

Castleforbes Strategic Housing Development (SHD), Sheriff Street Upper, Dublin 1

Environmental Impact Assessment Report
(EIAR) - Volume 1 Non-Technical Summary

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**Brady Shipman
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Environmental
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Client:

Glenveagh Living Ltd

Date:

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Contents

- Contents 3
- 1 Introduction 1**
 - 1.1 The Applicant 1
 - 1.2 The Proposed Project..... 1
 - 1.3 Format & Structure of the EIAR 2
- 2 The Environmental Impact Assessment (EIA) Process 4**
 - 2.1 The Purpose of an EIAR 4
 - 2.2 The Requirements for an EIAR 4
- 3 Planning & Development Context 7**
 - 3.1 Introduction..... 7
 - 3.1.1 National Level 7
 - 3.1.2 Regional Level..... 7
 - 3.1.3 Local Level 7
 - 3.2 Planning History of the Site..... 8
- 4 Consideration of Alternatives 10**
 - 4.1 ‘Do-Nothing’ Alternative 10
 - 4.2 Alternative Locations 10
 - 4.3 Alternative Layouts & Designs 10
 - 4.4 Alternative Processes 11
- 5 Description of the Proposed Project 12**
 - 5.1 Background to the Site 12
 - 5.1.1 Current Site Use 12
 - 5.2 Site Location and Context..... 12
 - 5.3 Main Features of the Proposed Project..... 13
- 6 Consultation 15**
- 7 Population & Human Health 16**
- 8 Biodiversity (Flora and Fauna) 17**
- 9 Land, Soils, Geology and Hydrogeology 20**
- 10 Hydrology - Surface Water 24**
- 11 Air Quality and Climate 28**
- 12 Noise and Vibration 30**
- 13 Landscape and Visual 31**
- 14 Cultural Heritage, Archaeology and Architectural 34**
 - 14.1 Archaeological Heritage 34
 - 14.2 Architectural Heritage 35



14.3	Cultural and Industrial Heritage.....	35
15	Microclimate - Daylight/Sunlight	36
15.1	Daylight.....	36
15.2	Sunlight.....	37
16	Microclimate - Wind	40
17	Traffic and Transportation	42
18	Material Assets - Waste.....	45
19	Material Assets - Services.....	47
20	Interactions	48
21	Cumulative Impacts	50
22	Schedule of Environmental Commitments	51



1 Introduction

This Environmental Impact Report (EIAR) has been prepared in support of a planning application for a proposed Strategic Housing Development (SHD) and associated infrastructure at Castleforbes Business Park, Sheriff Street Upper and East Road, Dublin 1 (hereafter referred to as “the proposed Project”), for Glenveagh Living Ltd., the applicant.

This Report (Non-Technical Summary (NTS) - Volume 1) is a summary of the information contained in the Main Report - EIAR (Volume 2). For detailed information and key mitigation measures please see the full EIAR (Volume 2).

Having regard to the 2014 EIA Directive, and the Circular Letter PL 1/2017 of the Department of Housing, Planning, Community and Local Government, the Main Report has been titled an Environmental Impact Assessment Report (EIAR). This constitutes and fulfils the requirement of an Environmental Impact Statement (EIS) as required under and in accordance with the Planning and Development Act, 2000, as amended, (Part X); and Part 10 of the Planning and Development Regulations, 2001-2017.

1.1 The Applicant

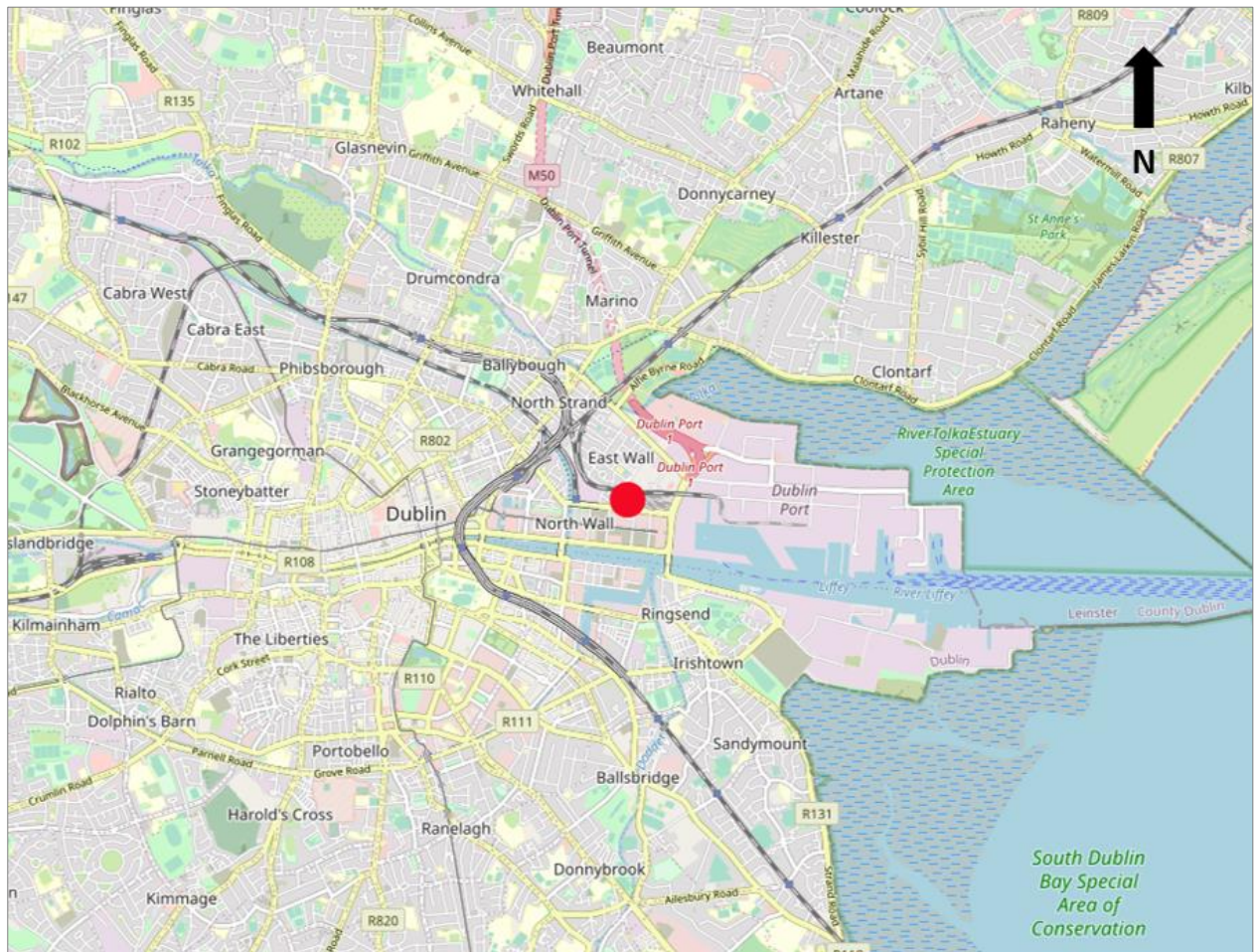
The Client for this proposed Project is Glenveagh Living Ltd., owners of the lands at Castleforbes Business Park, Sheriff Street Upper and East Road, Dublin 1.

1.2 The Proposed Project

The Site of the proposed Project is located on Sheriff Street Upper and East Road, Dublin 1, approximately 1.4km north-east of Dublin City centre. The application Site boundary has an area of 2.44 hectares (ha) and the proposed Project development area is 2.02ha. The application Site boundary forms part of the Castleforbes Business Park. The Site is bound by East Road to the west, an Irish Water pump station to the north, CIE¹ lands to the north and east, and Sheriff Street Upper to the south, see Figure 1.1 below.

¹ Córas Iompair Éireann

Figure 1.1: Location of the Site for the Proposed Project² (Site location in red)



1.3 Format & Structure of the EIAR

Table 1.1 below sets out the format and structure of this Environmental Impact Assessment Report.

² EPA Maps (2020). Source *OpenStreet Maps*

Table 1.1: Structure of the EIAR

Chapter No.	Description
Volume 1: NTS	
NTS	Summary of the EIAR in non-technical language
Volume 2: Main Report	
Chapter 1 - 3	Provide an introduction and background to the proposed Project.
Chapter 4	An assessment of the alternatives considered for the proposed Project.
Chapter 5	Description of the proposed Project assessed in the EIA.
Chapter 6	Consultation
Chapter 7	Population and Human Health
Chapter 8	Biodiversity (Flora and Fauna)
Chapter 9	Land, Soils, Geology and Hydrogeology
Chapter 10	Hydrology (Surface Water)
Chapter 11	Air Quality and Climate
Chapter 12	Noise and Vibration
Chapter 13	Landscape and Visual
Chapter 14	Cultural Heritage, Archaeology and Architectural
Chapter 15	Microclimate - Daylight/Sunlight
Chapter 16	Microclimate - Wind
Chapter 17	Traffic and Transportation
Chapter 18	Material Assets - Waste
Chapter 19	Material Assets - Services
Chapter 20	Presents an overview of all the major interactions between the different environmental aspects as outlined above and the interactions between the various attributes.
Chapter 21	Presents the cumulative impacts of this EIAR with committed development
Chapter 22	Presents the schedule of environmental commitments/mitigation measures included in the EIAR Document for ease of reference.
Volume 3: Appendices	
A9.1 - A18.2	Technical reference information supporting the EIAR Chapters.

2 The Environmental Impact Assessment (EIA) Process

2.1 The Purpose of an EIAR

The Environmental Impact Assessment (EIA) Directive aims to provide a high level of protection to the environment and ensures environmental considerations are taken into account in the preparation of a proposed Project, with the view to reducing environmental impacts.

The objective of the EIAR is to identify and predict the *likely environmental impacts* of the proposed Project. The EIAR describes the means and extent by which any environmental impacts can be avoided, reduced or improved; to interpret and communicate information about the likely impacts; and to provide an input into the decision making and planning process.

2.2 The Requirements for an EIAR

The 2014 Directive specifies the classes of project for which an EIA is required and the information which must be contained within the EIAR. In accordance with *Article 4(1)* of the 2014 Directive. All projects listed in Annex I are considered as having *significant effects* on the environment and are subject to an Environmental Impact Assessment (EIA). Projects listed in Annex II of the EIA Directive, the national authorities may determine whether an EIA is needed, either on the basis of thresholds / criteria or on a case by case examination.

Projects needing an EIA are listed in Schedule 5 of the Planning and Development Regulations 2001-2017.

Schedule 5 (Part 2) of the Planning & Development Regulations 2001 (as amended) set mandatory thresholds for each project class. Sub-sections 10(b)(i) and 10(b)(iv) addresses '*infrastructure projects*' and requires that the following class of project be subject to EIA:

"Class 10(b) (i). Construction of more than 500 dwelling units."

*"Class 10(b) (iv). Urban development which would involve an **area greater than 2ha** in the case of a **business district**, 10ha in the case of other parts of a built-up area and 20ha elsewhere." [Emphasis added].*

Therefore, an EIA is required and an EIAR (Volume 2 - Main Report) has been prepared and will be submitted to An Bord Pleanála with the Strategic Housing Development (SHD) Planning Application.

The proposed Project at Sheriff Street Upper and East Road, Dublin 1, will consist of a mixed-use development set out in 9 no. blocks, ranging in height from 1 to 18 storeys, above part basement/upper ground level, to accommodate 702 no. build-to-rent residential units, retail/café/restaurant units, cultural/community building, a standalone three storey childcare facility and residential tenant amenity. The Site will accommodate car parking spaces, bicycle parking, storage, services and plant areas. Landscaping will include a new central public space and residential podium courtyards.

The following components are addressed in the Main EIAR (Volume 2):

- The EIA Process
- Planning and Development Context
- Consideration of Alternatives
- Description of the Proposed Project
- Population & Human Health
- Biodiversity (Flora & Fauna)
- Land, Soils, Geology & Hydrogeology
- Hydrology (Water)
- Air Quality & Climate
- Noise & Vibration
- Landscape & Visual
- Cultural Heritage, Archaeology & Architectural
- Microclimate - Daylight/Sunlight
- Microclimate - Wind
- Traffic & Transportation
- Material Assets - Waste
- Material Assets - Services
- Interactions
- Cumulative Impacts
- Schedule of Environmental Commitments.

In addition to the information contained in the EIAR a number of other standalone reports assessing environmental impacts are submitted with this planning application. These documents have been considered in the preparation of the EIAR, including:

- Information for Screening for Appropriate Assessment (AA) Report.
- Preliminary Construction Management Plan (PCMP).
- Site Specific Flood Risk Assessment (SSFRA).
- Construction & Demolition Waste Management Plan (C&D WMP).
- Operational Waste Management Plan (OWMP).
- Traffic and Transport Assessment Report (TTA).
- Parking Strategy.
- Mobility Management Plan (MMP).
- Infrastructure Design Report.

Castleforbes Strategic Housing Development (SHD), Sheriff Street Upper, Dublin 1
Environmental Impact Assessment Report (EIAR) - Volume 1

- Sunlight and Daylight Access Analysis.
- Wind Microclimate Report.

3 Planning & Development Context

3.1 Introduction

This Chapter is a review of the planning policy context at a national, regional and local level and other relevant statutory and non-statutory planning documents.

3.1.1 National Level

At the National level the *National Planning Framework (NPF) - Project Ireland 2040* identifies the urgent requirement for a major uplift of the delivery of housing within the existing built-up areas of cities and other urban areas. The NPF has a particular focus on brownfield development, targeting derelict and vacant sites that may have been developed before but have fallen into disuse. The NPF requires the delivery of a baseline of 25,000 homes annually to 2020, followed by a likely level of 30-35,000 annually up to 2027.

3.1.2 Regional Level

At Regional level the *Eastern and Midland Regional Assembly - Regional Spatial & Economic Strategy (RSES)* plan identifies that the central need for the RSES to be people focussed. As such 'quality of life' encapsulates strong economic output and stability, good environmental performance and a good standard of living for all. The *Regional Planning Guidelines for the Greater Dublin Area 2010-2022 (RPGs)* reinforce the implementation the strategic planning framework set out in the National Spatial Strategy.

Furthermore the RPGs for the Greater Dublin Area:

'supports the delivery of the hierarchy, focusing new housing within the existing footprint of the metropolitan areas and planning expansion of the footprint in conjunction with new high quality public transport investment; designation of multi-modal transport corridors providing enhanced public transport linkages serving key towns and linked investment in developing these designated towns in the hinterland area'.

3.1.3 Local Level

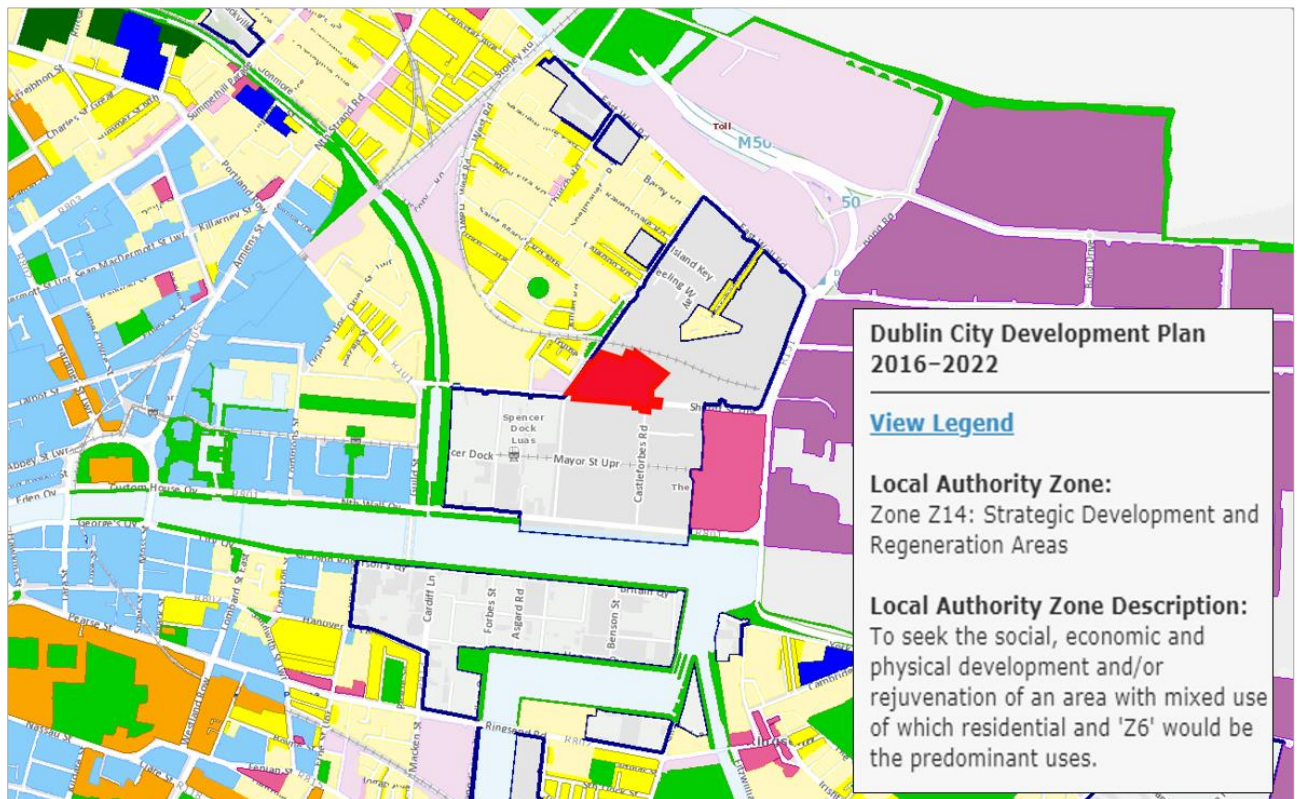
At Local level the Dublin City Development Plan 2016-2022 sets the statutory planning policy for development within the Dublin City boundary, having regard to national and regional plans and policies (mentioned above). The Site of the proposed Project at Sheriff Street Upper and East Road, Dublin 1 is located within the administrative area of Dublin City Council.

The main strategy of the Dublin City Development Plan is to promote the intensification and consolidation of Dublin City, and the Docklands is identified as one of the Strategic Development Regeneration Area (SDRA) capable of realising this objective. Furthermore, the Site is zoned Z14 within the Dublin City Development Plan. The objective of Z14 is to:

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

The Site is zoned Z14 within the Development Plan, see Figure 3.1 below

Figure 3.1: Land Use Zoning under the Current Dublin City Development Plan 2016-2022³(Site in red)



3.2 Planning History of the Site

The Site of the proposed Project, and wider site, has been subject to a number of planning applications in recent years as set out below:

Plan Reg. Ref.: 3412/08 (3412/08/x1) Granted 29th Dec 2008 (and extended 16th Oct 2013) by Dublin City Council

The proposed development consisted of a building ranging in height from 8 to 10 storeys (33,257sqm) incorporating 4 levels of basement car parking (314 spaces) and ancillary areas. The south western corner of the proposed building fronts onto Sheriff Street Upper and extends to 8 storeys in height. An 8 storey glazed atrium with internal bridges on all levels between the 2nd and 7th floor forms a link to the 10 storey element of the building.

³ Department of Housing, Planning and Local Government (2020). My Plan. <http://www.myplan.ie/webapp/>

More recently the applicant has sought and received planning permission for the eastern and western parts of the site to accommodate 2 hotels and a commercial office building. This ensures the objectives of the Z15 Zoning area achieved.

Plan Reg. Ref.: 3433/19- Granted 7th Jan 2020

The proposed development consists of the demolition and partial demolition of all existing structures and the construction of a commercial office building and a 270 bedroom hotel. The commercial office building ranges in height from 6 to 9 storeys plus plant zone (maximum height of c.40m) with a total gross floor area of c. 10,265sq.m. The hotel contains 270 bedrooms and ranges in height from 7 to 10 storeys (maximum height of c.35.21m) with total gross floor area of c. 9,644 sq.m.

Plan Reg. Ref.: 2143/20- Granted 6th August 2020

The proposed development consists of the demolition of all existing structures on the site and the construction of a 219 bedroom hotel ranging in height from 6 to 9 storeys (maximum height of c.33.95m) with total gross floor area of c.9,241sq.m (incl. basement). The ground floor includes hotel reception/lobby/check in area, a public bar with seating area, a public restaurant area with seating area, a cafe/work zone, kitchen, staff area, storage areas, lifts and circulation areas, plant, and ancillary office areas. Floors one to eight typically contain, bedrooms, linen and clearing stores, lifts and circulation areas with a gym and wellness centre located on floor one. A proposed basement -1 level contains plant, storage, staff areas, laundry store and staff cycle parking.

Plan Reg. Ref.: 3197/20- Granted 16th November 2020

Amendments to the permitted hotel and office, permitted under 3433/19, to the east of the SHD application site to include minor alterations to the permitted buildings including minor reconfiguration of the permitted building footprints resulting in an overall increase in office floor space of 670 sq.m and hotel floor space of 393 sq.m.

4 Consideration of Alternatives

This Chapter provides a summary of the main alternatives which were considered for the proposed Project at Sheriff Street Upper and East Road, Dublin 1. Furthermore, the Chapter sets out the main reasons for choosing the proposed Project. The alternatives may be described at four levels:

1. 'Do-Nothing' Alternative
2. Alternative Locations
3. Alternative Layouts / Designs
4. Alternative Processes.

4.1 'Do-Nothing' Alternative

A '*do-nothing*' scenario was considered an inappropriate alternative as the Site is as a Strategic Development Regeneration Area (SDRA) within the Development Plan 2016-2022

4.2 Alternative Locations

As outlined above the Site is zoned as a SDRA and as such consideration of alternative locations for the construction of houses and apartments proposed in this Strategic Housing Development (SHD) application was not considered necessary.

4.3 Alternative Layouts & Designs

During the design process a range of alternative layouts for the proposed Site were considered. The proposed layout is designed to function, in combination with the already permitted developments on the wider site, as a mixed-use development on a currently underutilised site, and is intended to provide a landmark and gateway buildings and public space at Sheriff Street Upper that defines the site as a destination within the Docklands.

During the design process for the proposed Project a number of iterations of alternative designs were considered. The proposed Project at Castleforbes Business Park, Sheriff Street Upper has been prepared in accordance with the requirements of the National and Local Planning Policy and Design Standards. A

The proposed Project has been the subject of a number of pre-application meetings with the Dublin City Council prior to lodgement. The proposed Project was also subject of a pre-application SHD consultation with An Bord Pleanála, with design alterations arising out of this process also.

The key considerations which influenced the design of the proposed Project were as follows:

- To provide and promote a residential development in the City, with regard to the need for high standards of urban design/architecture and to successfully integrate the development with the character of the surrounding area.

- The need to promote sustainable development of vacant or under-utilised sites and to consider higher density proposals.
- The need to provide sustainable neighbourhoods by achieving suitable levels of amenity.
- The need to provide suitable social infrastructure and other support facilities are available in the neighbourhood.
- The need to include community hubs, sports and recreational green open spaces and suitable shops contributing to the creation of sustainable and mixed-income neighbourhoods.
- The quality of the urban environment to be delivered and the associated impact on human health.

4.4 Alternative Processes

The EIA Guidelines state that within each design solution there can be a number of different options as to how the processes or activities of the development can be carried out. These alternative processes can include management of emissions, residues, traffic and the use of natural resources. A key consideration in the various options which were considered, as was the overall land use mix and layout of the development resulting in potential impact on human health and the presence of underground services resulting in impacts on the water supply in the area.

5 Description of the Proposed Project

5.1 Background to the Site

The East Wall area established during the late 18th century. The importance of the railway system over the canal, saw the area develop with a mix of warehouses, stores and yards, and rows of small terraced houses. As such, the area was mainly a working class area, with many taking up employment in Dublin Port. A network of railway lines, many elevated, brought both passenger and freight trains into the North Docks.

Looking at the historic relationship between the residential area of East Wall and the larger scale industrial and port related buildings at North Docks, East Road presented a change from the residential area into the North Docks, and that transition is also apparent to the south at Mayor Street. Railway infrastructure runs through the area and was a defining feature of the locality.

5.1.1 Current Site Use

The Site is a brownfield site that is occupied by Castleforbes Business Park, which includes several warehouses and associated yards. The land uses surrounding the Site of the proposed Project are a mix of office, hotel and residential blocks.

5.2 Site Location and Context

The application Site boundary is 2.44 hectares (ha) and the proposed Project development area is 2.02ha. The Site is located on Sheriff Street Upper and East Road, Dublin 1. The Site is located immediately to the north of the Docklands Strategic Development Zone (SDZ), with numerous developments completed, permitted and others in progress nearby.

The Site of the proposed Project is accessible and benefits from a range of transport connections. The Docklands Rail Station and the LUAS Red Line (The Point interchange) are approximately 400m (5-minute walk) and 450m (6-minute walk) respectively from the Site. The LUAS Red Line currently provides access to Busáras, Connolly Station, Dublin City centre, Heuston Railway Station, Tallaght and Saggart in addition to other intermediate destinations along its route.

The Site is within walking and cycling distance of the North and South Docklands employment hubs, the IFSC and the City Centre.

Furthermore, Connolly Station and the proposed Clongriffin-Tallaght Bus Rapid Transport (BRT) interchange are within 1.2km from the Site, and the proposed interchange for the Dart Underground is located at the Docklands Rail Station, approximately 450m from the Site.

Dublin Bus operates along the East Road corridor and along the R801 North Wall Quay (to the south of the Site) providing links to/from a range of destinations including Dublin City centre and Dublin Airport.

The Site of the proposed Project has two entry points on Sheriff Street Upper; one opposite the existing Sheriff Street Upper/Castleforbes Road, at the south-east corner of the Site and the other at the south-west corner via a gated entrance.

Figure 5.1: The Site of the Proposed Project (in red)



5.3 Main Features of the Proposed Project

The proposed Project consist of the demolition of all structures on the Site and the construction of a mixed-use residential development set out in 9 no. blocks, ranging in height from 1 to 18 storeys, above part basement/upper ground level, to accommodate 702 no. build-to-rent residential units, retail/café/restaurant units, cultural/community building, a standalone three storey childcare facility and residential tenant amenity. The Site will accommodate 179 no. car parking spaces, 1,392 no. bicycle parking spaces, storage, services and plant areas. Landscaping will include a new central public space, residential podium courtyards and upgraded public realm on Sheriff Street Upper and East Road.

The 8 no. residential blocks range in height from 1 to 18 storeys, accommodating 702 no. build-to-rent residential units comprising:

- 100 no. studios;

- 406 no. 1 bed units;
- 169 no. 2 bed units;
- 15 no. 3 bed units; and
- 12 no. duplex units (eight 2 bed duplex units and four live-work duplex units).

The residential development is arranged around a central open space (at ground level) and raised residential courtyards at upper ground level over part basement level. Residential tenant amenity space is provided in Blocks A1, B3 and C2.

Ground floor level uses located off Sheriff Street and into the central open space include a cultural/community building, retail/restaurant/café units, and tenant amenity space. The proposed Project also includes a standalone three storey childcare facility.

Two vehicular access points are proposed along Sheriff Street, and the part basement car parking is split into two areas. The proposed Project will accommodate 179 no. car parking spaces, 1,392 no. cycle parking spaces (1,010 no. long-term bicycle parking spaces, 30 no. disabled/cargo bicycle parking spaces and 352 no. short stay spaces) will be provided at basement and surface levels. The proposed Project will also include nine disabled parking bays, 18 no. e-Car parking spaces with a further seven on-street car parking spaces are provided along Sheriff Street Upper and one set down/loading area will also be available at surface level.

The main pedestrian access is located centrally along Sheriff Street with additional access points from East Rd and from the eastern end of Sheriff Street. The application also includes for an interim pocket park on the corner of Sheriff Street and East Rd to be provided as a temporary park prior to the delivery of the permitted hotel on this part of the site.

6 Consultation

The *EIA Guidelines* state that within each design solution there can be a number of different options as to how the processes or activities of the development can be carried out. These can include management of emissions, residues, traffic and the use of natural resources

Consultation was undertaken which identified the environmental and community issues that needed to be taken into consideration in designing the proposed Project for the Site.

A series of meetings have been held with both the Development Agency and Dublin City Councils Planning Department as formal pre-application discussions on the substance of the proposed Project. In addition meetings and consultation took place with officials from the Roads & Traffic Section, Drainage and Housing Departments.

Following this, a tri-partite meeting took place with An Bord Pleanála and Dublin City Council on 7th February 2020 as part of the Pre-Application Consultation Request submitted on the project (ABP Reg. Ref. 306163-19). An Bord Pleanála provided details of the prescribed bodies to be notified about this SHD planning application.

This proposed Project has a dedicated website: www.castleforbesshd.ie

7 Population & Human Health

Brady Shipman Martin has evaluated the impacts, if any, of the proposed Project on the Population and Human Health with specific focus on Social Patterns (Population), Land Use & Settlement Patterns, Economic & Employment Activity, Tourism & Local Amenity and Human Health. Human health is also addressed through a review of expected effects on air quality and climate, noise and vibration and traffic. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

The Construction Phase related activities have the potential to impact the local population, in relation to new employment, a change in land use and a potential to increase baseline noise levels and changes in air quality, which could cause disturbance to the local residents and the users of the community and recreational facilities.

The proposed Project will result in a construction period of approximately 48 month period (four years) on top of the current Construction Phase activity already underway in the vicinity. The Construction Phase is likely to significantly enhance economic activity in the construction sector. It is anticipated that a substantial number of jobs will be created directly onsite. The construction of the proposed Project will also support job creation in building supply companies as well as have a *positive* impact for local businesses associated with the increase in spending on goods and services in the area.

However, the Construction Phase related activities will be *short-term* impacts. Potential *negative* impacts included construction traffic, possible nuisances associated with construction activity and noise impact. Construction Phase mitigation measures outlined in the EIAR will ensure that the construction works will reduce or prevent any impacts identified.

The Operational Phase of the proposed Project will contribute to the settlement growth of Dublin City, and provide a portion of the planned population growth of the City. Overall, the proposed Project will result in the construction of new, high quality residential scheme. The proposed residential development will have a *significant positive* impact on economic activity in the area. The Operational Phase will also have a *positive* impact on employment.

The mitigation measures outlined in the EIAR (Volume 2) will ensure that there will be no negative impacts or effects on Population & Human Health, during the Construction and Operational Phases.

The proposed Project will provide residential accommodation which will be a *positive effect* for the local area and will provide a significant positive impact to the overall economy of the local area and Dublin City.

8 Biodiversity (Flora and Fauna)

Brady Shipman Martin has undertaken an appraisal of the likely effects on biodiversity (flora and fauna) arising out of the proposed Project. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

Measures to mitigate the potential impacts on defined key ecological receptors are proposed. The assessment involved a desk study and field surveys by a suitably qualified ecologist. The methodologies used to determine the value of ecological resources, to characterise impacts of proposed Project and to assess the significance of impacts and any residual effects are in accordance with the *National Roads Authority (NRA) Guidelines for Assessment of Ecological Impacts of National Road Schemes*⁴. This methodology is consistent with the *Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland – Terrestrial, Freshwater, Coastal and Marine*⁵.

The Screening for Appropriate Assessment (AA) under the EU Habitats and Birds Directives has concluded that there will be *no risk of significant negative effects* on any European site as a result of the proposed Project, either alone or in-combination with other plans or projects. In that regard, the Appropriate Assessment Process - preparation of a Natura Impact Statement (NIS) is not required.

The Site is entirely urban in nature, and no rare habitats or habitats of high ecological value (*i.e.* of International, National or County Importance) are present at the Site. There are no known records of rare or protected plant species within the immediate vicinity of the Site and none were recorded during the Site visit.

Although there are a number of buildings on the Site, the daytime bat survey undertaken recorded no evidence of any use of the Site by roosting bats, and it concluded that there are no features suitable for use by roosting bats within the Site. Similarly, there is no evidence of nesting birds, with the exception of feral pigeons occupying the internal areas of a number of open warehouse-type buildings.

There are no watercourses on, or connected to, the Site. The nearest such features are the River Liffey, 360m to the south, the Royal Canal, c. 550m to the west, and the River Tolka, 820m to the north. These watercourses discharge to Dublin Bay to the east.

No evidence of badgers, otters, amphibians or reptiles has been recorded on the Site. It is not considered likely that these or other protected species utilise the Site, even on an occasional basis.

⁴ National Roads Authority (NRA) (2009). *Guidelines for Assessment of Ecological Impacts of National Road Schemes*.

⁵ CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*.

The bird fauna recorded on the Site was very limited, and there is no habitat on the Site suitable for use, even on a very occasional basis, by any overwintering birds, such as pale-bellied Brent goose, or any other protected bird species listed as a Special Conservation Interest (SCI) in any European Site. Overall, the Site is of no ecological importance, in accordance with the ecological resource valuations presented in the *Guidelines for Assessment of Ecological Impacts of National Road Schemes*⁶.

The proposed Project will require the removal of the existing hard standing, including warehouses and associated yards, and replacement with the mixed-use development and landscaping. There will be *no significant* impacts as a result of this habitat loss.

There are no features (including the buildings) potentially suitable for use by roosting bats, and there are no habitats of any importance for commuting/foraging bat species either on the Site or in the immediate area. Furthermore there will be no disturbance to or loss of habitat for other mammals, such as otters or badgers. There will be *no significant impacts* as a result of disturbance to or loss of habitat for mammals.

It is not expected that there will be any impacts on amphibians, reptiles, lepidoptera or any other species groups as a result of the proposed Project.

No designated conservation areas will be impacted in any way by the proposed Project and no mitigation measures are required.

No watercourses are present within or connected to the Site of the proposed Project. While theoretically there are potential links between the Site and the European sites of Dublin Bay via surface water run-off, *no significant impacts* on water quality are predicted during the Construction Phase.

No designated conservation areas will be impacted in any way by the proposed Project and no mitigation measures are required in this regard.

New planting will be incorporated into the landscape design. The proposed planting/landscaping strategy will use a mix of appropriate species, incorporating a range of species that will attract feeding invertebrates, including moths, butterflies and bees. It will take account of and implement the relevant objectives of the *All-Ireland Pollinator Plan 2015-2020*. All planting plans and landscaping proposals will further ensure that no invasive species are introduced, either deliberately or inadvertently, to the Site.

There are no significant areas on the Site suitable for use by nesting/breeding birds. No seasonal restrictions on demolition or site clearance are necessary. No bat roosts have been recorded at the Site and it will not be necessary to apply for a derogation licence. The lighting design for the proposed Project will not require any

⁶ NRA (2009). *Guidelines for Assessment of Ecological Impacts of National Road Schemes*.

particular measures to prevent any impacts on commuting or foraging bats. No other mitigation measures are considered necessary for the protection of fauna.

Surface water mitigation measures will ensure that no sediment contamination, contaminated run-off or untreated wastewater will enter any on-site surface water drains during the construction of the proposed Project. Details of surface water mitigation can be found in Chapter 10 (Hydrology) of the EIAR (Volume 2).

The proposed Project will result in the removal of warehouses and associated yards and hard and their replacement with new development and associated public open space and landscaped areas. This will result in *no long-term residual* impact on any ecological receptors, either within or in the vicinity of the Site, or associated with any site designated for nature conservation.

The landscape planting that is proposed will ensure that there will be an overall increase in biodiversity on the Site.

9 Land, Soils, Geology and Hydrogeology

AWN Consulting Limited carried out an assessment of the likely potential impacts on the geological and hydrogeological environment during the Construction and Operational Phases of the proposed Project. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

The Geological Survey of Ireland (GSI) geological web viewer shows the Site is underlain by circa >30metres made ground and overburden soil. This was confirmed by on-site investigations.

The profile on site comprises thin hardstand overlying > 1.5m of Made Ground comprising mostly of sandy gravelly CLAY with fragments of redbrick. Beneath this to circa 7.5m was fine to coarse Sands and Silts with occasional cobbles and occasional Clay deposits. Underlying this is a CLAY horizon to circa 15.6m below ground level (bgl) and the drill logs note this is similar to Dublin Port Clay. An additional layer of Gravel & Sands underly this to circa 17.4mbgl with glacial deposits noted at some locations. Stratum depths are not heterogeneous. Bedrock is recorded as calcareous mudstone and limestone and ranges in depth between 29.30mbgl - 34.50mbgl.

The Groundwater Body (GWB) underlying the Site is the Dublin GWB (EU Groundwater Body Code: IE_EA_G_008). The EPA classified the Dublin GWB as having 'Good Status' during the during the 2013-2018 WFD assessment phase, with a WFD risk currently "*not at risk*" meaning the Dublin GWB is not at risk of failing to meet its WFD objectives.

Based on the NRA⁷ methodology (2009) (refer to Appendix A9.2), criteria for rating site importance of geological features, the importance of the bedrock and soil features at this Site is rated as *low* importance with *medium* quality significance or value on a local scale. There are no extractable minerals or areas of geological heritage.

The Site is currently and previously used for industrial/commercial purposes. Analysis of chemicals of concern, confirmed contamination in the fill/shallow overburden underlying the Site and has been shown to be contaminated to varying degrees. None of the samples exceed Suitable for Use Levels (S4ULs) for commercial land use⁸. WAC analysis confirmed that soil (at location where the inert WAC criteria is exceeded) can be disposed of a non-hazardous land fill.

Based on the NRA/IGI criteria for rating the importance of hydrogeological features (refer to Appendix A9.2), the importance of the hydrogeological features at this site is rated as *Low to Medium Importance*. This is based

⁷ NRA (2009). *Guidelines for Assessment of Ecological Impacts of National Road Schemes*.

⁸ Chartered Institute of Environmental Health (CIEH) (2015).

on the assessment that the attribute has a medium quality significance or value on a local scale. The aquifer beneath the Site is a *locally important* (LI) bedrock aquifer, *Bedrock which is Generally Moderately productive*. It is not used for public water supply or widely used for potable use and is well protected (low vulnerability).

The potential impacts of construction and mitigation measures proposed have been identified. The mitigation measures incorporated in the project design address potential impacts which include:

- Soil Removal & Compaction.
- Fuel and chemical handling, transport and storage.

Construction works will require the removal of soils/stones excavations are to a maximum depth of 2.9m bgl due to the installation of a basement level. The aquifer vulnerability is classified as 'Low' throughout the Site area based on-site investigations with circa 30m of overburden recorded. As it is not proposed to significantly alter the total hardstand at the site and due to the thickness of the overburden the underlying hydrogeological environment will have significant protection from surface infiltration during construction. Temporary storage of soil will be carefully managed to prevent any potential negative impact on the receiving environment. This material will be stored away from the surface water drainage network. Movement of material will be minimised in order to reduce degradation of soil structure and generation of dust.

All excavated material will be removed off-site. It will be visually assessed for signs of possible contamination such as staining or strong odours. As it has already been determined that the soil material underlying the Site is contaminated, this will be segregated, classified and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

During the Construction Phase of the proposed Project, there is a risk of accidental pollution incidences from the following sources:

- spillage or leakage of temporary oils and fuels stored on-site;
- spillage or leakage of oils and fuels from construction machinery or site vehicles;
- spillage of oil or fuel from refuelling machinery on-site; and
- run-off from concrete and cement works.

There will be no direct discharges to the ground or abstractions from the aquifer during the operation of the proposed Project. The potential impacts of the development operation in relation to land soils and environment have been assessed under the following headings:

- Accidental Emissions.
- Reduction in Local Recharge to Groundwater.

Construction works will require the removal of soils/stones. The aquifer vulnerability is classified as 'Low' throughout the site area based on-site investigations. Removal of soil cover will increase the vulnerability of the underlying bedrock during construction however, due to the thickness of the overburden and the fact that a large proportion of the Site will be capped/paved this will provide protection from surface infiltration during operation.

There is evidence of contamination onsite all such material will be removed and disposed of by a licenced waste contractor. Additionally, all excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours. In the event that any unusual staining or odour is noticed, samples of this soil will be analysed for the presence of possible contaminants in order to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated, classified and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

To minimise any impact on the underlying subsurface strata from material spillages it is proposed that all fuels, oils, solvents and paints used during construction will be stored within temporary bunded areas or will be contained in double skinned tanks in designated areas of the Site away from surface water drains.

Re-fuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place off-site or in a designated area that will be away from any existing surface water drains. The area will be determined by the contractor prior to commencement on site but is likely to be carried out in a designated area of the contractor's compound. In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as *Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, (C532)*⁹ will be complied with.

There will be no bulk storage of fuel required for the operation of the proposed Project. The majority of the site will be covered in hardstanding. The impermeable surface will minimise the potential influx of any contaminants into soils and underlying groundwater.

Any accidental leaks from cars within the car parking/road areas will be directed through the surface drainage system via an appropriately sized interceptor.

The attenuation system will ensure that the discharge rate is maintained at greenfield runoff rate. The attenuation facility will accommodate rainfall events up to, and including, the 1-in-100-year storm event. The foul water system discharges to the public sewer and subsequently to the Ringsend WWTP to the south of the

⁹ CIRIA (2001).

Site. Due to the close proximity of the WWTP, there is a very low risk of contamination to ground from leakage from the foul drainage system.

Following implementation of mitigation measures detailed in Chapter 9 (Hydrology) of the EIAR (Volume 2), the predicted impact during the Construction Phase of the proposed Project will be *short-term, imperceptible* and *neutral*.

Following implementation of the mitigation measures, the predicted impact on land, soils and geology once the development is constructed and operational (in accordance with EPA Draft Guidelines¹⁰) is considered to be *long-term, imperceptible* with a *neutral* effect on quality. There will be no emissions to ground or the underlying aquifer from operational activities.

¹⁰ EPA (2017). *Draft Guidelines on the Information to be Contained in EIARs*.

10 Hydrology - Surface Water

AWN Consulting Limited carried out an assessment of the likely potential impacts on the surrounding water & hydrological environment during the Construction and Operational Phases of the proposed Project. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

In assessing likely potential and predicted impacts, account is taken of both the importance of the attributes and the predicted scale and duration of the likely impacts.

The River Liffey located c. 360m to the south of the Site of the proposed Project, with the Tolka estuary 1km to the north. The River Liffey and River Tolka drain a large catchment of Dublin City and are located in hydrometric area No.9 (HA_09)¹¹. There is no surface water course recorded at or bordering the Site of the proposed Project and it is not directly hydraulically linked to the estuarine waters to the north and south. The Site is currently serviced by an existing combined sewer on Sheriff Street Upper which runs from west to east. The design foul flow has been calculated by Project Engineers DBFL as 11.27l/s. All foul effluent will be treated at Ringsend WWTP which operates under licence from the EPA (Licence No. D0034-01). Irish Water have confirmed by return of letter, subject to a valid connection agreement, that the proposed Project connection to the Irish Water wastewater network can be facilitated.

The Tolka and Liffey Estuaries (transitional/estuarine waterbodies) are identified as being “At Risk” of not meeting their WFD objectives (current assessment). The Tolka Estuary was categorised as having a “Moderate” status, while the Liffey Estuary has a “Good” status during the 2013-2018 WFD assessment phase,

There are no hydrological features at the proposed site or any in direct hydrological linkage. Based on the NRA methodology (refer to Appendix A10.1), for the criteria for rating the importance of hydrological features, the features at this Site are rated as Low Importance.

A Site Specific Flood Risk Assessment (SSFRA) has been prepared by DBFL Consulting Engineers in accordance with the DEHLG/OPW *Guidelines on the Planning Process and Flood Risk Management*¹². The SSFRA is provided as part of the planning application and supporting information is included in the *DBFL Infrastructure Design Report*. The assessment identifies the existing flood and sets out mitigation measures to ensure there is no likely flooding of the proposed Project or surrounding lands as a result of the proposed Project. It is deemed appropriate for the Site to be located within Flood Zone A.

¹¹ EPA (2020).

¹² DEHLG and the OPW (2009). *The Planning System and Flood Risk Management, Guidelines for Planning Authorities*.

The proposed type of development for this Site is to be a mixed-use residential development with retail space, office space, a standalone childcare facility and amenities. The retail space, office space, childcare facility and amenities are categorised by the Guidelines as *less vulnerable* development and appropriate to be located within Flood Zone A if the requirements of the Justification Test are met. Apartment units are habitable and are categorised as *highly vulnerable* development and must be located above Flood Zone A.

The proposed Project passes the Justification Test in accordance with the Guidelines and the proposed Project is deemed appropriate to be located within Flood Zone A on the basis that the mitigation measures stipulated within justification are met.

The Site of the proposed Project is within Flood Zone A for tidal flooding according to the Irish Coastal Protection Strategy Study (ICPSS), however, the Site is located in an area that benefits from flood defence measures, therefore the SSFRA has assessed the residual risks associated with breach of these defences. As part of the mitigation measures to reduce the associated Flood risk for site users was by ensuring all 'highly vulnerable' finished floor levels are located above the 0.1% AEP flood level, in addition to a climate change allowance and a conservative freeboard, giving a minimum FFL for this type of development of 4.08m. As part of the proposals all highly vulnerable development (apartment units) will be located at a minimum of 4.10mAOD.

A possible source of flood risk from the surcharging or blockage of the development's drainage system has been identified. This risk is mitigated by suitable design of the drainage network¹³, regular maintenance and inspection of the network and establishment of exceedance overland flow routes. The development's drainage design includes for a 20% climate change allowance. The proposed Project will not increase run-off rate when compared with the existing site and satisfies the requirement of the SFRA to reduce flooding and improve water quality.

The potential impacts of construction and mitigation measures proposed have been identified. The mitigation measures incorporated in the project design address potential impacts which include:

- Increased Runoff and Sediment Loading
- Contamination of Surface Water Drainage.

During the Construction Phase any outflows carrying a high sediment load will be diverted through settlement ponds/tanks. The settlement ponds/tanks will be located between the area of construction and the surface water drain. Surface water run-off will not be discharged directly to local watercourses. The following mitigation measures will be adopted:

¹³ DBFL Consulting Engineers (2020). *Infrastructure Design Report*.

- silt reduction measures including sit traps and settlement tanks will be employed during construction;
- any excavations required will remain open for as little time as possible before the placement of fill. This will help to minimise potential for groundwater ingress into excavations;
- weather conditions will be considered when planning construction activities to minimise risk of run off from the Site;
- distance between topsoil piles etc. and surface water drains will be maintained - to protect from dampening operations; and
- The generation of run-off from stockpiles of soils, excavated during construction, will be prevented from entering surface water drains by diverting run-off to the settlement ponds/tanks on-site, and removing the material off-site as soon as possible to designated storage areas/licenced disposal facility.

To minimise any impact on minor drainage channels onsite from material spillages, all oils, solvents, paints and fuels used during construction will be stored within temporary bunded areas and each of these areas will be bunded to a volume of 110% of the capacity of the largest tank/container within it (plus an allowance of 30mm for rainwater ingress). Drainage from the bunded area(s) will be diverted for collection and safe disposal. There is no notable surface water course on-site. The drainage ditch to the south is to be culverted as part of the initial construction works.

Wet concrete operations adjacent to watercourses will be avoided where possible. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated stormwater to groundwater.

The contractor will be required to make provision for removal of any concrete wash waters, most likely by means of tankering off-site and no such wash waters will be discharged to groundwater. Any effluent generated by temporary on-site sanitary facilities will be taken off-site for appropriate treatment.

Re-fuelling of construction equipment and the addition of hydraulic oil or lubricants to vehicles/equipment will take place in designated bunded areas where possible. Re-fuelling will be avoided in so far as possible at the other work sites but where necessary will take place on hardstand areas and fuel stored in bunded areas.

If it is not possible to bring a machine to the refuelling point, fuel will be delivered in a double skinned mobile fuel bowser. A drip tray will be used beneath the fill point during refuelling operations in order to contain any spillages that may occur. The vehicles and equipment will not be left unattended during refuelling. Spill kits and hydrocarbon absorbent packs will be stored in the cab of each vehicle and operators will be fully trained in the use of this equipment.

The implementation of mitigation measures detailed in Chapter 8 of the EIAR (Volume 2) will ensure that the potential impacts on the surface water environment do not occur during the Construction Phase and that the residual impact will be *short-term, imperceptible* and *neutral*.

Potential impact of the proposed Project during the Operational Phase include:

- increased surface water run-off;
- contamination of surface water;
- foul water; and
- water supply.

The proposed drainage system for the Site¹⁴ and has been designed in accordance with Greater Dublin Strategic Design System (GDSDS) specifications. The drainage system will employ a number of attenuation methods. The surface water strategy includes one attenuation tank to provide the required volume to ensure the development does not flood in the 1 in 100-year storm event (accounting for a 20% increase with climate change).

The proposed Project provides treatment of collected run-off by providing a SuDS treatment train approach resulting in a low risk of pollutants entering offsite drainage.

Due to a variety of measures such as the design of the attenuation system with hydrocarbon interception and the design of the wider drainage system (see *Infrastructures Design Report*) in line with SuDS the likelihood of any spills entering the water environment is *negligible*. All incidental drainage from the car park is discharged separately via a Class 1 oil separator to the combined sewer.

The water main layout and details including valves, hydrants, metering etc. will be in accordance with Irish Water's Code of Practice and Standard Details for water infrastructure.

Following the implementation of mitigation measures detailed in Section 10.5 of the EIAR (Volume 2), the predicted impact on the surface water environment during Construction Phase (in accordance with *EPA Draft Guidelines*¹⁵) is considered to be likely, *neutral, imperceptible* and *short-term* and *neutral, imperceptible* and *long-term* during the Operational Phase.

¹⁴ DBFL Consulting Engineers (2020). *Infrastructure Design Report*.

¹⁵ EPA (2017). *Draft Guidelines on the Information to be Contained in EIARs*.

11 Air Quality and Climate

AWN Consulting Limited have undertaken an assessment of the potential impacts, if any, to air quality and climate during the Construction and Operational Phases of the proposed Project. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

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 GHG emissions of 60.93 Mt CO₂eq in 2018. This 5.59 Mt CO₂eq higher than Ireland's annual target for emissions in 2018. 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 Project 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 A11.2 (in Volume 3 of the EIAR) 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 Project 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 Project is likely to be *short-term*, localised, *neutral* and *imperceptible* with respect to human health.

Potential impacts to air quality and climate during the Operational Phase of the proposed Project 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 Project. 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 Project is localised, *negative*, *imperceptible* and *long-term*.

As the National and EU standards for air quality are based on the protection of human health, and concentrations of pollutants for both the Construction and Operational Phases of the proposed Project are

predicted to be significantly below these standards, the impact to human health is predicted to be *imperceptible* and *imperceptible* in the *short* and *long-term*.

No significant impacts to either air quality or climate are predicted during the Construction and Operational Phases of the proposed Project.

12 Noise and Vibration

AWN Consulting Limited carried out an assessment of the likely noise and vibration impacts during the Construction and Operational Phases of the proposed Project. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

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

The noise impact assessment has focused on the potential outward impacts associated with the Construction and Operational Phases of the proposed Project on its surrounding environment.

During the main Construction Phase involving Site clearance, demolition and building construction works, the assessment has determined that the construction noise criteria can be complied with at the nearest sensitive properties. There is potential for elevated levels of noise at some adjacent properties during demolition works of buildings within the Site. A schedule of noise mitigation measures including, noise limits and screening will all be employed to ensure any noise and vibration impacts during this phase will not exceed the recommended limit values.

During the Operational Phase, the outward noise impact to the surrounding environment will include any additional traffic on surrounding roads and plant noise from the residential and commercial buildings as part of the proposed Project. The impact assessment has concluded that additional traffic from the proposed Project will have an insignificant impact on the surrounding noise environment and that plant items will be designed to ensure any noise and vibration impacts during the Operational Phase will not exceed the recommended limit values. The resulting impact is of *neutral, long-term* and *not significant*.

The impact of noise on the proposed Project itself has been assessed. Traffic noise along the surrounding roads is the primary noise source making up the noise levels across the Site of the proposed Project. Mitigation measures have been recommended to facades overlooking the local road network so that appropriate internal noise levels are achieved.

13 Landscape and Visual

Brady Shipman Martin has undertaken an appraisal assessment of the likely effects on the landscape and visual environment arising from the proposed Project. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

A series of Photomontages were prepared from representative locations in the wider City, North Docklands and local context to illustrate the physical and visual character of the proposed Project (refer to the accompanying Photomontage Booklet).

Baseline Environment

The Site is located on the northern side of Sheriff Street Upper, and is currently in use as a light industrial and business park, comprising a range of mostly one and two storey industrial buildings set within an extensive concrete yard. There is a single access gateway leading from Sheriff Street Upper, and the Site is secured by boundaries comprising a mix of building and wall, or brick, plastered and dashed masonry, stone and metal panelling. The Site is inward looking, and any windows have been either blocked or boarded up. The Site is part of the traditional north Docklands area of the City, and is bound along its northern side by the railway lines and yards leading to Dublin Port.

The North Lotts lies to the south of Sheriff Street Upper, and extends southwards to the North Wall Quay at the River Liffey. In recent years, much of the North Lotts area was redeveloped, and the remaining sites are currently in the process of redevelopment. A new mixed-use urban quarter has established in this former docklands area, incorporating a range of residential, commercial, amenity and leisure uses access via a network of revitalised streetscapes.

East Wall is located north of the railway lines, and is a traditional residential area with strong associations with Dublin Port and City centre. The earlier houses, typically one and two storey, were located in proximity to the larger scale industrial facilities in the North Docks and along North Wall Quay. The area was also characterised by the network of railway lines, many elevated that brought both passenger and freight trains to Amiens Street and North Wall Stations, and to the Goods Stations along North Wall Quay and into the North Docks. The northern and eastern parts of East Wall have also seen extensive regeneration in recent years, with taller and higher density residential and commercial buildings taking the place of former industrial buildings and yards.

Castleforbes Business Park lies between the North Lotts and East Wall areas, however, by virtue of being on the north Lotts side of the railway line, and also fronting onto Sheriff Street Upper, it is a natural extension of the North Lotts area. The new development of the North Lotts contrasts sharply with the now underutilised light industrial and business park that lies between Sheriff Street Upper and the railway.

The Site area is guided by the policies and objectives as set out in of the *Dublin City Development Plan 2016-2022*, and is also located within the *SDRA 6 Docklands (SDZ and Wider Docklands Area)*. The land use zoning objective seeks the social, economic and physical development and/or rejuvenation of the area with mixed-use, of which residential and enterprise and employment would be the predominant uses. The introduction of the *Urban Building Height Guidelines* establish the principle for the re-examination of height limits on a site specific contextual basis, and these also inform the development height strategy at Castleforbes Business Park.

Characteristics of the Proposed Project

The proposed Project is a comprehensive redevelopment of the existing Site that will transform the currently underutilised and light industrial site to become both an extension of the new urban quarter of the North Lotts, and a connection between the North Lotts and the established and evolving East Wall area north of the railway.

The development will incorporate a mixed-use residential development, with 9 no. blocks ranging in height from 1 to 18 storeys, and arranged around a series of ground and podium level public and communal open spaces. The design strategy for the development alternates building elements and open spaces from east to west so as to maximise daylight and sunlight penetration into the Site. The development has extensive street frontage onto Sheriff Street Upper, with building heights alternating between 9 and 7 storeys adjoining the built elements and open spaces deeper within the site. Along the northern Site boundary with the railway, buildings rise to 12 no. storeys towards East Road, and then up to 18 no. storeys before stepping down to 15 no. and 13 no. storeys.

The public and communal open spaces between the building blocks will be for pedestrian use, and will provide high quality landscaped spaces to ensure a vibrant and attractive new neighbourhood environment. The development includes comprehensive public realm proposals along the street frontages, with high quality paving, hard and soft landscaping reinvigorating the streets, and will also include new pedestrian links through the development from Sheriff Street Upper to East Road.

Predicted Impacts of the Proposed Project

During the Construction Phase, the proposed Project will give rise to both landscape and visual effects at the scale of the wider City, the Docklands, and the local context. These will arise from site clearance, excavation and ground works, structural and general construction works. Construction will include construction traffic, erection and operation of tower cranes, movement of machinery and personnel, and the gradual emergence of the various elements of the project. Landscape and visual effects will generally be more *slight* and *neutral* at the wider city scale, and increasing to *moderate* and *significant* closer to the Site. Construction effects however will be *temporary or short term* by their nature.

Once completed and occupied, the proposed Project will represent a comprehensive regeneration and transformation of the currently underutilised light industrial lands to a high quality mixed use residential development that is a part of the new urban quarter of the City. The form and massing of the project is such that the tallest blocks will be located along the railway line to the north, and subsequent blocks stepping down to the south to form the new streetscape of Sheriff Street Upper and East Road.

At the wider city scale, the form and massing of the proposed Project is such that there will be locations from where the taller elements will present a new landmark on the City and Docklands skyline. Landscape and visual effects will be *positive* as the new skyline element will aid urban legibility and not detract from the existing skyline. The proposed Project will not be visible from within the Georgian Core of Dublin City.

At the closer Docklands scale, the proposed Project will extend the emerging urban quarter and regeneration activity of the North Lotts across Sheriff Street Upper. The currently underutilised lands between the street and railway will be transformed, creating a high quality and high density mixed use residential development that is a distinctive part of the continually evolving docklands regeneration, and providing a connection between the North Lotts and East Wall areas. Extensive transformation will give rise to significant landscape and visual effects, however, these will typically be *positive* as the development will regenerate underutilised lands to bring new use, life and identity to the area in high quality and contemporary manner.

At the local scale, from the established traditional low rise residential areas, the new taller buildings will be readily visible beyond the immediate streetscapes and on the skyline. The proximity and relationship of these neighbourhood streetscapes to the modern City and Docklands is already evident in the larger modern high density residential and commercial developments that are clearly visible just beyond the immediate streetscapes and on the skyline. Landscape and visual effects will range from slight to *significant*, and are likely to be perceived initially as *negative* by virtue of the magnitude of change, however these will become more acceptable over time as the buildings are completed and occupied, and the new development and its occupants become a part of the East Wall and north Docklands identity.

14 Cultural Heritage, Archaeology and Architectural

Courtney Deery Heritage Consultancy Ltd. have undertaken an assessment of the potential impacts, if any, to the cultural and heritage, archaeological and architectural environment during the Construction and Operational Phases of the proposed Project. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

The Site of the proposed Project is a brownfield site located at the heart of the industrial docklands. This is an area which was, and remains, predominantly industrial in nature. The 19th century housing to the west of East Road was built for those who worked in the area and is inherently linked with its industrial heritage. The Docklands area was developed following a land reclamation scheme initiated in the late 17th century, with the construction of warehouses and stores beginning in earnest following the building of the Custom House a century later. Until the large-scale reclamation projects of the 17th and 18th centuries, this area formed part of the slob lands of the broad River Liffey estuary.

Cartographic analysis shows that by the mid-19th century, when much of the area was still relatively undeveloped, there was a large residence named Castle Forbes located within the Site of the proposed Project. The house survived until its demolition in the early 20th century, although the grounds were gradually given over to industrial use over the course of the 19th century. During the late 19th century and into the mid-20th century the site was in use as a timber yard, bottle works and soap works (as evident from the historic OS mapping), with several large buildings (stores, sheds and workshops) occupying much of the site and a railway access line running across its north-eastern boundary.

The continuing evolution of the Site can be traced on aerial imagery. By the late 20th century, the buildings shown on the historic maps had been removed within the Site of the proposed Project and replaced by modern stores, warehouses and cabins (OSi aerial imagery 1995 & 2000), with little or no change to the Site subsequently.

14.1 Archaeological Heritage

There are no RMP/SMR sites recorded within the Site of the proposed Project or in its vicinity. Only one RMP site is recorded within a c. 500m radius, the quay at North Wall Quay, c. 335m south. The Site of the proposed Project is also located well outside of the zone of archaeological potential (ZAP) for Historic Dublin (c. 325m north and over 1km east of the ZAP boundary).

There have been no previous archaeological investigations within the Site of the proposed Project. Three nearby investigations uncovered foundation remains of 19th century buildings and post-medieval reclamation deposits. Investigations in the surrounding area (within c. 500m) have, for the most part, found no significant

archaeological material. The results indicate that the archaeological potential of this area is represented by a sequence of 17th century reclamation deposits (containing dumped post-medieval material of varying depths) sealed by vestigial remains of 18th - 19th century applotment and structural remains.

Of note are the excavations at Spencer Dock, which identified Late Mesolithic fish traps and a late Neolithic wattle fence preserved in the riverine silts beneath the later reclamation deposits (c. 400m south-west of the Site of the proposed Project, at an average depth of -5mOD). Further waterlogged wooden remains of possible prehistoric date were identified on a neighbouring site during archaeological monitoring of bulk excavations (c. 105m southwest of the Site of the proposed Project; found at levels of between -1.39m and -1.43mOD).

It is likely that the foundations of the 19th and earlier 20th century buildings that once occupied the site survive below ground; these were mostly industrial buildings (warehouses, sheds etc.). The foundation remains of the late 18th/early 19th century Castle Forbes would be of particular interest, however, as one of the earliest residential buildings in the North Lots. As these foundations were built on top of the earlier reclamation deposits, they could be present at relatively shallow depths below present ground level. If any such remains survive, they would require full recording prior to removal.

Archaeological monitoring of ground disturbance works (including of any bulk excavations required for the half-basement), would ensure the full recognition of, and – if necessary – the proper excavating and recording of all archaeological features, finds or deposits which may lie undisturbed beneath the ground surface.

14.2 Architectural Heritage

There are no architectural heritage sites (RPS or NIAH) in proximity to the Site of the proposed Project. The closest is a two-storey Victorian House, which is located over 300m to the south on Mayor Street (NIAH Ref. 50010096), and will not be affected by the proposed Project.

14.3 Cultural and Industrial Heritage

Two undesignated sites of industrial heritage interest are located in the environs of the Site of the proposed Project (listed in the Dublin City Industrial Heritage Record): an early 20th century pumping station (just outside the Site of the proposed Project to the north-west, DCIHR Ref. 18-08-086) and the late 19th century bridge carrying East Road across the railway line (DCIHR Ref. 18-08-047) c. 30m to the north. Neither site will be negatively affected and it is considered that the development of an otherwise unattractive urban plot would have a positive impact on the environs of the sites.

No sites of cultural heritage interest are located within or in the vicinity of the Site of the proposed Project.

15 Microclimate - Daylight/Sunlight

ARC Architectural Consultants Ltd. have undertaken an assessment of the likely potential **daylight** and **sunlight** impacts associated with the microclimate of the proposed Project. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

15.1 Daylight

The analysis of the impact of the proposed Project considered the daylight access on the surrounding area. The Site which forms part of the Castleforbes Business Park, accommodates one to three storey structures, which is inconsistent with the high density built environment that would normally be expected in the urban core of a city. Given this, it is to be expected that the construction of any new development on these lands has the potential to result in a considerable change to the daylight environment within existing buildings, particularly given the extent of development envisaged for lands to the south under the *North Lotts and Grand Canal Dock SDZ Planning Scheme*.

A three dimensional digital model of the proposed Project, of development permitted on nearby sites, and of existing buildings in the area was constructed by ARC Consultants based on drawings and three dimensional models supplied by the Design Team; and with reference to Dublin City Council's online planning register; and to on-site, satellite and aerial photography. ARC analysed the three digital models of the proposed Project, of the permitted developments and of the existing buildings surrounding the Site of the proposed Project using proprietary sunlight and daylight analysis software in order to quantify the likely impact of the proposed Project on daylight access within chosen sample rooms in buildings in close proximity to the Site.

ARC's analysis indicated that the effect of the proposed Project on daylight access within existing buildings is likely to be most significant in the case of existing buildings with windows directly opposing the Site at close proximity to proposed new structures.

The impact of the proposed Project on daylight access to existing buildings (and, indeed, envisaged buildings on lands yet to be developed) to the south on Sheriff Street Upper in proximity to the Site is predicted to range from "*slight*" to "*significant*", with a potential for some "*moderate*" to "*very significant*" impacts to occur in the case of a limited number of recessed windows at Northbank Apartments. However, having regard to the pattern of development in the area and to statutory planning policy for densification for the urban area, while, under a worst-case scenario, the potential impact to lands to the south may be considered to be "*significant*" to "*very significant*", the impact of the proposed Project on existing buildings in proximity to the Site may be considered to be consistent with an emerging pattern of medium to high density development in the area and, therefore, "*moderate*" in extent.

There is also a potential for the proposed Project to result in *“imperceptible”* to *“slight”* impacts on daylight access within existing buildings at East Road, Church Street East, Irvine Court and Irvine Terrace. Potential impacts on daylight access within more distant existing buildings, such as houses to the north-west at Church Road or to the north/north-east at Merchant’s Square are likely to range from none to *“imperceptible”*.

The potential cumulative impact of the proposed Project, in-combination with nearby permitted developments, on daylight access to existing buildings (and, indeed, envisaged buildings on lands yet to be developed) to the south of the Site at Sheriff Street Upper in proximity to the Site is predicted to range from *“slight”* to *“significant”*, with a potential for some *“moderate”* to *“very significant”* impacts to occur in the case of a limited number of recessed windows at Northbank Apartments. To the west, the potential cumulative impact of the proposed Project on daylight access in existing buildings at East Road, Church Street East, Irvine Court and Irvine Terrace is likely to range *“imperceptible”* to *“moderate”* to *“significant”*. However, having regard to the pattern of development in the area and to statutory planning policy for densification for the urban area, while, under a worst-case scenario, the predicted cumulative impact on existing buildings lands to the south and west may be considered to be *“significant”* to *“very significant”*, the impact of the proposed Project on existing buildings in proximity to the Site may be considered to be consistent with an emerging pattern of medium to high density development in the area and, therefore, *“moderate”* in extent.

Potential cumulative impacts on daylight access within more distant existing buildings, such as houses to the north-west at Church Road or to the north/north-east at Merchant’s Square are likely to range from none to *“imperceptible”* to *“moderate”*.

Given that the potential for development to result in impacts on daylight access diminishes with distance, it is the finding of ARC’s analysis the proposed Project will have no undue adverse impact on daylight access within buildings in the wider area surrounding the Site of the proposed Project.

15.2 Sunlight

The analysis of the impact of the proposed Project considered the sunlight access on the surrounding area.

The Site which forms part which forms part of the Castleforbes Business Park, accommodates one to three storey structures, which is inconsistent with the high density built environment that would normally be expected in the urban core of a city. The shadow environment of the existing site and of its immediate surroundings is, therefore, inconsistent with what would normally be expected in the urban core of a city. Given this, it is inevitable that the construction of new development on vacant or underutilised will result in a change to the existing shadow environment.

A three dimensional digital model of the proposed Project, of nearby permitted development and of existing buildings in the area was constructed by ARC Consultants based on drawings and three dimensional models

supplied by the Design Team. Where survey data of surrounding context was not available, assumptions were made, with reference to on-site, satellite and aerial photography and to the online planning register, where relevant, in the creation of the three dimensional model. Using the digital model, shadows were cast by ARC at several times of the day at the equinox and presented on shadow study diagrams submitted with this Environmental Impact Assessment Report. ARC analysed the three digital models of the proposed Project, of the permitted developments and of the existing buildings surrounding the Site using proprietary sunlight analysis software in order to quantify the likely impact of the proposed Project on windows with a reasonable expectation of sunlight within chosen sample rooms in buildings and on existing amenity in close proximity to the Site.

Shadows cast by the proposed Project are likely to extend to the west to East Road and beyond to Church Street East, Irvine Court, Irvine Terrace and Church Road during the mornings throughout the year. The potential impact of the proposed Project on these lands to the west is assessed as ranging from “*imperceptible*” to “*moderate*”, being impacts consistent with emerging trends for development in the area.

To the north, shadows cast by the proposed Project have the potential to extend across the railway and to result in “*imperceptible*” to “*moderate*” impacts on lands at Nos. 1-4 East Road during the afternoons and the existing residential estate at Merchant’s Square to the northeast during the late evenings.

The potential impact of the proposed Project on sunlight access to lands to the northeast is likely to range from “*imperceptible*” to “*significant*”, although it is noted that these lands are in railway use serving Dublin Port.

North-facing rooms in existing buildings to the south, such as those at Castleforbes Square and the Northbank Apartments, receive little sunlight at present and would not have a reasonable expectation within the meaning of the BRE Guide (*i.e.* do not face within 90° of due south). This will also be the case for any windows facing on to Sheriff Street Upper in whatever development is constructed on the balance of the City Block 3 lands. However, it should be noted that shadows cast by the proposed Project have the potential to result in “*imperceptible*” to “*significant*” changes in sunlight access to these windows during the early mornings and the late evenings of the summer months (*e.g.* May, June and July). While, under a worst case scenario, the potential impact to lands to the west may be considered to be “*significant*”, having regard to the scale of development permitted or constructed in the wider area and to local, regional and national planning policy for densification of the urban area, some may consider the impact to be consistent with emerging trends for development in the area or “*moderate*” in extent, particularly having regard to the scale of development already permitted outside the Strategic Development Zone area.

The potential cumulative impact of the proposed Project, in-combination with nearby permitted developments, on sunlight access to lands in proximity to the Site at Sheriff Street Upper, East Road, Church

Street East, Irvine Court and Irvine Terrace is likely to range from “*imperceptible*” to “*significant*”. While, under a worst case scenario, the potential cumulative impacts on these lands may be considered to be “*significant*”, having regard to the scale of development permitted or constructed in the wider area and to local, regional and national planning policy for densification of the urban area, some may consider the impact to be consistent with emerging trends for development in the area or “*moderate*” in extent, particularly having regard to the scale of development already permitted outside the Strategic Development Zone area (e.g. at Canon Hall and at No. 1-4 East Road).

Potential cumulative impacts on sunlight access to more distant lands to the north, such as houses to the northwest at Church Road or to the north/north-east at Merchant’s Square are likely to range from none to “*imperceptible*” to “*moderate*”.

The potential cumulative impact of the proposed Project, in-combination with nearby permitted development, on sunlight access to lands bounding the site to the northeast is likely to range from “*imperceptible*” to “*significant*”, although it is noted that these lands are in railway use serving Dublin Port.

16 Microclimate - Wind

ARUP have undertaken an appraisal of the likely impact of the proposed Project on the wind conditions affecting pedestrian activities in areas within and surrounding the development was undertaken. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

The presence of taller buildings among lower buildings provides the potential for windiness in surrounding areas. The windiness depends on both the massing of the buildings within their surroundings, their orientation with respect to the wind, and the local climate.

The criteria used to describe windiness in this study are those of T.V. Lawson of Bristol University which describe acceptability for particular activities in terms of '*comfort*' and '*distress*' (or *safety*). The onset of discomfort depends on the activity of the individual; '*sitting*', '*standing*', '*strolling*' or '*business walking*'. There is also a distress criterion for '*General Public Access*', equivalent to a mean speed of 15m/s and a gust speed of 28m/s (62mph) to be exceeded less often than once a year. Less able individuals or cyclists may find this wind physically difficult. There is a distress criterion beyond which even '*Able-bodied*' individuals may find themselves in difficulties at times. This corresponds to a mean speed of 20m/s and a gust speed of 37m/s (83mph) to be exceeded less often than once a year. This wind makes it difficult for anyone to remain standing.

Met Éireann's meteorological station at Dublin Airport is the closest meteorological station to Dublin and to the Site. The expected statistics for wind strength and direction are based on historic wind data recorded over a 30-year period, between 1988 and 2018, at this weather station. The most common and strongest winds in Dublin come from the south-west and west. These are relatively warm and often bring rain. The winds from the east are not as common as the westerlies, however, they are relatively cold, which can make them as annoying as the stronger westerlies.

The existing Site is located to the east of East Road, immediately north of the railway yard in the North Docks area of Dublin City. Given the location of the Site, the most common winds are from the south-west and west. It is also likely that stiff easterly winds can occur due to the proximity of the Site to Dublin bay.

In general, the proposed Project is likely to provide a comfortable and an attractive environment for pedestrians and occupants for the majority of wind conditions. However, it is anticipated that there will be areas within the proposed Project where high-speed winds will occur. Higher speed winds are likely to occur at the following locations:

- Thoroughfare in the vicinity of the south-eastern corner of Block A2 may be windy at times due to easterly winds funnelling down Sheriff Street.
- The northern end of the eastern podium is subjected to general windiness due strong easterly wind directions.
- Due to their elevation, the roof terraces are more exposed to the wind and are expected to be windy as a consequence.
- High level and corner balconies may experience more windiness.

Otherwise, the level of windiness experienced will be typical of residential housing developments in Dublin. In general, it is anticipated that the wind speeds will be suitable in most areas for *'sitting'* and *'standing'* activities.

Design stage mitigation measures which have been incorporated into the scheme in order to improve the wind conditions at the Site of the proposed Project include the following:

- A 2.4m height glass winter garden balustrade along the northeast side of the eastern podium.
- The provision of trees and other landscaping features along main thoroughfares, podiums and terraces would be helpful to disrupt the wind and provide some localised shelter for pedestrians.

A study of the proposed Project was carried out to help assess the windiness in and around the development in terms of suitability for pedestrian activities. The critical wind directions for this development in terms of pedestrian comfort are the East and West due to their frequency and orientation of the proposed Project.

In general, the wind microclimate with the proposed Project is considered suitable for all intended purposes. In certain areas of the development, it is anticipated that the proposed mitigation measures will help alleviate distress where it may be encountered on occasion. Overall, the proposed Project contains many high quality public spaces that pedestrians and occupants undertaking a wide variety of activities will find comfortable and attractive.

17 Traffic and Transportation

DBFL Consulting Engineers addresses all transport and related sustainability issues including means of vehicular access, pedestrian, cyclist and local public transport connections. The principal objective of this chapter is to quantify any level of impact across the local road network and subsequently ascertain the operational performance of the local road network. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

The Site of the proposed Project benefits from excellent public transport accessibility levels including Dublin Bus and Go Ahead operated services which are easily accessible from the Site and Red Line Luas services through The Point Luas Stop (400m) which provides interchange opportunities eastwards towards (i) Heuston Railway Station, (ii) the LUAS Green Line, (iii) Busáras central coach station and (iv) Connolly Railway Station.

The proposed Project include the demolition of the existing on-site Castleforbes Business Park development and its replacement with a residential development across c. 9 no. buildings (8 no. residential and 1 no. childcare facility) comprising 702 no. residential apartments, community, retail uses plus ancillary car/bicycle parking areas at basement level.

Two appropriately located, sized and designed Site access (priority) junctions are being provided to serve the proposed Project on the R101 Sheriff Street Upper. The Site access junctions benefit from an appropriate level of visibility splays ensuring their safe operation. In addition, the proposals include three dedicated pedestrian and cyclist accesses, two accesses will be located on Sheriff Street Upper and one access will be located on East Road.

The proposals include the provision of a total of 179 no. car parking spaces on-site divided between two basement car parks, which is equivalent to a car parking ratio of approximately 0.25 car parking spaces to every residential unit. In addition, a total of 1,392 no. cycle parking spaces are provided for both residents and visitors to the development. The proposals include the provision of 1,010 no. long-term bicycle parking spaces and 30 no. disabled/cargo bicycle parking spaces at basement level and 352 no. short stay visitor spaces at surface level within the Site of the proposed Project. The level of bicycle parking proposed on-site for the apartment units has been provided in the context that the development car parking proposals are below the DCC development plan standards. This reduction is consistent with the 'substantial' reduction that the DHPLG guidelines recommend and at which the high DHPLG bicycle parking requirements would be of greater relevance.

For the purpose of this report, it was assumed that all 702 no. residential units have been built and occupied by 2022. A range of peak hour scenarios were investigated for an opening year of 2022, an interim year of 2027 and a future design year of 2037 including the following six different assessment scenarios:

Do Nothing

- A1 - 2022 Base Traffic Flows
- A2 - 2027 Base Traffic Flows
- A3 - 2037 Base Traffic Flows

Do Something

- B1 - 2022 Do-Nothing (A1) + Proposed Residential Development Flows (702 units).
- B2 - 2027 Do-Nothing (A2) + Proposed Residential Development Flows (702 units).
- B3 - 2037 Do-Nothing (A3) + Proposed Residential Development Flows (702 units).

The potential level of impact that may be generated by the subject proposals has been investigated at the Site access junctions with the R101 Sheriff Street Upper in addition to seven key offsite junctions in the surrounding road network.

At these key offsite junctions it was demonstrated that the proposed Project (702 no. units) would not result in a percentage increase in motorised traffic level above the 10% threshold. Accordingly, only a more detailed evaluation of the operational performance of the Site access junctions was carried out within the EIAR. The R101 Sheriff Street Upper/Castleforbes Road junction was also evaluated despite being under the 10% threshold to provide a robust assessment. The analysis demonstrated that the new Site access junctions will operate well within capacity in the adopted 2037 design year peak hour scenario.

With the objective of mitigating the potential impact of the proposed Project during its Operational Phase, the following initiatives and associated timescale for their implementation have been identified and subsequently form an integral part of the proposed Project.

- Management A number of management measures will be implemented prior to the subject scheme opening which include:
 - A *Mobility Management Plan* (MMP) is to be rolled out with the aim of guiding the delivery and management of coordinated initiatives by the scheme promotor. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the Site of the proposed Project. This MMP will be developed in partnership with DCC to specifically consider the opportunities of shaping all journeys and promoting sustainable transport habits at the proposed Project.

- The accesses to the basement parking areas will be barrier controlled to ensure unpermitted vehicles cannot gain entry. In order to be allocated a dedicated parking space within these parking areas, tenants based at the Site will have to apply to the management company to gain a parking permit and an assigned dedicated parking space.
- Service - The facilitation of a dedicated car share facility (three spaces) will reduce the need to own a private motor car thereby contributing to reducing the overall number of vehicle trips generated by the proposed Project.
- Facilities - The provision of a total of 352 no. short term and 1,010 no. long term, 30 no. disabled/cargo bicycle parking stands (1,392 no. in total).

Accordingly, it is concluded that through the implementation of the proposed mitigation measures and the rollout/uptake of the *Mobility Management Plan* and *Parking Strategy* initiatives, the proposals will not result in a material deterioration of road traffic conditions.

18 Material Assets - Waste

AWN Consulting Limited carried out an assessment of the potential impacts associated with waste management during the Construction and Operational Phases of the proposed Project. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

The receiving environment is largely defined by Dublin County Council as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

During the Construction Phase, typical C&D waste materials will be generated which will be source segregated on-site into appropriate skips/containers, where practical and removed from the Site by suitably permitted waste contractors to authorised waste facilities. Where possible, materials will be reused on-site to minimise raw material consumption. Source segregation of waste materials will improve the re-use opportunities of recyclable materials off-site. Completion of the basement and construction of new foundations and the installation of underground services will require the excavation of approximately 13,100m³ of material, it is anticipated that 2,000m³ of this excavated material will be able to be reused onsite. The remaining balance of excavated materials (11,100m³), which is either unsuitable for use as fill, or not required for use as fill, will be exported offsite. Excavated material which is to be taken offsite will be taken for offsite reuse, recovery, recycling and/or disposal.

A carefully planned approach to waste management and adherence to the Site-specific *Construction and Demolition Waste Management Plan* (Appendix A18.1 in Volume 3 of the EIAR) during the Construction Phase will ensure that the effect on the environment will be *short-term, neutral and imperceptible*.

During the Operational Phase, waste will be generated from the residents as well as the commercial tenants. Dedicated communal waste storage areas have been allocated throughout the development for residents. The residential waste storage areas have been appropriately sized to accommodate the estimated waste arisings in both apartments and shared residential areas. The commercial tenants will to allocate space within their own unit for the storage of waste receptacles. The waste storage areas have been allocated to ensure a convenient and efficient management strategy with source segregation a priority. Waste will be collected from the designated waste collection areas by permitted waste contractors and removed offsite for re-use, recycling, recovery and/or disposal.

An *Operational Waste Management Plan* has been prepared which provides a strategy for segregation (at source), storage and collection of wastes generated within the development during the Operational Phase including dry mixed recyclables, organic waste, mixed non-recyclable waste and glass as well as providing a

strategy for management of waste batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil and furniture (see Appendix A18.2 in Volume 3 of the EIAR). The Plan complies with all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the proposed Project.

Provided the mitigation measures outlined in Chapter 18 of the Main EIAR, Volume 2 are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the Operational Phase on the environment will be *long-term, neutral and imperceptible*.

19 Material Assets - Services

Brady Shipman Martin has considered the physical resources in the environment which may be of human or natural origin. The objective of this 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 Project. The proposed Project is a Strategic Housing Development (SHD) and associated infrastructure located at Sheriff Street Upper and East Road, Dublin 1. The application Site boundary forms part of the Castleforbes Business Park.

In accordance with the *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”.

The potential impacts associated with the proposed Project, if any, are assessed with regards to the following proposed built services:

- wastewater services;
- water supply;
- gas and electricity supply; and
- telecommunications.

This Chapter describes the existing services to the Site and describes the predicted impacts which the proposed Project may have on these services and recommends suitable mitigation measures.

The Construction Phase of the proposed Project will have a *temporary* impact to the local built services, and may cause temporary disruption to these services. This Chapter sets out a series of mitigation measures to reduce or eliminate any significant adverse impacts identified. Section 19.5.1 of the Main EIAR (Volume 2) outlines the Construction Phase mitigation measures. With these mitigation measures implemented, the level of the impact is reduced to *slight* as the services will have been satisfactorily diverted or amended, and will continue to operate in their current form as required.

The Operational Phase of the proposed Project will likely result in an increase in traffic volumes to the local road network. A *Traffic and Transport Assessment* report has been prepared by DBFL Consulting Engineers, which is submitted with this planning application. The design and construction of the site services will be in accordance with relevant codes of practice and guidelines.

The proposed Project will have a *positive* impact on the existing urban environment by creating a high quality mixed-use development which will respond to current housing need and cater to the needs of a growing population.

20 Interactions

This Chapter of the EIAR deals with the potential interactions and inter-relationships between effects predicted as a result of the proposed Project. This is required by Part X of the *Planning and Development Act 2000* and Part 10, and schedules 5, 6 and 7 of the *Planning and Development Regulations 2001*.

All potential inter-relationship impacts between the various areas covered in the EIAR are listed and the key interactions and interrelationships are summarised.

Following an assessment of the EIAR, a matrix was produced to show where interactions between effects on different factors have been addressed. Table 20.1 below provides a matrix summarising potential interactions.

The primary interactions can be summarised as follows:

- Population and Human Health with Hydrology (Surface Water), Air Quality and Climate, Noise and Vibration, Landscape, Daylight/Sunlight, Wind, Traffic, Material Assets (Waste & Services).
- Biodiversity with Hydrology (Surface Water).
- Biodiversity with Landscape.
- Land, Soils, Geology and Hydrogeology with Hydrology (Surface Water).
- Land, Soils, Geology and Hydrogeology with Waste.
- Air Quality and Climate with Traffic.
- Noise and Vibration with Traffic.
- Landscape with Cultural Heritage.
- Daylight/Sunlight with Landscape.
- Traffic with Waste.
- Services with Hydrology (Surface Water) and Air Quality and Climate.

The relevant consultants liaised with each other and the project architects, engineers and landscape architects where necessary to review the proposed Project and incorporate suitable mitigation measures where necessary. Most inter-relationships are *neutral* in impact when the mitigation measures proposed are incorporated into the design, construction or operation of the proposed Project.

Castleforbes Strategic Housing Development (SHD), Sheriff Street Upper, Dublin 1
 Environmental Impact Assessment Report (EIAR) - Volume 1

Table 20.1: Interactions with Environmental Factors

Inter-Relationship Matrix	Population & Human Health	Biodiversity	Land, Soils, Geology & Hydrogeology	Hydrology	Air Quality & Climate	Noise & Vibration	Landscape & Visual	Cultural Heritage	Microclimate - Daylight/Sunlight	Microclimate - Wind	Traffic & Transport	Material Assets - Waste	Material Assets - Services
Population & Human Health	-	-	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
Biodiversity		-	✓	-	-	✓	-	-	-	-	-	-	-
Land, Soils, Geology & Hydrogeology			✓	-	-	-	-	-	-	-	-	✓	-
Hydrology				-	-	-	-	-	-	-	-	-	✓
Air Quality & Climate					-	-	-	-	✓	-	✓	-	✓
Noise & Vibration						-	-	-	-	-	✓	-	-
Landscape & Visual							-	-	✓	-	-	-	-
Cultural Heritage								-	-	-	-	-	-
Microclimate - Daylight/Sunlight									-	-	-	-	-
Microclimate - Wind										-	-	-	-
Traffic & Transport											✓	-	-
Material Assets - Waste												-	-
Material Assets - Services													-

21 Cumulative Impacts

Cumulative impacts consider the potential impacts on the environment as a result of the proposed Project with other developments (*i.e.* committed development) in the locality. ‘Committed developments’ currently have a planning permission but have yet to be constructed/occupied.

Cumulative impacts can be assessed by taking account of the existing environment (baseline) and the predicted impacts associated with the Construction Phase and Operational Phase of the proposed Project in-combination with predicted impacts of any other committed developments in the area.

The Site of the proposed Project is located on Sheriff Street Upper and East Road, Dublin 1. The Site is located immediately to the north of the Docklands Strategic Development Zone (SDZ), with numerous developments completed, permitted and others in progress nearby.

A search in relation to plans and projects that may have the potential to result in cumulative impacts was carried out. In assessing cumulative impacts the following were the main sources:

- Dublin City Council Planning Department;
- Dublin City Development Plan 2016-2022; and
- An Bord Pleanála website.

The search found that the ‘committed developments’ are largely located with the area of the North Lotts and Grand Canal Dock SDZ Planning Scheme to the south of the Site, and specifically the North Lotts, located north of the River Liffey.

Due to the City centre location of the proposed Project and the planning objectives/zoning outlined above for this area, development is continually occurring in the area. However, no major projects have been identified that would result in a significant cumulative impact with the proposed Project

The specialist Chapters of the Main EIAR (Volume 2) address any potential cumulative impacts of the proposed Project with potential proposed developments in the area.

22 Schedule of Environmental Commitments

This Chapter of the EIAR provides the environmental commitments/mitigation measures identified in the specialist chapters of the EIAR. These mitigation measures are considered necessary to protect the environment prior work being carried out at Sheriff Street Upper and East Road, Dublin 1 and during both the Construction and Operational Phases of the proposed Project.

The appointed Contractor will be required to follow and implement these mitigation measures, to ensure the protection of the environment and to ensure sustainable development.

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