Water's assessment includes modelling to determine the cumulative impacts of any other proposed developments in the vicinity of the site. Both a Confirmation of Feasibility Letter (dated 11 June 2020) and a Statement of Design Acceptance (dated 22 February 2021) have been issued by Irish Water for the proposal and are included as Appendices to the Engineering Assessment Report, which accompanies this submission under separate cover.

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.

Monitoring

Water Supply

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

Foul Water

No monitoring requirements are envisaged other than normal 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.

9.0 Air Quality

Methodology

The section of the EIAR was prepared by DKPev. 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. The most current EPA report - 2019 Annual Report on Air Quality in Ireland has been examined in order to assess the existing air quality conditions and to provide information on background concentrations. 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 the Auburn site.

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.

Predicted Impacts

The air quality impact was considered for each distinct stage, construction phase and operational phase including future residential air quality.

- The impact during the construction phase on air quality at potential neighbouring receptors was determined by an assessment of dust soiling. With appropriate recommended mitigation measures in place impacts of the proposed development at Auburn on air quality for the construction phase is likely to result in negligible impacts.
- 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. In the context of significance outlined in relevant guidelines in section 8.5.2, the impacts have been defined as negligible, which is determined as not significant.
- The predicted air quality index for future occupancies health is index 2 (EPA index). The health advice for future residents, both general and at-risk groups in index 2 is 'Enjoy your usual outdoor activities'. Overall, the predicted AQIH is good for future occupancy.

Mitigation 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, these 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 the contractor by ensuring that emissions from vehicles are minimised by routine servicing of vehicles along with the avoidance of engines running unnecessarily and the use of low emission fuels.
- 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.
- All plant machinery not in operation shall be turned off and idling engines shall not be permitted for excessive periods.
- 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 for the operational phase. Also, the Travel Plan (chapter 13) aims to promote sustainability by enhancing public transport with regular and ongoing increases in the public transport capacity, both road and rail and to reduce dependency on the use of the private car.

Monitoring

Subject to the construction contractor adhering to good working practices and the mitigation measures being implemented, the levels of emission generated are assessed to be minimal and are unlikely to cause an impact on air quality or the climate. No monitoring is deemed necessary.

10.0 Noise and Vibration

Methodology

The section of the EIAR was prepared by DKPev. The baseline noise climate in the area of the development has been determined by means of a noise survey conducted along the site boundary in the vicinity of the closest noise sensitive receptors to the assessment site. The survey was conducted 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'. The specific details of works carried out are described in Chapter 9.0 of this EIAR.

Predicted Impacts

Short-term noise impacts are likely to occur during the construction phase of the development due to the requirement to use heavy plant and machinery. Construction noise has been assessed with worst-case scenarios considered. Worst case scenarios include extended on-times and combinations of plant operating simultaneously. Potential exists for short-term impact on the Abington and Streamtown residential areas, however, this will be monitored and mitigation measures will be put in place. 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. It is considered that the application

of binding noise limits and hours of operation, alongside the implementation of appropriate noise and vibration control measures will ensure that noise and vibration impact is kept to a minimum.

The potential noise impacts from this development during its operational phase will primarily be as a result of increased traffic flows along the new and existing routes within and surrounding the development. The predicted vibration levels during the operational phase of the development are associated with additional traffic, which is predicted to be of insignificant impact to the locality. Based on the predictions relating to operational traffic noise, the changes in noise levels are not expected to give rise to any significant noise nuisance in the area due to the predicted increase in traffic.

Once the development is completed, there is potential for the noise environment to be altered as a result of road traffic noise associated with the development, however the impact of the proposed development during the operational phase is considered to be neutral, long-term and not significant.

Mitigation

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.

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.

11.0 Climate

Methodology

The section of the EIAR was prepared by DKPev. 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'.

Potential Impacts

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.

Operational 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.

Mitigation Measures

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.

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.

Predicted Impact

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.

Monitoring

No monitoring is deemed necessary.

12.0 Landscape and Visual Impact

Methodology

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. It was informed by site visits and desktop analysis.

Predicted Impacts

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.

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.

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.

Mitigation Measures

Construction Phase:

- An appropriate construction management plan and construction traffic management plan shall avoid and minimise any potential impacts on adverse construction related effects.
- Any lighting required for construction shall be sensitively located to avoid unnecessary light spill.
- The recommendations of the project ecologist shall also be implemented.

Operation Phase:

- Retention and protection of vegetation along the existing field boundaries where possible.
- An extensive planting programme shall be implemeneted to help integrate the development further into the surrounding landscape context.
- The use of appropriate, high quality, modern lighting fixtures to roads and pathways using energy efficient lighting in order to reduce the impacts of light pollution on the surrounding area and sky.

Monitoring

- Prior to site works taking place, clearly identify trees and hedgerows to be retained and protected, ensuring tree protection measures are then in place. Also, clearly identify trees and hedgerows to be removed.
- Suring excavation works – ensure existing vegetation is adequately protected and topsoil is correctly stripped and stored for reinstatement.
- During construction stage, ensure that landscape proposals are implemented correctly.
- At operational phase the landscape proposals will be checked for any defects and these shall be rectified and correctly maintained.

13.0 Transportation

Methodology

This section of the Environmental Impact Assessment Report (EIAR) has been prepared by Waterman Moylan Consulting Engineers and provides an assessment of the potential impact the proposed development may have on the surrounding road network and to identify measures to mitigate these impacts and promote sustainable transport patterns.

The assessment was informed through site visits, consultations with Fingal County Council Roads Department in relation to access, egress and scoping of the assessment as well as review of the Development Plan and relevant planning searches in the area. A traffic survey assessment of the impact of the traffic on local junctions, parking requirements and accessibility was also carried out.

Receiving Environment

Access to the site is currently from the R107 Malahide Road to the east and from Carey's Lane to the south west.

The proposed development will include for a new internal road layout with access via the Malahide Road and an upgrade or adaptation of the existing entrance at Carey's Lane. The Carey's Lane access connects to Streamstown which then connects to the R107 Malahide Road and the Feltrim Road. Internal pedestrian and cycle facilities are also proposed.

Potential Impact

Construction Phase:
There is potential for the construction traffic to generate noise and dust impacts on the surrounding network. There is also potential for some traffic congestion due to increased heavy goods vehicles on the surrounding road network. The duration of these impacts is short-term and would be a moderate effect.

Operation Phase:
There is potential for increased traffic generation on the surrounding road, which may lead to some traffic congestion.

Remedial/Mitigation Measures

Construction Phase:
A Construction Management Plan shall be prepared by the appointed contractor and agreed with the Planning Authority to minimise potential impacts of the construction phase, particularly regarding dust and noise. A Traffic management Plan shall also be agreed with the Planning Authority to minimise potential impact of construction traffic on the surrounding network.

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.

Care shall also be taken to ensure existing pedestrian and cycling routes are suitably maintained or diverted where necessary on a temporary basis. The above measures will ensure that an imperceptible impact on the pedestrian and cycle infrastructure.

Operation Phase:
A Travel Plan has been prepared by Waterman Moylan as part of the application to inform future residents of all sustainable forms of transport available to them and thus encouraging the modal shift towards sustainable transport.

The upgrades to the R107 Malahide Road/Back Road junction will improve pedestrian and cyclist connectivity between the proposed development and the surrounding public transport network. New internal footpaths connecting the access road to the R107 Malahide Road will also provide for safe access to public transport.

Predicted Impact

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.

Operation Phase:

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 2038 + 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.

Monitoring

Construction Phase:

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

Operational Phase:

The Mobility Management Plan (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.

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.

14.0 Material Assets - Cultural & Archaeological 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 Kinsaley Road (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.

15.0 Material Assets – Utilities & 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.

Methodology

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

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.

Potential Impact of Proposal

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.

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.

Remedial/Mitigation Measures

The construction phase mitigation measures includes 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. 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.

Predicted Impact of Proposal

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 are considered to be positive and permanent positive to all end users.

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.

16.0 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	Transportation	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	Transportation	✔				✔	✔	✔				
14.0	Cultural Heritage	✔										

17.0 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.