# ENVIRONMENTAL IMPACT ASSESSMENT REPORT

# NON-TECHNICAL SUMMARY

# GOLF LANE STRATEGIC HOUSING DEVELOPMENT

JSA John Spain Associates
Planning & Development Consultants
Chartered Town Planners & Chartered Surveyors

In Association with:

Henry J. Lyons Architects; DBFL Consulting Engineers;
Scott Cawley; Irish Archaeological Consultancy;
Kennett Consulting; AWN Consulting;
Integrated Environmental Solutions (IES); Cameo and Partners; Visual Lab.

**December 2020**

# Non-Technical Summary

## INTRODUCTION

This Environmental Impact Assessment Report (EIAR) has been prepared on behalf of the applicant, Bowbeck DAC in support of the application for a proposed strategic housing development on lands at Golf Lane, Carrickmines, Dublin 18. The site of the proposed strategic housing development has an area of c. 2.56 hectares and is bound to the north by the M50 motorway, to the east by Golf Lane, to the west by Glenamuck Road, and to the south by several properties comprising residential dwellings set in large sites.

This document is a summary of the information contained in the EIAR. For detailed information and key mitigation and remedial measures please consult the full EIAR document.

### Purpose of the EIAR

The objective of this EIAR is to identify and predict the likely environmental impacts of the proposed development; to describe the means and extent by which they can be reduced or ameliorated; to interpret and communicate information about the likely impacts; and to provide an input into the decision making and planning process.

The EIAR is the primary element of the Environmental Impact Assessment (EIA) process and is recognised as a key mechanism in promoting sustainable development, identifying environmental issues, and in ensuring that such issues are properly addressed within the capacity of the planning system.

### The Requirement for an EIAR

Projects needing environmental impact assessment are listed in Schedule 5 of the Planning and Development Regulations 2001, as amended (Regulations).

Schedule 5 (Part 1) of the Regulations transposes Annex 1 of the EIA Directive directly into Irish land use planning legislation. The EIA Directive prescribes mandatory thresholds in respect to Annex 1 projects.

Annex II of the EIA Directive provides EU Member States discretion in determining the need for an EIA on a case-by-case basis for certain classes of project having regard to the overriding consideration that projects likely to have significant effects on the environment should be subject to EIA.

Schedule 5 (Part 2) of the Planning Regulations sets mandatory thresholds for each project class. Sub-section 10(b) (i) to (iv) addresses *'Infrastructure Projects'* and requires that the following relevant class of project be subject to EIA:

- Category 10(b)(i) Construction of more than 500 dwelling units.

- Category 10(b)(iv) Urban development which would involve an area greater than 2 hectares in the case of business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.

In summary, the development consists a residential development of 482 no. units (all apartments), along with ancillary residential amenities, and provision of a childcare facility, gym, and local shop. The proposed residential units comprise 31 no. studio units, 183 no. 1-bedroom units, 229 no. 2-bedroom units, and 39 no. 3-bedroom units (including 2 no. duplex type units).

The proposed development, in terms of both the number of residential units and the site area, falls below the thresholds set out above for mandatory Environmental Impact Assessment. Notwithstanding this, an EIAR has

been prepared to accompany the subject application, having regard to the specific characteristics and features of this site, its size, and the quantum of development proposed.

The following components are addressed in the EIAR:

| Ch. | Title | Content |
|---|---|---|
| 1 | Introduction and Methodology | Sets out the purpose, methodology and scope of the document. |
| 2 | Project Description and Alternatives | Sets out the description of the site, design and scale of development, considers all relevant phases from construction through to existence and operation together with a description and evaluation of the reasonable alternatives studied by the developer including alternative locations, designs and processes considered; and a justification for the option chosen taking into account the effects of the project on the environment. |
| 3 | Population and Human Health | Describes the demographic and socio-economic profile of the receiving environment and potential impact of the proposed development on population, i.e. human beings, and human health. |
| 4 | Archaeology and Cultural Heritage | Provides an assessment of the site and considers the potential impact of the proposed development on the local archaeology and cultural heritage; and recommends mitigation measures. |
| 5 | Biodiversity | Describes the existing ecology on site and in the surrounding catchment, and assesses the potential impact of the proposed development and mitigation measures incorporated into the design of the scheme. |
| 6 | Landscape and Visual Impact | Provides an overview of the baseline position, the potential impact of the proposed development on the landscape appearance and character and visual environment and recommends mitigation measures. |
| 7 | Land and Soils | Provides an overview of the baseline position, the potential impact of the proposed development on the site's soil and geology and impacts in relation to land take and recommends mitigation measures. |
| 8 | Water | Provides an overview of the baseline position, the potential impact of the proposed development on water quality and quantity and recommends mitigation measures. |
| 9 | Air Quality and Climate | Provides an overview of the baseline air quality and climatic environment, the potential impact of the proposed development, the vulnerability of the project to climate change, and recommends mitigation measures. |
| 10 | Noise and Vibration | Provides an overview of the baseline noise environment, the potential impact of the proposed development and recommends mitigation measures. |
| 11 | Wind | This chapter assesses the potential effects of the proposed development on the pedestrian level wind microclimate around the proposed buildings and open spaces, and in the area immediately surrounding the site, and recommends mitigation measures. |
| 12 | Material Assets | Describes the existing services and infrastructural service requirements of the proposed development and the likely impact of the proposed development on material assets. |
| 13 | Transportation | Describes the existing transport services and infrastructural service requirements of the proposed development and the likely impact of the proposed development on these material assets. |
| 14 | Interactions of the Foregoing | Describes the potential interactions and interrelationships between the various environmental factors. |

| Ch. | Title | Content |
|---|---|---|
| 15 | Principal Mitigation and Monitoring Measures | Sets out the key mitigation and monitoring measures included in the above chapters of the EIAR Document for ease of reference. |

## PROJECT DESCRIPTION AND ALTERNATIVES EXAMINED

This chapter provides a detailed description of the proposed development and outlines the reasonable alternatives considered as required under the 2014 EIA Directive and the Regulations. The chapter explains that the consideration of alternative locations was not considered reasonable or appropriate having regard to the nature and location of the subject site, the consideration of patterns of development in the SEA for the County Development Plan, and the land use and planning policy context. Likewise, it was not considered relevant to set out alternative uses on the subject site, as no reasonable alternative uses were identified having regard to the planning policy context. However, details have been provided of considerations of alternative designs. The reasons for the choice of the preferred design proposed have been set out, with mitigation measures provided relating to the selected development proposal.

**Development Description**

The proposed development comprises a residential development of 482 no. units (all apartments), along with ancillary residential amenities, and provision of a childcare facility, gym, and local shop. The proposed residential units comprise 31 no. studio units, 183 no. 1-bedroom units, 229 no. 2-bedroom units, and 39 no. 3-bedroom units (including 2 no. duplex type units).

The proposed development is set out in 7 no. blocks which comprise the following:

- Block A1 comprises 62. no, apartments within a part four, part six storey building, including 10 no. studio units, 7 no. 1-bedroom units, 41 no. 2 bedroom units, and 4 no. 3-bedroom units. An ESB substation is provided at ground floor level.
- Block A2 comprises 85 no. apartments within a part four, part eight storey building, including 25 no. 1-bedroom units, 45 no. 2-bedroom units, and 15 no. 3-bedroom units.
- Block A3 comprises 79 no. apartments within a part four, part twelve storey building, including 21 no. studio units, 19 no. 1-bedroom units, 28 no. 2-bedroom units, and 11 no. 3-bedroom units.
- Block B0 comprises 150 no. apartments and resident's amenities within a part four, part eighteen, part twenty-one and part twenty-two storey building. The apartments include 76 no. 1-bedroom units, 68 no. 2-bedroom units, and 6 no. 3-bedroom units (including 2 no. duplex type units). An ESB substation, resident's concierge area and amenity space (171 sq.m sq.m) are provided at ground floor level. A further resident's amenity / event space is provided at the twentieth and twenty-first floor levels (83 sq.m).
- Block B1 comprises 8 no. apartments and is four storeys in height, directly abutting Block B. The apartments include 4 no. 1-bedroom units, and 4 no. 2-bedroom units.
- Block C comprises 42 no. apartments and a local shop within a part five, part seven storey building. The apartments include 30 no. 1-bedroom units, 9 no. 2-bedroom units, and 3 no. 3-bedroom units. A local shop (154 sq.m) and an ESB substation are provided at ground floor level.
- Block D comprises 56 no. apartments, a commercial gym, resident's concierge area, resident's lounge, and a childcare facility in a part four, part seven storey building. The apartments include 22 no. 1-bedroom units, and 34 no. 2-bedroom units. The resident's concierge area (99 sq.m), commercial gym (340 sq.m), and childcare facility (300 sq.m) units are located at ground floor level. The resident's lounge (292 sq.m) is located at first floor level.

Two basement levels are proposed, providing car parking spaces (299 no.), bin stores, plant rooms, bicycle parking (1,000 no. spaces), and circulation areas. A further 240 no. bicycle parking spaces and 4 no. car parking spaces are provided at ground level. The proposed development includes landscaping, boundary treatments, public, private and communal open space (including roof terraces), two cycle / pedestrian crossings over the

stream at the western side of the site, along with a new pedestrian and cycle crossing of Glenamuck Road South at the west of the site, cycle and pedestrian facilities, play facilities, and lighting. The proposed buildings include the provision of private open space in the form of balconies and winter gardens to all elevations of the proposed buildings. The development also includes vehicular, pedestrian, and cycle accesses, drop off areas, boundary treatments, services, and all associated ancillary and site development works.

**Alternatives Examined**

This chapter also includes a summary of reasonable alternatives which were considered for the proposed development of the subject lands. These options were considered as the scheme progressed and the key considerations and amendments to the design having regard to the key environmental issues pertaining to the lands are summarised in this section of the EIAR.

## POPULATION AND HUMAN HEALTH

The 2014 EIA Directive (2014/52/EU) has updated the list of topics to be addressed in an EIAR and has replaced 'Human Beings' with 'Population and Human Health'.

Population (human beings) and Human Health is a broad ranging topic and addresses the existence, activities and wellbeing of people as groups or 'populations'. While most developments by people will affect other people, this EIAR document concentrates on those topics which are manifested in the environment, such as new land uses, more buildings or greater emissions.

- Economic Activity;
- Social Patterns;
- Land-Use & Settlement Patterns;
- Housing;
- Employment; and
- Health & Safety.

The proposed development is not likely to result in any significant adverse effects on population and human health, and will result in several positive impacts. These include *inter alia* a significant positive economic impact during both the construction and operational phases of the proposed development, along with positive impacts on the land use and settlement patterns, housing, employment, and social patterns.

The implementation of the range of remedial and mitigation measures included throughout this EIAR document will have the impact of limiting any likely adverse environmental impacts of the construction and operational phase of the proposed development on population and human health.

## ARCHAEOLOGY AND CULTURAL HERITAGE

IAC Archaeology has prepared this chapter to study the impact, if any, on the archaeological and cultural heritage resource of a proposed development at Golf Lane, Glenamuck Road in Carrickmines Great, Dublin 18. The assessment was carried out by Maeve Tobin and Jacqui Anderson of IAC Archaeology.

The eastern half of the application site is situated within the zone of notification for Carrickmines Castle and associated features, which is a recorded monument and a National Monument in local authority ownership. Excavations undertaken in advance of the M50 construction revealed a significant medieval landscape including fortifications (banks and ditches), water mill, house sites, industrial features and the castle entrance; located immediately east of the current site boundary.

Previous testing was undertaken within the eastern half of the application site to investigate the potential for medieval settlement features extending within the site boundary, but did not reveal any archaeology. This is likely

due to the fact that the site is shown on the first edition six-inch Ordnance Survey map as marginal scrubland or waterlogged terrain.

Since 2007 numerous dwellings have been demolished within the application site and the lands have become substantially overgrown and inaccessible and are partly covered in mounds of demolition debris, with the northeast quadrant of site built-up by 1–2.25m with imported materials.

While the results of the 2007 investigation suggest that the intense archaeological activity does not extend into the application site, there remains the potential for previously unrecorded archaeological remains to exist beneath the original ground level, outside of the previously tested areas. These potential remains may be directly and negatively impacted upon by ground disturbances associated with the proposed development. Prior to the application of mitigation these impacts may range from moderate to very significant in nature.

Following clearance of all demolition debris and overgrowth and in advance of any construction or excavation, a strategic programme of testing will be implemented, in consultation with the National Monuments Service, to all investigate the previously untested areas. This assessment will be carried out under an extension to the Ministerial Consent C207 and Registration E003332 granted for the 2007 investigation.

Further mitigation such as preservation by record/ in-situ and/ or monitoring of groundworks may be required dependant on the results of the above investigation.

In the event that the proposed mitigation measures above are implemented fully, there will be no predicted residual impact to the archaeological and cultural heritage resource by the proposed development. The implementation of mitigation measures detailed in this chapter, will ensure that the effect is neutral and imperceptible.

## BIODIVERSITY

This EIAR chapter describes the Biodiversity (Flora and Fauna) of the proposed development site at Golf Lane, Carrickmines', Co. Dublin, with emphasis on habitats, flora and fauna, and outlines the methodology pf the assessment. The assessment was carried out by suitably qualified ecologists and with reference to relevant guidance documents.

The assessment involved the following:

- Desk study to collate available information on the local ecological environment;
- Field surveys comprising habitat surveys, mammal surveys, breeding bird surveys and bat surveys;
- Ecological evaluation;
- Impact assessment;
- Identification of mitigation measures required;
- Assessment of any residual impacts.
  All surveys were carried out following standard and/ or best practice guidance.

There are no European sites within the proposed development boundary. The nearest European site to the proposed development is Knocksink Woods SAC; 4.8km to the south-west. Other SACs (or candidate SACs, which enjoy the same level of protection as SACs) in the vicinity of the proposed development site include Ballyman Glen SAC, Wicklow Mountains cSAC, Glenasmole Valley cSAC, Bray Head SAC, Glen of the Downs SAC, Rockabill to Dalkey Island SAC, South Dublin Bay SAC, North Dublin Bay SAC and Howth Head cSAC. SPA sites located in the vicinity of the proposed development site include Wicklow Mountains SPA, Dalkey Islands SPA, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA and Howth Head Coast SPA.

The Appropriate Assessment Screening Report for the proposed development, included as a standalone report with the application, concluded that the potential impacts associated with the proposed development do not have the potential to affect the receiving environment in any European sites, and, consequently do not have the potential to affect the conservation objectives supporting the qualifying interests or special conservation interests of any European sites; either alone or in combination with any other plans or projects.

There are no NHA or pNHA sites within the proposed development boundary. In addition, there are no NHA sites in the vicinity of the proposed development site. Several pNHA sites are located within the vicinity of the proposed development site. The nearest pNHA is Dingle Glen pNHA which is located approximately 1.2km south of the proposed development site. Other pNHAs in the vicinity of the proposed development site include Fitzsimon's Wood pNHA, Loughlinstown Woods pNHA, Ballybetagh Bog pNHA, Dalkey Coastal Zone and Killiney Hill pNHA, Ballyman Glen pNHA, and Knocksink Wood pNHA. There is an existing watercourse on site, the Golf Stream,

which discharges to the Carrickmines Stream, a tributary of the Shanganagh River. The Shanganagh River discharges into the coastal waters of Killiney Bay and passes through Loughlinstown Woods pNHA, *c.* 3.6km downstream of the proposed development site, on its way to the sea. Its discharge point is located within the Dalkey Coastal Zone and Killiney Hill pNHA.

The proposed development site is brownfield in nature, comprised of disturbed ground, scrub, dry meadows and grassy verges, treelines and hedgerows. There are no existing buildings on site, with previous residential dwellings having been demolished in recent years. The surrounding environment is suburban-rural in nature, with a number of residential developments in the immediate surroundings of the proposed development site, and agricultural lands in the wider vicinity. The M50 motorway lies to the north of the proposed development site and "The Park Carrickmines" retail park lies to the northwest.

The following habitat types, as described in Fossitt (2000), were identified within the proposed development site, during habitat surveys undertaken: treelines; hedgerows; scrub; dry meadows and grassy verges; spoil and bare ground; recolonising bare ground; refuse and other waste; ornamental/ non-native shrubs; buildings and artificial surfaces; and; depositing/ lowland rivers. Most of the habitats identified were deemed to be of local ecological importance (lower value). However, treelines, hedgerows and depositing/ lowland rivers were all regarded to be of local ecological importance (higher value).

No evidence of protected mammal species such as otter or badger was recorded during mammal surveys undertaken at the proposed development site in February 2020. However, the results of the desk study indicate that both species are known to occur in the local environment, and considering the habitat types present at the proposed development site and the potential they offer to terrestrial mammal species, it is reasonable to assume that terrestrial mammal species could potentially use the site for foraging and commuting purposes on occasion. Bat surveys identified four bat species using the site for foraging and commuting purposes- common pipistrelle bat, soprano pipistrelle, Leisler's bat and an unidentified Myotis species. No bat roosts were identified within the boundary of the proposed development site.

A total of ten bird species were recorded during the breeding bird surveys undertaken, with two species confirmed as breeding within the proposed development site. The majority of the bird species which were recorded of site are of a low conservation concern. However, robin, house sparrow and goldcrest are all Amber-listed species, meaning that they are of moderate conservation concern. Given the nature of the proposed development site and its suburban location, it is likely that many of the other passerine species recorded also use the site for breeding purposes (e.g. robin, chaffinch, chiffchaff etc). No winter bird surveys were completed for the purpose of this assessment. However, the proposed development site is considered unsuitable to support populations of wintering SCI and non-SCI waterfowl, gulls or waders due to the absence pf suitable wetland or amenity grassland habitat. Wintering passerine species are likely to occur on site, given the habitats present.

The ecological value of all receptors was examined, taking into consideration legal protection, conservation status and local abundance, and this allowed for the identification of Key Ecological Receptors (KERs), which would be subject to impact assessment in line with current best practice.

Potential impacts on the KERs, as a result of the proposed development were identified. For habitats, these included the potential for the proposed works to result in the introduction or spread of non-native invasive plant species; habitat loss (with regards trees, treelines and hedgerows); habitat degradation from dust generated during construction (with respect to sensitive habitats such as rivers); and; habitat degradation as a result of effects on surface water quality during construction.

Potential impacts on otter include effects arising from disturbance or displacement of foraging otters during construction; and; effects of surface water pollutants on prey availability. Potential impacts on badger include the potential for direct harm to badgers during construction. Potential impacts on bats include habitat loss (commuting and/or foraging habitat) as a result of the removal of treelines and hedgerows; effects of disturbance and mortality on bats; and; effects of lighting on bats. Collision risk is not expected to be a significant impact during operation.

Breeding birds may be impacted as a result of habitat loss (breeding habitat); and; the risk of mortality and disturbance (noise during construction). Collision risk is not expected to be a significant impact during operation. No significant impacts on wintering birds are predicted as a result of the proposed development.

Mitigation to protect habitats includes measures to protect retained vegetation during construction; measures to protect vegetation from dust during construction; and; measures to protect surface water quality of the Golf Stream during construction. Habitat enhancement measures, with regards maintenance and landscaping, have also been recommended.

To protect bats from direct harm during vegetation clearance, a strict mitigation strategy has been prescribed. Measures to reduce the effects of lighting on bats during construction have also been put forward. The erection of bat boxes to enhance the roosting potential for bats on site has been recommended.

With regards the protection of otter, measures have been described to protect otter during construction, including a pre-construction survey; measures to protect otter from artificial lighting during construction; and; measures to prevent water pollution. A pre-construction survey has also been prescribed to protect badgers during construction.

Seasonal restrictions with regards vegetation clearance have been recommended to protect breeding birds during construction and it has also been recommended that bird boxes should be erected on suitable retained trees to provide additional nesting opportunities for breeding birds post-development.

Provided that the mitigation measures prescribed are implemented in full, there will be no residual impact to any KER following completion of the proposed development.

## LANDSCAPE AND VISUAL IMPACT

### EXISTING RECEIVING ENVIRONMENT

The proposed development site was previously occupied by a small number of detached houses set within large plots. The houses have since been demolished but the mature 'wooded' gardens are substantially retained at the present time, comprises mostly deciduous trees and shrubs. This provides a 'wooded' context to this part of Golf Lane and the housing area opposite.

A dominant characteristic of the immediate environment surrounding the site is the road network. The M50 at junction 15 defines the site's northern boundary – a hard and noisy environment. The Glenamuck Road lies immediately west of the site in the form of a dual carriageway, providing access to The Park neighbourhood centre to the west and the Carrickmines residential areas to the south and southeast of the site.

The site lies at the north-eastern corner of landscape character area (LCA) 13 'Carrickmines' adjoining LCA 6 'Ballycorus' to the southeast and LCA 14 'Cherrywood / Rathmicheal' to the east across the motorway. To the north lies the built-up urban area of Greater Dublin. The landscape of LCA13 is dominated by the new retail park at Carrickmines along with the urbanising influences of the adjacent tip head, pylons and housing. It has a low sensitivity to further development. LCA 6 has been heavily influenced by mining, industry and now modern development along the Glenamuck Road.

This is a very transitionary landscape between the extensive suburbs of Greater Dublin and the elevated rural landscape of the Dublin Mountains. This landscape has undergone significant change in the last 15-20 years with the construction of the M50 motorway, the LUAS and major urban mixed-use developments such as those at The Park, Sandyford, Leopardstown and Cherrywood, and such change is ongoing.

The site in its present form is mainly visible from a relatively localised area, comprising: the urban fringe north of the M50 motorway; the M50 adjacent to the site and approaching in both directions; parts of Ballyogan Road and The Park to the west; and parts of Glenamuck Road to the south. In addition, there are elevated vantage points across the whole of Dublin City from the Dublin Mountains to the south. Most views have a low sensitivity to the proposed development, though glimpsed public views to the Dublin Mountains are considered moderately sensitive.

### PLANNING POLICY CONTEXT

The National Planning Framework 2018 ('the NPF') states on page 67 "To enable brownfield development, planning policies and standards need to be flexible, focusing on design-led and performance-based outcomes, rather than specifying absolute requirements in all cases." National Policy Objective 13, which states "In urban

areas, planning and related standards, including in particular building height and car parking will be based on performance criteria that seek to achieve well-designed high quality outcomes in order to achieve targeted growth. These standards will be subject to a range of tolerance that enables alternative solutions to be proposed to achieve stated outcomes, provided public safety is not compromised and the environment is suitably protected."

The Urban Development and Building Heights Guidelines, rooted in the NPF, state "In relation to the assessment of individual planning applications and appeals, it is Government policy that building heights must be generally increased in appropriate urban locations. There is therefore a presumption in favour of buildings of increased height in our town/city cores and in other urban locations with good public transport accessibility." It then sets out a series of guiding principles for good urban design and architectural standards where increased building height is proposed.

Section 4.1 of the Dun Laoghaire Rathdown County Development Plan 2016-2022 addresses natural and built heritage. Policy LHB2 outlines the Council's policy to preserve and enhance the character of the County's landscapes, referring in the main to the predominantly rural parts of the County, while Policy LHB6 concerns itself with protecting and encouraging the enjoyment of Views and Prospects of special amenity value or interest, none of which encompass the proposed development site.

The Ballyogan & Environs Local Area Plan 2019-2025, the proposed development site comprises part of the Carrickmines Quarter No. 16 – Old Glenamuck Road at the eastern edge of the LAP area. The LAP recognises the significant policy context provided by both national planning policy and the County Development Plan, along with national guidelines including the Urban Development and Building Height Guidelines for Planning Authorities 2018. Residential design policies concern residential densities, mix and building height.

Policy BELAP RES3 recognises the capacity for a number of neighbourhoods to accommodate 'higher buildings' including Quarter 16 Old Glenamuck Road where the proposed development site is located. Policy BELAP RES4 echoes this and confirms such buildings for this location should be residential. There are no indicative or prescriptive building heights, nor is there a site development framework for this location. No significant views and prospects are identified in the LAP that the proposed development might affect.

## CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development comprises 482 no. residential units (all apartments), along with ancillary residential amenities, and provision of a childcare facility, gym, and local shop. The proposed development is set out in 7 no. blocks with heights ranging from four to twenty-two storeys.

Block A comprises three blocks of 6, 8 and 12 storeys interlinked by 4-storey elements, all broadly orientated in a northeast-southwest direction. Block B occupies a prominent position in the northeast of the site adjoining the M50 corridor as a landmark building of mainly 18-22 storeys. Block C is 5-7 storeys and Block D is 4-7 storeys, both the southeast of Block A adjoining Golf Lane.

Courtyard spaces between the block provide communal open space and a setting for the buildings, while retained and new tree and shrub planting provide a landscape and visual buffer to the buildings.

The previous SHD Application PL06D.302336 was refused by An Bord Pleanála on account of it lacking the design quality and height appropriate for a landmark building in this strategic location. The proposed development has responded accordingly, breaking up the volume and mass of buildings with stepped elevations and roof heights, using elevation detailing to achieve a variety of character and emphasis, while using building position, height and a distinctive architectural design for Block B to deliver a landmark building.

The proposed development incorporates the following responses to the requirements of the Urban Development and Building Height Guidelines 2018:

- Increased building height with a transition from neighbouring buildings to a landmark/gateway building;
- A northeast-southwest orientation to minimise intrusion upon views towards the Dublin mountains;
- Avoiding monolithic built forms by using elevation set-backs and rhythmic variation in building height;
- Responding to the strategic location and neighbouring developments to create a distinctive neighbourhood;
- Positive place-making with new streets, public spaces and a variety of built scale, for and detailing;
- Tree retention and extensive new planting for screening, building settings and high quality open spaces;
- Enhancing legibility in the wider urban area.

## PREDICTED LANDSCAPE AND VISUAL EFFECTS

### Landscape Impacts

The site's character will undergo a significant change with significant new contemporary development and a more formalised landscape setting replacing low-density housing and mature private gardens .

New buildings will complement nearby recent and proposed developments of housing, apartments, offices retail and leisure by way of their contemporary character and as part of the composition of this new urban neighbourhood emerging at Carrickmines. While being a cohesive part of this new urban area, the proposed development will contribute its own unique character to the neighbourhood by way of its individual architectural style and the prominent scale and detail of Block B0 as landmark and gateway building.

This profound change to the character of the site itself will be moderately positive, while the impact on the wider landscape will also be moderately positive. As part of a new emerging urban neighbourhood at Carrickmines, with Cherrywood similarly emerging a short distance to the east, and located on the M50 corridor at junction 15, the proposed development marks the gateway into this area from the motorway. The taller buildings, and particularly Block B0, will be visible on the approaches from both directions along the motorway, as well as from parts of Glenamuck Road North/South and Ballyogan Road, signalling the new Carrickmines neighbourhood as a destination. It will provide a focal point for the neighbourhood and provide a sense of arrival/orientation on the future new link between Carrickmines and Cherrywood.

The character of the proposed development will contrast with some of the neighbouring areas, notably the residential neighbourhoods within Carrickmines Little to the north and the more established parts of Carrickmines Great to the south. However, the proposed development's character is complementary to its more immediate surroundings where existing and future commercial, retail, employment and residential developments occupy neighbouring lands to the northwest and southwest in particular.

#### *Visual Impacts: M50 corridor (western approach)*

The proposed development is screened from view in longer vistas along the motorway corridor. A closer approach reveals partial views of the proposed development, mainly block B0 as a prominent landmark, which has a slightly positive visual impact. The distinct character and slender form of Block B0 provide a focal point and destination for this route.

Adjoining the development at Junction 15 of the M50, the proposed development as a distinctive new urban element in the landscape – a cluster of buildings with Block B0 as a focal point. In due course, the proposed development will be accompanied by further urban development at The Park neighbourhood centre to the right, both of which will frame views towards the Dublin Mountains in the background. The magnitude of change is

major, with the introduction of new distinctive buildings in a mature landscape setting that strengthens the sense of place and arrival. Visual impacts are considered highly positive as a result.

***M50 corridor (eastern approach)***

Glimpsed partial views of the proposed development occur along the motorway corridor from the east, introducing a distinctly urban character and a new focal point to some views. The proposed development draws the viewer's eye and signals a nearby destination for the motorway, but the magnitude of change to is mostly low and visual impacts are imperceptible to slight and neutral. Future development of the Cherrywood SDZ will have a more substantial visual impact on these views in due course.

***Cherrywood***

The proposed development will be glimpsed from some vantage points, mostly Block B0 and parts of Block A., providing a focal feature and adding depth to the view. From the Cherrywood LUAS stop there will be no view. There are glimpses of the Dublin Mountains, with the proposed development framing or slightly interrupting the view. Short-term visual impacts will be slight and neutral, while in the long term there is likely to be no view of the proposed development from most current vantage points due to intervening buildings, and no visual impact from it as a result.

***Golf Lane***

The proposed development is screened or barely glimpsed above the intervening trees from the vicinity of the golf club entrance. In closer proximity east of the site, the view is significantly enriched by the introduction of the proposed development, featuring a distinctive landmark building, where visual impacts are moderately positive.

Similar significant change occurs from the residential estate at Blackberry Hill / Knockree, east of the site, where the cluster of new buildings in a landscape setting provides an dynamic and attractive urban landscape that complements the existing suburban landscape. Visual impacts are major but neutral.

***Carrickmines Little***

From the on/off slip road to the M50, the proposed development appears as a moderate to high magnitude of change, with Block B0 prominent within a cluster of buildings. Visual impacts are considered to be moderately positive.

Further north within Carrickmines Little, views of the proposed development are infrequent, with a moderate magnitude of change arising where they occur. The scale and contemporary character contrasts with the intervening houses and punctuates the skyline, drawing the viewer's eye. Given its urban contrast to the prevailing suburban character and the distant rural backdrop, the proposed development is likely to have a moderately negative visual impact on these infrequent views.

***Carrickmines Great***

At the southern end of Carrickmines Great, there is no view of the proposed development and no visual impacts arising as a result. Adjoining Carrickmines Manor in close proximity to the proposed development it appears as a series of buildings stepping up and away from the viewer, beyond a band of retained trees in the foreground. With a steady height transition and carefully considered detailing, the magnitude of change is moderate, and has a moderately positive visual impact. At the entrance to The Park neighbourhood centre, there is a moderate magnitude of change featuring Blocks A1-A3 and Block B0 in a landscape setting, with a moderate and neutral visual impact arising as a result.

***The Park and Ballyogan***

From this contemporary and emerging retail and commercial landscape, the proposed development is partially screened with proposed Block B0 featuring significantly while Block A is glimpsed between/beyond the trees. Future development at The Park will further reinforce this emerging contemporary urban landscape. The proposed development is complementary to the viewer's immediate context, where visual impacts range from low/moderate neutral to slightly positive.

The Ballyogan Road and LUAS corridor comprise a poor urban landscape with low value and sensitivity to the proposed development. Significant change will occur in this view as a result of the permitted development at Quadrant 3 of The Park. In this context, the proposed development will provide a modest focal feature in this with a sense of a potential destination beyond the immediate environment. It will have a neutral or lightly positive visual impact.

***Dublin Mountains***

There are expansive views available across the Greater Dublin Area from the rising ground and peaks within the Dublin Mountains, encompassing a broad range of built character within the urban area below and extending to the distinctive coastline in the distance. The proposed development appears as a cluster of relatively tall buildings in this wide and diverse urban landscape. The magnitude of change is slight but significant in terms of the distinct building heights which contrast with much of the surroundings. In the short term, visual impact may be considered slightly negative, but with the future context of The Park at Carrickmines and other future urban development nearby such as at Cherrywood, the proposed development is likely to have a slightly positive visual impact by contributing to a major new contemporary urban area.

**CONCLUSION**

The proposed development will make a positive contribution to a much wider emerging urban neighbourhood in conjunction with The Park neighbourhood centre to the west and Cherrywood SDZ to the east. High quality building design, a distinctive landmark building and a rich landscape setting satisfy the requirements of national and local planning policy, contributing a positive and complementary urban landscape character to the area with mostly neutral or positive visual impacts upon surrounding neighbourhoods.

## LAND AND SOILS

This chapter was prepared by DBFL Consulting Engineers. The Land and Soils section of the EIAR is based on site investigations carried out on the subject lands in March 2020. 10 no. trial pits, 2 no. surface water soakaway tests, 3 no in-situ plate bearing tests to determine soil CBR, 5 no. rotary core boreholes and 2 no. groundwater monitoring wells. The bedrock Geology Map produced by the Geological Survey of Ireland (GSI) was also consulted.

The report revealed that the strata encountered consisted mainly of Topsoil or Surfacing on Made Ground (slightly sandy slightly gravelly clay with many cobbles and boulders) present at depths between 0.6m and 2.5m below ground level. Cohesive deposits were encountered beneath the Made Ground and were described typically as brown slightly sandy gravelly CLAY with occasional cobbles and boulders.

The bedrock is described in geological mapping as a Caledonian Age Granite and is part of a formation known as the Northern and Upper Liffey Valley Plutons. This formation is present from the Blessington Lakes area in Wicklow to the coast at Dun Laoghaire. The rock description is a granite with muscovite phenocrysts.

In addition, a technical Hydrogolgy and Hydrogeological Risk assessment was completed as part of the development to assess the risk of the development to undertake a desk top review is confirm any hydrological

pathway to Natura 2000 sites and determine the risks to water quality based on the construction and operation of the proposed development. The report concludes that due to the nature of the development and the proposed design, there is no potential for impact on water quality at the Natura 2000 sites.

It is anticipated that approximately 30,500m³ of material will need to be excavated from site to accommodate the construction of the basements for the proposed development. This includes approximately 20,000m³ of rock excavation. The bedrock material excavated during construction will be crushed, tested for use within the designed works reducing the volume of material being imported to the site.

The basement construction will be against the rock head/face and possibly redirect groundwater paths. This is likely to have a neutral, moderate, permanent impact on the ground water and aquifers within the subject site.

Stripping and wide scale excavation of soils and sub-soils to prepare and construct the development will give rise to impacts during construction. In addition, excavation will be necessary for the proposed basements and underground surface water attenuation systems. Re-usable excavated soils and rock will be retained on-site for backfilling or drainage purposes to reduce the total volume of imported material. It is anticipated that the impact on soils arising from the construction phase will be short term and moderate.

There is a potential risk of localised contamination of the groundwater due to construction activities i.e. construction spillages, leaks etc. resulting in a Permanent Negative impact on the groundwater, however, mitigation measures proposed will limit the potential for contamination. Excavations into the bedrock are anticipated for construction of the basement carpark. For these reasons, the impact is on the groundwater contained within the bedrock aquifer is considered as Small Adverse.

On completion of the construction phase, no further impacts on the soil environment are envisaged except for the possibility during operation phase of contamination of soil from foul water effluent or oil/chemical spills. In this regard, the worst-case scenario for the site during operational phase is one of effluent & pollutants from sewers or drains discharging into the ground, contaminating the soil and geological substrate. The likelihood of this scenario is very low however, as all pipe lines will be constructed to best practice standards and will be tested prior to connection to existing lives sewer. Furthermore, any work in the vicinity of sewers and drains will be monitored for breakages in the pipeline.

## WATER

This chapter was prepared by DBFL Consulting Engineers. The water chapter considers foul and surface water drainage, surface water streams and watercourses, potable water supply and groundwater.

This chapter is based on the following sources and reports:

- Environmental Protection Agency (EPA) interactive mapping and water quality data;
- Ordnance survey Ireland (OSI) mapping;
- Geological Survey of Ireland (GSI) online mapping service;
- Topographical survey;
- Site inspection / walkover;
- A SSFRA (Site Specific Flood Risk assessment) prepared by DBFL Consulting Engineers
- Calculation sheets for foul, surface water and watermains by DBFL Consulting Engineers
- Hydrological and Hydrogeological Risk Assessment Report prepared by AWN Consulting
- ECFRAMS Flood Mapping from OPW
- Local Authority Record Drawings
- Office of Public Works (OPW) National Flood Hazard Mapping & CFRAM Studies
- Flood Risk and Management Studies);

- Dun Laoghaire-Rathdown County Council record drawings;
- Site Investigations data;
- Ballyogan and Environs Local Area Plan 2019-2025;
- Dun Laoghaire-Rathdown County Development Plan May 2016-2022.

All drainage (surface and foul) and water supply will be provided in accordance with the requirements of Dun Laoghaire-Rathdown County Council and in particular with the following:

- Greater Dublin Regional Code of Practice for Drainage Works
- Greater Dublin Strategic Drainage Study (GDSDS)
- Planning System and Flood Risk Management Guidelines
- Building Regulations (Part H)
- Irish Water Standard Details and Codes of Practice for Water and Wastewater Infrastructure
- CIRIA SuDS manual C753 (2015).

This chapter also encompasses knowledge obtained from site visits, drainage and water services record information received from Irish Water and the Local Authority. Additionally, information from the EPA and GSI websites has been utilised.

The subject site is located in Carrickmines and is bordered to the north by the existing M50 motorway, to the west by Glenamuck Road, and to the east Golf Lane. The two EPA designated watercourses in the vicinity of the site include the Carrickmines River which enters and exits at the north west corner of the site and the Glenamuck / Golf Stream runs within the site parallel to the Glenamuck Road. The two watercourses converge in the north west corner of the site. The subject site's topography generally falls from south-east to north-west towards the river valley, ranging from approximately 80m AOD in the south to 75m AOD at the top of the river embankment and 70m AOD at the lowest river level.

The impact of the proposed development on the public foul sewerage system will be to increase the quantity of wastewater discharging to Shanganagh Wastewater Treatment Works for treatment and disposal. The potential impact of the proposed development on the local foul sewerage network during the construction phase of the development would be short term and minimal. The potential impact from the operational phase of the development is therefore likely to be long term and minimal.

All foul drainage infrastructure will be design and constructed in accordance with Irish Water Standard details and specifications.

Surface water drainage for the development lands is designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS) and is modelled in MICRODRAINAGE software using the Modified Rational Method. Surface water will primarily drain through the green roofs and Sustainable Urban Drainage Systems (SUDS) before been attenuated in underground Stormtech. The peak flow from the attenuation tanks will be controlled using a hydrobrake and will ultimately discharge to the Golf Stream north of the development.

SUDS features to be incorporated into the design will include the following:

- Green roofs will cover a minimum of 60% of apartment building areas
- Hard standing areas will drain to bioretention areas, conveyance swales and rain gardens
- Attenuation will be provided in Stormtech systems underground

All habitable buildings and critical infrastructure will be located in Flood Zone C as identified by the ECFRAMS mapping of the Golf Stream to the north of the site produced by the OPW. A Site Specific Flood Risk Assessment (SSFRA) has been prepared to comply with current planning legislation, in particular the recommendations of "The Planning System & Flood Risk Management - Guidelines for Planning Authorities". The SSFRA report

clarifies the site's flood zone category and present information which would facilitate an informed decision of the planning application in the context of flood risk. The report also outlines appropriate flood risk mitigation and management measures for any residual flood risk.

The potential impact on surface water from the development is likely to be short-term and low, provided suitable mitigation measures are put in place and maintained during the construction phase and the SUDS features are maintained during the operational phase.

The completed development will result in a permanent change to the existing natural surface water processes on the current greenfield site. The potential impact from the construction phase on surface water is likely to be short term and low. The potential impact from the operational phase on surface water is likely to be long term and low.

The potential likely and significant impact on hydrogeology during the construction phase is considered to be short term, temporary and moderate without mitigation measures in place. There is unlikely to be any significant impact on hydrogeology from the operation phase of the proposed development.

New watermain infrastructure will be provided within the site to serve the needs of the development. A new 100mm diameter connection will be made to the existing 200mm diameter watermain currently located in Golf Lane.

Water supply will be in accordance with the requirements of Irish Water.

The impact of the operational phase of the proposed development on the public water supply is to increase the demand on the existing supply. The potential impact of the proposed development on the public water supply network is likely to be long term and low.

## AIR QUALITY AND CLIMATE

AWN Consulting Limited has been commissioned to conduct an assessment of the likely impact on air quality and climate associated with the proposed residential development at Golf Lane, Carrickmines, Dublin 18. The proposed development will involve construction of residential apartment blocks with associated resident support facilities and amenities. The total gross site area comprises 2.56 hectares.

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

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). The EPA state that Ireland had total provisional GHG emissions of 59.90 Mt $CO_2$eq in 2019. This 6.98 Mt $CO_2$eq higher than Ireland's annual target for emissions in 2019. Emissions are predicted to continue to exceed the targets in future years.

The greatest impact to air quality during the construction phase of the proposed development is from dust emissions. There are a number of sensitive receptors in close proximity to the site, to the direct south and west site boundary. Provided the dust mitigation measures outlined in Appendix 9.3 of Chapter 9 are implemented, dust emissions are predicted to be short-term, negative and imperceptible and will not cause a nuisance at nearby sensitive receptors.

The best practice dust mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the proposed development is likely to be short-term, localised, negative and imperceptible with respect to human health.

Potential impacts to air quality and climate during the operational phase of the proposed development are as a result of increased traffic volumes on the local road network. The changes in traffic flows were assessed against the UK Design Manual for Roads and Bridges (DMRB) screening criteria for an air quality and climate assessment. The operational phase air quality and climate modelling assessments determined that there is no potential for significant impacts as a result of traffic related to the proposed development. It can therefore be determined that the impact to air quality and climate as a result of increased traffic volumes during the operational phase of the proposed development is localised, negative, imperceptible and long-term. In addition, the proposed development has been designed to reduce the impact to climate where possible.

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

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

## NOISE AND VIBRATION

AWN Consulting Limited has been commissioned to conduct an assessment of the likely noise and vibration impacts associated with the proposed residential development at Golf Lane, Carrickmines, Dublin 18. The proposed development will involve construction of residential apartment blocks with associated resident support facilities and amenities. The total gross site area comprises 2.56 hectares.

The existing noise climate in the vicinity of the proposed development has been surveyed. Prevailing noise levels are primarily attributed to road traffic.

The noise impact assessment has focused on both the outward impacts associated with the construction and operational phases of the proposed development on its surrounding environment as well as the inward noise impact from road traffic onto the development itself.

During the main construction phase the assessment has predicted that construction noise emissions will temporarily exceed the threshold of potentially significant effect when works are undertaken close to site boundaries and in particular when foundation works are undertaken. The resulting impact during these periods is predicted to be negative, significant and temporary. For all other construction activities the resulting impact will be negative, moderate and short term.

In terms of construction vibration it is expected that emissions may be perceptible at the closest receptors, but that vibration levels are expected to be below those that would cause cosmetic building damage. The predicted impact is expected to be negative, not significant and temporary.

During the operational phase, the outward noise impact to the surrounding environment will be due to additional traffic on surrounding roads and plant noise. Calculations for future traffic volumes on the surrounding public roads indicate that one road (route A) will have a negative, slight and permanent impact due to traffic increased, all other routes will be neutral, not significant and permanent.

Suitable criteria, derived from measured background noise levels, have been selected for plant noise emissions and will be adhered to at the design stage. The resulting outward noise impact due to plant noise will be neutral, not significant and permanent.

For inward noise impacting on the development itself mitigation measures have been provided to ensure that the internal noise levels are good and that the impact will be neutral, not significant and permanent.

## WIND

The Wind chapter studies the impact of wind and air movement within the proposed development and its impact on the pedestrians using the sites various paths and amenities.

The proposed development has included various features to mitigate these effects. Primary features have included laying out the amenities within courtyards to ensure they are shielded on all sides from the wind, high screens for roof amenity area to mimic the same effect as a courtyard on the roof level, boundary screens to protect the paths around the site, and vegetation to slow down the wind through the site.

The analysis showed that the mitigation features worked very well. Most of the amenity spaces have been shown to be usable throughout the year. All tenant and public amenity spaces show good compliance with the sitting and standing criteria overall where the local air speed is less than 6 m/s for more than 95 % of the year. The vegetation and landscaping elements have worked well in this aspect.

The boundary screens ensure that all paths meet the requirement of the walking criteria where the local air speed is less than 8m/s for more than 95% of the year.

Overall, the mitigation features incorporated in the design have helped to ensure wind comfort on the site.

## MATERIAL ASSETS

Material Assets considers physical resources in the environment which may be of human or natural origin. The objective of the assessment is to ensure that these assets are used in a sustainable manner, so that they will be available for future generations, after the delivery of the proposed development.

In accordance with the 2017 Draft EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, "*Material assets can now be taken to mean built services and infrastructure*". Material assets of a natural origin are dealt with comprehensively within the other chapters of the Environmental Impact Assessment Report.

The Material Assets chapter as a whole describes existing services to the application site and describes the predicted impacts which the development may have on these services and finds that there is adequate capacity for the proposed development.

This chapter considers the key aspects relating to material assets of a human origin of the proposed development site and the surrounding area, namely waste, potable water supply, wastewater discharge, electricity and gas supply and telecoms. Traffic and transportation are dealt with separately in the subsequent chapter of the EIAR.

The Material Assets chapter sets out that no significant residual impacts are expected to occur during the construction phase, subject to the implementation of mitigation measures.

During the operational phase of the development, a positive impact on urban settlements is predicted via the re-use of an underutilised site, and the provision of high quality housing to meet existing demand. The development is not expected to precipitate any significant residual impact on other material assets examined in this chapter. Transportation is dealt with in the subsequent chapter of the EIAR.

## TRANSPORTATION

This chapter has been produced to examine, assess and evaluate the likely impact of a proposed residential development on the local transportation network, as well as identifying proposed mitigation measures to minimise any identified impacts.

The subject development site is currently characterised as a brownfield site having previously accommodated a number of private dwelling houses. The subject lands are zoned "Objective A – To protect and-or improve residential amenity" within the Dún Laoghaire-Rathdown County Development Plan 2016-2022.

The subject development site is located to the southeast of the Glenamuck Road corridor and to the southwest of the M50 Carrickmines interchange (Junction 15). The development fronts onto Golf Lane corridor which currently forms a cul de sac road used for access to existing local dwellings along golf Lane and Carrickmines Golf Course.

The subject development site is situated approximately 15km south of Dublin City Centre and 11km west of Dún Laoghaire. The high employment area of Sandyford is located approximately 4.5km northwest of the subject site whilst Dundrum Shopping Centre is approximately 8km to the northwest.

Golf Lane, which is located immediately to the south of the site is reserved within the Cherrywood SDZ, is to be upgraded in the future to become the link road connecting Glenamuck Road (and J15 M50) with the western portion of the SDZ lands via a new M50 overpass.

The subject development site fronts onto the Golf Lane corridor. Travelling eastbound from the site provides access to Carrickmines Golf Club whilst travelling westbound from the site provides access to the Glenamuck Road corridor. Travelling northbound on Glenamuck Road provides access to Cornelscourt/ Cabinteely/ N11, Sandyford (4.5km) and Dundrum (8km) in addition to access to the strategic M50 Motorway (via Junction 15). Travelling in a southbound direction along Glenamuck Road leads to Kilternan (approx. 2km) and Enniskerry Road. Glenamuck Road is subject to a speed limit of 50kph.

Pedestrians benefit from existing footway and street lighting provision on both sides of the Glenamuck Road North corridor. The site of the proposed development benefits from relatively good quality cycle facilities across the general area which include the availability of cycle lanes along Glenamuck Road South corridor and on a number of links across the surrounding areas including Ballyogan Road. To the south of the Golf Lane roundabout junction, pedestrians benefit from the provision of a footway and street lighting on only one side (eastern side) of the Glenamuck Road South carriageway. There are currently no dedicated cycle facilities along this section of the corridor. Pedestrians also benefit from the provision of a footway and street lighting on the southern side of the Golf Lane corridor. Currently cyclists share the Golf Lane corridor with vehicular traffic.

Go-Ahead operates a bus service in the vicinity of the subject site. Go-Ahead Bus Route 63 operates services between Kilternan and Dún Laoghaire. The nearest Go Ahead Route 63 southbound bus stop (Bus Stop Number 7360) is located approximately 450m west of the subject site access whilst the nearest northbound bus stop for Go-Ahead Bus Route 63 (Bus Stop Number 7324) is located approximately 400m southwest of the subject site access. The closest LUAS Green Line interchanges (Ballyogan Wood and Carrickmines) are both located approximately 850m (11-minute walk) walking distance to the northwest and northeast of the subject site respectively, via the Ballyogan Road and Glenamuck Road North. The LUAS Greenline currently provides access to Sandyford, Dundrum and the City Centre to the north in addition to intermediate destinations along its route.

The subject site is located within the GDA Cycle Network sector designated as the “Dublin South East Sector”. In the vicinity of the subject site the following route additions are proposed:

- Route 11C: south from Goatstown Cross on Drummartin Link Road/ Kilgobbin Road/ Ballyogan Road to Carrickmines,
- A new feeder route linking the Inter-Urban cycle route (D1) with a proposed Secondary cycle route along Glenamuck Road (11C), and
- New and extended Greenway route from Shanganagh to Sandyford along the Carrickmines Stream and Ballyogan.

The Ballyogan & Environs Local Area Plan outline the new linkages in the LAP area. The pedestrian / cycle links proposed in the immediate vicinity of the subject development site include;

- **Link No. 1** Glenamuck Road to Kilgobbin Road Greenway
  *“this dedicated Greenway Spine traversing the Plan area from east to west, would provide safe and dedicated cycling/walking linkages through the central landholdings connecting Glenamuck Road and Kilgobbin Road and continuing on the existing Greenway in Stepaside North to Enniskerry Road”.*
- **Link No. 27** – Golf Lane Link
  *“Would link the Ballyogan Stream greenway spine (Link 1) through to the Kiltiernan Link Road”.*
- **Link No. 20** – The Park Carrickmines to Glenamuck Road
  *“This Link would connect the main ‘crossroads’ in The Park Carrickmines to the new Glenamuck District Distributor Road, and onward to Glenamuck Road, providing a route from Kiltiernan to The Park Carrickmines”.*

**Link No. 27** described above is indicatively shown to travel through the subject development site. Accordingly, a dedicated cycle / pedestrian link has been incorporated into the subject scheme proposals.

BusConnects is an initiative launched by the National Transport Authority with the aim of overhauling the bus system in the Dublin Region. This initiative includes review of bus services, the definition core bus network which comprises radial, orbital and regional core bus corridors. It also includes enhancements to ticketing and fare systems as well as transition to a new low emission vehicle fleet. In relation to the subject site, following this redesign of the bus network, the proposed development will be located in close proximity to the new BusConnects route L26 which will replace the existing Go-Ahead Bus route 63. This bus service will operate every 30 minutes on a daily basis.

A Bus priority network is proposed within Map No. T2 of the DLRCC Development Plan 2016-. The proposals include for a bus priority scheme along Glenamuck Road and continuing through to the R117 Enniskerry Road South of the Enniskerry Road / Glenamuck Road junction.

Other proposed extensions to the Luas network include a Lucan Line operating from the City Centre to Lucan and the extension of the Green Line south from Brides Glen to Bray.

Map No. T3 of the Dún Laoghaire Rathdown County Development Plan 2016-2022 presents the roads proposals within the plan area to be completed within the lifetime of the plan. Key road objectives in the general area of the subject site include;

- Glenamuck District Distributor Road (GDDR)
- Glenamuck Local Distributor Road (GLDR)
- The Park to Ballyogan Link Road
- Golf Lane M50 Overpass to Cherrywood SDZ
- M50 3rd Lane (Sandyford to M11)

The subject site will benefit from a single vehicle access which will be provided on Golf Lane It will be located approximately 255m northwest of the Glenamuck Road Roundabout. The majority of vehicles entering the site (i.e. residents) will be directed down a short ramp and into the basement car park. Other vehicles (such as deliveries, set down, visitors) will be accommodated at 'podium'/ ground level near Blocks B and D pedestrian access points. A turning facility is proposed at podium level allowing for drop off / collection purposes.

The overall development site has been set back to accommodate the future implementation of the DLRCC proposed Golf Lane M50 Overpass to Cherrywood SDZ.

In addition to the subject site's main access (as located on Golf Lane) which accommodates access to the subject development site by all modes, pedestrians/cyclists will be provided with additional convenient dedicated access/egress locations along Glenamuck Road South and Golf Lane. The subject scheme proposals incorporate a new dedicated cycle / pedestrian link between Glenamuck Road South and Golf Lane via the southwestern boundary of the subject site.

The subject scheme proposals include for a total of 303 no. car parking spaces comprising 202 at upper basement level, 97 at lower basement level and 4 no. at surface level. Of the 303 on-site car parking spaces, 10 no. have been assigned to the Creche / amenity / café / retail land uses. The surface level car parking spaces comprise 3 no. visitor car parking spaces an 1 no. set down visitor space. A total of 289 no. basement car parking spaces are dedicated to the residential units whilst the remaining 10 no. spaces are for the non-residential uses. The subject development proposals include for a total of 1240 bicycle parking spaces comprising 240 short term bicycle spaces located at podium level and 1000 long term bicycle spaces within the upper basement level.

It is predicted that the potential peak hour traffic generated by the subject development in the AM peak hour and PM peak hour could be in the region of 132 two-way trips and 106 two-way trips respectively.

The potential construction phase effects are characterised as being '*direct*' and '*negative*' but '*imperceptible*' as the vehicle generation during the construction stage have been calculated as resulting in just a percentage increase of approximately 1% compared to the base traffic scenario. These effects are '*likely*' to occur however they will be '*temporary*' in nature only lasting for the duration of the construction stage.

During the operational phase, the analysis demonstrates that for the most part the proposals will generate a subthreshold impact on the surrounding road network. Nevertheless, the impact at Junction 2 is recorded as being slightly over threshold (for congested networks) in the AM peak hour assessment. Accordingly, the operational performance of both the site access junction and key off-site Glenamuck Road South / Golf Lane Roundabout junction, has been investigated in greater.

The results of the further assessment at these junctions reveals that the introduction of the subject residential development traffic is predicted to result in effects that can be characterised as '*not significant'* on the operational performance of both junctions. The predicted '*not significant*' effect on the local road network is characterised as '*direct*' and '*negative*'. Nevertheless, the duration of this scale of effect is predicted to be 'short-term' as once the mobility management plan objectives are implemented, it is predicted that fewer vehicle trips than those considered within the subject worst case assessment will be generated thereby reducing the potential impact further.

A package of integrated mitigation measures has been identified to off-set the additional local demand that the proposed development on the subject zoned lands could potentially generate as a result of the forecast increase in vehicle movements by residents and visitors. The strategy includes specific measures for both the construction and operational phases of the proposed development.

## INTERACTIONS BETWEEN ENVIRONMENTAL FACTORS

The purpose of this chapter of the EIAR is to draw attention to significant interaction and interdependencies in the existing environment. John Spain Associates in preparing and co-ordinating this EIAR ensured that each of the specialist consultants liaised with each other and dealt with the likely interactions between effects predicted as a result of the proposed development during the preparation of the proposals for the subject site and this ensures that mitigation measures are incorporated into the design process. This approach is considered to meet with the requirements of Part X of the Planning and Development Act 2000, as amended, and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001-2020. The detail in relation to interactions between environmental factors is covered in each chapter of the EIAR and is reiterated within the interactions chapter.

## SUMMARY OF EIA MITIGATION AND MONITORING MEASURES

This chapter provides a summary of all the mitigation and monitoring measures proposed throughout the EIAR document for ease of reference for the consent authority and all other interested parties.